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Monks, priests and farmers: a community research excavation at Baliscate, Isle of Mull

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Monks, priests and farmers: a community research excavation at Baliscate, Isle of Mull

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List of illustrations iv
List of tables v

1. Abstract . . . **1**

2. Introduction . . . **1**

3. Site location, topography and geology . . . **1**

4. Archaeological background . . . **1**

5. Archaeological and historical context . . . **3**
5.1 Late Iron Age and Early Historic period 3
5.2 Early Christian period 4
5.3 Medieval and Norse period 4
5.4 The 14th century and later medieval period 5
5.5 Post-medieval period 6

6. Aims and objectives . . . **6**

7. Method . . . **6**

8. Results . . . **7**
8.1 Earlier prehistoric period 7
8.2 Late Iron Age and Early Historic period (sixth to tenth century AD) 9
8.3 Medieval period (11th to 16th century AD) 18
8.4 Post-medieval period (16th to 19th century AD) 34
8.5 Undated or unphased features 36

9. Specialist reports . . . **37**
9.1 Radiocarbon dating and Bayesian modelling, *by Anthony Krus and Derek Hamilton* 37
9.2 Charcoal and seed analysis, *by Susan Ramsay* 41
9.3 Analysis of human remains, *by Angela Boyle* 52
9.4 The pottery, *by Derek Hall, George Haggarty and Dr Richard Jones* 56
9.5 The vitrified material, *by Gemma Cruickshanks* 62
9.6 The ironwork, *by Gemma Cruickshanks* 64
9.7 The non-ferrous metalwork, *by Gemma Cruickshanks* 71
9.8 The coarse stone artefacts, *by Gemma Cruickshanks* 73
9.9 The lithic assemblage, *by Torben Bjarke Ballin* 78
9.10 Glass report, *by K R Murdoch* 86
9.11 Soil micromorphology, *by Clare Ellis* 87

10. Discussion . . . **90**
10.1 Late Iron Age and Early Historic period 90
10.2 Viking Age and Later Norse period 93
10.3 Later medieval period 97
10.4 Post-medieval period 100

11. Summary . . . **101**

12. Acknowledgements . . . **101**

13. References . . . **102**

1. Location of the excavation site on the Isle of Mull, and the excavation trenches of both *Time Team* (in orange) and Argyll Archaeology (in black) 2
2. Location of excavation trenches overlain on a plan of Baliscate redrawn from the original image produced by RCAHMS 7
3. Plan of Trench 2 and Trench 2b (Phase 3 and Phase 12) and section of the Gully [2005] (Phase 3) 10
4. Plan of Trenches 1/3 and 8, cemetery (Phase 3) and wall, *leacht* and associated deposits (Phase 4) 11
5. Possible long-cist grave slabs (Phase 3), with *leacht* (Phase 4) in background 12
6. Section and plan through enclosure bank, Trench 10 (Phase 4) 15
7. Wall [3105] (Phase 4) extending across T1/3 16
8. Section through wall and bank [3105] (Phase 4) 17
9. Aerial photograph with extrapolated line of Wall [3105] joining the enclosure bank 18
10. Plan of enclosure bank and metalled road, Trench 6 19
11. Section through the enclosure bank, Trench 6 20
12. Phase 5 plan of longhouse and internal kiln and Phase 5 to Phase 8 west-facing section through the flue 21
13. Plan of Phase 6 structures and deposits, Trenches 1/3 and 8 22
14. Profiles and sections of the various post-holes and pits 23
15. Plan of Phase 7 structures and deposits, Trench 1/3 25
16. Burnt wattle (3033) over foundation stones [3019], Trench 1/3, Phase 7 26
17. Phase 8 turf and stone structure and extension to the *leacht*, Trenches 1/3 and 8 27
18. Elevation and photograph of Wall [8023], Trench 8, Phase 8 28
19. East-facing section of Trench 1/3, with section through the turf Wall [3019] and section through turf Wall [8023]/[8024] 28
20. Elevation and photograph of east-facing side of the *leacht*, extended in Phase 8 30
21. T1/3 south-facing elevation and photograph of enclosure wall, [3119], Phase 8 31
22. The bullaun stone at the base of Wall [3119] 31
23. Plan of Phase 8, the longhouse and kiln 32
24. Elevation of Wall [4006], Phase 8 33
25. Plan of Phase 10, the longhouse and kiln 34
26. Undated cairn, Trench 5 35
27. Undated cairn, Trench 11 36
28. Chronological model for Block 1a at Baliscate 38
29. Chronological model for Block 4 at Baliscate 39
30. Probability distributions for the span of time that Block 1a and Block 4 took place 40
31. Chronological model for Block 1, Block 2, Block 3, Block 6b, and Block 6c at Baliscate 40
32. Selection of different decorative 'slash and stab' styles on handmade wares by context 56
33. PC plot of the composition data (all elements except P and Pb) 59
34. Plot of magnesium oxide vs potassium oxide 59
35. Plot of magnesium oxide vs potassium oxide in redware groups across Scotland 59
36. Plot of titanium oxide vs potassium oxide 60
37. Plot of titanium oxide vs potassium oxide in redware groups across Scotland 61
38. PC plot of the composition data (all elements except P and Pb) 61
39. Selected iron objects 66
40. The decorated strip mount, SF8081 71

41. Selected stone tools 74
42. The grindstone, quern fragment and bullaun stone 75
43. Selected lithics 80
44. Ground plans of probably medieval chapels and their enclosures on Mull 99

LIST OF TABLES

1. Radiocarbon dates 8
2. Summary cemetery data 42
3. Plant remains from Trench 2 43
4. Plant remains from Trench 3 44
5. Plant remains from Trench 4 46
6. Plant remains from Trench 8 48
7. Plant remains from Trench 10 49
8. Samples from *Time Team* excavations, OGT organic tempered ware (handmade tradition, transitional red/OGT fabric that appears to be in between handmade and redware fabric tradition) 58
9. Summary of vitrified material assemblage 63
10. Summary of vitrified material by trench (SM smelting; SHB smithing hearth base; RS runned slag; AM iron slag and vitrified ceramic amalgam; US unclassified slag; FAS fuel ash slag; VC vitrified ceramic) 64
11. Summary of vitrified material by context type (see Table 10 caption for abbreviations) 65
12. Summary of iron assemblage 67
13. Distribution of nail head-types by trench. Abbreviations: FS Flat, sub-rectangular; FR Flat, round; DS Domed, sub-rectangular; DR Domed, round; SR small, round; T-shaped head; U/K unknown (head missing) 68
14. Distribution of clenched, curved or straight shanks by trench. The ten unknowns are where the nail shank is broken just below the head. 68
15. Assemblage distribution by trench 69
16. Iron object type by context type 69
17. Summary of coarse stone assemblage by trench 72
18. Multifunctional cobble tool wear-types 76
19. Contexts of stone tools 77
20. General lithic artefact list 79
21. Reduction sequence of all unmodified and modified pieces of debitage 81
22. Percussion techniques applied to produce the site's technologically definable unmodified and modified flakes and blades 82
23. Distribution of all worked and unworked lithic objects 85

1. ABSTRACT

A community research excavation centred on Baliscate on the Isle of Mull took place in autumn 2012. The excavation has revealed the existence of a thriving sixth-century agricultural settlement which was either adopted or replaced by a seventh-century Christian community which appears to have been a monastic establishment. The continued ecclesiastical nature of the settlement into the ninth and tenth centuries is attested by the presence of a later enclosure/*vallum* and a rectangular structure interpreted as a *leacht*. In the late 11th or early 12th century, a stone and turf bow-ended structure was built which probably functioned as a longhouse or hall. This structure was later used in the 12th century to house a large corn-drying kiln. Although no 11th- or 12th-century structures were identified adjacent to the *leacht*, occupation deposits were identified. Then, in the late 13th or early 14th century, a wattle and turf structure was built over these deposits and the remains of a seventh- to eighth-century cemetery. This structure burnt down and was rapidly replaced by a new stone and turf structure enclosed by a rectangular stone and turf enclosure. This is tentatively interpreted as an enclosed chapel, but the evidence is contradictory and it may have simply been an enclosed farmstead. Occupation around the site continued in one form or another until the 16th century and thereafter the site was used intermittently. The excavation has highlighted how little we know about the so-called enclosed chapel sites of Argyll and the absence of evidence for the early Christian church.

2. INTRODUCTION

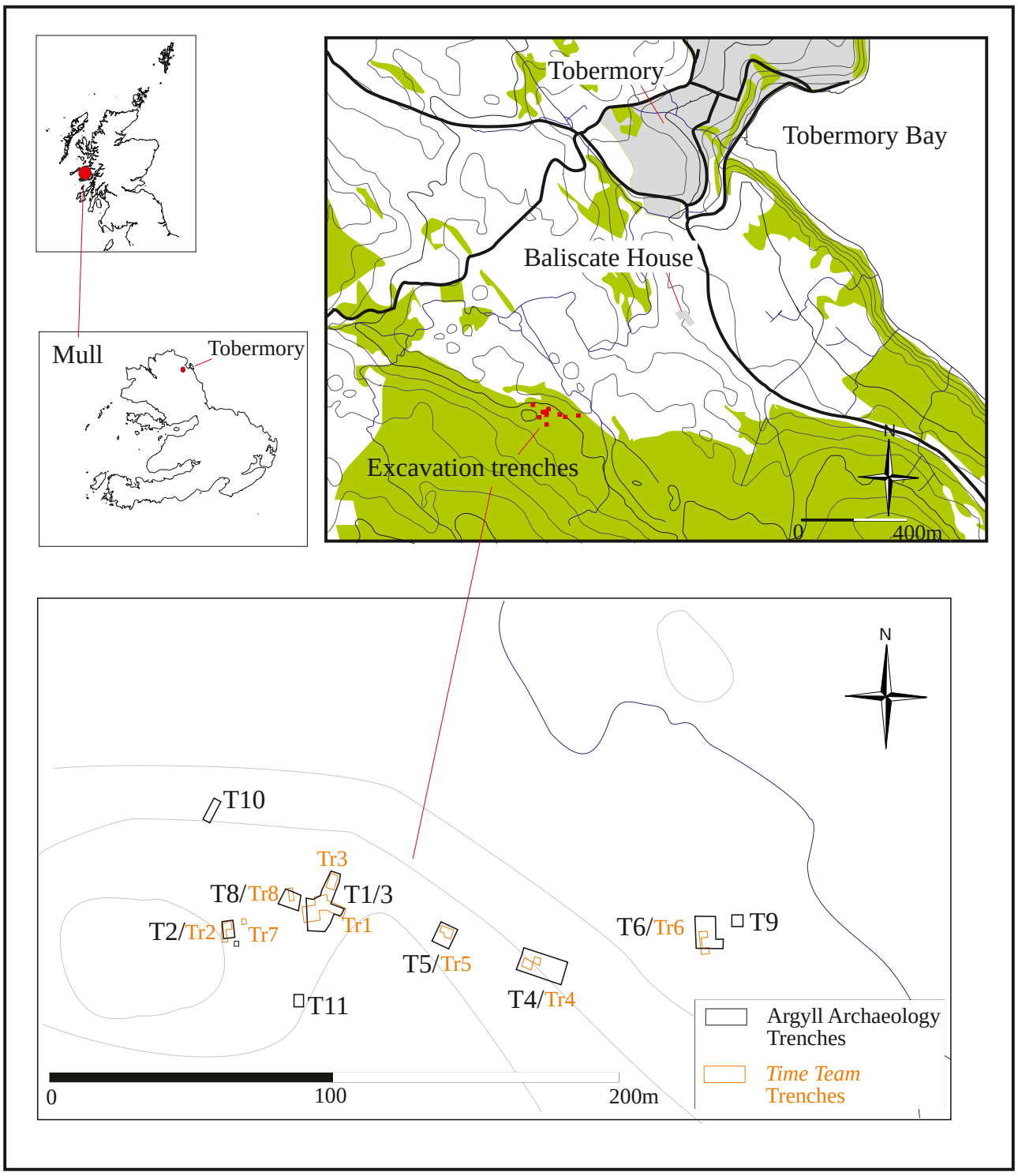
Baliscate has been categorised as an early medieval chapel site with a possible earlier monastic complex (RCAHMS 2008; Wessex Archaeology 2010). The site was first noted by Hylda Marsh and Beverley Langhorn as part of the Scotland's Rural Past project. The Royal Commission for Ancient and Historical Monuments of Scotland (RCAHMS) were invited to visit the site and it was they who identified it as an early medieval chapel and also produced a site plan. Anxious for more information, Hylda and Beverley then approached *Time Team* and subsequently *Time Team* undertook a three-day excavation in 2009 (Wessex Archaeology 2010). The *Time Team* excavation revealed a rectangular structure which they interpreted as a *leacht*, a stone and turf structure considered to be a chapel with perhaps an earlier timber phase, human remains dating to the seventh century AD, and a fragmentary carved stone which was interpreted as part of a stone cross. Following the *Time Team* excavation, Hylda and Beverley requested that the site be scheduled and it was duly scheduled as an Ancient Monument by Historic Scotland. Mull Museum then secured funding from the Heritage Lottery Fund and LEADER to undertake a research and community excavation led by Argyll Archaeology. Excavation took place between 18 August and 1 October 2012. In addition to the excavation, a number of other probable chapel sites similar in character to that at Baliscate were visited and recorded by volunteers and Argyll Archaeology; this work took place over the week of 23 July 2012.

3. SITE LOCATION, TOPOGRAPHY AND GEOLOGY

Baliscate Chapel (NGR: NM 49677 54068) is located on the Isle of Mull, just above the village of Tobermory at 108m OD (Illus 1). It is set on a natural north-east-facing terrace in a small clearing within a sitka spruce plantation located on the lower slopes of Coille Creag A' Chait. The terrace commands fine views north-eastwards overlooking the Sound of Mull and Ardnamurchan beyond. The hard rock geology comprises basalt of the Mull Lava Group.

4. ARCHAEOLOGICAL BACKGROUND

RCAHMS proposed that the site is the remains of a chapel located within a small enclosure and this initial interpretation was ostensibly confirmed during the three-day excavation carried out by Channel 4's *Time Team* in 2009 (Wessex Archaeology 2010). Part of a skull excavated from beneath the east wall of the stone chapel dated to AD 610–690 (UB-12555), indicating that the chapel may have had its



Illus 1 Location of the excavation site on the Isle of Mull, and the excavation trenches of both *Time Team* (in orange) and Argyll Archaeology (in black). Contains Ordnance Survey data Crown Copyright and database rights 2015

foundation in the early Christian period (Wessex Archaeology 2010: 8, 27). A rectangular drystone feature located at the eastern end of the stone chapel was interpreted as a *leacht*, from which a fragment of what was interpreted at the time as a carved stone cross was also recovered (Wessex Archaeology 2010: 8). *Time Team* also hypothesised that a bank which encloses the terrace on which the site is located was a monastic *vallum* (Wessex Archaeology 2010: 4–5). A small circular structure also located within the

confines of the bank was interpreted as a monastic cell (Wessex Archaeology 2010: 16). Prior to excavation, the working hypothesis was that the site was a small monastery, possibly a daughter house of Iona.

This paper presents the results of the research and community excavation at Baliscate. Where appropriate, reference is made to the results of the *Time Team* excavations, and finds from the *Time Team* excavation were incorporated into the current analysis.

5. ARCHAEOLOGICAL AND HISTORICAL CONTEXT

5.1 Late Iron Age and Early Historic period

The earliest structural evidence at Baliscate (see Results) appears to be part of a lightly enclosed settlement dating to the Late Iron Age/Early Historic period. The archaeological evidence for settlement in this period on Mull is largely confined to duns – substantial circular or sub-circular stone built structures often located in prominent positions; over 500 hundred dun and fort sites have been recorded in Argyll (Armit 2006: 47). However, there has been relatively little modern excavation of these duns, the most significant being the excavations at the probable royal fort at Dunadd (Lane and Campbell 2000). Excavations over the years have revealed that a summit dun was established in the fourth to the fifth century, expanded into a nucleated fort in the sixth and seventh centuries and expanded further in the eighth and ninth centuries, with occupation continuing into the tenth to twelfth century (Lane and Campbell 2000). The general consensus is that in the Early Historic period the fort was the seat for the king of Dál Riata and the ruling elite of the kin-group of the *Cenél nGabráin*, though Fraser (2009: 243) suggests that Dunollie may have been the *caput regionis* referred to in *Vita Columbae* rather than Dunadd. Dunadd was certainly a centre for specialist craft production and redistribution, with exotic goods from Europe and beyond being traded through the site, including pigment for dye presumably destined for Iona (Campbell 1999). Until recently it was suggested that the majority of dun and fort sites within Argyll were occupied in the third quarter of the first millennium AD (Alcock and Alcock 1987; Nieke 1990). However, more recent work by Kilmartin Museum has shown that two smaller dun sites, one at Barnlusgan, Knapdale and another at Balure, also in Knapdale, date to the first century BC and second to first century BC respectively (R Regan pers comm). Whether dating to the Middle or Late Iron Age, these relatively small and modest duns were probably occupied by local elites, with evidence for both domestic occupation and more specialised craft production.

Despite the plethora of duns, it is unlikely that all settlements in the Late Iron Age/Early Historic period would have been enclosed and prominent within the landscape. For example, recent excavation at Kilninian on the Isle of Mull revealed an unenclosed Middle Iron Age settlement dating to the first or second century BC (Bertini et al in prep). Crannogs were almost certainly in use, with the crannog at Loch Glashan producing dates from the second to the fourteenth century AD (Crone and Campbell 2005: 111–15). Unfortunately, the nearest crannog to Baliscate at Lochnameal (Canmore Site number NM55SW 2) has not been excavated. However, in the late 19th century when the loch was drained, it was described as a stone mound with a stone causeway supported on a timber base; a number of log boats were also recorded (MacLean 1923). On the mainland at Dunbeg, a couple of miles north of the possible royal fort of Dunollie, recent excavation has uncovered a seventh- to ninth-century unenclosed probable farm complex with a corn-drying kiln, hearths and evidence for wattle and daub timber-built structures and basket pit boilers (Ellis 2016). At Bruach An Druimein, Poltalloch, an unenclosed Early Historic period long-cist cemetery and craft-working area were excavated, but unfortunately no associated buildings were found (Abernethy 2009).

The nearest known probable Late Iron Age or Early Historic period settlement to Baliscate in this period is Dun Urgadul (RCAHMS 1980: 112; Canmore Site number NM45NE 1), located roughly 800m west of Tobermory and around 100m north of the road to Glengorm; unfortunately, it has not been excavated. There is quite a concentration of duns in the north part of Mull and sites include Dun Ara (NM45NW 1), An Sean Dun (NM45NW 3), Dun Auladh (NM45SW 2), Dun nan Gall

(NM45SW 3), Dun Guaire (NM35SE 7), Dun Ban (NM45NW 4), Dun Sgaillean (NM45NW 10) and two forts, Eilean nan Gobhar (NM45SW 16) and Torr Aint (NM45SW 8), all of which may or may not have been occupied during this period but certainly hint at a thriving population.

5.2 Early Christian period

Excavation at Baliscate (see RESULTS) has revealed a possible early monastic complex, which would have been just one of the many minor monastic communities that had been established throughout the west coast of Scotland and which would have been largely self-sufficient and, in some cases, may have performed specialist roles (Lowe 2008). It is not possible to determine archaeologically the founding *familia* of Baliscate, though that of Columba with its centre on Iona would be the most likely based on its proximity.

The monastery on Iona was established in the late sixth century by Columba, possibly located over a pre-existing Late Iron Age settlement. Through the seventh and eighth centuries it continued to develop and become more complex in its layout within a multifaceted *vallum*, with distinct areas of activity including: the church; an open space; a monastic cemetery; a lay cemetery; wooden buildings for communal living; craft and metalwork production; and agricultural stores (Fisher 2006). Some of these areas and features have been identified (Barber 1981) and the existence of others implied through the writings of Adomnán (Sharpe 1995). Zonation of ecclesiastical and more practical agricultural and industrial activities all enclosed within a spiritual enclosure is a pattern repeated at other excavated monastic sites, such as Inchmarnock, Argyll and Bute (Lowe 2008); Whithorn, Dumfries and Galloway (Hill 1997); Portmahomack, Ross and Cromarty (Carver 2008) and Hoddom, Dumfriesshire (Lowe 2006). Iona was one of a number of principal monasteries of the west coast of Scotland, which also included Kingarth, Isle of Bute, founded by St Cattan; Lismore, founded by St Moluag; and Applecross, founded by St Maelrubha. Minor monastic settlements abound and it is thought that many of these smaller monasteries were founded by members of the principal monasteries, though some may have been independent (Fisher 2006).

However, the idea that Christianity was brought to the populace through monasticism has been challenged, rather it has been argued that the episcopal, monastic and secular elements of Christianity were accommodated into a single hybrid ecclesiastical system organised along territorial lines, controlled by principal churches that were affiliated with other churches within the same secular kingdom (Lobay 2009: 14). It has been suggested that the plethora of supposed *vallum monasterii* (the legal and spiritual boundary between the monastic community and the secular world) identified around many burial grounds may in fact be later additions built to address agricultural needs or other legal concerns (Lobay 2009: 15). Lobay (2009: 15–16) notes that the predominance of the Columban monastic *paruchia* model in Argyll is largely due to the lack of archaeological excavation of early ecclesiastical sites outwith the known monastic centres (see above), with consequently no reliable chronology of ancient churches prior to the 12th century.

5.3 Medieval and Norse period

Until the later part of the 12th century, Mull was part of the Norwegian Diocese of Sodor, or the Isles, incorporating Man and the Hebrides, with its cathedral on St Patrick's Island, Peel, on the Isle of Man (Caldwell 2008: 32; Oram & Butter 2008: 38), and then the Isle of Man was loyal to England and the Hebrides to the Scottish Church. Between 1120 and 1140, Somerled established himself as the ruler of Argyll and the southern isles including Mull and tried unsuccessfully to re-establish Iona as the episcopal centre (Caldwell 2008: 33). This unsuccessful attempt to reform the Church on Iona symbolises the weakening of old links with Ireland and the rise of the Church of Rome and Latin Christendom, and the establishment of territorial dioceses (McDonald 1997: 206). Somerled's land was subsequently split between his sons, collectively known as the MacSorleys, with Dugald claiming Mull and Lorn. In 1266, Norway ceded the Isles to Alexander III, King of the Scots, and this event signifies the end of Norse rule in the Isles (MacDonald 1997: 120). New reformed religious orders were being patronised throughout Scotland and during the late 12th century Mull would have

come under the spiritual guidance of a new bishop to the See of the Isles (Caldwell 2008: 39). Through the 13th century, the MacSorleys, now 'barons of the realm of Scotland', effectively owned the Isles and large parts of Argyll, with Mull falling under the jurisdiction of MacDougall (McDonald 1997). In the late 13th and early 14th centuries, two of the MacSorleys, MacDougall and MacDonald, were at war with each other, swapping allegiances between Edward I and Robert the Bruce, with the MacDougalls eventually being banished by 1309 (McDonald 1997: 168–78). In 1336, Edward Balliol bought John of Islay's (first Lord of the Isles) support by promising him lands which included Mull (Caldwell 2008: 49).

From the 11th century, reforms in the Latin Church began to spread through Europe and in the 12th century, Benedictine monasticism and other reformed religious orders were introduced throughout Scotland. Although the establishment of parishes is poorly documented, the general consensus is that it must have taken place as part of the diocesan reforms in the late 12th or more probably 13th century (Fisher 2001; McDonald 1997). Mull may have been organised on a slightly different system, which may have been similar to that on the Isle of Man and on Islay, where it may have been imposed by the Manx king, Olaf Bitling (Caldwell 2008: 147). The division and administration of the parishes may have also been influenced by the pre-existing divisions created by religious establishments and, in particular, minsters (McDonald 1997: 226). Bridgland (2006: 89) suggests that Mull was divided into a number of 'priest's districts' where three principal churches were grouped into three districts: Inch Kenneth, Kilfinichen and Kilvikeon; Pennygown, Killean and Laggan; Kilninian, Kilcomkill and Ulva. The sizes of these districts on Mull were large and worship would have taken place at chapels or holy places local to each settlement (Bridgland 2006: 93), where some chapels may have been originally founded to serve private wealthy households (McDonald 1997: 227). As elsewhere in Scotland, parochial revenues were used to provide income to the monasteries (McDonald 1997: 228). For example, the abbey on Iona held thirteen churches in the diocese of the Isles, including four or five on Mull, though many of the more remote churches remained unappropriated (McDonald 1997: 228).

5.4 The 14th century and later medieval period

The possible chapel at Baliscate dates to the 14th century and was erected and used during politically turbulent times, when castles such as Aros on Mull, Duart on Mull, Artonornish in Movern and Dunstaffnage on the mainland were used to command supremacy over the Sound of Mull (McDonald 1997). The chapel at Baliscate is surprisingly late in date (Table 1) and before excavation it was thought that this form of chapel and enclosure, common throughout the Isles, probably dated from the later 12th century (McDonald 1997; Waters 2013). However, the results from Baliscate indicate that this assumption may now have to be reviewed. The dioceses of the Isles and Argyll were notoriously poor (Bridgland 2006: 90) and the church or chapel at Baliscate may have been built at a relatively late date in an attempt to bring more funds into the diocese, or at least as a place from which to provide pastoral care. However, Baliscate was never a parish church, but rather a small chapel serving the needs of the local community within the large and stretched (financially and physically) parish of Kilninian, Kilcomkill and Ulva.

On Islay, Waters (2013) argues, many of the later 12th-century stone chapels with a west-facing entrance have an Early Historic origin, the lime mortar introduced in the 12th century effectively masking earlier drystone structures. Given that many of the chapel buildings on Mull attributed to the 12th or 13th century, including Pennygown, Kilvickeon and that on Inch Kenneth, had a north-facing entrance (RCAHMS 1980: 30–1), as did the turf and stone structure at Baliscate, it is probable that these structures did not have Early Historic or early medieval foundations. On the Isle of Man, the numerous small rectilinear chapels, or *keeills*, are thought to date to the late 11th and well into the 12th century, but again there is little archaeological evidence for earlier timber structures (Davey 2013: 69–71). During the medieval period, Iona became an established centre for pilgrimage, but there were other more local places of pilgrimage, including Eileach an Naoimh, which prompted the construction of a mortared church (Bridgland 2006:

91). Excavation at Baliscate has revealed that the architectural techniques of the late 13th- and 14th-century structures can best be described as vernacular, latterly being of stone and turf construction and more akin to domestic structures than ecclesiastical ones. Indeed, it appears to be an elaboration of the vernacular architectural tradition, with no reference to Romanesque architecture as seen elsewhere (eg Islay and Isle of Man) in the ecclesiastical buildings of the 11th or 12th century. However, the use of stone and turf for an ecclesiastical building is not unique within Argyll, with a possible parallel being the chapel at Ardnadam (Rennie 1999).

5.5 Post-medieval period

The first documented mention of Baliscate is made in the early 17th century when it ('Balleskad') was part of the lands of Aros, which in 1638 was granted to Archibald Stirling of Coldoch. The name Baliscate is derived from 'Baile', meaning town or farm, and bears no clue to the earlier chapel or possible monastery (Gillies 1906). Pont's map of 1654 shows it as 'Baleskat' and it is clear that our site was part of a farm by this period. The tenants of the farm would have lived at the settlement located on the edge of the lower terrace, where a number of houses, a corn-drying kiln and a head dyke are still visible today (Canmore Site numbers NM55SW 7, NM55SW 12, NM55SW 21).

6. AIMS AND OBJECTIVES

The primary aim of the project was to establish the nature, position and role of Baliscate within the early Christian network of monastic and ecclesiastical sites that are scattered amongst the islands and along the west coast of Scotland. This raised a number of hypotheses which required further archaeological investigation. These were:

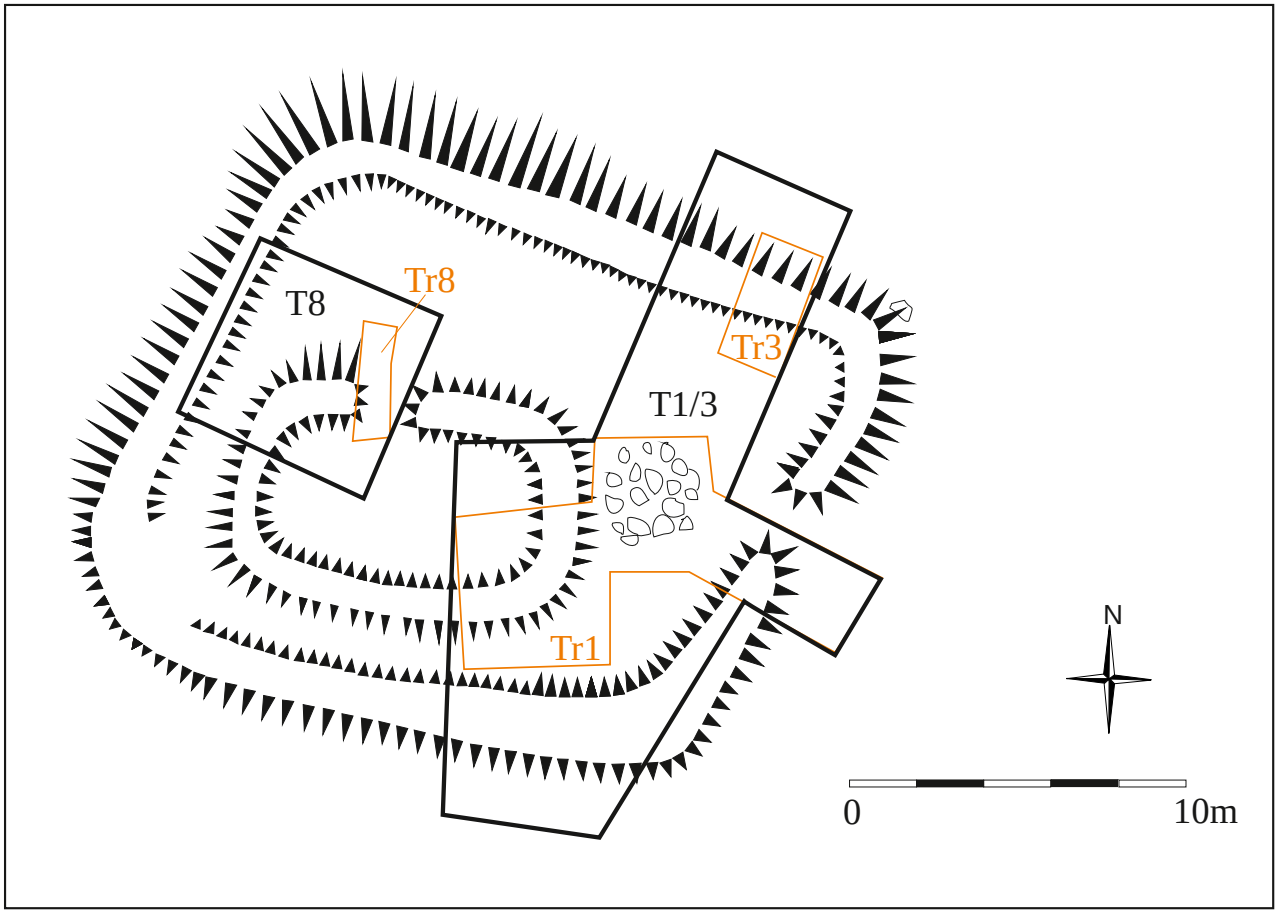
- there is an earlier, possibly prehistoric, phase to the site
- there is an earlier timber chapel underlying the stone chapel
- the site was a monastery, possibly a daughter house of Iona
- the large bank that encloses the site is a *vallum*
- a small circular structure within the larger enclosure *(vallum)* is a beehive cell
- the structure at the east end of the chapel is a *leacht*
- there are two cairns which may relate to the early Christian phase of the site and may be cross bases or burial markers
- the site continued to be in use into the 12th to the 15th century, either as a chapel or as a domestic structure, the site was abandoned by the 15th century

The objectives of the project were to:

- provide an interpretation of the site through archaeological and historical research
- provide education through the provision of community outreach and archaeological training in excavation and recording
- ensure the long-term preservation of the site
- present the site for visitors and provide a museum-based display
- produce popular and academic publications
- provide tourism and economic benefits to the community

7. METHOD

All the excavation work was undertaken by a team of seven professional archaeologists who were assisted by over 50 volunteers. Eight trenches were excavated and in addition a possible cairn (Trench 11), discovered during fieldwork, was cleared of pine needles and topsoil (Illus 2). The location of the trenches was largely determined by the previous trenches opened by *Time Team* (Wessex Archaeology 2010) (Illus 2). *Time Team*'s Trenches 1 and 3 were joined and enlarged to cover the east end of the extant building, the possible *leacht*, a portion of the enclosure bank and part of the interior area within this enclosure. The *Time Team* Trench 8 located over the possible entrance into the extant building was also reopened and extended to take in a portion of the interior of the building as well as part of the enclosure bank and the space between it and the building. *Time Team* opened two trenches within the rectangular enclosure. The largest, Trench 2, was reopened and extended



Illus 2 Location of excavation trenches overlain on a plan of Baliscate redrawn from the original image produced by RCAHMS

and a second, Trench 2b, was excavated over the anticipated course of the gully as revealed in Trench 2. The whole of the cairn in Trench 5, previously cleaned but not excavated during the *Time Team* explorations, was reopened and the cairn half-sectioned. Trenches 6 and 10 were excavated over the large enclosure bank. Trench 6 was located over a possible entrance into the enclosed terrace, which was previously explored by *Time Team*. Trench 10 was located over a particularly well-preserved section of the bank. Trench 9 was excavated over the possible hollow-way leading up to the entrance through the enclosure bank. Trench 11 was located over a pile of stones discovered during a walkover conducted over the terrace during the excavation.

Prior to backfilling, all the archaeological deposits and features were covered with terram sheets. All trenches were backfilled and, where appropriate, locally obtained grass seed was spread to ensure the regrowth of vegetation.

8. RESULTS

Where possible, the results are presented in stratigraphic order from oldest to youngest. At least twelve broad phases of activity have been identified, although it is apparent that the picture is much more complex than these phases indicate.

8.1 Earlier prehistoric period

Where context numbers are quoted, feature cuts or actual features are presented in square brackets […] and fills of cuts or fills of features or layers are presented in round brackets (…). *Time Team* context numbers with equivalent context numbers are given, for example, as 120=[3117].

