

**EXCAVATION OF POST-BUILT ROUNDHOUSES
AND A CIRCULAR DITCHED ENCLOSURE AT
KILTARAGLEN, PORTREE, ISLE OF SKYE,
2006–07**

Ian Suddaby, CFA Archaeology Ltd

Published by the Society of Antiquaries of Scotland, www.socantscot.org.uk
with Historic Scotland, www.historic-scotland.gov.uk
and the Archaeology Data Service, www.archaeologydataservice.ac.uk

Editor Helen Bleck
Produced by Archetype Informatique SARL, www.archetype-it.com

DOI: 10.9750/issn.1773-3808.2013.54

Requests for permission to reproduce material from a *SAIR* report should be sent to the Director of the Society of Antiquaries of Scotland, as well as to the author, illustrator, photographer or other copyright holder.

Copyright in any of the *Scottish Archaeological Internet Reports* series rests with the SAIR Consortium and the individual authors.

The maps are reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationery Office. © Crown copyright 2001. Any unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Historic Scotland Licence No. GD 03032G, 2002.

The consent does not extend to copying for general distribution, advertising or promotional purposes, the creation of new collective works or resale.

CONTENTS

List of illustrations	v
List of tables.	vi
1 Abstract	1
2 Introduction.	2
2.1 The Portree project . . . . .	.2
2.2 Site location, topography and geology . . . . .	.2
2.3 Archaeological background. . . . .	.4
3 Programme of work	7
3.1 Aims. . . . .	.7
3.2 Watching brief . . . . .	.7
3.3 Excavation . . . . .	.7
4 Archaeological results	8
4.1 General . . . . .	.8
4.2 Neolithic pottery . . . . .	.10
4.3 Early Bronze Age pits . . . . .	.10
4.4 Circular enclosure . . . . .	.10
4.5 Roundhouse 1. . . . .	.15
4.6 Roundhouse 2. . . . .	.19
4.7 Miniature souterrains . . . . .	.25
4.8 Pit F116 and curving feature group . . . . .	.28
4.9 Post-setting within the circular ditch to the south-east of enclosure F171 . . . . .	.30
4.10 Post alignments to south of enclosure F171. . . . .	.31
4.11 Other features to the south of the enclosure F171 . . . . .	.32
4.12 Features to the west of the enclosure F171 . . . . .	.34
5 Finds . . . . .	.35
5.1 Prehistoric pottery, by Melanie Johnson . . . . .	.35
5.2 Lithic artefacts, by Torben Bjarke Ballin . . . . .	.40
5.3 Coarse stone, by Adam Jackson . . . . .	.46
5.4 Slag and vitrified material, by Dawn McLaren . . . . .	.47
5.5 Late medieval coin, by Nick McQ. Holmes . . . . .	.48
5.6 Post-medieval finds, by Sue Anderson. . . . .	.48
6 Environmental evidence . . . . .	.49
6.1 Archaeobotanical and charcoal analysis, by Mhairi Hastie. . . . .	.49
6.2 Calcined and cremated bone, by Sue Anderson . . . . .	.52

6.3	Phosphate analysis, by Mike Cressey and Bob McCulloch	53
6.4	Micromorphological thin section analysis, by Claire Ellis	55
6.5	Radiocarbon dating.	57
7	Discussion and conclusions. . . . .	.60
7.1	Introduction.	60
7.2	Mesolithic/Neolithic	60
7.3	Early Bronze Age	61
7.4	Later Bronze Age and early Iron Age	61
7.5	Undated post-alignments and settings	67
7.6	Miniature souterrains	67
7.7	Medieval pit.	68
7.8	Undated features	68
7.9	Conclusion	68
8	Acknowledgements. . . . .	.69
9	References. . . . .	.70
9.1	Bibliographic	71
9.2	Cartographic	74

LIST OF ILLUSTRATIONS

1	Location maps and a topographical plan of the area around Portree showing the monuments mentioned in the text	3
2	Simplified plan of Portree showing the watching brief area within the Kiltaraglen site	4
3	Site plan	5
4	Pre-excavation plan of the circular enclosure showing Slots 1–11, features cut into the upper fills and the location of sections on illus 5	8
5	Sections through (a) ditch F170 and Beaker Pit F168, and the enclosure ditch F171 (b) slot 8 E facing, (c) slot 10 SE facing, and (d) slot 3 NW facing with pits F208 and F211	9
6	Elevated view of the circular enclosure from the south-west	11
7	The enclosure ditch F171 bending to avoid a circular pit (F208) with the slot 10 NW section in the background	11
8	Sections of Slot 2 (top) and Slot 3 (bottom) with the human cremation indicated	12
9	Post-excavation plan of the enclosure (F171) showing F215, F241–2 and the features to the south-east	13
10	F171 and F208, detailed view of the ditch (unexcavated on the right) avoiding the pit (excavated on the left)	14
11	(a) Section of F207; (b) post-excavation plan of F213 and pre-excavation plan of F209/F216; (c) F209/F216 sections	16
12	Plan of Roundhouse 1	17
13	Sections from features in and around Roundhouse 1	18
14	Pre-excavation view of Roundhouse 2 in the background from the south, showing the different fill characteristics. The pebbled surface F55 is in the foreground.	19
15	Roundhouse 2 plan.	20
16	Post-holes F96 (top) and F147 (bottom) showing the in-situ packing stones	21
17	Roundhouse 2, sections of post-holes	21
18	Roundhouse 2, ring-ditch and other sections	22
19	Post-excavation view of souterrains F163 and F181	25
20	Plan of souterrains F163 and F181	26
21	Sections of souterrains F163 and F181	27
22	Post-alignment to the north-west of enclosure F171 and Pit F116	28
23	Pits F116, F131 and F134 sections	29
24	F116 section showing the reddened natural subsoil in the base.	29
25	Elevated view from the east showing the enclosure ditch (F171) on the right with the post-setting (F264–6) bottom right with the post-alignments centre and left	30
26	Post-setting and post-alignment sections.	31
27	Elevated view from the west showing post-alignments to the south of the enclosure	32
28	Pottery	33
29	Lithics	43

LIST OF TABLES

1	Roundhouse 2, characteristics of perimeter post-holes	23
2	Beaker pottery by context	35
3	Pottery from enclosure F171 and associated features	37
4	Pottery from Later Prehistoric structures	38
5	Pottery from miscellaneous and undated features	39
6	Lithic artefact summary	41
7	Lithic artefacts from the enclosure and nearby features including F168	44
8	Lithic artefacts from Roundhouse 1	44
9	Lithic artefacts from Roundhouse 2 and the ring-ditch	45
10	Range of vitrified material present	46
11	Quantity of vitrified material by context	46
12	Contexts with magnetic residues	47
13	Cremation burial quantification.	53
14	Soil phosphate distribution values within five features	54
15	Radiocarbon dates from the sites at Kiltaraglen	58

1 ABSTRACT

This report details the archaeological remains recorded by CFA Archaeology Ltd during a programme of fieldwork at Kiltaraglen, now a residential housing development on a prominent, elevated site at the northern edge of Portree on the Isle of Skye. The fieldwork ran from September 2006 until March 2007. The project resulted in the discovery and excavation of varied archaeological remains including timber roundhouses, a circular ditch-defined enclosure, post-alignments and settings, miniature souterrains, probable standing

stone sockets and an assortment of pits. An assemblage of Beaker pottery was recovered from two pits but the site was generally artefact-poor and reliance was placed on radiocarbon dating that indicates occupation of the site began in the Early Bronze Age and ended in the medieval period, with most activity occurring during the Later Bronze Age. This is of great interest as archaeological remains dating to the Later Bronze Age on the Isle of Skye have previously been notable only by their absence.

2 INTRODUCTION

2.1 *The Portree project*

This report brings together the results of a programme of archaeological field investigations and post-excavation work undertaken by CFA Archaeology Ltd (CFA) at Kiltaraglen, Portree (illus 1 and 2), in advance of construction of a housing development. The project was funded by the Lochalsh and Skye Housing Association (LSHA) and was overseen by Highland Council Archaeology Unit (HCAU).

Proposals for a residential housing development within improved land on the northern edge of Portree (NGR: NG 476 444 centred) led to an evaluation (5%, 11,037m²) of the whole 20ha site in early 2005 (Suddaby 2005). Cellular and rectangular buildings, along with an area of pits discovered within the western portion of the development, were excavated later in 2005 by Headland Archaeology (Masser 2005) and are not included in this report. Archaeological remains to the east were less substantial and HCAU proposed that this area should be subject to a watching brief during topsoil removal prior to construction. In autumn 2006, the watching brief was carried out by CFA and led to the discovery of a series of sites (illus 3) which had, with one exception, escaped detection during the evaluation. The subsequent excavations lasted until spring 2007. A report was produced (Suddaby 2007) and this was followed up with proposals for post-excavation work including radiocarbon dating. The results are summarised in this report with the full site records being held in the archive.

2.2 *Site location, topography and geology*

Formerly part of Home Farm, Kiltaraglen is the Gaelic name for an area between the rivers Leasgeary and Chracaig which is now on the northern outskirts of Portree, Isle of Skye (illus 2). The place name would appear (N MacLeod pers comm) to derive from *Cille* (Church) and *Talorgan* (a man's name). Kiltarlilty, a village between two rivers 15km to the west of Inverness means 'Church of Talorcan' (ibid). Talorgan and Talorcan may well be the same name, if not the same person. The land between these rivers forms a prominent low hill which rises to 50m OD and includes a gentle ridge on its north-west side (illus 3) on which the archaeological remains described in this report were located. The south and west flanks of this hill, as well as its summit, have been developed, much of it in recent years without archaeological involvement (K Cameron pers comm).

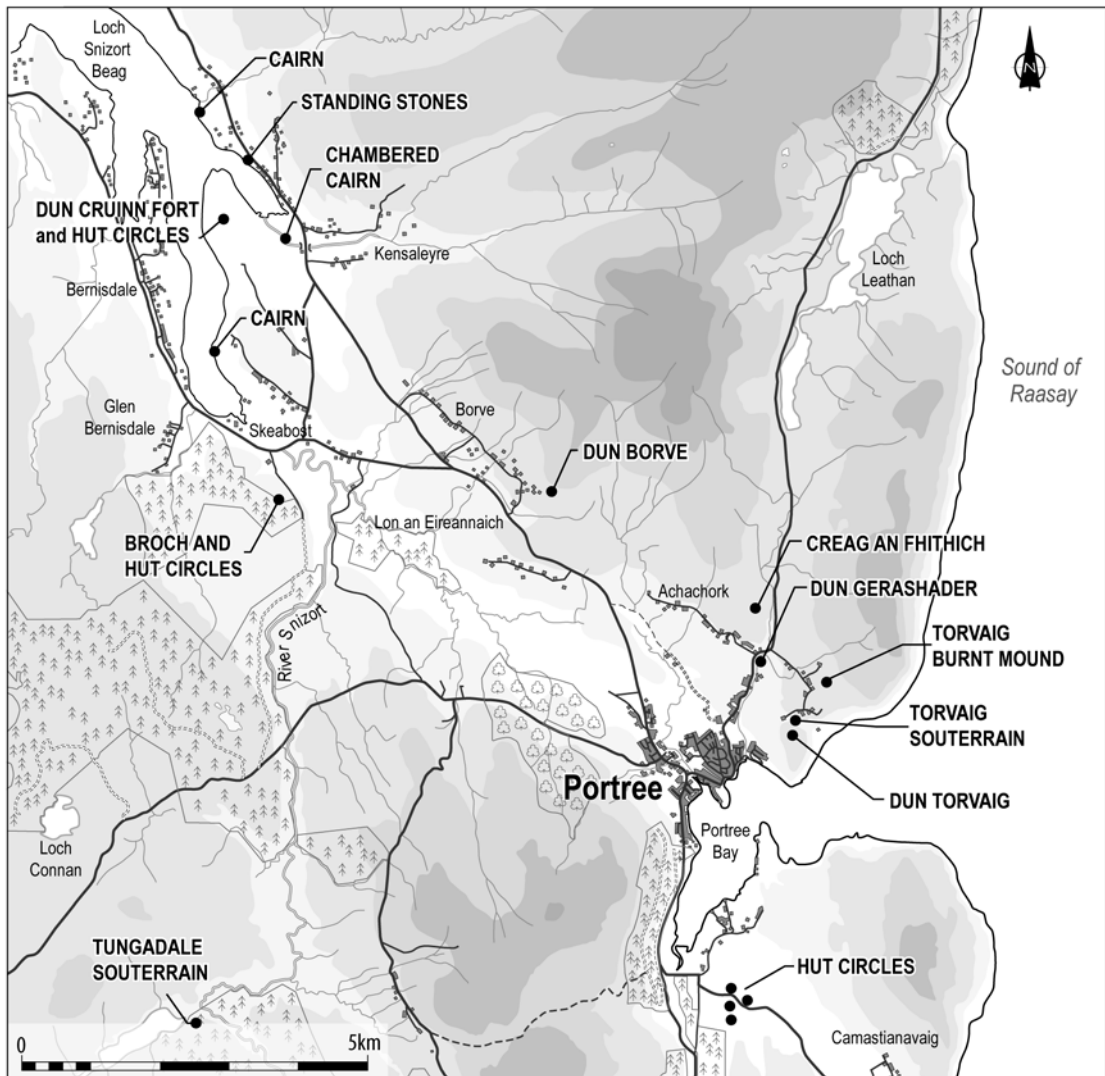
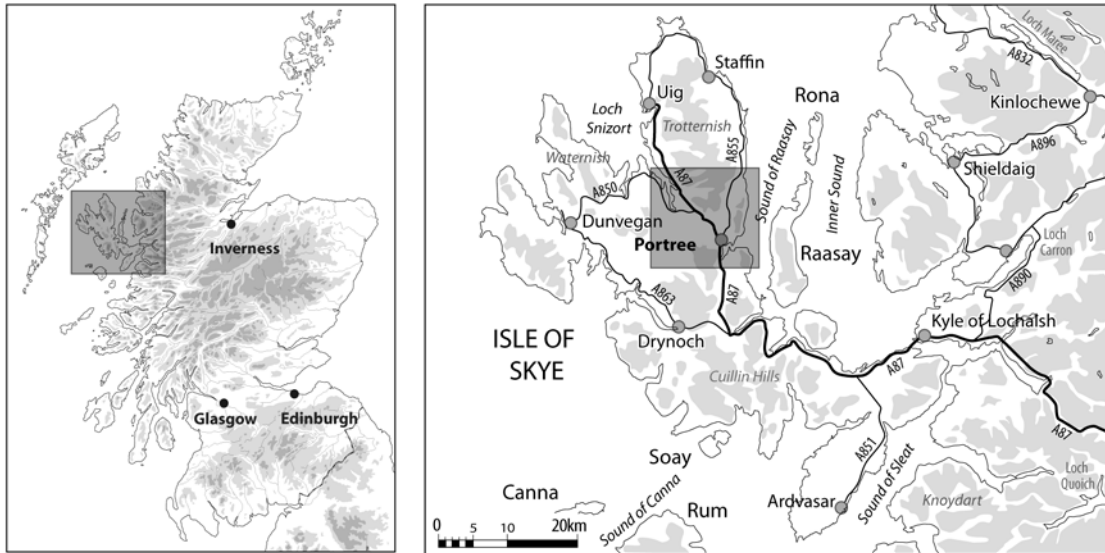
Portree House was constructed for the chamber-

lain of the MacDonald estates around 1807, with subsequent land improvements in the 19th century leading to the creation of Home Farm, and this designation was used in previous archaeological reports. LSHA have now revived the Gaelic name for their development, which is therefore used in this report.

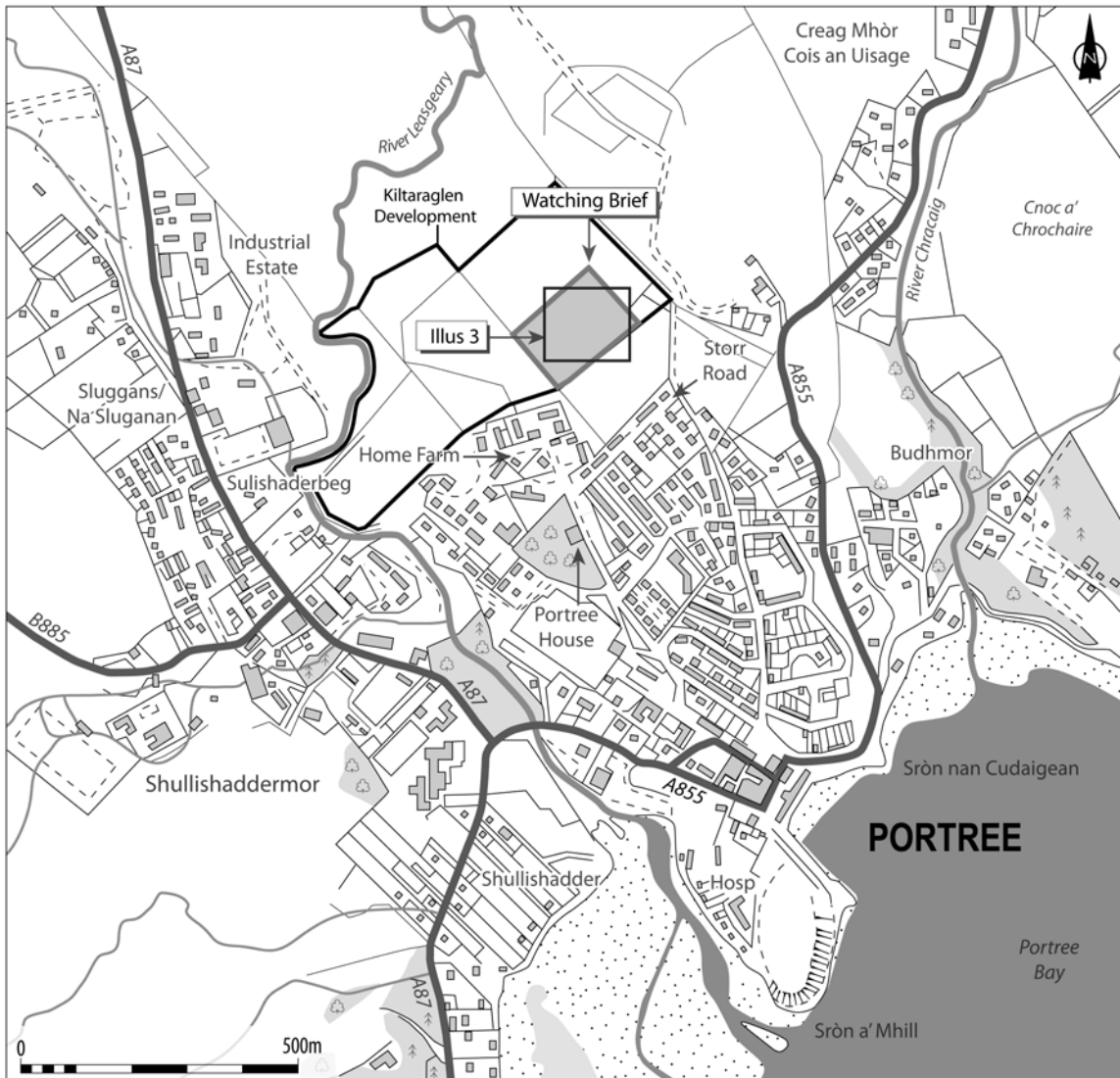
Kiltaraglen lies at the southern end of the low-lying isthmus that connects the eastern side of the island at Portree Bay to the western side at Loch Snizort Beag where the modern villages of Skeabost and Kensaleyre lie (illus 1). This is the easiest crossing from east to west in the whole of Skye and Portree Bay (King's Port) is a safe and sheltered anchorage. With a length of 8.5km, the isthmus is nowhere over 50m in height. Much of it could be traversed by a small boat following (from the north-west) the meandering River Snizort and its tributary, the Lòan an Eireannaich (Fierce Irishman). The River Leasgeary at the south-eastern end is steeper and not navigable. Today, the isthmus from Portree to Loch Snizort Beag is rapidly crossed using the modern A87 leading to the port of Uig and early maps indicate that a crossing from the east to the west of the island has always utilised this natural routeway.

The bedrock in the Portree area comprises extrusive basalt and spilite, with more localised exposures of limestone (Lias) between them and the intrusive basalt, dolorite and camptonite which outcrop around the north side of Portree Bay (British Geological Survey 2001). A seam of coal was mined by Lord MacDonald from about 1800 at Camas Bàn, on the south side of the bay. To the north, fossil-bearing limestone is widespread along the coast as far as Staffin. The interface between this limestone and the basalt has in places been altered to form the metasedimentary mudstone from which lithics can be crafted, and a notable outcrop occurs at An Corran, Staffin (Saville & Miket 1994). The Institute of Geological Sciences (1977) Quaternary drift geology map is unhelpful, as it shows only peat in the Portree area. However, the improved fields around Home Farm contain no peat, and topsoil overlies a variable depth of boulder clay, which overlies basalt bedrock.

The Macaulay Institute for Soil Research (1982a, Sheet 4) categorise the soils at Kiltaraglen as being of the Darleith/Kirktonmoor Association (No. 158), which are drifts derived from basaltic rocks. They form brown forest soils with some brown rankers. The same institute classes the (modern) Land Capability (1982b, Sheet 4) within the site as 'suited only to improved grassland and rough grazing' but within this category it attains the highest rating (51), which indicates that potential yields are high



Illus 1 Location maps and a topographical plan of the area around Portree showing the monuments mentioned in the text



Illus 2 Simplified plan of Portree showing the watching brief area within the Kiltaraglen site

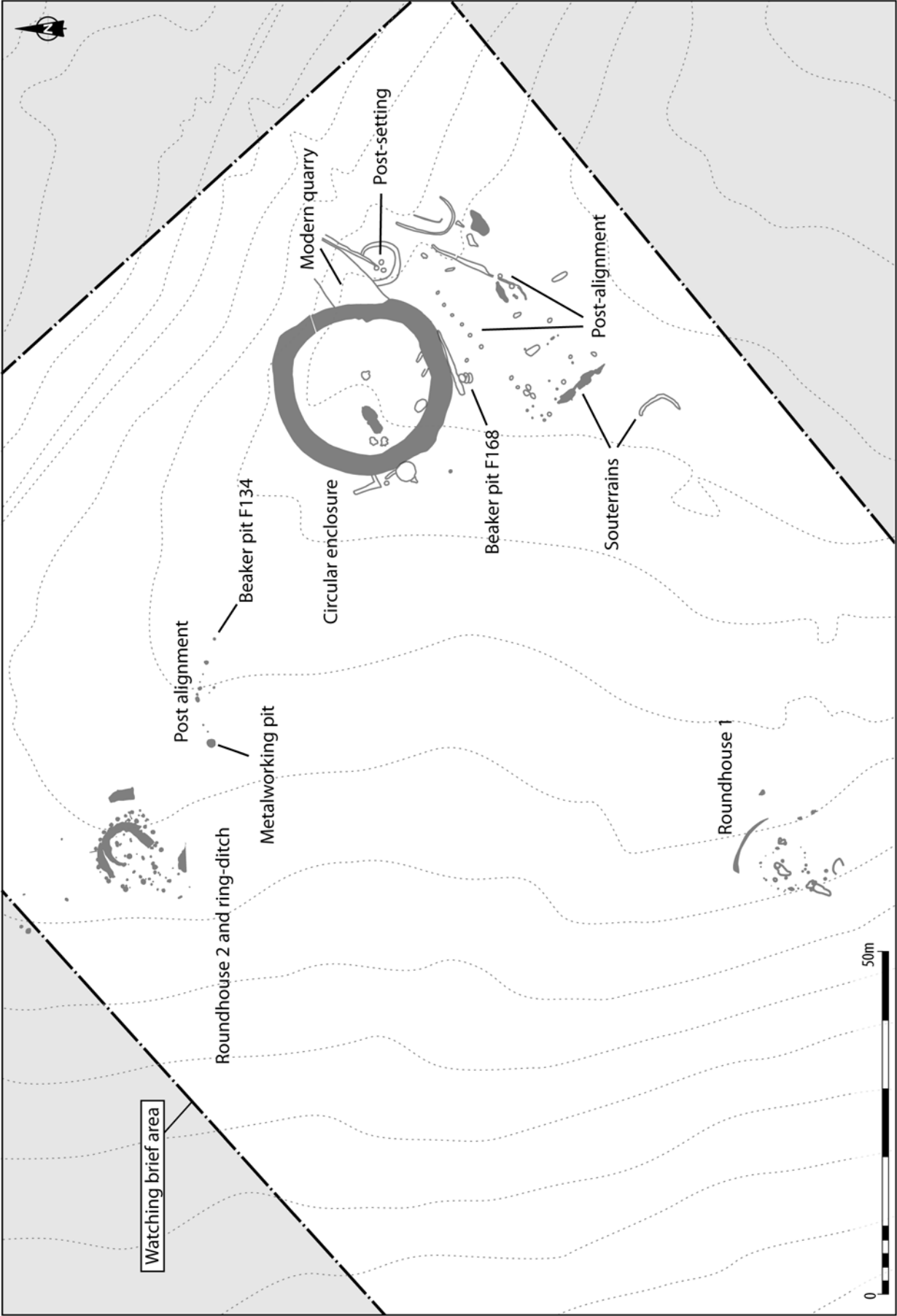
with ample growth throughout the season and that high stocking rates are possible. It may be noted in passing that on Skye, only very small parts of western Waternish (Trumpan, Lusta and Bay), and areas around Lyndale, Claigan, Harlosh, Drynoch, Bernisdale, Tote and Skeabost attain a superior rating, indicating a capacity for limited arable production in modern circumstances.

2.3 Archaeological background

Most of the recorded archaeological sites in and around Portree consist of post-medieval farmsteads, shielings/bothies, townships, settlements and Listed Buildings, with a lesser number of enclosures, head-dykes, bridges and a dam.

Prehistoric sites (illus 1) are dominated by Iron Age monumental architecture and include Dun Gerashader (RCAHMS Site No. NG44NE 3), a fort which lies on a volcanic knoll in farmland 1.5km north-east of Kiltaraglen. Dun Torvaig (NG44SE

2) is a ruinous dun-type structure situated on an exposed hilltop 1.5km east of Kiltaraglen. Both it and a probable broch (Dun Borve, NG44NE 2) would now be categorised as Complex Atlantic Roundhouses (Armit 1996). Much less visible, but increasingly recognised during observant field-walking in what are today marginal areas, are hut circles which often date to the Bronze Age. Several examples (eg NG44SE 7) have been recorded in association with fragmentary field systems in Glen Varragill near the south end of Portree Bay. Two souterrains, at Beal (NG44SE 10, not illustrated) and Torvaig (NG44SE 9) have been recorded, and these are further described by Miket (2002). Other sites which may be prehistoric include a stone setting (NG44NE 8) on Creag An Fhithich above Achachork and a burnt mound (NG44NE 23) at Torvaig. To the north-west, on the shores of Loch Snizort Beag there is an irregular fort (Dun Cruinn, NG45SW 3), a Complex Atlantic Roundhouse (NG44NW 8) at Skeabost, and further hut circles. Earlier prehistory is represented by several standing stones, stone



Illus 3 Site plan

settings and three cairns, including the particularly well-preserved chambered cairn of Càrn Liath or Grey Cairn (NG45SW 1) at Kensaleyre. Evidence from place names suggests a widespread Viking presence in the north and west of Skye which is not reflected in numbers of sites.

The Portree area has not been favoured with high-profile research excavations in the past although a notable exception to this took place at Tungadale souterrain (NG44SW 1, [Miket 2002](#)) and a coastal survey was undertaken as part of the 'Scotland's First Settlers' project in 1999 ([Hardy & Wickham-Jones 2002; 2009](#)). There has been little commercial development and the work described here is by far the largest developer-funded project to have taken place on Skye.

Prior to 2005, no archaeological work had taken place within the development site. An early 19th-century estate map shows a settlement by the River Leasgeary but by late in that century it had been abandoned. This site, containing interconnecting cellular/shieling-type structures is described by [Masser \(2005\)](#). The Ordnance Survey First Edition map ([Isle of Skye Sheet XXIII, 1881](#)) shows that the west of the Kiltaraglen development was in use as a rifle range at that time. Now a forgotten part of Portree's history, the trenches or butts from

which the firing took place lay within the site, with the target and other range-furniture being located off-site to the north-west. The rifle ranges are still shown on the Third Edition (1909) but by the time of the Popular Edition (1930), they are not depicted.

Bullets collected from the eroding target mound tell an interesting story (S Campbell pers comm). They were fired by a Snider-Enfield Rifle which was introduced in 1867 and was the British Army's first breech-loading cartridge rifle. The Snider-Enfield was phased out of front-line service by 1871 but was used by the Volunteer Units for the remainder of the 1870s. This development in military technology coincided with the formation of the Rifle Volunteer movement, set up in 1859 to defend the country against a potential French invasion. The first official unit in Portree was the 8th Inverness-shire Rifle Volunteer Corps, formed (perhaps from an existing unit) in July 1867.

The eastern part of the development site, including the area containing all of the archaeological remains described in this report, is shown on the First Edition map as featureless fields although it is crossed by a track leading from Home Farm north-east to a gravel pit before bifurcating north-west towards Achachork and south-east back to Portree.

3 PROGRAMME OF WORK

3.1 *Aims*

Most of the development site was to be reduced in level with the result that archaeological remains could not be preserved in situ. All of the sites therefore had to be preserved by record and the fieldwork aimed to achieve that.

3.2 *Watching brief*

The topsoil was removed during the early part of the work by a tracked 360° excavator with a flat-bladed bucket and, later, after discussions with HCAU, by a bulldozer. Topsoil removed in this way was banded along the east and north of the development area. All areas topsoiled by bulldozer were then cleaned using a tracked 360° excavator with a flat-bladed bucket.

3.3 *Excavation*

All excavation and on-site recording was carried out according to standard archaeological procedures, principally by drawing, photography and

by completing recording forms. Surveying was carried out using industry-standard total station equipment.

Where archaeological remains were identified by the watching brief, the subsoil surface was further cleaned by a combination of hoe and trowel. All pre-modern features (F) were allocated sequential numbers and were fully excavated by hand. Bulk soil samples were collected through judgement sampling (Jones 1991). Further soil (profile and Kubiena tin) sampling was undertaken with a view to radiocarbon dating, pollen, phosphate, depositional and magnetic susceptibility analyses. All stratified artefacts were retained, as were a large number of artefacts, predominantly lithics, but also including ironworking debris and a medieval silver half-groat which were recovered from the banded topsoil after rainfall.

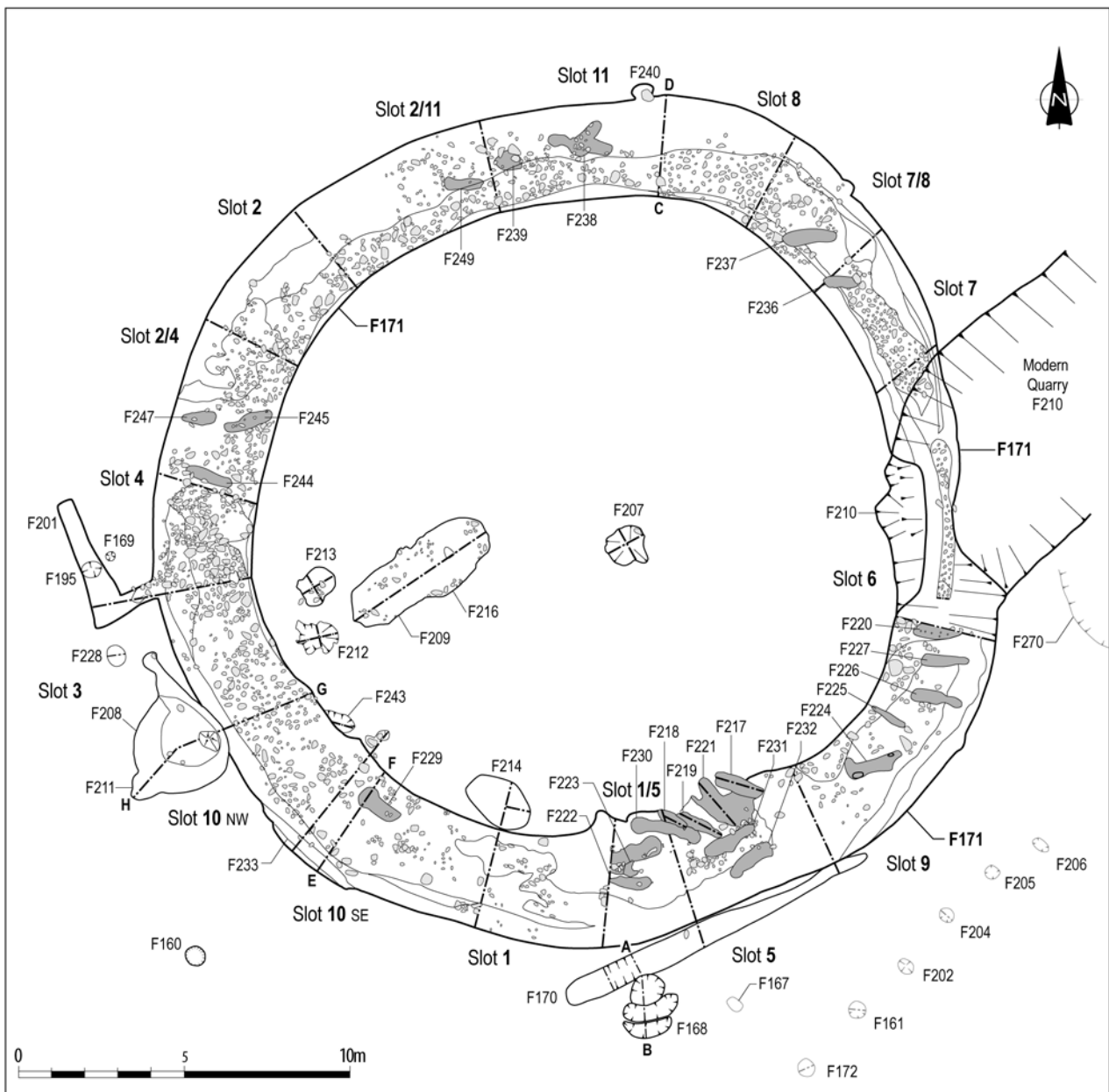
In the following sections, discussion centres on those features that are part of coherent feature groups, those that contained interesting artefacts/ecofacts or were of an unusual morphology. Information concerning all other features forms part of the site archive to be deposited with the Royal Commission on the Ancient and Historical Monuments of Scotland.

4 ARCHAEOLOGICAL RESULTS

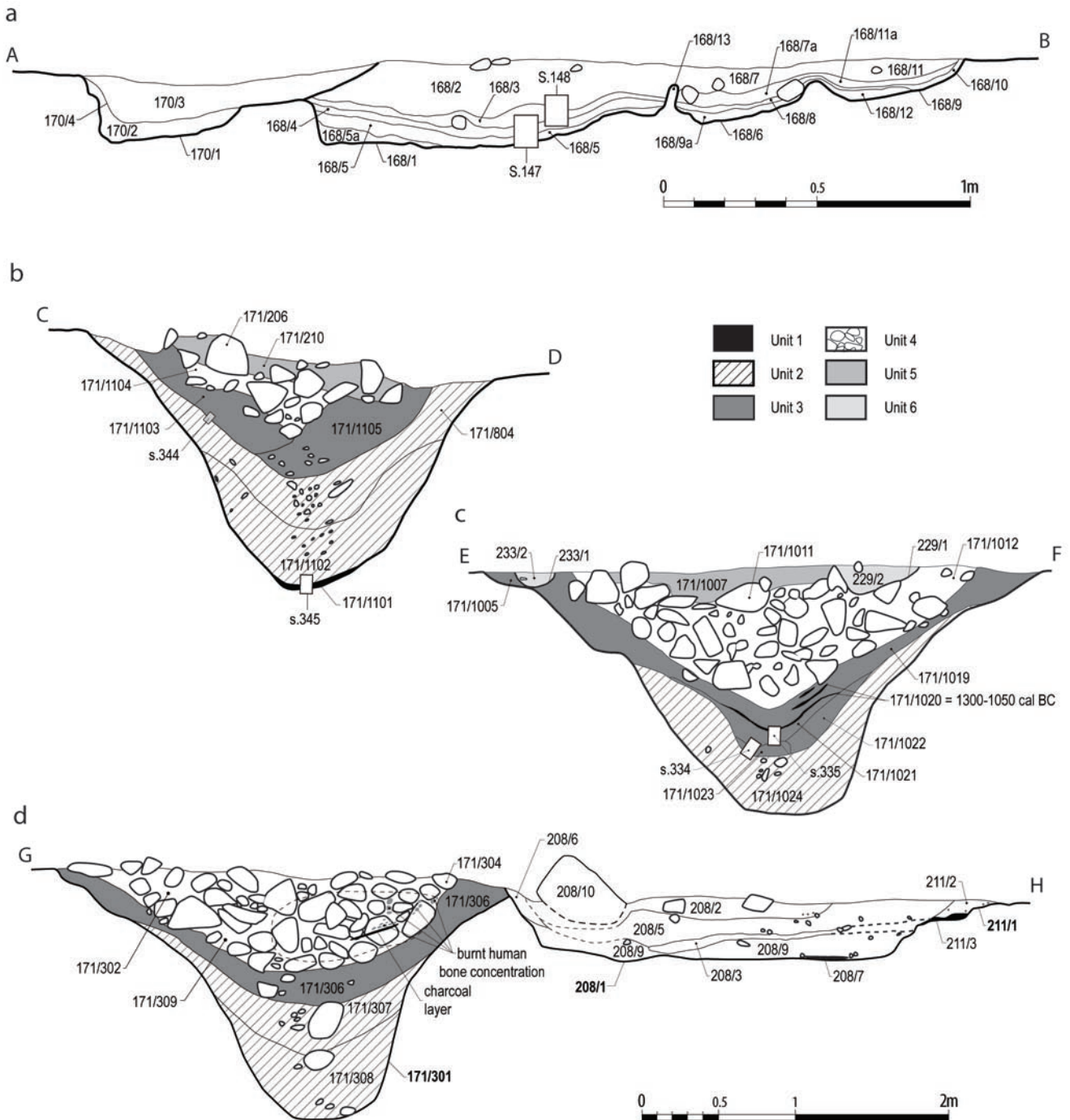
4.1 General

The Kiltaraglen development lay within improved pasture grass fields bounded variously by stone walls, hedges and fences, along which were ditched drains and stunted trees. These fields have not recently been ploughed and Home Farm itself is no longer an operational farm. The homogeneous topsoil was an average of 0.3m deep. Stone-filled field drains, occasionally containing ceramic pipes,

were recorded. No traces of either rig-and-furrow or lazy-beds were identified. Archaeological remains were concentrated on the broad ridge leading north-west from Storr Road (*illus 2*) and no soils were preserved between the topsoil and natural subsoil in that area. This subsoil contained frequent basalt cobbles and boulders, often degrading, and was predominantly an orange-grey mixed boulder clay, with water draining relatively easily though interleaving deposits of gritty, sandier material and clay-silt.