8.1.1 Phase 1 (not illustrated)

No features or deposits dating from the prehistoric period were revealed during the excavation. However, 101 worked lithics and eight unworked

Table 1 Radiocarbon dates

Sample	Context	Description	Material	δ13C (‰)	Radiocarbon Age (BP)	Calibrated 1-sigma	Calibrated 2-sigma
		Phase 3					
SUERC-47454	2008	Fill (2008) of bedding trench for palisade in Area 2000	Charcoal , Corylus	-25.9	1501±29	AD 544-599	AD 441-485 (7.3%) AD 532-638 (88.1%)
		Phase 4					
UB-12555	3118	Fill (3118) of grave 120/3117	Human bone	-22.1	1365±29	AD 610-675	AD 610-690 (93.9%) AD 750-756 (1.5%)
SUERC-47461	3109	Fill (3109) of grave 3099 - latest	Human bone	-21.4	1306±26	AD 665-695 (41%)	AD 659-725 (65.5%) AD 738-772 (29.9%)
SUERC-47462	3050	Fill (3050) of grave 3040 - earliest	Human bone	-20.7	1247±29	AD 688-780 (62.5%)	AD 680-870
SUERC-47452	1007	Charcoal from bank fill (1007)	Charcoal, *Corylus*	-25.6	1255±26	AD 691-751 (55.9%)	AD 673-825 (92%) AD 841-862 (3.4%)
SUERC-47442	3062	Hearth waste (3062)	Carbonised seed, *Hordeum vulgare*	-25	1151±29	AD 917-966 (35.5%)	AD 780-792 (4.2%) AD 805-972 (91.2%)
		Phase 5					
SUERC-47453	4048	Kiln bowl fill (4048)	Carbonised seed, *Avena* sp	-24.9	881±29	AD 1154-1212 (54.6%)	AD 1042-1106 (27.1%) AD 1117-1220 (68.3%)
SUERC-47435	3034	Graveyard soil (3034)	Charcoal, *Corylus*	-27.9	572±26	AD 1320-1350 (41.6%)	AD 1305-1364 (58.8%) AD 1384-1420 (36.6%)
		Phase 6					
SUERC-47456	3035	Pottery residue from soil (3035) capping graves	Pottery, carbonised residue	-27.3	812±26	AD 1215-1259	AD 1177-1270
SUERC-47436	3047	Floor (3047) over graves	Charcoal, *Betula*	-26.5	764±26	AD 1241-1278 (64.3%)	AD 1221-1281
SUERC-47434	3064	Pit (3064)	Charcoal, *Corylus*	-28.8	714±29	AD 1268-1291	AD 1252-1306 (87.2%) AD 1363-1385 (8.2%)
		Phase 7					
SUERC-47460	3039	Trampled surface (3039) *pre-leacht extension*	Pottery, carbonised residue	-27	676±29	AD 1280-1302 (42.6%)	AD 1272-1317 (57%) AD 1354-1390 (38.4%)
SUERC-47440	3033	Collapsed structure (3033)	Charcoal, *Corylus*	-27.3	586±29	AD 1315-1356 (49.1%)	AD 1299-1370 (66.5%) AD 1380-1415 (28.9%)
SUERC-47451	3015	Hearth fill (3015)	Carbonised nut, *Corylus avellana*	-23.3	612±29	AD 1300-1328 (28.1%) AD 1341-1368 (27.1%)	AD 1295-1403

Table 1 *cont.*

SUERC-47441	3096	Yellow grit sediment build-up (3096)	Charcoal, *Corylus*	-28.4	656±29	AD 1285-1310 (32.2%) AD 1361-1387 (36%)	AD 1279-1323 (45.7%) AD 1347-1393 (49.7%)
SUERC-47443	3046	Floor (3046) that caps early posts	Charcoal, *Corylus*	-25.6	564±29	AD 1320-1350 (36.7%)	AD 1307-1363 (52.9%) AD 1385-1426 (42.5%)
		Phase 8					
SUERC-47444	3038	Floor (3038) with white gritty ware	Charcoal, *Corylus*	-27.1	621±26	AD 1299-1322 (28%)	AD 1292-1399
SUERC-47446	8015	Internal floor (8015) of chapel	Charcoal, *Corylus*	-26.3	664±29	AD 1283-1305 (35.3%)	AD 1277-1320 (49.4%) AD 1350-1392 (46%)
SUERC-47445	8029	Floor levelling layer (8029)	Charcoal, *Corylus*	-26.1	551±26	AD 1394-1420 (44.8%)	AD 1316-1355 (38.4%) AD 1388-1431 (57%)
SUERC-47450	3027	Late hearth setting (3027)	Charcoal, *Corylus*	-30.1	529±29	AD 1399-1433	AD 1320-1350 (17.6%) AD 1391-1441 (77.8%)
		Phase 10					
SUERC-47455	4031	Deposit over kiln (4031)	Charcoal, *Salix*	-25.9	329±29	AD 1538-1601 (40.5%)	AD 1479-1643

pieces dating from the Mesolithic through to the Early Bronze Age were recovered from a variety of redeposited or turf-based contexts (see Ballin below). For example, the Balliclare point (Illus 43, SF8008) was found within the collapsed wall material (8005) derived from the 14th-century turf and stone structure (Phase 8). The implication is that nearby prehistoric sites served as a source of the turf which was used extensively at Baliscate as construction material. Furthermore, a number of probable prehistoric worked stones were recovered from the rubble of the possible *leacht* and another from near the top of the medieval enclosure bank (see Cruickshanks below), the implication being that these too may have been picked up from a nearby prehistoric site and reused as offering stones. Local Neolithic activity is attested by the standing stones located on the lower terrace below the site (Wright 2004).

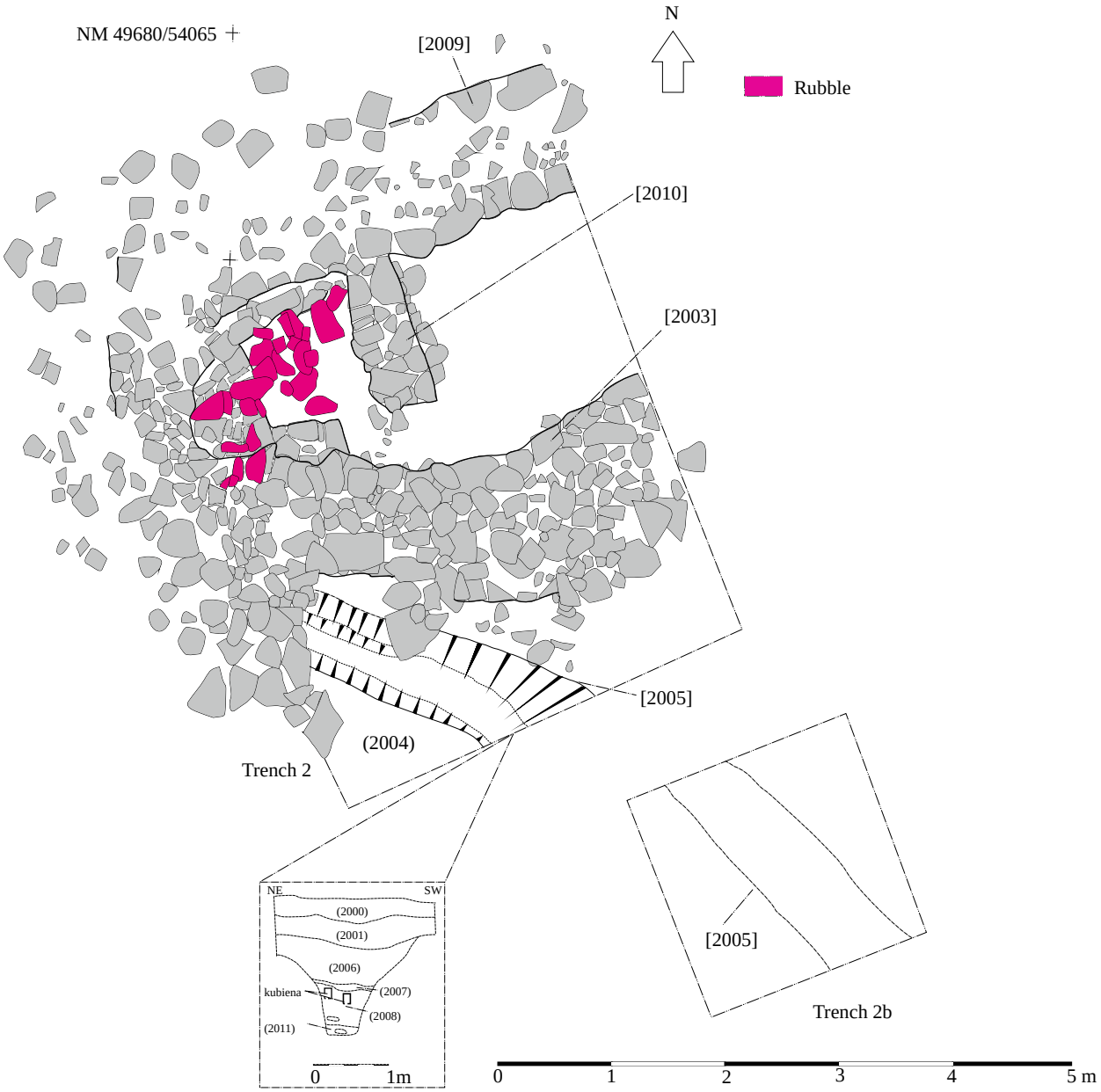
8.2 Late Iron Age and Early Historic period (sixth to tenth century AD)

8.2.1 Phase 2 ard marks (not illustrated)

Time Team recorded ard marks within the surface of the natural (Trench 2) and a possible ard mark was recorded within the surface of a compact soil rich in peat ash (2b003, Trench 2b). These ard marks did not appear to cut the upper fill of the Gully [2005] and therefore the cultivation is very likely to pre-date the excavation and certainly the backfilling of the gully.

8.2.2 Phase 3 Gully [2005] (Illus 3)

The earliest dated feature was a curvilinear Gully [2005], which cut into the natural (2004) and was originally exposed by the *Time Team* excavation. The gully was relatively narrow, V-shaped with steep sides and a narrow flat base (0.67m wide at the top and 0.10m at the base and 0.65m deep). The lower fill (2011), a yellow-grey silt, was sealed by a layer of pink silt rich in charcoal (2008). A thin layer of charcoal and ash (2007) capped the pink silt (2008). The uppermost fill (2006) comprised reddish-yellow silt with inclusions of charcoal, ash and burnt bone. The gully was also exposed in plan in Trench 2b. All the fills of the gully are secondary in nature and do not inform the original function. However, given



Illus 3 Plan of Trench 2 and Trench 2b (Phase 3 and Phase 12) and section of the Gully [2005] (Phase 3)

the shape of the gully, it is likely to have been a bedding trench for some form of organic fence or palisade.

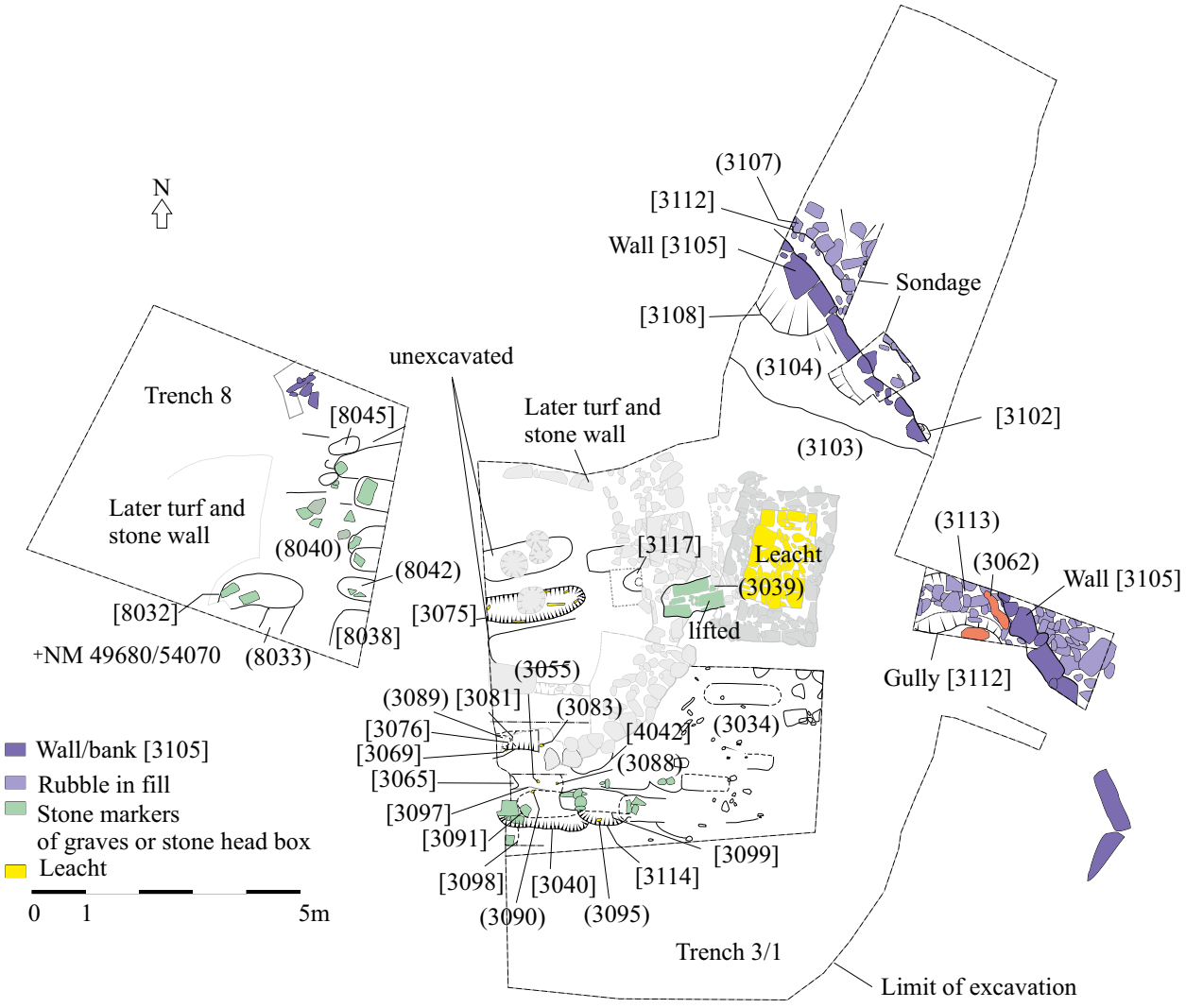
Charcoal from (2008) provides a *terminus ante quem* for the backfilling of the ditch to around the later part of the sixth century AD (SUERC-47454, Table 1). Fragments of slag were recovered from both (2008) and (2009). The charcoal content of (2008) and (2007) was dominated by oak, which might be the residue of ash derived from the fire(s) used in ironworking; oak is often the preferred fuel for iron smelting as it produces a high temperature fire (Kenny 2010: 108). However, the thin section analysis (see Ellis below) indicates the bulk of the context comprised the residue of silty turf ash, along with a few clasts of redeposited natural. The deposit is clearly a mixture of materials derived from a number of sources and possibly represents midden material disposed of in the gully. The later upper fill of the gully (2006) is very different in character, with inclusions of burnt bone, a mixed assemblage of carbonised cereals and a mixed assemblage of charcoal, all suggestive of redeposited, domestic hearth waste.

8.2.3 Phase 3 Gully [3112] (Illus 4)

A second curvilinear Gully [3112] was exposed under the entrance of the later enclosure (Phase 8). The gully, as exposed, curved from the south-west around to the south-east and was some 0.38m deep, up to 1.05m wide, with near vertical sides and a narrow flat base. Extrapolation of the curve gives a circle of around 3.5m in diameter. The gully was filled with angular and sub-angular stones (3113) and a soft brown silt, both of which appeared to be deliberate backfill, perhaps undertaken when Wall [3060]/[3105] was constructed to create a level ground surface. Unfortunately, time restrictions prevented further excavation of this gully feature and no organics were recovered. A *terminus ante quem* date of the ninth to tenth century AD for the gully is provided by a single barley grain derived from a dump of ash (3062) which lay over the gully fill (3113) (SUERC-47442, Table 1). Nevertheless, this gully has a similar form to Gully [2005] and the suggestion is that it too may be Late Iron Age/ Early Historic in date.

8.2.4 Phase 3 cemetery (Illus 4)

The *Time Team* excavations produced a mid to late seventh-century AD date for Grave 120=[3117] (610–675 cal AD 95% UB-12555). In addition to [3117] and within the confines of the latest Phase 8 turf and stone structure [3019] were three large parallel graves, one of which was excavated [3075] (Table 2). These graves were orientated roughly east to west and were covered by the floor or



Illus 4 Plan of Trenches 1/3 and 8, cemetery (Phase 3) and wall, *leacht* and associated deposits (Phase 4)

Illus 5 Possible long-cist grave slabs (Phase 3), with *leacht* (Phase 4) in background

occupation surface (3047). A fourth, unexcavated, grave, immediately to the north of Grave [3117] ran under Wall [3111] (Phase 7). The stratigraphic level from which Grave [3117] was cut could not be determined as the area immediately around the cut had been reduced during the *Time Team* excavation. However, this grave cut also ran under Wall [3111] (Phase 7). Bone preservation in Grave [3075] and Grave [3117] was extremely poor. A possible long-cist grave comprising three flat sandstone slabs (which were later subsumed within the trampled surface (3039)) was found under Wall [3111] and extended under the third and final construction phase of the possible *leacht* (3058) (see below) (Illus 5). One slab next to the possible *leacht* was lifted to determine whether it was a capping stone of a grave. Extremely soft, clean brown silt was revealed and 0.75m of this was excavated, but the base was not reached. A stone set on edge may have formed the southern side of the feature, indicating this was likely to be a long cist. Time factors precluded further investigation, the brown silt was replaced and the stone relaid.

On the south side of Trench 1/3, the graves all cut through (3034), grey silt which overlay the natural, and from which four sherds of handmade ware and nine fragments of iron slag and one piece of fired clay were recovered. It was hoped to date the main period of activity associated with this buried cemetery soil but the radiocarbon date returned from a piece of hazel suggests that the charcoal had been incorporated from much later 14th-century AD activity. A quantity of slag and a fragment of a furnace wall or tuyere were recovered from the grave fill (3067) of Grave [3065]. A single iron object was also recovered from Grave [3042] but the cut of the feature could not be readily defined and this material, including the small amount of human bone recorded, may be in a secondary context. The sequence of grave cuts on the south side of the Phase 8 turf and stone structure was complex with much intercutting. The earliest grave appeared to be [3040], which was cut by [3091], which was cut in turn by [3114], with the latest grave cut being [3099]. However, a chi-square test on the two radiocarbon dates (Table 1) obtained from cranial human bone recovered from within the head boxes of the earliest and latest graves, [3040]/(3050) and [3099]/(3109) (see Boyle below), shows that there is no difference between these dates. Under Wall [3111] (removed by the *Time Team* excavations) and the soil (3035) were three graves; Grave [3076] was cut by Grave [3069], which was cut by Grave [3081]. In Trench 8 the majority of the unexcavated graves and those few excavated ones, [8042], [8033] and that of an infant [8045], cut the orange-brown silt (8040)=(8048). Even without excavation, some stratigraphic sequence amongst the graves was visible, for example, Grave [8032] cut Grave [8033]. Interestingly, despite early deposits being exposed, no grave cuts were observed in the northern part of Trench 1/3 beyond the possible *leacht* where the ground level fell gently away, though it is possible that any grave cuts may have been sealed by (3103). Although skeletal remains were rare and fragmentary, what was recovered included two subadults and five adults (see Boyle below). Despite limited excavation of the cemetery, it is clear that it was used for the interment of all ages, from infants to mature adults.

Where sufficient skeletal material survived, this demonstrated that the bodies had been placed with the head at the western end of the grave and in an extended supine position. At least three of the graves had stone head boxes, designed to stop the head from rolling during decay (Maldonado 2011: 102–3). There was one probable long cist (not numbered, Illus 5), although it was only partially exposed and sampled. Many of the remaining excavated and unexcavated graves contained one or more relatively large stones located at the western end of the grave cut. These stones are thought to be either the top cover stone of a head box or small and simple grave markers. In Trench 8 and the northern part of Trench 1/3, the graves appear to be arranged in rows. However, no alignment of graves was apparent in the southern corner of Trench 1/3, rather here there was much intercutting of graves. Strangely, within the interior of the later turf and stone structure the grave cuts did not appear to be intercutting, but as only portions of the later floor/occupation layers were removed, this may not be an accurate impression of the layout and the number of graves. Comparison of the radiocarbon dates of the earliest head-box grave, [3040], and the latest head-box grave, [3099], demonstrates that the cemetery was in use for a relatively short period of time spanning the seventh century AD, with use perhaps extending into the eighth century AD (Table 1).

8.2.5 Phase 4 wall (Illus 4)

An irregular stone Wall [3105]=[3060] comprised a single course of massive basalt blocks between which were set a few smaller cobbles (Illus 4). This wall ran across the entire northern extent of Trench 1/3. Two large stones located on the eastern side and outwith the trench were clearly part of this wall, one of them now misaligned, presumably having been dislodged by a forestry plough. At the north-western end the wall was set in an irregular foundation trench, [3108], which cut into pink silt (3104). On the north-eastern side of this wall was a parallel irregular line of smaller stones [3107]. Between the basalt Wall [3105] and the smaller stones [3107] was a U-shaped linear gap some 0.25m wide and 0.10m deep which was largely devoid of stone; this is interpreted as a bedding trench for a wooden fence or wattle panelling, the base of which was supported and held upright by the stones located on either side. A single Post-hole [3102] located within the line of this bedding trench was set up against one of the stones of Wall [3105]; the organic-rich silt within the post-hole indicates that the post rotted in situ. The radiocarbon date from carbonised barley within the ash deposit (3062) (see Ramsay below) which was dumped over the early Gully [3112] and up against the wall places the construction of this stone wall to before the ninth century AD (Table 1). The stone Wall [3105] is located over Gully [3112] and therefore post-dates the gully. However, the gully must have been open when the wall was constructed as one of the large basalt blocks sits within the gully cut. It is probable that the rubble within the gully was deliberately dumped to create a level ground surface. This assertion is supported by the lack of rubble lying on the southern side of the wall, as exposed at the north-western side of Trench 1/3, where rubble should be present if the material within Gully [3112] was collapse from the Wall [3105]. It is possible that the brown silt (3036) that sealed the wall is collapsed turf which may have originally been placed over the stone foundation and built up around the timber uprights.

The presence of a dump of domestic hearth waste (3062) dating from the ninth or early tenth century demonstrates that despite the lack of evidence for contemporary structural remains, the site appears to have been occupied during the latter part of the Early Historic period or Norse period.

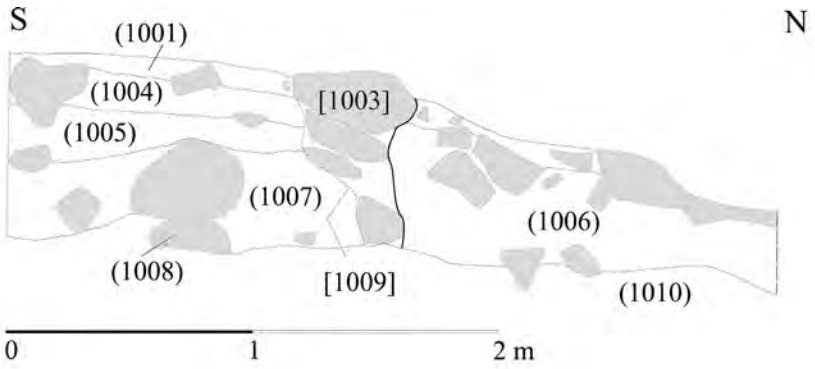
8.2.6 Phase 4 levelling and construction of the possible *leacht* (Illus 4)

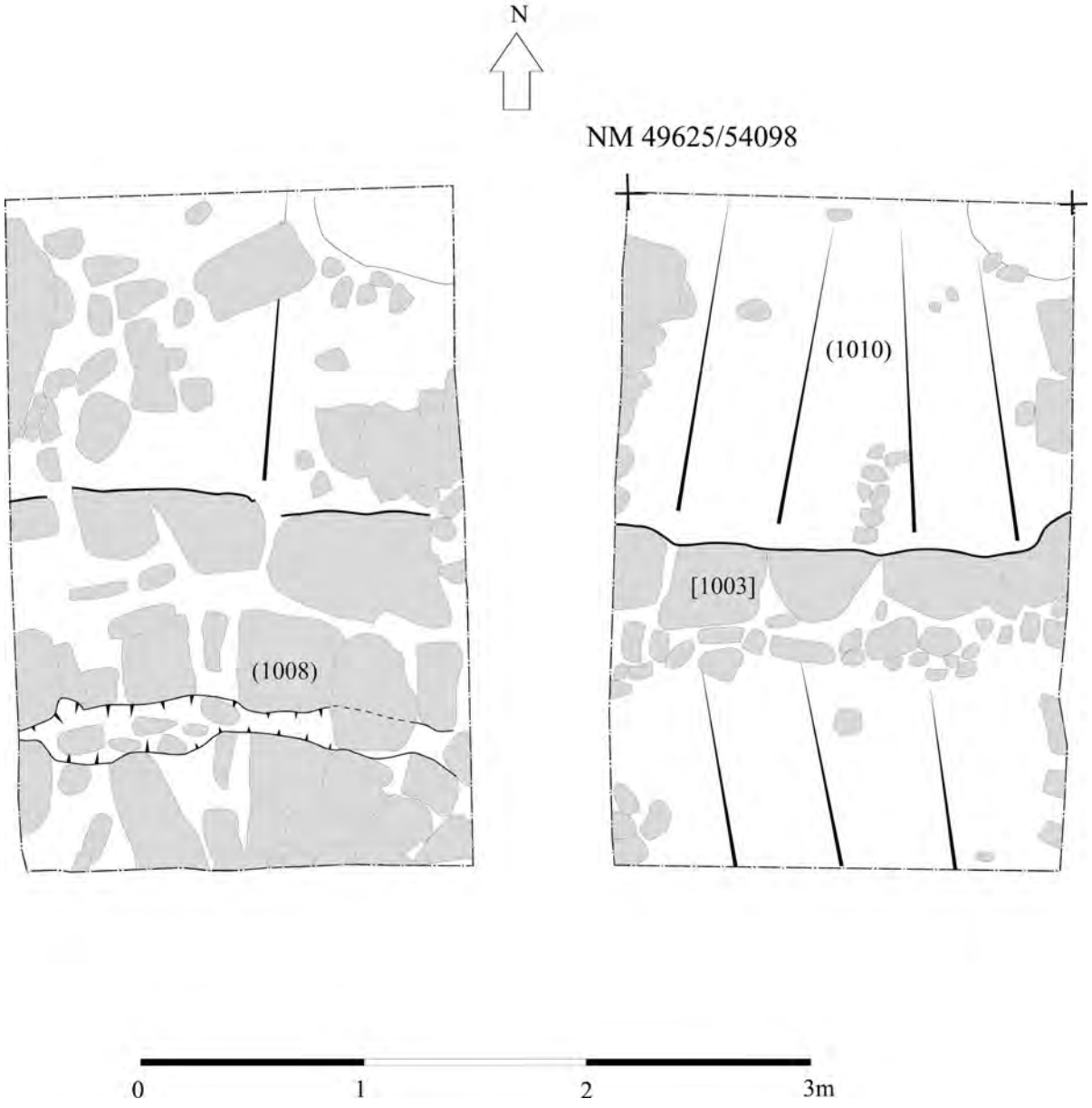
The northern end of the possible *leacht* rests on a pink clayey silt (3103). The natural slopes downwards in a northerly direction and it would appear that the sediment under the *leacht* was deliberately built up (this deposit remained unexcavated). As (3103) was capped by a slightly darker pink clayey silt (3104), which was cut by the foundation trench [3108] for Wall [3105], then the artificial build-up of sediment under the *leacht* must have taken place before the ninth century AD.

Leachta have variously been interpreted as outdoor altars, monuments to saints buried elsewhere and liturgical stations (Ó Carragáin 2010: 189, 191). No absolute date can be given to the construction of the possible stone *leacht* (3110) (Illus 4), although the western portion of the extension to this structure (3058) is thought to date to the 13th century (Phase 8). At least one burial appears to extend under the possible *leacht* and so it is likely to date to after the eighth century AD and certainly before the 13th century. Only very limited excavation of the possible *leacht* was undertaken, mainly during the *Time Team* excavation, because of the rarity of these features in Scotland, but it appears from the plan of the possible *leacht* that there are two, possibly three, phases of construction. The first phase comprised an irregular rectangular dry-stone platform measuring 1.16/1.02m (E/W) x 1.70/1.80m (N/S). Although not documented in the site report, the film of the *Time Team* excavation clearly shows water-worn quartz pebbles being recovered from the upper fill (131=3031) of the *leacht*.

8.2.7 Phase 4? large enclosure bank (Illus 6)

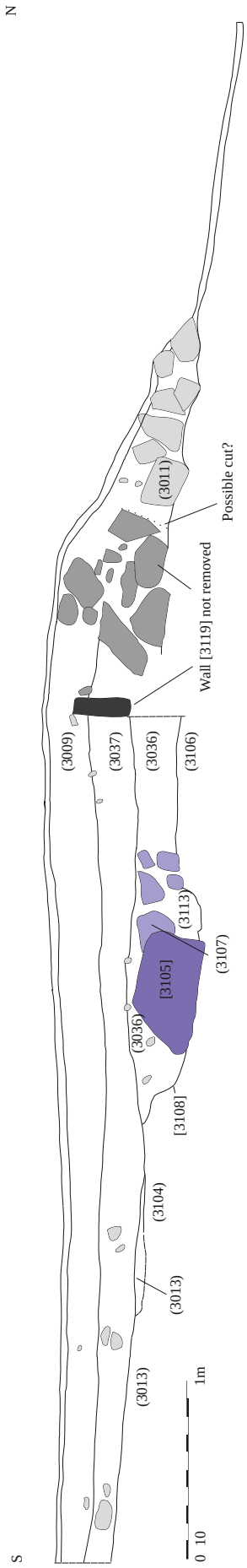
The base of the bank was defined by a layer of large stones which disappeared into the southern section (1008) (Illus 6). A slot some 0.12m wide, within the stone base and which appeared to be a deliberate feature, ran parallel to the northern, front edge of the stone base. The stone base was capped by up to 0.36m of compact orange/brown silt with sub-angular stones (1007); the deposit contained minute fragments of burnt bone and charcoal. There was a distinct lack of medieval finds from the basal silt (1007), but slag was recovered from the upper silt (1005). Charcoal from (1007) indicates that the





Illus 6 Section and plan through enclosure bank, Trench 10 (Phase 4)

Illus 7 Wall [3105] (Phase 4) extending across T1/3

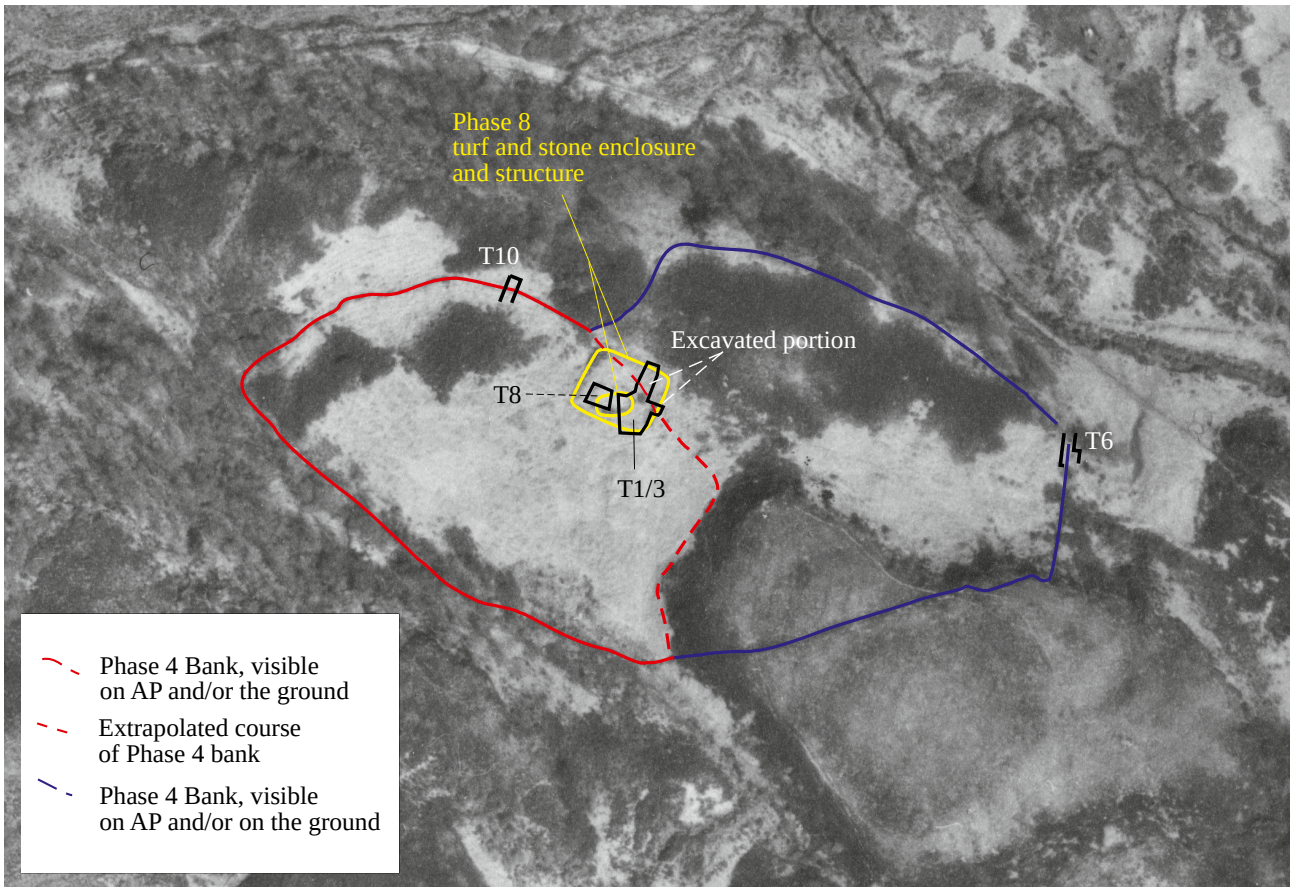


Illus 8 Section through wall and bank [3105] (Phase 4)

initial bank material may have been placed over the stones and the gully (1008) after AD 673–825 (Table 1 SUERC-47452). The lower bank material was sealed by 0.21m of orange-grey silt (1005). This in turn was capped by medium-brown clayey silt with stone (1004). All three layers ((1007), (1005) and (1004)) were cut [1009] on the northern side and a revetment of stone (1003) set against and into the bank deposits. The revetment wall comprised a lower layer of large boulders which were set on edge with smaller stones placed on top. The lower portion of the large enclosure bank is similar in character to the early enclosure wall [3105]=[3060], which also exhibited basalt blocks set on either side of a narrow gully or bedding trench (Illus 7 & 8). When the line of [3105]=[3060], as revealed in Trench 1/3, is extrapolated in a north-westerly direction it coincides with a large enclosure bank (Illus 9). Based on the limited archaeological evidence available, it seems entirely possible that the large enclosure bank is one and the same as the early enclosure wall identified in Trench 1/3 and therefore may date from the Early Historic period.

Excavation over the possible eastern entrance of the large enclosure bank, Trench 6, revealed that the shape of the bank and its terminus was initially defined by the setting out of a single course of large stones (6006) with a silt and rubble core; the large stones were set within a compact orange silt (6013) (Illus 10). A narrow Gully [6008] measured 0.30m wide and 0.30m deep and cut (6013); this gully was backfilled with silt with small stones (Illus 11). The stone foundation was then capped by a 0.50m-thick bank of orange silt (6003), which in turn was sealed by topsoil. The upper portion of the bank (6003) was cut away and the vertical face lined with stone and turf (6004)/(6005). Later turf (6012) eroded from the top of the bank and accumulated in front of the stone revetment. The construction technique of the bank was very similar to that recorded in Trench 10, indicating that the enclosure may have been constructed in a single phase.

Immediately north of the terminus of the bank was a metalled surface (6007) which comprised small, tightly-packed stones set within brown silt. This metalled surface overlapped the northern edge of the stone foundation (6003). There was an indication of slightly sunken cart-wheel marks within the metal surface.



Illus 9 Aerial photograph with extrapolated line of Wall [3105] joining the enclosure bank. B0450_F22_S34_RAF_402:26Sep58 © Crown Copyright Historic Environment Scotland

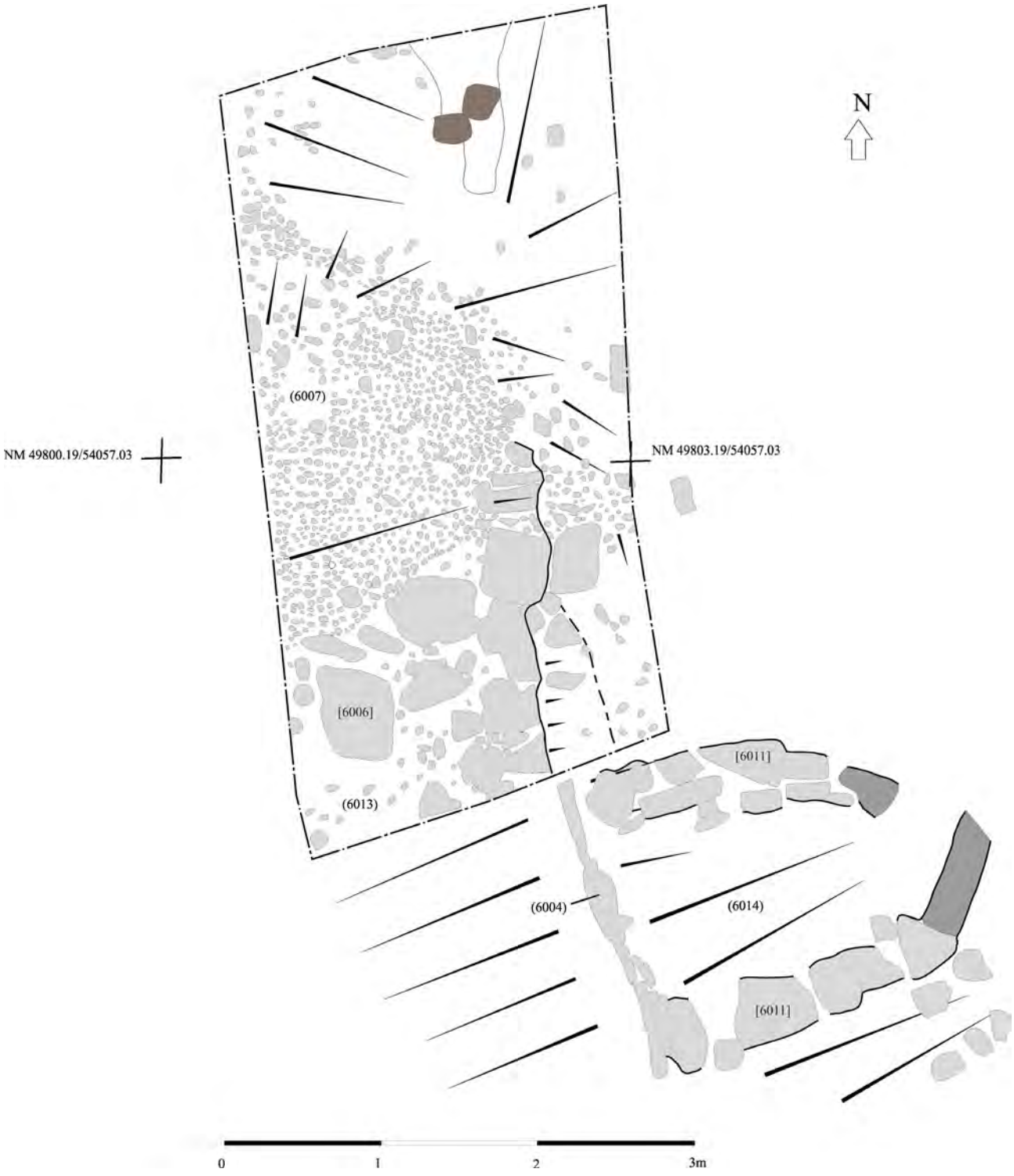
On the eastern side of the revetment enclosure bank was a small sub-oval structure [6011] which was approximately 2.2m long (east to west) and 2m wide (north to south) and butted onto bank material (6004)/(6005). The entrance faced east. The wall was built of basalt blocks surviving only as a single course, with two stones either side of the entrance set on edge. The wall on the south side was keyed in with the revetment wall (6004)/(6005), indicating that it had been built at the same time as the bank was lined. The structure had a silt and stone earthen floor (6014).

8.3 Medieval period (11th to 16th century AD)

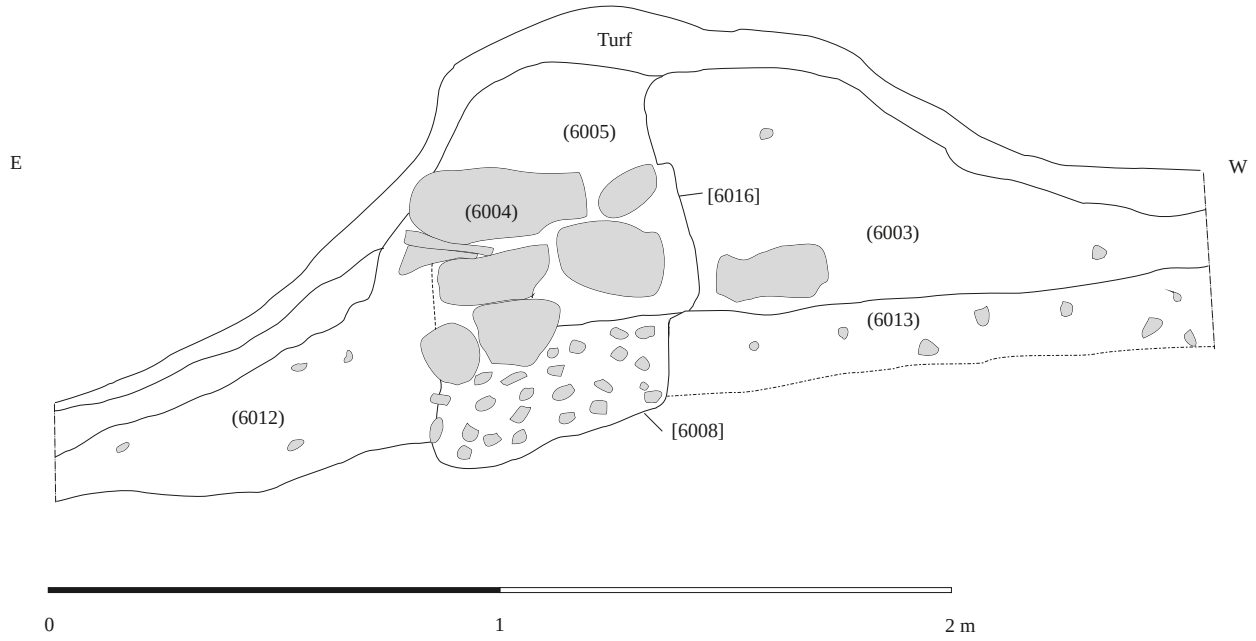
8.3.1 Phase 5 longhouse and kiln (Illus 12)

Excavation in Trench 4 revealed a single structure which comprised a thick stone and earthen Wall [4005] some 0.60m to 1m wide (Illus 12). The full extent of the structure was not ascertained. The western end of the structure was bowed; the eastern end was not located. The internal width at the western end was 4.80m and the external width is likely to have been around 6m, but unfortunately the northern side of the structure has largely been destroyed by ploughing for commercial forestry; the damage was compounded by trees planted over the disturbed wall. The wall stood to a height of 0.75m and was very roughly constructed from a mixture of massive blocks of basalt, medium-sized cobbles and earth. The interior face of the structure comprised tightly-packed large sub-angular boulders set on edge with smaller stones capping them. The exterior wall face was less well defined as it was built of earth and rubble. On the southern side of the building, two extremely large blocks of basalt [4005] formed the thickness of the wall; these blocks appeared to have been derived from a cliff face directly to the south of the building. There was very little rubble within or outwith the structure and it is thought that the extant earthen and stone wall was the foundation for a turf structure.

Towards the eastern end of the structure, a probable occupation layer comprised a mixed



Illus 10 Plan of enclosure bank and metalled road, Trench 6

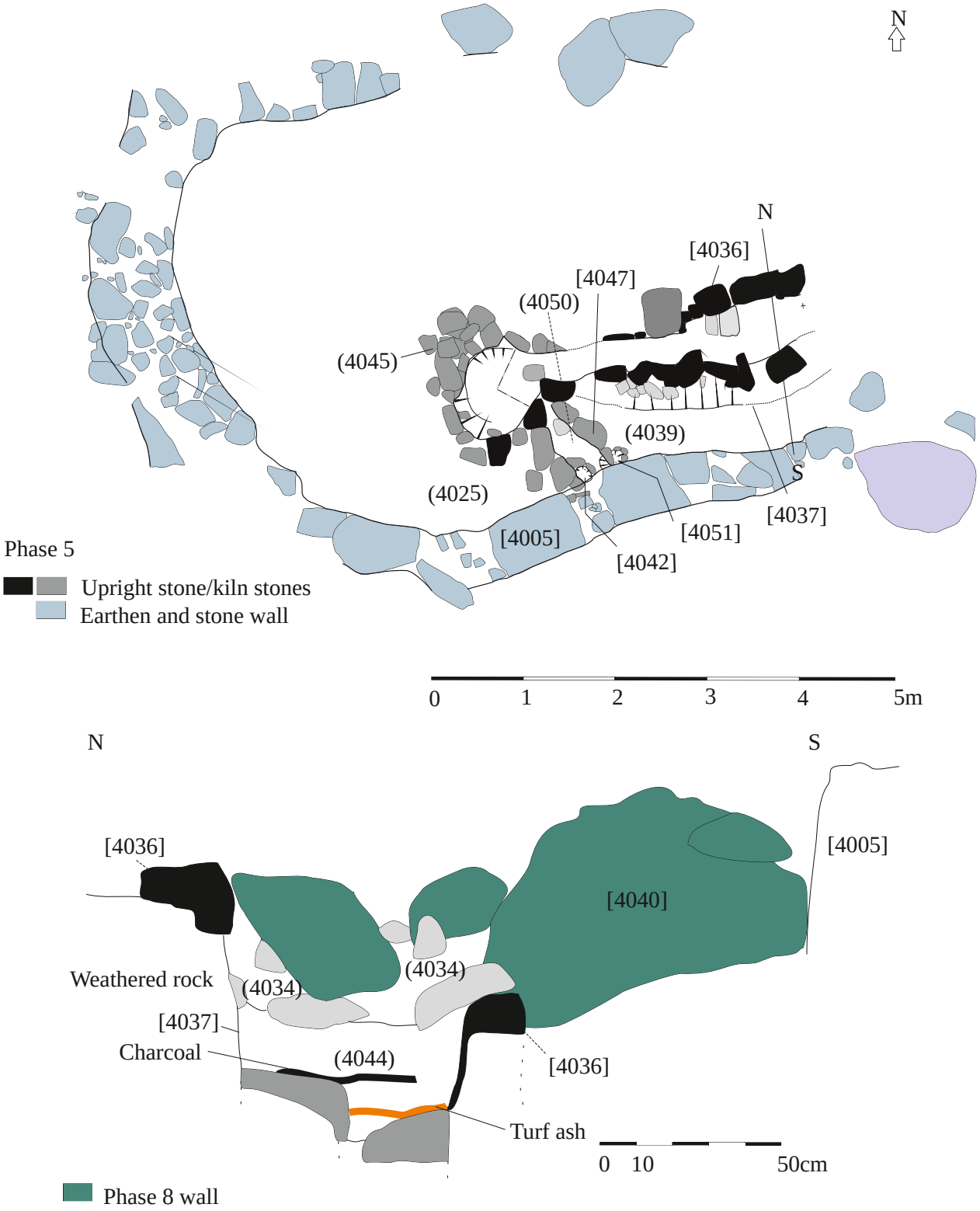


Illus 11 Section through enclosure bank, Trench 6

deposit containing much ash and charcoal (4039); a piece of nodular lead, possibly casting waste, was also recovered from this floor. This deposit was cut by a kiln flue.

Located within the interior of the structure and off-set towards the southern wall was a stone-edged Kiln Bowl [4045]. A wooden platform, upon which the grain would have been placed, would have rested on the stones allowing hot air to circulate up through the grain. The bowl, cut into the natural clayey silt, had a stone-lined Flue [4036] leading off in an eastwardly direction. Below rubble (4032) the upper fill of the kiln (4046) comprised a blocky turf which has been partially burnt; this is interpreted as the collapse of a turf superstructure which was supported by hazel branches (see Ramsay below). Beneath this was a thin deposit of carbonised oats (4048). The carbonised oats rested directly upon the heat-affected clayey silt base of the kiln bowl. A baffle stone partially blocked the flue as it entered the kiln bowl to prevent sparks from being drawn up the flue into it. The flue extended for at least 2.30m before it disappeared into the section. The flue splayed outwards away from the kiln bowl and was lined by edge-set basalt blocks; the weathered natural had been cut into on the north-eastern side and formed the lower portion of the side of the flue. At the eastern end the flue was 0.80m deep. The flue was partially excavated at the eastern end, with a lower mixed fill of ash, birch and hazel charcoal (4044) with a few carbonised grains of oats and barley; the upper post-abandonment fill comprised soft brown silt (4034). A mixed ash and silt deposit (4049) filled the upper portion of the cut [4037] of the Flue [4036]. This deposit was interpreted as ash which was cleaned out of the flue, some of which was spilt during removal. Carbonised oats from the base of the kiln date the last firing to the late 11th or 12th century AD (Table 1, SUERC-47453).

A second stone-lined Flue [4047] was located on the southern side of the kiln bowl. This flue was also capped by a collapsed, charred turf; the deposit was subsumed within (4025). A redeposited orange silt (4050) filled the flue; this was only partially excavated. This flue abutted the outer Wall [4005]. Two post-holes, [4042] and [4051], were located tight against the outer wall. The fills of the post-holes were soft, friable brown silt and Post-hole [4042] was packed with stone arranged to form a square (4043), the implication being that the post was also square. Both posts appear to have rotted in situ. However, (4043) contained birch and hazel charcoal mixed with a few grains of carbonised oats and barley indicating that some ash from the kiln had gradually worked its way down the side of the post. These posts may have been part of the timber



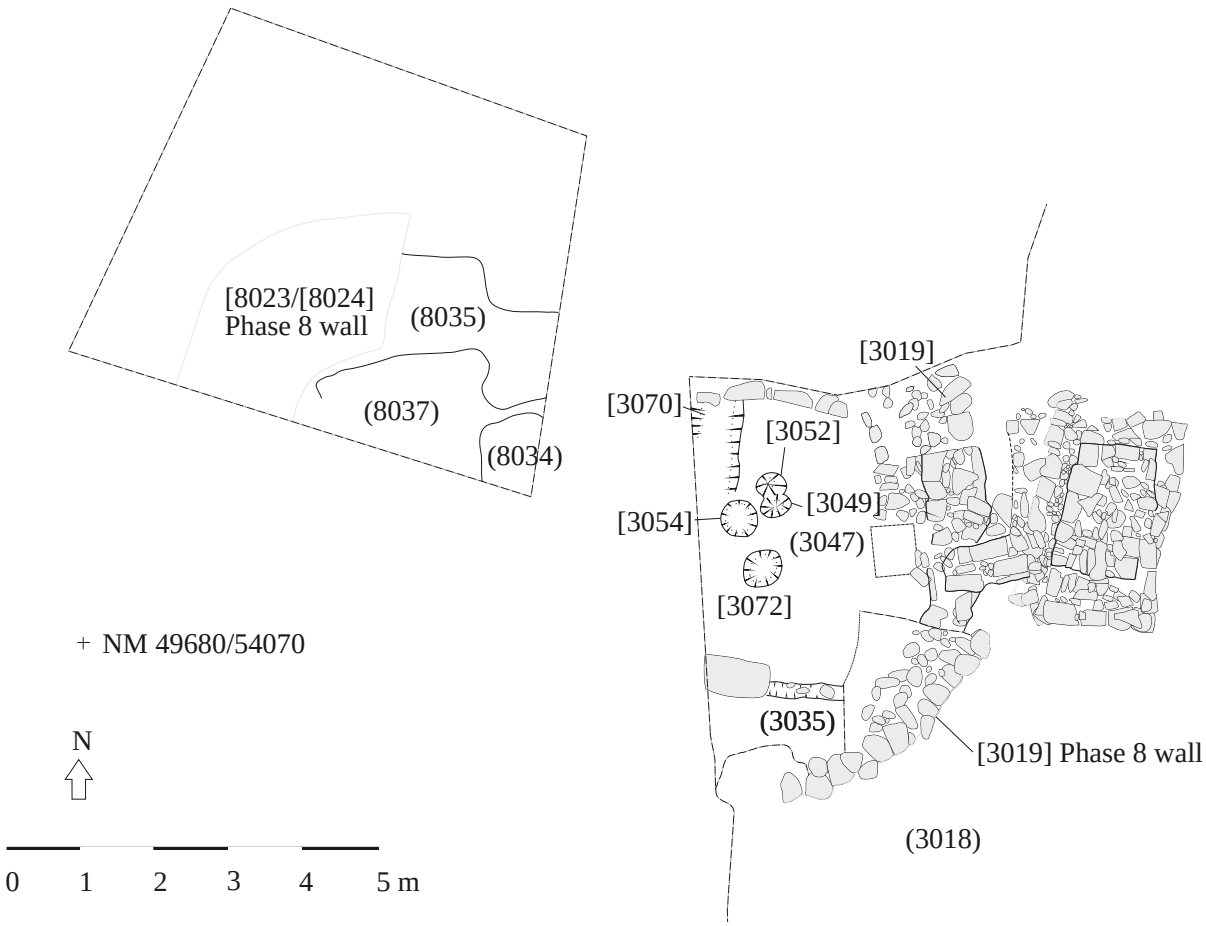
Illus 12 Phase 5 plan of longhouse and internal kiln and Phase 5 to Phase 8 west-facing section through the flue

support for the turf superstructure which covered the kiln.

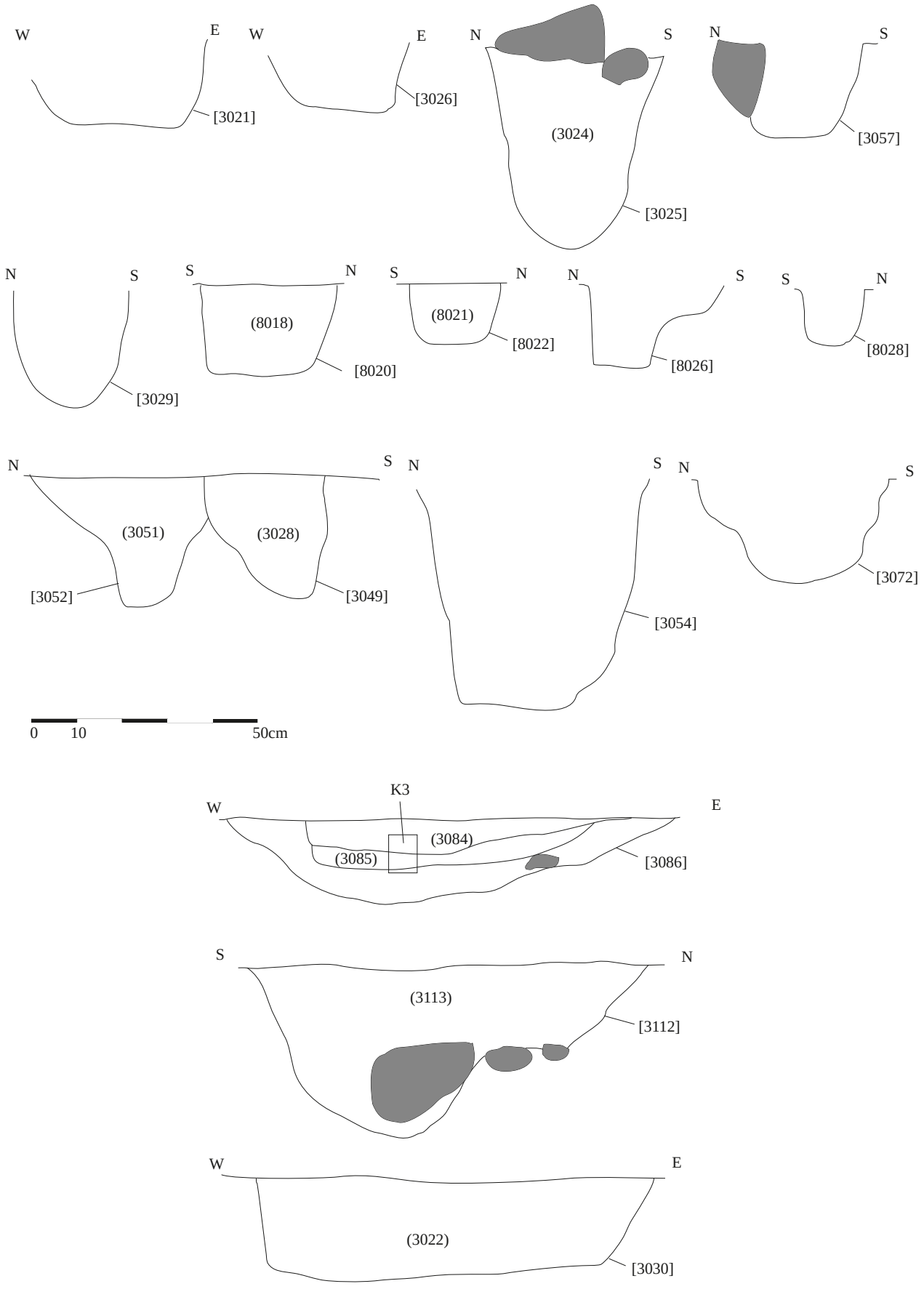
8.3.2 Phase 6 medieval activity over the cemetery

The graves ([3076], [3069] and [3081]) located under the Phase 8 turf and stone Wall [3019] (Illus 13) were capped by a grey silt (3035) from which 27 sherds of handmade ware and a fragment of iron slag were recovered; this soil is interpreted as a trampled working surface. Carbonised residue on one of the sherds of pottery dates the activity to the late 12th or 13th century AD (Table 1 SUERC-47456). The graves on the southern side of the later wattle and turf structure (Phase 8) were sealed by (3018). Finds from this soil include handmade ware, slag, nails and pebbles.

Roughly contemporary was a yellow-brown silty gravel that had been spread to form a thin floor layer (3047); this floor was not fully excavated (Illus 13). Floor (3047) ran under the later Wall [3019]. At the time of excavation, Pit [3070] was thought to be located under this floor surface, although this surface was much disturbed. However, it is more likely that the pit was actually slightly later in date than the floor, indicated by a rim sherd of pottery with stabbed-hole decoration that was recovered from the pit and a body sherd with the same decoration, and very probably from the same vessel, that was recovered from the surface of the floor. The likely scenario is that the body sherd was dropped onto the floor as domestic waste was being thrown into the pit. The floor and pit were in use in the mid to late 13th century AD (Table 1, SUERC-47436). Also recovered from floor (3047) were six other sherds of handmade ware, a bipolar core, a single piece of iron slag and lead-working debris. The carbonised plant content of floor (3047) was



Illus 13 Plan of Phase 6 structures and deposits, Trenches 1/3 and 8



Illus 14 Profiles and sections of the various post-holes and pits

very mixed and, along with the artefacts, indicates the accumulation and trampling of both domestic and light industrial debris.

Post-holes [3052], [3049], [3054] and [3072] (Illus 13 & 14) cut floor (3047) and they also cut two of the graves. Post-hole [3049] cuts [3052] and therefore may be a replacement post. These are substantial post-holes and the square base of [3052] may indicate that they held squared timbers. The timbers are likely to have been structural and it is thought that they are roughly contemporary with the floor (3047), in as much as the structure which the posts supported utilised this floor.

The graves in Trench 8 were capped by an orange silt (8037) which is interpreted as a levelling layer produced during ground preparation works for the construction of the mid to late 13th-century structure (see below). Remnants of an occupation deposit (8034) survived within the upper portion of the cut of Grave [8042] and probably the same material (8036) survived within the upper fill of Grave [8038]. The latter included a great variety of charcoal, carbonised oats and barley, and this occupation material is thought to be contemporary with the mid to late 13th-century activity evident in Trench 1/3, rather than having its origins in the sixth century before the inception of the cemetery. The levelling layer (8037) was covered by a grey silt (8035), the latter only occurring beneath the later turf and stone Wall [8023]/[8024] and may be the equivalent to (3035), representing an external ground surface which had been disturbed and mixed by trampling.

8.3.3 Phase 7 turf and wattle structure (Illus 15)

A chi-square test revealed that there was a real difference between the date of the charcoal within floor (3047) and the date of the wattle and turf wall (3033) (Table 1, SUERC-47436 & SUERC-47440). Wall (3033) comprised a mass of burnt wattle panelling, the withies comprising birch and hazel and the slightly more substantial timbers of the panelling comprising both ash and Scots pine (see Ramsay below). Micromorphology analysis has shown that there was a thin layer of burnt turf below the collapsed wattle and a more substantial layer of burnt turf above the collapsed wattle (see Ellis below). The wattle panelling clearly caught fire, but as the structure collapsed the burning wood was smothered by the turf cladding of the outer surface of the wattle wall panels (Illus 16). The recovery of a significant assemblage of carbonised cereal grains from (3033) indicates that barley, probably in sacks, was being stored up against the wattle wall. The lithology of the stone footing [3111] for the wattle and turf wall (3033) was mixed and quite different from that of the overlying Wall [3019] (Phase 8) which was predominantly made from basalt. A possible bedding trench for the organic walling was also recorded on the south side of the trench (no contexts were assigned as it was only recorded in plan, Illus 15). A piece of hazel dates the construction of the wattle and turf wall to the early to mid 14th century AD (Table 1, SUERC-47440). Although there is a slight discrepancy between the radiocarbon dates, it is feasible that occupation deposit (3047), dated to the 13th century (Table 1, SUERC-47436), continued to be utilised as a floor within the wattle and turf structure (3033)/[3019]. The four posts which cut this floor may well be contemporary with the wattle and turf structure.

At the east end, directly under the later turf and stone Wall [3019] and overlying the wattle and turf Wall (3033)/[3111], was a brown silt (3038) which was interpreted at the time of excavation as trampled collapsed wall material; two pieces of green glazed redware and three sherds of handmade ware were recovered from this layer. The charcoal content of this deposit was very similar to that of (3033), but it lacks cereal grain and therefore it may be the remains of the upper portion of a collapsed wattle and turf wall. The radiocarbon date of this deposit was very similar to that for (3033) and is not statistically different (Table 1, SUERC-47444).

Floor (3047) and the four post-holes were capped by a slightly later floor surface (3046) which has also been dated to the first half of the 14th century AD; this date is not statistically different from the wattle wall (3033) and the upper turf wall (3038) (Table 1, SUERC-47443). During excavation, floor (3046) was thought to be a spread of ash derived from the burnt and collapsed wattle and turf wall (3033). However, the presence of oak charcoal within (3046) along with hazel and birch indicates that this deposit is more likely to be the remains of the collapsed timber and turf roof. The larger oak structural timbers would have supported the

Illus 15 Plan of Phase 7 structures and deposits, Trench 1/3

weight of the roof while the turves were supported by smaller branches of hazel and birch. The archaeological evidence points to the accidental destruction by fire of a wattle and turf structure sometime in the early to mid 14th century. Charcoal produced during the conflagration of the structure was subsequently dispersed over the immediate area, contaminating the much earlier graveyard soil (3034) and the yellow grit deposit (3096) which sealed Gully [3112] with younger charcoal (Table 1, SUERC-47435 & SUERC-47441).

A roughly circular Fire Pit [3086] 0.90m x 0.90m and 0.17m deep was located on the north side of the possible *leacht* (Illus 15). The ash (3015) within the fire pit revealed a series of sequential firings that utilised mainly birch and silty turves as fuel. The fire pit was used on a number of occasions, with the ash of the previous fire being used as the base for the next. The activities taking place around the fire appear to have been largely domestic in nature and included the drying of oats, the preparation and consumption of animals, with bone being discarded in the fire, and the accidental breaking of more than one pottery vessel while presumably being used to cook food. Charcoal dates the use of this pit to the 14th century (Table 1, SUERC-47451) and the date cannot be differentiated from that of the wattle and turf structure (3033)/[3019]. It is tempting to envisage this outdoors cooking pit being utilised by the people engaged in the construction of the

Illus 16 Burnt wattle (3033) over foundation stones [3019], Trench 1/3, Phase 7

wattle and turf structure. An adjacent Pit [3080] is probably contemporary.

Pit [3030] (Phase 7) cut the cemetery soil (3034) and it also cut Graves [3091] and [3040] (Illus 15). The pit was sealed by soil (3018) which also sealed the grave cuts. The fill of this pit, (3022), contained fragments of slag which may represent rake out material from a metal-working hearth or furnace (Illus 14).

8.3.4 Phase 8 turf and stone structure (Illus 17)

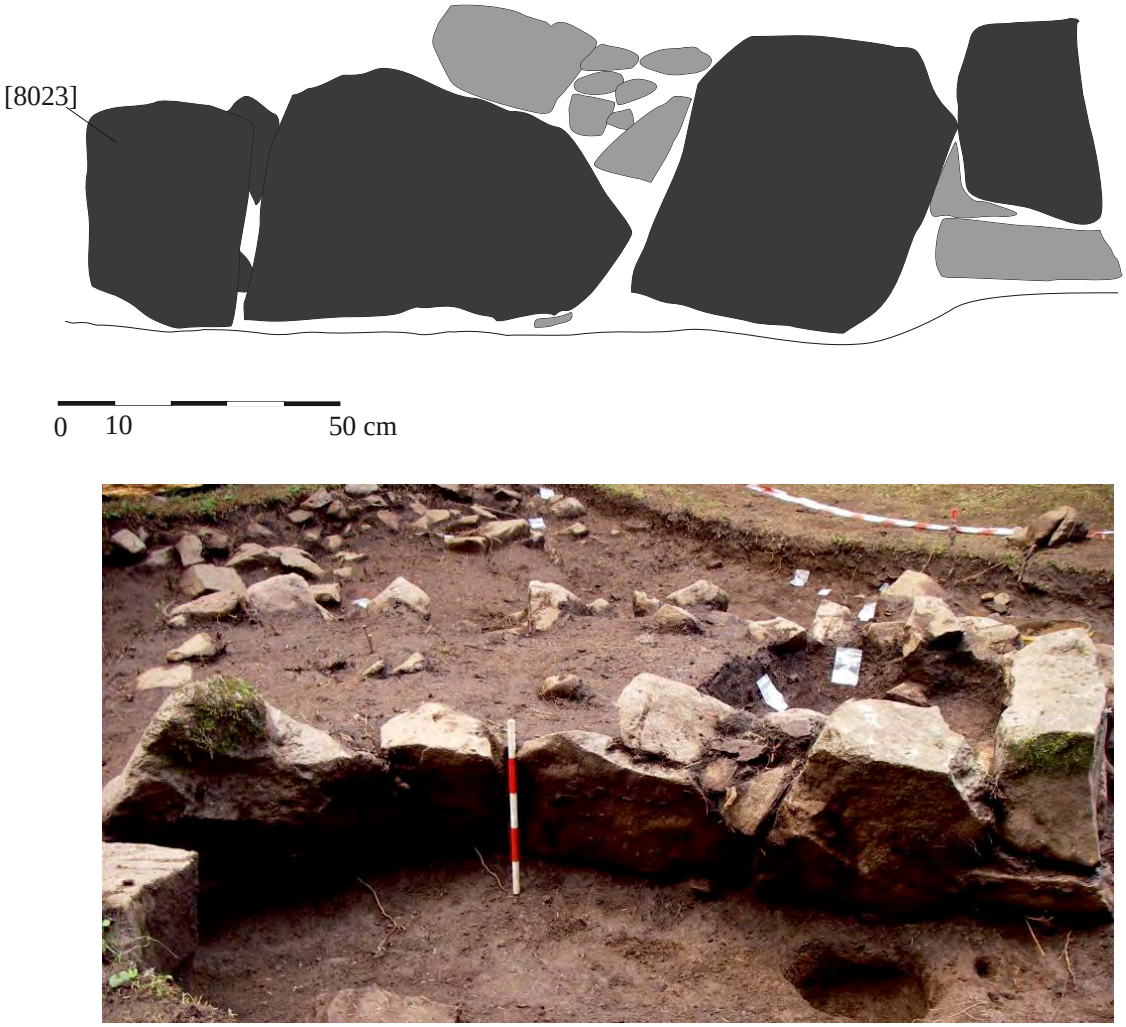
The collapsed wattle and turf structure was replaced by a turf- and stone-built sub-rectangular structure [3019]/[8023]; the eastern end of the building was built directly on top of the line of the earlier building (3033) (Illus 16). The turf and stone wall was roughly 1.90m wide. On the northern side the wall comprised an inner face of sub-angular blocks of basalt standing to 0.70m high, but at the eastern end the basalt blocks had been robbed out. The inner face of the wall was well preserved in Trench 8 and comprised a series of basalt orthostats [8023] (Illus 18). These were set into foundation silt layer (8017) (Illus 19). The core of the wall comprised redeposited burnt turf (3006), (3005)=(8014); and within (3006) were recovered a number of green-glazed sherds of both red and white ware (Illus 19). The bank of turf (8016)=(3006), containing transitional ware as well as handmade ware, was built up against the basalt orthostats [8023] and then the outer stone work, which comprised rounded cobbles [8024], was built into the bank of turf (3006=8016). It is highly probable that the burnt turf used in the construction of the bank was stripped from the immediate area, incorporating debris from the wattle and turf structure.

A corner Post [8022] located at the outer western edge of the turf wall was part of the door frame through which the structure was entered (Illus 14 & 17). Two other posts occurred under the turf core of the wall; Post [8026] was set tight against the upright that formed one side of the entrance and

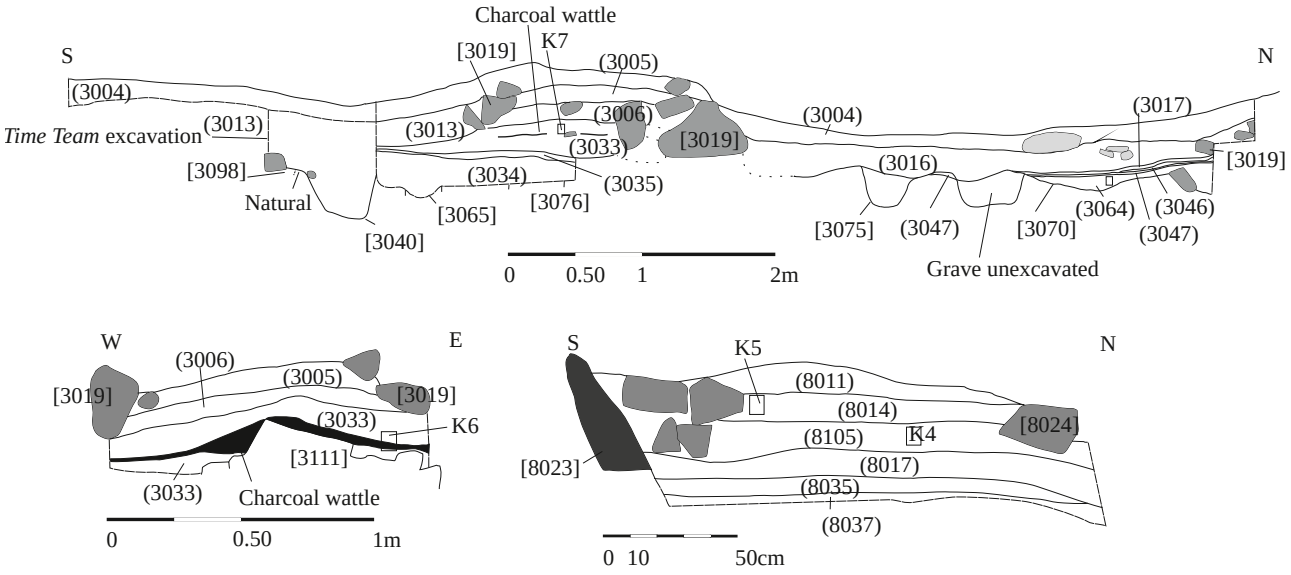
Illus 17 Phase 8 turf and stone structure and extension to the *leacht*, Trenches 1/3 and 8

Post [8028] appeared to sit between the cobbles of the outer Wall [8034]. These posts may have served as additional structural supports to the roof. Within the interior was a single Post-hole [8020], which was also located tight up against the inner face of one of the orthostats; this would have served to support the roof, it cut the earlier deposit (8015). This post-hole was packed with stone which was set about a square, indicating that the post may have been squared off. In Trench 1/3, five post-holes had been driven into the ground. Post-holes [3021], [3026], [3025], [3057] and [3029] formed an arc. Posts [3021] and [3029] were set tight against Wall [3019] while the remaining three were slightly off-set; again, these post-holes mark the location of posts which would have supported the roof. Post-hole fills (8025) and (3024) contained a small amount of both birch and hazel charcoal and a few carbonised barley grains, which were presumably incorporated into the backfill of the posts from residual occupation material.