*Illus 4 Pre-excitation plan of the circular enclosure showing Slots 1–11, features cut into the upper fills and the location of sections on *illus 5**



Illus 5 Sections through (a) ditch F170 and Beaker Pit F168, and the enclosure ditch F171 (b) slot 8 E facing, (c) slot 10 SE facing, and (d) slot 3 NW facing with pits F208 and F211

Natural boulders protruded from the subsoil in places and these were often heavily plough-scored. Both the vertical and horizontal edges of most cut features had developed a thick deposit of iron-pan, inhibiting drainage but making them very easy to trace during excavation. In addition, slight shrinkage/compaction of the fills over time had allowed a very thin band of brown silt and rootlets to permeate down vertical and angled cuts against the iron-pan.

The excavation identified 270 individual features

and although some were revealed to be agricultural in origin, produced either where protruding stones had been plucked out by the plough or where they had been dug out by hand to enable ploughing, many formed coherent sites (illus 3). They included:

- a circular ditched enclosure with later Bronze/Iron Age features;
- two Late Bronze Age unenclosed post-built roundhouses, one with a ring-ditch structure within it;

- three post-alignments and a ditch enclosing a post-setting;
- two features characteristic of ‘miniature’ souterrains;
- pits containing ferrous metalworking debris;
- pits containing Beaker pottery.

4.2 Neolithic pottery

A rim sherd of finely decorated Hebridean Late Neolithic pottery was recovered from the banded topsoil close to the enclosure. None of the excavated features could be ascribed either by artefacts or by radiocarbon to this period and the source of the pottery remains unknown.

4.3 Early Bronze Age pits

Two pit features contained Beaker pottery. The first (F134, *illus 3* and 23b) appeared to have been part of a curving alignment of eight or nine (excluding F116) otherwise undated features which are further described below (*Section 4.8*). F134, at the eastern end of the alignment was circular, measuring 0.45m in diameter and 0.2m deep. Location clearly mattered as its excavation involved the partial quarrying of a substantial basalt boulder. The cut (134/1) had a flat base and the sides rose at 45° before becoming vertical. A primary fill of sterile redeposited natural subsoil (134/3) underlay an upper fill (134/2) of red-brown silt and charcoal which contained two decorated sherds of Beaker pottery. The vertical-sided and flat-based nature of the boundary between these contexts suggests either that 134/2 was a post-pipe or that it had been shaped by an organic container within it. Radiocarbon dating of alder charcoal in 134/2 (*Section 6.5*) resulted in determinations of between 2550 and 2200 cal BC at 2σ.

The second feature (F168, *illus 4*) was much more complex. It was situated on the southern edge of enclosure F171, but was separated from it by a short linear ditch (F170) which was revealed by excavation to cut both features. F168 measured 1.9m by 1.4m and was aligned close to north–south. It was formed from three distinct elements (168/1, 6, 9) which consisted respectively of an oval scoop with two conjoined kidney-shaped scoops to the south. In section (*illus 5a*), the fills, though interrupted by the undulating nature of the three scoops, clearly indicated that the feature had been filled as one. The fills consisted of a primary deposit (168/5, 5a, 9a, 12) of yellow-buff silt which might be a product of erosion and suggest that the pit lay open for a period of time. The primary deposits were overlain by dark red-brown charcoal-rich silt (168/4, 8, 10) which underlay a similar deposit without charcoal (168/3, 7a, 11a). The upper fill (168/2, 7, 11) consisted of red-brown silt. Beaker pottery (112 sherds representing 47 vessels) was recovered from contexts within these fills, as were 14 mudstone lithics,

some displaying quite exceptionally regular retouch skills. Phosphate levels from samples taken from the section (Samples 147–8, *illus 5a*) demonstrated enhanced values roughly equivalent to those from possibly domestic settings, but did not indicate sufficient enhancement to suggest a burial was formerly present.

Two radiocarbon dates were obtained from wood charcoal mixed with the Beaker pottery in F168/4 (*Section 6.5*), and show that this deposit almost certainly did not form before 2550 cal BC. A chi-squared test indicates that the dates are not significantly different from those of Pit F134.

4.4 Circular enclosure

The enclosure was located on a slight east-facing slope, just off the broad crest of the ridge (*illus 4, 6*). It measured between 19.5m and 20.2m internally and 26m externally, giving an average diameter of 3m for the continuous ditch, which averaged 1.5m deep. The feature was excavated in segments (designated ‘slots’, see *illus 4*). A modern quarry (F210) had cut into the eastern side of the enclosure.

Although nearly circular in overall dimensions, straighter sections were revealed on the enclosure’s south and south-west sides, with a slight narrowing on the north-east. To the west, where the feature approached a large circular pit (F208), it appeared to narrow and deviate slightly from its smooth arc (*illus 7*).

The feature was cut through boulder clay (003) containing lenses of both stiff impermeable clay and softer sand through which water rapidly percolated. The upper part of the ditch’s profile (*illus 5b–d*) sloped at an angle of 45°, with the base being U-shaped. Cobbles and massive boulders were frequently encountered and it was clear that these had been either broken up sufficiently to allow the excavation of the ditch, leaving jagged edges exposed in its sides, or they had been levered out whole and the resulting cavity filled with excavated material to maintain the ditch’s intended profile. In three locations, further information was gained. In Slot 6, a slightly protruding boulder had what appeared to be the scar of a metal adze/chisel-type tool on its surface. In Slot 9, what may be the scar of an antler-tine pick was recorded in a layer of soft clay. In Slots 7 and 7/8, the natural subsoil surface was exceptionally compact and here, the intended smooth arc of the outer edge of the ditch had been pecked out to form a narrow guiding slot or groove. Later, when the main ditch excavation work took place, the compaction of the subsoil apparently defied the efforts of the workers and the ditch was allowed to narrow, reducing the requirement to excavate the compact subsoil and leaving an unexcavated baulk between the initial pecked slot and the ditch itself.

In overview, the fills of the ditch consisted of redeposited natural subsoil (Unit 2) in the base, with soil (Unit 3), varying volumes of stones (Unit



Illus 6 Elevated view of the circular enclosure from the south-west



Illus 7 The enclosure ditch F171 bending to avoid a circular pit (F208) with the slot 10 NW section in the background



Illus 8 Sections of Slot 2 (top) and Slot 3 (bottom) with the human cremation indicated

4), and further soil (Unit 5) forming a sequence of upper levels. Representative section drawings from Slots 3, 10SE and 11 (*illus 5b-d*) and photographs of Slot 2 and 3 sections (*illus 8*) are presented. As the enclosure was constructed on a slight north-east-facing slope and the ditch was a relatively constant depth, water would have tended to accumulate in the north-eastern arc and this portion of the ditch (Slots 7–8, 11) was the only place where what may be described as primary deposits (Unit 1) were preserved. These took the form of laminated deposits of buff and creamy-yellow silt with a maximum depth of 0.05m. No artefacts or environmental remains were recovered from these primary fills, and their excavation was hindered by both frequent rain and constant water seepage from the natural subsoil which required pumping out daily.

Unit 2 consisted of a deep layer or layers of buff/yellow-brown redeposited natural subsoil, from which all stones larger than around 100mm in diameter appeared to have been removed, a suggestion stemming from the frequency of larger rocks and boulders in the material through which it was cut. Unit 2 sediments had entered the ditch from both sides, since tip-lines that demonstrated this were apparent in most of the sections and the larger clasts had accumulated along the longitudinal axis of the ditch. Soil micromorphological analysis (Sample 344, *illus 5b*) suggests that Unit 2 represents bioturbated bank material. It also suggests that there

was a hiatus in the process of infilling before Unit 3 entered the ditch.

Unit 3 deposits were of a different nature to the gritty redeposited natural subsoil below, being characterised by a change to pinkish or reddish-brown silt with charcoal flecks. An increase in organic content was identified through soil micromorphology and these deposits were visibly more ‘soil-like’ than those of Unit 2. Nevertheless, Unit 3 sediments are still interpreted as being backfilled, although the method and source may change. The sections indicate that, with the exception of Slot 10NW, these deposits either entered the ditch from both sides or from the exterior. Radiocarbon dates were obtained from charcoal deposits within Unit 3 in Slot 6 (171/609) and Slot 10SE (171/1020). These indicate that the charcoal within Unit 3 was almost certainly burnt between 1310 and 1020 cal BC (2 ; *Section 6.5*).

Overlying the Unit 3 deposits in all slots was an enormous volume of often-voided basalt cobbles and boulders (Unit 4). These were not, however, evenly distributed around the circumference, with the highest number being found around the western arc of the ditch in Slots 10, 3, 4, 2/4, and 2 (*illus 4*). Fewer were recorded in the south-eastern arc, within Slots 7, 6, 9, 5 and 1/5. Examining the origin of these stones indicates that in many of the sections, the stones filled the entire upper centre of the ditch (eg *illus 7*) and consequently it is uncertain whether they entered the ditch from the interior and/or the exterior of the enclosure. In Slot 4, the section between it and Slot 3 was the only one to suggest infilling from the exterior of the enclosure whereas, in Slots 2 (*illus 8a*), 6, 5, 9 and 1, infilling appeared to occur from the interior. In Slot 3, a quantity of burnt human bone (171/303, *illus 8*) was recovered from amongst the stones and this was dated (GU-17480–1, *Table 15*) to around 2000 cal BC, suggesting incorporation of material from an earlier feature at this time. Soil deposits (Unit 5) overlay the stones in Slots 2, 11, 8, 6, 5, 1 and 10SE and again, the sections show no consistent source for this material.

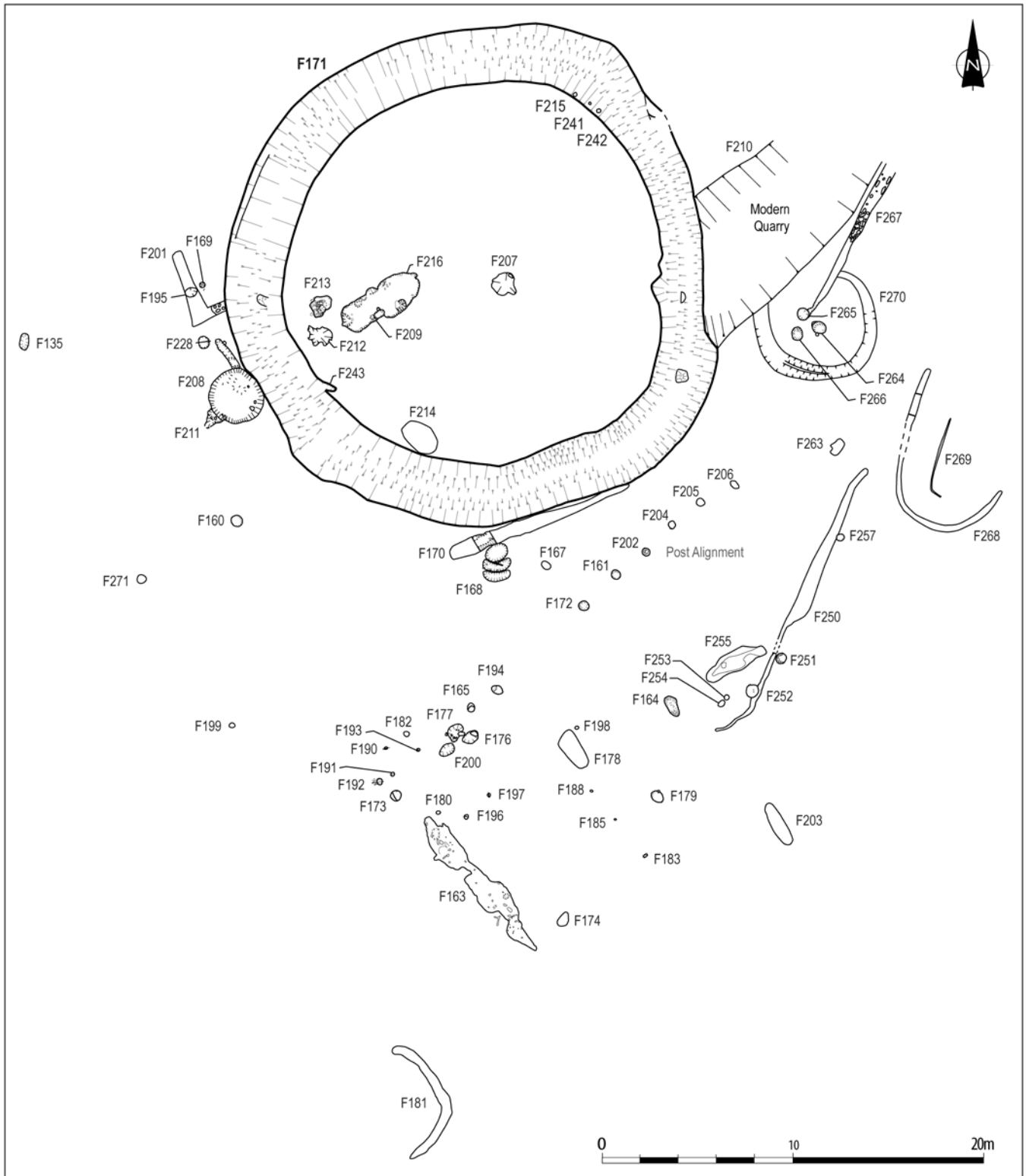
Artefacts were unevenly distributed. Pottery, mostly Late Bronze Age, was recovered from a number of contexts in Units 3 and 5 in the south and south-east around Slots 5 and 9 (171/502, 66 sherds; 171/903, 46 sherds; 171/904, 42 sherds) and in Slot 4 (171/405, 28 sherds) in the west. Lithics came from Slot 9 and Slots 3–4. Where the distribution of pottery within the ditch showed a pattern, the majority of the sherds were found towards the inner edge of the feature. A pottery sherd from Slot 10, Unit 5 may be from the same vessel as a sherd from Pit F168. Burnt bone was concentrated in Slots 3, 4 and 10, with part of a disturbed or redeposited human cremation being recovered from Slot 3. Six coarse stone tools were evenly distributed around the ditch circuit. No metalwork or substantive evidence for the use of metal tools during the excavation of the ditch was found, other than that described above.

4.4.1. Features associated with the enclosure ditch

Features described here include those wholly or partially cut into the upper fills of the enclosure ditch and those sealed by its fills, as well as a large circular pit (F208) and an L-shaped ditch (F201) to the west of the enclosure ditch (illus 4, 9).

Three small pits (F215, F241-2, illus 9) were

recorded on the inner face of the north-east side of the ditch. All were sealed beneath the Unit 5 fills and it is not possible to say whether they were truncated by the excavation of the ditch (and hence were of greater antiquity than the ditch) or whether they were contemporary with it. All were 0.5m below the lip of the ditch cut and, if earlier than the ditch, were on the same alignment. F215 was oval, 0.35m



Illus 9 Post-excavation plan of the enclosure (F171) showing F215, F241-2 and the features to the south-east



Illus 10 F171 and F208, detailed view of the ditch (unexcavated on the right) avoiding the pit (excavated on the left)

by 0.25m in surface area, and 0.15m deep. A possible packing stone was preserved and this pit contained a single fill. F241 and F242 were located 1m and 1.5m to the south-east and both were slightly smaller than F215, surviving as little more than ledges in the slope of the ditch. No artefacts were recovered.

F243 (*illus 9*), appearing as half of an originally oval pit, was located on the inner lip of the western sector of the enclosure. Although its alignment and dimensions were reminiscent of Unit 6 features, which are shown on *illus 4*, this pit appeared to be cut by the enclosure ditch and was filled with a brownish-pink gritty silt, contrasting with the Unit 6 fills of grey-brown or red-brown silty clay.

Following the infilling of the ditch, a series of 23 irregular but predominantly sausage-shaped features (Unit 6; F217–27, F229–32, F236–9, F244–5, F247, F249, *illus 4*) were formed. Both stone-based (Unit 4) and soil-based (Unit 5) ditch fills were disturbed by these features and in some cases the irregularity of the features may well stem from the nature of the deposits into which they were cut. Nevertheless, they were concentrated in the (less stony) southern portions of the enclosure ditch and, with the exception of F217 and F221, lay wholly within the ditch (*illus 4*). The pits were between 1.1m and 2.1m in length, between 0.25m and 0.5m in width and between 0.1m and 0.3m deep. Alignments

varied, with F231–2 being close to WSW–ENE but most were around north-west to south-east. As the fills of these features were notably darker than the underlying ditch fills, they probably did not involve a simple process of excavation and rapid redeposition of the excavated material. Five sherds of later prehistoric pottery were recovered from F232. What may be degraded long bones were recovered from F238, but these were not identifiable to species, and animal teeth were recovered from F245. Radiocarbon dates were obtained from the basal fill of F245 and may provide a useful *terminus ante quem* for the filling of the ditch. They calibrate to 760–400 cal BC at 2σ (*Section 6.5*).

F170 and F233 were ditches recorded on the south and south-west sides of the enclosure. Both appeared to mark the approximate outer edge of the main ditch but F170 lay just outside the arc whereas F233 was just within it. Ditch F233 was 3.8m in length and a profile is shown on *illus 5c* where it cut ditch F171 in Slot 10. Three sherds of prehistoric pottery were recovered from its homogeneous brown fill. Ditch F170 was 10m in length, 0.95m in maximum width and tapered slightly towards the east. A depth of 0.2m was recorded and the profile (*illus 5a*) suggests it was re-cut (170/4) at some stage. The upper fill of this feature was similar in nature to that in most of the Unit 6 features. F170 cut the upper fills of Pit

F168 (illus 5a) and, as did F233, the Unit 3 fill of the enclosure ditch. Four sherds of later prehistoric pottery were recovered from it.

To the west of the enclosure, Pit F211 was 0.8m in length, 0.3m in width and 0.1m deep. Originally wider and perhaps circular, it contained a surface fill of pinkish-brown silt (211/2) over a basal deposit of charcoal (211/3). Both in plan (illus 4) and in section (illus 5d) it appears to have been cut through by the much larger pit (F208). Four samples of birch and hazel charcoal from 211/2–3 were dated to 990–1210 cal AD at 2 σ (Section 6.5).

Pit F208 lay just outside the enclosure ditch, which appeared to kink slightly inwards to avoid it (illus 7, 9–10). It was noticeable however that the upper fill of the pit (208/6) cut the Unit 3 fill of the ditch (illus 5d). Pit F208 was circular and had a diameter of 2.8m with a depth of 0.4m. An irregular projection to the north was shallow and may be natural. After F208 cut Pit F211, it may be that charcoal eroded from the exposed section onto the floor of the pit (208/7) prior to the deposition of its primary fill (208/9). This argument is based on the wood charcoal species, either birch or hazel, and on the fact that all six dates (F208/F211, Section 6.5) pass a chi-squared test and could all therefore derive from the same event. An orange-brown gritty silt formed the primary fill; this was overlain by a lens of redeposited natural subsoil (208/3). Over this was a further deposit of orange-brown gravelly silt (208/5) and the upper fill was a dark orange-grey smooth clay-silt (208/2). Prior to excavation, a massive irregular boulder (208/10) with dimensions of 0.75m by 0.5m lay loosely on the surface of the feature and it may be that this was disturbed during bulldozer removal of topsoil from either feature F212 or F213, both of which are interpreted as being stone sockets. Seven sherds of prehistoric pottery were recovered from fills 208/5–6, and 208/5 contained small quantities of burnt bone. A single lithic was recovered from 208/2. Birch charcoal from 208/7 was dated (GU-17476–7) to 1020–1210 cal AD at 2 σ (Table 15), contemporary with the dates from Pit F211.

Just 3m to the north of F208 was a very shallow L-shaped feature (F201, illus 4). This measured 5m in length and was less than 0.1m deep, with a heavily iron-panned base. The upper fill of the enclosure ditch extended into this feature but over most of its length, only a linear deposit of iron pan denoted its course and no fill survived. Midway along it, a small pit (F195) appeared to have been cut into its base and its fill (195/2) included smithing waste. A second small pit (F169) was recorded 0.5m to the east on the edge of F201 and this also contained smithing waste (McLaren below).

4.4.2. Features enclosed by Ditch F171

Ditch F171 enclosed five features (F207, F209/216, F212–4, illus 4, 9). None of these could be related to

it stratigraphically and it may be that none were contemporary with the ditch.

Pit F207 (illus 11a) lay near the centre of the enclosure. It measured around 1.3m by 1.1m and was 0.1m deep. The effects of topsoil removal, heavy rain, and two episodes of hand-cleaning had the effect of removing much of the feature and causing damage to the sides but two fills (207/8 over 207/2) survived. A number of medium and large cobbles (207/9) were concentrated near the centre but formed no clear pattern. No finds were recovered.

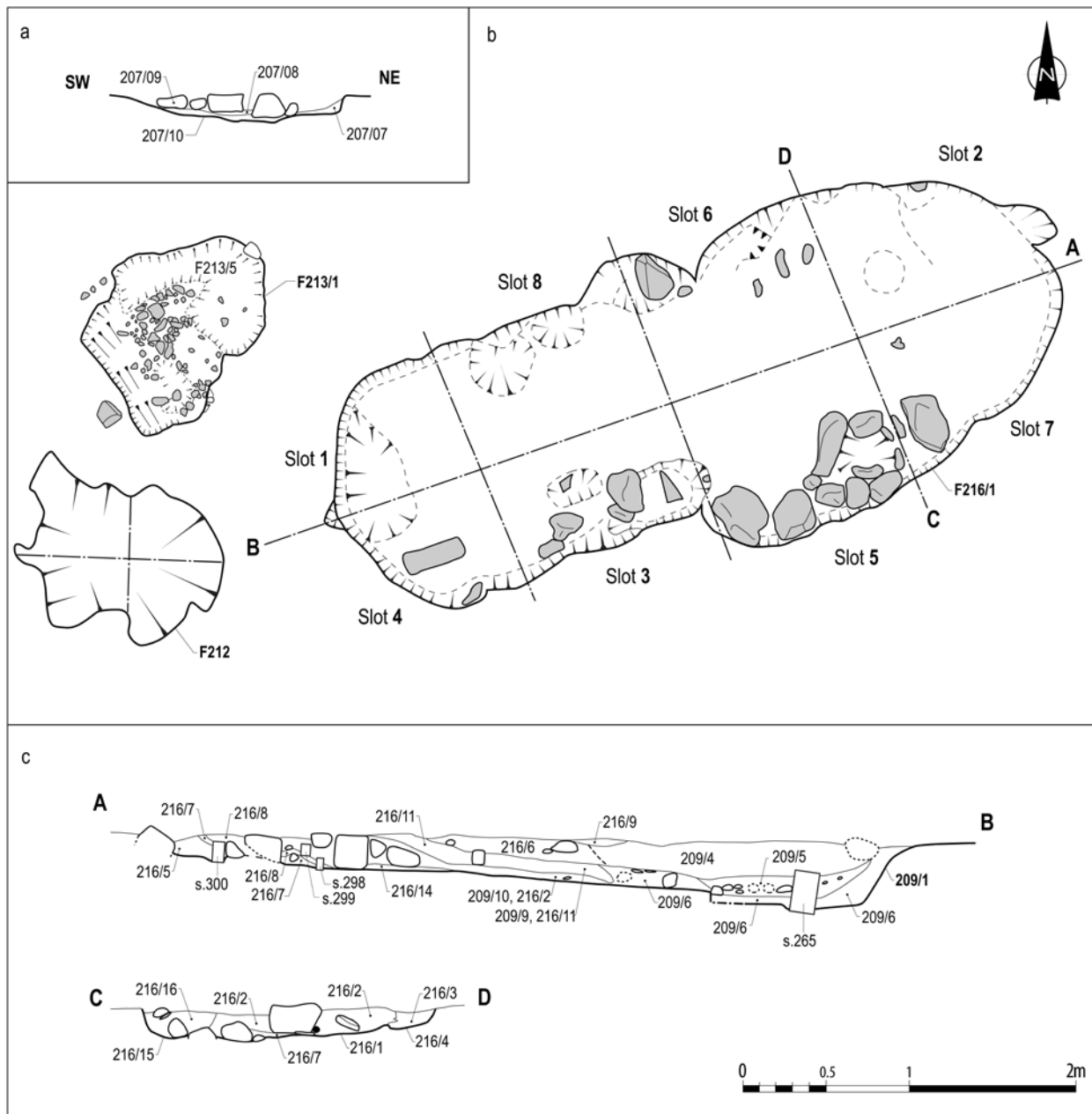
Pit F214 measured 1.8m by 1.25m and was 0.1m deep. Two fills were preserved, both consisting essentially of charcoal-flecked pinkish-brown silts with occasional small stones. No finds were recovered.

The most significant internal feature (F209/216, illus 4, 11b) was allocated two feature numbers as it appeared that two intercutting pits were present. Together, they measured 4.5m in length, between 1.4m and 1.9m in width and, at most, 0.4m in depth. The fills of F209 post-dated those of F216 (illus 11b), but they did not indicate that two distinct features were present. Several shallow depressions in the base of the feature around the perimeter may have been stone-holes and although their purpose is unclear, their fills appeared (216/16, illus 11c) to be more recent than the remainder. Overall, none of the fills was useful in determining a function for this feature. No pottery was recovered but one lithic and three coarse stone tools were recorded. A radiocarbon determination from barley grains in 216/2, a deposit of peat ash and charcoal overlying the primary fill, gave a result of 760–400 cal BC at 2 (Section 6.5), comparable with those from the features cutting the upper fill of the enclosure ditch. Depositional analyses show that 216/2 is the product of low-temperature fires and that combustion did not take place within the feature.

Between F209/216 and the enclosure ditch were two features (F212–3), both around 1.5m by 1m in surface area. Both were irregular in plan, contrasting with the circular post-pipes in other features and these invited the possibility that they once contained stones. F213 measured 1.2m by 1m and was at most 0.15m deep. Shown on illus 11b after the removal of mixed upper fills (213/2–3), these overlay deposits of small rounded cobbles (213/5) and what may be packing stones (213/4). F212 contained similar deposits. Both are interpreted as the sockets for perhaps stubby standing stones. Both features are undated but F212 contained a single later prehistoric pottery sherd, the context of which may indicate it was deposited after the putative stone was removed.

4.5 Roundhouse 1

Elements of this structure (illus 3) were first discovered during the evaluation and, although the full significance of the features encountered was not recognised, they were instrumental in HCAU requiring

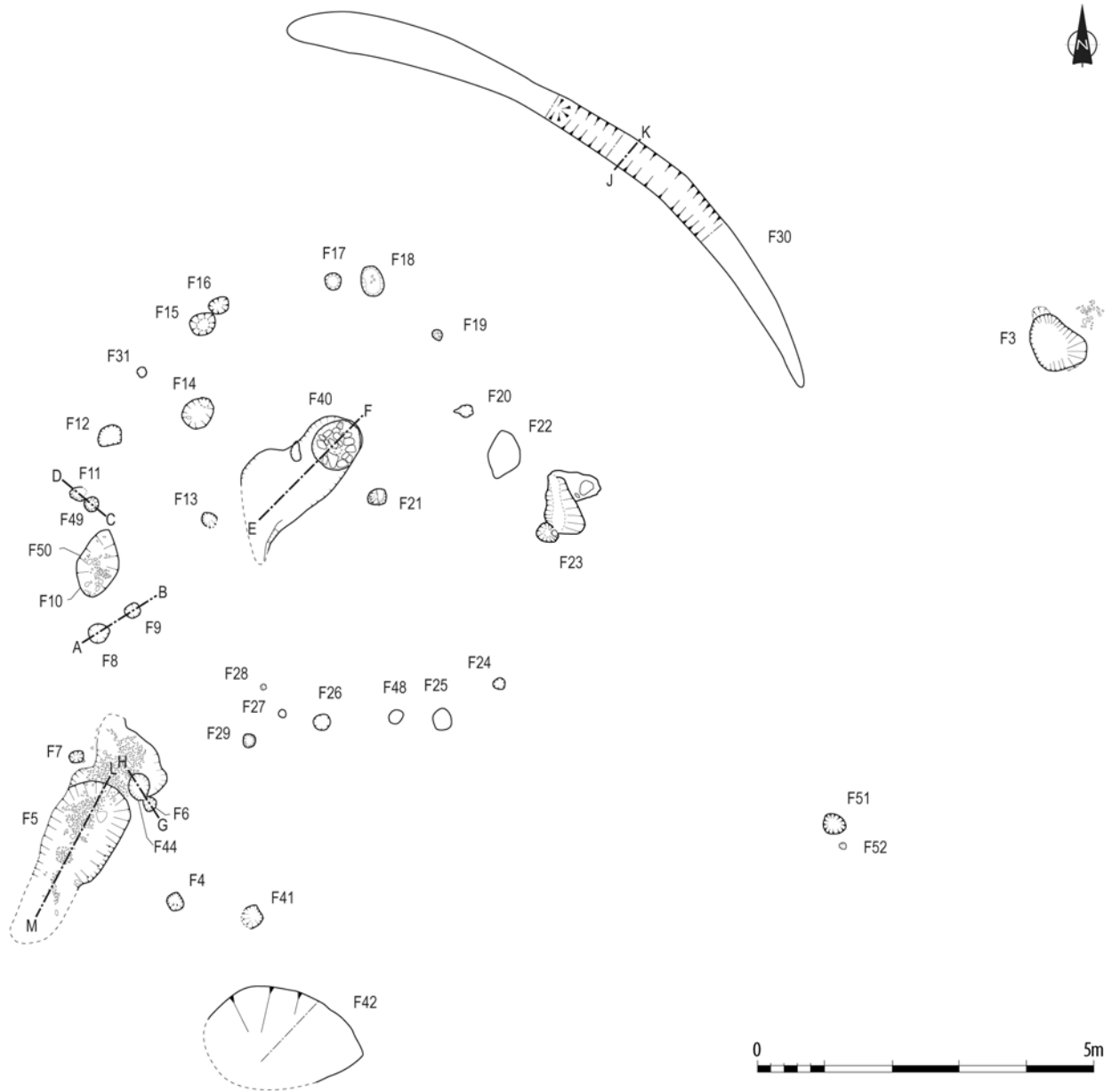


Illus 11 (a) Section of F207; (b) post-excavation plan of F213 and pre-excavation plan of F209/F216; (c) F209/F216 sections

a watching brief during topsoil removal. The timber roundhouse was located on gently sloping west-facing ground around 100m to the west of the ridge on which lay the enclosure, the second roundhouse, and many of the other excavated features. There were no clearly associated remains in the intervening space and the structure appeared to be unenclosed. Topsoil was removed entirely by a tracked excavator with a flat-bladed bucket and this was to the benefit of the site as many of the features were insubstantial and may have been badly damaged by the passage of a bulldozer. No buried soils, floor/occupational surfaces or midden deposits were preserved.

Site clearance exposed an irregular sub-circular

setting of 22 rather unevenly spaced post-holes (F8–9, F11–12, F15–29, F31, F48–49; *illus 12*) with a typical spacing of 1m. Plough truncation may account for a notable gap of over 2m between F23 and F24. This post-ring surrounded three further post-holes (F13–14, F21). What appeared to be a large slightly off-centre post-hole or pit (F40) with an irregular ‘tail’ on the south-west side pointed towards a linear feature (F5) which was flanked by post-holes (F6, F7) and protruded 1.5m beyond the arc of the perimeter posts. This is interpreted as a sunken entrance passage and what may be the receptacle for a door post (F44) was recorded within it between F6–7. This entrance faced south-west. An

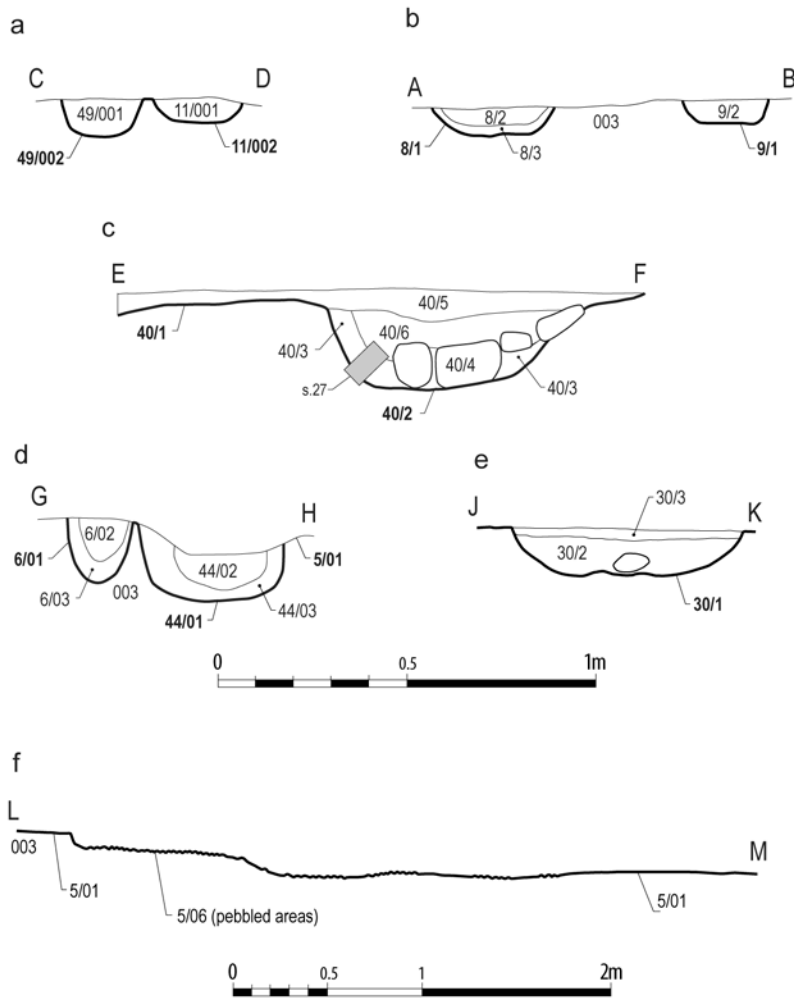


Illus 12 Plan of Roundhouse 1

oval feature (F10, F50) lay on the western perimeter of the structure. Two further post-holes (F4, F41) and a possible pit (F42) were recorded to the south-east of F5 and a portion of a curvilinear ditch (F30) was preserved 3m to the north-east (upslope). Two isolated features (F51–F52) lay 5m to the south-east and a pit (F3) containing charcoal and fire-cracked stones lay 7m to the east, just outside the projected arc of ditch F30 and adjacent to a small pebbled surface (F53). Around 15m to the west of the roundhouse, a second pit (F47, not illustrated) in the lee of a large boulder contained similar material.

The somewhat irregular post-ring (F8–9, F11–12, F15–29, F31, F48–49) defined what is assumed to be the internal area of the roundhouse, giving it a diameter of around 6m. Individually, the features

were circular or near circular and had vertical sides with flat bases. Diameters varied from 0.1m to 0.4m and they averaged 0.1m deep (F8–9, F11, F49, *illus 13a–b*). No packing stones were present. The predominant fills consisted of a homogeneous red-brown clay-silt with charcoal flecks although several features retained a thin deposit of yellow-brown redeposited subsoil at the edges which may be packing material. The appearance of this material on both the sides and bases suggests it is not merely subsoil eroded from the edges. Pairing of some of the posts indicates post replacement during the lifetime of the building, eg F11/49, F15/16. Lithics were recovered from F7 and F22. Of the three internal post-holes, F13 and F21 were, in terms of diameter, depth and fill, not dissimilar from those in



Illus 13 Sections from features in and around Roundhouse 1

the outer circle whereas F14, at 0.5m by 0.4m was slightly larger.

The central feature (F40, *illus 13c*) measured 0.7m in diameter and had a depth of 0.3m. Below fills (40/5–6) of similar nature to the post-holes was a lower fill (40/3) of charcoal-rich clay-silt and a number of jumbled reddened stones (40/4), which may be packing stones. No artefacts were present but charcoal was recovered and Kubiena Tin samples of the fill were taken with a view to depositional analyses. Post-excavation work identified the charcoal as being mainly of alder and hazel. Radiocarbon dates from birch and willow charcoal gave a date of 1310–1050 cal BC at 2 (*Section 6.5*). Depositional analyses (*Ellis below*) revealed that the combustion took place at a low temperature typical of domestic fires. It had not been burned where it was found and a post-hole interpretation for the feature, as opposed to a hearth, is likely.

The outer end of the sunken entrance passage (F5) to the south-west of the post-arc had been damaged by an evaluation trench, but a length of

3.6m, width of at most 1.25m and depth of 0.2m were recorded, with a slight narrowing where it passed between post-holes F6–7 and door post F44 (*illus 13d*). It contained fills (F5/1–5) of essentially charcoal-flecked red-brown clay-silt which overlay and sealed the putative door-post (F44) and a fine pebbled base which included two clearly defined steps (*illus 13f*). Five lithic artefacts were recovered from the feature, which may be attributed to the volume of material it contained (when compared to the smaller and shallower post-holes) rather than any deliberate deposition in that area, but there was notably little palaeoenvironmental content. No pottery was recovered.

An oval feature (F10) with a length of 0.8m and width of 0.6m was less than 0.1m deep. The base was found to be partly covered by a layer of blueish small pebbles pressed into the natural boulder clay (003) and this surface may be an earlier feature, later incorporated into the perimeter. No artefacts were recovered.

On the gentle slope above the post-circle and approximately concentric with it, a portion of a

curvilinear ditch (F30) was recorded. Seemingly truncated at either end, the ditch was at most 0.5m wide and 0.2m deep (illus 13e). It contained two fills from which no artefacts were recovered.

4.6 Roundhouse 2

This two-phase structure was located towards the northern end of the low ridge (illus 3). It was not located exactly on the apex of the ridge, but on a slight west-facing slope. It comprised a complex of predominantly circular features and a horseshoe-shaped curvilinear ditch (illus 14–15) which on spatial and depositional grounds represent the remains of two successive phases. Excavation indicated that a Phase 1 structure, comprising a 9m diameter post-circle, porch and internal pits, was succeeded by a Phase 2 structure characterised by a ring-ditch with internal features (illus 15 and 16a). All features except F155 underlay topsoil and except where inter-cutting was recorded, no stratigraphic relationship among them was present. No ring-groove or stake-arc concentric with the post-ring was present and no floor surfaces

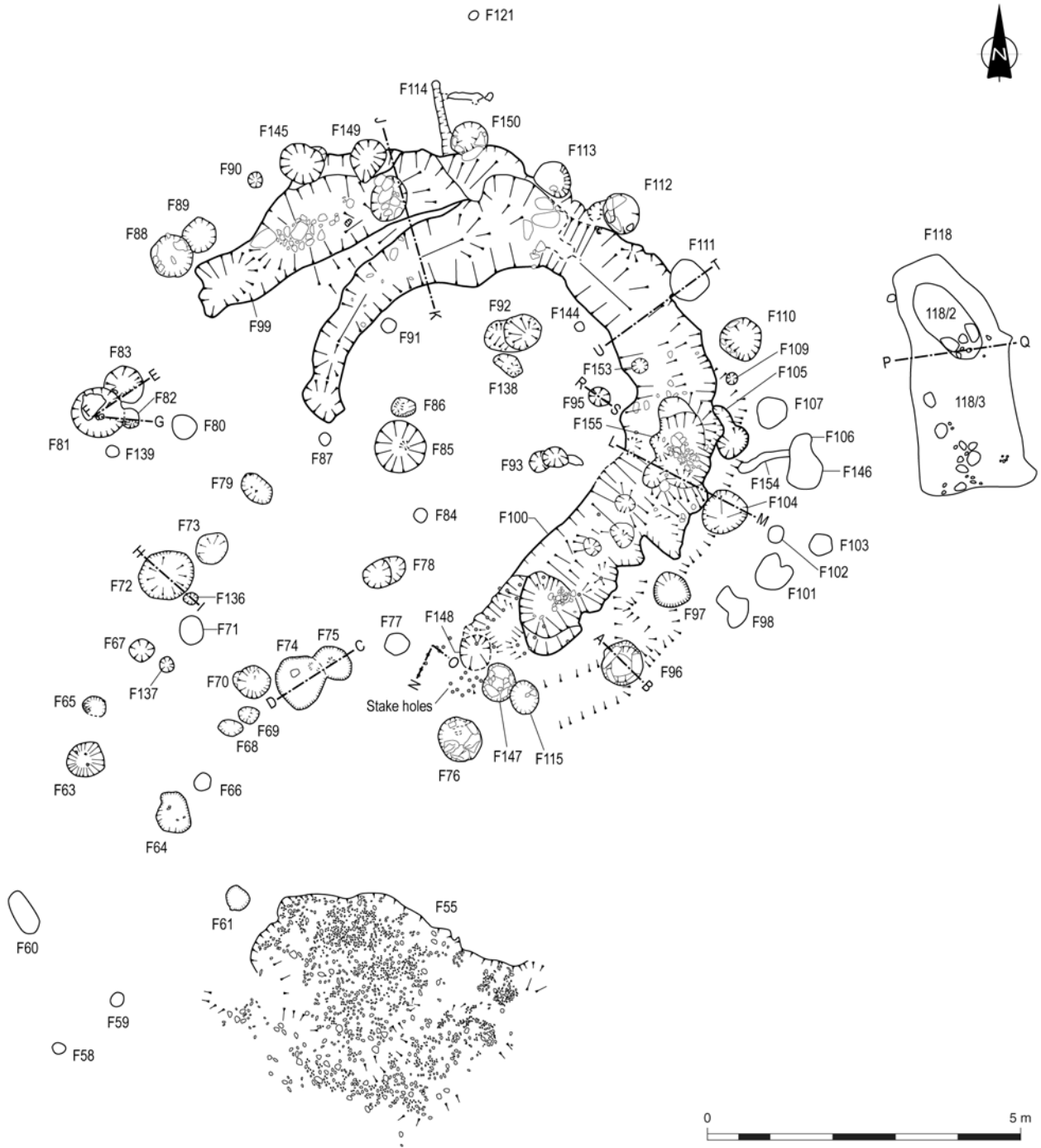
survived. Deposits potentially formed from occupation/midden remains were almost entirely confined to F100, the secondary ring-ditch. As with the more vestigial Roundhouse 1, most of the features had a thick iron-pan adhering to their cuts and in many cases, a very thin (c 1mm) band of brown silt had been deposited within this.

4.6.1 Phase 1 structure

The primary structure, including its post-ring and porch or extended entrance passage as well as the central and other pits, comprises features F63–F76, F78–F83, F85, F88–F90, F96–F97, F104–F105, F110, F111, F112, F113, F136, F137, F145, F149 and F150 (illus 15). Prior to the removal of fills associated with the secondary ring-ditch structure, part of internal feature F99 and the whole of its mirror-image F155 were invisible. Once exposed, the primary structure can also be placed within the ring-ditch class of roundhouses. A large circular feature (F85), not clearly a post-hole, but not a hearth, lay almost exactly in the centre. A shallow gully (F114) was



Illus 14 Pre-excavation view of Roundhouse 2 in the background from the south, showing the different fill characteristics. The pebbled surface F55 is in the foreground.



Illus 15 Roundhouse 2 plan

recorded on the left side of the structure (viewed from the entrance) and a mirror image gully (F154) was on the right side. Other features to the right (F98, F101-3, F106-7, F109, F118, F146) had no clear function and, depending on the interpretation of the remains, may not be associated with this structure. There was no trace of a second post-arc or ring-groove concentric with and external to the post-ring.

The post-circle included post-holes (F72-6, F81, F83, F88-90, F96-7, F104-5, F110-3, F115, F145,

F147, F149-50). Impressive excavations in their own right, forming these features in the compact natural boulder clay subsoil frequently required the partial quarrying or extraction of any large stones encountered in the process. With the exception of F90, these were clearly formed to hold large posts with diameters of around 0.25-0.4m but few had a clear post-pipe. Depending on whether these features are all seen as primary elements of the post-ring, a spacing between posts of around 3m is indicated. The recorded fills varied considerably.



Illus 16 Post-holes F96 (top) and F147 (bottom) showing the in-situ packing stones

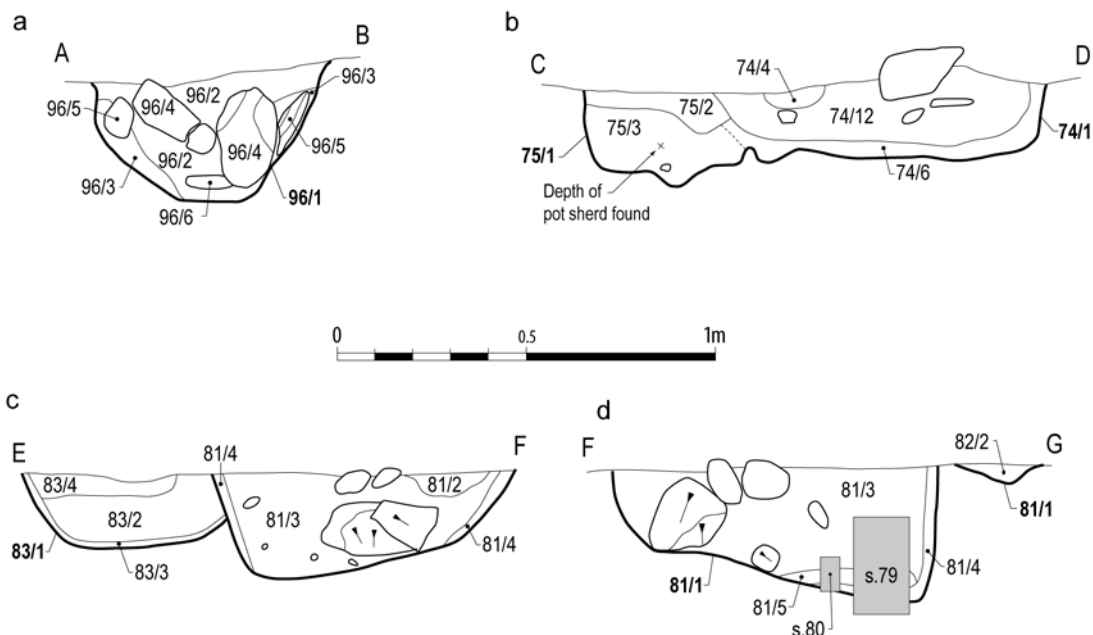
Table 1 shows the characteristics of the features and their interpretation following the fieldwork and the post-excavation process.

Few of these post-holes contained clear field

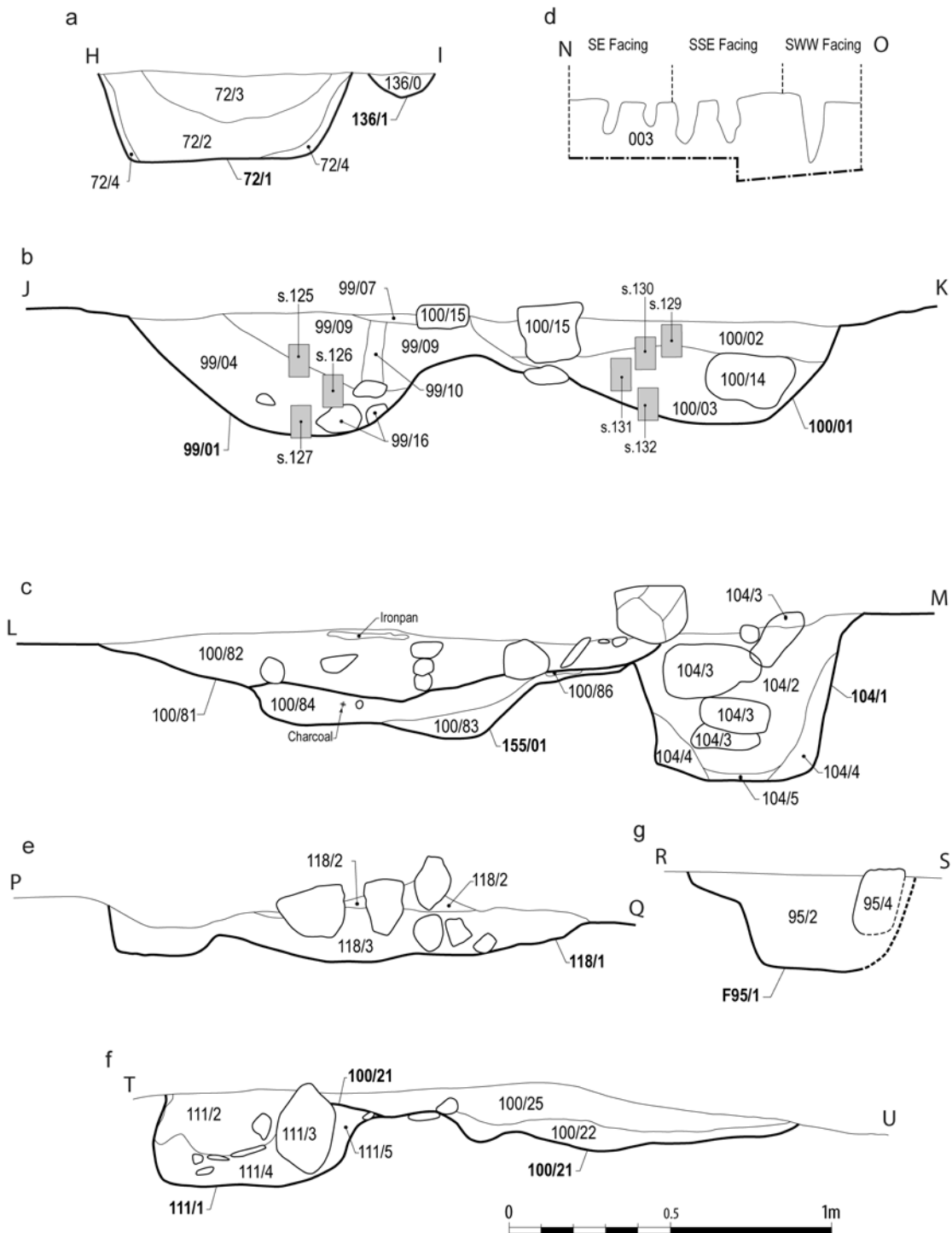
evidence of a post-pipe and in most some of the packing stones appeared to be disturbed or missing, suggesting that the post had been pulled over or otherwise withdrawn. Some had no stone content at all, suggesting complete dismantling for either cultural reasons or for the re-use of materials. Examples of post-holes with in situ packing stones include F96 (*illus 16, 17a*) and F147 (*illus 16*). In the former instance, the upper portion of the feature was choked with jumbled stones (96/4, *illus 17a*), rather more than would be needed for packing purposes, and this was also noted in features 112, 150. F105 was substantially shallower than the post-holes on either side but as it was no shallower than some others, this may not be significant.

The evidence suggests that the structure had had a substantial life, as several post-holes (F75, F83, F89, F147) had had replacements or bolstering posts (F74, F81, F88, F115) placed against them (*illus 17c-d*).

Analysis of the F81 fills (Sample 80, *illus 17d*; Ellis *below*) provides a cautionary postscript to the on-site interpretations, which in this case suggested post withdrawal as there was no coherent post-pipe and few packing stones, none clearly in situ. Micromorphology suggests that although the feature had been affected by soil biota, the evidence is that the post was scorched to aid its preservation prior to insertion, before being allowed to rot in situ. This careful preparation of what was a replacement post (for F83) suggests that it was not an ad-hoc or crisis-driven repair but rather part of a planned maintenance of the structure. Sample 80 also showed the post-pit may then have been left open for a period of time before the post was inserted, perhaps roofless whilst other site preparation work was undertaken.



Illus 17 Roundhouse 2, sections of post-holes



Illus 18 Roundhouse 2, ring-ditch and other sections

Pottery was found in F75–6 and fragments of antler in F76. A single lithic was recovered from F83 and a hammerstone from F88. No artefacts were recovered from the red-brown fills of the post-pipes, and charcoal consisted almost entirely of flecks. Sufficient birch and alder charcoal was however recovered from the fill of the post-pipe in post-hole F81 to provide radiocarbon dates spanning 1260–920 cal BC at 2 (Section 6.5). A caveat is that 81/3 appears to represent a rotted in situ post-pipe and

the processes by which charcoal might have become incorporated (other than by charring of the post itself) are unclear. Several features had irregular edge damage which may result from crude extraction of the post.

The entrance passage (illus 15) faced south-west and appears to have extended as far into the interior of the structure as post-holes F78–9 which would, perhaps, represent a substantial thickening of the structure's perimeter around the entrance. If this

Table 1 Roundhouse 2, characteristics of perimeter post-holes

Feature	Width (m)	Depth (m)	Post-Pipe	Packing Stones	Interpretation
<i>Possible primary posts</i>					
F72	0.75	0.25	No	No	Post withdrawn & structure dismantled
F73	0.50	0.15	No	No	Post withdrawn & structure dismantled
F74	0.85	0.20	Unclear	Not in-situ	Post withdrawn?
F75	0.45	0.20	No	No	Post withdrawn & structure dismantled
F88	0.70	0.20	No	Yes, some in-situ	Post withdrawn
F89	0.45	0.15	No	No	Post withdrawn & structure dismantled
F96	0.60	0.35	No	Yes in-situ	Post withdrawn? & stones added
F104	0.70	0.45	Unclear	Yes, some in-situ	Post withdrawn
F110	0.65	0.35	No	Yes, some in-situ	Post withdrawn
F112	0.55	0.40	No	Yes, some in-situ	Post withdrawn? & stones added
F115	0.55	0.15	No	No	Post withdrawn & structure dismantled
F145	0.60	0.35	No	No	Post withdrawn & structure dismantled
F147	0.55	0.25	Yes	Yes in-situ	Post rotted
F150	0.60	0.55	No	Yes, some in-situ	Post withdrawn? & stones added
<i>Possible secondary posts</i>					
F76	0.75	0.35	Unclear	Yes, most in-situ	Post withdrawn?
F81	0.80	0.30	Unclear	Yes, some in-situ	Post rotted
F83	0.55	0.20	Unclear	No	Post rotted?
F97	0.50	0.25	Yes	Yes, some in-situ	Post rotted
F105	0.60	0.15	No	No	Post withdrawn & structure dismantled
F111	0.60	0.30	No	Yes, some in-situ	Post withdrawn
F113	0.50	0.30	No	No	Post withdrawn & structure dismantled
F149	0.50	0.30	No	Yes, some in-situ	Post withdrawn

had been the case, the internal area would not have been circular, but rather would have had a D-shaped internal plan. Measured from the assumed outer end (F63–4), the passage has a length of 3.6m to the inner end of the projected perimeter post arc (F72, [illus 18a](#), F74) and 5.5m to F78–9. The outer end had a width of 1.2m and it expanded to 1.6–1.8m before narrowing again to 0.8m where it passed through F70–71 and, assuming all features were contemporary and part of the entrance passage, it may be that a door was located at this point. If this was the case, F136 may be nominated as a possible candidate for the door post as its position on the left of the passage on entering is not replicated by a feature on the opposite side of the passage. Worthy of mention is that the assumed door-post in Roundhouse 1 was on the right of the passage on entering.

Internal features were restricted to a circular near-central feature (F85) which was not clearly a post-hole, two elongated pit features (F99, F155) lying just inside the post-arc on opposite sides of the structure and a number of stake-holes. F152–53 consisted of shallow scoops in the base of F100 and may merely be a result of stones being removed during excavation.

Pit F99, at the northern edge of the structure was 4.6m in length and 1.3m in maximum width. [Illus 18b](#) shows the section, with a layer of reddened cobbles (99/16) partially covering the base being overlain by reddish-brown silt incorporating frequent charcoal flecks (99/4). This overlay the fills of post-hole F149 (not shown) and so must have been deposited after the abandonment/dismantling of that feature. The upper fill consisted of a layer of yellow-brown redeposited natural subsoil (99/9) deriving from the excavation of the adjacent Phase 2 ring-ditch (F100). This deposit had been cut by (or formed around) what may be the slot for a vertical plank or beam (99/10) with a length of over 0.5m. Unless the reddened cobbles can be taken as evidence for fire, no indication as to the function of the feature was forthcoming. Radiocarbon dates obtained from carbonised barley in F99/4 (GU-17452–3, [Table 15](#)) of 1190–930 cal BC and 530–380 cal BC at 2 σ . These dates are statistically significantly different (see [Section 6.5](#) for further consideration).

Pit F155, opposite F99 at the south-eastern edge of the structure, was overlain and badly truncated by the Phase 2 ring-ditch and only a length of 1.5m, width of 1.1m and depth of 0.2m survived. As in

F99, a deposit of reddened cobbles (100/84) partially covered the base and these were overlain by brown and red-brown silt (100/83, *illus 18c*).

Stake-holes were concentrated in the southern part of the structure, with most lying within or adjacent to F100. Forty-two examples were recorded within the triangle formed by F75, F78 and F96 (*illus 15*). These formed no clear patterns but sections (*illus 18d*) confirmed their authenticity, with reasonably regular profiles and depth of between 0.1m and 0.2m. Their association with one or other structure is also unclear, although their dark fills were more consistent with those in the secondary ring-ditch.

On the basis of their red-brown charcoal-flecked fills, linear slots (F114, F154) and irregular scoops (F98, F101–F103, F106–F107, F109, F146) may be associated with, or earlier than, the post-built structure. Slot 114 had 45° sides and a flat base. Although tangential to the arc of post-holes, a short extension ran for 0.6m to the east. The main portion appeared to cut across the edge (constructional deposit) of post-hole F150 in the north of the structure and in plan it appeared to cut fill 99/4 and to be overlain by 99/9 (*illus 18b*). Sequentially, this would place it between the abandonment of the earlier structure and prior to initial excavation of the second. At 1.2m, F154 was a shorter tangential slot and appeared to run into shallow pits F106/146 to the east. The western end was cut by the ring-ditch F100.

4.6.4 External features

Seven shallow scoops, F98, F101–F103, F107–F109 and F106/146, clustered just outside the arc of posts. Fragments of hammerscale and iron slag (or cramp?) were recovered from F109 but none of the other pits contained evidence of function. Some 2.5m to the east, a substantial but shallow feature (F118, *illus 18e*) measuring 3.8m by 1.6m was filled with stones and charcoal-flecked soil (118/2–3) and a further 4m beyond was F120, a small pit. To the north of the structure, F121–122 appeared to be isolated small post-holes.

Similarly, F58–61, isolated beyond the end of the entrance passage, contained no evidence of function although three of these formed a line.

Two metres to the south of the structure, F55 (*illus 15*) was a large, sub-circular scoop measuring 4.5m by 4m. It was terraced into the slight slope to create a level surface, with the cut being 0.1m deep on its north-eastern side. In terms of depositional characteristics the red-brown charcoal-flecked fill (55/2) associates this feature with the fills of the primary structure and it included five mudstone lithics and a presumably intrusive shard of glass. This deposit overlay a finely pebbled surface (55/4), strongly reminiscent of that in the bases of F5, the Roundhouse 1 entrance passage and F50, an internal feature within that structure. Concreted by thick iron-pan, the pebbled surface incorporated a further eleven mudstone lithics. Sixteen of the eighteen lithics asso-

ciated with the two structures were therefore found in F55, which may therefore be a work surface.

4.6.3 Phase 2 ring-ditch structure

The Phase 2 ring-ditch structure (*illus 14–15*) was eccentrically positioned within the earlier round-house and was orientated with the open end some 15° to the north of the primary structure's entrance. The irregular horseshoe of the ditch (F100) enclosed an internal area of 4.6m north–south by 4.6m east–west. Overall, including the width of the ditch, dimensions of 7m by 6.5m were recorded.

Features clearly or probably associated with this structure were all within the internal area and these included F84, F86–7, F91–5, F138 and F144. A characteristic of all was their dark grey-brown to black fills which contrasted with the red-brown and yellow-brown fills of features associated with the roundhouse. *Illus 14*, taken from the south, with F55 in the foreground, clearly shows the differentiation between the dark fills of the ring-ditch and the lighter fills of the earlier features. In addition to these spatial and depositional differences between the structures, F100 cut several of the earlier round-house features.

The ring-ditch F100 was at most 1.5m in width and a maximum depth of *c* 0.4m was recorded. In plan, it narrowed to a well-defined terminal on the west side, whereas the south terminal was wider, shallow and irregular. At all points the feature was characterised by a heavily iron-panned base which was easy to trace during excavation. The base was also relatively level, with little sign of any segmental construction. The profile, especially around the eastern portion, was generally steep on the outer edge and more gently sloping on the inner, although this became steep-sided and U-profiled at the western terminal. The base of this western terminal deepened into a possible pit and here the deposits (100/41–2) appeared to overlie those within the main fill of the ditch (100/03). It is therefore possible that a post was located at this terminal.

The excavation of F100 aimed to examine the relationship between it and the post-holes (F97, F104, F111–3 and F149) on its eastern side where they appeared in plan to be cut by the ring-ditch.

The deposits in the ring-ditch consisted of a basal fill (100/3) of brown gritty silt within which were streaks/lumps of pink and orange peat ash and small pieces of charcoal. These were overlain by a dark-brown/black upper fill (100/2) of similar gritty silt minus the peat ash inclusions. Stones (100/14–15), often on edge, were concentrated in the northern part of this feature. Thin-section analysis of these fills indicates that peat turves and wood were both utilised as fuel in low temperature domestic fires, with carbonised peat also being present. Phosphates (Samples 129–32, *illus 18b*) were enhanced to levels associated with human or animal enrichment of the soil. Five radiocarbon determinations from F100

were obtained and the results show that the wood was burnt between 1190–830 cal BC at 2 (Section 6.5).

The ring-ditch truncated both the edges and fills of post-holes F111 (illus 18f), F112 and F113 although the presence of jumbled stones in F112 ensured a less obvious separation between the fills in this section. It was not possible to determine the relationship between the post-hole (F105) and the ditch (F100) as the crucial part of the section had been affected by repeated heavy rain, surface water flows and erosion. It did however demonstrate that the ditch had truncated Pit F155 which had previously been invisible. However, a further section in this area (illus 18c) showed the ditch cutting the edge and fill (104/2) of post-hole F104 and Pit F155. Again, the dark fills of the ditch contrasted with the red-brown fills of the pit (100/83–4).

Artefacts from F100 included two good-sized sherds of prehistoric pottery (recovered on opposite sides of the ditch), including a rim sherd with a rounded rim profile, four hammerstones, fragments of burnt bone, a lithic and a lump each of either iron slag or fuel ash slag (cramp). A shard of modern glass is clearly intrusive and probably results from stones being plucked out during ploughing.

Features framed by the ring-ditch (F84, F86–7, F91–5, F138, F144; illus 15) formed no regular patterns although F84, F87, F91, F93–F95 and F144 were located close to the inner edge of the ring-ditch and formed a partial and irregular oval. None of these internal features would, in isolation, be easily

interpreted as post-holes. All were characterised by darker and more homogeneous fills than features associated with the post-circle but akin to those in the ring-ditch. Charcoal was commonplace but of small size. Two ceramic sherds were found in F92.

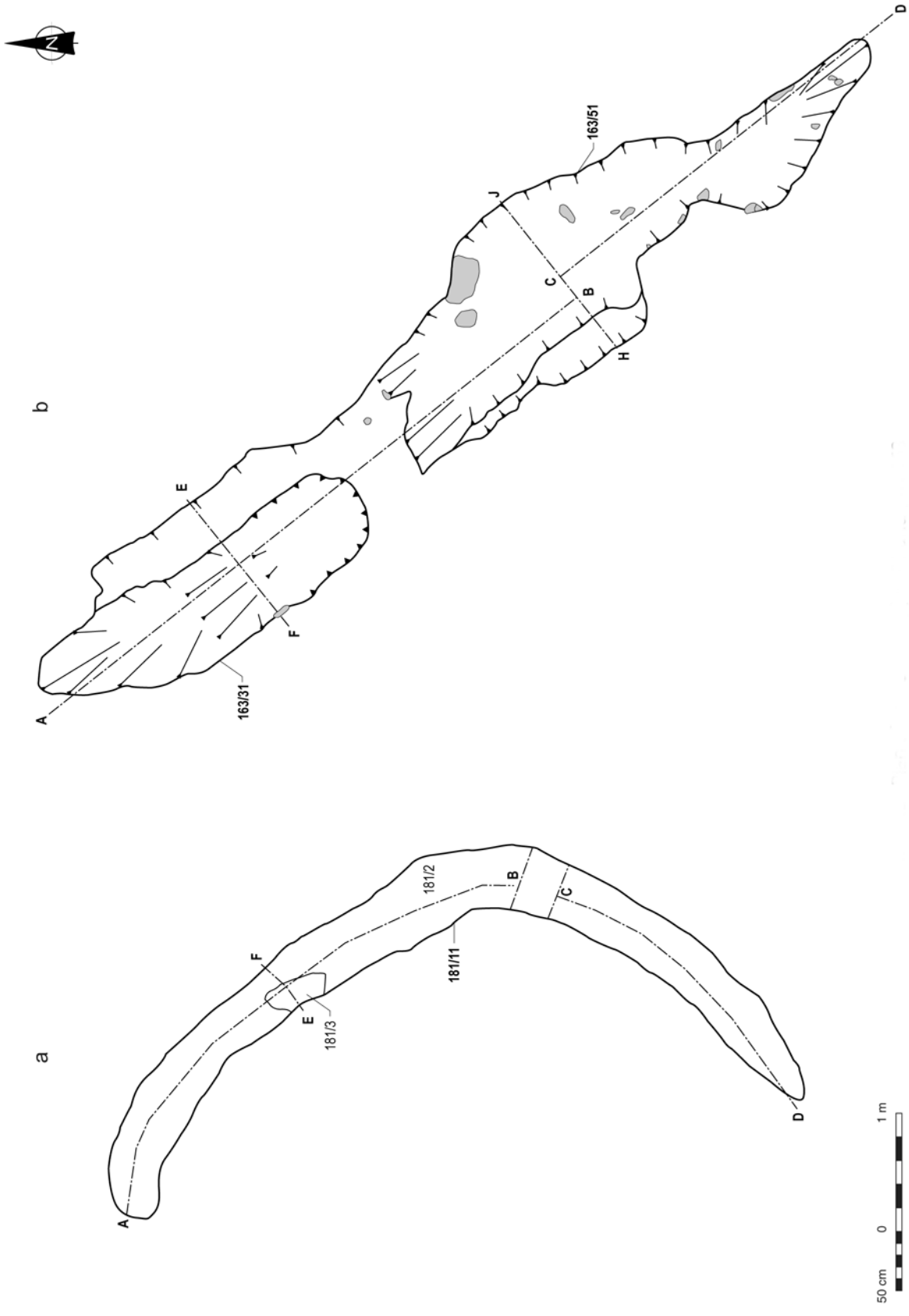
F95 (illus 18g) was steep-sided and flat-based with a slight step on the north-west side. It contained a single fill (95/2) of dark brown silt which contained a fragment of antler. Two packing stones (95/4) were preserved. F87 and F93–4 were very shallow and round-based with a single fill in each. F91 and F144 were also shallow and round-based with dark silty fills. F86 was larger, with near vertical sides and two fills. No post-pipe was present and there were no packing stones. F92 and F138 may have been a single feature. Both were irregular in profile but both contained two fills, with dark brown silt overlying compact redeposited natural subsoil.

4.7 Miniature souterrains

Two negative features (F163, F181, illus 9, 19–20) were recorded on almost level ground 25m to the south of the enclosure. Separated by 10m, the former marked the southerly extent of a number of stratigraphically unrelated features whereas the latter appeared isolated. Once topsoil was removed, the striking resemblance of F181 to a small version (micro-souterrain) of a standard-sized souterrain was remarked upon whereas F163, though sharing some of the former's traits,

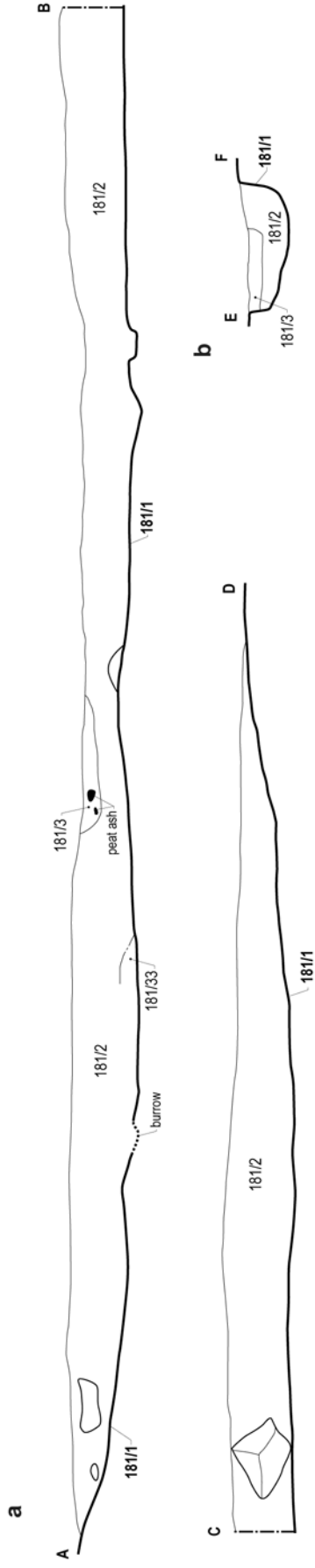


Illus 19 Post-excavation view of souterrains F163 and F181

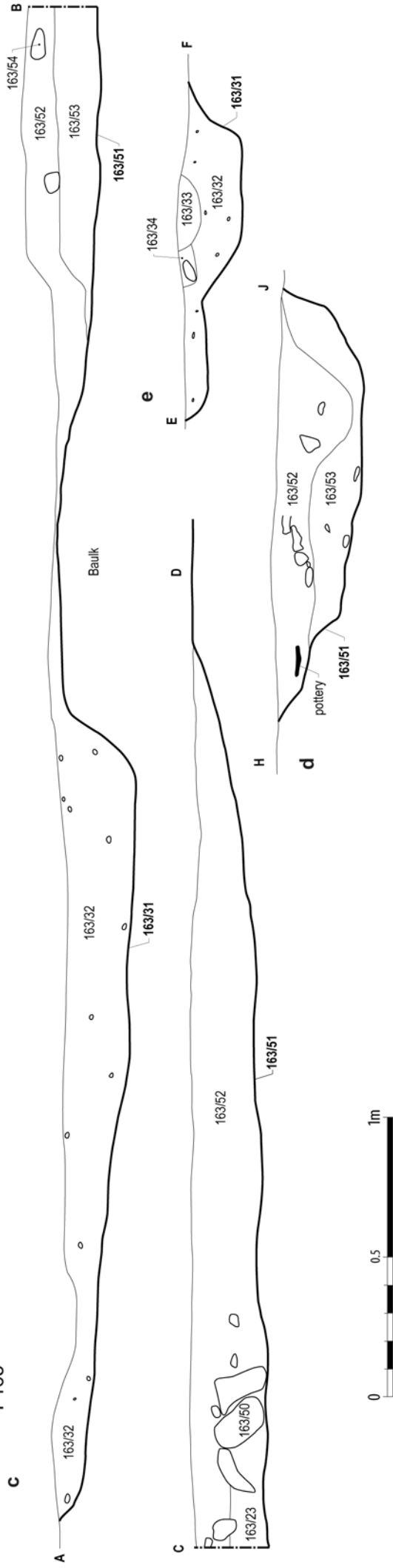


Illus 20 Plan of souterrains F163 and F181

F181



F163



Illus 21 Sections of souterrains F163 and F181

including fill characteristics, was of different morphology.

F181 was curving in plan, with a length of almost 8m and a width of at most 0.6m. Six slots were excavated. Each end sloped gently down to the flat base at a depth of 0.2m (*illus 21a*) whereas the sides were near-vertical (*illus 21b*). Some burrow-related disturbance was apparent. Over much of the feature, a single deposit of homogeneous mid-brown sandy clay-silt with occasional gravel-sized stones was present although localised surface deposits of dark-brown or red-brown material were present. The latter's colour was seen to derive from the presence of peat ash. In section B-C, a lump of red-orange silty clay was recorded. No deposits relating to the primary function or structure of the feature were present and the fills appeared to be both post-abandonment in nature and analogous to those in F163. The feature yielded a single sherd of later prehistoric pottery, a lithic and a slightly heat-affected hammerstone.

The second feature (F163; *illus 20a*) was 9m in length and aligned north-west to south-east. It consisted of two distinct 'compartments', separated by a baulk of natural subsoil (*illus 21c*). The compartments were accessed from either end of the feature. The south-eastern compartment was 5.2m in length, 1.6m in maximum width and 0.3m deep. The north-eastern edge was steep-sided from the subsoil surface whereas that to the south-west (on the left after entry) had an intermediate level or step, which could be a shelf. The assumed entrance sloped gently down into the flat interior and a constriction midway from the south-east end. With a width of 0.5m this would have restricted the penetration of light into the interior. As with F181, all the fills are interpreted as post-abandonment in nature. A single fill (163/12) consisting of a mottled grey-brown friable silt was present outside (south-east of) the constriction. Within the compartment, a similar deposit (163.52) overlay a primary fill of

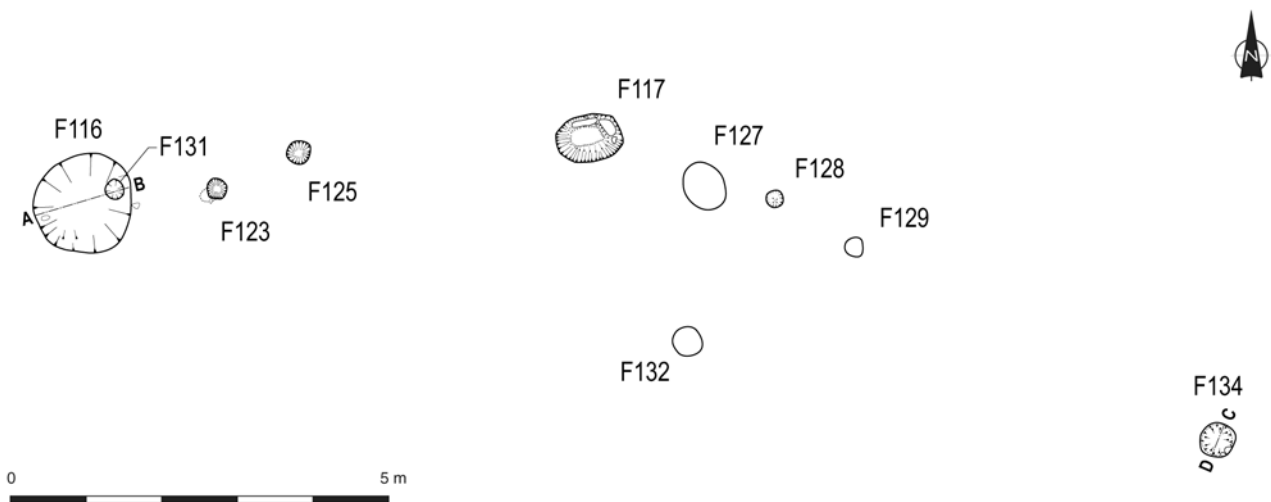
stony orange-brown clay-silt (163/53, *illus 21d*). Deposit 163/52 yielded 142 closely grouped sherds of prehistoric pottery representing 9 vessels, some with finger-impressed decoration under the rim, one lithic, an iron object with visual similarities to a pair of tongs, and a lump of iron slag. Birch and alder charcoal from close to the pottery (163/52) was dated to 1050–1270 cal AD at 2 (*Section 6.5*).

The compartment to the north-west was 3.1m in length and the assumed entrance also sloped gently into the interior, opening out from 0.5m to 1.2m in width. A shelf-like step was again preserved on the left. Apart from this step, the sides and end of the compartment (*illus 21e*) were steep. Internal deposits consisted of localised upper fills of dark brown silt and yellow-grey silty clay (163/33–4, not shown) over an extensive lower fill of homogeneous dark-brown to black mottled clay-silt (163/32). Four prehistoric pottery sherds were recovered.

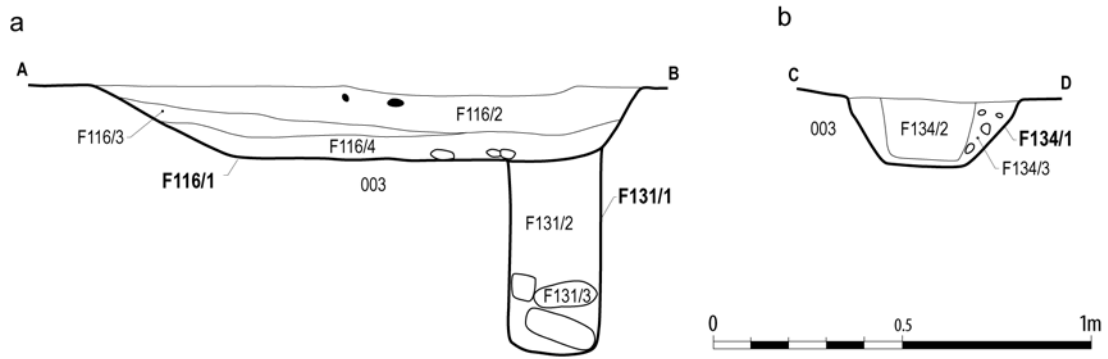
4.8 Pit F116 and curving feature group

Eighteen metres to the south-east of the ring-ditch (F100) and 30m north-west of the enclosure F171, a group of eleven pits (F116–7, F123, F125, F127–9, F131–2, F134, *illus 22*) of varied date and morphology were recorded. Excepting F132, these formed a gentle arc with a length of 17m.