In Trench 1/3, the probable occupation layer and floor comprised a thin layer of dark-grey silt loam and ash (3017) and contained sherds of handmade ware as well as a fragment of slag. This floor was far from sterile, with a mixed assemblage of wood ash and carbonised oat and barley grains. A later hearth (3027) was set within a shallow scoop within



Illus 18 Elevation and photograph of Wall [8023], Trench 8, Phase 8



Illus 19 East-facing section of Trench 1/3, with section through the turf Wall [3019] and section through turf Wall [8023]/[8024]

floor (3017). The charcoal from the hearth was from a wide variety of species. The hearth appears to have been for domestic use, including the disposal of hazelnut shells, the heating of foodstuffs in handmade pottery vessels and the drying of barley grain before grinding. A fragment of hazel dates the use of the hearth to the early 15th century AD (Table 1, SUERC-47450).

In Trench 8, a levelling/floor layer (8015) comprised dark-brown silt with inclusions of charcoal and patches of peat or turf ash, which is thought to be the same material as (3017). This occupation material is roughly contemporary with the wattle and turf structure (Phase 7); a chi-square test shows these dates and that of levelling layer (3038) are not independent (Table 1, SUERC-47446 & SUERC-4747440). However, this material lapped up against the orthostats of the later stone and turf Wall [8023] and so this deposition must post-date the construction of the turf and stone wall. One explanation is that much of this material is the levelled and mixed remains of the collapsed and burnt turf and wattle building, spread and used as infill once the footings for the turf and stone wall were in place.

Within floor deposit (8015) was a later occupation deposit (8029) which contained a small concentration of pebbles that may have been all that was left of a cobbled floor; a decorated mount strip (SF8081) was recovered from the top fill of Grave (8033) but this was probably trampled in from deposit (8029). Although the radiocarbon date of the deposit is not significantly different to that of the turf and wattle Wall (3033)/[3019] and the collapsed and spread roof material (3046), the calibrated date indicates that it belongs to a slightly later period and with the stratigraphic evidence, the deposit sits more comfortably within this phase (Table 1, SUERC-47445). This spread of occupation material was sealed by mixed silt with inclusions of charcoal (8013) which was spread within the interior of the Wall [8023], through the entrance and over the surface outside. This deposit contained a mixture of wood types, carbonised barley grains and spent hazelnut shells, all indicative of domestic occupation. In the entrance this spread was sealed by a pea gravel (8012) which formed the bedding material for a flagstone floor, although only one flagstone survived. In summary, this structure was primarily built from turf edged on the interior with basalt orthostats and on the exterior with cobbles. The roof appears to have been supported on timber uprights. Within the interior there was a number of sequential occupation deposits as well as a hearth.

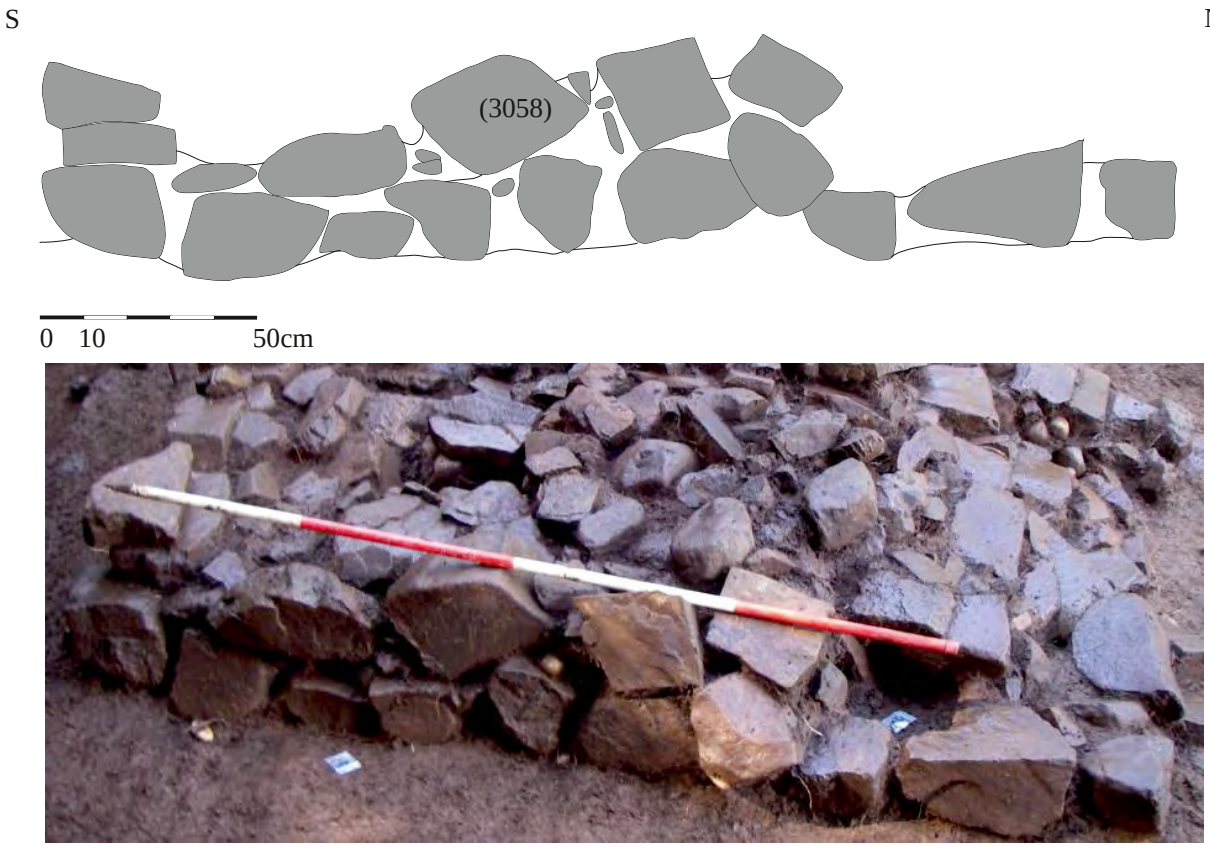
8.3.5 Phase 8 extension of the possible *leacht*

The possible *leacht* structure was extended on its northern, eastern and southern sides to form a larger platform some 1.54m (E/W) x 2.86m (N/S) (3058, marked in blue in Illus 17). The construction technique is very different from that of the original possible *leacht*, with smaller stones being used and white quartz pebbles (interpreted as pilgrim pebbles) being incorporated within the rubble fill (3058); significantly, no white quartz pebbles were observed within the fill of the original *leacht*, the implication being that they had been placed on top of the original *leacht* once it had been constructed.

A trampled layer of clayey silt (3039), with inclusions of pebbles (including white quartz pebbles) and handmade pottery, and which includes and incorporates the surface of the much earlier possible grave slabs (Phase 3), extended under the final phase of the possible *leacht* construction (3058); however, the silt of this layer may also have extended under the earlier phases of the possible *leacht*, but only further excavation could confirm this. Carbon residue from a sherd of handmade ware recovered from this trampled surface dates the use of the pot to the late 13th century. This layer occurred under the collapse of the wattle and turf Wall (3033)/[3019] (Phase 7) but a chi-square test showed that the radiocarbon date was not significantly different to that of the collapsed turf and wattle wall (3038) (see Krus and Hamilton below). It is likely that the pottery was dropped on the exterior of the wattle and turf building during or just after its construction. Thus, while it is impossible to be sure of the date of the first phase of construction, it is probable that the final extension of the *leacht* took place after the late 13th or early 14th century (Illus 17 & 20).

8.3.6 Phase 8 enclosure bank

The construction technique of the turf and stone structure [3019]/[8023] and the enclosure bank and Wall [3119]/[3011] was very similar (Illus 21).



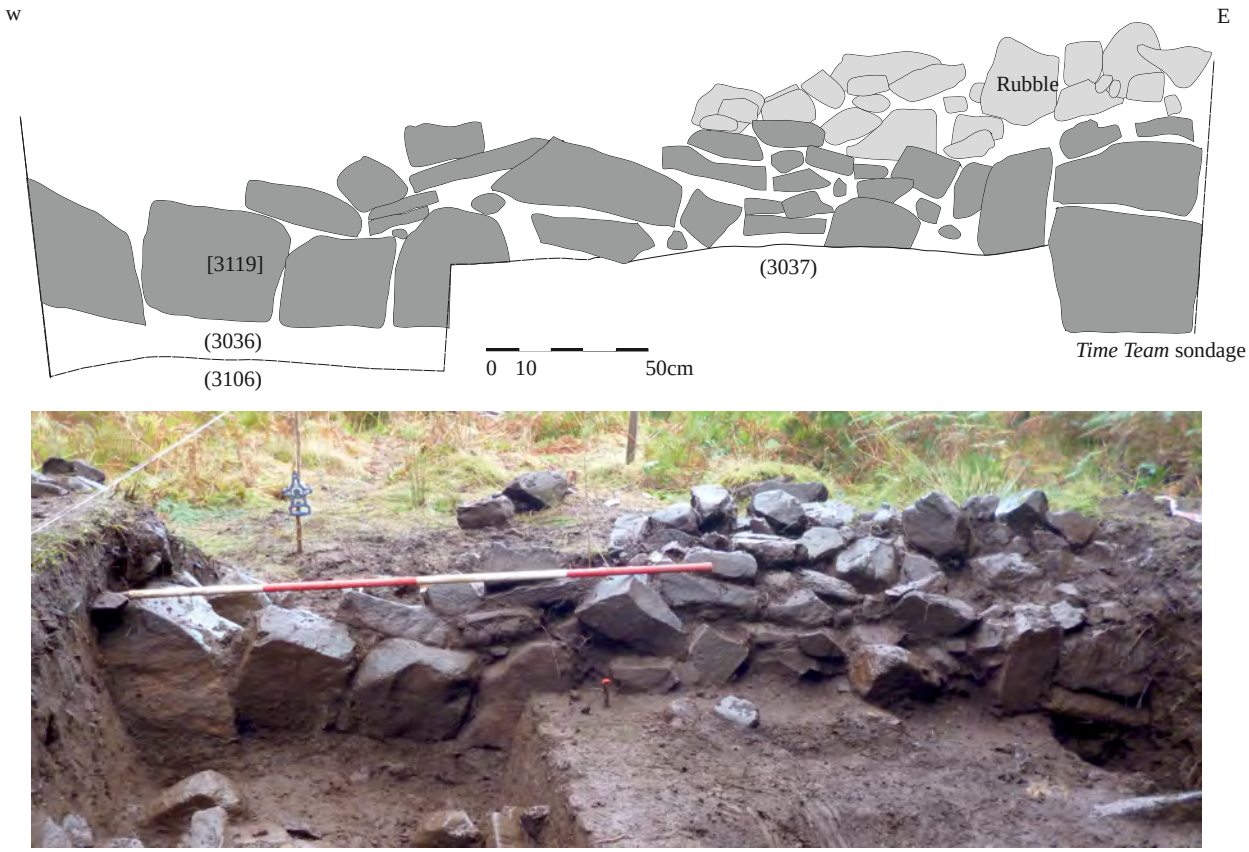
Illus 20 Elevation and photograph of east-facing side of the *leacht*, extended in Phase 8

The inner face of the northern line of the enclosure bank and wall comprised basalt orthostats behind which was a bank of mixed stone and turf. No definitive, clear-cut edge could be detected on the northern side of the enclosure bank. In Trench 8, the inner facing stones of the enclosure bank had been robbed, presumably for use in the adjacent later square enclosure. A portion of the eastern enclosure bank was also cleared of vegetation but not excavated. Here the enclosure bank was dominated by sub-rounded cobbles, with a hint of facing stones evident on both sides. A large bullaun stone (SF98), some 36 x 29cm wide and 14cm deep with a hollowed-out upper surface some 4cm deep, was located at the base of the interior face of the eastern limb of the enclosure bank; it was set tight up against rubble collapse from the bank and is almost certainly not in its original location (Illus 22). This bullaun stone was left in situ. The exposed southern limb of the enclosure bank was partially excavated; it had been robbed of the larger stone and then subsequently damaged by plough furrows from the planting of sitka spruce in the 1970s.

8.3.7 Phase 8? longhouse and kiln (Illus 23)

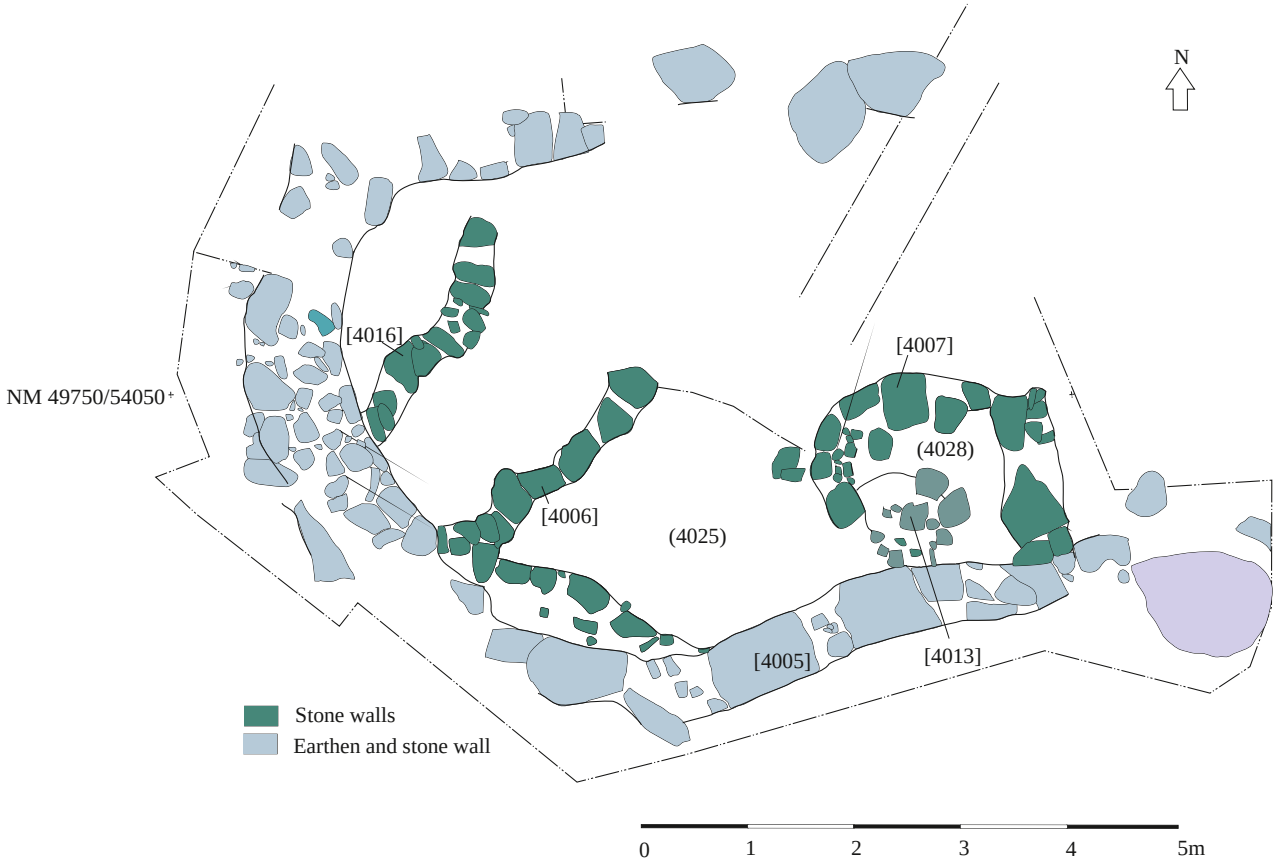
Sometime after the kiln was no longer in service, the ash-choked flue was backfilled with a soft brown silt (4034); in places the silt was dumped over flat slabs that had been laid on top of the ash fill (4044). A curvilinear, single-width, dry-stone Wall [4007] was then constructed over and through the flue, with one stone actually being placed between two uprights of the former flue (Illus 12 & Illus 23). The curvilinear Wall [4007] enclosed a possible earthen and rubble floor (4028) set around a cobblestone Hearth [4013]. The hearth was used to dry both oats and barley. Silt (4015) with inclusions of small stones, charcoal, fragments of burnt bone and a fragment of slag lay over (4028) and may be the remnants of a working surface.

It is probable that the other two curvilinear walls, [4006] and [4016], were also constructed at the same time as [4007] as all three follow the same method of construction and design (Illus 24). These walls served to divide the building into discrete small rooms. It is also likely that the



Illus 21 T1/3 south-facing elevation and photograph of enclosure wall, [3119], Phase 8

Illus 22 The bullaun stone at the base of Wall [3119]



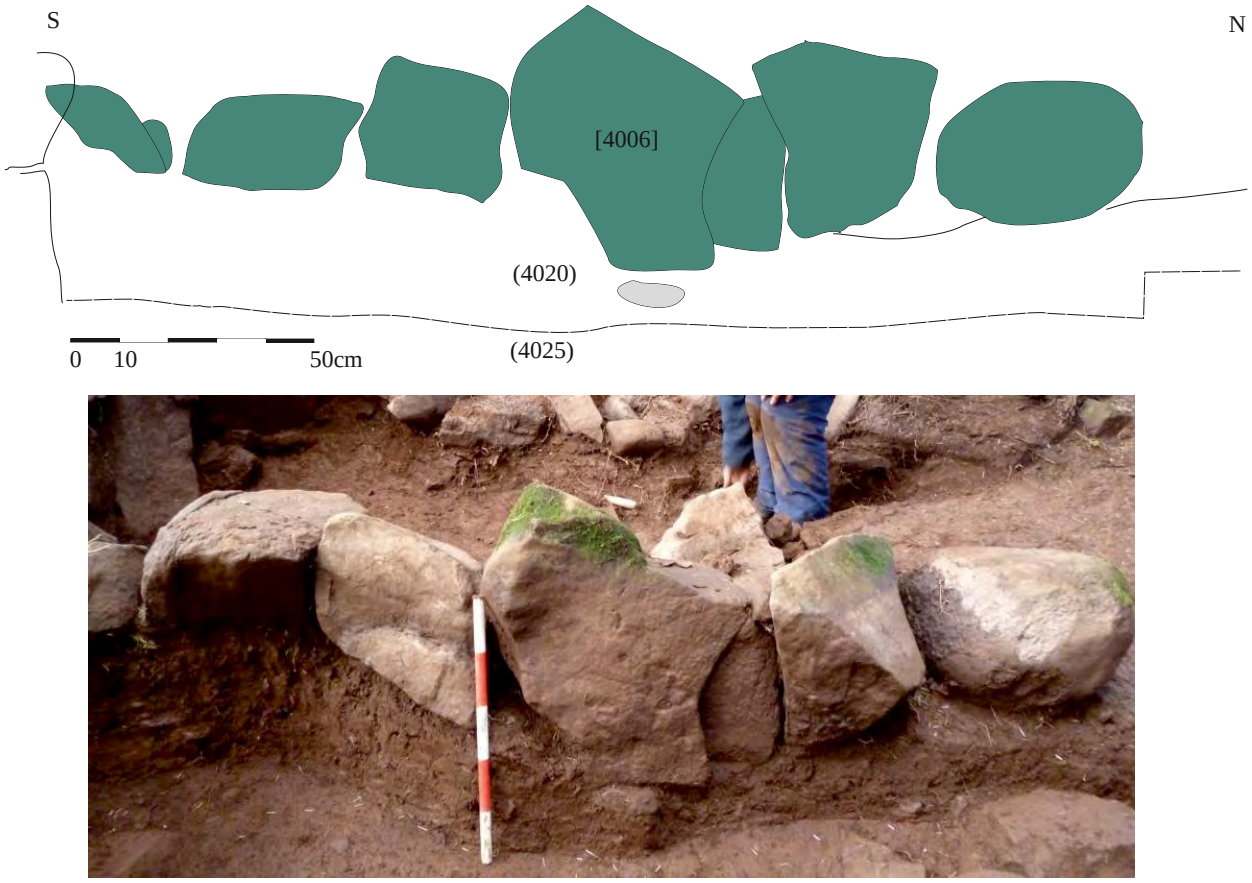
Illus 23 Plan of Phase 8, the longhouse and kiln

earthen and low stone wall located parallel to the interior wall of [4005] was also built during this remodelling phase. However, it is unclear what function this short stretch of earthen walling served. The construction technique of these internal walls is similar to that used in the walls of the main stone and turf structure (Trench 1/3 and 8, Phase 8).

8.3.8 Phase 9 final occupation of the turf and stone structure

The flagstone floor (8012) was sealed by more trampled occupation material (8010)=(8006) consisting of carbonised plant material and sherds of sooted pottery, indicative of domestic occupation (not illustrated). Finally, this latest occupation deposit was covered by an irregular pile of turf and stone (8009), the latter effectively blocking the original entrance into the Phase 8 turf and stone structure. Within this deposit (8009) was recovered a broken rotary grinder (SF8017) which would have been used to sharpen metal blades.

Possibly associated with the abandonment and collapse of the turf and stone structure (Phase 8) is layer (3037) (Illus 17). This material comprised pale reddish-brown silt with finds of handmade ware, pebbles and slag and probably dates from the latest phase of occupation as it clearly abutted the later enclosure bank and Wall [3119]. Its accumulation may be the result of midden material being dumped onto the ground surface, but it is also likely to include a significant amount of redeposited turf. Similarly, brown silt (3012) located on the south side of the turf and stone structure (Phase 8) and sealing (3018) (Phase 6) probably represents similar late activity. Sherds of handmade ware, transitional ware and mainland redware, slag and slag rake out and a smithing hearth base, pebbles and a hone were recovered from this deposit.

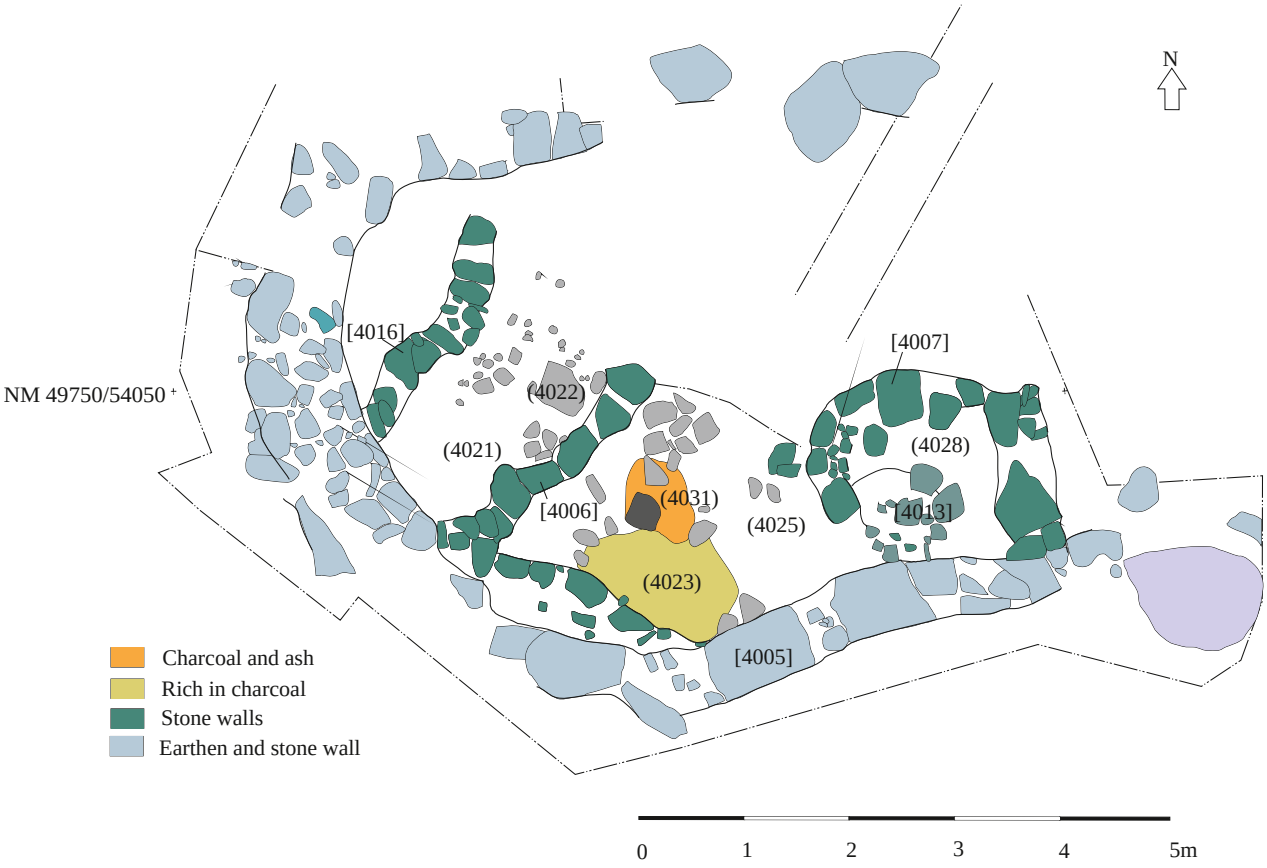


Illus 24 Elevation of Wall [4006], Phase 8

8.3.9 Phase 10 longhouse and kiln-barn (Illus 25)

Within the larger room bounded by Walls [4007] and [4006], a reddish-brown silt with lenses of charcoal and ash (4025) was interpreted as an occupation layer/floor as a small number of carbonised oats, along with probable fuel ash (birch and hazel) and the majority of the pottery, were recovered from this deposit. Within (4025) was an area particularly rich in charcoal (4023). Also at the same level and located over the top of some of the stones and rubble derived from the medieval Kiln [4045] was a sub-circular spread of charcoal and ash (4031); a number of ceramic sherds, including one sherd of transitional ware, were recovered from the deposit. Analysis of the charcoal within (4031) revealed the presence of both heather and willow, but no carbonised grain. This deposit dates to around the second half of the 16th century AD (Table 1, SUERC-47455). Ash deposit (4023) occurred adjacent to (4031) and the former was also dominated by heather, as was deposit (4025). Deposits (4031) and (4023) were interpreted as the remains of a heather roof interwoven with hazel and willow withies which caught fire and collapsed into the interior of the building. The bulk of deposit (4025) was also burnt roofing material but this had blended together with an occupation horizon containing domestic ash residue and ceramics.

Definite floor levels were not readily discernible between Walls [4006] and [4016], although any working surface may have been kept clean and regularly renewed as the various deposits identified comprise fairly clean orange silt with occasional flecks of charcoal and minute fragments of burnt bone, eg (4021)/(4022). A smithing hearth bottom was recovered from (4022) but it was not in situ. The recovery of ironworking debris in some of the late medieval deposits indicates that a blacksmith was at work in or around the structure.



Illus 25 Plan of Phase 10, the longhouse and kiln

8.4 Post-medieval period (16th–19th century AD)

8.4.1 Phase 10 collapse and post-abandonment accumulation within and adjacent to the turf and stone structure (Phases 8 & 9) (not illustrated)

Within the interior of structure [3019] was an accumulation of soil (3016) which sealed the collapsed turf of Wall [3019]. The possible plough soil (3012) on the southern side of the structure was covered by rubble (3008) derived from the southern and eastern turf and stone Wall [3019]. The plough soil contained a variety of ceramics, including transitional redware, mainland white ware and handmade ware. At the west end of the structure, the turf wall collapse (8003) sealed the interior deposits and the stone and turf (8009) blocking the entrance. A post-abandonment accumulation of a brown silt (3009) capped the rubble from the possible *leacht* as well as sealing the enclosure Wall [3011]/[3119]. The soil (3009) contained a mixed assemblage of pottery, both plain and decorated handmade wares as well as a small amount of redware and two of sherds of mainland ware with a green glaze. One sherd of mainland redware and a number of sherds of handmade ware were also recovered from the collapse and rubble (3014) located around the possible *leacht* and the turf and stone structure.

8.4.2 Phase 11 longhouse and kiln-barn (not illustrated)

Within the confines of the stone wall of the kiln-barn was a roughly built, sub-rectangular hearth (4011) set on a red-brown silt floor (4020). Only a few fragments of birch and willow were recovered from the fill of this hearth. The hearth sat high in the sequence and may represent a later temporary reuse of a near derelict building. Associated with the hearth was a beaten silt floor (4003) from which part of a late 17th- or early 18th-century wine bottle base was recovered.

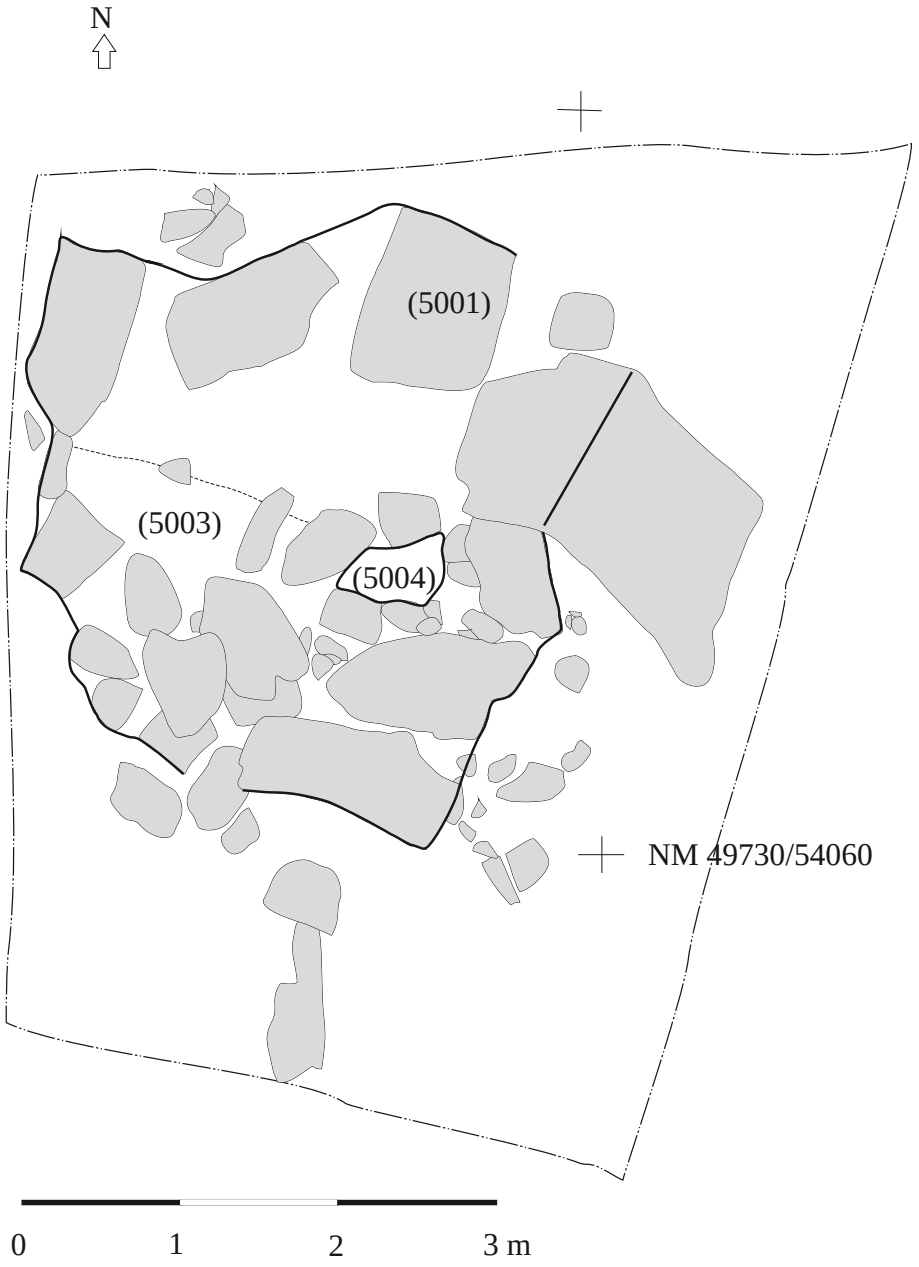
8.4.3 Phase 12 square enclosure (Illus 3)

The east-to-west-aligned Wall [2009] of the square enclosure within which Trench 2 was inserted was 1.2m to 1.08m wide and 0.50m high. This structure was interpreted by *Time Team* as a sheep fank. Within and abutting [2009] was a curvilinear Wall [2003] and a short section of drystone Wall [2010]. These two walls enclosed a space 0.90 x 1.00m with a stone-built seat and shelf at the south-western end. Pottery recovered from the subsoil around this structure indicates that it was utilised in the second half of the 19th century. Given the shape of the structure [2003]/[2010], it is likely that it functioned as a sheep pen or bothy, possibly for use during lambing and/or shearing.

8.5 Undated or unphased features

8.5.1 The stone cairns: Trench 5 and Trench 11

The stone cairn in Trench 5 comprised a loosely-packed thin deposit of stone (5001) in a sub-square arrangement (Illus 26). The largest block of basalt measured 0.70 x 0.30 x 0.20m and along



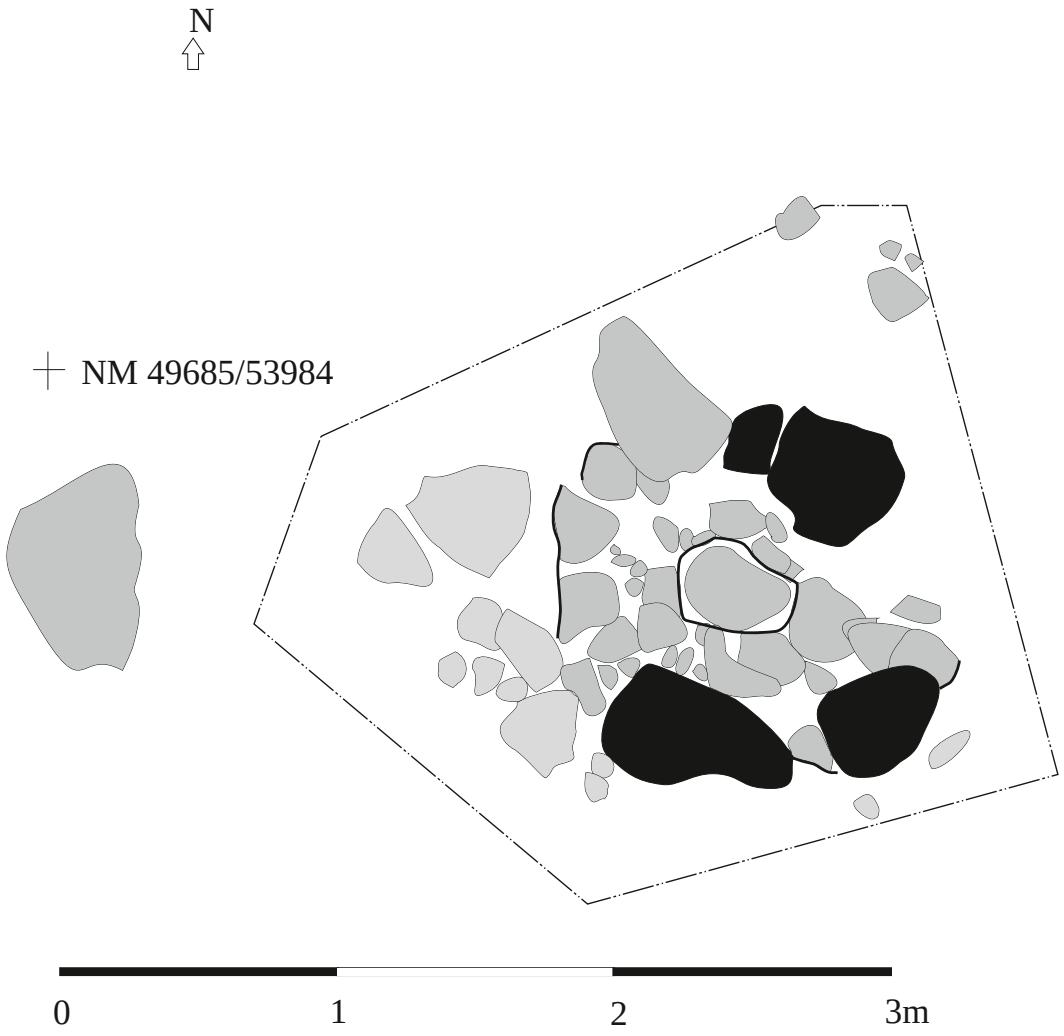
Illus 26 Undated cairn, Trench 5

with six others forms an irregular square (roughly 2.24 x 2.24m). The northern half was excavated, the southern remains preserved in situ. A thin layer of firm orange silt with occasional flecks of charcoal (5002) was built up into a low mound directly upon weathered natural. This was sealed by loose orange silt with frequent small stones (5003). At least six stones are set upright within (5002) and (5003) to form an oval void roughly 0.20 x 0.10m in diameter; this void was filled with dark reddish-brown gritty silt (5004). This was interpreted as the stone packing around a timber upright, small cobbles and pebbles 0.05m to 0.10m in size being packed around the timber upright to support it. It is speculated that this earth and rubble cairn was the base for a timber cross, although the diameter of the purported shaft would have been very small in proportion to the size of the cairn.