At the western end of this alignment was F116, its black fill standing out once the topsoil was removed. The feature was circular, with a diameter of 1.3m. Slightly irregular in profile (*illus 23a*), it was 0.2m deep and the flat base was reddened (*illus 24*). Three fills were recorded. An upper deposit (116/2) consisted of mixed grey/black/brown silt containing inclusions of charcoal, associated with very high quantities of carbonised oat and barley seeds and assorted ferrous metalworking remains, later identified as both slag and furnace-base. This overlay a lens of orange-brown redeposited silt (116/3). The basal fill consisted of



Illus 22 Post-alignment to the north-west of enclosure F171 and Pit F116



Illus 23 Pits F116, F131 and F134 sections



Illus 24 F116 section showing the reddened natural subsoil in the base

charcoal-rich silt (116/4) without obvious metalworking remains. A sherd of highly vitrified prehistoric pottery was recovered during the sample processing. The feature was notable for the quantity of carbonised seeds (over 45,000) and their association with the metalworking debris in a redeposited context. Although the constituents of the pit appeared to be unrelated to its primary function, the reddened base may be indicative of a heat-generating process being the primary function of the pit.

Four radiocarbon dates were obtained, two each from the upper and lower fills. These show firstly that the deposits were burnt between 1280 cal AD and 1420 cal AD at 2σ (Section 6.5) and that there was little or no difference in their dates of combustion, which is significant as there was no metalworking constituent in the lower fill.

Extending below the base of the pit, and clearly truncated by it, was a very substantial post-pipe (F131, *illus 23a*), the surviving portion of which

was 0.6m deep and it was clearly formed to accept a snugly fitting post without the need for packing stones, at least in the base. Several stones with surrounding voids (131/3) lay in the base of this pipe under loose soil (131/2) and the post is therefore likely to have been withdrawn.

Moving east, F123 and F125 were probably less substantial post-holes. F117 had a surface width of 0.85m and a depth of 0.9m. In section, the post-pipe (117/2) within it measured 0.3m in diameter. Packing stones (117/4) rested on a ledge halfway down the cut and required two people to remove them, such was their size. No finds were recovered. F127 was 1m from F117 and took the form of a sub-circular pit (127/1) with a width of 0.65m and depth of 0.55m. The feature appeared to have been backfilled as it contained layers of yellow-brown redeposited subsoil (127/2, 6) separated by a lens of red-brown soil (127/5). Later, the feature was cut (127/7) by a circular post-pipe which fitted snugly around the post (as F131) and tapered gently from 0.3m diameter on the surface to 0.2m in the base. The post had seemingly been withdrawn and the socket contained several large stones (127/4), far too large to have fitted around the post, with voids in the base below. No finds were recovered. F128–9 appeared to be smaller post-holes. F132 protruded

from the inner (concave) side of the alignment and may have been a disturbed post-hole.

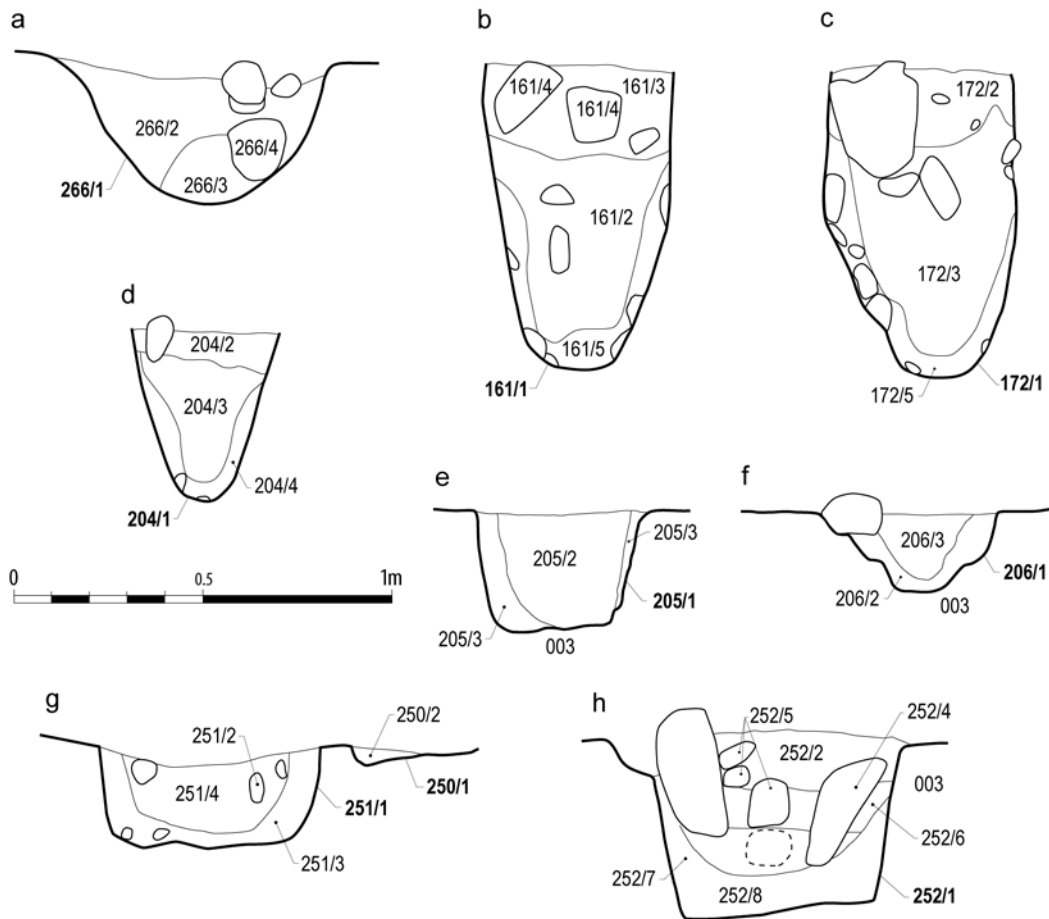
F134 (*illus 23b*), at the eastern end of the alignment has been dated to the Early Bronze Age and is described above (*Section 4.3*).

4.9 *Post-setting within the circular ditch to the south-east of enclosure F171*

A setting of three closely-grouped post-holes (F264–6) surrounded by a shallow ditch (F270, *illus 9, 25*) with a diameter of around 4m was recorded to the south-east of the enclosure (F171). The northern extent of the ditch had been truncated by both a modern quarry (F210) and by a 19th-century linear trackside ditch (F267). Only the heavily iron-panned base of the ditch survived and this had a width of 0.8m on its southern side, whereas the remainder was 0.5m wide. Centrally placed within the enclosed area, the post-holes forming the setting were 0.4m or less apart, 0.5m in diameter and of a similar depth. Feature 266 is representative and is shown in *illus 26.1*. No finds were recovered and there was little identifiable environmental information in the fills. Generally though, the nature of these fills were consistent with other, demonstrably prehistoric, post-holes.



Illus 25 Elevated view from the east showing the enclosure ditch (F171) on the right with the post-setting (F264–6) bottom right with the post-alignments centre and left



Illus 26 Post-setting and post-alignment sections

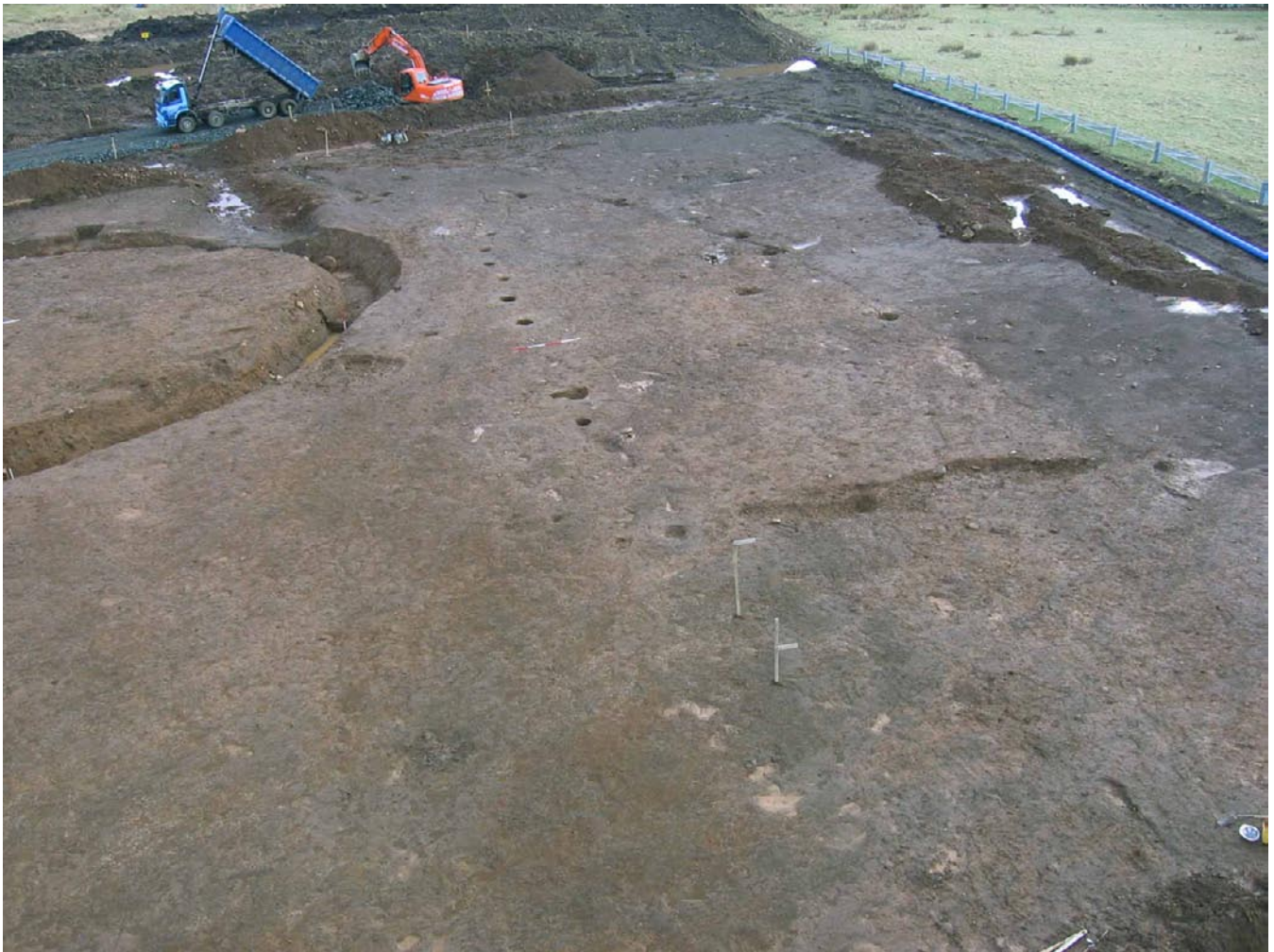
4.10 Post alignments to south of enclosure F171

Two fairly clear post-alignments of uneven length (*illus 9, 25, 27*), both featuring what may be an inturned angle or narrowing at their eastern extent, were recorded 3m and 12m to the south of the enclosure ditch (F171) on a north-east to south-west alignment. The northern alignment had a length of 18m and the southern 17m. Generally, the individual features measured 0.3–0.5m in width but F251–2 reached 0.6m. Depths were more varied, ranging from 0.2m to 0.8m. Both widths and depths increased towards the mid-point of each alignment. The identification of these alignments as a distinct feature group relies on the spatial relationships between features within each alignment, their roughly parallel nature and similarities in fill characteristics. It is recognised that they are of unequal lengths and that substantial (though consistent) gaps occur in both alignments. Fill characteristics mirrored many of the features forming Roundhouse 2 and, on analogy with that structure, the posts are interpreted as having decayed in situ.

The alignment closest to the enclosure consisted of eight unevenly-spaced post holes (from south-west

to north-east: F165, F194, F172, F161, F202, F204–6). Whilst the north-eastern extent of the alignment was readily apparent, the south-western end lay within a concentration of more ephemeral features to the north of F163 and was less clear. However, post-holes F194 and F165 were the only features in the area to have the characteristic red-brown charcoal flecked fills present in the remainder of the alignment. Spacing between individual posts was consistent over most of the 18m length, with the five post-holes at the north-eastern end all having a *c* 2m gap (centre to centre). Six metres separated F172 and F194 with nearly 2m between F194 and F165. Representative sections are shown in *illus 23b–f*.

Most of the features contained what appeared to be in situ packing stones and a clear post-pipe was present in all. Notable individual characteristics included what appeared to be an angled post setting in F194, with the post seemingly set at an angle of 45° from the vertical, although this could result from the removal of a large stone from the edge of the feature. Feature 165 had a sharp step midway up the profile reminiscent of F117 in the post-arc to the north-west (*Section 4.8*). A single pottery sherd was recovered from F204 but no organic material



Illus 27 Elevated view from the west showing post-alignments to the south of the enclosure

suitable for radiocarbon dating survived the wet-sieving process.

The second alignment lay 9m to the south-east of the first and consisted of four post-holes (F179, F252, F251, F257, *illus 26.7–8, 28*). Again, the characteristic red-brown fills of these features stood out from those nearby. This alignment covered a length of around 17m but the distances between individual features varied markedly albeit with a certain regularity. Two metres separated the central features (F251–2), with 7.5m between the post-holes at either end and those in the centre. The inturned angle at the north-eastern end (15°) was almost identical to that at the north-eastern end of the northern alignment (16°).

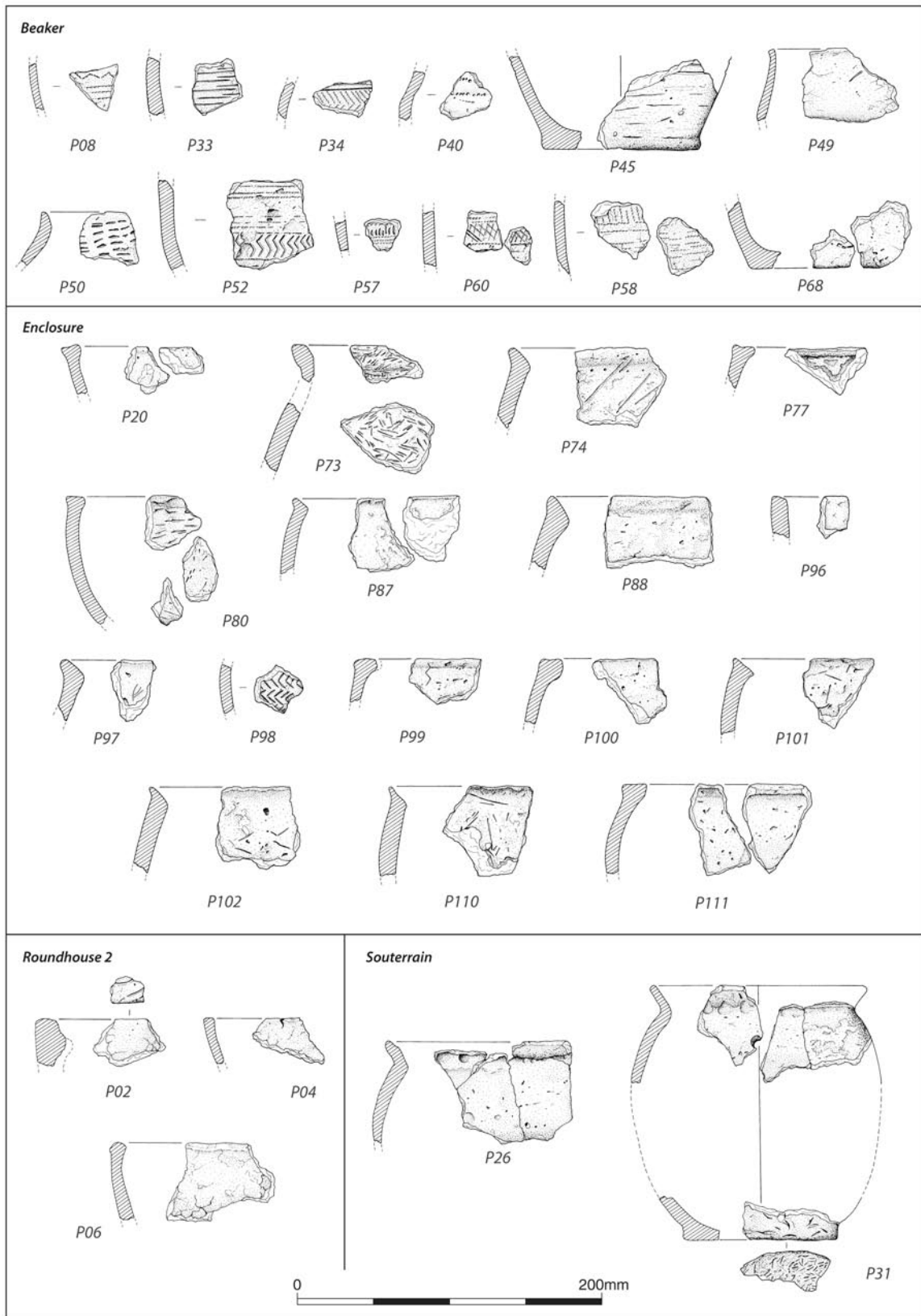
4.11 Other features to the south of the enclosure *F171*

Twenty-nine features (*illus 9*) that could not be related to any of the feature groups so far described were recorded to the south of the enclosure. These comprised F164, F167, F173–4, F176–8, F180, F182–3, F185, F188, F190–3, F196–200, F203, F250,

F253–5 and F267–9. The modern quarry F210 is not included and will not be further discussed.

To the north and east of miniature souterrain F163, a group of 25 features was recorded. These were concentrated in the area between F163 and the south-western extent of the post-alignments but extended with decreasing density as far east as F203 and F255. All are interpreted as either pits or small post-holes. Several contained red-brown silty fills, similar to those in the post-alignments and elsewhere, with others having brown or dark brown gritty silt with occasional rounded cobbles. No finds were recovered. F198 was shallow but had a red-brown fill and was roughly equidistant between the post-alignments. F174 contained quantities of blue-black silt which appeared to be degraded charcoal, as did F255, and the latter also contained the only carbonised wheat grain recovered from the entire site. No patterns can readily be distinguished from the plan of these remains and their varied dimensions suggest they are not all contemporary. Nevertheless, their spatial association with F163 may indicate that some, at least, have an association with that feature.

The linear features not included above (F250,



Illus 28 Pottery

F267–F269) may form a second feature group. These were notable in that they contained homogeneous and wet brown silty fills which resembled topsoil and contained a number of modern finds. Several also contained fragments of burnt bone. The bases of these features were not iron-panned in the way of the prehistoric remains and all are considered to be relatively modern. Several stone holes (not illustrated) containing modern ceramics were also recorded nearby. Features 250 and 267 were parallel linear ditches on the same alignments which, if continued, show a separation of 6m and may therefore be drainage gullies flanking the 19th-century track shown crossing this area. The appearance of these features coincides with an increasing slope to the east, and their incomplete nature must be the result of severe truncation of the flat ground to their west, a result of both ploughing and the use of a bulldozer for initial site clearance. Feature 250 managed to cut post-holes F251–F252 and F257, with F267 cutting F270, the circular ditch enclosing the post setting F263–F265. More enigmatic were F268–9. These took the form of a truncated U-shaped ditch (F268) within which at a distance of 1.5m was a concentric palisade slot (F269): on spatial grounds these appear to have been related. It was notable that the north-western arm of F268 was almost parallel with ditch F250 and both contained 19th-century ceramics. Both the artefacts and the fill characteristics suggest they are modern, but the morphology is typical

of more ancient remains and is slightly reminiscent of F181 to the west. If modern, F268–9 may be associated with animal management, perhaps for the shedding of sheep after lambing or during shearing.

4.12 Features to the west of the enclosure F171

This relatively flat area was largely devoid of archaeological remains. Features adjacent to the enclosure have been discussed above and only F135, F160, F228, F271 (*illus 9*) remain to mention.

F160 and F228 (*illus 5* lower left, *illus 7* extreme right) were both substantial post-holes containing depositional and morphological similarities to other large post-holes in the post-alignments and Roundhouse 2. F160 was isolated and measured 0.7m in width and 0.55m in depth. No post-pipe was preserved but the fills resembled those in other post-holes, being either yellow-brown silt or red-brown charcoal flecked silt. F228 was close to the enclosure and measured 0.6m in width and 0.55m in depth. A possible post-pipe was present in plan and in section within the upper part of the fill, but much of the feature contained redeposited yellow-brown subsoil, probably packing material. Two small pottery sherds were recovered.

F135 was an isolated pit containing quantities of charcoal and F271 was a pit containing a red-brown fill. No artefacts were recovered.

5 FINDS

5.1 Prehistoric pottery, by Melanie Johnson

5.1.1 Introduction

Five hundred and eight sherds of handmade prehistoric pottery, weighing 3.847kg in total, were recovered. The sherds were sorted into sherd families and catalogued, according to dimensions, fabric, surface finish, decoration, and morphology. A maximum of 121 individual vessels are represented, some by only one sherd. Much of the pottery is in a fragmentary state and few of the pots have substantial portions of their profiles surviving. A full catalogue has been prepared for the site archive.

The assemblage is summarised and discussed by each group of features, with a final discussion on the affinities and dating of the assemblage as a whole.

5.1.2 Beaker pits

The vast majority of the Beaker pottery (Table 2, [illus 28](#)) was recovered from the fill of Pit F168. Charcoal from context 168/4, the fill with the most pottery, has been radiocarbon dated to within the range 2550–2230 cal BC at 2 (Section 6.5) and lithic artefacts from Pit F168 (Ballin [below](#)) are also dated to the Early Bronze Age. This pit contained 112 sherds from 39 different Beaker vessels (P33–P71), with sherds spread throughout the fills. The majority of these are body sherds, with bases (P37, P44–46, P68), neck sherds (P38, P43, P55), and rims (P39, P41, P47–50, P64) also represented. Many of the vessels are represented by just one or two sherds.

The fabrics tend to be sandy, often orange or brown in colour on the surfaces with grey cores, with wall

thicknesses of 4–8mm, increasing to 11mm thick for bases. Several base diameters were measurable and these were 8cm (P44, P46), 10cm (P45) and 11cm (P49). Surfaces were generally well smoothed and sherds were often quite abraded. There were occasional grass marks and some corky fabrics, but these did not appear to form a significant part of the assemblage.

The vessels were highly fragmented so very little profile survived; it has therefore proved impossible to classify any of the vessel forms. The necks were concave and occasional carinations were visible, the rims were thin and rounded (P39, P41) and slightly flaring (P47–49, P64; [illus 28](#)); bases were slightly pedestal (P46, P68; [illus 28](#)) or flat (P44–45; [illus 28](#)).

Decoration was made by incision or by cord or comb impressions. The sherds were often small, resulting in only fragments of overall motifs being discernible; this has the result that the visible decoration on many of the sherds simply comprises parallel lines of either cord or comb impressions. However, several larger sherds were present, or small sherds with more complex patterns visible. These other motifs include overlapping lines (eg P33; [illus 28](#)), comb-impressed diagonals (P58; [illus 28](#)), chevrons (eg P53) and zigzags, often in combination with a border of parallel, presumably horizontal, lines (eg P34, P52; [illus 28](#)), and fingernail impressions also in combination with comb-impressed lines (P57; [illus 28](#)). There were also examples of lattice (P60; [illus 28](#)). The combs used were mostly square-toothed but there were examples of round-toothed combs as well (P40, [illus 28](#), P65). Of the decorated vessels, seven had incised decoration, five had cord impressions only, eight had comb impressions only and four had combinations of techniques. P49 survived in profile

Table 2 Beaker pottery by context

Feature	Context	No. sherds	Weight (g)	Vessels
Pit F168	168	1	10	<i>1</i>
Pit F168	168/2	9	57	<i>2/3</i>
Pit F168	168/3	9	50	<i>3/4</i>
Pit F168	168/4	73	585	<i>20/6</i>
Pit F168	168/5	2	3	<i>1</i>
Pit F168	168/7	12	78	<i>4</i>
Pit F168	168/8	4	39	<i>1</i>
Pit F168	168/11	2	7	<i>2</i>
Pit F134	134/2	2	6	<i>1</i>
Totals		114	835	34/6

Vessel numbers in italics indicate where sherds are found in more than one context

from the rim to the carination and was undecorated (illus 28).

One slightly unusual vessel had an internally bevelled rim decorated with short incised dashes across the exterior and bevel (P50; illus 28). A body sherd with very similar decoration, and which may in fact be from the same vessel, was found in 171/1007 (P84).

Two sherds of Beaker pottery (P08; illus 28) were also recovered from Pit F134, part of the alignment to the north-west (illus 22). These were the only sherds found in this pit, and were decorated with a comb-impressed geometric design comprising zigzag and parallel lines. The vessel was fine, thin-walled, with orange well-smoothed surfaces and a grey core. The sherds were abraded. Charcoal from this pit has been dated to 2570–2200 cal BC at 2σ .

Sites with Beaker assemblages are known from across the Inner and Outer Hebrides from a variety of site types including settlement, funerary, ceremonial and cave contexts (Gibson 1982; Armit 1996; Dunwell et al 2003).

The best comparative material can be found at Northton on Harris (Simpson et al 2006), where two horizons of Beaker midden material were identified along with stone structures in the earlier horizon. The assemblage therefore was seen as domestic, and has been radiocarbon dated to 2140–1680 cal BC. The fabrics here were also sandy with organic voids, with a range of coarse and fine vessels present. Decorative techniques were dominated by incision, along with comb, reed, cord and shell impressions in small quantities, and the same general geometric motifs are present.

It is not clear whether the Beaker deposits at Kiltaraglen demonstrate evidence for ritual or domestic activity. The disturbed cremation burial found in the stony fill of the large enclosure context 171/303 (Unit 4), has been radiocarbon dated to the Early Bronze Age, 2140–1880 cal BC at 2σ , which is acceptable as a later Beaker period date. The excavator concludes that this burial has been disturbed and redeposited. It may be that the cremation burial was disturbed from Pit F168 and that it was a Beaker burial, but there is a range of sherds and lithic artefacts deposited in F168, rather than a whole vessel which would be more typical, and there is some considerable discrepancy between the dates. However, it is possible that a Beaker cremation or an unurned Early Bronze Age cremation burial was present in the vicinity of these features and through post-depositional disturbance the burial has become incorporated into the enclosure ditch's upper fill. Associations of Beaker pottery with cremations are known from Skye, for example the secondary short cist inserted into Cnocan nan Gobhar chambered cairn at Kilmarie, excavated in 1926 to reveal a Beaker and a cremation (Callander 1928).

Beaker settlement sites are rare but there are examples from the Hebrides, unlike the rest of the British Isles where inhumations with Beaker

grave-goods are much more common than domestic deposits of Beaker pottery (Gibson 1982). These domestic sites include middens and structures at Northton, Harris (Simpson et al 2006), Rosinish, Benbecula (Shepherd 1976), Allt Chrìsal, Barra (Branigan & Foster 1995) and Dalmore, Lewis (Sharples 1983; Ponting & Ponting 1984). There were no examples of fingernail rusticated vessels at Kiltaraglen, so commonly attributed to Beaker domestic pottery (eg Gibson 1982), but neither were there any recorded at Northton (Simpson et al 2006): it is possible that domestic assemblages in Skye and the Hebrides were lacking in the rustication so typical elsewhere. There is little firm evidence at Kiltaraglen that the two pits containing Beaker pottery form part of, or are associated with, a domestic settlement site.

Extensive re-dating of Beakers is currently underway with two major, inter-related research projects, the Beaker People Project and the Beakers and Bodies Project (Sheridan 2007; Sheridan et al 2006, 2007; Curtis et al 2007). The Kiltaraglen radiocarbon dates from the Beaker features are noticeably early, the two features dating to 2570–2200 BC and 2550–2230 cal BC. Another early Beaker date for the Hebrides comes from the cist burial at Sorisdale on Coll (Ritchie et al 1978) associated with a Low Carinated (Needham 2005) All-Over-Cord decorated vessel. In fact, the burial associated with the AOC Beaker from Sorisdale provides one of the earliest Beaker dates in the British Isles (Kinnes et al 1991; Ashmore 1996; Sheridan 2007): it has been re-dated to 2470–2230 cal BC (Sheridan 2007), but is not alone in Scotland as Beakers from Keabog, Borrowstone and Broomend of Crichtie, all Aberdeenshire, Dornoch Nursery, Highland and Skateraw, East Lothian, all fall within the general range of 2480–2200 BC (Sheridan 2007). Sheridan has observed that Beaker use could have started in Scotland as early as the 25th century BC (Sheridan 2007: 96).

5.1.3 Circular enclosure F171

Fill of Ditch F171

Sherds from 40 different vessels (P72–P111, illus 28, Table 3) were recovered from the fills of the enclosure ditch. The ditch fills produced carbonised material from Unit 3 (171/1020) which has been dated to 1300–1050 cal BC, the interface between Units 3 and 4 (171/609), which has been dated to 1310–1020 cal BC, plus a deposit of cremated human bone from Unit 4 dating to 2140–1880 cal BC. Features cutting the top of F171 have been dated to 760–400 cal BC. Most of the pottery was recovered from 171/502 (Unit 5) and 171/902–4 (Units 3–5). The earliest stratified pottery consisted of ten sherds from a single vessel recovered from Unit 2 (171/802) in Slot 8, one of whose sherds was a footed base (P89). There is nothing to suggest that this latter vessel is of a different date from the rest of the assemblage, and likewise with the material from Units

Table 3 Pottery from enclosure F171 & associated features

Feature	Unit	No. of sherds	Weight (g)	Vessels
Ditch F171	None	5	69	2
Ditch F171	2	10	138	1
Ditch F171	3	2	54	2
Ditch F171	4	69	554	17
Ditch F171	171/903–4 (4–5)	28	482	5
Ditch F171	5	103	761	15
Pit F212	212/2	1	5	1
Feature F232	232/2	5	31	2
Feature F233	233/2	3	19	1
Totals		226	2113	46

3–5; the assemblage is uniform and fits well with the Late Bronze Age dates from this feature, apart from those examples discussed below from Unit 5. Examples of disturbance and re-working within the assemblage were found. P84 (Unit 5, 171/1007), a body sherd decorated with incised dashes appears to be the same vessel as P50 from the nearby Beaker Pit F168. A further sherd (P98, from 171/903, Unit 5; *illus 28*), decorated with stacked chevrons, is also likely to be Beaker in date and again is residual and may derive from F168. These sherds may have been disturbed and redistributed when feature F170 was cut between F168 and F171. They certainly attest to a degree of movement and disturbance of the pottery assemblage around the site from feature to feature.

A single footed base sherd (P89) was recovered from 171/802 (Unit 2). A further base sherd was found in 171/903–4 (Unit 4–5) (P109). Neither diameter was measured.

Several flat-topped, slightly necked vessels were found. Some of these had a closed mouth (eg P111; *illus 28*), or closed mouths with flat tops slightly expanded to each side (P87; *illus 28*). Non-necked forms included closed-mouth vessels with flat-topped rims (P99, P100; *illus 28*) or concave rim tops (eg P77, P80; *illus 28*), both of which had rim forms which were slightly expanded to each side. Another variation was an open-mouthed, slightly necked vessel with a flat-topped rim (eg P73; *illus 28*).

Internally bevelled rims were also found, also slightly necked to give the appearance of a very short everted rim on the exterior (eg P88, P90, P96, P97, P102, P110; *illus 28*). These tended to have rounded bodies where visible. One of these, from 171/102 (Unit 4), was decorated: P74 (*illus 28*) had a short everted rim with an internal bevel and a rounded body, and was decorated with faint diagonal incised lines across the body just below the neck. A variant was P101, where the rim was bevelled but expanded to each side as well (*illus 28*).

The vessels tend to be medium-coarse, with smoothed surfaces and a fairly high proportion of sooted surfaces. There are a variety of pastes, with sandy fabrics, some grass marking, and variable

quantities of stone and grit present. There are also a variety of firing techniques and colours present, ranging through oranges, browns and greys, all typical of low-fired handmade pottery. Sherd thicknesses range from 6mm to 12mm. Some of the sherds are also very abraded, suggesting some post-depositional movement.

These vessels are likely to be Late Bronze Age in date, belonging to the second half of the second millennium and perhaps into the first part of the first millennium BC, and have some similarities with the pottery from the ring-ditch structure, especially vessel P2. The Late Bronze Age pottery of the Hebrides has been discussed elsewhere (*Gilmour 2002; Johnson 2002; 2005; 2006*), but in summary it is apparent that there is a surprising lack of excavated pottery assemblages dating to the Bronze Age, compared with the profusion retrieved from earlier and later prehistoric sites. The post-Beaker Bronze Age is poorly understood and poorly dated, with burials and other types of site securely dated to the period, scarce. It is also apparent from the sites we do have that there is a great deal of variation through the Bronze Age, making it very difficult to pinpoint any ceramic sequences. Bronze Age assemblages are known from funerary sites such as Rosinish, Benbecula (*Crawford 1977*), Cnip, Lewis (*Close-Brooks 1995; Dunwell et al 1995*), Olcote cairn, Lewis (*Neighbour 2005*) and settlement sites such as Northton, Harris (*Simpson et al 2006*), Ceann nan Clachan burnt mound site, North Uist (*Armit & Braby 2002*), and Cladh Hallan, South Uist (*Atkinson et al 1996; Marshall et al 1998*). The Olcote, Rosinish and Cnip vessels are datable to the first half of the second millennium. The settlement sites are dated slightly later, through the second half of the second millennium and into the first millennium BC. However, the presence of incised decoration on the rim bevel and on the upper bodies of the vessels in simple motifs could be seen as characteristic of funerary pottery of the second millennium BC even when there is some variation in vessel shape. A trend for simple vessel shapes with flattened or rounded rims seems to be a theme in the first mil-

lennium, with slight everted rims and incised and applied decoration appearing towards the middle of the first millennium. These perhaps developed out of the closed-mouth and slightly necked vessels we see at Kiltaraglen.

While there are good local parallels for this pottery, there are also parallels from further afield and some of the pottery at least would not look out of place on roundhouse settlement sites across Scotland during this period, fitting within the ‘flat-rimmed ware’ tradition. Comparable assemblages of similar date are noted at Ormiston Farm, Fife (Sheriff 1988), Kintore, Aberdeenshire (Cook & Dunbar 2008), Lintshie Gutter, Lanarkshire (Terry 1995), and Oldmeldrum, Aberdeenshire (White & Richardson 2010), to name just a few.

It should be borne in mind that there may or may not be regional manifestations of wider traditions, local regional variations and distinctions between funerary and domestic pottery, and the lack of securely dated second millennium BC sites and comparative material on Skye itself means that the typologies are at present not well understood: as further sites are excavated and dated, it should become possible to tie down the chronological and regional sequences.

Internal to enclosure F171

A single small, very abraded, body sherd (P17) was found in feature F212, which lies inside the area enclosed by F171. It is impossible to assign this sherd to a specific period but is more likely to be later prehistoric than earlier.

Features cutting upper fills of F171

F232 contained five sherds (P19–20). Three of these were abraded body sherds (P19). P20 (illus 28) comprised rim sherds with an internal bevel present; however, very little of the profile survived and the sherds were very abraded. Linear feature F233 contained three body sherds (P21). It would seem likely for the sherds to be later Bronze Age, similar to those recovered from the enclosure ditch fills.

Feature 170

Ditch F170 lay between F171 and the Beaker Pit F168, and cut both of those features. It contained six sherds from two vessels (P22–P23). P22 was a single fairly large body sherd, while P23 formed a possible carination or base sherd. This latter was in poor condition. It is impossible to pinpoint a date for this material.

5.1.4 Later prehistoric structures

Roundhouse 1

A single sherd of undiagnostic pottery (P1) was recovered from a pit (F9) within the group of features representing a post-built structure (Table 4). This small (3g), abraded body sherd is impossible to assign to a specific period but is more likely to be later prehistoric than earlier. This is corroborated by the radiocarbon determinations from F40 which provide a calibrated date range of 1310–1050 cal BC at 2 σ .

Roundhouse 2 and ring-ditch structure

Eight sherds of pottery were recovered from features making up Roundhouse 2 and the ring-ditch structure (Table 4). Three of these were rim sherds (P02, P04, P06; illus 28) while the rest were undiagnostic body sherds. The fabrics were very similar, comprising fairly coarse fabrics with generally 1–7% grit. One of the sherds had vegetation impressions on the interior. They were generally light brown or orange to dark grey in colour, ranging from 4–20mm thick. Where visible, surfaces had been finished by smoothing. Some of the sherds had sooting present.

P04 (illus 28) was a narrow flat-topped rim recovered from F76, part of the primary post-ring. P02 (illus 28), was a thick flat-topped rim with a slight internal bevel, from F75, also part of the primary post ring. It was decorated with diagonal incised lines along the bevel. This sherd had a high sand content, unlike the other fabrics from this structure, which, along with the form and decoration, may suggest a slightly different date from the other rim sherds.

Table 4 Pottery from Later Prehistoric structures

Feature	Context	No. sherds	Weight (g)	Vessels
Pit F9	009/2	1	3	1
Pit F75	075/3	1	28	1
Pit F76	076/2	2	26	2
Pit F92	092/3	2	13	1
Ditch F99	99/04	1	4	1
Ditch F100	100/102	1	45	1
Ditch F100	100/33	1	22	1
Totals		9	141	8

Rim P06 (*illus 28*) came from F100, the fill of the ring-ditch. This was an upright flat-topped rim, slightly expanded on either side, and from a slightly barrel-shaped vessel. It was very similar in fabric to P4, both being dark grey in colour and with sooting present.

Although a small assemblage, on morphology and fabric the sherds (apart from P04 perhaps) fit comfortably within the known assemblages of Late Bronze Age pottery. This is corroborated by the radiocarbon dates from ring-ditches F99 and F100, which provide a calibrated range of 1200–840 cal BC at 2σ , with a more recent second date (530–380 cal BC at 2σ); the only pottery from F99 was a single small body sherd.

5.1.5 Miscellaneous and undated features

Feature 116

A small sherd (P10) was recovered from F116 to the south-east of the ring-ditch structure (*Table 5*). This was highly vitrified, suggesting it had been used in metalworking, and came from the fill of a large pit. Charred grain from this pit has been radiocarbon dated to cal AD 1270–1420 at 2σ , the medieval period.

Features F163 and F181

An irregular linear feature (F163) to the south of the ditched enclosure contained an assemblage of 142 sherds from nine vessels (*Table 5*). There were eight base sherds (P27, P29, P31, P32) and six rim sherds (P24, P26, P31; *illus 28*), with the remainder being undecorated body sherds. Two of the vessels (P27, P29) were possibly the same.

Fabrics tended to be coarse but hard fired, greys and browns in colour primarily, with wall thicknesses of 5–8mm. Fabrics had either very few inclusions visible or were sandy, and some had grass impressions visible. Surfaces were generally smoothed and overall the assemblage was in fairly good condition. The bases were heavily grass-marked on their undersides, suggesting that they had been formed with the vessel sitting on a grass pad while the vessel was still wet.

Of the three rim forms represented, two were everted rims (P26, P31; *illus 28*). The third was a very small, thin flat-topped rim with very little profile present (P24), and so it is difficult to say much about the vessel's morphology. The everted rims are both decorated with faint fingertip dimples along the neck. P31 also has a hole drilled through the upper body, which may have been for repairing the pot. Rim diameters could not be measured.

Everted rims, and fingertip decoration, are typical of the Middle Iron Age in the west and north, a phenomenon which is well documented; characteristic assemblages are known on Skye and on sites throughout the Hebrides where they tend to be associated with Atlantic Roundhouses, wheelhouses, or Middle Iron Age cellular structures (*Johnson 2005*). Similar ware was also recovered from Tungadale souterrain on Skye (*Miket 2002*) and the date is also consistent with the known period of use of souterrains. There is no other pottery of this date from the site and the pottery can confidently be said not to be medieval Craggan Ware on the basis of both form and fabric (*Cheape 1993*) and so lies in contradiction to the radiocarbon dates obtained from this feature: charcoal has been dated to AD 1175–1220. This feature also contained an iron nail and an undated object which

Table 5 Pottery from miscellaneous and undated features

Feature	Context	No. sherds	Weight (g)	Vessels
Pit F116	116/3–4	1	2	1
Miniature Souterrain F163	163	13	42	1
Miniature Souterrain F163	163/02	18	61	1
Miniature Souterrain F163	163/12	1	11	1
Miniature Souterrain F163	163/22	48	168	2
Miniature Souterrain F163	163/23	10	79	1
Miniature Souterrain F163	163/32	4	12	2
Miniature Souterrain F163	163/52	48	275	1
Ditch F170	170/2	1	26	1
Ditch F170	170/3	5	10	1
Miniature Souterrain F181	181	1	14	1
Post-Pit F204	204/02	1	2	1
Pit F208	208/05	4	36	3
Pit F208	208/06	2	18	1
Post-Pit F228	228/03	2	2	1
Totals		159	758	19

may be a belt slide from a horse harness or possibly a chain link (Anderson [below](#)).

Curvilinear feature F181, 8m to the south-west of F163, contained a single rim sherd (P11). This was an upright rounded rim and is very difficult to ascribe to a specific period as it has no distinguishing features. The fabric was very sandy and was grass marked, and the surfaces were roughly smoothed, suggesting a later prehistoric date.

Features 204 and 228

A pit, F204, to the south-east of the enclosure F171, contained a single body sherd (P12) ([Table 5](#)). Another isolated feature, Pit F228 on the west side of the enclosure, contained two very small body sherds (P18).

Feature 208

F208 was a large pit on the west side of F171. It contained six sherds from four vessels (P13–P16), all of which were body sherds ([Table 5](#)). Radiocarbon dates obtained from charcoal in this pit calibrate to cal AD 1020–1210 at 2σ . The sherds are impossible to ascribe to a specific period on fabric alone.

5.1.6 Unstratified finds

A single large sherd of later Neolithic pottery was found in topsoil near to Area 5. This decorated rim sherd was abraded, and was from a carinated jar with an internally bevelled rim, expanded to each side to form a T-shape in profile. It was decorated with deep incised lines, forming two rows of short diagonal lines along the rim bevel and blocks of short parallel lines on the neck, the blocks running both diagonally and almost horizontally; there was no decoration visible below the carination. This vessel is likely to be a variation of the Hebridean deep multiple-ridged jars, common in the Neolithic and seen, for example, at Northton, Harris ([Johnson 2006](#)).

5.1.7 Conclusions

Pottery was recovered from a number of features across the site, but in many instances just a few featureless sherds were recovered from a fill which proved difficult to ascribe to any given period, and so help little in either establishing a date of use of the features or a function.

Three significant groups of pottery were found. The first of these was an assemblage of Beaker pottery recovered principally from two pits *c* 50m apart. The second was a range of Late Bronze Age pottery, primarily recovered from the upper fills of the circular enclosure and from the ring-ditch structure dated to the second half of the first millennium BC. This latter assemblage is the more

significant as this period is one which is poorly understood in both the inner and outer Hebrides and as such contributes towards a new understanding of the types of pottery in use at that time and the sites it is associated with. The third group is the small assemblage of Middle Iron Age pottery which came from linear feature F163, a type of pottery more commonly known from the stone-built structures of this period.

While radiocarbon dating has indicated activity during the Early and Late Bronze Age, the Early Iron Age and the medieval periods, the pottery assemblages are Early and Late Bronze Age and Middle Iron Age; no medieval pottery was recovered from the site.

5.2 *Lithic artefacts, by Torben Bjarke Ballin*

5.2.1 Introduction

In total, 155 lithic artefacts were found. They were recovered from a circular enclosure and nearby features; a post-built structure (Roundhouse 1), a feature adjacent to a second roundhouse (Roundhouse 2), and as unstratified finds.

The lithic collection is heavily dominated by flint, baked mudstone and tuff ([Table 6](#)), and as baked mudstone (properties, technology etc) is currently poorly understood, due to the recovery of few assemblages in this material, one specific objective of this report is to increase our understanding of this material. This is of great importance to the interpretation of the region's territorial structures and exchange networks, as it has been suggested that the mylonite frequently recovered from excavations on the Western Isles may be Isle of Skye 'banded mudstone' (eg [Wickham-Jones 1986](#): 7). The evaluation of the lithic assemblage is based upon a detailed catalogue of all the lithic finds, and the artefacts in this report are referred to by their number (CAT no.) in the catalogue.

5.2.2 The Assemblage

The 155 lithic finds are listed in [Table 6](#). The definitions of the main lithic categories are as follows:

Chips: All flakes and indeterminate pieces the greatest dimension (GD) of which is ≤ 10 mm.

Flakes: All lithic artefacts with one identifiable ventral (positive or convex) surface, $GD > 10$ mm and $L < 2W$ (L = length; W = width).

Indeterminate pieces: Lithic artefacts which cannot be unequivocally identified as either flakes or cores. Generally the problem of identification is due to irregular breaks, frost-shattering or fire-crazing. *Chunks* are larger indeterminate pieces, and in, for example, the case of quartz, the problem of identification usually originates from a piece flaking along natural planes of

Table 6 Lithic artefact summary

	Flint	Mudstone	Tuff	Quartz	Quartzite	Sand-stone	Chalcedony	Jasper	Felsite	Jet	Total
<i>Debitage</i>											
Chips	2										2
Flakes	38	16	13	3	2	2		1		1	76
Blades	3								1		4
Microblades	1			1							2
Indeterminate pieces	12	15	12	1	1	1	1				43
Platform rejuvenation flakes			1								1
<i>Total debitage</i>	<i>56</i>	<i>31</i>	<i>26</i>	<i>5</i>	<i>3</i>	<i>3</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>128</i>
<i>Cores</i>											
Irregular cores	1		1								2
Other cores	1										1
Core fragments	1		1								2
<i>Total cores</i>	<i>3</i>		<i>2</i>								<i>5</i>
<i>Tools</i>											
Discoidal scrapers	1										1
Short end-scrapers		2									2
Side-scrapers	1		1								2
Side-/end-scrapers	3	1									4
Backed knives			1								1
Scale-flaked knives		2									2
Piercers	3										3
Pieces with edge-retouch	7										7
<i>Total tools</i>	<i>15</i>	<i>5</i>	<i>2</i>								<i>22</i>
Total	74	36	30	5	3	3	1	1	1	1	155

weakness rather than flaking in the usual conchoidal way.

Blades and microblades: Flakes where $L \geq 2W$. In the case of blades $W > 8\text{mm}$, in the case of microblades $W \leq 8\text{mm}$.

Cores: Artefacts with only dorsal (negative or concave) surfaces – if three or more flakes have been detached, the piece is a core, if fewer than three flakes have been detached, the piece is a split or flaked pebble.

Tools: Artefacts with secondary retouch (modification).

5.2.3 Raw material – types, condition and sources

The lithic assemblage is predominantly in flint (48%), baked mudstone (23%) and tuff (19%), supplemented by small amounts of quartz, quartzite, sandstone, chalcedony, jasper, felsite and jet. The

supplementary raw materials were all recovered in numbers ranging from one to five pieces.

Some of the flint is relatively fine-grained with good flaking properties (including the collection's scrapers), but many of the flint artefacts are in medium-grained varieties, with occasional impurities and flaws. One discarded flint nodule was covered by several centimetres of thick cortex. Although vitreous orange pieces occur (eg microblade CAT 148), most flints are matt, marbled and grey, cream or light brown. No local sources of flint appear to be known (cf maps in [Wickham-Jones & Collins 1978](#): 10; [Saville 1994](#): 58; also [Trewin 2002](#): 351). Cretaceous deposits are present in the sea surrounding the southernmost Hebridean islands, such as Islay and Mull, but seem to be scarcer further towards the north.

Baked mudstone developed when fine-grained sedimentary rock was altered in connection with volcanic events in the Skye area, transforming the

sedimentary country rock into a much harder metamorphic rock (a meta-sediment). Baked mudstone is particularly common around Staffin Bay (Emeleus & Bell 2005: 35), on the north-eastern coast of Skye, but minor local outcrops are expected to exist (Wickham-Jones & Hardy 2004: 22). As all the site's artefacts in baked mudstone are heavily weathered, it has not been possible to determine whether this resource was quarried or collected from pebble sources. However, it is generally thought that baked mudstone was procured (quarried) from the sill above the Staffin rock-shelter (Saville & Miket 1994), or from similar outcrops in the north-eastern parts of Skye.

In general, baked mudstone has excellent flaking properties (cf Saville 2004: 208), but the fact that it is a meta-sedimentary rock means that it is foliated (not necessarily visibly so). This causes some pieces to flake along natural layers, or along planes of weakness. When it has just been procured from primary sources, Staffin baked mudstone is black, and it may be very faintly banded. However, it is a relatively soft rock, and with time it weathers and becomes grey, light-grey or white. When it weathers, its surfaces disintegrate and turn into fine powder. This may make heavily weathered pieces appear almost 'soapy'.

The two most important points regarding the alteration of baked mudstone are firstly that it is practically black when fresh, and that the characteristic stripes, which have caused the creation of the term 'banded mudstone' only appear after weathering; and secondly that in its weathered state it is practically indistinguishable from weathered mylonite and weathered hornfels.

A number of artefacts are in a dark and relatively hard rock. The rock was very difficult to identify, as it showed similarities with relatively fresh baked mudstone as well as with some tuffs. Dr Brian Bell (Department of Earth Sciences, Glasgow University) studied the samples and felt that they are likely to be welded crystal-lithic tuffs or ignimbrites, similar rocks of which occur around Kilchrist (south of Broadford), and around Fionn Coire (between Sligachan and Glen Brittle), but may well occur elsewhere (B Bell pers comm). In the following text, as well in the report's various tables, it has been chosen to refer to these pieces as tuffs. An important point for lithic specialists attempting to identify rocks from Skye is that these tuffs appear to weather differently to Staffin baked mudstone, as they may become abraded or rounded, but their surfaces do not become powdery or 'soapy'.

The remaining raw materials all form part of the varied geological environment of the wider Skye area. Quartz may be found throughout the area, either in vein or pebble form, as it forms part of igneous, sedimentary and metamorphic rocks (Pellant 1992: 86); quartzite is common on the mainland east of Skye, where it forms part of the so-called 'Basal Quartzite' (Johnstone & Mykura 1989:

36), and it may be collected along the shores of Skye as glacially derived pebbles; Torridonian sandstone is found at the southern end of Skye as well as on Raasay, immediately opposite Portree (Woodland 1979); chalcedony and jasper mostly form in volcanic rocks, such as those associated with Skye's Central Igneous Complex, as well as its surrounding Skye Lava Group (Pellant 1992: 88; Emeleus & Bell 2005: 50); felsite is known from the north-eastern part of the Western Red Hills Centre (the Skye Central Complex) (Emeleus & Bell 2005: 100, 105); and even high quality jet may be found on the island (*ibid*: 27).

Thirty-one pieces of flint (or 42%) are firecrazed. Two of those (CAT 100, 145) have been so severely burnt that they have been characterised as vitrified. 'Vitrification' means that the pieces were exposed to such high temperatures that their surfaces melted in places and turned 'glass-like' (cf Ballin forthcoming a). These pieces are clearly more highly burnt than one would expect from ordinary settlement scenarios, where flints may have fallen into the ashes during knapping by the camp fire. The fact that both pieces were recovered from topsoil suggests that they may be late, and they were probably burnt accidentally in connection with the medieval metal production at Kiltaraglen. This proposition is further supported by the fact that 90% of all burnt flints derive from disturbed upper levels, whereas only three of the site's fifty-eight contexted (undisturbed) flints are burnt.

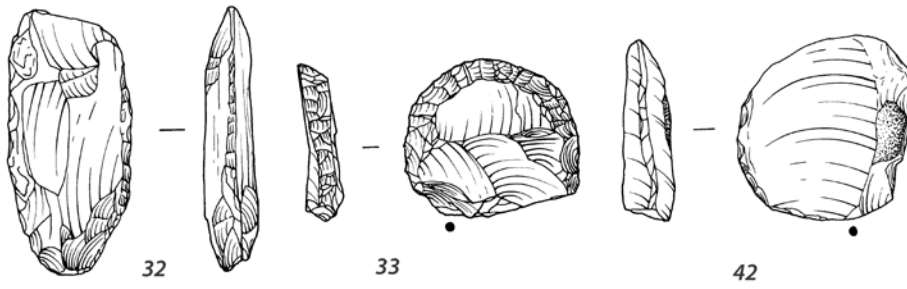
5.2.4 The circular enclosure and nearby features

The assemblage from the enclosure and nearby features embraces 32 lithic artefacts, most of which are either flint (12 pieces) or baked mudstone (17 pieces), supplemented by small numbers of tuff, quartz, quartzite and jasper (Table 7). The majority of the artefacts (26 pieces or 81%) are debitage, and 6 pieces are tools.

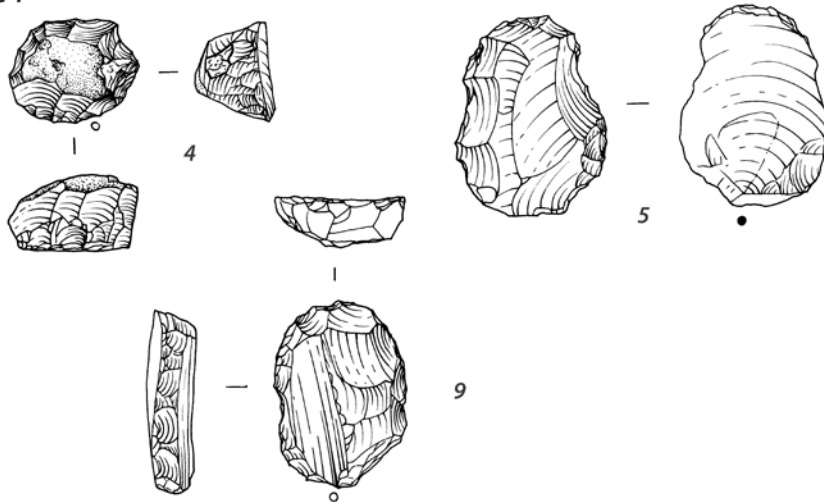
The debitage includes 1 chip, 18 flakes and 7 indeterminate pieces. The baked mudstone flakes were apparently produced entirely by hard percussion, and the flint flakes by a combination of hard and bipolar techniques. The quartz flake is a bipolar blank, and the quartzite flake is a hard-hammer blank.

The six tools include three scrapers, two scale-flaked knives and one piece with edge-retouch; with the exception of the latter, which is in flint, all tools are in baked mudstone. Most definable tools are on hard-hammer flakes – only the edge-retouched flint flake was produced by the application of bipolar technique. The two short end-scrapers (CAT 33, 42, *illus* 29) are of approximately equal size, with a curved, relatively acute working edge at the distal end (CAT 33) or the left lateral side. The scraper edges are exceptionally regular. The side-/end-scraper (CAT 38) is a smaller scraper, which broke through the lateral working edge. The implement's distal working edge is intact. The two scraper edges

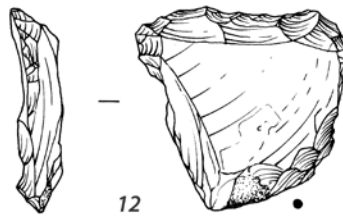
Beaker



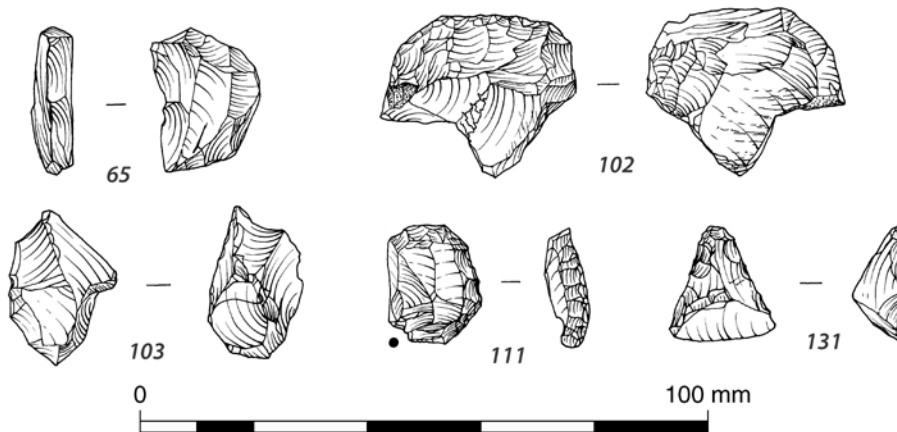
Roundhouse 1



Roundhouse 2



Unstratified Material



Illus 29 Lithics

Table 7 Lithic artefacts from the enclosure and nearby features including F168

	Flint	Tuff	Mudstone	Quartz	Quartzite	Jasper	Total
Chips	1						1
Flakes	9		6	1	1	1	18
Indeterminate pieces	1	4	2				7
Short end-scrapers			2				2
Side-/end-scrapers			1				1
Scale-flaked knives			2				2
Pieces with edge-retouch	1						1
Total	12	4	13	1	1	1	32

of this piece are convex and steep, and they were made by the application of ordinary edge-retouch.

One scale-flaked knife (CAT 32, [illus 29](#)) is intact. It is based on a regular stout blade, with regular steep blunting along the entire left lateral side, and a more acute scale-flaked cutting edge along the entire right lateral side. CAT 43 is a small side-fragment of a quite thin scale-flaked knife. The surviving edge-fragment represents a small central section of the scale-flaked cutting edge of the implement.

Seventeen pieces were recovered from F168, and are dominated by baked mudstone (76%). The group can be dated approximately by the typo-technological attributes of its more sophisticated implements: acute, pressure-flaked scraper edges (CAT 38, 42) are generally a feature of the Early Bronze Age period (eg [Saville 2005](#): 110, 124); scale-flaked knives on robust hard-hammer blades are mostly seen in the Late Neolithic period (eg [Manby 1974](#)); and invasive retouch/scale-flaking is generally not seen later than the transition between the Early and Late Bronze Age periods ([Clark 1936](#): 47). Basically, the precise dating of this material hinges on whether the blade blank of CAT 32 is an intentional blade or simply an elongated flake which incidentally turned out longer than intended. If the blade is an intentional piece, CAT 32 is Late Neolithic, and if it is an unintentional blade it is most likely of an Early Bronze Age date, as the specialised production of blades was phased out during the previous period ([Pitts & Jacobi 1979](#); [Ballin forthcoming b](#)). As F168 contained a high number of Beaker sherds, the blade is probably an unintentional blade, and the entire lithic assemblage most likely dates to the Early Bronze Age, as supported by the radiocarbon dates.

Fifteen pieces from other features were dominated by flint (60%), and many of these pieces are small and poorly executed artefacts. This sub-assemblage only includes one expedient tool (CAT 51). The remaining artefacts from the enclosure ditch (F171), from pits immediately inside (F216) and outside (F167, F208) the ditch, and from the possible miniature souterrains (F163, F181), appear to be simple production waste and may not necessarily be contemporary. Eight lithics from the enclosure ditch may post-date its construction, whereas the artefacts in the

remaining features may be residual pieces, pre-dating their parent features.

5.2.5 Roundhouse 1

Only eight lithic artefacts ([Table 8](#)) were recovered from Roundhouse 1, from features 2–4m south-west of the main circle of post-holes constituting this structure (F4, F5, F7), two of which are part of the entrance foundations. The assemblage embraces four pieces of debitage, one core, and three tools, with five objects being in flint and three in tuff or mudstone.

The debitage includes three hard-hammer flakes and one blade (CAT 6). The solitary core (CAT 3) is an irregular specimen, reduced from a number of different directions. It is relatively flat, but this is probably more a result of the raw material's flaking properties (eg planes of weakness) than a reflection of the knapper's intentions. The three tools include one discoidal scraper (CAT 4, [illus 29](#)) and two side-/end-scrapers on stout hard-hammer flakes (CAT 5, 9, [illus 29](#)). Although CAT 4 fits the metric definitions for thumbnail-scrapers suggested by the analyst ([Ballin 2002b](#)), it is too thick to be defined as a typical EBA specimen, and its scraper edge is too steep and crude. CAT 5 and CAT 9 are robust, well-executed scrapers of roughly equal size, with a convex, steep scraper edge at the distal end. CAT 5 has full, straight to slightly convex retouch along both lateral sides. This modification could possibly represent blunting, but the fact that both sides have the same form of use-wear (overhanging areas) as the main distal working edge, suggests that they

Table 8 Lithic artefacts from Roundhouse 1

	Flint	Tuff	Mudstone	Total
Flakes	1	1	1	3
Blades	1			1
Irregular cores		1		1
Discoidal scrapers	1			1
Side-/end-scrapers	2			2
Total	5	2	1	8

are ancillary scraper edges. CAT 9 has an ancillary convex, steep scraper edge along the right lateral side and relatively plain blunting along the left lateral side. This piece has also been used.

The present assemblage includes no strictly diagnostic pieces, but the dimensions and execution of the blade fragment (CAT 6) suggests a date in the middle of the Early Neolithic period. Blades from the earliest part of this period are usually as narrow as Late Mesolithic blades, and the fact that CAT 6 was detached by soft percussion suggests a date before the onset of the Late Neolithic period. Late Neolithic blades tend to have been detached by more robust techniques (cf Butler 2005, 157).

5.2.6 Roundhouse 2

Most lithic finds, 16 of 18 pieces, were retrieved from F55, a sub-circular feature to the south of the structures. The other two lithics (CAT 28, 29) were found in a post-hole (F83) and in the ring-ditch (F100).

The assemblage (Table 9) embraces fifteen pieces of debitage, one preparation flake (a platform rejuvenation flake), one core fragment, and one tool (CAT 12, a small backed knife on a hard-hammer flake, *illus 29*). All artefacts are in baked mudstone. The debitage includes eight hard-hammer flakes, one indeterminate blade, and six indeterminate pieces. The assemblage includes no diagnostic elements.

5.2.7 Unstratified material

Table 9 Lithic artefacts recovered from Roundhouse 2 and the ring-ditch

	Tuff	Felsite	Total
Flakes	8		8
Blades		1	1
Indeterminate pieces	6		6
Platform rejuvenation flakes	1		1
Core fragments	1		1
Backed knives	1		1
Total	17	1	18

The unstratified material was largely collected from the banded topsoil around the edge of the site. It includes 57 pieces of flint (59%), 22 pieces of mudstone (30%), 7 pieces of tuff (7%) and small numbers of artefacts in quartz, quartzite, sandstone, chalcedony and jet. It is dominated by debitage (82 pieces or 85%), supplemented by 3 cores (3%), and 12 tools (12%).

The debitage includes 1 chip, 47 flakes, 2 blades, 3 microblades and 29 indeterminate pieces.

The tools embrace six formal tools (three scrapers and three piercers), and six plain edge-retouched

pieces (three flakes, two blades and one indeterminate piece with indeterminate lateral retouch; all of unknown function). The technologically definable tools are partly on hard-hammer flakes, and partly on bipolar flakes. One side-end-scraper (CAT 111, *illus 29*) is a small, fairly well-executed piece. It has two slightly convex, steep working edges, one at the distal end and one along the right lateral side. The two remaining scrapers are both side-scrapers, and both are clearly expedient pieces. CAT 65 (*illus 29*) is a small, fragmented mudstone flake which has a straight, steep scraper edge along one lateral side and additional, possibly blunting, retouch along an adjoining edge. The three piercers are all equally expedient pieces, based on small flake fragments. In all cases, a simple piercer tip was formed by retouching two merging sides of a corner. This corner included either one original lateral side and one break facet or, in the case of CAT 131 (*illus 29*), two adjacent break facets.

The three cores, which are in flint, all appear to be fairly expedient pieces, resulting from various forms of unschematic knapping. CAT 102 (*illus 29*) is a small and relatively flat 'other core', one face of which was reduced by detaching small flakes along one half of its circumference, whereas the opposite face was reduced by detaching small flakes along approximately one third of its circumference, more or less from the opposite flaking direction of the former face. The piece could possibly be labelled an irregular discoidal core, but as the chosen approach is not likely to represent any well-defined operational schema, it was chosen to classify CAT 102 as an expedient 'other core'. The second illustrated core (CAT 103) is small and irregular. It was reduced by flaking from three different directions.

The less exclusive choice of raw materials, the apparent lack of a schematic operational schema and the generally expedient character of the tools suggest that most of these artefacts from the site's upper, disturbed layers may be Later Prehistoric, they probably date either to the later Bronze Age (most probable) or to the early Iron Age (Young & Humphrey 1999; Ballin 2002a). Only two artefacts seem to be of earlier dates, namely microblade CAT 148 and side-/end-scraper CAT 111. As CAT 148 was detached by the application of soft percussion, it most likely dates to the Late Mesolithic period or to the Early Neolithic period (Butler 2005: 84, 121). As CAT 111 has not got the acute, pressure-flaked working edges so characteristic of the Early Bronze Age it is not necessarily contemporary with the typical Early Bronze Age scrapers from the pit outside the circular enclosure (see above), but the high quality of its execution indicates that it is older than this collection's later Bronze Age finds.

5.2.8 Conclusion

The full assemblage embraces 128 pieces of debitage, 5 cores and 22 tools, but the typological composi-

tion, as well as the raw material composition, varies considerably between the collection's different sub-assemblages

The eight objects from Roundhouse 1 are dominated by five pieces of flint, supplemented by two pieces of tuff and one piece of baked mudstone. It includes four pieces of debitage, one of which is a regular blade, one irregular core and three tools. All the tools are well-executed scrapers. The eighteen artefacts from Roundhouse 2 are almost entirely in tuff, supplemented by one piece in felsite. It is an assemblage of fairly crude and chunky artefacts, and includes sixteen pieces of debitage, one core fragment and one backed knife. The 32 pieces from the circular enclosure and nearby features are mostly in flint or baked mudstone. Twenty-six pieces are debitage, whereas the remaining six pieces are well-executed tool forms (all in baked mudstone), such as scrapers and scale-flaked knives. The 97 unstratified artefacts are mostly in flint and baked mudstone. Eighty-two pieces are debitage, three are cores and twelve are tools, and, in general, this assemblage is dominated by expedient and poorly executed specimens.

It is uncertain whether the lithic assemblages from the various features and their surroundings are actually contemporary with those buildings and monuments, but it is thought that the high-quality baked mudstone implements deposited in Pit F168 immediately outside the enclosure may be contemporary with this monument. Based on a combination of raw material preferences and typotechnological attributes, it was suggested above that the finds from Roundhouse 1 may largely date to the central part of the Early Neolithic period; it was not possible to date the tuff assemblage from Roundhouse 2; the artefacts from the enclosure (or at least those from F168) are thought to date to the Early Bronze Age period; and most of the unstratified (largely topsoil) finds are probably of later prehistoric date.

Although the present assemblage from Kiltaraglen is exceedingly mixed in most respects, it does offer new insights. In the general perspective, it provides information on the geology of the Skye area and, within this area, raw material procurement through prehistory. Also it increases our understanding of Staffin baked mudstone, and allows us to form new research strategies, which may allow us to finally solve the old problem as to whether the banded meta-sedimentary rock forms from settlements in the Western Isles are baked mudstone or mylonite. The latter point is probably the most important one, as this has implications for the understanding of raw material exchange in general in the wider Western Isles/Southern Hebrides area.

5.3 Coarse stone, by Adam Jackson

Fifteen worked finds were recovered, largely comprising cobble tools (discussed below), with the

exception of a grinding platform from 216/2. The raw materials used were all locally available.

The cobble tools are generally natural cobbles with evidence of hammering, pounding, and/or grinding damage to one or more surface. The cobble from 171/181 is particularly worthy of mention because its natural form and the heavy wear to both poles is consistent with use as a pestle. With this possible exception, the cobble tools were all expedient tools and it is quite probable that some were simply used once and discarded. The wear to the cobble tools is consistent with use in a variety of functions (eg in preparation of food stuffs, grinding of pigments etc).

Cobble tools were widely distributed, being recovered from the fills of ring-ditch F100 (2) and features F55 (1) and F88 (1), which were associated with Roundhouse 2. They were also in the fills of the enclosure ditch F171 (6, including 1 possible) and in the features cut into its surface F227 (1), and F230 (1). Two, and a sandstone grinding platform/quern, were recovered from F216 within the enclosure.

Three of the four finds from F100 are fire blackened and/or heat damaged. Their depositional history is likely to have been complex as it is quite probable that they were first used as cobble tools, discarded and then reused at the hearth or in the

Table 10 Range of vitrified material present

Description	Weight (g)
<i>Diagnostic</i>	
Plano-convex hearth bottom (PCHB) & fragments	1076.8
Possible PCHB fragments	454.1
PCHB fragment (?post-med)	474
Magnetic residue	53.8
Unclassified iron slag	1346.7
<i>Undiagnostic</i>	
Non-magnetic residue	89.6
Vitrified ceramic & unclassified slag	102.7

Table 11 Quantity of vitrified material by context

Feature No.	Feature description	Weight (g)
F54	Field drain	474.0
F100	Ring-ditch	9.5
F116	Pit	1472.0
F163	Miniature souterrain	35.5
F168	Beaker pit	2.1
F169	Pit	5.5
F177	Pit	3.1
F195	Pit	192.6
F213	Pit	22.7
Unstratified	Spoil heap	1382.8

Table 12 Contexts with magnetic residues

Context	HS	Flake	Sphere	Amount	Weight (g)
169	Y	Y	Y	High	2.4
169/2	Y	Y	Y	High	3.1
195	Y	Y	N	Low	18.3
195/2	Y	Y	Y	High	30

(HS – presence of hammerscale; flake – presence of flake hammerscale; sphere – presence of slag spheres; amount – visual estimation of quantity of hammerscale; weight – actual quantity of material in grams)

cooking process and then finally discarded. Finds from the fills of F171 and associated features are more numerous but broadly comparable, except for the pestle/pounder mentioned above. Their form and, particularly, their context of recovery (in later fills) are consistent with ceramic evidence of mid-second millennium to later first millennium BC activity at the site. However, cobble tools occur in large number across Scotland on sites of prehistoric and much later date; consequently they provide no useful indication as to the chronology of the contexts in which they were recovered.

5.4 Slag and vitrified material, by Dawn McLaren

A small assemblage of vitrified material (3698g) was recovered. Visual examination has shown that the assemblage is dominated by ironworking debris (Table 10) including fragmentary hearth bottoms, unclassified iron slag and magnetic residues, probably waste from blacksmithing activities. No evidence of iron smelting was identified.

In addition to the diagnostic ironworking residues, small fragments of vitrified ceramics and glassy slags are present. The slag has been categorised following common classifications (eg McDonnell 1994; Spearman 1997; Starley 2000). A full catalogue of the material is given in the archive report.

A significant quantity of material (1386.4g) was recovered from unstratified contexts and cannot be related to any structure on site. Only small amounts of material came from stratified contexts, and these are widely distributed across the site (Table 11). Stratified contexts include pit fills (F116, F168, F169, F177, F195, F213), the fill of a ring-ditch (F100), a souterrain related feature (F163) and a field drain (F54).

The upper fill of Pit F116, dated to the medieval period, contained charcoal-rich silty soil and a suite of ironworking remains including four fragmentary hearth bottoms, unclassified ironworking slag and small fragments of burnt/vitrified ceramic likely to be hearth or furnace lining. A small quantity (539.3g) of heat-affected stones were also present. Although all of the hearth bottoms from this context are fragmentary, the diameters of two can be estimated as 70 mm and 91.5 mm respectively. Their small size, weight and lack of sizeable charcoal inclusions suggest that these are likely to be the product

of smithing (McDonnell 1994, 230), rather than smelting activities. The lack of any micro-debris from this context, such as hammerscale or slag spheres, suggests that this deposit was a secondary dump of waste material rather than an in situ metal working pit.

A further suite of ironworking waste was recovered from an undated pit (F195) located immediately west of the enclosure ditch (F171). This shallow pit contained only one fill (F195/2), from which a fragment of possible hearth bottom, unclassified slag and small quantities of magnetic and non-magnetic residues were recovered. Significantly, the magnetic residues comprised a high level of hammerscale in the form of magnetic flakes and slag spheres (Table 12) diagnostic of bloom or blacksmithing activities.

A small quantity of magnetic residues including high levels of hammerscale was also recovered from Pit F169, which is located immediately east of Pit F195. No structural elements were noted to indicate the presence of a hearth or furnace associated with either of these features, nor do these pits appear to have been the focus for intense burning. These factors and the small quantity of magnetic residues involved suggest that these are small dumps of smithing waste rather than in situ metalworking evidence. Yet the presence of such diagnostic micro-debris does suggest that smithing activities were taking place in the close vicinity of these features at an unspecified date.

A further hearth bottom fragment came from the fill of a modern field drainage ditch (F54). It was associated with various modern finds and is likely to be relatively modern in date.

Very small fragmentary pieces of unclassified iron slag were recovered from the fills of a pit (F213) and a miniature souterrain (F163), the latter in association with prehistoric pottery. These are almost certainly residual and although diagnostic of ironworking, cannot be related to a particular process. Two features, Pit F177, located near to the enclosure ditch, and the fill of ring-ditch F100 contained small quantities of non-magnetic residues such as fuel ash slag. Such vitreous material is formed when sand, earth, clay, stones and ash fuse together when subjected to high temperatures, for example in a hearth. This produces vesicular glassy or porous vitrified material which is typically not magnetic. These slags can be produced during any high-temperature pyrotechnic process and are

not necessarily indicative of deliberate industrial activity.

Despite the clear evidence of ironworking, particularly smithing, at Kiltaraglen, dating this activity remains a problem as vitrified material is rarely chronologically diagnostic. One isolated fragment, from F163, was associated with prehistoric and later finds. However Pit F116, which contains a possible dump of ironworking debris, has a firm medieval date and it is likely that much of the slag assemblage is of a similar date.

At present, very few sites on Skye are known to have produced any evidence of metalworking. This is due, in part, to the relative lack of excavation but also to the number of sites that remain unpublished. A search of the available records reveals four later prehistoric and early historic sites with evidence of ironworking. Iron slag and a smelting furnace were found within early Iron Age deposits inside Rudh' an Dunain cave (Scott 1934: 201, 207–8). Iron slag fragments were recovered from the interior of Dun Ardtreck (MacKie 2000: 345). Although most likely derived from activities outside the dun itself, the presence of vitrified material in phase 1, 3 and 4 deposits indicates that ironworking was taking place nearby in the later prehistoric period. Fragments of 'frothy iron slag' are also recorded at the broch at Dun Beag (Callander 1921: 125), but this material cannot be closely dated. The reuse of the structure in the early medieval period confuses the situation, and this ironworking residue could be later prehistoric or medieval in date. More recently, small quantities of vitrified material, including debris from ironworking, have been recovered from the later prehistoric site at High Pasture Cave (S Birch pers comm).

Despite the lack of firm dating evidence for the majority of associated features, the presence of medieval ironworking debris, and smithing residues in particular, make Kiltarglen a valuable addition to the growing corpus of sites producing metalworking evidence in Skye and north-west Scotland.

5.5 Late medieval coin, by Nick McQ. Holmes

A coin was recovered from topsoil. It is a David II silver half-groat of Aberdeen, 2nd coinage (1358–

67), type A. Dimensions: 23.5mm × 23.0mm; Weight: 2.19g; die axis: 240°. Condition: partly corroded, but apparently only slightly worn.

Obv.: +D̄AVID+D̄DEI+GR̄A+ΘREX+SCOTORVM

Rev.: D̄DNSΘ D̄PRΘOT ECTOR M̄DEVSΘ
VILL A+Λ BER DON

Aberdeen mint half-groats of this issue are not common, this being the 19th specimen which the author has been able to trace. It is from the same die pairing as the coin illustrated by Stewart (1971, Plate XVII, 28a).

5.6 Post-medieval finds, by Sue Anderson

Post-medieval finds from the site comprised fourteen sherds of modern pottery (factory-made whitewares and stonewares), a piece of ceramic floor tile, seven fragments of blue-grey roofing slate, twenty-two fragments of bottle and vessel glass, four clay tobacco pipe fragments, two other pipeclay objects and nine metal objects. A full catalogue is available in the archive. None of these finds is likely to predate the late 18th century, although there is a possibility that a teardrop-shaped melt fragment of green glass found in ring-ditch fill 100/02 could be of Roman date if not intrusive.

Most features containing modern finds were located to the south of the enclosure (F171), including F250, F259, F261, F263, F267 and F268, and to the south of the site (F38). F163 contained an iron nail and a fragmentary narrow oval object which may be a belt slide from a horse harness or possibly a chain link; these items are likely to be post-medieval but are intrinsically undateable. The pebbled surface F55 to the south of Roundhouse 2 contained a fragment of green bottle glass, but this could be intrusive.

The distribution of these artefacts is likely to be related to agricultural and manuring activity, although the slight concentration in the area to the south-east of the enclosure may suggest that there was occupation in the vicinity in the 19th/20th centuries.

6 ENVIRONMENTAL EVIDENCE

6.1 *Archaeobotanical and charcoal analysis, by Mhairi Hastie*

6.1.1 Introduction

Two hundred and seventy-five bulk soil samples were taken during the excavation, ranging in volume from 0.5 to 70 litres, and retained for palaeoenvironmental analysis. This report concentrates on the cereal grains, wood charcoal and other plant remains recovered from the samples.

6.1.2 Methodology

A system of flotation and wet sieving was used to separate the archaeological material from the soil samples. Initially, the flotation debris was collected in a 250µm and, once dry, scanned using a low-powered microscope (magnification $\times 10$ – $\times 200$) to identify the archaeological material. Material remaining in the flotation tank was wet-sieved through a 1mm mesh and air-dried before being sorted to identify any remaining significant material.

Identifications of cereal remains and other plant material were made with reference to CFA Archaeology's modern comparative reference collection and seed atlases. Samples that contained large concentrations of charred cereal remains were subdivided using a riffle box and a proportion of the sample sorted. The number of grain/wild taxa present in the sorted fraction was then multiplied to give a representative number for each species within the whole of the sample. The cereal remains recovered from the same feature number were amalgamated and the results are summarised in archive.