A second possible support for a timber cross or stone slab was partially excavated to the south of the main complex (Illus 27). An irregular square (roughly 1.40 x 1.40m) of boulders of basalt was arranged about an inner core of smaller cobbles and pebbles which appeared to lie in a concentric pattern about a slightly larger central cobble. Four of the basalt facing stones were set on edge and one had clearly fallen over. Stones on the west side of the cairn appear to have been dragged by the plough from the cairn. Time prevented excavation of this feature and its interpretation as a possible cross or stone slab base is at best speculative.

9. SPECIALIST REPORTS

The specialist reports have been edited. Full versions of the reports can be found with Historic Environment Scotland.



Illus 27 Undated cairn, Trench 11

9.1 Radiocarbon dating and Bayesian modelling

Anthony Krus (SUERC), Derek Hamilton (SUERC)

9.1.1 Introduction

Twenty radiocarbon measurements are available on samples from graves, bank fill, structures, hearths and a kiln. The samples were single entities of short-lived charcoal, macrobotanical remains, pottery residue and human bone and were submitted to the Scottish Universities Environmental Research Centre to be measured by Accelerator Mass Spectrometry (AMS).

The charcoal, macrobotanical and pottery residue samples were pre-treated following Stenhouse and Baxter (1983). Human bone samples were pre-treated following a modified Longin (1971) method. Samples were combusted in the manner described by Vandeputte et al (1996) and graphite targets were prepared and measured following Naysmith et al (2010). The SUERC maintains rigorous internal quality assurance procedures, and participation in international inter-comparisons (Scott 2003) indicates no laboratory offsets; thus validating the measurement precision quoted for the radiocarbon ages.

Conventional radiocarbon ages (Stuiver and Polach 1977) are presented in Table 1, quoted according to the international standard set at the Trondheim Convention (Stuiver and Kra 1986), and calibrated with the internationally agreed curve of Reimer et al (2009) using OxCal v4.2 (Bronk Ramsey 1995; 1998; 2001). The date ranges in Table 1 have been calculated using the maximum intercept method (Stuiver and Reimer 1986), and quoted in the form recommended by Mook (1986), with the endpoints rounded outward to 10 years. The probability distributions seen in Illus 28–31 were obtained by the probability method (Stuiver and Reimer 1993).

9.1.2 Methodological approach

The Baliscate chronology has been interpreted using a Bayesian approach (Buck et al 1996). Although calibrated dates are accurate estimates for the dates of the samples, they are not by themselves accurate dates for archaeological events of interest. In the case of Baliscate, what we are really interested in is the beginning, ending and span of activity associated with Blocks 1a and 4 (subsequently reinterpreted as Phases 2 to 4 and Phases 7 to 8). The date of this activity is estimated by using both information from radiocarbon measurements on samples and the phase which samples have been placed into.

Methodology is now available which combines this information to produce realistic estimates of the dates of archaeological interest. The output of modelling is the *posterior density estimate*. These are not absolute but are instead interpretive *estimates* that can and will change as further data becomes available. Posterior density estimates are usually presented in italics to separate modelling and calibration results.

The methodology has been applied using the program OxCal v4.2, which uses a form of Markov Chain Monte Carlo sampling. Details and algorithms used in this process are described in Bronk Ramsey (1995; 1998; 2001; 2009). The algorithm used in the model described below can be derived directly from the model structure shown in Illus 28–29.

9.1.3 The samples and model

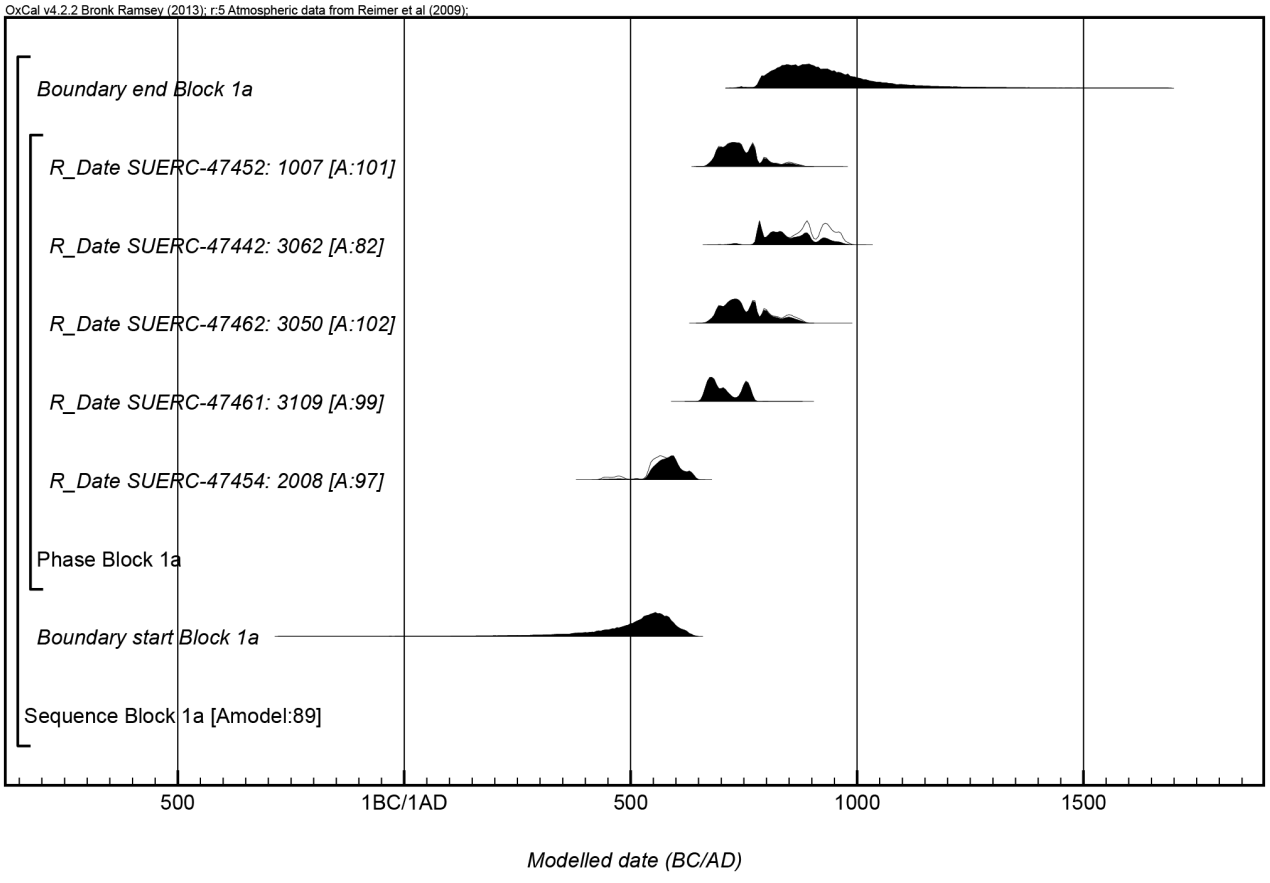
The 20 samples from Baliscate have been grouped into six chronological blocks spanning the early medieval period through to the post-medieval period.

There are five results available from features associated with early medieval activity on the site and these have been placed within Block 1a (reinterpreted as Phases 2 to 4). Single fragments of hazel charcoal from bank fill (1007) and fill (2008) of a bedding trench for a palisade, along with a carbonised barley seed from discarded hearth waste (3062) produced SUERC-47442, -47452 and -47454, respectively. A sample of human bone from fill (3109) of Grave [3099] and fill (3050) of Grave [3040] produced SUERC-47461 and SUERC-47462.

There are 14 results available from features associated with medieval activity from five different blocks. A single fragment of birch charcoal from a floor (3047) over graves produced SUERC-47436 and has been placed within Block 1 (reinterpreted as Phase 7). Pottery residue from soil (3035) capping graves and a carbonised grass seed from kiln bowl fill (4048) produced SUERC-47453 and SUERC-47456, both of which have been placed within Block 2 (reinterpreted as Phase 6 and Phase 5 respectively).

A single fragment of hazel charcoal from a pit (3064) and carbonised residue from a trampled surface (3039) produced SUERC-47434 and SUERC-47460, both of which have been placed within Block 3 (reinterpreted as Phases 6 and 7). Six results are from hazel charcoal samples placed in Block 4 (Phases 7 and 8). SUERC-47435 is from graveyard soil (3034) and SUERC-47441 is from a yellow grit sediment build-up. SUERC-47440 is from a collapsed structure (3033). SUERC-47443 is from a floor (3046) that caps posts in the possible chapel, SUERC-47444 is from floor (3038), and SUERC-47446 is from an internal floor (8015) of the chapel. A single fragment of a carbonised hazelnut from hearth fill (3015) produced SUERC-47451, which is also placed in Block 4. Two hazel charcoal samples, from a floor levelling layer (8029) and a late hearth setting (3027), produced SUERC-47445 and SUERC-47450 and were placed into Block 6a (reinterpreted as Phase 8). A willow charcoal sample from the top of a kiln (4031), which produced SUERC-47455, is placed in Block 6c (reinterpreted as Phase 10) and is from either the medieval period or post-medieval period.

Separate phases were created for Block 1a and Block 4. The model assumption was only that these stratigraphically unrelated samples, within a group, came from a relatively continuous period of activity that has a start and end date that cannot be directly dated by any single sample. The samples in Block 1, Block 2, Block 3, Block 6b and Block 6c are not formally modelled because of the overall low number of samples from these periods of activity.



Illus 28 Chronological model for Block 1a at Baliscate. For each of the radiocarbon measurements, two distributions have been plotted, one in outline, which is the result of simple radiocarbon calibration, and a solid one, which is based on the chronological model. The other distributions correspond to aspects of the model. For example, 'start Block 1a' is the estimated date that deposition activity began in Block 1a, based on the radiocarbon dating results. The large square 'brackets' along with the OxCal keywords define the overall model exactly

9.1.4 Results

The radiocarbon dates are in good agreement with the model assumptions (A_{model}=88.5).

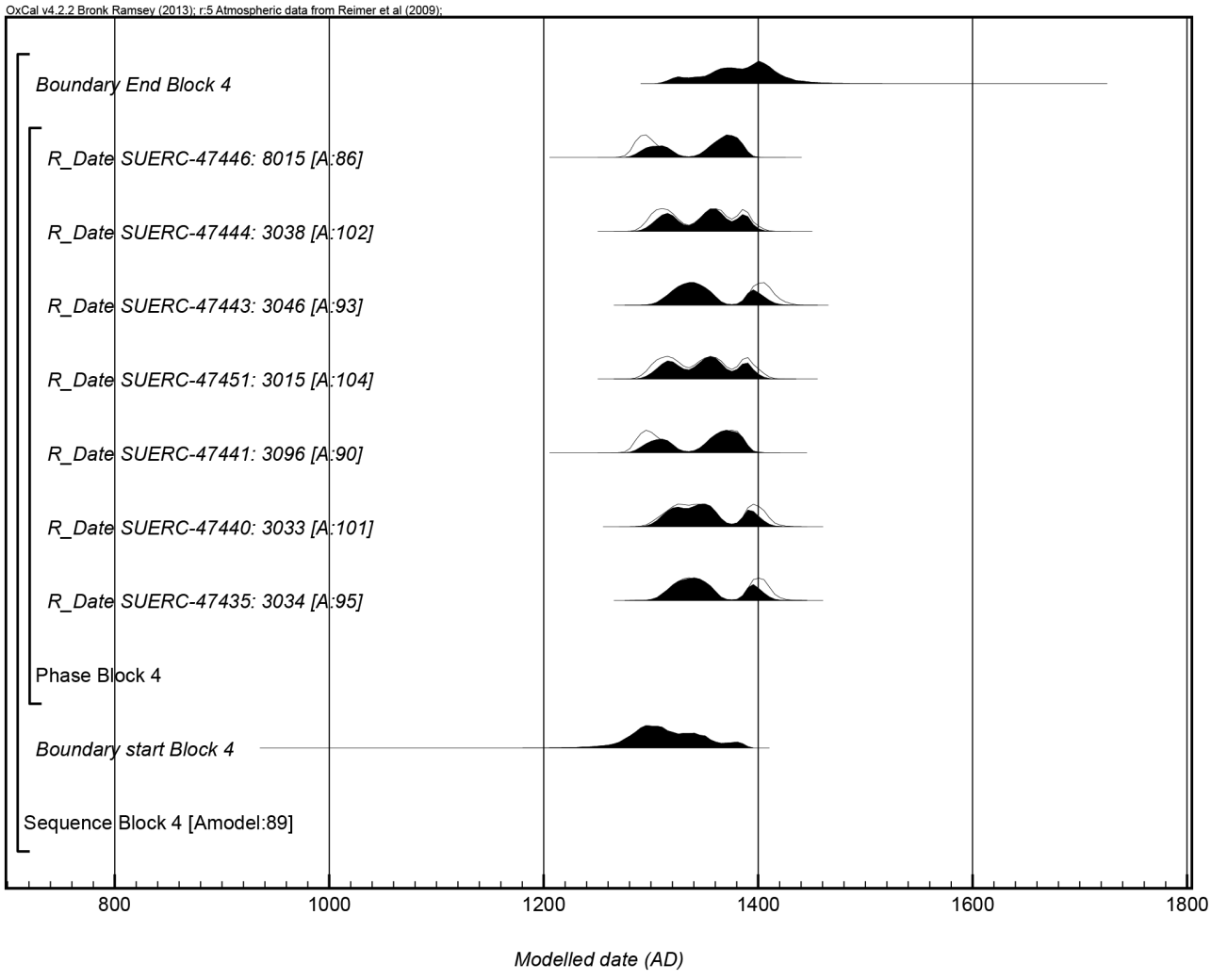
The modelling estimates Block 1a (Early Historic period) activity on the site began in cal AD 230–645 (*95% probability*; Illus 28; *start Block 1a*), and probably in cal AD 465–610 (*68% probability*). This activity lasted for 155–865 years *(95% probability*; Illus 30; *Span Block_1a*), but probably for 230–500 years (*68% probability*). Block 1a activity ended in cal AD 740–1225 (*95% probability*; Illus 28; *end Block 1a*), and probably in cal AD 800–975 (*68% probability*).

The modelling estimates that Block 4 (Medieval) activity on the site began in cal AD 1255–1390 (*95% probability*; Illus 29; *start Block 4*), and probably in cal AD 1280–1350 (*68% probability*). This activity lasted for 0–160 years (*95% probability*; Illus 30; *Span Block 4*), but probably for 10–100 years (*68% probability*). Block 4 activity ended in cal AD 1310–1440 (*95% probability*; Illus 29; *end Block 4*), and probably in cal AD 1355–1420 (*68% probability*).

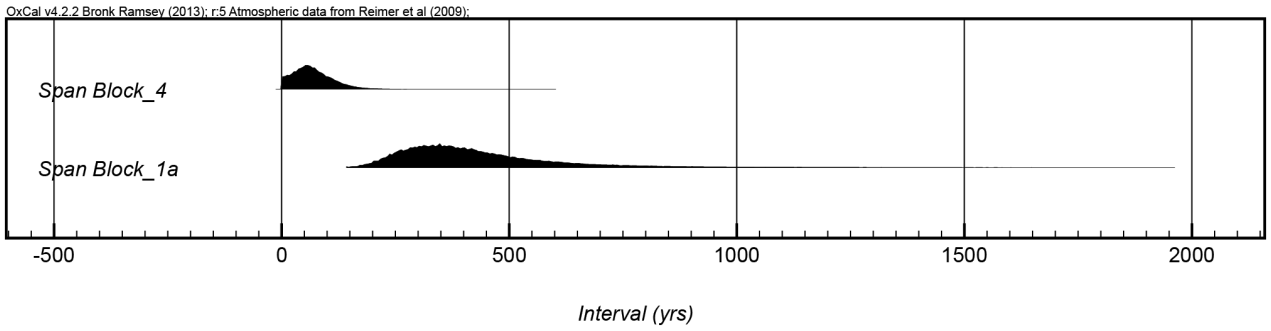
The calibrated dates from Block 1, Block 2, Block 3, Block 6b and Block 6c are given in Table 1 and Illus 31.

9.1.5 Discussion

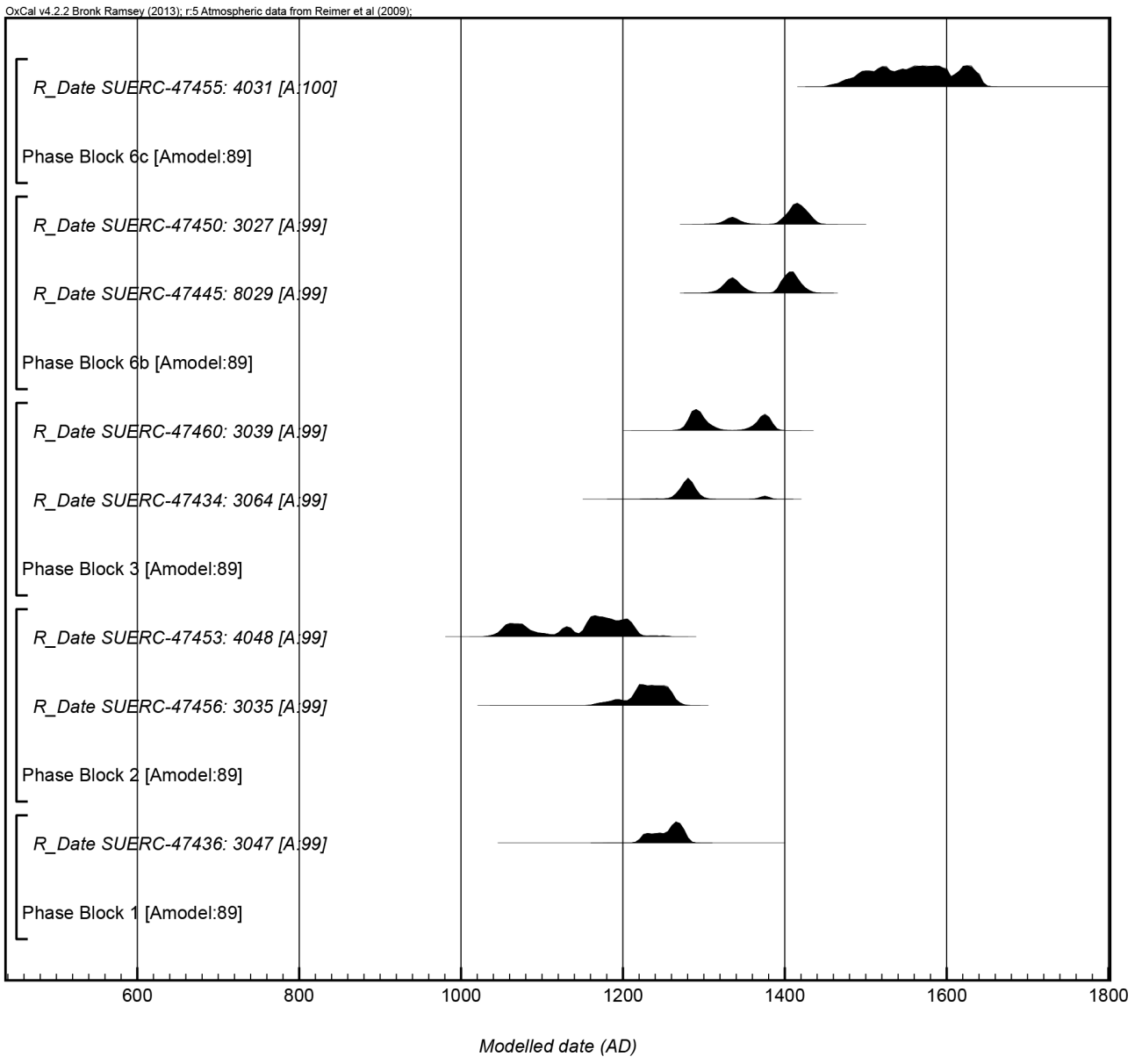
The Bayesian chronological model provides robust estimates for the start, end and overall duration of activity associated with the dated and modelled contexts from Block 1a and Block 4 at



Illus 29 Chronological model for Block 4 at Baliscate. The model structure is defined by the brackets and keywords. The format is as described in Illus 28



Illus 30 Probability distributions for the span of time that Block 1a and Block 4 took place. The probabilities are derived from the modelling shown in Illus 28 and 29



Illus 31 Chronological model for Block 1, Block 2, Block 3, Block 6b, and Block 6c at Baliscate. The model structure is defined by the brackets and keywords. The format is as described in Illus 28

Baliscate. Chi-square tests were run on the suite of measurements from Block 1a and Block 4. The Block 1a measurements are not statistically consistent (T'=81.2, df=4, T'(5%)=9.5), suggesting that this material does date from activity of some longevity. The measurements from Block 4 are statistically consistent (T'=11.5, df=6, T'(5%)=12.6), and those samples could be the same actual age, suggesting a shorter rather than longer period of activity.

Although there are many radiocarbon dates from Baliscate, only a small subset could be used for modelling. While modelling provides robust estimates, the overall low number of results in each of the two modelled Blocks produces results that are less precise than is possible (Steier and Rom 2000), and the *68% probability* ranges provided by the modelling are likely to provide more realistic estimates for the occurrence of the modelled events.

9.2 Charcoal and seed analysis

Susan Ramsay

9.2.1 Methodology

A total of 41 samples, representing 36 contexts, were analysed for the presence of carbonised botanical remains. Charcoal fragments were examined using a binocular microscope at variable magnifications of x4–x45 and an estimation of the total volume of carbonised material <4mm and >4mm was made. All charcoal fragments >4mm were identified, unless the quantity involved was prohibitively large, in which case a representative percentage of the total charcoal was identified. All carbonised seeds or other plant macrofossils present within the samples were removed and identified. Some samples contained very large quantities of cereal grain and in those cases only a representative percentage of grain was identified (percentage stated in the results tables if <100%).

The testa characteristics of small seeds and the internal anatomical features of all charcoal fragments were further identified at x200 magnification using the reflected light of a metallurgical microscope. Reference was made to Schweingruber (1990) and Cappers et al (2006) to aid identifications. Vascular plant nomenclature follows Stace (1997) except for cereals, which conform to the genetic classification of Zohary & Hopf (2000).

9.2.2 Results

9.2.2.1 The Possible Chapel and Enclosure (Trenches 1/3 and 8, Tables 4 and 6)

Trench 1/3 was located over the eastern end of the possible chapel and extended out over the enclosure entrance, the northern part of the enclosure wall, part of the southern enclosure wall and the *leacht*. Trench 8 lay to the west of Trench 1/3 and encompassed the possible chapel entrance, the chapel wall, much of the chapel interior and part of the enclosure wall.

Phase 2. An orange-grey silt (3062) that lay parallel to Wall [3105] was thought during excavation to represent the remains of a wooden fence or palisade, but the carbonised assemblage consists of birch, hazel and ash charcoal, together with cereal grains including both barley and oats. These remains are more akin to general domestic waste and there is little evidence for specific selection of timber for posts or wattle. Barley grains from this assemblage produced a radiocarbon date of AD 805–972, SUERC-47442.

Phase 4. Within the area enclosed by the possible chapel Wall [3019] was a floor surface (3047). The carbonised material from this floor contained a diverse carbonised assemblage. Charcoal of birch, hazel, ash, oak and heather type were all present. There were several cereal grains, with barley (including the hulled variety) the dominant type identified. In addition, there were a few fragments of hazelnut shell, and traces of burnt seaweed were also present. This mixed assemblage suggests the presence of domestic waste or midden scatter over this floor surface. Birch charcoal from (3047) produced a radiocarbon date of AD 1221–81, SUERC- 47436.

Phase 6. In Trench 8, on the west of the possible chapel, the fill (8036) of Grave [8038], was rich in charcoal and carbonised grain.

Within the latest phase possible chapel Wall [3019] was a Gully or Pit [3070], fill (3064), which contained a diverse charcoal assemblage of birch, hazel, ash, oak and Scots pine type. There were also a few cereal grains, with oats and barley both represented, together with fragments of hazelnut shell. This is entirely in keeping with the identification of this material, during excavation, as midden waste. Hazel charcoal from this assemblage was radiocarbon dated to AD 1252–1306, SUERC-47434.

Table 2 Summary cemetery data

Context	Skeleton No.	Grave type	Orientation	Age	Radiocarbon date
Post-hole [3028]/(3029)				?	
Grave [3099]/(3100)	(3109)(3095)	Dug (headbox)	WNW/ESE	adult (+45 yrs)	659-772 cal AD (SUERC-47461)
Grave [3114]	Empty	Dug	E/W		
Grave [3091]=132	?(3090)	Dug	E/W		
Grave [3040]/(3041)=[134]	(3050)	Dug (headbox)	WNW/ESE	adult (+18 yrs)	680-870 cal AD (SUERC-47462)
Grave [3116]/(3117) = [120]	(3118)= (122)	Dug	NW/SE	subadult (10-15yrs)	610-690 cal AD (UB-12555)
Grave [3042]	(3042)	?	E/W	?adult (+18yrs)	
Context (3055)	? *Time Team* backfill Grave 123?	Dug	E/W	?adult (+18yrs)	
Post-hole [3057]/(3056)	(3056)			?adult (+18yrs)	
Grave [3075]/(3073)	(3074)	Dug	E/W	adult (+18 yrs)	
Grave [3081]/(3083)	NA	Not excavated	E/W		
Grave [3069]/(3063)	[3068)	Not excavated	?		
Grave [3076]	NA	Not excavated	E/W		
Grave [3065]=143	(3067)	Dug	E/W		
Grave [3097]=123	NA	Not excavated	E/W		
Grave [3098]	NA	Not excavated, headbox?	E/W		
Grave [8042]	NA	Dug, not excavated	E/W		
Grave [8038]	NA	Dug, not excavated	?		
Grave [8045]	Empty	Dug	E/W	? (child size)	
Grave [8032]	Empty	Dug	E/W		
Grave [8033]	NA	Not excavated	N/S?		
(3084) layer	Human remains, degraded in (3034)	NA			
(3089)	Human remains in section, not excavated	Possible long cist under (3039), not excavated			
Grave [141]=[3097]?	(142)	Unexcavated			

Table 3 Plant remains from Trench 2

	Context	2006	2007	2008
	Sample	16	18	40
	Description	Upper fill of ditch cut 2005	Fill of ditch cut 2005	Fill of ditch cut 2005
Modern		+	+	+
Volume of charcoal 2–4 mm		5ml	2.5ml	10ml
Volume of charcoal >4 mm		5ml	70ml	30ml
% charcoal >4mm identified		100%	50%	100%
Charcoal				
Betula	birch	4 (0.21g)	1 (0.18g)	1 (0.02g)
Corylus	hazel	11 (0.38g)	4 (1.07g)	7 (0.96g)
Ericales	heather type	1 (0.02g)	-	-
Pinus sylvestris type	Scots pine type	1 (0.04g)	-	-
Quercus	oak	3 (0.08g)	38 (6.49g)	82 (6.20g)
Carbonised cereals				
Avena sp	oats	1	-	-
Hordeum vulgare var *vulgare*	six-row hulled barley	8	-	-
Hordeum vulgare sl	barley	11	2	-
cf *Hordeum vulgare*	cf barley	7	-	2
Cereal indet.	indeterminate cereal	12	-	-
Carbonised seeds				
Corylus avellana nut shell frag	hazelnut shell frag	-	4 (0.15g)	-

Table 4 Plant remains from Trench 3

	Context	3003	3015	3016	3017	3024	3027	3033	3034
	Sample		60	25	?, 31		35	44	81
	Description	Topsoil covering *leacht*	Primary fill of hearth cut 3086	Layer overlying interior wall collapse of later structure	Trampled floor deposit	Fill of post-hole cut 3025	Possible hearth setting	Burnt and collapsed wall panelling	Possible graveyard soil
Modern		+	+	+	+	+	+	+	+
Volume of charcoal 2–4 mm		40ml	5ml	<2.5ml	5ml	<2.5ml	10ml	40ml	60ml (cereals)
Volume of charcoal >4 mm		400ml	30ml	15ml	20ml	5ml	30ml	200ml	50ml
% charcoal >4mm identified		25%	100%	100%	100%	100%	100%	25%	100%
Charcoal									
Alnus	alder	-	-	-	4 (0.31g)	-	-	-	1 (0.10g)
Betula	birch	9 (3.30g)	45 (4.83g)	11 (0.53g)	8 (0.41g)	1 (0.01g)	4 (0.42g)	17 (4.60g)	10 (1.18g)
Corylus	hazel	22 (9.08g)	15 (1.54g)	26 (1.38g)	6 (0.57g)	15 (0.78g)	7 (0.76g)	14 (2.54g)	29 (4.39g)
Ericales	heather type	-	-	-	-	-	-	-	-
Fraxinus	ash	-	2 (0.08g)	-	14 (0.60g)	1 (0.06g)	11 (3.53g)	2 (0.95g)	9 (1.38g)
Pinus sylvestris type	Scots pine type	7 (3.16g)	-	4 (0.27g)	1 (0.02g)	-	2 (0.18g)	4 (0.76g)	1 (0.04g)
Prunoideae	cherry type	1 (0.51g)	1 (0.03g)	-	-	-	-	-	-
Quercus	oak	-	5 (0.47g)	6 (0.32g)	17 (1.47g)	2 (0.20g)	2 (0.26g)	-	13 (1.10g)
Carbonised cereals									
Avena sp	oats	11	13	-	1	-	-	10	21
cf *Avena*	cf oats	-	17	-	-	-	-	-	-
Hordeum vulgare var *vulgare*	six-row hulled barley	58	-	4	12	-	8	63	315
Hordeum vulgare sl	barley	235	1	19	77	7	75	237	1205
cf *Hordeum vulgare*	cf barley	34	-	-	30	-	43	59	124
Cereal indet.	indeterminate cereal	41	5	7	25	5	32	55	31
Culm node	stem node	8	-	-	-	-	-	3	1
Glume base		-	-	-	-	-	-	1	-
Carbonised seeds									
Corylus avellana nut shell fragment	hazelnut shell fragment	-	42 (1.73g)	2 (0.01g)	6 (0.20g)	1 (0.02g)	10 (0.37g)	1 (0.02g)	5 (0.27g)
Lamiaceae	dead nettle family	-	-	-	-	-	-	1	-
Rubus cf *idaeus*	raspberry	-	-	-	-	-	-	1	-
Misc									
cf seaweed		-	-	-	4	-	-	-	-
Bone		-	+	-	-	+	+	-	-
cf cramp		-	-	-	+	-	-	++	-

Table 4 *cont.*

	3037	3037	3038	3046	3047	3062	3064	3096
	30	77		61	68	99	17	100
	Layer sited directly north of *leacht*	Layer sited directly north of *leacht*	A layer that accumulated after the collapse of the earlier chapel	Layer of burnt material probably deriving from wall 3033	Possible floor surface associated with the earlier chapel	Possible remnant of in-situ burning of turf	Fill of pit 3070	Re-deposited silt or a build up of soil
Modern	+	+	+	+	+	+	+	+
Volume of charcoal 2–4 mm	10ml	5ml	2.5ml	5ml	<2.5ml	<2.5ml	5ml	<2.5ml
Volume of charcoal >4 mm	35ml	30ml	20ml	10ml	15ml	<2.5ml	30ml	10ml
% charcoal >4mm identified	100%	50%	100%	100%	100%	100%	100%	100%
Charcoal								
Alnus	-	-	-	-	-	-	-	-
Betula	2 (0.08g)	11 (1.69g)	16 (1.15g)	8 (0.22g)	8 (0.95g)	2 (0.06g)	11 (1.39g)	7 (0.41g)
Corylus	3 (0.47g)	7 (0.46g)	34 (2.08g)	9 (0.27g)	2 (0.14g)	2 (0.02g)	14 (1.99g)	10 (0.36g)
Ericales	-	-	-	-	1 (0.04g)	-	-	-
Fraxinus	-	-	-	-	5 (0.98g)	1 (0.02g)	2 (0.31g)	3 (0.36g)
Pinus sylvestris type	-	-	6 (0.23g)	-	-	-	5 (0.62g)	-
Prunoideae	-	-	-	-	-	-	-	-
Quercus	3 (0.68g)	10 (0.76g)	-	24 (1.01g)	30 (2.13g)	-	13 (1.07g)	1 (0.04g)
Carbonised cereals								
Avena sp	-	-	-	3	-	4	3	-
cf *Avena*	-	-	-	-	-	-	-	-
Hordeum vulgare var *vulgare*	-	-	-	5	5	-	5	-
Hordeum vulgare sl	-	-	-	23	11	9	11	-
cf *Hordeum vulgare*	-	-	-	12	9	10	7	-
Cereal indet.	-	-	-	17	15	6	-	-
Culm node	-	-	-	-	-	-	-	-
Glume base	-	-	-	-	-	-	-	-
Carbonised seeds								
Corylus avellana nut shell fragment	-	9 (0.26g)	-	-	11 (0.51g)	-	10 (0.35g)	4 (0.15g)
Lamiaceae	-	-	-	-	-	-	-	-
Rubus cf idaeus	-	-	-	-	-	-	-	-
Misc								
cf seaweed	-	-	-	-	2	-	-	-
Bone	-	-	-	-	+	-	-	-
cf cramp	-	-	-	-	-	-	-	-

Table 5 Plant remains from Trench 4

	Context	4012	4014	4014	4023	4025	4025
	Sample		49	88		27	96
	Description	Fill of hearth 4011	Fill of hearth 4013	Fill of hearth 4013	Fill of hearth 4024	Occupation layer	Occupation layer
Modern		+	+	+	+	+	+
Volume of charcoal 2–4 mm		-	5ml	<2.5ml	2.5ml	5ml	5ml
Volume of charcoal >4 mm		2.5ml	10ml	-	2.5ml	10ml	25ml
% charcoal >4mm identified		100%	100%	-	100%	100%	100%
% cereal identified							
Charcoal							
Betula	birch	2 (0.10g)	11 (0.68g)	-	-	1 (0.10g)	-
Corylus	hazel	-	19 (1.08g)	-	1 (0.03g)	5 (0.64g)	-
Ericales	heather type	-	-	-	25 (0.33g)	-	41 (3.00g)
Quercus	oak	-	1 (0.04g)	-	-	-	-
Salix	willow	1 (0.21g)	-	-	-	-	1 (0.07g)
Carbonised cereals							
Avena sp	oats	-	44	-	-	10	-
cf *Avena*	cf oats	-	23	-	-	-	-
Hordeum vulgare var *vulgare*	six-row hulled barley	-	7	-	-	-	-
Hordeum vulgare sl	barley	-	36	8	-	-	-
cf *Hordeum vulgare*	cf barley	-	24	8	-	-	-
Cereal indet.	indeterminate cereal	-	37	12	-	-	-
Carbonised seeds							
Chrysanthemum segetum	corn marigold	-	-	-	-	-	-
Corylus avellana nut shell fragment	hazelnut shell fragment	-	-	1 (0.04g)	2 (0.02g)	-	-
Cyperaceae	sedge	-	-	-	-	-	-
Fabaceae	pea family	-	-	-	-	-	-
Ranunculus sp	buttercup	-	-	-	-	-	-