The wood charcoal from 90 randomly selected samples (approx. 70% of the samples containing charcoal) was sorted and identified. Identifications were carried out on charcoal fragments at or greater than 4mm in diameter using a binocular microscope at magnifications ranging between $\times 10$ and $\times 200$. Charcoal fragments measuring less than 4mm in diameter were considered to be below the level of identification (BLOI) and these are summarised in archive. Anatomical keys listed in Schweingruber (1992), Gale & Cutler (2000) and CFA Archaeology's reference charcoal were used to aid identifications. Where samples contained a large quantity of wood charcoal, the sample was subdivided using a riffle box and a proportion of the charcoal identified. Results are summarised in archive.

6.1.3 Results

Out of the total 27 bulk samples processed, 60 samples contained cereal grains. The majority of these samples contained only small quantities of poorly preserved/abraded grain and wild taxa, although an extremely large concentration of grains was recovered from the fill of a pit (F116). Barley rachis fragments (cereal chaff), which are rarely recovered from Scottish archaeological sites, were present in a sample taken from the ring-ditch (F100).

Wood charcoal was present in 134 samples. Preservation of the charcoal varied with both well-preserved large roundwood and small vitrified fragments of charcoal being recovered. In most cases the vitrified charcoal fragments were extremely poorly preserved, with little or no micromorphology remaining and identification of the wood species was not possible.

The diversity of the plant remains recovered was generally poor. By far the most abundant element was cereal grain, a low spread of grains being uncovered across the whole of the excavated area and throughout many different features. Both barley (*Hordeum* sp.) and oat (*Avena* sp.) grains were identified. In most cases the number of barley grains exceeded the number of oat grains, and this suggests that barley was the main cultivated crop. The bulk of the cereal grains were much abraded, although occasional barley grain still had hulls attached, indicating the presence of the hulled variety.

An almost pure sample of cereal grain was recovered from the fill of the medieval Pit F116, with over 45,000 grains being identified. The grains were extremely well preserved compared with plant material recovered from the rest of the excavated area. The assemblage from the pit was dominated by grains of oat, which made up 72% of the identifiable grains, with lesser quantities of barley. Large quantities of the grain were extremely fragmentary and could not be identified to species level.

Many of the oat grains still had lemma and palea fragments attached and six grains were sufficiently preserved to identify the cultivated black oat (*Avena strigosa*). A large percentage of the barley grains identified still had hulls attached and the presence of both twisted and straight grains indicates the presence of six-row barley (*Hordeum vulgare*). A small proportion of the grain, both oat and barley, had elongated embryos indicating that some of the grain had started to germinate prior to being burnt.

The wild taxa, as represented by the seeds (used here in general terms to include items which are

strictly fruits etc) were relatively sparse. However, taxa from a number of different habitats were present:

- minor residual elements from crop cleaning including charlock (*Raphanis raphanistrum*), fat hen (*Chenopodium* sp.), persicaria/pale persicaria (*Polygonum persicaria/lapathifolium*) and grass (Gramineae indet);
- taxa indicative of waste places such as wood rush (*Luzula* sp.) and goosegrass (*Galium aparine*);
- sedge (*Carex* sp.) indicative of more heathland and wet areas; and
- woodland elements represented by hazelnut shell.

Fragments of burnt humified peat and occasional charred rhizomes (underground stem fragments) were recovered from features associated with the enclosure ditch, the ditch itself F171, an adjacent Pit F208 and an internal feature F216.

As with the cereal grain, the largest concentration of wild taxa was recovered from the fill of Pit F116, comprising charred rhizome fragments and the seedpods (siliqua) of wild radish. No wild radish seeds or seedpod fragments were recovered from any other samples.

Small fragments of burnt hazelnut shell were recovered from only one sample, the fill of circular Pit F208 associated with the enclosure ditch.

Charcoal was recovered from many different features and structures across the excavation area. Birch (*Betula* sp.) was the most abundant material identified, followed by hazel (*Corylus* sp.) and alder (*Alnus* sp.). Cherry/blackthorn type (*Pomodaceae* indet.) and hawthorn/rowan type (*Prunus* sp.) are also present, and willow is represented by a single charcoal fragment recovered from the entrance to Roundhouse 1 (F5). In terms of the overall weights, birch and hazel provided the largest volume of charcoal.

The largest quantity of charcoal was recovered from a ring-ditch (F100). Further high concentrations of charcoal were present in Roundhouse 1 post-hole F11, Roundhouse 2 post-hole F110, Pit F116 and Beaker pits F134, F168. Well-preserved round wood fragments of charcoal were recovered from these samples; the composition and size of the round wood being similar for each sample. Birch round wood measured generally c 20–40mm in diameter, while hazel round wood fragments were principally c 20mm in diameter. Small twigs of hazel, approximately c 10mm in diameter, were also present. Results are summarised in archive.

6.1.4 Discussion

Prehistoric features

Beaker pottery and radiocarbon dating indicated an Early Bronze Age date for pits F168 and F134. A large concentration of charcoal was recovered

from Pit F168, the wood charcoal being dominated by birch and hazel. Pit F134 contained several sherds of Beaker pottery but only small amounts of charcoal, all of which was identified as alder. No cereal grains were recovered from features dated to the Early Bronze Age.

A general spread of cereal grains was present throughout the ring-ditch F100 of Roundhouse 2 and associated features. Cereal grains were dominated by hulled barley, with occasional oat grains. None of the oat grains were sufficiently well-preserved to identify the wild or cultivated species. Low numbers of weed seeds were present in five of the samples from this structure, principally indicative of arable fields and wet areas. Low quantities of wood charcoal were recovered from many deposits associated with the ring-ditch structure. The charcoal assemblage was dominated by birch with lesser quantities of alder and hazel. Small fragments of both rowan/hawthorn type and cherry/blackthorn type were also uncovered. A very high concentration of charcoal was recovered from the ditch fill F100, consisting primarily of large round wood fragments of birch.

Occasional fragments of barley rachis (chaff fragments) were encountered from the fill of ring-ditch F100. The rachis make up the central axis of the ear and such remains are only rarely recovered from Scottish sites. They are less dense than the grains and as such are more likely to be reduced to ash when coming in contact with fire. Ethnographic sources (Fenton 1999) record that the ear of the barley was scorched over the fire to assist the threshing process. The recovery of small quantities of barley rachis with charred cereal grain may suggest that the grain was indeed being dried as whole ears.

Evidence from both ethnographic and archaeological sources indicates that the grain was most probably processed only in small quantities when required and that small-scale crop processing, including parching of the grain, removal of the hulls and grinding of the grain was carried out on a day-to-day basis close to the domestic hearth. Accidental burning of crop remains during this everyday processing would produce low quantities of burnt crop and other debris which over time would become spread throughout many different areas of the settlement along with hearth ash and other domestic rubbish.

Of note is the apparent lack of cereal remains in features associated with Roundhouse 1 in the southern half of the excavation area. Only one carbonised rhizome fragment was recovered from the fill of the entrance (F5) and one barley grain was present in the fill of a nearby pit (F47). The retrieval of at least small amounts of charred cereal grains is a common characteristic of previously excavated roundhouse structures (for example Birnie, Hastie 2005; Kintore, Holden et al 2008) and these assemblages are typically interpreted as corn accidentally burnt during food processing. The lack of such debris within features associated with the post-

built structure may suggest that this structure was used for non-domestic activities. Roundhouse 1 also produced low quantities of wood charcoal including alder, birch, hazel, rowan/hawthorn type, cherry/blackthorn type and willow, recovered from the majority of features associated with the post-built structure.

Seeds of wild taxa including persicaria, fat hen and grass were recovered along with the grain. These are commonly retrieved with cereal assemblages from Scottish prehistoric sites and would have been a frequent element of the corn crop. All would grow to the same height as the corn and would have been gathered by reaping high on the ear (Jones 1987).

The wood charcoal assemblage was dominated by native trees particularly alder, birch and hazel, all of which are native to western Scotland and would have been available locally. Similar charcoal assemblages have been recovered from other prehistoric sites on Skye (for instance High Pasture Cave: Cressey 2005). Alder would have been exploited from streams and wetland areas, while hazel and birch would have thrived on the local acidic soils (ibid).

The charcoal consisted principally of roundwood fragments; no timber fragments were noted. As with the cereal grain the bulk of the charcoal would probably have originated from the hearth being spread over time through many unrelated deposits and features.

Some of the birch roundwood fragments were large, with a diameter of *c* 40mm indicating that mature branch wood was being exploited. The roundwood fragments were all very uniform in diameter and it appears that the site occupants were deliberately collecting wood of a specific size. Straight hazel rods of young growth were also present, these may have been collected as a starter fuel, and reflect the growth pattern of stems commonly found in coppiced wood. Alder, birch and hazel can all be coppiced in order to provide a long-term source of wood, although hazel and alder do self-coppice as part of their natural regeneration cycle. The regular size of the round wood present at Kiltaraglen does however suggest that coppicing techniques were used and indicates a degree of woodland management being carried out by the occupants of the site.

Very small quantities of cereal grains and other plant remains were recovered from the enclosure ditch F171. The majority of the cereal grain and charcoal was recovered from internal features associated with the ditch (some of which have been dated to the medieval period). Barley grains dominated the samples; occasional grains still had hulls attached, suggesting that the bulk of the grains were the hulled variety. Small quantities of weed seeds were present in the fill of the ditch and in four internal features. These principally comprise species indicative of arable fields and wet areas. Only very small, poorly preserved and vitrified charcoal fragments were recovered from features associated with the enclosure ditch; a mixture of alder, birch, hazel,

rowan/hawthorn type and cherry/blackthorn type were present.

Only small quantities of poorly preserved oat grain and charcoal were recovered from the fill of miniature souterrain F163. AMS dates gained from two fragments of charcoal suggest that at least some of the material from this feature is medieval in date and the presence of oat within these deposits would not be unusual for this period. No other plant remains were recovered from the feature.

Fragments of humified peat and charred rhizomes were recovered from features associated with enclosure ditch F171 (Pit F208 and internal feature F216), indicating that peat turves were also being used as a fuel in addition to wood. This is confirmed by the soil micromorphology which identified two distinct dumps of peat ash within the ditch fill and suggest that the peat ash originated from a domestic hearth. It is also possible that peat was being collected for specific activities such as smoking of meat or fish.

Charcoal recovered from three features (pits F208/F211 and the miniature souterrain F163) produced medieval dates. The quantity of carbonised material recovered was generally low; apart from the wood charcoal, only a small quantity of oat grains was recovered from F163 and the quantity and quality of the plant remains recovered does not allow for detailed discussion. The presence of such material does, however, suggest that possibly crop processing or some domestic activity was being carried out on the site during this period.

Very small quantities of poorly preserved cereal grain and charcoal were recovered from the possible pit alignment and other isolated features.

Medieval cereal grain – Pit F116

A large quantity of almost pure charred grain was recovered from Pit F116, together with metalworking debris and a high concentration of alder charcoal. No other large quantities of plant remains were uncovered from the excavated area.

The cereal assemblage was dominated by grains of black oat with lesser quantities of barley, with over 20,000 grains being present. AMS dates from cereal grains present in the pit (Section 6.5) indicate a medieval date for the plant assemblage. A small proportion of the grain showed signs of sprouting (elongated embryos), indicating that some had started to germinate prior to being burnt.

Ferrous slag and fragments of what may be a hearth or furnace base (McLaren above) were recovered from the upper fill of the pit together with the large quantity of grains. McLaren notes that the pit lacks any micro-debris, and suggests that the deposit was a secondary dump of waste rather than in situ metalworking. The mixed nature of the assemblage, with metalworking debris and large quantities of cereal grain, would concur with this.

There was no direct evidence from the archaeological record for the original source of the burnt

grain and there are several possible sources for this material, all of which would result in large quantities of burnt grain:

- *Grain burnt during corn drying*
In northern-temperate climates where wet harvests are commonplace it was necessary to dry the harvested crop. This not only assisted the removal of the outer hulls from the grain but also hardened the grains for grinding. During the Prehistoric period drying was carried out over the hearth when required. Later in the Roman and medieval periods, when larger quantities of grain were cultivated, the corn was dried in corn-drying kilns. Even today it is necessary to dry the grain following very wet summers, and grains can begin to germinate in the fields when particularly wet weather delays the harvest. Drying of the corn was a hazardous job, any grain that fell through the drying floor would become charred and kilns frequently caught fire during use, destroying both the kiln and the crop being dried. Several kilns, along with large quantities of charred grain, have been uncovered from Scottish medieval sites. Good examples were uncovered during the excavation at the medieval monastic settlement at Hoddom, Dumfries and Galloway (Holden 2006), where several of the kilns were found to have been rebuilt a number of times after being destroyed by fire.
- *Grain accidentally burnt during the malting process*
The grain may have been deliberately germinated as part of the process to produce beer. As the purity of water could not be guaranteed during the medieval period, beer was the most common drink during this period. It was consumed on a daily basis by all social classes in the northern and eastern parts of Europe, where grape cultivation was difficult, and beer made from oats was common in the medieval period. The grain would have been soaked in water then spread onto a malting floor where the sprouting grains would have been allowed to grow for several days. The sprouted grains would then have been dried probably in a kiln to kill the acrospires (sprout at the end of a seed when it begins to germinate). Too great a heat would toast the grain and destroy the necessary enzymes required for brewing.
- *Conflagration of stored grain*
The extremely large quantity of almost pure grain recovered from the pit fill could be the remnants of stored corn. Partially cleaned grain could have been stored in either sacks or baskets (Fenton 1999) and could easily have been destroyed if the structure they were stored in went up in flames.

Neither direct evidence for any large conflagration events nor the presence of a corn-drying kiln was identified during the excavation. Nevertheless, later ploughing in the area may have removed much of

the evidence and it is difficult to ascertain the exact origin of the burnt grain.

Occasional seed pods (siliqua) of charlock were recovered from the pit fill with the cereal grains. This species is very invasive and spreads rapidly in areas where the ground has been disturbed. It was a widespread weed of cultivated fields during the medieval period, especially of non-calcareous soils (Clapham et al 1962). It was once considered to be the most troublesome weed of arable land in Britain (Long 1938) and only became less abundant following the introduction of hormone weed killers. The seed pods are indehiscent and break up into segments containing a single seed which are similar in size to cereal grain. As a consequence they would be hard to separate from the grains by such processes as winnowing or fine-sieving and would require to be removed principally by hand sorting.

6.2 Calcined and cremated bone, by Sue Anderson

Pieces of calcined bone (total 646 fragments, 218.61g) were recovered from 32 features, the majority from palaeoenvironmental samples. Most features produced very small quantities, weighing between 0.1g and 19.0g, and the fragments were generally heavily abraded. The largest group was recovered from the fills of the circular enclosure ditch, F171 (314 fragments, 149.4g), of which the majority was a cremation burial from amongst the stones (Unit 4) in Slot 3.

Ten fragments (1.5g) were collected from two features related to Roundhouse 1, the entrance (F5), possible central hearth pit (F40) and one nearby pit feature (F3). All pieces were tiny and unidentifiable, except one fragment from F3 which was from a large mammal.

Roundhouse 2 and the ring-ditch structure produced a larger assemblage, 149 fragments (24.5g), which was spread across several post-holes and the fill of the ring-ditch itself. Again the majority of these fragments were small and unidentifiable, although most were probably medium to large mammals. Fragments of possible antler were found in Roundhouse 2 post-hole F76 and ring-ditch post-hole F95, which may indicate that working of this material was being carried out on the site.

Features around and within the enclosure F171 contained a total of 183 fragments (57.91g). The largest part of this assemblage was concentrated in features close to, within or cutting the fills of F171. Four features to the south of F171 accounted for only eleven fragments (3.5g); one fragment from possible souterrain F163 was a complete sheep/goat proximal phalange. The largest groups were collected from medieval Pit F208 (48 pieces, 30.1g) and the Early Iron Age Pit F216 (25 pieces, 3.7g), but again fragments were generally not identifiable to species. The groups from features cutting the fills of the enclosure ditch included some possible human fragments, most notably a piece of tibia from F229,

Table 13 Cremation burial quantification

Sample	Skull		Axial		Upper limb		Lower limb		Unidentified	
	No.	Wt	No.	Wt	No.	Wt	No.	Wt	No.	Wt
237	25	16.8	4	2.3	9	10.1	19	25.5	120	31.9
275	16	4.7	3	3.3	2	2.0	5	4.7	55	16.8
–	2	0.7	–	–	–	–	10	4.9	6	0.4
Totals	43	22.2	7	5.6	11	12.1	34	35.1	181	49.1

which may represent disturbance of the cremated bone assemblage in F171 (see below). Some of these features, particularly F238 and F245, contained a few pieces of unburnt tooth enamel; the tooth fragments were not human.

The large quantity of bone from F171 was mostly found in the west side of the ditch, in Slots 3 and 4, but one fragment was from Slot 10. As noted above, a large proportion of this material was from a single Unit 4 deposit (171/303) which was the remains of a human cremation burial, represented by 276 fragments (124.1g). Table 13 shows the quantities of bone from the four main areas of the body. The context also contained at least six fragments of animal bone (3.2g), and some of the unidentified material could also be non-human.

Very little axial material had survived in this assemblage. Most of the unidentified pieces were certainly long bones, but the fragments were too small and abraded to be assigned to a limb. Axial fragments are frequently the least calcined part of the skeleton, and it is possible that they had been lost to the acidic soils. The assemblage did not include any sex or age indicators and the individual can only be classed as ‘adult’ based on the size of the long bones.

A few other fragments of probably human skull and long bone were collected from 171/102 (1 fragment, 5.8g) and 171/305 (total 28 fragments, 12.5g), but this material was more mixed and appeared to contain a higher proportion of animal bone. Fragments from 171/405 and 409 in the adjacent slot were also noted as possibly human, and may represent disturbance of the main group.

In summary, the fragments of bone recovered from the post-built structures, the ring-ditch structure and the features around the enclosure probably represent the charred remnants of domestic waste. The preservation of unburnt bone in an acidic soil such as this is always poor and it is unsurprising that none of the large quantities of bone which would have been discarded by the occupants of the site has survived. Only one definite concentration of human bone was identified, and this was buried within the fill of the enclosure ditch. The abraded nature of the bone, together with its early date, suggests that it was probably an accidental incorporation in the ditch fill, representing a disturbed cremation burial from a nearby interment, which

may explain why such a small proportion of the body is present.

6.3 Phosphate analysis, by Mike Cressey and Bob McCulloch

6.3.1 Introduction

Total soil phosphate (P) analysis was undertaken on thirty-eight soil samples taken from five features suspected of containing elevated levels of P and a sample of natural subsoil (Table 14). Samples were selected in an attempt to answer questions posed by the excavations, in particular: were Pit F168 and the short linear features (F232, F245) graves; and were the fills of features associated with Roundhouse 2 enhanced to levels commensurate with domestic activity?

Soil P levels are normally increased in archaeological soils, especially in the presence of human and animal bone. Other organic residues accumulating from occupation of the site will also lead to local P enhancement (Craddock et al 1986; Dockrill & Simpson 1994). Phosphates are effectively fixed in soils as a result of cation-exchange capacity and firmly bound to both the inorganic and organic component within the soil and are not readily lost to leaching or re-mobilisation.

6.3.2 Laboratory methods

Samples are analysed following the procedures of Smith & Bain (1982). Samples were dried and sieved to 90µm. Sub-samples of 2g were treated with 25ml 0.5 molar hydrochloric acid solution to eliminate any calcareous content and rinsed with distilled water to remove any excess acid. A further sub-sample of 0.1g of the treated soil was heated singularly with 1g sodium hydroxide (pellet form) until a colourless liquid is formed. The samples were left to cool and 25ml of distilled water added. After approximately 12 hours the sample solution is made up to 50ml and centrifuged. The supernatant was transferred into a sealed container prior to colorimetric analysis. Reagent solutions are prepared; 20ml 1.2% ammonium molybdate, 5ml 1.5% ascorbic acid and between 0.5 and 5ml of the prepared bottled sample,

Table 14 Soil phosphate distribution values within five features

Context	Feature	Max mg/kg P	Min mg/kg P	Mean mg/kg P
F168	Upper middle fill of Beaker pit	456	353	382
F168	Lower middle fill of Beaker pit	417	440	428
F168	Primary fill of Beaker pit	104	98	101
F232	Upper fill of pit	671	337	504
F232	Lower fill of pit	715	537	624
F245	Upper fill of pit	963	963	963
F245	Middle fill of pit	1253	1253	1253
F245	Lower fill of pit	930	731	827
F99	Roundhouse 2, Pit fill	370	317	335
F100	Ring-ditch, Upper fill	348	338	343
F100	Ring-ditch, Lower fill	407	335	423
003	Control (natural subsoil)			37

depending on the concentration. The solutions are placed in a spectrophotometer at 880nm to measure the absorbance. Values are each expressed as mg/kg of soil P.

6.3.3 Results

The results are shown in **Table 14** and include P maximum and minimum values along with the mean P sample obtained from the P values for each feature. Here the mean P value has been used to assess the relative degree of soil enrichment in contrast to the local subsoil which has undergone no P enhancement. The control sample attained a P value of 37mg/kg, which is negligible.

- *F168, pit containing Beaker pottery*
The upper and middle fills attained mean P values of 382 and 428mg/kg respectively, three times higher than the primary fill, which attained a mean value of 101mg/kg. It is possible that these values reflect the absence of organic matter towards the base of the fill. Some phosphate enhancement is present within the fills.
- *F232, elongated pit cut into upper fills of the enclosure ditch F171*
The upper and lower fills have attained mean phosphate values of 504 and 624mg/kg showing phosphate enhancement.
- *F245, elongated pit cut into upper fills of the enclosure ditch F171*
The upper fill of this feature attained a mean phosphate value of 963mg/kg. The middle fill where animal bone was recorded produced a mean value of 1253mg/kg, which is exceptionally high but not unexpected. The lower fill phosphate value is also elevated, at 827mg/kg.
- *F99, primary fill of pit associated with Roundhouse 2*
The fill of the pit's primary fill produced a mean

phosphate value of 335mg/kg, showing that this feature's fill has been enriched with phosphate derived from organic material.

- *F100, primary and secondary fills of ring-ditch*
The ring-ditch upper fills have attained a mean phosphate value of 343mg/kg whilst the lower fill attained a mean of 423mg/kg.

6.3.4 Discussion

The results confirm that all the features examined display phosphate enrichment derived from anthropogenic activity at the site. F245 has produced the highest value at 1253mg/kg which, in contrast to the background value, is extremely enhanced. Analysis of soils obtained from a Bronze Age plank-built log coffin at Seafield West, near Inverness (**Cressey & Sheridan 2003**) provided clear evidence for the former presence of a body. The results from the deposit containing Beaker sherds and from the basal fills below confirm that enrichment is present but the values are not overly high and are commensurate with residual material discarded into a pit.

Fills obtained from Pit F232, Pit F99 within Roundhouse 2 and ring-ditch F100 all display P enrichment in contrast to the control sample values. These values, although not overly high, reflect the general background P levels that would be expected in the presence of human- and animal-derived P. Similar P values have been obtained from other studies (**Cameron et al 2007**) where a series of pits and other negative features were associated with later prehistoric settlement. Local P highspots are not uncommon where the sample has been enriched by organic material rich in phosphate (eg excrement/food waste/ashes).

The P values obtained from the range of archaeological features sampled at Kiltaraglen all display levels of P enrichment contrasting to the control

sample. These enriched values are the result of varied human activities carried out at the site.

6.4 *Micromorphological thin section analysis, by Claire Ellis*

6.4.1 Methods

Field sampling

Five Kubierna samples were taken from a variety of features and were subject to full micromorphological analysis. The first sample, Sample 27, was taken through the lower fills of a possible post-hole or hearth feature (F40) in Roundhouse 1. The second and third, Samples 80 and 130, were taken through the fills of a post-hole forming Roundhouse 2 (F81) and the internal ring-ditch (F100). The fourth, Sample 344, was taken through the fills of a circular enclosure ditch (F171) and finally a fifth, Sample 298, through the fills of a pit within the area defined by F171. The summary results are given below. Full descriptions are contained in the archive report.

Thin section manufacture and description

The samples were prepared for thin section analysis by G. McLeod at the Department of Environmental Science, University of Stirling, using the methods of Murphy (1986). Water was removed and replaced by acetone exchange and then impregnated under vacuum using polyester crystal resin and a catalyst. The blocks were cured for up to four weeks, sliced and bonded to glass and precision lapped to 30µm with a cover slip. The samples were described using a MEIJI ML9200 polarising microscope following the descriptive terminology and methodology of Bullock et al (1985) and Fitzpatrick (1993). A range of magnifications (40×–400×) and constant light sources (plane polarised light –PPL, cross-polars – XPL, circular polarised light – CPL and oblique incident light – OIL) were used in the descriptions.

6.4.2 Objectives

A series of broad research questions have been formulated regarding the nature of the occupation on the site, the type of structures present and the function of these. Specifically the objectives were to:

- determine the nature and function of the sampled feature (F40, Sample 27); the formation hypothesis is that this feature is a post-hole or hearth associated with a post-hole defined roundhouse;
- determine whether the post rotted in situ, was replaced or even supplemented by an additional post (F81, Sample 80);
- determine the nature and mode of deposition of the ditch fills (F100, Sample 130); the formation hypothesis is that this is a ring-ditch in which a

wall has collapsed and upon which ash has been dumped;

- determine the nature and mode of deposition of the internal feature fills (F209, Sample 298);
- determine the nature and mode of deposition of the enclosure ditch fills (F171, Sample 344); the formation hypothesis is that the ditch backfilled soon after its construction but occurred as two separate phases.

6.4.3 Results and discussion

The sampled contexts comprise poor to well sorted calcareous silt. The mineral component of all the sampled contexts is dominated by micrite (micro-crystalline calcite); although this is largely masked by sesquioxides due to the dominance of ash in Sample 298 and 130. The natural comprises calcareous silt; the micrite and sparite content is presumably derived from the inferior or lower oolite while the 10–15% rock fragments are largely derived from olivine basalts. All the contexts have been severely reworked by soil biota (earthworms and enchytraeid) resulting in welded crumb/welded granular microstructures and channels (Dawod & FitzPatrick 1992). Nearly all the contexts comprise juxtaposed rounded clasts, many of which are the by-products of bioturbation. The natural is dominated by uncarbonised, dark brown to grey calcareous silts, yellow brown calcareous silts and packing voids and channels which are infilled with pale yellow calcareous silt. All but Sample 298 contain rounded clasts of the natural. Samples 27, 298 and 130 contain varying quantities of charcoal, mixed wood and peat ash, silty peat ash and clasts of carbonised peat (Simpson et al 2003). In contrast Sample 344 contains minimal anthropic indicators.

- *Sample 27: F40 post-hole or hearth? (illus 13c)*

This sample was taken through the natural and lowermost fill (40/3) of the feature. The boundary between the bioturbated natural and lower fill is generally diffuse, although in places it is sharp and marked by a decrease in grain size of the micritic silt and an increase in silt-sized charcoal fragments. The lower fill has very abundant silt-sized charcoal fragments and very abundant large charcoal fragments; the latter dip around 45° toward the base of the feature. Although wood ash dominates there are very frequent clusters of granular silty peat clasts, this demonstrates a mixed fuel source. The survival of discrete clasts of wood ash, silt peat ash as well as large charcoal fragments indicates that the bulk of the bioturbation probably took place prior to its deposition within the ditch; the act of moving and dumping the material resulted in the juxtaposition of the different ashes. Furthermore, the natural shows no indication of in situ burning and together with the distinct dip of the charcoal it seems that the deposit is not in situ but may well have been

dumped or utilised as packing material around a large post. There is no micromorphological evidence to indicate whether the feature once contained a post-hole.

- *Sample 80: F81 post-hole (illus 17d)*

This sample was taken through the basal fills of a post-hole associated with Roundhouse 2. The natural 003 into which the post-hole was cut is a moderately to poorly sorted silt. This natural has been subject to bioturbation and has possibly been locally redeposited; subsequently calcareous silt was in-washed into the packing voids. Therefore, it seems likely that once the post-hole was dug it remained open to the elements for some period of time. The base of the post-hole 'cut' is sharp, a clear indication of a sediment hiatus; the wavy nature of the boundary is due to the later activities of soil biota. The lowermost sampled fill (81/4) is a moderately compact, well-sorted silt in which coalesced fecal pellets are common. Pale yellow amorphous and moderately to strongly decomposed woody organic matter dominates (81/5). Around 5% of the organic matter appears charred and is associated with sequioxides. This charred organic matter may be derived from a post that had been burnt or scorched prior to its burial to protect it from decay. The dominant woody organic matter is likely to be the rotted remnants of a wooden post much disturbed by the post-depositional activities of soil biota. The overlying sediment (81/3) is a moderately sorted calcareous silt with frequent amorphous organic matter. The presence of rounded clasts of mixed wood/silty peat ash and rounded clasts of redeposited natural indicates that this unit may have been produced as a wooden post rotted, the wood being replaced by overlying and adjacent material brought into the profile by the action of soil biota and gravity.

- *Sample 130: F100 ring-ditch (illus 18b)*

The surviving ash components within Sample 130 indicate that silty peat turves and wood were both utilised as fuel but carbonised peat was also recorded (Carter 1998; Simpson et al 2003). The survival of considerable quantities of charcoal, biogenic silica and red (rubified) fine mineral material suggests that the fires were of a relatively low temperature (around 400°C) and typical of a domestic hearth in which combustion was incomplete due to a deficiency in oxygen (Courty et al 1989; Simpson et al 2003); this may have been caused by the use of naturally damp fuel and/or the deliberate dampening of the fires to create an environment suitable for the smoking of meats or fish.

Similarly, although no natural was sampled, the presence of rounded clasts of natural unaffected by heat indicates that the burning probably occurred elsewhere prior to the ash-rich deposit being dumped within the ring-ditch. In common with Sample 298 the juxtaposition of rounded clasts

of different ash types indicates that these ashes were produced by discrete burning events fuelled mainly by one sort of fuel. Such a mixed deposit may have been formed from the redeposition of composted midden material upon which numerous hearth cleanings had been dumped and partially mixed through the activities of soil biota. At least two phases of discrete dumping are evident within the ditch, with the lower deposit containing an abundance of wood ash and silty peat ash while the upper contains slightly less wood ash. Similarly the lower ring-ditch fill comprises a mixed peat, silty peat and wood ash while the overlying fill is dominated by wood ash with less silty peat ash.

The mechanics of ring-ditch formation remain open to debate, but one suggestion is that some ring-ditches are the by-product of erosion caused by cattle over-wintered in stalls located around the perimeter of a roundhouse. The use of ashes to soak up urine is well attested (Adderley et al 2006) and coupled with the relatively low porosity of the units it is possible that the ring-ditch deposits are the remnants of winter floor levels. The presence of rare goethite-rich clay coatings demonstrates that these units have also been subject to limited illuviation which occurred after the post-deposition bioturbation and other physical disturbance. One explanation is that these coatings were produced by the puddling and trampling effect of stall stock (Courty et al 1989: 130), although alternatively these could have been the product of the post-depositional weathering of ash rich in potassium, the latter encourages local clay movement (ibid: 113).

- *Sample 344: F171 enclosure ditch (illus 5b)*

The fills of the enclosure ditch (F171, Units 2–3) essentially comprise bioturbated, redeposited rounded clasts of natural set within a fine silt-sized micritic matrix and in the upper sampled fill very rare clasts of ashy silt stained by goethite. It is probable that at least some of the bioturbation took place while the sediment formed part of an enclosing bank(s). The boundary between the two fills is clear and abrupt, and coupled with the difference in compaction between the two contexts the micromorphological evidence is indicative of a hiatus in sedimentation. There is no visible preferred orientation of the coarse mineral content or rock fragments; this may indicate that the ditch was deliberately backfilled, rather than a gradual accumulation through natural erosion processes such as episodic runoff and slumping. Goethite crystals with voids are frequent in the upper ditch fill and attest to post-depositional wetting and drying of the deposit, perhaps on a seasonal basis.

- *Sample 298: F216 fill of pit within enclosure ditch (illus 11c)*

The surviving ash components within Sample 298 indicate that silty peat turves and wood were both utilised as fuel. The survival of considerable quantities of charcoal, biogenic silica and red

(rubified) fine mineral material suggests that the fires were of a relatively low temperature (around 400°C), and typical of a domestic hearth in which combustion was incomplete due to a deficiency in oxygen.

It appears unlikely that the burning of the constituents of Sample 298 (F216, [illus 11c](#)) took place within the feature as the natural appears to be unaffected by heat. The juxtaposition of rounded clasts of different ash types indicates that these ashes were produced by discrete burning events fuelled mainly by one sort of fuel. Such a mixed deposit may have been formed from the redeposition of composted midden material upon which numerous hearth cleanings had been dumped and partially mixed through the activities of soil biota. At least two phases of discrete dumping are evident within the pit, with the lower deposit containing an abundance of wood ash and silty peat ash while the upper contains slightly less wood ash.

6.4.4 Summary conclusions

1. Sample 27. The sampled fill (40/3) comprises dumped mixed ash of mainly wood but with some silty peat and is characteristic of low temperature fires, typically domestic. There is no micromorphological evidence to indicate the function of F40.
2. Sample 80. The post-hole F81 appears to have been left open to the elements prior to the setting of the post. The post within F81 rotted in situ. The post may have been charred prior to its setting within the post-hole.
3. Sample 130. The fills of the ring-ditch F100 comprise mixed ash, the lower fill containing peat, wood and silty peat ash while the overlying fill is dominated by wood ash with a minor silty peat component. Again, the ashes are typical of low-temperature fires. The ash fills are not in situ.
4. Sample 298. The fills of Pit F216 within the enclosure also comprise mixed ash typical of low-temperature fires. The lower fill comprises the remnants of silty peat ash and frequent wood ash with very large fragments of charcoal while the upper fill has no large charcoal fragments and slightly less wood ash. The ash fills are not in situ but were dumped into the ditch on at least two separate occasions.
5. Sample 344. The enclosure ditch fills comprising Units 2 and 3 of F171 are dominated by redeposited natural that has been subject to bioturbation when it was presumably incorporated into the enclosing bank(s) as well as some post-depositional disturbance. The fills were probably deliberately dumped into the ditch, although there was a break in the backfilling of the ditch between the dumping of the lower (Unit 2) and upper (Unit 3) sampled fills.

6.5 Radiocarbon dating

Thirty-nine samples were sent for AMS dating at the Scottish Universities Environmental Research Centre (SUERC). These dates were derived from carbonised cereal seeds or charcoal recovered from bulk or charcoal samples collected during the excavation. The aim of the radiocarbon dating programme was to ascertain the date of features that could not be dated by other means and to refine the currently accepted dating of the artefacts that were recovered.

Charcoal samples recovered on site for identification and radiocarbon dating were securely wrapped in aluminium foil, and then kept in a temperature-controlled environment during storage. Bulk samples were recovered on a judgemental basis ([Jones 1991](#)) before being wet-sieved ([Kenward et al 1980](#)), with other charcoal and carbonised seed samples being extracted from the products. These were found in both the flot and residue as a result of waterlogging.

No in situ organic structural deposits were identified during the excavation and the dated feature fills are, where this is identifiable, contemporary with, or later than, the abandonment of the feature. This is not to suggest that all of the organic components of these fills are contemporary with their deposition and the issue of residuality in the organic assemblage is a complicating factor in the results.

Given the redeposited nature of the dated fills, paired radiocarbon samples were used, utilising carbonised cereal seeds as a priority and, where charcoal from the same context was used, different species where possible. In three instances (GU-17454–5, GU-17463), the carbonised barley broke up during treatment and substitute samples (GU-17857–9) were submitted. The results of the AMS dating are shown in [Table 15](#).

Prior to analysing these dates, an understanding of the taphonomy is essential. There was little evidence for burrowing in the excavated deposits and there were no rabbit burrows or molehills in the field. The products of soil biota are acknowledged in the micromorphological report but the subsoil was compact, with lenses of iron deposits and worms being rarely encountered. The inclusion, deliberate or otherwise, of earlier charcoal into constructional contexts is a complicating factor and one that could not be recognised during the excavation. In overview, the radiocarbon evidence indicates two main phases of activity, an extended period covering the Later Bronze Age, the Early Iron Age and the transition between them (1300–400 cal BC) and a shorter period in medieval times (1000–1400 cal AD). Episodes of pit-digging took place in the Early Bronze Age, as did the cremation of at least one individual.

Chi-squared tests were used to analyse statistically the radiocarbon dates and dated contexts. The dates from F134 failed the test and despite both being of alder, the charcoal samples were not burnt in the same event. Those from hazel and birch in F168

Table 15 AMS C14 Radiocarbon dates from the sites at Kiltaraglen

Context	Sample	Lab Code	Date BP	Material	Delta 13C	Calibrated 1σ	Calibrated 2σ
<i>Beaker pits</i>							
134/2	67A	GU-17468	3945±30	Alder	-25.6‰	2550-2340BC	2570-2340BC
134/2	67B	GU-17469	3845±30	Alder	-26.1‰	2400-2200BC	2460-2200BC
168/4	156A	GU-17926	3910±40	Hazel	-27.2‰	2470-2340BC	2550-2230BC
168/4	156B	GU-17927	3905±40	Birch	-26.1‰	2470-2340BC	2490-2230BC
<i>Enclosure ditch</i>							
171/303	237A	GU-17480	3670±30	Bone	-21.1‰	2140-1970BC	2140-1950BC
171/303	237B	GU-17481	3610±30	Bone	-23.3‰	2025-1925BC	2040-1880BC
171/1020	357A	GU-17472	2960±30	Hazel	-25.6‰	1260-1120BC	1300-1050BC
171/1020	357B	GU-17473	2960±30	Hazel	-25.8‰	1260-1120BC	1300-1050BC
171/609	242A	GU-17503	2930±30	Hazel	-25.7‰	1210-1050BC	1260-1020BC
171/609	242B	GU-17504	2965±30	Hazel	-25.2‰	1260-1120BC	1310-1050BC
<i>Feature cut into enclosure ditch fill</i>							
245/3	350A	GU-17478	2445±30	Alder	-25.6‰	740-410BC	760-400BC
245/3	350B	GU-17479	2430±30	Alder	-26.1‰	720-410BC	750-400BC
<i>Pit within enclosure</i>							
216/2	248A	GU-17462	2445±30	Barley	-22.3‰	740-410BC	760-400BC
216/2	267A	GU-17859	2465±30	Barley	-22.8‰	760-510BC	760-410BC
<i>Pits outside enclosure</i>							
208/7	188A	GU-17476	905±30	Birch	-25.2‰	1040-1180AD	1030-1210AD
208/7	188B	GU-17477	925±30	Birch	-27.9‰	1040-1160AD	1020-1180AD
211/2	189A	GU-17474	980±30	Birch	-26‰	1010-1150AD	990-1160AD
211/2	189B	GU-17475	955±30	Hazel	-26‰	1020-1160AD	1020-1160AD
211/3	190A	GU-17506	910±30	Birch	-26.1‰	1040-1170AD	1030-1210AD
211/3	190B	GU-17507	920±30	Hazel	-26.8‰	1040-1160AD	1020-1190AD
<i>Roundhouse 1</i>							
40/3	38A	GU-17464	2970±30	Birch	-26.6‰	1260-1120BC	1310-1050BC
40/3	38B	GU-17465	2970±30	Willow	-27.8‰	1260-1120BC	1310-1050BC
<i>Roundhouse 2</i>							
81/3	81A	GU-17466	2925±30	Birch	-24.3‰	1200-1050BC	1260-1010BC
81/3	81B	GU-17467	2850±30	Alder	-26.5‰	1060-930BC	1120-920BC
99/4	109A	GU-17452	2875±30	Barley	-23.1‰	1120-1000BC	1190-930BC
99/4	109B	GU-17453	2360±30	Barley	-24.9‰	510-380BC	530-380BC
<i>Ring-ditch</i>							
100/104	120A	GU-17858	2820±30	Birch	-24.8‰	1010-925BC	1070-890BC
100/22	144	GU-17505	2825±30	Birch	-25.9‰	980-840BC	1000-830BC
100/53	106A	GU-17857	2875±30	Hazel	-25.4‰	1120-1000BC	1190-930BC
100/82	105A	GU-17456	2775±30	Barley	-22.1‰	980-850BC	1000-840BC
100/82	105B	GU-17457	2820±30	Barley	-24.6‰	1010-925BC	1070-890BC
<i>Micro-souterrain</i>							
163/52	161A	GU-17470	885±30	Birch	-26.5‰	1050-1220AD	1040-1220AD
163/52	161B	GU-17471	835±30	Alder	-25.4‰	1175-1255AD	1150-1270AD
<i>Pit</i>							
116/2	65A	GU-17460	600±30	Oat	-24.9‰	1305-1400AD	1290-1410AD
116/2	65B	GU-17461	655±30	Barley	-23.6‰	1280-1390AD	1270-1400AD
116/4	66A	GU-17458	585±30	Barley	-24.3‰	1315-1405AD	1290-1420AD
116/4	66B	GU-17459	645±30	Oat	N/A	1285-1390AD	1280-1400AD

passed. The charcoal dates from the enclosure ditch passed and those from the human cremation in the ditch allow the assumption that a single individual is represented. The dates from features cut into the ditch are virtually identical to those from the single dated internal feature. Roundhouse 1 is earlier than Roundhouse 2 and within the dates from the latter, those from F100 are statistically different from F81/F99. Even between F81 and F99 (discounting GU-17453 as being intrusive), the remaining three dates fail the test. The samples from the intercutting pits F208/F211 pass the test as do those from F163 and F116. Significantly perhaps, the charcoal dates from the enclosure ditch and from Roundhouse 1 pass the test and could relate to the same event. Both may stem from contemporary events surrounding the conclusion of activity at these locations but there is no good evidence for their contemporary use. When combined with GU-17466 from F81 in Roundhouse 2, the same enclosure dates pass the test and could again derive from the same event, but add the second date from F81 and the test fails.

Few of the contexts could be described as 'charcoal-rich'. Exceptions to this include F40 in Roundhouse 1, Beaker Pit F168 and the lenses of charcoal in ditch F171, Slot 10. Otherwise reliance was placed on charcoal which was often a minor constituent of the overall context. Further, these contexts were often formed at the end of, or after, the use of the feature in which they were found.

The medieval dates from pits F208/211 were something of a surprise. Although they do not contradict the stratigraphy, they are at variance with the dating suggested by both the artefacts and the spatial distribution of the features in that area. Despite appearances, it may be that F211 was non-archaeological and therefore all the samples from it and F208 represent natural medieval intrusions into a prehistoric feature. Neither seeds nor artefacts were recovered from it. Against this, both birch and

hazel were represented and it is more likely that such a scenario would involve a single species.

In the field, it seemed clear that Pit F208 cut Pit F211, with charcoal from the latter then eroding onto the base of the former. A line drawn through the axis of symmetry within Pit F209/216 inside the enclosure F171 runs through the centre of Pit F208 forming a clear spatial (mirror-image) alignment. This, and the similar scale of the features, is strong evidence for a relationship between these pits, one that is not supported by the C14 dates. Although the upper fill of F208 overlay the fill at the edge of the ditch, the ditch clearly bent slightly (*illus 7*) to avoid the pit, and *illus 10* demonstrates the degree of care used in cutting the edge of the ditch around the edge of the pit. Although secure, the stratigraphy is not an insurmountable problem here, as, for unknown reasons, the ditch may have been infilled before the pit. Overall, the degree of doubt is sufficient to arouse suspicions over the dates from this feature. Suspicion may also be cast over the dates from F209/216. Although very similar to those from F245, a pit cut into the fill of the enclosure F171, the spatial relationship between F209/216 with F208 is a concern. Overall, the dating and sequence of features 171, 209/216, 208 and 211 as suggested by the radiocarbon dates, the stratigraphy, the artefacts and their spatial layout within the site cannot be easily reconciled.

Suspicions may also be attached to the dates from F163, as the pottery belongs in the 1st millennium BC and if this feature is accepted as being akin to a souterrain, dates after the 4th century AD are rare (*Dunwell & Ralston 2008*).

Date GU-17453 from F99, within the otherwise well-dated Roundhouse 2 is hard to interpret. This well sealed context had no apparent contamination but contained barley dating broadly to the period when activity was centred to the south, on features within the enclosure and cut into its ditch.

7 DISCUSSION AND CONCLUSIONS

7.1 Introduction

The commercial developments that form so much of today's archaeological work have in the past been largely absent from the West Highlands. Although a cause for regret amongst writers and others based in these areas (eg [Rixson 2002](#)), this imbalance is being redressed, often through Scottish Government-funded major infrastructure schemes ([Carter et al 2005](#); [Suddaby 2009](#)), fieldwork associated with renewable energy schemes or through landowner-funded surveys ([Birch 2005](#)).

Archaeological fieldwork and research projects on Skye have previously concentrated on the upstanding and highly visible Iron Age monuments, with more ephemeral, often older sites or those preserved as negative features remaining unseen and unrecorded. Even as recently as 1996, Patrick Ashmore could list no radiocarbon dates from Skye prior to 750 BC ([Ashmore 1996](#)). With the work at Kiltaraglen, and other completed or ongoing projects on the island, eg High Pasture Cave ([Birch 2008](#)), Camas Daraich ([Wickham-Jones & Hardy 2004](#)), Kilvaxter and Tungadale souterrains ([Miket 2002](#)), and at a newly discovered Bronze Age funerary site at Armadale ([West Highland Free Press 2009](#)), the situation has changed.

The excavations forming the final phase of archaeological fieldwork at Kiltaraglen described in this document have revealed a remarkable series of sites, with contemporary or near-contemporary Late Bronze Age buildings, post-alignments and an enclosure of unknown function in close proximity to each other. In all cases, these are unparalleled on Skye and in the case of the enclosure, seemingly unparalleled – so far – in the excavation record of Scotland. The location of the fieldwork was clearly an important site at some points in prehistory, situated as it is on visible, relatively well drained and fertile ground, close to a sheltered harbour and on the route of easiest foot passage across the island. On the other hand, the winter's fieldwork starkly demonstrated the exposed nature of the site and the problems of water management.

The discovery at Kiltaraglen of the first post-built roundhouses to be recorded in north-west Scotland may be seen as a striking revelation, but it is merely a result of the relative lack of commercial development on promising sites, especially where the presence of drift geology allows the excavation of negative features.

The function of these buildings remains unresolved. The discovery of few artefacts appears to be typical of these sites and it is easy to assume they are domestic in nature. Recent test-pitting on

roundhouse sites in the Broadford area and subsequent radiocarbon dating ([Wildgoose & Glover 2010](#); S Birch pers comm) suggests firstly that apparently similar sites may vary greatly in age and secondly that those with entrances to the west may be non-domestic in function.

Many of the elements at Kiltaraglen may have formed part of a ceremonial Bronze Age landscape. Included in this are the Early Bronze Age features, the post-alignments, post setting and individual posts, along with the enclosure, which was filled in and followed by the roundhouses. Later, less extensive activity centred around the enclosure and the miniature souterrains. A hiatus during the late first millennium BC and the whole of the first millennium AD was ended in medieval times. Represented by a series of radiocarbon dates, the evidence from this last era is hard to interpret. There seems to be no reason to question some of these dates, whereas others contradict all other strands of evidence. Was there a period of woodland regeneration followed by burning/clearance which could have caused intrusive charcoal to enter a number of features?

The palaeoenvironmental studies included here form a valuable addition to the limited number of analyses from palaeoenvironmental and archaeological sites in the West Highlands. At Loch Maree, Wester Ross ([Birks 1972](#)), 50km to the north-east but in a similar environment, pollen studies indicated that pine was common throughout prehistory, as was oak. At Dubh Lon ([Erdtman 1924](#)), 2km to the north-west of Portree, oak appears not to have been present but pine is present almost throughout the diagram. Tipping ([1994: 27](#)), in describing the woods of the west coast to the south of Loch Maree, suggests that oak was never as common on the islands and that even in areas where oak was locally common, it may be virtually absent on individual sites.

Neither oak nor pine were represented at Kiltaraglen. In the case of pine, its hot-burning characteristics mitigate against survival but no such reason can be advanced in regard to oak. Species represented at Kiltaraglen include birch, hazel, alder and willow, all currently present in the Portree area.

In the discussion below, the various sites are examined in an order derived primarily from their radiocarbon dates and to a lesser extent from their morphology and from the artefactual assemblage.

7.2 Mesolithic/Neolithic

Blade and microblade elements of the lithic assemblage, most notable from Roundhouse 1, are

suggested on technological and typological grounds to belong to the Early and Mid Neolithic, extending back to the Late Mesolithic in one case. A single rim sherd of decorated Late Neolithic Hebridean Ware was recovered from the bunded topsoil close to the enclosure.

7.3 Early Bronze Age

Two pit features and a deposit of human bone were AMS dated to this period and diagnostic lithic and ceramic artefacts were recovered. The latter will be discussed in the context of the enclosure ditch (Section 7.4). The context of Beaker pottery in the Western Isles appears to differ from that in the east of Scotland (Armit 1996; Johnson above), with the material appearing predominantly in settlement and midden contexts as opposed to the burial or ritual deposits more characteristic of the east.

F134 contained Beaker pottery with an incised geometric design but may, in origin at least, be a post-hole, located at the south-eastern extent of an arc of otherwise undated features, one of which was later cut by a medieval pit (F116). Nevertheless, the section through F134 revealed deposits which, in profile, are more reminiscent of a pit containing an organic vessel than of a typical Kiltaraglen post-hole and the interpretation of this feature is uncertain. Comparisons with ceramics in domestic deposits at Northton on South Harris are highlighted but F134 did not appear to be domestic in nature.

Although a lack of sufficient, reliably contexted organic material precluded the dating of either the post-setting or the post-alignments to the south of the enclosure, these may also be tentatively ascribed to the earlier Bronze Age. This rests on the basis of similarities in post-hole morphology between individual features within different feature groups and on recurring characteristics of these feature groups. Specifically, the grading of post-hole depths seen in all three post-alignments, with the deepest post-holes (and presumably, the tallest posts) in the centre of the alignments, may be a trait characteristic of the earlier Bronze Age. No post-alignments have previously been recorded on Skye but alignments of standing stones, for example at Kensaleyre, are recorded.

The unusual tripartite Pit F168 was located between the circular enclosure and the northernmost of the parallel post-alignments. An oval feature closest to the enclosure ditch was hugged to the south by a second kidney-shaped feature, with a third also kidney-shaped feature to the south of the second. There is no evidence that these features were constructed at different times and the charcoal-rich fills ran without interruption through the three pits. There was no burnt bone. Ninety-seven sherds of cord-impressed Beaker pottery were found. Fourteen lithics including finely crafted end-scrapers of mudstone and a hammer-stone were recovered. Phosphate analysis indicated some

elevation of levels but nowhere near those characteristic of a grave. A thick vertical 'dyke' of iron-pan ran obliquely through the fills and, as several sherds of pottery were incorporated into it, this must have formed after the fills were deposited. It may be that this was formed by the slow percolation of water through some kind of covering for the pit, either wooden or stone slabs, although no evidence remained for either. Although the inference of some kind of covering may argue for a funerary function, the purpose of the pit remains unknown, and the seemingly structured deposition that is evidenced by the variation of the pottery leaves the cultural processes behind this open to interpretation.

7.4 Later Bronze Age and early Iron Age

The excavation revealed that in this period a settlement of at least two predominantly wooden houses was located at Kiltaraglen. The ditched enclosure may have been excavated earlier but it was being filled in at this time, indeed statistically, carbonised material in both the roundhouses could originate from the same event as that from the enclosure ditch. Later in this period, carbonised material also entered features cut into the now fully infilled enclosure ditch and at least one of the internal features.

7.4.1 The enclosure

Prior to the excavation of the ditch, the monument appeared to conform best to those described as hengiform (English Heritage 1989), a class reserved for henges and henge-type monuments with an internal diameter of 20m or less. The location conforms to that of other henges, for example Balfarg/Balbirnie, Glenrothes, Fife (Mercer 1981; Barclay & Russell-White 1993) and North Mains, near Auchterarder, Perthshire (Barclay 1983), namely on a ridge of elevated ground with water close by. Both hengiform and henge-type monuments are variations on the henge tradition, classes of which are given by Malone (2001: 169) and Harding (2003).

There are no fully published parallels for this enclosure in Scotland but at Pullyhour, south of Halkirk in Caithness, a circular enclosure was partially excavated in 2008 (Bradley 2011). Close to the River Thurso, it had an overall diameter (including the ditch and bank) of 19.4m and the area enclosed by the ditch had a diameter of 8m. The narrow entrance was in the south. Dating of an old land surface under the bank showed it was built after 1620–1450 cal BC. Later, between 1320 and 1120 cal BC, the ditch was remodelled with both cobbles and a post placed within it. Finally, the site was abandoned, with rubble being dumped into the ditch.

In south-west Ireland, at Reanascreena South, Co. Cork (Fahy 1962; O'Brien 2004) a circular enclosure

without an apparent entrance, though with an internal stone circle, had a diameter of 10m within a ditch 3.75m wide. An external bank was preserved and charcoal from an old ground surface below it was dated to 1253–943 cal BC. Charcoal from an internal pit was dated to 1001–835 cal BC (*ibid*, 328).

At Kiltaraglen, doubts over the classification centre around the fact that all classes of henges and similar structures include at least one entrance which, in all cases, consist of a break in the circuit of the ditch. Here, a potential entrance was recorded in the north-east arc of the ditch where three possible post-holes, perhaps a supporting part of a timber walkway, were sealed by its early backfill although they could possibly pre-date the ditch and have been cut by its excavation. The enclosed area also lacked any trace of post-settings or other features recurring on other sites, and pottery in the upper fills of the ditch was Late Bronze Age in form.

Although it seems clear that the main episode of infilling occurred in the Late Bronze Age, it is impossible to say what length of time elapsed between the initial excavation of the ditch and its backfilling as cleaning may have been both regular and recurrent.

The evidence from the excavation indicated that the laminated deposits (Unit 1) could have formed in the base of the ditch after a single rain event. Micromorphological evidence from the overlying ditch fills indicates that the lower fills (Units 2–3) represent infilled material and the sections indicate this came from both sides, which is suggestive of both internal and external storage of material in bank form. Sterile except for occasional flecks of charcoal and at one point only, pottery, it had seemingly been tipped at the lip of the ditch before being allowed to trickle down into the base, the tip-lines forming a U- or V-shaped profile. It had not been flung, as if by shovel, into the base of the ditch.

Charcoal entered the ditch in one or more thin lenses at several points around the circumference and this was dated to 1300–1050 cal BC. The angle of these tip-lines and charcoal lenses was mirrored by the angle of deposition in the Unit 3 soil deposits, which suggests that there was no re-cutting of the ditch and that the method of infilling remained constant, despite the hiatus suggested by the micromorphology. These soil deposits contained Late Bronze Age pottery and again, entered from both sides of the ditch. Further, similar pottery was recovered from amongst the stones (Unit 4) in the upper levels of the ditch but these also included a deposit of human bone in Slot 3 dating to around 2100–1900 cal BC. It may be that an Early Bronze Age burial was disturbed during backfilling of the ditch, suggesting that it was above the subsoil surface and perhaps below a shallow stone cairn. The Unit 4 stones may therefore include those previously obtained from the excavation of the ditch and also some derived from the disturbance of nearby features.

The duration of time between the excavation and

infilling of the ditch is uncertain. The earliest date from deposits in the ditch is that obtained from the human bone in a redeposited location within Unit 4. Another possible scenario for the origin of the bone which can be considered is that if the ditch was in fact excavated in or before the Early Bronze Age, a stone cairn may have lain within the enclosure with the human cremation, forming a primary or secondary deposit in the feature which was disturbed and at least partially deposited in the ditch during the Late Bronze Age. Alternatively, both excavation and infilling may have happened in relatively quick succession in the Late Bronze Age, with the human bone being disturbed from a nearby earlier feature either accidentally or otherwise at that time. Beaker-containing pits, somewhat earlier than the human cremation, were close by, with one being situated on the external lip of the enclosure. As to who levelled the enclosure and why, the occupants of the round-houses are the most likely candidates for the former and the latter can only be guessed at.

Two features were recorded on or just outside the lip of the ditch. F208 appears on stratigraphic and radiocarbon grounds to be substantially more recent than the ditch whereas F168, with its Beaker pottery, is substantially more ancient. Although containing neither bone nor enhanced phosphate levels, the latter is an indication of pit digging activities in the Early Bronze Age. A position on the exterior of the ditch may be seen as an indication of the ditch's presence in the Early Bronze Age and, were this to be the case, either no external bank was present or Pit F168 was cut through it. More likely the pit predates the ditch, but the one certain relationship is that both infilled ditch and pit were cut by a short ditch (F170). It may be that ditches F170 and F233 defined the edge of the infilled ditch and by extension, the room available for the excavation of the sausage-shaped pits.

An approximate *terminus ante quem* for the filling of the ditch was obtained from the redeposited fill of a feature (F245) which cut the upper levels and showed the ditch to be fully filled by the Bronze/Iron Age transition (750–400 BC). The interpretation of these 23 mostly sausage-shaped features remains an enigma. An initial suggestion that they were graves was based on the association between henges and funerary monuments, but this cannot be supported as they contained no evidence for the former presence of a body in the form of grave goods for example, and phosphate levels, though enhanced, were not elevated to the levels seen in graves. They are not post-holes and the lack of packing stones militates against their being slots for stone orthostats, although wooden plank orthostats (as opposed to posts) remain a possibility based on the raised phosphate levels. Overall, they contained no fills to assist with confidence in functional interpretation. All intersected the underlying ditch fills to some extent, with most being entirely within the ditch's arc, suggesting the feature remained either visible, or was defined in some way at that time. Similarly,

no function could be suggested for the large internal Pit F209/216 although dating of its fills (also 750–400 BC) indicates a close temporal association with the above features. Clearer in terms of function were features F212–3, which retained in plan an irregular pattern typical of the angular Skye basalt and, when combined with the cobble ‘ball-bearings’ in the base, suggests these features could once have held standing stones. None of these features has been unambiguously dated.

The key difficulty centres on the date of the enclosure ditch and this is exacerbated by the uncertain relationships with the internal and external features. All interpretations of the F171, F208, F209/216 sequence are problematic and the competing categories of dating evidence cannot be reconciled.

To summarise: a longitudinal line drawn down the centre of F209/216 passes exactly through the centre of F208, suggesting, if not contemporary excavation, at least contemporary visibility/use. Neither option is supported by the C14 dates. Further, as previously described, the enclosure ditch may have bent slightly to avoid Pit F208 which, on face value, it should therefore be contemporary with, or post-date. This is, however, contradicted by both the radiocarbon dates and the stratigraphy. In terms of artefacts, all the features are Later Prehistoric.

The fieldwork at Kiltaraglen allowed an insight into the effort involved in the ditch’s excavation. The alignment would appear to have been first chiselled out using stone hammers, antler picks or wooden/stone wedges, prior to the main excavation, which was nevertheless allowed to deviate slightly from the ideal as was dictated by the ground conditions. The several straighter sections could be indicative of separate work periods or teams. The re-excavation was undertaken during a period of wet weather in the middle of winter and was a daunting task. With a diameter from ditch centre to ditch centre of 23m, the approximate circumference of the monument is 72m. With an average width of 3m and depth of 1.5m, around 2.25m³ of material per metre of ditch length required excavation and at an assumed soil weight of 2 tons/m³, a total of 162m³ or at least 324 tons of material was removed. Once the weight of the stone component is included (2.7 tons/m³ for solid rock; [Summerfield 1991](#): 382), around 350–400 tons were removed and relocated.

7.4.2 The roundhouses

Patrick Ashmore ([2001](#)), in reviewing the second millennium BC settlement record of Scotland, stresses the uneven distribution of fieldwork and the lack of a specific overview for the period. The present summary of chronologically similar sites will concentrate on the Later Bronze Age.

Ashmore lists and discusses the recent areas where relevant settlements have been excavated.

These include Lairg, in Sutherland ([McCullagh & Tipping 1998](#)), where complex uses and reuses of house sites indicated a long-lived settlement, from 1800 BC into the Iron Age. At Carn Dubh, Moulin, Perthshire ([Rideout 1995](#)), a similarly complex pattern was revealed with a slightly later inception date of around 1100 BC. Further south, many of the platform or scooped settlements in the Borders were occupied in the Later Bronze Age (eg [Jobey 1980a & b](#)). Closer geographically, the hut-circle at Cùl a’Bhaile at Knockrome on Jura was dated to 1260–920 BC (GU-1385; [Stevenson 1984](#)). The structure had a diameter of 7.5m in its first phase within a composite wall of stone and turf and an internal post-ring. The section (*ibid*, illus 4) shows that the post-hole, at 0.3m diameter and less in depth, was relatively insubstantial, with the adjacent wall being founded at a greater depth and when compared to Kiltaraglen, substantial structural differences are evident. One constant was the presence of a finely pebbled entrance passage.

Developer-funded fieldwork since 2001 has considerably expanded the database for settlement of this period. Until recently post-ring and ring-ditch structures were ascribed to the mid-first millennium BC ([Harding 2004](#)) but more recent radiocarbon dates from Auchrannie, Angus ([Dunwell & Ralston 2008](#)), Oldmeldrum, Aberdeenshire ([White & Richardson 2010](#)) and Kintore, Aberdeenshire ([Cook & Dunbar 2008](#)) all indicate origins in the second half of the second millennium BC for Scotland, as they do for Wales ([Johnson et al 2007](#)).

In Ireland, the diversity of the Late Bronze Age is long recognised and well attested ([Waddell 1998](#)), with the structures being described by Barry ([2000](#)) and Doody ([2000](#)). Mallory & McNeil ([1991](#)) summarise the period and illustrate the structure at Donegore Hill, Co. Antrim where an irregular post-circle with a diameter of 8m features an off-centre hearth, projecting entrance and patch of exterior paving. Also in Co. Antrim, a roundhouse at Ballyprior Beg ([Suddaby 2003](#)) with a diameter of 9m was constructed from stone and clay. This building, one of several on the site, was dated to 1310–1010 cal BC.

In the Outer Hebrides, three east-facing ‘terraced’ roundhouses were excavated at Cladh Hallan, in the machair on the western coast of South Uist ([Parker-Pearson et al 2002](#) and *n.d.*) and dated to around 1000 BC. Interestingly, these roundhouses succeeded smaller U-shaped houses which appear to be the building standard for the majority of the second millennium, up to *c* 1300 BC. All the roundhouses had central hearths and the largest measured *c* 8m by 9m internally. None had earthfast internal posts ([Parker-Pearson et al 2002](#): fig. 2).

Returning to the Inner Hebrides, a structure was excavated at Balevullin, Tiree in 1912 and published by MacKie ([1963](#)). Assigned to the pre-bronch era on the basis of ceramics and on comparisons with the nearby Dun Mor Vaul ([MacKie 1974](#)). With a diameter of around 10.5m and post-holes cut into

sand, any interpretation of the structure remains uncertain.

Moving north to Skye, at Coile a'Ghasgain, Sleat, a stone-walled roundhouse was excavated and dated to a period after 900 BC (Wildgoose et al 1993; Armit 1996; Miket 1996). Field survey in the Strathaird Estate (around Elgol) between 1997 and 2000 (Wildgoose 2000; Birch 2005) led to the discovery in an upland environment of what are assumed to be Bronze Age roundhouses at Druim an Fhuarain as mainly single units in small enclosures. At Abhainn Cille Mharie settlement was both more organised and located on the glen slopes, moving to the glen floor in the Iron Age. A programme of fieldwalking and test-pitting with subsequent scientific dating from roundhouse sites in the area is ongoing (Wildgoose & Glover 2010; S Birch pers comm). Nearby, at High Pasture Cave, Torrinn (Birch 2008), Late Bronze Age deposits were recorded in a cave, sealed by Iron Age deposits, with surface features dating from the Neolithic to the Clearances.

A picture of diversity in the settlement record thus emerges, which complements that in Ireland and which the Kiltaraglen site will only enhance.

In both of these roundhouses, the plan of the excavated remains allows for some conjecture in the interpretation of the above-ground structures. Structural reconstruction has been discussed by Guilbert (1981) and Reynolds (1982). More recently, and in an eastern Scottish context, Cook & Dunbar (2008: fig. 195) visualise the above-ground structure of the 33 roundhouses at Kintore. Most recently, Harding (2009) discusses the various interpretations in a British context. This latter study makes several pertinent points, including that numbers of post-holes should be minimised to avoid deterioration and that post-holes could be as much constructional as structural in nature. The former point is surely relevant in a Western Scottish context, where poor drainage and an assumed scarcity of structurally suitable wood must have been factors in building design.

Roundhouse 1

The badly truncated features comprising this seemingly unenclosed roundhouse appear to form a rather irregular structure, with a post-defined sub-circular post-ring 7m wide around an internal triangular post-setting and an off-central feature, the function of which has not been conclusively ascertained. The partial ditch upslope may be intended to divert water away from the building and not be a structural component. There was no trace of a second post-ring or ring-groove between the post-ring and the ditch upslope, but this may not have survived the ploughing of the site. The area was also stripped by mechanical means. A scatter of external post-holes, pebbled surfaces and pits containing fire-cracked stones and charcoal was recorded in the vicinity, with the location of F42 being comparable to the location of F55 in relation to Roundhouse 2.

No closely datable finds were recorded, no layers of occupational deposits or midden material lay within the truncated site and the dating of this structure was reliant on radiocarbon determinations which demonstrated a probable abandonment date in the final centuries of the second millennium BC. This abandonment, in terms of the radiocarbon chronology, coincides with the infilling of the enclosure ditch which together may tend to suggest a period of upheaval or at least change in the area at that time. Whether this upheaval was confined to Kiltaraglen or was more widely replicated could form the focus for future work.

In plan, and with reference to the Kintore classification (Cook & Dunbar 2008: fig. 195) this structure best resembles either Type 1a, Type 5 or Type 6. All would be acceptable in a Late Bronze Age context, with uncertainties stemming from truncation and interpretation. Most closely, the remains are those of a post-ring type (Types 5–6) but were F10/50 to be seen as a truncated internal pit, Type 1a might be applicable. It must be said that all of the Kintore reconstructions assume the internal area extends beyond the arc of the posts/ring-ditch but there is no reason why these posts should not form the perimeter and support a ring-beam which pressed outwards onto a mass wall consisting of turf, stone or clay which occupied the (featureless) area up to the ditch to the north-east. In discussing the post-ring, it seems pertinent first to evaluate the evidence for this marking the perimeter of the structure as opposed to assuming it was an internal post-ring. Were the latter to be the case, it would better explain the pebbled pit (F10/50) on the post-arc, with F4 and F41 being all that remains of the external wall. An absence of packing stones in the perimeter post-holes may be highlighted and the posts were clearly intended to fit snugly in the post-pits and were then packed around with minimal quantities of redeposited natural subsoil. Some had been replaced, although in as wet an environment as Skye this may have a lesser time-depth significance than for example at Kintore, where posts may have lasted many years. The relatively insubstantial nature of these post-holes could suggest that these features were not the main load-bearing components. If the rafters extended beyond the posts and ring-beam, seating into the mass wall, the thrust of the roof would have been removed from the post-holes and carried into the wall itself.

Taking contemporary structures into account, a 7m internal diameter approaches the norm. Post-excavation work indicates that the off-central feature (F40) is likely to be a post-hole, despite several comparable and contemporary structures having a hearth in this position, for example Cladh Hallan, South Uist (Parker-Pearson et al 2002) and Cùl a'Bhaile, Jura (Stevenson 1984). Harding (2009, 56) records that central posts occur only in smaller buildings during the Late Bronze Age.

The possibility that this structure was not domestic in nature may be supported by the alignment of

the entrance, which points south-west, often the direction of the prevailing wind. Most roundhouse entrances are aligned in the 90° arc between east and south, either to avoid the prevailing wind or to allow a cosmological-based zoning of the internal activities, as suggested for Cladh Hallan (for a contrary view see [Pope 2007](#)). However, a recent analysis of Welsh roundhouses ([Johnson et al 2007](#)) shows this east through south orientation to be preferred, but not dominant, in the archaeological record and that the alignment of a surrounding enclosure entrance may also be a factor.

The pebbled and stepped base of the entrance passage is also an unusual feature, though replicated at Cùl a'Bhaile. The attractive blueish pebbles have clearly been imported from a nearby source but this feature may well have been solely functional, consolidating a potentially muddy entrance. Deposits of blue anaerobic clay and stones were noted at depth in more waterlogged areas of the site and similar pebbles can be recovered from exposures in the banks of the River Leasgeary.

Roundhouse 2

The feature groups forming the primary ring-ditch/post-ring and the secondary ring-ditch structure within it form a geographically unique sequence of structures. This suggested phasing rests on spatial, depositional and stratigraphic evidence:

- first, spatial analysis indicates that the orientation of the primary ring-ditch roundhouse differs (by around 15°) from that of the secondary ring-ditch and that the latter is eccentrically positioned within the earlier structure;
- second, differences in the depositional characteristics of the features allow their categorisation by phase. Phase 1 (and unphased) features were in all cases filled with red-brown silts with Phase 2 features containing dark brown/grey/black silts;
- third, significant stratigraphic relationships were present and these demonstrate the presence of two structures.

As with Roundhouse 1, these structures form an intriguing addition to the archaeological record of Atlantic Scotland, both in terms of construction and chronology. Both are similar to the ring-ditch houses of eastern Scotland but in this location may qualify as indirect precursors to the Atlantic Roundhouses, an all-encompassing term coined by Ian Armit ([1990](#)) to describe the Iron Age structures found in the western and northern Scottish Iron Age. Debate in more recent years (eg [Gilmour 2002](#)) has focused on the search in the Hebrides for antecedents to the class of Complex Atlantic Roundhouses that includes brochs and galleried duns.

Overall, the primary post-ring with porch and internal ring-ditch adjacent to the posts most closely corresponds to Cook & Dunbar's Type 1a ([2008](#): fig. 195). The structure also closely matches the internal

area of the Kintore Type 1a roundhouses but other elements, entrance orientation for example, differ. At Kintore, the post-ring is seen as an internal feature, with more ephemeral elements, for example a concentric ring-groove or bank, having been lost to truncation and this may also be the case at Kiltaraglen. A similar, contemporary building may be present (House 2) at Oldmeldrum, Aberdeenshire ([White & Richardson 2010](#)). Further north, in another recently excavated roundhouse at Navidale, Caithness ([Dunbar 2007](#)) the oval post-ring was clearly an internal feature, and this is assumed in the reconstructions of most double-ring roundhouses ([Guilbert 1981](#); [Reynolds 1982](#); [Harding 2009](#)). The Navidale report ([Dunbar 2007](#): 161) also offers a comparison in terms of axial symmetry and paired post-holes with House 5 at Carn Dubh. In both examples, the nine posts are spaced at, or just over 2m intervals, spanning an internal area of at least 9m diameter. At Kiltaraglen, the posts are 1–3m apart and the internal diameter is also 9m suggesting either a less substantial load-bearing outer wall/bank or a more complex/weighty superstructure. Alternatively, if every second post at Kiltaraglen is counted, spacing of around 3m is apparent and a two-phase post-circle may be suggested.

The structural geometry of the later prehistoric timber roundhouse is discussed and illustrated by [Harding \(2009\)](#). Although only one Scottish example (from Bannockburn, [Rideout 1996](#)) is cited and the work concentrates on English sites, the double-ringed plan is seen as standard for these structures, with the distance from the centre to the inner and outer post-rings having the ratio of 3:4. House 2 at Broxmouth ([Hill 1982](#): fig. 8) follows this trend. At Kiltaraglen, a putative outer post-ring or ring-groove has not survived and inferring its potential position is complicated by the slightly oval plan but it could encompass the pit-group and slot to the east and the slot to the north, joining the entrance at either F67/F68 or at F63/F64. Employing the 3:4:5 ratio seen in the three rings at Pimperne, Dorset ([Harding 2009](#): 57) places the irregular and otherwise ambiguous feature (F118) to the east on the alignment of the roof rafters (45°) down to ground level and this may therefore merely be where the natural slope was levelled to allow construction. None of the examples cited by [Harding](#) have a central post-hole and the near central feature here had no defining characteristics.

Were the post-ring to form the inner face of the perimeter wall, as opposed to being an internal feature, it may be that panels of drystone walling were built between the posts, a building style well attested to during the period in question. No substantial evidence for such a wall was preserved but a 'mass wall' such as this needs no foundations, reliance being placed on its weight and bulk to achieve the inherent strength needed to absorb the outwards thrust of the roof. Mass walls have many advantages and combine low technology and efficient insulation with the ability to absorb

daytime solar heat, transfer it through the wall and release it within the house at night. Such a wall was recorded in a Late Bronze Age context at Ballyprior Beg, Co. Antrim (Suddaby 2003).

The radiocarbon dating suggests that these structures are slightly later than Roundhouse 1. Chi-squared tests comparing the dates from Roundhouse 1 against the most similar of the dates (GU-17466) from Roundhouse 2 are statistically not significantly different but this is the only date from Roundhouse 2 to pass this test. A ring-ditch building, more substantial than Roundhouse 1 but again incorporating a south-west facing entrance passage and porch, was replaced by a different type of ring-ditch structure, with the open portion of the ditch facing more to the west. The earlier structure was not apparently associated with an external ring-groove and, whilst details remain uncertain, the post-ring could form the inner face of the external wall, rather than being an internal post-ring. This should not cause surprise, as the lack of an internal post-ring is a common feature in Atlantic Roundhouse structures in western and northern Scotland. Posts forming this ring were more closely spaced opposite the entrance than adjacent to it and of uneven depths. Assuming even plough truncation, differences in depth may relate to the lengths of the available timber or to periodic rebuilds but it is conceivable that a particularly shallow post (eg F105) between deeper examples may have the attribute of easy removal, perhaps to allow access to the interior during structural repairs etc.

Ring-ditch structures have been reviewed by Harding (2004) with an up-to-date review of the evidence from Angus and adjacent counties by Dunwell & Ralston (2008). Recent site-based reports include Dryburn Bridge, East Lothian (Dunwell 2007), Oldmeldrum (White & Richardson 2010) and Kintore (Cook & Dunbar 2008), both in Aberdeenshire.

The Kiltaraglen structure would sit easily in the archaeological record of eastern Scotland where ring-ditches are commonplace, with numbers increasing rapidly, often through aerial photography but also through the archaeological monitoring of commercial developments. The structure is distinctly out of place in western Scotland where no comparable site has so far been excavated. Not only are ground conditions less conducive to good aerial photography, there has been less commercial development. Distribution maps illustrating this disparity in developer-funded fieldwork in Scotland are included in Phillips & Bradley (2004).

Lengthy fieldwork at Kintore, on the A96 to the west of Aberdeen has led to the excavation of 29 Later Prehistoric round structures (Cook & Dunbar 2008: 86). These encompass many structural types and the quantity involved has allowed, through extensive radiocarbon dating, the formulation of a chronological and typological sequence for the development of these structures. In general, and this sequence may only be applicable to Kintore,

the earliest feature post-rings with or without porches. Later examples feature internal (concentric) ring-ditches with still later roundhouses having external (but still concentric) ring-ditches. The most recent have a ring-ditch without associated post-holes (*ibid*: fig 195). Although none of these find a direct parallel at Kiltaraglen, the ring-ditch most closely resembles either Type 2b or Type 3 at Kintore, with these being dated to the period after 1300 BC (*ibid*: table 38). The most comparable plans come from Douglasmuir in Angus (Kendrick 1995: 43) or at Coul Brae, Mosstodloch, Moray (Gray & Suddaby *forthcoming*), where the ring-ditch surrounds a haphazard arrangement of internal post-holes which, in some examples, occur on the inner lip of the ditch. Douglasmuir was dated to the Late Bronze Age/Iron Age transition, with Coul Brae being Early/Middle Iron Age.

Ring-ditches themselves are often seen as a method of increasing the usable internal height of the structure around its perimeter and/or as marking of the edge of a peripheral activity zone, perhaps for the stalling of livestock. The absence of meaningful data on which to base these propositions for function are lamented by Dunwell & Ralston (2008) and, unfortunately, the Kiltaraglen excavation once again adds little to the debate. The fills of the ring-ditch are post-abandonment in nature, no noteworthy distribution patterns could be recognised from the sparse finds and the phosphate levels, though raised, are not sufficient to suggest animal occupation. The final observation may be supported by the clear (untrampled) boundary between the fills and base of the feature.

Ditch morphology at Kiltaraglen is typical of these structures. The profile has a steep external face and a more gently graded internal slope. No segmented digging was apparent and the feature possessed no stones that could be considered as paving. The steep profile on the outer side is suggestive of deliberate excavation, as opposed to erosion, and there was no subsoil-derived deposit in the base of the feature which may stem from erosion.

The lack of finds is sadly typical for ring-ditch excavations over wide areas of Scotland and indeed the rest of the UK. This may be a result of ploughing removing floor levels or of scrupulous house cleaning, as finds from excavated structures in uncultivated upland zones (eg Culhawk Hill, Angus; Rees 1998) were also scarce. From the ring-ditch itself, two sherds of pottery were augmented by a single lithic, three coarse stone tools, and two lumps of fuel ash slag. Two additional sherds of pottery were recovered from a post-hole associated with the ring-ditch. Nothing can be inferred from the distribution of these finds.

Fuel ash slag is the residue of high temperature burning, perhaps of timber structures but also of ovens (Salter 2005). Its taphonomy at Kiltaraglen is uncertain but it was contained within deposits not otherwise characterised by high-temperature burning.