Table 5 *cont.*

	Context	4031	4043	4044	4046	4048
	Sample	107	112	113	114	115
	Description	Spread of ash	Fill of post-hole 4042	Ash within flue	Sorched turf, collpased superstructure of kiln?	Burnt grains, accidental burning within bowl of kiln
Modern		+	+	+	+	+
Volume of charcoal 2–4 mm		10ml	<2.5ml	5ml	2.5ml	700ml (cereals)
Volume of charcoal >4 mm		50ml	2.5ml	100ml	2.5ml	200ml
% charcoal >4mm identified		100%	100%	25%	100%	25%
% cereal identified						10%
Charcoal						
Betula	birch	-	2 (0.10g)	18 (4.32g)	-	17 (2.89g)
Corylus	hazel	-	4 (0.16g)	10 (1.57g)	6 (0.24g)	25 (4.60g)
Ericales	heather type	77 (5.80g)	-	-	-	-
Quercus	oak	-	-	-	-	-
Salix	willow	29 (3.84g)	-	-	-	-
Carbonised cereals						
Avena sp	oats	-	12	8	15	759
cf *Avena*	cf oats	3	-	-	27	1690
Hordeum vulgare var *vulgare*	six-row hulled barley	-	-	-	-	-
Hordeum vulgare sl	barley	1	8	7	1	7
cf *Hordeum vulgare*	cf barley	-	5	-	-	-
Cereal indet.	indeterminate cereal	-	4	5	17	1158
Carbonised seeds						
Chrysanthemum segetum	corn marigold	-	-	-	5	-
Corylus avellana nut shell fragment	hazelnut shell fragment	-	-	-	1 (0.02g)	-
Cyperaceae	sedge	-	-	-	2	-
Fabaceae	pea family	-	-	-	1	-
Ranunculus sp	buttercup	-	-	-	1	-

Table 6 Plant remains from Trench 8

	Context	8006	8010	8013	8015	8015	8025	8029	8036
	Sample	14	19	22	6	28	62	72	87
	Description	Build up of occupation horizon overlying floor 8012	Build up of occupation horizon overlying floor 8012	Occupation layer associated with the later structure	Trampled floor surface	Trampled floor surface	Fill of post-hole cut 8026	Occupation layer	Fill of grave cut 8038
Modern		+	+	+	+	+	+	+	+
Volume of charcoal 2–4 mm		<2.5ml	<2.5ml	5ml	-	200ml (cereals)	2.5ml	2.5ml	100ml (cereals)
Volume of charcoal >4 mm		10ml	<2.5ml	10ml	20ml	80ml	5ml	40ml	40ml
% charcoal >4mm identified		100%	100%	100%	100%	25%	100%	100%	50%
% cereal identified						25%			
Charcoal									
Betula	birch	2 (0.04g)	1 (0.02g)	8 (0.61g)	1 (1.60g)	7 (2.12g)	5 (0.20g)	11 (1.01g)	10 (2.38g)
Corylus	hazel	-	-	4 (0.14g)	-	5 (0.64g)	6 (0.20g)	24 (2.46g)	9 (1.36g)
Fraxinus	ash	19 (0.94g)	3 (0.07g)	3 (0.10g)	-	11 (1.63g)	-	2 (0.12g)	7 (0.56g)
Pinus sylvestris type	Scots pine type	-	-	-	-	1 (0.07g)	-	2 (0.10g)	1 (0.04g)
Quercus	oak	-	2 (0.05g)	7 (0.39g)	1 (1.01g)	1 (0.54g)	14 (0.36g)	41 (3.10g)	7 (1.37g)
Salix	willow	3 (0.30g)	-	-	-	-	-	-	1 (0.12g)
Carbonised cereals									
Avena sp	oats	-	13	-	-	85	-	-	25
Hordeum vulgare var *vulgare*	six-row hulled barley	4	6	6	-	71	-	5	973
Hordeum vulgare sl	barley	29	12	22	-	462	4	41	729
cf Hordeum vulgare	cf barley	7	8	11	-	121	-	14	131
Cereal indet.	indeterminate cereal	4	8	-	-	23	4	29	74
Culm node	stem node	-	-	-	-	-	-	-	2
Carbonised seeds									
Corylus avellana nut shell fragment	hazelnut shell fragment	-	-	2 (0.07g)	-	4 (0.07g)	1 (0.02g)	5 (0.33g)	25 (0.54g)
Misc									
cf seaweed		-	-	-	-	-	-	3	-
Bone		-	-	-	-	-	-	+	+

Table 7 Plant remains from Trench 10

	Context	1005	1007
	Description	Hill wash over 1007	Layer over part of *vallum*
Modern		+	+
Volume of charcoal 2–4 mm		<2.5ml	<2.5ml
Volume of charcoal >4 mm		5ml	5ml
% charcoal >4mm identified		100%	100%
Charcoal			
Betula	birch	4 (0.35g)	1 (0.02g)
Corylus	hazel	3 (0.16g)	8 (0.60g)
Quercus	oak	6 (0.40g)	4 (0.14g)
Carbonised cereals			
cf *Hordeum vulgare*	cf barley	1	-

Phase 7. There was evidence for the construction of a wattle and daub structure [3111] in the form of a double-layered clay daub wall (3033) with burnt wattle in the middle of the two layers of clay. The carbonised assemblage from (3033) contained significant amounts of small roundwood charcoal of both hazel and birch, which would support the notion of a wattle wall, but there were also fragments of ash and Scots pine charcoal derived from larger timbers. More surprising were significant concentrations of carbonised cereal grains, with barley (including the hulled variety) the dominant type and only traces of oats also present. It is difficult to explain why such a large amount of grain should be present within a wattle wall unless grain was being stored, perhaps in sacks, up against the wall. Hazel charcoal from (3033) was radiocarbon dated to AD 1299–1370, SUERC-47440.

Floor (3047) was partially covered by floor (3046), which contained charcoal flecks and was thought to be derived from the possible burnt wattle and daub wall (3033). Although generally similar in nature, the carbonised assemblage from (3046) differed from (3033) in containing a substantial proportion of oak in the assemblage. This is indicative of the burning of substantial structural timbers. Hazel charcoal from (3046) was radiocarbon dated to AD 1307–1426. Overlying the possible wattle and daub wall (3033) was a layer of mid-brown silt (3038) that produced a similar charcoal assemblage to that seen in (3033), with birch, hazel and Scots pine present, but differed in having no cereal grain within the context. Hazel charcoal from (3038) was radiocarbon dated to AD 1292–1399, SUERC-47444.

At the entrance to the enclosure was a layer of yellow grit (3096), which contained small amounts of charcoal and hazelnut shell, again suggesting domestic activity. Hazel charcoal from (3096) was radiocarbon dated to AD 1279–1393, SUERC-47441.

On the south side of the possible chapel was a layer of silt (3034) into which many of the graves were cut. This layer produced a large carbonised botanical assemblage. Charcoal of alder, birch, hazel, ash, oak and Scots pine were all present. Cereal grain was abundant, with barley (including the hulled variety) the dominant type present and only traces of oats, which may just have been a weed within the main barley crop. In addition, there were a few fragments of hazelnut shell. The large concentration of grain suggests storage or processing of grain on the site and so again points to domestic activity. Hazel charcoal from (3034) was radiocarbon dated to AD 1305–64, SUERC-47435.

The internal floor surface (8015) of the possible chapel produced a large and diverse carbonised assemblage. Charcoal fragments of birch, hazel, ash, oak and Scots pine were all present, together with a very large concentration of cereal grain. The cereal grain assemblage was dominated by barley (including the hulled variety), but there was also a significant presence of oats, possibly indicating cultivation of oats as a crop rather than it just being a weed of the barley crop. Hazel charcoal from (8015) was radiocarbon dated to AD 1277–1392, SUERC-47446.

Within Trench 1/3, a similar floor layer (3017) produced a comparable carbonised assemblage, but with a much reduced concentration of cereal grain present.

A shallow fire pit (3086) and (3015) produced a mixed charcoal assemblage with hazelnut shell fragments and a small cereal assemblage that was dominated by oats rather than barley for the first time in the sequence. Carbonised hazelnut shell from (3015) was radiocarbon dated to AD 1295–1403, SUERC-47451.

Phase 8. The latest phase of construction comprises a sub-rectangular structure defined by a stone and earth bank. There are a number of post-holes associated with the turf wall. Post-hole [8026], fill (8025), was set at the upright that formed one side of the entrance. The fill (8025) produced a limited carbonised assemblage of birch, hazel, oak and a few cereal grains and fragments of hazelnut shell. There is no evidence for a post having been burnt in situ and the carbonised remains appear to be midden or domestic scatter.

A series of five post-holes formed an arc within the interior of the structure. The fill (3024) of Post-hole [3025] contained a mixed charcoal assemblage together with a few cereals and hazelnut shell fragments. This appears to be similar to the hearth material and does not provide any evidence for a post having been burnt in situ.

A possible hearth setting (3027) was located within a shallow scoop in floor (3017). The hearth fill produced an almost identical carbonised assemblage to that seen within the floor deposit (3017) and it is likely that the carbonised material from the hearth became scattered over the floor surface. Hazel charcoal from (3027) was radiocarbon dated to AD 1391–1441, SUERC-47450.

There is evidence for several potentially later floor levels. The first is (8013), which has a carbonised assemblage similar to that seen within the waste from hearth (3027). Within Trench 8, a thin layer (8029) with bone, charcoal and daub may also be the remnants of a floor deposit. Although it was later in the stratigraphic sequence, layer (8029) had a very similar carbonised botanical assemblage to that seen in the fill (8036) of Grave [8038] and the silt layer (3034). The charcoal assemblage contained a diverse range of types, with cereal grain and hazelnut shell also present. Hazel charcoal from (8029) was radiocarbon dated to AD 1388–1431, SUERC-47445.

Phase 9. The last phase of occupation is probably represented by layer (3037) since it abuts the later enclosure Wall [3011]. Layer (3037) contains charcoal of birch, hazel and oak, with no evidence for cereal grains.

A later layer of trample (8010) contains small quantities of birch, ash and oak charcoal, but the cereal assemblage contains a larger proportion of oats than has been seen previously in the sequence. This is indicative of a slightly later date for this layer.

Phase 10. During the post-abandonment phase, an accumulation of soil (3016) built up within the interior of the structure. This layer had a mixed charcoal assemblage, with a few cereal grains. The identifiable cereals were all barley and so this suggests that the soil may have come from an earlier phase of the occupation.

A layer of topsoil (3003) covering the possible *leacht* produced a significant quantity of carbonised material. The charcoal assemblage was very similar to that seen from the collapsed wattle and daub wall (3033), but with a higher proportion of Scots pine type. In common with the carbonised assemblage from (3033), the topsoil also produced a large concentration of carbonised cereal grain, dominated by barley. This suggests that soil derived from the interior collapse ended up covering the *leacht.*

9.2.2.2 The large enclosure bank and entranceway (Trench 10, Table 6)

Trench 10 was excavated through a large bank that surrounded the terrace on which the possible chapel and enclosure were located.

Phase 2. The layer of stones that defined the base of the bank was overlain by a cap of sub-angular stones with charcoal and bone within the deposit

(1007). The charcoal assemblage comprised small quantities of birch, hazel and oak, with no evidence for cereal grain. Hazel charcoal from (1007) was radiocarbon dated to AD 673–825, SUERC-47452.

Layer (1007) was sealed by a further layer of silt and stone (1005) that also contained the same assemblage of charcoal but with a single grain of *cf.* barley also present. The carbonised material in these two contexts is probably from earlier background scatter that became incorporated into the structure of the bank.

9.2.2.3 The longhouse and kiln-barn (Trench 4, Table 5)

Phase 5. Excavation uncovered a structure with a stone and earth wall and a bowed western end. It was suggested that the stone and earth wall had formed the foundations to a turf-walled structure. A stone-lined Kiln Bowl [4045] was located within the structure. The upper fill (4046) of the kiln contained a small amount of hazel charcoal and carbonised oat grains. In addition, were a few carbonised weed seeds, in particular corn marigold, which is a weed of arable crops. During excavation this was interpreted as the collapse of a turf superstructure. Beneath this collapse was a thin layer (4048) that contained very large quantities of cereal grain, with charcoal of birch and hazel. The cereal assemblage was almost entirely oats or *cf.* oats, with only a trace of barley present. The fill (4044) of the eastern end of the kiln flue also produced a charcoal assemblage of birch and hazel, but only traces of oats and barley grain. Carbonised oat grains from (4048) produced a radiocarbon date of AD 1117–1220, SUERC-47453.

Two post-holes were located against the outer Wall [4005] of the structure. The fill (4043) of Post-hole [4042] contained a similar mix of charcoal and cereal grain to that seen in contexts related to the kiln and so it is likely that the carbonised material in the post-hole had trickled down from these deposits.

Phase 8. Once the kiln was no longer in use, a curvilinear stone Wall [4007] was built over and through the flue. This wall enclosed a floor into which was set a possible Hearth [4013]. The fill (4014) of this feature contained hazel, birch and oak charcoal together with a significant number of cereal grains. The cereal assemblage comprised approximately 50/50 oats and barley.

Phase 10. Within floor layer (4025) was a concentration of charcoal (4023) that was thought to represent another hearth. However, the carbonised assemblage obtained from this feature was minimal, with small amounts of heather type and hazel charcoal and traces of hazelnut shell. This is not strongly indicative of hearth material.

A floor layer (4025) that was originally thought to be contemporaneous with the use of the kiln produced very different charcoal assemblages from the two different samples analysed. Sample 27 was similar in nature to the kiln and flue fills with hazel and birch charcoal and traces of carbonised oats. However, Sample 96 had a charcoal assemblage dominated by heather, with only a small amount of willow also present. Layer (4031) was interpreted during excavation as either the remains of a collapsed and burnt kiln superstructure or carbonised material from cleaning out of the kiln. As cereal grain was present in only trace amounts, it may be that (4031) and (4025) contain charcoal remaining after the burning of heathland turves since both heather and willow could have grown in that environment. Willow charcoal from (4031) was radiocarbon dated to AD 1479–1643, SUERC-47455.

Phase 11. The building may have been reused at a later date. The fill (4012) of a Hearth [4011] from this period produced only traces of birch and willow charcoal and so little can be said about this feature or its possible date.

9.2.2.4 The square enclosure and ditch (Trench 2, Table 3)

Phase 2. A curvilinear ditch [2005] lay below the stone walls that formed the square enclosure. The lowermost fill (2008) of the ditch contained a large quantity of oak charcoal with hazel and a trace of birch also present. Hazel charcoal from (2008) was radiocarbon dated to AD 441–638 (SUERC-47454). A very similar assemblage was also identified from fill (2007), which overlay (2008). It has been suggested that this ditch may have held some kind of wooden fence or palisade and the carbonised remains provide strong evidence for this suggestion.

The upper fill (2006) of the ditch contained a wide range of charcoal types together with a small cereal assemblage dominated by barley. It is more indicative of hearth waste or domestic debris than palisade or fence material.

9.2.3 Discussion

The charcoal assemblages from the site are interesting since they are very diverse and suggest that there were significant tracts of woodland available to the inhabitants of the area throughout the period of occupation. This is in contrast to mainland sites, which usually show a distinct lack of diversity in the wood available for fuel during the Early Historic period and particularly during the medieval period. On the mainland, oak is seldom seen as a general hearth fuel and appears to have been kept for industrial or structural purposes, whereas the evidence from Baliscate suggests that oak and ash woodlands were plentiful at the time of occupation and there was no particular selection of fuel types.

The other significant point for discussion is the sheer quantity of cereal grain that was recovered from the site, not just from the corn-drying kiln. Carbonised cereal grain was present in the majority of the samples, with many contexts containing hundreds, if not thousands of grains. It was notable that there was almost no evidence for chaff or weed seeds within this grain, which suggests that cereal processing was undertaken elsewhere and that only fully cleaned grain was stored or used on the site. There does appear to be a shift in the dominant cereal type between the earlier and later contexts. Barley, including the hulled variety, is by far the commonest type present in the earlier contexts, with any oats probably just representing a weed component of the main cereal crop. By the later period of occupation, oats had become much more common and in some contexts, (4048) for example, dated to AD 1117–1220, were overwhelmingly dominant. In mainland Scotland this shift from barley to oats usually takes place during the Early Historic period (Dickson & Dickson 2000) and the radiocarbon dates for Baliscate suggest that this site follows a similar pattern to that seen on mainland sites. It appears to be unusual that a chapel site should produce such a huge amount of carbonised cereal grain and it might suggest that cereals were stored here or that significant numbers of people needed to be fed.

9.3 Analysis of human remains

Angela Boyle

9.3.1 Introduction

A small group of inhumation burials was excavated during August and September 2012 by Argyll Archaeology. Quantities of burnt bone were also recovered from a variety of contexts and these have been analysed. The results appear in the full archived report. A few fragments of unburnt animal bone were found within the burnt material. The earliest activity on the site is Bronze Age in date, although the inhumations belong to an early Christian burial ground in which infants, children and adults were buried. Earlier evaluation by *Time Team* in 2009 also uncovered human remains and these are incorporated in this report (Wessex Archaeology 2010).

9.3.2 Methodology

All skeletal remains were examined in accordance with national guidelines (Hillson 2005; Mays et al 2002; Brickley and McKinley 2004). This involved scoring bone condition, fragmentation and completeness; biological sex and age; non-metrical assessment and recording pathology and trauma. Bone condition was classified after McKinley (2004: 16) and levels of fragmentation, as either 'high' (most bones are fragmented), 'medium' (moderate fragmentation) or 'low' (slight fragmentation). For the skeletons, completeness was indicated by assigning them to one of four categories: 0–25%, 26–50%, 51–75%, 76–100%. The uniformly poor level of bone condition, fragmentation and completeness prevented assessment of ancestry, estimation of stature, the calculation of skeletal indices and non-metrical assessment.

Biological sex was estimated by examining standard features of the skull (Ferembach et al 1980; Buikstra and Ubelaker 1994; Schwartz 1995) as there was no surviving pelvic material. Skeletons were recorded as male, probable male (male?), or indeterminate depending on the degree of sexual dimorphism of features. Age estimates were assigned to the skulls by observing dental attrition (Miles 1962; Brothwell 1981: 72), cranial suture closure (Meindl and Lovejoy 1985), dental eruption and development (Van Beek 1983). Cranial suture

closure was only used as a secondary indicator of age because it is widely considered to be unreliable (for example, see Key et al 1994; Cox 2000; Lynnerup and Jacobsen 2003).

9.3.3 Quantification and preservation

Preservation of the assemblage was uniformly poor due to the acidic nature of the soil. It was extremely difficult to identify grave cuts within the burial ground due to the density of graves, the high degree of intercutting and the poor preservation of bone. The preservation of burnt bone is better as the bone has been completely calcined which renders it much more resistant to decay and other taphonomic processes (Holst 2004). The unburnt animal bone is also poorly preserved.

9.3.3.1 Inhumations

In every case, bone condition was classified as level 4 (all of bone surface affected by erosive action; general profile maintained and depth of modification not uniform across the whole surface) or 5 (heavy erosion across whole surface, completely masking normal surface morphology with some modification of profile). The level of fragmentation was high and completeness was 0–25%.

Two inhumations were excavated by *Time Team* and examined as part of this analysis. Grave (120) which contained Skeleton (122) was described as extending beneath the eastern wall (105) of the later stone phase of the possible chapel and was sealed beneath floor surface (118), also associated with the stone phase (Wessex Archaeology 2010: 7). The skeletal remains (122) were subjected to radiocarbon dating (see Table 1). The human remains from grave (120) comprised fragments of skull vault and one tooth (crown only), all very fragile and degraded. The skull sutures are unclear but appear to be unfused; the individual has been aged as juvenile or subadult (*c* 10–15 years) on the basis of tooth wear (Wessex Archaeology 2010: 12). On the southern side of the possible chapel, against the remains of wall (104), a number of inhumation graves were found, although only two were excavated: grave (123), containing skeletal remains (124), and empty grave (132) (Wessex Archaeology 2010: 8). Three further probable inhumation graves were observed but not excavated, comprising (141) and (143), and possible cist grave (134) with stone lining (135).

In 2012, human remains were recovered from a total of nine graves (see below). Due to poor preservation it was only possible to determine the sex of a single individual. Skeleton (3109), Grave Cut [3099], was identified as a probable male aged upwards of 45 years. Four skeletons were assigned to the broad adult category, in other words upwards of 18 years (Skeletons 3045/[3042], 3050[3040], 3055/(123)=[3117] and 3074/[3075]). Skeleton (3118) was identified as a subadult and the remaining three skeletons (3028, 3056 and 3068) could not be aged or sexed.

One of the better preserved skeletons was (3109) within Grave Cut [3099] which was filled by (3100). The grave was orientated WNW-ESE and measured 0.26m in depth. The grave fill contained charcoal. Three large stones were located at the head end of the grave. The central stone (3518) was laid over the skull of (3109). The stone (SF3517) on the southern edge of the grave cut may have been carved, although these marks were subsequently identified as plough score marks (Cruickshanks pers comm). Grave [3099] is cut by Grave [3030] and in turn cuts [3040], [3114] and probably [3090].

Skeleton (3109) was probably supine extended and the head was turned to face north. Only bone which lay directly below the head stone was preserved to any degree. Surviving bone comprised maxilla, mandible, dentition and cervical vertebrae 1–6. The remains have been very tentatively identified as a possible male based on the mandibular ramus angle. An age estimate of 45+ years is based on advanced molar attrition. Carious cavities were present on the mesial surfaces of the upper-right maxillary third molar and the lower-right mandibular second. Both were medium sized and located immediately above the cemento-enamel junction. Periodontitis was classified as grade 3–4 (Ogden 2005). Spinal degenerative joint disease was present on CV2–CV6.

A small number of highly degraded skull vault fragments (3118) were revealed when *Time Team* backfill was removed. This is probably their grave (120) containing Skeleton (122), which was described as follows: skull vault fragments and one tooth crown, sutures unfused, juvenile or subadult (*c* 10–15 years) on basis of tooth wear.

9.3.4 Radiocarbon dating

The skeletal remains (122) excavated by *Time Team* were subjected to radiocarbon dating and produced a calibrated date of AD 610–90 (UB-12555, 1365±29 BP, 2 sigma, 93.9% probability) (Wessex Archaeology 2010: 27). The burial was thought to be associated with an earlier turf and wattle phase of the possible chapel, predating the stone-built structure.

Skeleton (3109) produced a radiocarbon date of AD 659–725 (SUERC-47461). Skeleton (3050) produced a radiocarbon date of AD 680–870 (SUERC-47462). All three dates place these burials within the early Christian phase of activity on the site.

9.3.5 Burial practice

Graves were aligned broadly west-east and where there was sufficient bone surviving it was possible to determine that the head was located at the west end as would be expected in burials of this period. There is evidence to suggest that Skeleton (3074) was buried in a supine extended position, again normal practice for the period in question. Skeleton (3050) was probably supine extended. The head lay forward with the chin on the chest. Fragments of skull, left scapula and left humerus were all that survived due to the presence of a stone slab on top of the bones. The remains were those of an adult of uncertain sex who was aged upwards of 18 years. A single iron nail (SF3455) was recovered adjacent to the tibia of Skeleton (3045) and this may indicate that one individual at least had been buried in a wooden coffin. There are no surviving shroud pins and it is possible that the deceased were wrapped in plain shrouds without the use of any fastenings.

The presence of stones in certain graves is noteworthy. At the Pictish monastery of Portmahomack, burials with stones around and above the head were described as head support or pillow burials and radiocarbon dates are comparable with Baliscate (Carver 2008: 76, 207). Burial 40 from Portmahomack (ibid: fig. 4.6) was very similar to Grave [3099], where there was a stone at either side of the head and one resting on top of it.

Catalogue of human remains

▸ **Context (3028)**

Context (3028) was the fill of Post-hole [3029].

Completeness: 0–25% (two fragments of probable upper-right premolar crown)

Bone surface condition: 4

Fragmentation: high

Age category: ?

Sex: ?

▸ **Grave [3040]**

Grave fill (3041), Skeleton (3050). Rectangular grave cut with slightly curved southern edge (1.54 x 0.41 x 0.25m). Oriented WNW-ESE. Probably supine extended with chin on chest. Grave partly lined. Cut by Grave [3091]. Disarticulated remains comprised dentition suggesting an infant of 4–8 months. This could be the possible cist grave (134) identified by *Time Team*.

Completeness: 0–25% (parietal, occipital, 2 premolars, left and right petrous, left scapula and left humerus)

Bone surface condition: 5

Fragmentation: high

Age category: adult (18+ years)

Sex: ?

▸ **Grave [3042]**

Grave fill (3043), Skeleton (3042). Aligned ?west-east. An iron coffin nail (SF3455) was located next to the left tibia.

Completeness: 0.25% (midshaft of left tibia, unidentified spongy bone)

Bone surface condition: 4

Fragmentation: high

Age category: ?adult (18+ years)

Sex: ?

▸ **Context (3055) (SF3472)**

Found in *Time Team* backfill close to western edge of Trench 1/3. Probably from *Time Team* grave (123) which featured in the programme but was not included in the report. The remains discovered in a finds box were labelled 'small find 99, 7/503' and comprised three tooth crowns (a possible upper-

right second premolar, upper-left second molar and an unidentified fragment). All occlusal surfaces showed some attrition.

Completeness: 0–25% (crown of probable upper-left second premolar, unidentified tooth crown fragments, highly fragmented anterior body of sacrum)

Bone surface condition: 4

Fragmentation: high

Age category: ?adult (18+ years)

Sex: ?

▸ Context (3056)

Context 3056 was the fill of Post-hole [3057].

Completeness: 0–25% (small fragments, nothing identifiable)

Bone surface condition: 4

Fragmentation: high

Age category: ?

Sex: ?

▸ Grave [3069]

Grave fill (3063), Skeleton (3068). ?Cut by Grave [3081], cuts Grave [3076], which was not excavated. Highly degraded.

Completeness: 0–25% (unidentifiable fragments of dental enamel, long-bone shaft fragments)

Bone surface condition: 4

Fragmentation: high

Age category: ?

Sex: ?

▸ Grave [3075]

Grave fill (3073), Skeleton (3074). Skull and right leg visible largely as staining. Suggests supine extended position. Oriented west-east. Much of bone disintegrated on lifting.

Completeness: 0–25% (possible long-bone fragments, small fragment of mandible with two molars)

Bone surface condition: 4

Fragmentation: high

Age category: adult (18+ years)

Sex: ?

▸ Grave [3099]

Grave fill (3100), Skeleton (3109). Charcoal in fill. Three large stones were located at the west end of the grave, two either side and a third, (SF 3518), lying over the remains of the skull. One of the stones, (SF3517), may have been carved. It was located on the southern edge of the west end of the grave. Possibly supine extended. Oriented WNW-ESE with head turned to north. Grave cut by Pit [3030], Cuts [3040], [3114] and possibly [3090].

Completeness: 0–25% (maxilla, mandible, dentition, cervical vertebrae 1–6)

Bone surface condition: 5

Fragmentation: high

Age category: older adult (45+ years)

Sex: m?

Dental pathology: 2 medium carious cavities affect lower-right second molar and upper-right third molar, periodontal disease grade 3–4, marked attrition

Skeletal pathology: spinal degenerative joint disease; odontoid peg of CV2 has moderate lipping and contour change; grade I marginal osteophytes on superior and inferior bodies of CV3–4 and 6; grade II marginal osteophytes on superior and inferior body of CV6

▸ Grave [3116]

Grave fill (3117), Skeleton (3118). Oriented NW-SE. This is grave 120 which was excavated by *Time Team*. The remains were extremely degraded and comprised skull vault, right petrous, temporal and an incompletely formed upper-right second molar. A radiocarbon date from the skeleton was 610–90 cal AD.

Completeness: 0–25% (skull vault fragments)

Bone surface condition: 4

Fragmentation: high

Age category: subadult

Sex: n/a

9.4 The pottery

Derek Hall, George Haggarty and Dr Richard Jones

9.4.1 Introduction

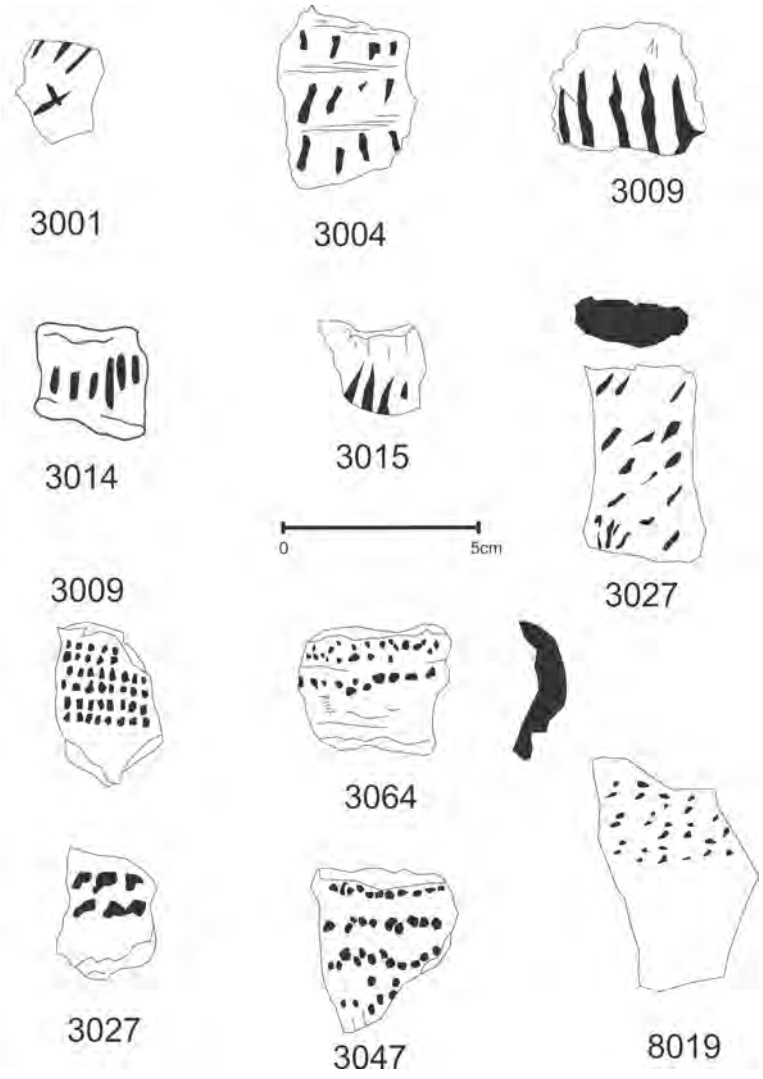
The assemblage of pottery from the Baliscate excavations of 2009 (*Time Team*) and 2012

(Argyll Archaeology) produced 481 sherds, dating from the medieval period through to the 19th century. The assemblage of handmade and wheel-thrown ceramics of probable medieval date was catalogued and examined by Derek Hall, the small assemblage of industrial pottery was catalogued and examined by George Haggarty. Where possible, accepted fabric names have been assigned and all identifications have been done visually using a x10 hand lens. Samples of handmade wares and Scottish mainland wares from the 2012 excavations were chemically sourced and analysed using ICPMS by Dr Richard Jones of Glasgow University.

9.4.2 Handmade wares (Illus 32)

This assemblage is dominated by sherds of the widespread Scottish west coast, Highlands and Islands handmade fabric tradition, numbering 387 sherds (80%) (Cheape 1993). The 2009 *Time Team* excavation produced 22 sherds and the 2012 Argyll Archaeology excavations produced 365.

This fabric at Baliscate is commonly red-brown in colour and highly micaceous with white quartz inclusions. Although this group is very fragmentary and it has not been possible to reconstruct any vessel profiles, the rim sherds and basal angles present suggest that vessels used for cooking would appear to be the most common vessel type represented.



Illus 32 Selection of different decorative 'slash and stab' styles on handmade wares by context (3027 is a strap handle, 3047 and 3064 are rim and neck sherds possibly from the same vessel)

This seems to be backed up by the fact that many of the sherds also have carbonised external surfaces. Interestingly, a single strap handle from Context (3027) (Finds Number 3352) suggests that an attempt was also being made to make handled vessels; a radiocarbon date from this context gives a date of AD 1391–1441 (SUERC-47450) for this handle fragment.

Of most interest is the variety of decorative styles present in this assemblage (Illus 32). These are represented by both incised slashed lines and stabbed holes and are present on both vessel bodies and the tops of rims, as well as a single example of a strap handle in this fabric which is decorated with slashed lines (discussed above). Such 'slash and stab' decoration has been previously recorded from both excavations and finds retrieval from sites on the islands of Coll, Gunna and Lewis and it is suggested it dates to the 16th and 17th centuries (Turner and Dunbar 1969–70; Crawford 1997; James 1998; Burgess et al 1998). Such a dating framework is based on the presence of associated datable imported wares and as such cannot be regarded as absolute. In his PhD, Dr John Raven does suggest that a 15th-century date might be more likely for these decorative styles and stresses the need for further excavation to clarify this (Raven 2005: 378).

The rim sherd and body sherd decorated with stabbed holes from Baliscate are best paralleled by sherds from Breachacha Castle, Coll (Turner and Dunbar 1969–70: Fig. 13 cats 11 and 12). In addition, recent analysis and cataloguing of the finds from Charles Thomas's excavations on Iona has located a rim sherd with similar decoration (Hall and Haggarty 2013; Illus 32 this report). It has been suggested that this decoration is created by using the end of a bird bone (E Campbell pers comm). This style of decoration has been dated to the 15th/16th century at Breachacha Castle due to its apparent association with sherds of Rhenish Stoneware (Turner and Dunbar 1969–70: 182), however, the contexts producing the two sherds from Baliscate produced radiocarbon dates calibrating at AD 1221–81 and AD 1252–1306 respectively, suggesting a significantly earlier date. Another of the decorated sherds has stabbed holes that are square rather than circular (3009, FN3055), suggesting the use of a different tool; a similar style of decoration is present in the assemblage from Gunna (H James pers comm). Also unusual is a decorated sherd that has 'steps' that run around the vessel (3009, FN 3207). This group also contains 10 sherds from Contexts (3009), (3012), (3084), (4003), (4031), (4035) and (8016) which look like transitional fabrics between the handmade and mainland redwares. A similar transitional fabric was also recorded in the assemblage of handmade wares from the excavations at Portmahomack, Tarbat, Highland Council (Hall 2009). Chemical sourcing (ICPMS) of ten sherds in this fabric from Baliscate produced results that suggest the use of many clay sources (see below).

9.4.3 Mainland Scottish fabrics

Thirty-eight sherds in this assemblage are from vessels that were visually identified as being in fabric types (Scottish white gritty wares and Scottish redwares) that have been previously identified as being manufactured on the Scottish mainland (Hall 1998). These are all from splash-glazed vessels, probably jugs, and include parts of a thumbed basal angle from *Time Team* 2009 (101) and Argyll Archaeology 2012 season (3038). Chemical analysis of 10 sherds of these fabrics suggests that a source in the Clyde Valley, probably Glasgow, was the production site. The vessels from Baliscate would appear to date to the late 14th/early 15th century.

9.4.4 Unidentified

There are three sherds from Contexts (3009), (3015) and (3047) in the 2012 season which are in a white fabric which it has not been possible to provenance. These are also thought to be of a medieval date (E Campbell pers comm).

9.4.5 Chemical sourcing

Dr Richard Jones

Twenty samples of pottery (Table 8) were selected for analysis by Derek Hall from Wessex Archaeology's excavations at Baliscate on Mull (Wessex Archaeology 2010) and Argyll Archaeology's follow-on excavations of 2012. In addition, three local clays from the vicinity of the site were investigated. Chemical analysis by inductively-coupled plasma emission and mass spectrometry (ICP-ES and MS) was carried out in May 2013, using the same

Table 8 Samples from *Time Team* excavations, OGT organic tempered ware (handmade tradition, transitional red/OGT fabric that appears to be in between handmade and redware fabric tradition)

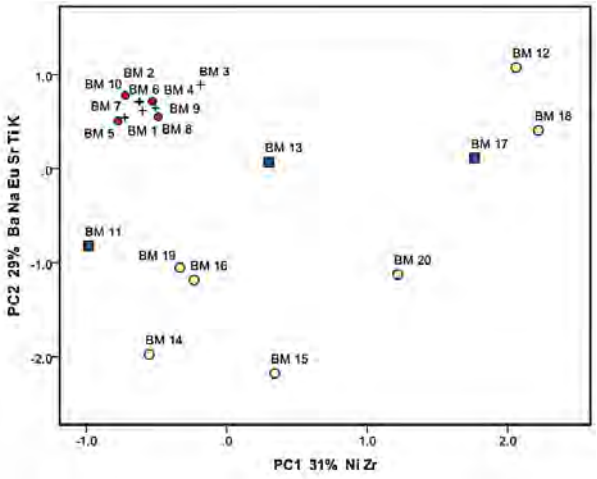
Sample	Context	Find no.	Fabric
1	101 (TT)	7	Mainland fabric
2	3004	3013	Mainland fabric
3	3006	3239	Mainland fabric
4	3038	3434	Mainland fabric
5	3009	3120	Mainland fabric
6	3009	3053	Mainland fabric
7	8006	8018	Mainland fabric
8	3012	3244	Mainland fabric
9	101 (TT)	2	Mainland fabric
10	101 (TT)	9	Mainland fabric
11	101 (TT)	1	Transitional Red/Handmade
12	3001	3043	Handmade
13	3009	3082	Transitional Red/Handmade
14	3015	3469	Handmade
15	3035	3406	Handmade
16	3039		Handmade
17	4003	4016	Transitional Red/Handmade
18	4025	4035	Handmade
19	8013	8041	Handmade
20	8042	8092	Handmade
Clays	Location and Description		
Clay 1	Stream bank 300 yds W of chapel site. Fine, quite plastic; on firing at 800 C, the briquette was rather brittle and had a distinctly silty feel. Bright red colour: 5YR 5/8		
Clay 2	Stream bank 100 yds SW of site. Brown clay with very little plasticity. Not investigated further.		
Clay 3	¾ mile E of chapel site near modern road. Similar to Clay 1. Colour more orange-red.		

technique (for ICP-ES) and methodology as that described by Jones et al 2003.

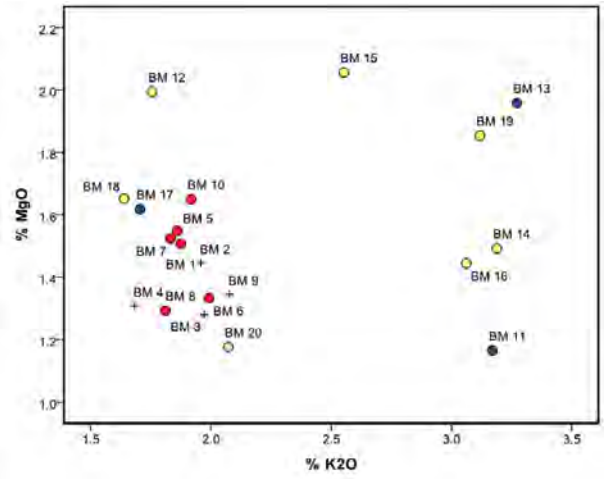
The aims of the analyses were to determine the source(s) of the supposed mainland redwares and whitewares and to explore the relationship between the handmade and the transitional redware and handmade wares.

The samples, together with standards, were analysed at the Earth Sciences Department, Royal Holloway College, University of London, Egham. The composition data consisting of the concentrations of 32 elements were treated using the SPSS PC statistical package (v. 19).

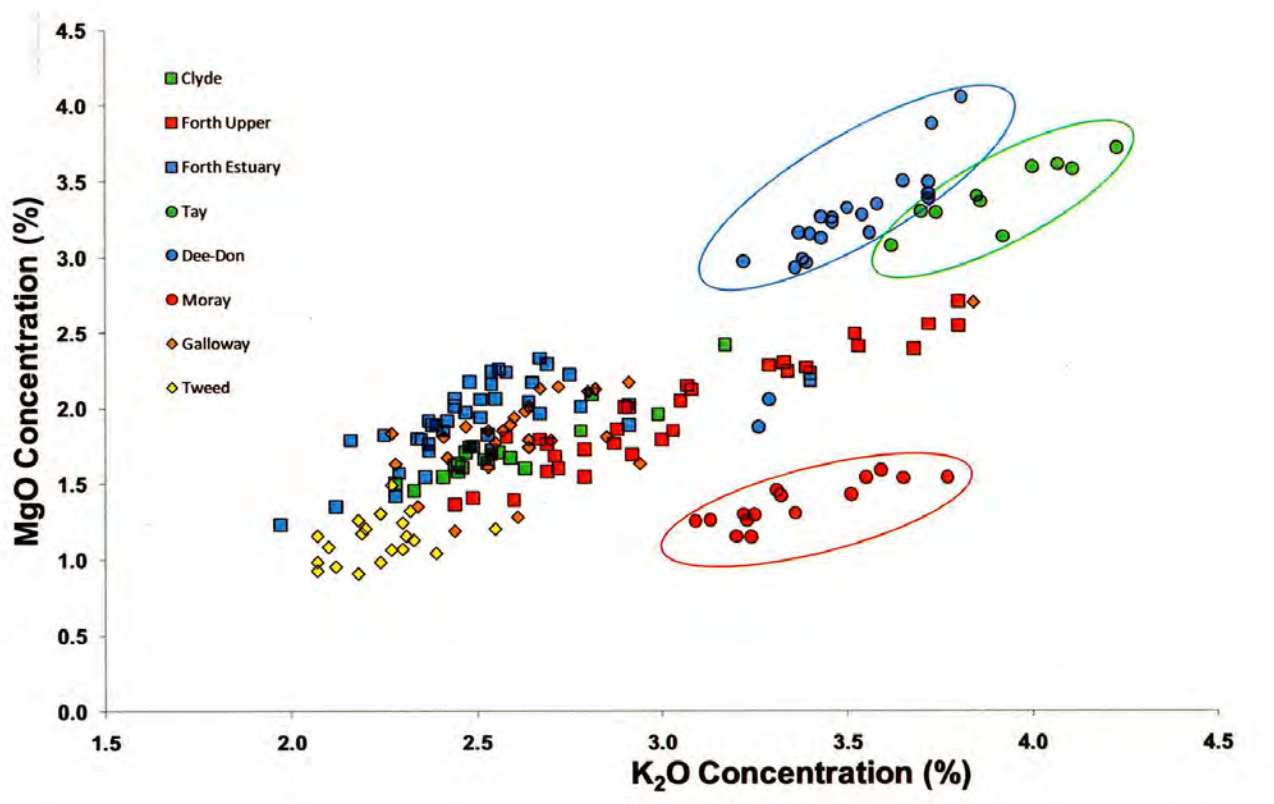
The mainland fabric samples, 1–10, have uniform compositions characterised by the following features: low Mg, Ca, K, Na and Mn (oxide) contents, medium to high Fe (oxide) content and high (oxide) Ti content. The Fe content strongly suggests that 1–10 are all redwares. Their overall uniformity is well apparent in the multivariate treatment of the composition data by principal components analysis; in Illus 33, which



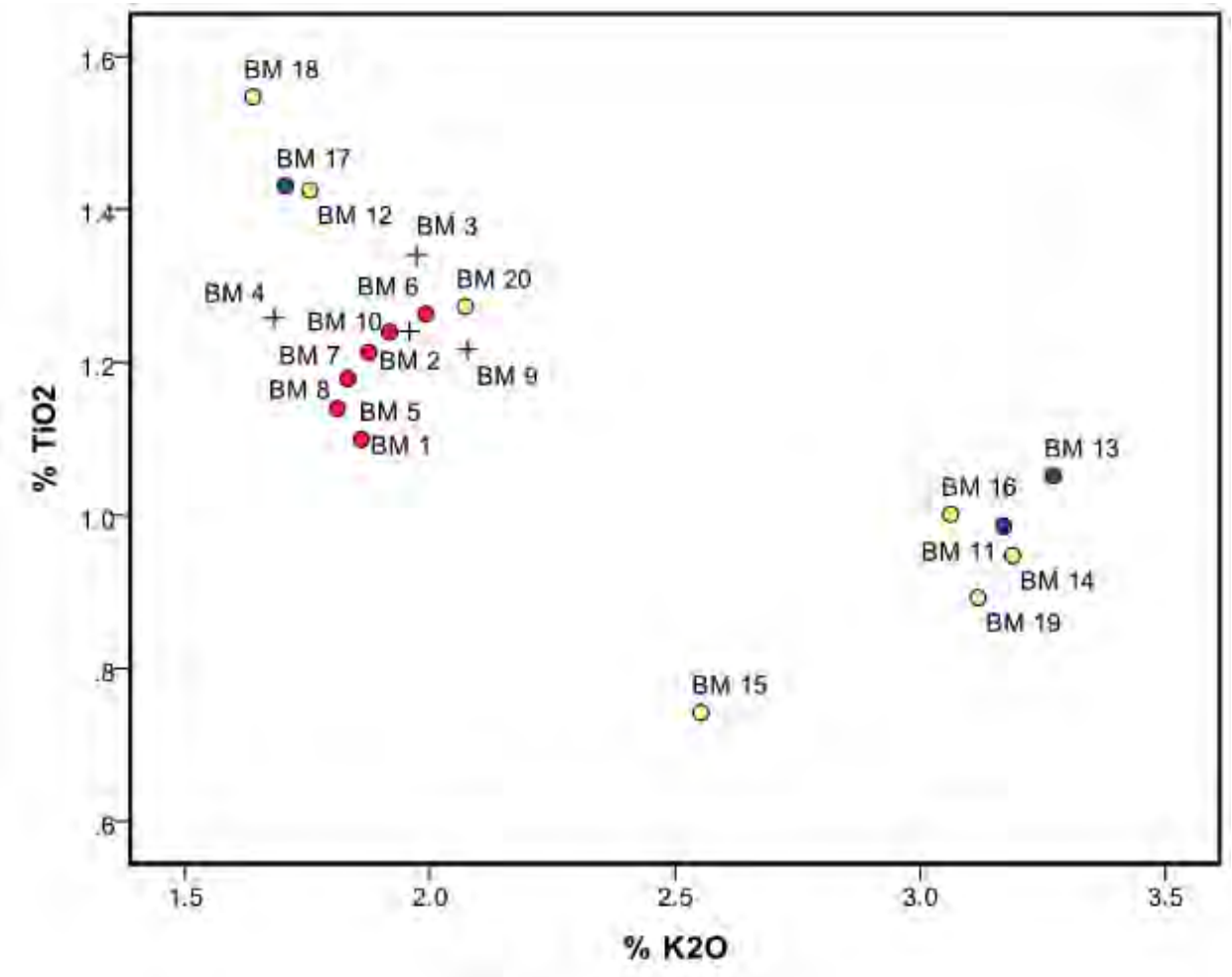
Illus 33 PC plot of the composition data (all elements except P and Pb). Whiteware = cross; redware = red circle; OGT = Yellow circle; Transitional OGT = blue square/circle



Illus 34 Plot of magnesium oxide vs potassium oxide. The colour coding is the same as in Illus 33



Illus 35 Plot of magnesium oxide vs potassium oxide in redware groups across Scotland. From Haggarty et al 2011, fig 45



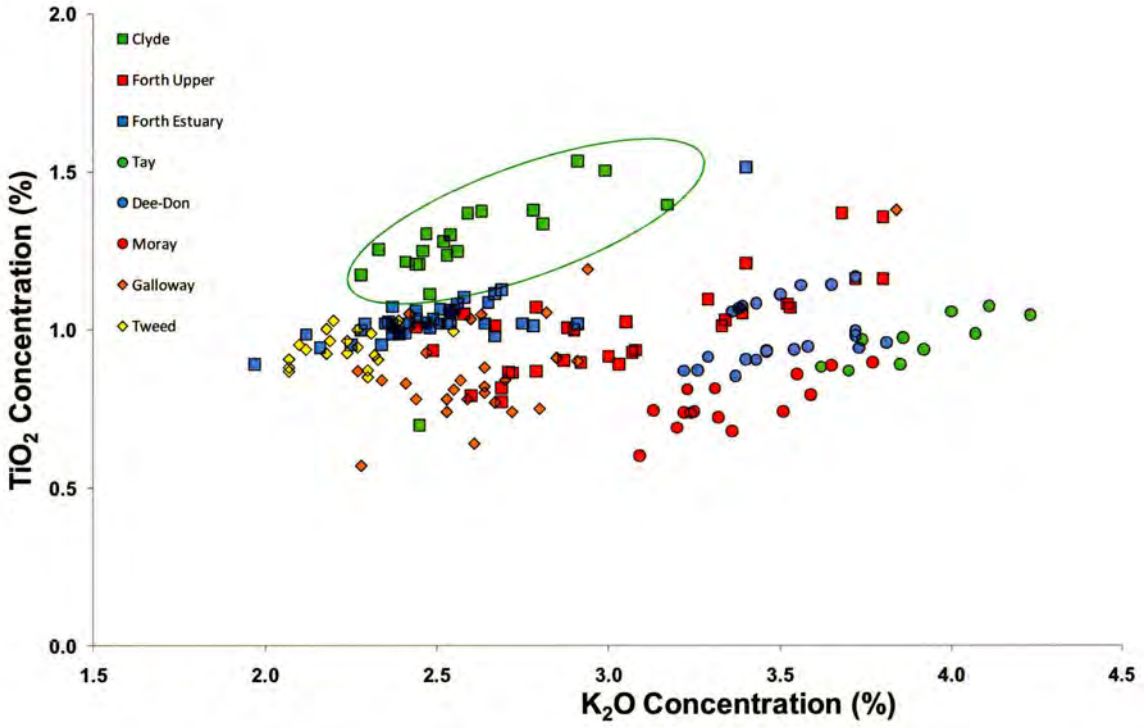
Illus 36 Plot of titanium oxide vs potassium oxide. The colour coding is the same as in Illus 33

is a graphical presentation of that analysis, 1–10 cluster closely together, suggesting they could all be from the same source.

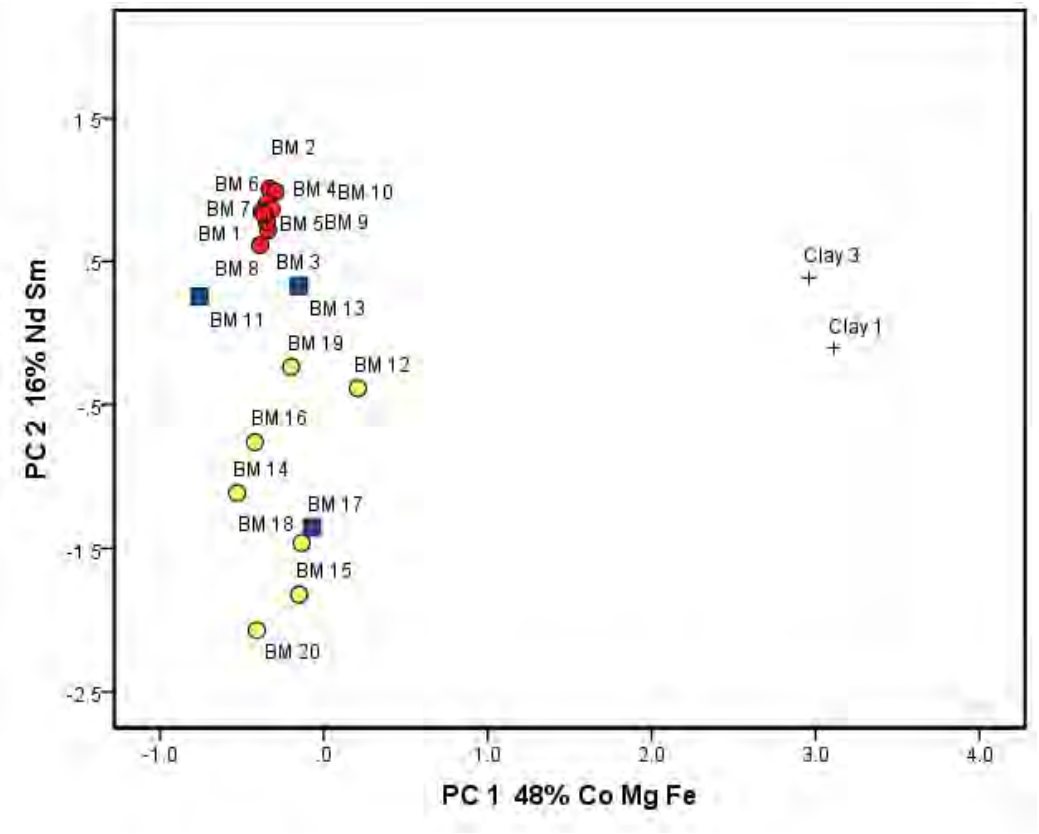
The low Mg-K contents, which are shown graphically in Illustration 34, can be compared with the corresponding data for redwares from known centres in Scotland (Haggarty et al 2011) in Illus 35. This comparison indicates that 1–10 do not relate to any of the redware groups, with the possible exception of the Tweed group (which comprises pottery from Kelso).

The feature of high Ti is more informative as Illus 37 indicates that this is shared by redwares from the Clyde region. It is an interesting find that fabric samples 12, 17, 18 and 20 also have high Ti. Looking through the redware database in Haggarty et al (2011), there is a reasonable match with the individual compositions at Glasgow Gallowgate, although discrepancies are noted in Rb and Zr, which are higher and lower respectively in the Glasgow material. The Tweed can probably be excluded as the redwares there have lower Fe and Zr and higher K and Rb contents than 1–10. For the moment, then, on the basis of the comparative data available, the Clyde is surely a candidate source region for 1–10 and their production in Glasgow is possible.

As for the handmade ware, it is immediately striking from Illustrations 33 and 34 (coded yellow and blue) how disparate their compositions are. This could mean that they were made either at more than one, as yet unknown location (Illus 35 might suggest two locations), or from a poorly standardised clay. That they were not made of local red clays (1 and 3 in Table 8) is certain as Illus 37 clearly indicates how different the clays and the pottery are in composition. The former are remarkably rich in iron and titanium.



Illus 37 Plot of titanium oxide vs potassium oxide redware groups across Scotland. From Haggarty et al 2011, fig 46



Illus 38 PC plot of the composition data (all elements except P and Pb).
Mainland fabric red circle; Handmade wares = yellow circle; Transitional Hand Made wares = blue square/circle; Modern clay samples = cross

9.4.6 Industrial ceramic report

George R Haggarty

The 37 standard white earthenware sherds recovered from the site of Baliscate on the Isle of Mull almost certainly derive from a minimum of six small vessels, all of which date from the second half of the 19th century. There is no reason why any of these six vessels, comprising cups, small bowls and a small creamer, should be anything more than debris from Victorian picnics or shooting parties, with the former being the most likely. These are not high-status wares by any measure, being, in general, typical of the ceramics recovered both from excavations on Scottish urban working-class homes and rural sites of the period. There is also no reason why the six vessels should not all be products of the large number of important Victorian industrial potteries working in and around Glasgow at this period. This dominance is due in no small measure to the important part played in the north-west coastal trade by small puffers trading mainly out of Greenock. Certainly, the colour of the lustre on the cup is reminiscent of that seen on the wares recovered on the site of the Verreville pottery (Haggarty 2007: CDRom Word file 15). Ongoing research by the author also suggests that lustre decoration similar to that seen on the creamer was far more common on Scottish pottery than was previously thought (ibid: Word file 16).

The two late Victorian basal angle sherds in a buff, slightly gritty fabric are almost certainly from a globular-shaped teapot (7) covered on its interior with a brown Rockingham glaze. These sherds do not look like a typical Scottish fabric, which is interesting. Although a number of potteries in the Clyde littoral, such as Caledonian, did produce Rockingham-glazed wares, evidence gleaned from excavations at High Morlaggan, a site on the banks of Loch Long near Arrochar, may suggest that in the west, Glasgow products were not the preferred choice (Haggarty 2012). Of the 737 Rockingham-glazed sherds, from in excess of 22 teapots recovered from High Morlaggan, all those identified by mark or published patterns (Haggarty 2010: Word files 40–82) were products of the Belfield pottery in Prestonpans. This is interesting as it might suggest that people on the west coast were prepared to pay premiums for examples from further afield and it is probable that the Baliscate sherds are a product of an English pottery.

The small abraded redware rim sherd (8), from Context (3016) is probably from a plate or dish *c* 240mm in diameter. It has been white slipped on its upper surface and has traces of sgraffitto decoration and is probably 18th century in date. The fabric is not typical of Scottish material, so again an English source is suggested.

9.5 The vitrified material

Gemma Cruickshanks

9.5.1 Summary

During excavations at Baliscate, 6.5kg of vitrified material was recovered. Vitrified material can be produced during a range of high-temperature processes including industrial activities (eg metalworking), domestic hearths and accidental fires. The assemblage from Baliscate is dominated by ironworking debris (6.3kg), with diagnostic fragments indicating both iron smelting and blacksmithing were taking place on the site. A small amount of undiagnostic vitrified material (0.2kg) was also recovered, which may have formed during a variety of pyrotechnic processes. The assemblage is primarily from secondary contexts, making dating the material difficult, but small amounts are from contexts dated to both the Early Historic and medieval periods. It seems likely that ironworking took place on a small scale, intermittently throughout the use of the site.

9.5.2 Classification (see Table 9)

The material was visually examined and catalogued using common terminology (eg Crew and Rehren 2002; McDonnell 2007; Paynter 2002) based upon characteristics such as size, morphology and density. Slags diagnostic of both the smelting and smithing stages of the ironworking process were recovered.

The 1.3kg of smelting slag comprises typically large, dense fragments with frequent large voids and charcoal impressions. The amorphous shape of many of the smelting slag fragments suggests they were raked out of the furnace whilst still soft, rather than being left to cool in the furnace base. It is not clear what type of ore (eg haematite or bog iron

Table 9 Summary of vitrified material assemblage

Material Type	Weight (g)
Diagnostic	
Smelting slag	1292.1
Smithing hearth base	2489.9
Runned slag	44.2
Iron slag and vitrified ceramic amalgam	380.6
Unclassified iron slag	2139.1
Undiagnostic	
Fuel ash slag	83.7
Vitrified ceramic	111.9
Total	*6541.5*

ore) was being smelted at Baliscate as no fragments were recovered.

The evidence for blacksmithing comprises six smithing hearth bases (SHB), weighing 2.5kg. SHBs are plano-convex accumulations of iron slag which form in the smithing hearth. Similar plano-convex slag cakes can form in a furnace base but are larger and denser than SHBs. Two particularly good examples of SHBs (SF3326 and SF3399) have smooth, melted upper surfaces with slight hollows where the air from the bellows hit the surface. One example (SF4007) is a typical SHB but unusually has a tapering, rectangular impression across the upper surface. This must have formed whilst the slag was still hot; perhaps an object of this shape was placed in the hearth in contact with the SHB. If so, this is a rare glimpse of what type of object was being smithed – in this case a tapering rectangular bar, maybe a blank to be turned into a more recognisable artefact.

A small amount of runned slag (44.2g) was collected, with a characteristic smooth, molten appearance. This type is commonly referred to as 'tap slag' and thought to be diagnostic of smelting (eg McDonnell 1994: 229; Starley 2000: 338), but these fragments are so small they could have formed during either smelting or smithing.

As is normal for assemblages of ironworking debris, there are also many fragments of unclassified iron slag (2.1kg) which are too small and fragmentary to be diagnostic of a particular part of the ironworking process (ie smelting or smithing). Likewise, the fragments of vitrified ceramic and iron slag amalgams (380.6g) from the clay-lined wall of a smithing hearth or smelting furnace are too fragmentary to identify more closely.

Small amounts of undiagnostic vitrified material were also recovered. Fuel-ash slag (83.7g), formed by high-temperature reactions between fuel-ash and silicates such as clay or sandy soil, and vitrified ceramics (111.9g) can be produced during a range of high-temperature processes and may or may not be related to the ironworking activity.

9.5.3 Context

The vitrified material was recovered from a wide range of contexts in over half of the trenches across the site (see Tables 9 and 10). Most came from Trenches 1/3 and 4. Small amounts collected from secondary contexts in Trenches 2, 2b, 8 and 10 do not represent in situ ironworking but debris which has become disturbed and dispersed throughout the long use of the site.

Although no in situ ironworking features were excavated (ie smelting furnaces or smithing hearths), the concentration of ironworking debris in Trenches 1/3 and 4 indicate two likely foci for ironworking.

Ironworking technology changed little from the early Iron Age to the advent of blast furnace technology in the post-medieval period. As such, the debris is not chronologically diagnostic in its own right and relies on a securely dated context. At Baliscate, a small amount of undiagnostic iron working debris was recovered from a ditch fill

Table 10 Summary of vitrified material by trench (SM smelting; SHB smithing hearth base; RS runned slag; AM iron slag and vitrified ceramic amalgam; US unclassified slag; FAS fuel ash slag; VC vitrified ceramic)

	Vitrified Material (g)							
Trench	SM	SHB	RS	AM	US	FAS	VC	*Total*
1/3	1098.5	1163.9	22.5	380.6	1758.5	74.8	111.9	*4610.7*
2	-	-	-	-	238.5	8.9	-	*247.4*
2b	193.6	-	21.7	-	21.6	-	-	*236.9*
4	-	1326	-	-	12.7	-	-	*1338.7*
8	-	-	-	-	104.7	-	-	*104.7*
10	-	-	-	-	3.1	-	-	*3.1*
Total	*1292.1*	*2489.9*	*44.2*	*380.6*	*2139.1*	*83.7*	*111.9*	*6541.5*

radiocarbon dated to the sixth to seventh century AD (Phase 2, (2007) & (2008)), placing it within the Early Historic period.

The ironworking debris recovered from Trench 4, including three SHBs, is all from contexts, (4002, 4015, 4022, 4041), related to the later reuse of the kiln-barn structure during the medieval period. This indicates blacksmithing was taking place in the vicinity during the medieval period.

9.5.4 Summary and discussion

Both iron smelting and blacksmithing took place at Baliscate in the past. The smelting debris is all from disturbed or unstratified contexts, and it is unclear when this activity was taking place. Some of the smithing hearth bases are associated with the medieval reuse of the kiln-barn. A small amount of undiagnostic ironworking debris comes from the Early Historic phase of the site, though it is unclear whether this was from smelting, smithing or both.

The assemblage is small, and does not indicate intensive ironworking. It seems likely that intermittent, small-scale ironworking was taking place on the site throughout its long use. No other evidence of early ironworking on Mull is known to the author, although there has been little excavation on the island. Ironworking and other crafts are commonly associated with early ecclesiastical sites elsewhere, for example, on neighbouring Iona (Barber 1981: 349); Inchmarnock, Argyll and Bute (Lowe 2008: 202); Portmahomack, Ross and Cromarty (Carver 2008: 133, 139) and Whithorn, Dumfries and Galloway (Hill 1997: 27, 37, 67).

9.6 The ironwork

Gemma Cruickshanks

9.6.1 Summary

An assemblage of 79 iron objects was recovered during excavations at Baliscate (summarised in Table 12). Nails and fittings dominate the assemblage and provide clues about wooden structures and objects. Many of the nails have curved shanks indicating their removal and therefore the dismantling of a timber building. Other objects include a knife and tool fragments, providing a glimpse of craft activity on the site. As is often the case with iron artefacts, few are chronologically diagnostic, but the stratified assemblage is in keeping with an Early Historic to medieval date.

The whole assemblage was X-radiographed, which maximised object identification. A full catalogue of the ironwork is in the archive; the nails and modern material are only summarised here.

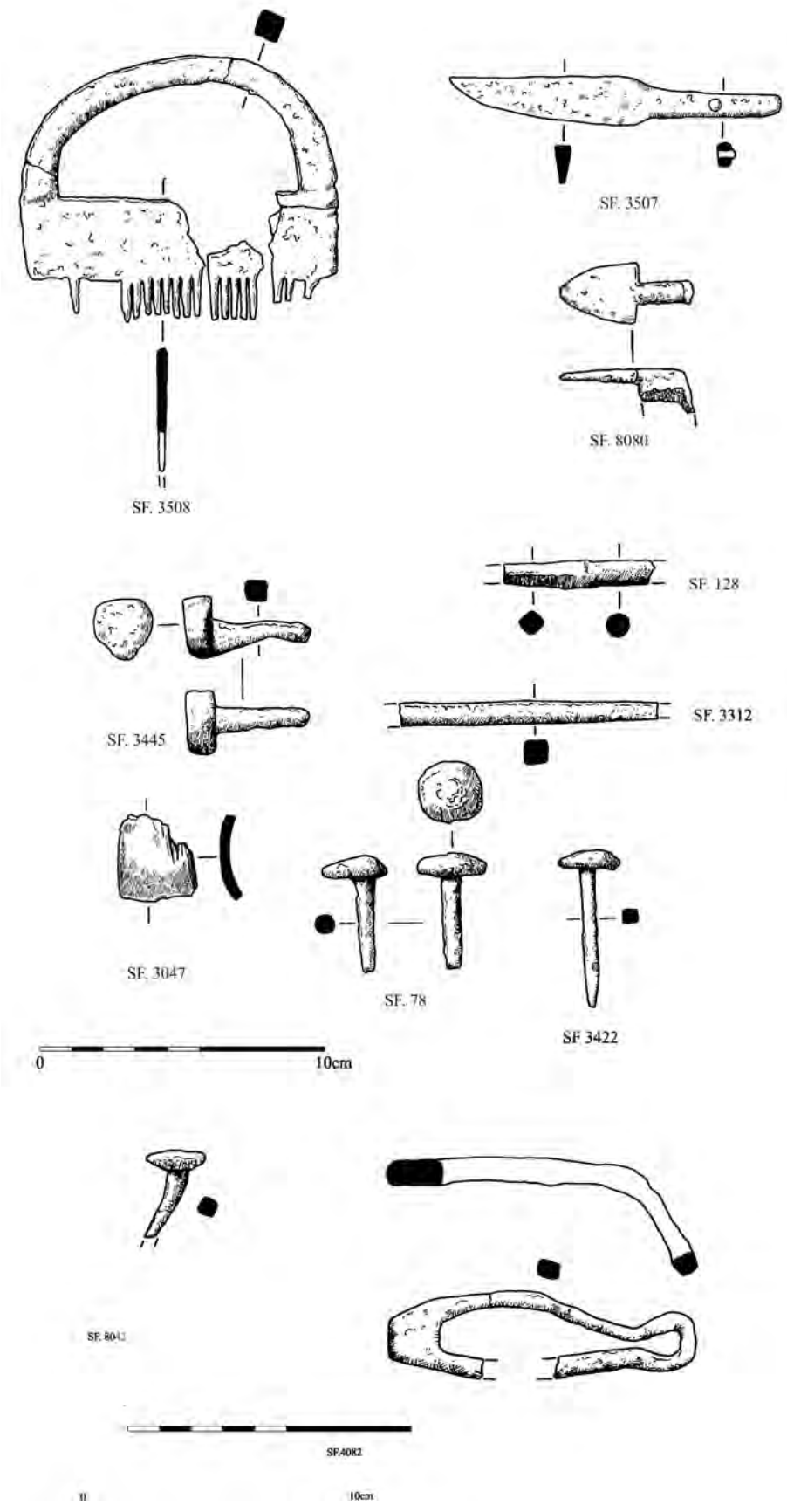
9.6.2 The assemblage

9.6.2.1 Knife (Illus 39)

The knife (SF3057) has a horizontal back parallel to the blade edge, which curves up at the tip. This form of knife appears throughout the medieval period (Goodall 2011:106; Cowgill et al 1987: 78–105) but is notably absent prior to this. This

Table 11 Summary of vitrified material by context type (see Table 10 caption for abbreviations)

Context Type SM		Vitrified Material (g)							
		SHB	RS	AM	US	FAS	VC	Total	
Primary?	Fill of burnt feature [3032]	-	-	-	-	521.2	-	-	521.2
	Floor/ground surfaces [117], [308], [3035], [3037], [3047], [4003], [4015], [4022], [8006], [8029]	-	1194	-	336.8	601.1	-	25	2156.9
Secondary/ redeposited	Ditch Fills [209], [2006], [2007], [2008]	-	-	-	-	190.2	8.9	-	199.1
	Pit fill [3030]	-	-	-	-	30	52.6	9.4	92
	Grave fills/graveyard soil [3034], [3041], [3067]	-	-	-	-	98.2	-	31.1	129.3
	Old soils/subsoil [108], [1005], [1006], [2001], [2b002], [2b003], [3009]	193.6	1006.2	44.2	-	437.4	3	40.5	1724.9
	Walls/wall robbing debris [114], [116], [3016], [3017], [3031], [4041], [8005]	306	132	-	-	147.6	19.2	-	604.8
Unstratified	Unstratified/backfill contexts [3000], [3006]	792.5	157.7	-	43.8	113.4	-	5.9	1113.3
Total		*1292.1*	*2489.9*	*44.2*	*380.6*	*2139.1*	*83.7*	*111.9*	*6541.5*



Illus 39 Selected iron objects

Table 12 Summary of iron assemblage

Type	Quantity
Knife (SF 3057)	1
Tool (SF 128 and 3312)	2
Fitting (SF 57, 3083, 3170, 3445a, 4038a, 8042a, 8080; C2000, 3001, 3024)	10
Nail/stud (see archive)	35
Bar/rod/ trip (SF 39, 3123, 2512/13, 4038b, 4029)	5
Modern (see archive)	23
Unidentified (SF 136, 3309, 3455)	3
Total	*79*

is consistent with its context, (3037), associated with the medieval use of the *leacht.* The knife has a slightly concave blade from repeated sharpening; such a knife would have been a valuable possession and used for a variety of tasks.

9.6.2.2 Tools (Illus 39)
Two tool fragments (SF128 and SF3312) were distinguishable from the numerous nail shanks. Both are robust shanks which do not taper. SF128 has traces of a mineralised wooden handle on one end and SF3312 has a change in section from square to circular. Both have lost their working ends, leaving their function elusive, but they were small hand tools, such as a punch, chisel or awl, and could have been used for a variety of crafts.

9.6.2.3 Fittings
There are nine structural fittings and a small collar (C3001) which could have been part of a small artefact. Most can be identified to type; three roves (SF57, SF3024 and SF3170), one certain and another possible wall anchor (SF3445 and SF8080) and a looped hasp (SF8042) are all fittings associated with timber structures. The roves would have secured the end of a clench bolt around timber while the wall anchors fastened timber components (eg windows, doors, panelling) to a stone or wooden wall (Goodall 2011: 163 and fig 9.11). The hasp would have secured a wooden door, gate or lid (Egan 2010: 57 and fig. 39). Three further fragments (SF3083, SF4038 and that from (2000)) are probably fittings but cannot be identified more closely.