7.5. Undated post-alignments and settings

The curving alignment of features to the north-west of the enclosure included one which contained Beaker pottery in association with charcoal dated to the third quarter of the third millennium BC. On the assumption that this pottery and charcoal formed a secondary deposit in what was formerly a post-hole, the date provides a possible *terminus ante quem* for the alignment. Depositional similarities exist between all the post-alignments and the post-setting, with recurring morphological traits strengthening these links. For example, the step in the profile of F117 was mirrored in F165, part of the alignment which ran parallel to the alignment which included F252. None of the features had a cut on one edge which might be consistent with 'ramping' (Mercer 1981, fig. 49), where the post-pit is cut down at one side to enable easier post insertion.

The rectangular area (*c* 16m by *c* 10m) defined by the post-alignments to the south of the enclosure has superficial similarities with rectangular long-houses on Skye and elsewhere. Examples of these occur at Dun Ringhill, Elgol (Miket & Roberts 1990: 47) where the three examples depicted on the plan are all around 13m in length by 5m in width. Various aligned, two are subdivided into unequal compartments and there is a narrowing at the short side of the larger compartment. Dodgson (2002: 38–9) recognises the paucity of knowledge and cites Hebridean studies which question the supposedly Norse/medieval origins of the rectangular black house and notes that unless a byre is included, pre-18th-century houses are smaller than more recent examples. He also notes the existence of 'Pitcarmick' houses in Perthshire which attain 25m in length and the frequent use of biodegradable materials in construction. In short, without supporting artefactual or radiocarbon evidence from useful contexts, the possibility that the post-alignments represent Norse/medieval settlement is wholly speculative. Overall, the depositional/morphological similarities with demonstrably pre-historic features and the presence of occasional (exclusively) prehistoric pottery sherds suggests all are prehistoric in date.

7.6 Miniature souterrains

In the absence of a more refined terminology, both F163 and F181 may be classed as miniature or micro-souterrains, following the terminology of Dunwell & Ralston (2008: 123). The Kiltaraglen miniature souterrains are quite unlike any of the other 31 recorded souterrain sites on Skye (Miket 2002). Souterrains of similar size, plan and assumed construction to those at Kiltaraglen were however excavated in Angus by Kirsty Cameron (2002) at Dubton Farm, Brechin, and at Dalladies, just north of Montrose (Watkins 1980a). A radiocarbon date from F175 at Dubton Farm (Cameron

2002: table 10) placed the abandonment of the feature in the 1st or 2nd centuries AD. Here, F181 possesses the classic 'boomerang/banana/hook' plan seen at grander scale for example at Newmill, just north of Perth (Watkins 1980b) although that example was stone-lined and clearly intended for human access. A constructional context at Newmill was dated to around the 1st century BC (*ibid*: 169). F163 was morphologically less clearly related to miniature souterrains but is comparable in terms of scale, resistance to light penetration, proximity to F181 and artefact dating.

Dunwell & Ralston (2008: 113–26) have recently reviewed the arguments over the dating and function of these enigmatic monuments in the context of Angus. A fondness in distribution terms for areas of agricultural productivity has been remarked on, as has the association, especially in the Northern Isles, with probably domestic structures. Interpretations include refuges, temples and storage facilities. The latter seems attractive but excavated sites with demonstrably in situ deposits are almost non-existent and there is a question mark over their ability to successfully store anything (like grain) that needs to be kept dry. In this regard, the necessity for a waterproof roof must be a prerequisite.

The Kiltaraglen features were close together in the south of the site and are therefore tentatively linked spatially and with more confidence by similarities in depositional content. Cut into firm boulder clay, there were no deposits that may assist in functional interpretation and no indication of what may have formed the roof or of any wall structure. There was in addition no evidence for any associated dwelling structure, although it could lie outwith the development to the south. Access to both could have been gained from either end but F163 had a baulk of natural subsoil inside preventing through passage. Produce may have been hung inside, as a means of damp or pest avoidance. Access through a removable roof could be had, or a hooked pole in conjunction with a smooth planked floor could have served to extract the contents. Alternatively, small children could enter with relative ease.

All of the fills can be regarded as redeposited and post-abandonment in nature and were similar in both features. The finds derived from the upper levels and assist little in dating the features beyond to state that the 142 closely grouped sherds of unabraded Early Iron Age pottery from 9 vessels in F163 are highly unlikely to be either intrusive or residual. Several had finger-impressed decoration below the rim and they were associated with an iron artefact. Roger Miket (2002: fig 31) illustrates similar pottery from Tungadale souterrain, which is radiocarbon-dated to the earlier Iron Age, as indeed are all dated Skye souterrains.

It is the medieval radiocarbon dates from F163 which may therefore be seen as anomalous, and this is not the only feature at Kiltaraglen to be associated with suspicious dates from this period. They

may represent the dating of intrusive charcoal, and burrows were recorded in the subsoil around the features.

7.7 Medieval pit

Although Pit F116 cut an earlier post-hole, it was distinctive in terms of its fill and the iron pan around the cut was less apparent than in nearby features. The presence of carbonised cereal grains and the products of metalworking in a redeposited context are an unusual association. The reddened base of the pit may suggest a heat-generating process took place there but this hypothesis has been disproved by magnetic susceptibility analysis of similar features on other sites. The four radiocarbon dates are all slightly more recent than those from F163 and F208/211 and they coincide best with the Aberdeen-issued David II half-groat (1358–67) found unstratified nearby.

In the 1350s and 60s, northern Skye was held by the McLeods from Uilleam (William), Third Earl of Ross. His lands ran from the Black Isle in the east to Applecross in the west but were forfeited to David II in 1370. The political influence exerted over Skye by the east of Scotland-based Crown varied greatly (MacSween 1990).

7.8 Undated features

Large numbers of undated features were present on the site. Many contained depositional similarities with features shown to be probably prehistoric by radiocarbon dating, by artefactual content or by association with other, securely dated elements of the site. Generally though, the numbers involved lend support to Kiltaraglen's claim to be a significant location in the prehistory of Skye.

7.9 Conclusion

In terms of previous archaeological fieldwork on Skye, the Kiltaraglen excavation investigated an atypical site. Where fieldwork once concentrated on research and on particular locations, defined periods of prehistory, or classes of monument, the Kiltaraglen site was an unknown. Recent monitoring of another residential housing development on improved grassland at Armadale has located Bronze Age funerary remains and commercial development is now a major stimulus towards understanding the archaeological past on Skye.

Kiltaraglen was revealed to contain negative features predominantly dating, where this was established, to the Later Bronze Age. Previously almost unrecorded on Skye, this portion of prehistory is, with the work at Kiltaraglen and to a lesser extent the High Pasture Cave Project, becoming better understood. The results of these excavations have implications for the wider region. The cultural reasons behind the construction, use and abandonment of the enclosure, and any association with the appearance, use, or abandonment of the roundhouses remains open to speculation. Recent fieldwork by Martin Wildgoose in south Skye suggests that roundhouses with entrances facing south-west may not be domestic in nature.

A number of the individual feature groups remain undated, a consequence of the poor charcoal preservation abetted by the paucity of artefacts, in situ deposits and, in some cases, contradictions between the dates suggested by the artefacts, stratigraphy, spatial distribution and the radiocarbon results.

Further archaeological work on apparently unpromising green field sites may therefore be expected to reveal additional remains, the nature of which will determine whether the Kiltaraglen features are typical of an until-now unseen component of Skye's past.

8 ACKNOWLEDGEMENTS

CFA wishes to thank the Lochalsh and Skye Housing Association (LSHA) and Robertson Homes for funding the project. Notable on-site and later assistance was provided by James Stephenson of LSHA and Alastair Annand, Mike Cumming, Richard McDonald and Ron Sherriffs of Robertson Homes.

We also wish to thank Kirsty Cameron of Highland Council Archaeology Unit for undertaking site visits to view the work in progress, often in most unpleasant conditions.

Norma McLeod of Portree and Calum Og MacRae of Uig contributed to the author's understanding of the Gaelic background to Kiltaraglen, and Stuart Campbell of the Treasure Trove Panel to understanding the history of the rifle range within the site. Additional thanks are due to Andy Mitchell of Cuillin FM, and both Nanette Muir and Alison Beaton of Dulchas (Skye Museums Service) in Portree. Angus MacInnes of MacFarlane Contractors assisted greatly with careful topsoil removal.

The Directors of the High Pasture Cave Excavations (<http://www.high-pasture-cave.org/>) are thanked for the use of unpublished information from

their site and others in the area. Martin Wildgoose also furnished the author with the 1946 RAF aerial photograph of Portree.

The author would like to thank the site assistants who struggled to excavate the remains through some truly appalling winter weather. These were: Steven Birch, Alasdair Curtis, Mandy Duncan, Helena Gray, Ian Hill, Jamie Humble, Cara Jones, Keith Keogh, George Kozikowski, Len McKinney, Stuart Mitchell, Chris O'Connell, Phil Richardson and Alistair Wilson.

Illustrations are by Karen Clarke, Kevin Hicks, Shelly Werner and Leeanne Whitelaw.

Torben Ballin is grateful to Dr John Faithfull, the Hunterian Museum and Art Gallery, and Dr Brian Bell, the Department of Earth Sciences at Glasgow University, for their help with the unusual geology of the site.

Drafts of this report were edited and commented upon by Sue Anderson, Andrew Dunwell and Ian Ralston. Responsibility for the final form and contents of this report rests with the author and CFA Archaeology Ltd.

9 REFERENCES

9.1 Bibliographic

- Adderley, P; Simpson, I A & Davidson, D A 2006 'Historic landscape management: a validation of quantitative soil thin-section analysis', *Journal of Archaeological Science*, 33, 320–34.
- Armit, I (ed) 1990 *Beyond the Brochs, the Later Iron Age in Atlantic Scotland*. Edinburgh: Edinburgh University Press.
- Armit, I 1996 *The Archaeology of Skye and the Western Isles*. Edinburgh: Edinburgh University Press.
- Armit, I & Braby, A 2002 'Excavation of a burnt mound and associated structures at Ceann nan Clachan, North Uist', *Proc Soc Antiq Scot*, 132, 229–58.
- Ashmore, P 1996 *Neolithic and Bronze Age Scotland*. London: BT Batsford Ltd/Historic Scotland.
- Ashmore, P 2001 'Settlement in Scotland during the second millennium BC', in J Brück (ed) *Bronze Age Landscapes, Tradition and Transformation*, 1–8. Oxford: Oxbow.
- Atkinson, S; Mulville, J; Parker Pearson, M 1996 *The Late Bronze Age and Early Iron Age settlement at Cladh Hallan, South Uist: Excavations in 1996*. University of Sheffield, unpublished report.
- Ballin, T B 2002a 'Later Bronze Age flint technology: a presentation and discussion of post-barrow debitage from monuments in the Raunds area, Northamptonshire', *Lithics* 23, 3–28.
- Ballin, T B 2002b *The lithic assemblage from Dalmore, Isle of Lewis, Western Isles*. Unpublished report for Historic Scotland.
- Ballin, T B forthcoming a 'The Lithic Assemblage', in M Johnson & K Cameron forthcoming, *A Bronze Age Cremation Cemetery at Skilmafilly, near Maud, Aberdeenshire, and other Prehistoric Sites in Aberdeenshire, Excavations 2001*, Scottish Archaeological Internet Reports.
- Ballin, T B forthcoming b 'The British Late Neolithic "Levalloisian", and other operational schemas from the later prehistoric period. A discussion based on finds from the Stoneyhill Project, Aberdeenshire', *Proceedings of Conference held by the British Neolithic Studies Group, at the British Museum 2005*.
- Ballin-Smith, B & Banks, I (eds) 2002 *In the Shadow of the Brochs: the Iron Age in Scotland*. Stroud: Tempus.
- Barclay, G J 1983 'Sites of the third millennium BC to the first millennium AD at North Mains, Strathallan, Perthshire', *Proc Soc Antiq Scot*, 113, 122–281.
- Barclay, G J & Russell-White, C J 1993 'Excavations in the ceremonial complex of the fourth to second millennium BC at Balfarg/Balbirnie, Glenrothes, Fife', *Proc Soc Antiq Scot*, 123, 43–210.
- Barry, T (ed) 2000 *Settlement in Ireland*. London: Routledge.
- Birch, S A 2005 *Strathaird, Torrin & Sconser: An Archaeological Overview of the John Muir Trust Estates on Skye*. The John Muir Trust, unpublished report.
- Birch, S A 2008 *Uamh an Ard Achadh (High Pasture Cave) & Environs Project, Strath, Isle of Skye 2007: The preliminary assessment and analysis of Late Prehistoric cultural deposits from a limestone cave and associated surface features*. Report HPC 003, unpublished.
- Birks, H H 1972 'Studies in the vegetational history of Scotland III Loch Maree, Wester Ross', *New Phytologist* 71, 731–54.
- Bradley, R 2011 *Stages and screens: an investigation of four henge monuments in northern and north-eastern Scotland*. Edinburgh: Society of Antiquaries of Scotland.
- Branigan, K & Foster, P J 1995 *Barra: Archaeological Research on Ben Tangaval*. Sheffield: Sheffield Academic Press.
- Bullock, P; Fedoroff, N; Jongerius, A; Stoops, G; Tursina, T & Babel, U 1985 *Handbook for Soil Thin Section Description*. Wolverhampton: Waine Research Publications.
- Butler, C. 2005 *Prehistoric Flintwork*. Stroud: Tempus.
- Callander, J G 1921 'Report on the excavation of Dun Beag, a broch near Struan, Skye', *Proc Soc Antiq Scot*, 55 (1920–1), 110–31.
- Callander, J G 1928 'A Beaker from a short cist in a long cairn at Kilmarie, Skye', *Proc Soc Antiq Scot*, 62, (1927–8), 22–6.
- Cameron, K 2002 'The excavation of Neolithic pits and Iron Age souterrains at Dubton Farm, Brechin, Angus', *Tayside & Fife Archaeological Journal*, 8, 19–76.
- Cameron, K; Rees, A; Dunwell, A & Anderson, S 2007 'Prehistoric pits, Bronze Age roundhouses, an Iron Age promontory enclosure, Early Historic cist burials and medieval enclosures along the route of the A92, Dundee to Arbroath', *Tayside & Fife Archaeological Journal*, 13, 39–73
- Carter, S; Dalland, M & Long, D 2005 *Early Land-Use and Landscape Development in Arisaig*. Scottish Archaeological Internet Reports: www.sair.org.uk/sair15.
- Carter, S P 1998 'The use of peat and other organic sediments as fuel in northern Scotland: identifications derived from soil thin sections', in C M Mills & G Coles (eds) *Life on the Edge: human*

- settlement and marginality. Oxbow Monograph 100. Oxford: Oxbow Books.
- Cheape, H 1993 'Crogans and Barvas Ware: Handmade Pottery in the Hebrides', *Scottish Studies*, 31, 109–28.
- Clapham, A R; Tutin, T G & Warburgh, E F 1962 *Flora of the British Isles*. Cambridge: Cambridge University Press.
- Clark, J G D 1936 'Report on a Late Bronze Age Site in Mildenhall Fen, West Suffolk', *Antiquaries Journal* XVI, 29–50.
- Close-Brooks, J 1995 'Excavation of a cairn at Cnip, Uig, Isle of Lewis', *Proc Soc Antiq Scot* 125, 253–77.
- Cook, M & Dunbar, L 2008 *Rituals, Roundhouses and Romans, Excavations at Kintore, Aberdeenshire 2000–2006. Volume 1, Forest Road*. Edinburgh: Scottish Trust For Archaeological Research, Monograph 8.
- Courty, M A; Goldberg, P & Macphail, R 1989 *Soils and Micromorphology in Archaeology*. Cambridge: Cambridge University Press.
- Craddock, P T; Gurney, D; Prior, F & Hughs, M J 1985 'The application of phosphate analysis to the location of archaeological sites', *Archaeological Journal*, 142, 361–76.
- Crawford, I A 1977 'A corbelled Bronze Age burial chamber and Beaker evidence from the Rosinish machair, Benbecula', *Proc Soc Antiq Scot*, 108 (1976–7), 94–107.
- Cressey, M 2005 *High Pasture Cave, Isle of Skye; Preliminary Charcoal Assessment*. CFA Archaeology Ltd, Unpublished Archive Report.
- Cressey, M & Sheridan A 2003 'The excavation of a Bronze Age cemetery at Seafeld West, near Inverness, Highland', *Proc Soc Antiq Scot*, 133, 47–84.
- Curtis, N; Wilkin, N; Hutchison, M; Jay, M; Sheridan, A & Wright, M 2007 'Radiocarbon dating results from the Beakers and Bodies Project', *Discovery & Excavation in Scotland*, 223–4.
- Dawod, V & FitzPatrick, E A 1992 'Some population sizes and effects of the Enchytraeidae (Oligochaeta) on soil structure in a selection of Scottish soils', *Geoderma* 56, 173–8.
- Dockrill, S J & Simpson, I A 1994 'The identification of prehistoric anthropogenic soils in the Northern Isles using integrated sampling methodology', *Archaeological Prospection* 1, 75–92.
- Dodgson, R 2002 *The Age of the Clans: The Highlands from Somerled to the Clearances*. Edinburgh: Birlinn/Historic Scotland.
- Doody, M 2000 'Bronze Age houses in Ireland', in A Desmond; G Johnson; M McCarthy; J Sheehan & E S Twohig (eds) *New Agendas in Irish prehistory (Papers in commemoration of Liz Anderson)*, 135–59, Wordwell, Co. Wicklow.
- Dunwell, A 2007 *Cist burials and an Iron Age settlement at Dryburn Bridge, Innerwick, East Lothian*, Scottish Archaeological Internet Reports: www.sair.org.uk/sair24.
- Dunwell, A J; Neighbour, T & Cowie, T G 1995 'A cist burial adjacent to the Bronze Age cairn at Cnip, Uig, Isle of Lewis', *Proc Soc Antiq Scot*, 125, 279–88.
- Dunwell, A; Johnson, M & Armit, I 2003 'Excavations at Geiriscllett chambered cairn, North Uist, Western Isles', *Proc Soc Antiq Scot*, 133, 1–34.
- Dunwell, A & Ralston, I 2008 *Archaeology and Early History of Angus*. Stroud: Tempus.
- Dunbar, L 2007 'Fluctuating settlement patterns in Bronze Age Sutherland: excavation of a roundhouse at Navidale, Helmsdale', *Proc Soc Antiq Scot*, 137, 137–68.
- Emeleus, C H & Bell, B R 2005 *The Palaeogene volcanic districts of Scotland*. British Regional Geology. Nottingham: British Geological Survey.
- English Heritage 1989 'Hengi-form monuments', *Monument Class Descriptions*, MPP, <http://www.eng-h.gov.uk/mpp/mcd/sub/hg3.htm>.
- Erdtman, G 1924 'Studies in the micropalaeontology of postglacial deposits in Northern Scotland and the Scotch Isles', *Journal of the Linnean Society*, B46, 449–504.
- Fahy, E M 1962 'A recumbent stone circle at Reanascreena South, Co. Cork', *Journal of the Cork Archaeological and Historical Society* 67, 59–69.
- Fenton, A 1999 *Scottish Country Life*. East Linton: Tuckwell Press Ltd.
- FitzPatrick, E A 1993 *Soil Microscopy and Micromorphology*. Chichester: John Wiley & Sons.
- Gale, R & Cutler, D 2000 *Plants in Archaeology: Identification Manual of Artefacts of Plant Origin from Europe and the Mediterranean*. Otley, Yorkshire: Westbury Academic & Scientific Publishing.
- Gibson, A 1982 *Beaker Domestic Sites: a study of the domestic pottery of the late third and early second millennia BC in the British Isles*. Oxford (=BAR British Series 107)
- Gilmour, S 2002 'Mid-first millennium BC settlement in the Atlantic west', in **Ballin-Smith & Banks 2002** (eds), 55–66.
- Guilbert, G 1981 'Double-ring roundhouses, probable and possible, in prehistoric Britain', *Proceedings of the Prehistoric Society*, 47, 299–317.
- Gray, H & Suddaby, I forthcoming 'Early Neolithic pits, an Iron Age ring-ditch house and associated features at Coul Brae, Mosstodloch, Moray', *Scottish Archaeological Journal*.
- Harding, D W 2004 *The Iron Age in Northern Britain: Celts and Romans, Natives and Invaders*. Oxford: Routledge.
- Harding, D W 2009 *The Iron Age Round-House: Later Prehistoric Building in Britain and Beyond*. Oxford: Oxford University Press.
- Harding, J 2003 *Henge Monuments of the British Isles*. Stroud: Tempus.
- Hardy, K & Wickham-Jones, C 2002 'Scotland's First Settlers: the Mesolithic seascape of the Inner Sound, Skye and its contribution to the early prehistory of Scotland', *Antiquity* 76, 825–33.

- Hardy, K & Wickham-Jones, C 2009 'Mesolithic and later sites around the Inner Sound, Scotland: the work of the Scotland's First Settlers project 1998–2004', Scottish Archaeological Internet Reports: www.sair.org.uk/sair31.
- Hastie, M 2005 'Preliminary analysis of carbonised plant remains from Birnie, Moray: Seasons 1999–2002', Headland Archaeology Ltd, Unpublished Archive Report.
- Hill, P 1982 'Broxmouth Hillfort Excavations 1977–1978' in D W Harding (ed) *Later Prehistoric Settlement in South-East Scotland*, 141–88. University of Edinburgh, Department of Archaeology, Occasional Paper No. 8.
- Holden, T G 2006 'The corn-drying kilns at Hoddom', in C E Lowe (ed) *Excavations at Hoddom, Dumfriesshire: An early Ecclesiastical site in South-west Scotland*, 102–13. Edinburgh: Society of Antiquaries of Scotland.
- Holden, T; Hastie, M & Lyons, S 2008 'The plant remains', in M Cook & L Dunbar *Rituals, Roundhouses and Romans, Excavations at Kintore, Aberdeenshire 2000–2006. Volume 1, Forest Road*. Edinburgh: Scottish Trust For Archaeological Research, Monograph 8.
- Jobey, G 1980a 'Green Knowe unenclosed platform settlement and Harehope Cairn, Peebleshire', *Proc Soc Antiq Scot*, 110, 72–113.
- Jobey, G 1980b 'Unenclosed platforms and settlement of the later second millennium BC in Northern Britain', *Scottish Archaeological Forum*, 10, 12–26.
- Johnstone, G S & Mykura, W 1989 *The Northern Highlands of Scotland*. British Regional Geology 2. London: British Geological Survey/HMSO.
- Johnson, M 2002 'Pottery', in I Armit, & A Braby 'Excavation of a burnt mound and associated structures at Ceann nan Clachan, North Uist', *Proc Soc Antiq Scot*, 132, 229–258.
- Johnson, M 2005 'The Pottery' in T Neighbour *Excavation of a Bronze Age Kerbed Cairn at Olcote, Breasclete, Near Calanais, Isle of Lewis*. Scottish Archaeological Internet Reports: www.sair.org.uk/sair13.
- Johnson, M 2006 'Pottery' in [Simpson et al 2006](#), 44–69 and 164–70.
- Johnson, R; Ghey, E; Edwards, N & Pope, R, 2007 'Characterising the Welsh roundhouse; chronology, inhabitation and landscape', *Internet Archaeology* 23 <http://intarch.ac.uk/journal/issue23/>
- Jones, G 1987 'The charred plant remains from Baleshare and Hornish Point', in J Barber *Bronze Age Farms and Iron Age Farm Mounds of the Outer Hebrides*, Scottish Archaeological Internet Reports: www.sair.org.uk/sair3.
- Jones, M 1991 'Sampling in palaeoethnobotany', in W van Zeist, K Wasylikowa & K E Behre (eds), *Progress in Old World Palaeoethnobotany*, 53–62. Rotterdam: A.A. Balkema.
- Kendrick, J 1995 'Excavation of a Neolithic enclosure and an Iron Age settlement at Douglasmuir, Angus', *Proc Soc Antiq Scot*, 125, 29–68.
- Kenward, H K; Hall, A R & Jones, A K G 1980 'A tested set of techniques for the extraction of plant and animal microfossils from waterlogged archaeological deposits', *Science and Archaeology*, 22, 3–15.
- Kinnes, I; Gibson, A; Ambers, J; Bowman, S; Leese, M & Boast, R 1991 'Radiocarbon dating and British Beakers: the British Museum Programme', *Scottish Archaeological Review* 8, 35–68.
- Long, H C 1938 *Weeds of Arable Land*. MAFF Bulletin 108. 2nd edn. London: HMSO.
- MacKie, E W 1963 'A dwelling site of the earlier Iron Age at Balevullin, Tiree, excavated in 1912 by A Henderson Bishop', *Proc Soc Antiq Scot*, 96, 155–83.
- MacKie, E W 1974, *Dun Mor Vault, an Iron Age Broch on Tiree*. Glasgow: University of Glasgow Press.
- MacKie, E W 2000 'Excavations at Dun Ardtreck, Skye, in 1964 and 1965', *Proc Soc Antiq Scot* 130, 301–411.
- MacSween, A 1990 *Skye*. Edinburgh: Canongate.
- McCullagh, R P J & Tipping, R 1998 *The Lairg Project 1988–96: The Evolution of an Archaeological Landscape in Northern Scotland*. Scottish Trust for Archaeological Research, Monograph No. 3.
- McDonnell, G 1994 'Slag report', in B Ballin-Smith (ed) *Howe: Four Millennia of Orkney Prehistory. Excavations 1978–82*. Edinburgh (Soc Antiq Scot Monogr Ser 9).
- Mallory, J P & McNeil, T E 1991 *The Archaeology of Ulster. From Colonisation to Plantation*. The Institute of Irish Studies, Queen's University, Belfast. Antrim: W G Baird.
- Malone, C 2001 *Neolithic Britain and Ireland*. Tempus: Stroud.
- Manby, T G 1974 *Grooved Ware Sites in Yorkshire and the North of England*. British Archaeological Reports British Series 9. Oxford: British Archaeological Reports.
- Marshall, P; Mulville, J; Parker Pearson, M & Gidlow, J 1998 *Late Bronze Age and Early Iron Age houses and earlier Bronze Age occupation at Cladh Hallan, South Uist: Excavations in 1998*. University of Sheffield: unpublished report.
- Masser, P 2005 *Home Farm, Portree, Isle of Skye. Archaeological Excavation: Data Structure Report*. Headland Archaeology Ltd: unpublished report.
- Mercer, R J 1981 'The excavation of a Late Neolithic Henge-type enclosure at Balfarg, Markinch, Fife, Scotland, 1977–78', *Proc Soc Antiq Scot*, 111, 63–171.
- Miket, R 1996 *The humble hut-circles of Sleat*, in *Archaeology of the Hebrides*. Broadford: West Highland Free Press Supplement, 29/3/96.
- Miket, R 2002 'The Souterrains of Skye', in Ballin-Smith & Banks (eds), 77–110.
- Miket, R & Roberts, D 1990 *The Mediaeval Castles of Skye & Lochalsh*, Portree: MacLean Press.
- Murphy, C P 1986 *Thin Section Preparation of Soils and Sediments*. Berkhamsted: AB Academic Press.

- Needham, S P 2005 'Transforming Beaker Culture in North-West Europe: processes of fusion and fission', *Proceedings of the Prehistoric Society*, 71, 171–217.
- Neighbour, T 2005 *Excavation of a Bronze Age Kerbed Cairn at Olcote, Breasclete, Near Calanais, Isle of Lewis*. Scottish Archaeological Internet Reports: www.sair.org.uk/sair13.
- O'Brien, W 2004 '(Con)fusion of tradition? The circle henge in Ireland', in A Gibson & S Sheridan (eds) *From Sickles to Circles, Britain & Ireland at the Time of Stonehenge*, 323–38. Stroud: Tempus.
- Parker-Pearson, M; Marshall, P; Mulville, J & Smith, H 2002 'The dead beneath their feet: housewarming c 1000 BC – Roundhouse rituals at Cladh Hallan', *Past* 40, April 2002 <http://www.ucl.ac.uk/prehistoric/past/past40.html>.
- Parker Pearson, M; Marshall, P; Mulville, J & Smith, H n.d. *The Prehistoric Village at Cladh Hallan*, <http://www.shef.ac.uk/archaeology/research/cladh-hallan/index.html>.
- Pellant, C 1992 *Rocks and Minerals*. Eyewitness Handbooks, London: Dorling Kindersley.
- Phillips, T & Bradley, R 2004 'Developer-funded fieldwork in Scotland, 1990–2003: an overview of the prehistoric evidence', *Proc Soc Antiq Scot*, 134, 17–51.
- Pitts, M W & Jacobi, R M 1979 'Some aspects of change in flaked stone industries of the Mesolithic and Neolithic in Southern Britain', *Journal of Archaeological Science* 6, 163–77.
- Ponting, M & Ponting, G 1984 'Dalmore', *Current Archaeology*, 8 (March), 230–5.
- Pope, R E 2007 'Ritual and the roundhouse: a critique of recent ideas on domestic space in later British prehistory', in C C Haselgrove & R E Pope (eds) *The Earlier Iron Age in Britain and the near Continent*, 204–28. Oxford: Oxbow.
- Rees, T 1998 'Excavation of Culkawk Hill ring-ditch house, Kirriemuir, Angus', *Tayside & Fife Archaeological Journal* 4, 106–28.
- Reynolds, P J 1982 'Substructure to superstructure', in P J Drury (ed), *Structural Reconstruction*, 173–98. British Archaeological Reports 110.
- Rideout, J S 1995 'Carn Dubh, Moulin, Perthshire: Survey and excavation of an archaeological landscape', *Proc Soc Antiq Scot*, 125, 139–97.
- Rideout, J S 1996 'Excavation of a promontory fort and a palisaded homestead at Lower Greenyards, Bannockburn, Stirling, 1982–5', *Proc Soc Antiq Scot*, 126, 199–269.
- Ritchie, J N G; Crawford, J; Close-Brooks, J; Lane, A M & Wickham-Jones, C 1978 'Recent work on Coll and Skye. (i) Excavations at Sorisdale and Killunaig, Coll (ii) Notes on prehistoric and later artefacts from Coll (iii) Beaker pottery from Skye', *Proc Soc Antiq Scot*, 109 (1977–8), 75–103.
- Rixson, D 2002 *Arisaig and Morar, a History*. East Linton: Tuckwell Press.
- Salter, C 2005 'The slag-like material', in G Lock; C Gosden & P Daly *Segsbury Camp, Excavation in 1996–7 of an Iron Age hillfort on the Oxfordshire Ridgeway*. Oxford, University of Oxford School of Archaeology Monograph 61.
- Saville, A 1994 'Exploitation of Lithic Resources for Stone Tools in Earlier Prehistoric Scotland', in N Ashton & A David (eds) *Stories in Stone*. Lithic Studies Society, Occasional Paper 4, 57–70. London: Lithic Studies Society.
- Saville, A 2004 'The material culture of Mesolithic Scotland', in A Saville (ed) *Mesolithic Scotland and its Neighbours. The Early Holocene Prehistory of Scotland, its British and Irish Context, and some Northern European Perspectives*, 185–220. Edinburgh: Society of Antiquaries of Scotland.
- Saville, A 2005 'Struck lithic artefacts', in A Ritchie (ed) *Kilellan Farm, Ardnave, Islay. Excavation of a Prehistoric to Early Medieval Site by Colin Burgess and others 1954–76*, 97–132, Edinburgh: Society of Antiquaries of Scotland.
- Saville, A & Miket, R 1994 'An Corran rock-shelter, Skye: a major new Mesolithic site', *Past* 18, 9–10.
- Schweingruber, F H 1992 *Microscopic Wood Anatomy*. Birmensdorf: Swiss Federal Institute for Forest, Snow and Landscape Research.
- Scott, L 1934 'Excavation of Rudh' an Dunain cave, Skye', *Proc Soc Antiq Scot*, 68 (1933–4), 200–23.
- Sharples, N 1983 'Dalmore (Uig parish) Early Bronze Age settlement', *Discovery & Excavation in Scotland*, 81.
- Shepherd, I A G 1976 'Preliminary results from the Beaker settlement at Rosinish, Benbecula', in Burgess C & R Miket (eds) *Settlement and Economy in the Third and Second Millennia BC*, 209–20. Oxford (=BAR British Series 33).
- Sheridan, A 2007 'Scottish Beaker dates: the good, the bad and the ugly', in M Larsson & M Parker Pearson (eds) *From Stonehenge to the Baltic: living with cultural diversity in the third millennium BC*, 91–123. Oxford (=BAR International Series 1692).
- Sheridan, A; Parker Pearson, M; Jay, M; Richards, M & Curtis, N 2006 'Radiocarbon dating results from the Beaker People Project: Scottish samples', *Discovery & Excavation in Scotland*, 198–201.
- Sheridan, A; Parker Pearson, M; Jay, M; Richards, M & Curtis, N 2007 'Radiocarbon dating results from the Beaker People Project, 2007: Scottish samples', *Discovery & Excavation in Scotland*, 222.
- Sheriff, J 1988 'A hut-circle at Ormiston Farm, Newburgh, Fife', *Proc Soc Antiq Scot* 118, 99–110.
- Simpson, D D A; Murphy, E M & Gregory, R A 2006 *Excavation at Northton, Isle of Harris*, Oxford: (=BAR British Series 408).
- Simpson, I A; Vésteinsson, O; Adderley, W P & McGovern, T H 2003 'Fuel resource utilisation in landscapes of settlement', *Journal of Archaeological Sciences* 30, 1401–20.

- Smith, B F L & Bain, D C 1982 'A sodium-hydroxide fusion method for the determination of total phosphate in soils', *Communications in Soil Science and Plant Analysis*, 13, 185–90.
- Spearman, R M 1997 'The smithy and metalworking debris from Mills Mount' in S T Driscoll & P A Yeoman (eds), *Excavations within Edinburgh Castle in 1988–91*, 164–8. Edinburgh (=Soc Antiq Scot Monogr Ser, 12).
- Starley, D 2000 'Metalworking debris', in K Buxton & C Howard-Davis (eds), *Bremetenacum: Excavations at Roman Ribchester 1980, 1989–1990*, 337–47. Lancaster (=Lancaster Imprints Ser, 9).
- Stevenson, J B 1984 'The excavation of a hut circle at Cul a'Bhaile, Jura', *Proc Soc Antiq Scot* 114, 127–60.
- Stewart, I 1971 'Scottish Mints', in R A G Carson *Mints, Dies and Currency, Essays dedicated to the memory of Albert Baldwin*, 165–289. London: Methuen.
- Suddaby, I 2003 'The Excavation of two Late Bronze Age round houses at Ballyprior Beg, Island Magee, County Antrim', *Ulster Journal of Archaeology* 62, 45–91.
- Suddaby, I 2005 *Home Farm, Portree, Skye and Lochalsh, Highland Region. Archaeological Evaluation, Data Structure Report 1034*, CFA Archaeology Ltd: unpublished report.
- Suddaby, I 2007 *Home Farm, Portree, Skye and Lochalsh, Highland Region. Archaeological Watching Brief and Excavation, Data Structure Report 1250*. CFA Archaeology Ltd: unpublished report.
- Suddaby, I 2009 *The Excavation of an Early Bronze Age Burnt Mound at Arisaig, Lochaber, Highland*. Scottish Archaeological Internet Reports: www.sair.org.uk/sair39.
- Summerfield, M A 1991 *Global Geomorphology*. Singapore: Longman.
- Terry, J 1995 'Excavation at Lintshie Gutter unenclosed platform settlement, Crawford, Lanarkshire, 1991', *Proc Soc Antiq Scot*, 125, 369–427.
- Tipping, R 1994 'The form and fate of Scotland's woodlands', *Proc Soc Antiq Scot*, 124, 33–44.
- Trewin, N H (ed) 2002 *The Geology of Scotland*. London: The Geological Society.
- Waddell, J 1998 *The Prehistoric Archaeology of Ireland*. Wicklow: Wordwell.
- Watkins, T 1980a 'Excavation of an Iron Age open settlement at Dalladies, Kincardineshire', *Proc Soc Antiq Scot*, 110 (1978–80), 122–64.
- Watkins, T 1980b 'Excavation of a settlement and souterrain at Newmill, near Bankfoot', Perthshire', *Proc Soc Antiq Scot*, 110 (1978–80), 165–208.
- West Highland Free Press 2009 'Skye houses "on schedule" despite Bronze Age find', *West Highland Free Press* 9/10/2009, Broadford.
- White, R & Richardson, P 2010 *A Late Bronze Age Settlement at Oldmeldrum, Aberdeenshire*. Scottish Archaeological Internet Reports: www.sair.org.uk/sair 43.
- Wickham-Jones, C R 1986 'The procurement and use of stone for flaked tools in prehistoric Scotland', *Proc Soc Antiq Scot*, 116, 1–10.
- Wickham-Jones, C R & Collins, G H 1978 'The sources of flint and chert in northern Britain', *Proc Soc Antiq Scot*, 109 (1977–8), 7–21.
- Wickham-Jones, C R & Hardy, K 2004 *Camas Daraich: A Mesolithic site at the Point of Sleat, Skye*. Scottish Archaeological Internet Reports: www.sair.org.uk/sair12.
- Wildgoose, M 2000 'The Strathaird Estate: Three Years of Archaeological Survey', *The John Muir Trust, Journal & News*, Winter 2000. Pitlochry: The John Muir Trust.
- Wildgoose, M; Burney, C & Miket, R 1993 *Coile a' Ghasgain, by Ord, Sleat, Skye* University of Manchester, unpublished interim report.
- Wildgoose, M & Glover, S 2010 *Uamh an Achadh (High Pasture Cave) and Environs Project: Landscape Evaluation 2006–2010*, West Coast Archaeological Services, unpublished report.
- Woodland, A W 1979 *Geological Map of the United Kingdom North (North of National Grid Line 500 km N)*. 3rd ed. Southampton: Institute of Geological Sciences
- Young, R & Humphrey, J 1999 'Flint use in England after the Bronze Age: time for a re-evaluation?', *Proceedings of the Prehistoric Society*, 65, 231–42.

9.2 Cartographic

- British Geological Survey 2001 *Solid Geology Map UK North Sheet* 4th edn, HMSO.
- Institute of Geological Sciences 1977 *Quaternary Map of the United Kingdom North*, 1st Edition, Southampton: Ordnance Survey.
- Macaulay Institute for Soil Research 1982a, *Soil Survey of Scotland, Sheet 4, Western Scotland, Soil*, 1:25000.
- Macaulay Institute for Soil Research 1982b, *Soil Survey of Scotland, Sheet 4, Western Scotland Land Capability for Agriculture*, 1:25000.
- Ordnance Survey First Edition map (**Isle of Skye Sheet XXIII, 1881**) 1:10,560.
- Ordnance Survey Third Edition map (Portree Sheet 80, 1909) 1 inch to 1 mile.
- Ordnance Survey Popular Edition map (Portree & Dunvegan Sheet 24, 1930) 1 inch to 1 mile.