9.6.2.4 Nails
The assemblage is dominated by nails, with 35 being recovered during excavations. The most common head forms are large flat sub-rectangular or round, with fewer examples of slightly domed sub-rectangular or round heads (see Table 12). The domed examples are only slightly so and there is not always a clear distinction between the sub-rectangular or round-shaped heads. It is likely that they are all a variation on the same broad type. Nails are ubiquitous on post-Iron Age excavations, with the flat rectangular or round types being most common on Early Historic and medieval sites, eg at Whithorn, Dumfries and Galloway (Nicholson 1997a: 407 table 10.8) and Inchmarnock, Argyll and Bute (Franklin 2008: 185).

Analysis of the nail shanks (Table 13) shows 14 of the 25 intact shanks were curved, indicating they had been removed prior to deposition. Only four are clenched, suggesting they were still in the timber when deposited, while the seven straight shanks are nails which were perhaps never used. The high proportion of removed nails implies the dismantling of a timber structure.

Three T-headed nails were recovered in markedly better condition than the others and are more uniformly shaped, suggesting they are recent. A single small round-headed nail is probably a tack (SF3380).

Table 13 Distribution of nail head-types by trench. Abbreviations: FS Flat, sub-rectangular; FR Flat, round; DS Domed, sub-rectangular; DR Domed, round; SR small, round; T-shaped head; U/K unknown (head missing)

	Head-type							
Trench	FS	FR	DS	DR	SR	T	U/K	*Total*
1/3	8	4	2	2	1	-	7	*24*
2	-	-	-	-	-	2	1	*3*
2b	-	-	-	-	-	-	1	*1*
4	1	-	-	-	-	-	1	*2*
8	3	-	1	-	-	1	-	*5*
Total	*12*	*4*	*3*	*2*	*1*	*3*	*10*	*35*

Table 14 Distribution of clenched, curved or straight shanks by trench. The ten unknowns are where the nail shank is broken just below the head

	Shank				
Trench	Curved	Clenched	Straight	Unknown	*Total*
1/3	10	1	7	6	24
2	1	1	-	1	3
2b	-	1	-	-	1
4	1	-	-	1	2
8	2	1	-	2	5
Total	14	4	7	10	35

The shortness of some of the shanks (14–60mm) compared to the large heads suggests these may have been decorative studs rather than nails (Table 14). Their form is similar to coffin nails; compare examples from Whithorn (Nicholson 1997a: 405) and Auldhame, East Lothian (McLaren and Hunter in prep). However, as most of these nails have curved shanks from removal, no other coffin fittings were recovered and none were from grave fills, it is more likely they are from structures, for instance ornamented doors or furniture.

9.6.2.5 Bars/rods/strips

Five fragments of bars and rods were recovered, including a large mass of folded iron strips corroded together (SF3512/13). All are fragmentary, inhibiting closer identification. They could be fragments from broken artefacts, or stock iron/blanks for the blacksmithing taking place on site.

9.6.2.6 Modern/miscellaneous/unidentified

Post-medieval and modern fragments of cast iron, including many fragments of a cast-iron pipe and a probable horse comb, were found in topsoil and disturbed contexts around the site. Only three small fragments were unidentifiable, a small amount compared to most iron assemblages and testament to the importance of X-radiographing whole assemblages.

9.6.3 Context and dating

Iron artefacts were recovered from half of the trenches, with a concentration of objects around the possible chapel in Trench 1/3 (Table 15). Many of the nails and fittings come from around the chapel area and are evidence of a timber structure or wooden structural components to the stone building. None of the nails and only one of the fittings came from grave fills, suggesting wooden coffins were not used.

Table 15 Assemblage distribution by trench

	Object type							
Trench	Knife	Tool	Fitting	Nail	Bar/rod/strip	Unid.	Modern	*Total*
1/3	1	2	5	26	2	3	14	*53*
2	-	-	1	1	1	-	2	*5*
2b	-	-	-	1	-	-	-	*1*
4	-	-	1	2	2	-	1	*6*
8	-	-	2	5	-	-	-	*7*
Unstratified	-	-	1	-	-	-	6	*7*
Total	1	2	10	35	5	3	23	*79*

Table 16 Iron object type by context type

	Object type							
Context	Knife	Tool	Fitting	Nail	Bar/rod/strip	Unid.	Modern	*Total*
Floor layers (C.117, 118, 3037, 4022, 8013)	1	1	2	4	2	1	-	*11*
Hearths (C.3015, 3017)	-	-	-	4	-	-	-	*4*
Graves (C.3043, 3083)	-	-	1	-	-	1	-	*2*
Worked soil layers (C.3009, 3012, 3016, 3018)	-	1	1	11	1	1	-	*15*
Redeposited layers (C.3036)	-	-	1	1	-	-	-	*2*
Bank and wall material (C.3006, 8016)	-	-	1	3	-	-	-	*4*
Demolition material (C.3014, 4028)	-	-	-	2	-	-	1	*3*
Miscellaneous (C.3024, 3036, 4050)	-	-	1	1	1	-	2	*5*
Unstratified: topsoil and backfill	-	-	3	9	1	-	20	*33*
Total	1	2	10	35	5	3	23	*79*

The assemblage was recovered from a range of contexts, most of which are redeposited or disturbed (Table 16). This makes dating challenging as most iron objects changed little from the Iron Age until the post-medieval period, so typological dating is difficult. However, there are a few objects which can be broadly dated. The knife, looped hasp and wall anchors have good medieval parallels. This is consistent with their contexts, which are all above the Early Historic burials and associated with the later use of the possible chapel and *leacht*. The flat or slightly domed sub-rectangular or round-headed nails are common from the early and later medieval periods. Most of the nails come from redeposited contexts associated with the later use of the *leacht* area, suggesting they are probably medieval, confirmed by the few examples (SF3451, SF3471, SF3355) from radiocarbon-dated contexts having high medieval dates.

9.6.4 Summary and discussion

The Baliscate assemblage comprises a fairly prosaic range of objects dominated by fittings and nails. Status objects, such as weaponry and decorative objects (eg pins), are notably absent and tools are poorly represented. The nails and other structural components provide a glimpse of a timber building, or wooden components to the stone building, some of which were then deliberately dismantled, as shown by curved nail shanks. The types of fittings and nails are consistent with a high medieval date for the structure.

The lack of fittings and nails from grave fills indicates wooden coffins were not in use. A similar lack of coffin fittings was noted in the Early Historic and medieval graves at Inchmarnock, Argyll and Bute (Franklin 2008: 185), whereas at Whithorn (Nicholson 1997a: 412–5) and Auldhame (McLaren and Hunter in prep) coffin fittings are more common, revealing differing burial practices throughout this period.

9.6.5 Selected catalogue (a full catalogue can be found in the archive)

L = length; W = width; H = height; Th = thickness; Diam = diameter.

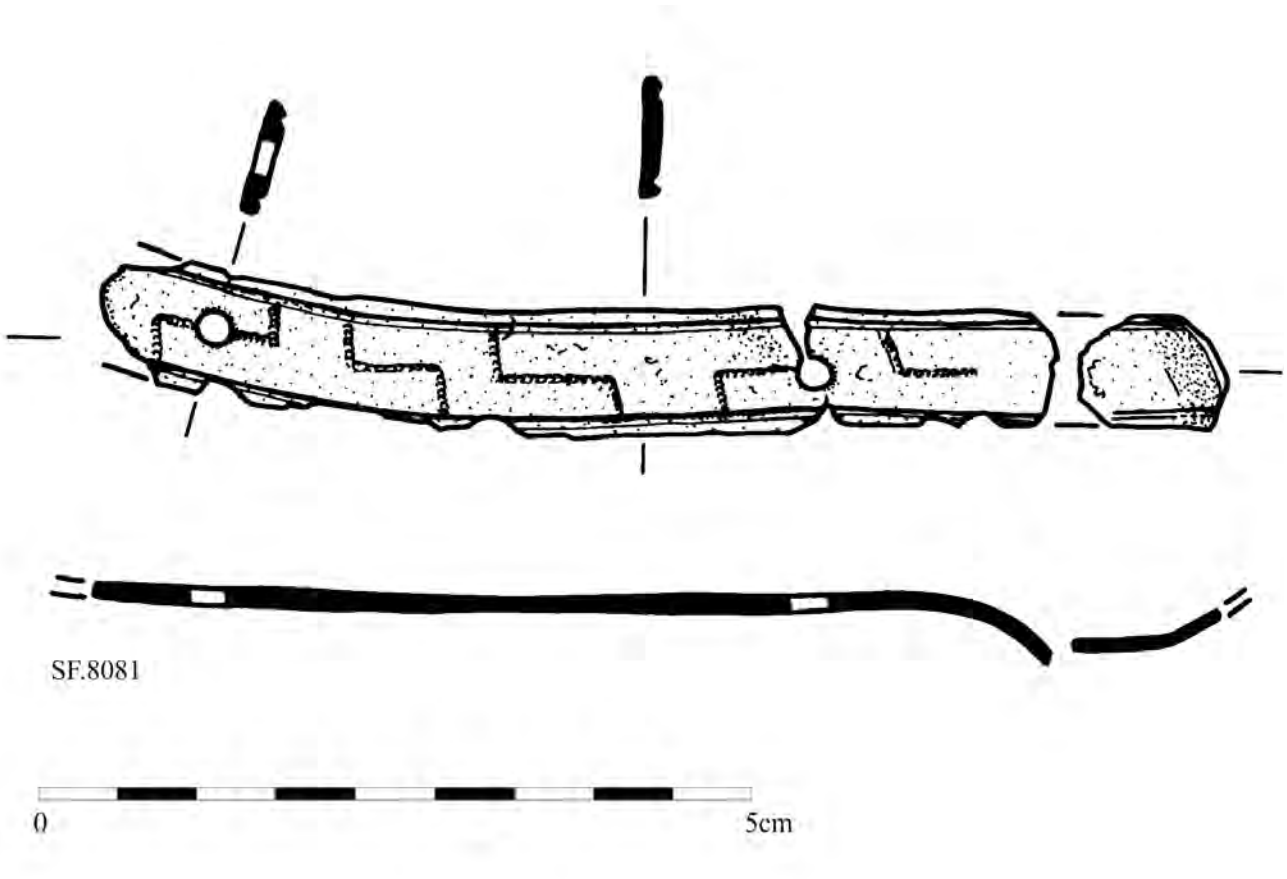
▸ SF128 Tool fragment
Square-sectioned bar turning into circular-sectioned rod with both ends broken. The change in section indicates this is probably a tool of some sort but the missing ends prevent closer identification. L: 55mm; Th: 6–8mm. (118): possible floor layer/ metalled surface in chapel.

▸ (3001) (NN6) Collar or socket
A small strip of iron folded into a circular-sectioned tube. L:15mm; Diam: 10mm. (3001): topsoil.

▸ SF3312 Possible tool
Straight, tapering, square-sectioned bar with both ends broken. The narrower end is surrounded by mineralised organics, suggesting it had an organic handle. The working end of the tool is lost, making closer identification impossible. L: 94mm; shank 8.5 x 8.5mm. (3009): possibly the remnants of a worked soil overlying rubble from the *leacht* and enclosure Wall [3016].

▸ SF3445 (a) Wall anchor
Rectangular-sectioned shank expanding and bending 90° at one end. Mineralised wood is preserved in the corrosion. This is a structural fitting, probably a wall anchor; a type of fitting which was used to attach timber to masonry, for example, for attaching door or window frames to a stone wall (Goodall 2011: 163 and fig 9.11). The mineralised wood around the shank indicates this was fixed into wood rather than masonry but probably served a similar function. L: 43mm; Th: shank 3–6mm; 'foot' 25 x 19 x 7mm. (3009): possibly the remnants of a worked soil overlying rubble from the *leacht* and enclosure Wall [3015].

▸ SF3507 Knife
The rectangular-sectioned tang tapers slightly to a blunt end and steps out on both edges into the blade. The straight blade back is parallel to the blade, which is slightly concave from sharpening and curves up at the tip. A possible small rivet on the tang near the blade may have secured an organic handle. Goodall type C; most likely medieval in date (2011: 106). L: 118mm; tang L: 47mm; Th: 7.5 x 3.5mm; blade H: 14mm; Th back: 6mm. (3037): latest occupation layer sited directly north of *leacht*.



Illus 40 The decorated strip mount, SF8081

▸ SF3508 Comb
The flat, rectangular comb with triangular teeth has a rectangular-sectioned bar handle which projects from each end of the comb's back, creating an arc. Part of the comb is missing and many of the teeth are missing. The good condition of the iron and relative lack of corrosion indicates this is likely to be post-medieval or modern. Similarly-shaped combs were used for grooming a horse's mane (eg see Clark 2004: fig 119) although no exact parallels are known to the author. Textile manufacturing or personal grooming functions are also plausible. L: 110mm; H: 90mm; handle H: 7 x 5mm; teeth H: 13mm; W: 5mm (at top); Th: 1mm. (3036): yellow brown silty clay layer.

▸ SF8042 (a) Looped hasp
A sub-square-sectioned oval loop, pinched at one end to create a ring through which the hasp was fastened to a door or lid. The wider end has a hooked terminal and would have slotted over a projecting staple or ring, which could then be secured with a padlock. This is an example of an angled hasp as the fastening ring is bent at 45°. Looped hasps are found throughout the medieval period and were used for securing gates, doors, chests, well covers etc (Goodall 2011: 167–8 and figs 9.27–9). L: 95mm; H: 23mm; Th: 5mm; small loop internal Diam: 9 x 8mm. (8013): occupation layer associated with the later structure.

▸ SF8080 Structural fitting
Rectangular-sectioned tang is clenched 90° and has traces of mineralised wood in the corrosion. One end is blunt; the other expands into a flat semi-oval plate with right-angled shoulders. The mineralised wood around the shank indicates this was fixed into wood and may have had a similar function to the wall anchor SF3445 (a) in securing structural timber. L: 49.5mm; shank Th: 6mm; head L: 27.5mm; W: 22mm; Th: 2.5mm. (8029): floor layer or levelling layer.

9.7 The non-ferrous metalwork

Gemma Cruickshanks

9.7.1 Discussion

The non-ferrous metalwork assemblage from Baliscate is small and varies in function and date. It comprises six objects: one silver coin, two copper alloy objects and three lead fragments. The coin is a silver Edward I penny and is contemporary with the medieval phase of the site. The button is post-medieval and likely to be a casual loss due to the broken fastening loop. The copper alloy strip mount (SF8081) would have been attached to an object, probably of leather or wood, and its twisted, broken state suggests it was removed (Illus 40). This is the only fragment of decorated metalwork from the site. The step pattern suggests a medieval date; there is a similar mount (though with a regular step pattern rather than the varied T- and Z-steps of this one) from Meols, Cheshire, with a very broad date of *c* 1050–1500 (Egan 2007: 114, pl 19 no 1029), which is in keeping with the medieval phase of the site.

Three lead fragments provide possible evidence of leadworking on the site. The nodular fragment may have melted by accident in one of the destruction events, but the sheet fragment with cut marks is unmistakable working debris. A possible repair patch is also present. Leadworking is fairly common by the medieval period; the contexts of the fragments indicate they are likely to be from that phase of the site.

9.7.2 Catalogue

Silver

▸ **SF60 Edward I silver 'Long Cross' penny (late 13th to early 14th century) from London mint**
Too corroded to identify other diagnostic features. These coins are commonly found throughout Scotland. (110): post-demolition accumulation deposit following the robbing of useable stonework from possible chapel building.

Copper alloy

▸ **SF127 Button**
Plain disc button with broken fastening loop. Post-medieval in date, most likely late 18th to 19th

Table 17 Summary of coarse stone assemblage by trench

		Trench				
Function	Type	1/3	2	5	8	*Total*
Tool	Burnisher	1	-	-	-	*1*
	Grinder	1	-	-	-	*1*
	Rubber	2	-	-	-	*2*
	Pounder	3	-	-	1	*4*
	Multifunctional	5	1	-	-	*6*
	Rotary grindstone	-	-	-	1	*1*
	Sharpening stone	-	-	1	-	*1*
	Tracked stone	1	-	-	-	*1*
Food	Rotary quern	1	-	-	-	*1*
	Rubbing stone	1	-	-	-	*1*
Other	Abraded haematite	1	-	-	-	*1*
	Slate bar	-	1	-	-	*1*
	Possible incised stone	1	-	-	-	*1*
	Hollowed stone	1				*1*
	Iron-stained stones	2	-	-	1	*3*
Total		20	2	1	3	*26*

century. Diam: 15mm; Th disc: 1mm; Th loop: 5mm. (202): subsoil.

▸ SF8081 Decorated strip mount (Illus 40)
Thin strip with incised lines down each edge on one side and incised geometric decoration within the edge lines. Corrosion obscures details, but the design utilises a step pattern to form both alternating T and Z motifs. Both ends are missing and one curves slightly. There are two perforations close to each end for fixing the mount, probably onto leather or wood. The strip is partially torn around one perforation and broken across the other, suggesting it was removed. L: 54mm; W: 8mm; Th: 1mm; perforation Diam: 2mm. (8033), top of an unexcavated grave cut.

Lead

▸ SF3462 Working debris
Curved, sub-rectangular lead sheet with cut marks around the edges. 27.5 x 29 x 2.5mm. (3047): layer of burnt wall material over later structure.

▸ SF3522 Repair patch/fitting
Partially melted lead sheet fragment with possible edge of perforation, indicating it has probably been a fitting or repair patch. 26.5 x 17 x 5mm. (3018): layer outside south of later structure.

▸ SF4046 Casting waste?
Nodular lead fragment with melted appearance. Very corroded. 23 x 17 x 9mm. (4039): original trampled floor layer of structure.

9.8 The coarse stone artefacts

Gemma Cruickshanks

9.8.1 Summary

Twenty-six coarse stone artefacts were collected during excavations at Baliscate (summarised in Table 17). The assemblage is dominated by cobble tools with a wide range of wear types, including rubbing, grinding and pounding. Some of the artefacts provide evidence of craftworking on site, for example, three of the multifunctional cobble tools have wear consistent with hide preparation and the burnisher may have been used for fine metalworking. The rotary grindstone and sharpening stone indicate metal blades were being sharpened on site. Other significant finds include a decorated rotary quern and a hollowed, or bullaun, stone.

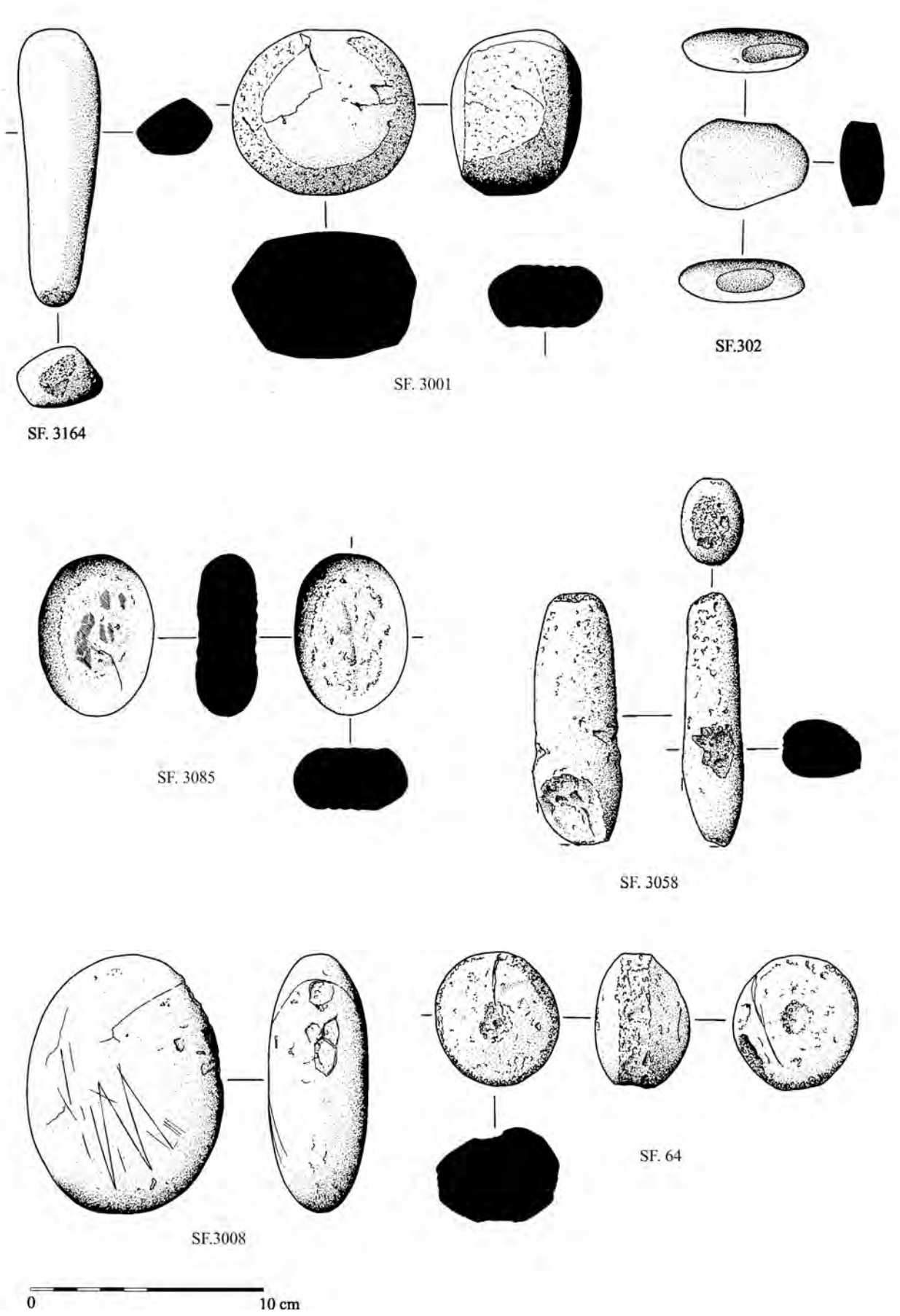
9.8.2 The assemblage (selected artefacts, Illus 41 and Illus 42)

Seventeen tools were recovered, of which fifteen are cobble tools. The cobbles would be readily available from local stream-beds and beaches.

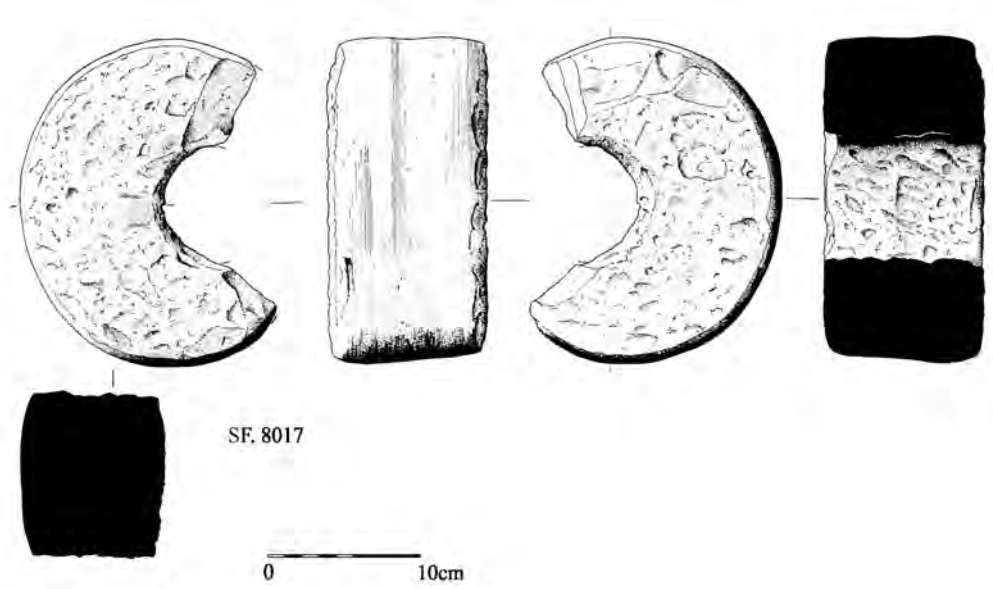
9.8.2.1 Grinders and pounders
One grinder was recovered, with distinctive abraded facets (SF3077). Two of the multifunctional tools also display grinding wear (SF3164 and C3104). Pounders are distinguishable by their pitted facets and are more common here, with four single-function tools (SF64, SF119, SF332 and SF8024) and wear patterns on five of the multifunctional tools indicates they were similarly used (SF58, SF3008, SF3164, C3014 and SF3058). One grinder (SF3077) and one pounder (SF64) have wear facets around their entire circumference, indicating they were intensively used and were clearly favoured tools. Others, such as pounder SF119, have seen only slight use. Grinders and pounders could have had a variety of functions, including crushing food substances or preparing ores or pigments.

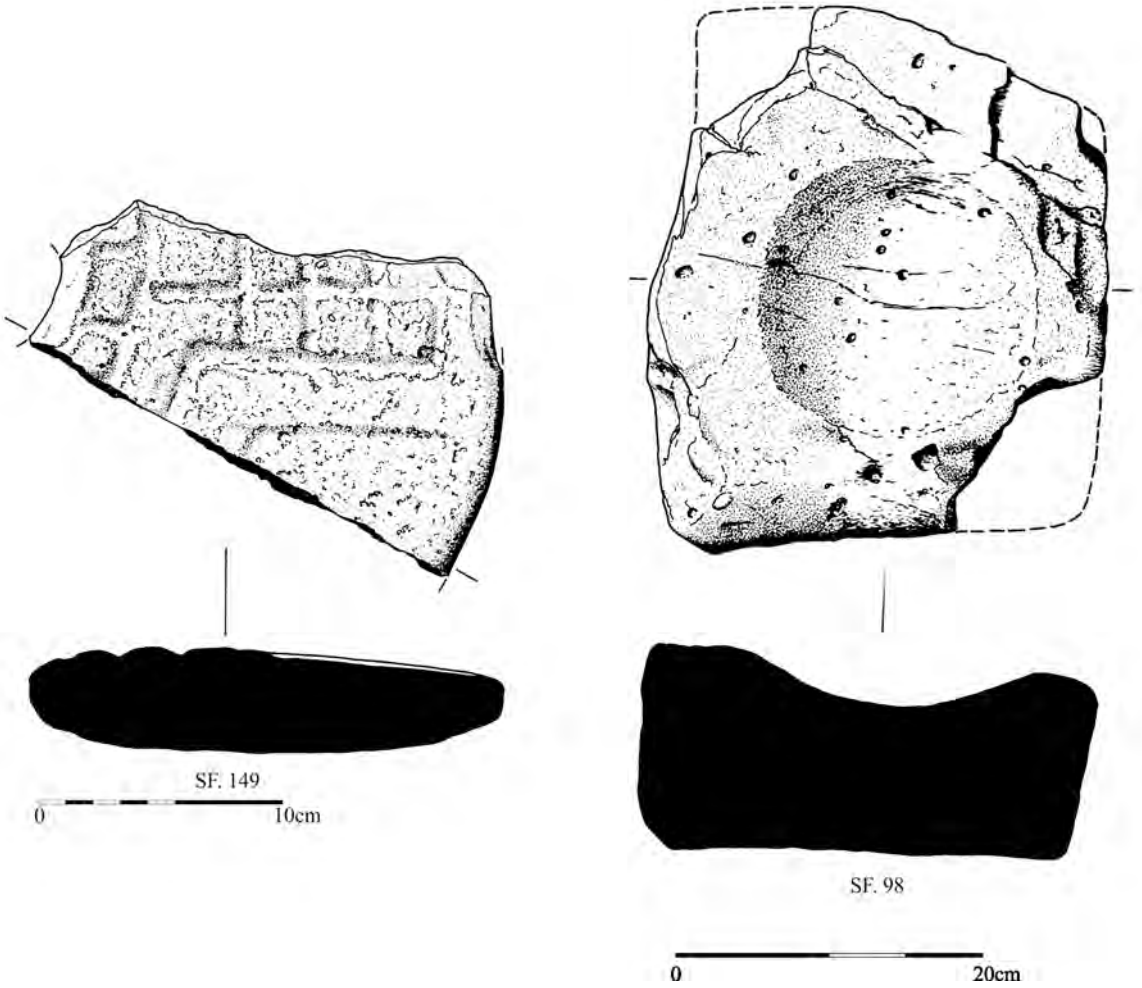
9.8.2.2 Burnisher and polished haematite
A very smooth, fine-grained pebble (SF37) has smooth facets along two edges from rubbing. The fineness of this tool suggests it is a burnisher, comparable to those recovered at Whithorn and thought to have a function in finishing fine, non-ferrous metalwork (Nicholson 1997b: 458). The burnisher was found in the redeposited material used to make the platform upon which the possible chapel was built, providing an Early Historic *terminus ante quem*. The fragment of abraded haematite (SF3076) may have had a similar function as it is polished rather than simply abraded (which it would have been if it had simply been used as a source for pigment).

9.8.2.3 Multifunctional tools (Table 18)
The six multifunctional cobble tools display a range of wear types (summarised in Table 18). The tools show evidence of both prolonged use (eg double ground facets on C3014) and slight or expedient use, as shown by the faint or particularly small



Illus 41 Selected stone tools





Illus 42 The grindstone, quern fragment and bullaun stone

Table 18 Multifunctional cobble tool wear-types

	Wear-type					
Tool	Hide rubber	Grinder	Pounder	Hammer	Sharpener	Work surface
SF 58	x		x			
SF 3008	x		x		x	
C 3014		x	x			
C 3058			x	x		
SF 3164		x	x			
SF 3235	x					x

worked facets on SF58 and SF3164 (not illustrated). Of particular interest are the three with smoothed surfaces and distinctive glossy, dark-brown residues, interpreted as being the residues from hide processing (Lane and Campbell 2000: 178–9) (Table 18, Illus 41, SF3008). This is a valuable insight into a craft process which leaves little trace in the archaeological record. Two further rubbers were recovered but these lack the glossy residue and are termed 'rubbers' rather than 'hide-rubbers' in the catalogue. They may have had a variety of functions.

9.8.2.4 Rotary grindstone and sharpeners

The largest tool is the rotary grindstone recovered from Trench 8, which would have been used to sharpen metal blades (Illus 42, SF8017). Similar grindstones were recovered from contexts dating to the Early Historic and medieval periods at Whithorn (Nicholson 1997b: 457) and were interpreted as being used to put the original edge on a blade, which would then be refined using finer hones. The grindstone complements the evidence for blacksmithing on site. A plough-scarred sandstone fragment (C5001) and one of the multifunctional tools (SF3008) also have blade-sharpening marks on them (Illus 41, SF3008). Unlike the rotary grindstone, these sharpeners were expedient tools.

9.8.2.5 Tracked stone

A quartz pebble (SF3258) with a worn groove across one surface is an example of a 'tracked stone', a type of strike-a-light which has seen extended use compared to the iron-streaked examples.

9.8.2.6 Food: quern rubber and decorated rotary quern

Two food preparation items were recovered; a small quern rubber fragment (SF3379/3443) and a decorated rotary quern upper stone fragment which merits further discussion (SF149). The disc-type rotary quern (SF149, Illus 42) has a band of pecked geometric decoration around the central hole and a band of similar decoration radiating out from the centre to the edge. No evidence of how the handle fitted survives. Scottish decorated disc querns have recently been analysed and discussed by McLaren and Hunter (2008) and the Baliscate quern could be either their type 2bi or ii, both of which have radial decoration and a distinct west-coast Scottish distribution (ibid: 117). Dating querns is challenging, as they are so often reused in walls and floors etc and were in use from at least *c* 500 BC. This quern is no exception, having ended up in a deposit of rubble from the robbing of the possible chapel and possible *leacht* walls. Few decorated items were recovered from Baliscate and this is likely to have been a valuable object.

9.8.2.7 Bullaun stone and other items

A large, naturally square slab with an artificial hollow on top was found alongside the possible *leacht* (SF98, Illus 42). Such hollowed stones are sometimes referred to as 'bullaun' stones and are often associated with early Christian sites, more commonly in Ireland, but similar stones have been found at Whithorn (Nicholson 1997b: 462) and on Canna (D Alexander pers comm). There are a variety of superstitions and legends attached to bullaun stones (discussed in Price 1959) but

a function as a receptacle for holding holy water or oils for pilgrims or during religious ceremonies seems likely (Harbison 1994: 94). It is also possible, as is suggested for the Canna example, that the dish was worn by stones being turned around there for luck. There were certainly many quartz pebbles and worked cobbles found around the possible *leacht*, lending weight to this interpretation.

Other items include three iron-stained stones with iron streaks on their surface (SF17, SF89 and SF8086). The streaks are not as regular or straight as those on strike-a-lights and their function remains obscure. Several plough-scarred stones were recovered. One has been catalogued (SF3517) due to a W-shaped arrangement of lines which could possibly be decoration. A small slate bar with chipped edges is equally enigmatic and is likely to be a recent object due to its topsoil context.

9.8.3 Distribution

The coarse stone artefacts were recovered from Trenches 1/3, 2, 5 and 8 (as summarised in Tables 17 and 19). The artefacts are predominantly from contexts which are redeposited or unstratified, which makes it difficult to identify activity areas from the tool types. Many of the cobble tools came from rubble and walls around the possible *leacht* area where hundreds of unmodified quartz pebbles had been placed, perhaps as offerings. This raises the possibility that some of the worked pebbles may not have been used at Baliscate but at another site nearby, being picked up at a later date and brought there.

Table 19 Contexts of stone tools

Context Type	Stone tools
Cairn material	1
Walls	5
Platform under chapel	1
Rubble	7
Worked soils	3
Grave backfill	1
Misc. layers	2
Topsoil	6
Total	26

9.8.4 Chronology

Most coarse stone tools have a long history and are not chronologically distinct. The majority of the assemblage would be at home on any later prehistoric site but the bullaun stone and rotary grindstone have parallels from the Early Historic period onwards.

9.8.5 Discussion

The assemblage from Baliscate is dominated by cobble tools with a wide variety of wear types. All have been made from locally-sourced water-worn cobbles which would be readily available on Mull. Although the tools can be characterised by their wear type (eg rubbers, grinders and pounders), these wear patterns could have formed from a range of activities so the function of many cobble tools often remains unclear in the absence of more experimental work or residue analysis.

Differing degrees of use are evident, with the circumferentially-worn tools and multifunctional tools indicating repeated use of favoured stones. However, there are also stones which have very faint wear, perhaps only having been expediently used once as required then discarded.

The possibility that some of the cobble tools may have been brought to the site long after they were used elsewhere makes identifying activities which took place at Baliscate difficult. For example, of the three hide rubbers, two are unstratified and one was within the rubble by the *leacht.* It is therefore unclear where the hide processing was taking place, whether at Baliscate or another site nearby.

The decorated rotary quern fragment is a significant find and would have been a valuable object. Its significance perhaps carried on after its useful life, when a fragment was incorporated into the stonework around the possible chapel and *leacht*.

9.8.6 Selected catalogue (a full catalogue is in the archive)

Unless otherwise stated, measurement is of the whole stone.

▸ SF37 Burnisher
A small, very fine-grained and smooth, flattened ovoid pebble. There are flattened facets on each long

edge and one face from use as a burnisher, possibly in fine metalworking. 54 x 35 x 17.5mm; facets 20 x 7.5mm, 19 x 8mm, 28 x 19mm. (302): deposit of material used to create a terrace, upon which the possible chapel was built.

▸ SF64 Pounder (Illus 41)
Sub-circular pebble with a concentration of peck marks around the circumference and in the centre of each face. The use of the entire circumference and both faces indicates prolonged or repeated use as a pounder. 57 x 53 x 40mm; clearest facet 17 x 15mm. C116: large rubble deposit of unrecyclable stonework derived from robbing of walls (104), (105) and possible *leacht* structure.

▸ SF98 Hollowed/bullaun stone (Illus 42)
Naturally square slab of sandstone with a circular dish worn into the top surface. Artificially hollowed stones are known on other early Christian sites and may have had several functions, such as holding water or oil for religious ceremonies, or being where pebbles were turned for good luck. Such hollowed stones are sometimes referred to as 'bullaun' stones, more commonly in Ireland, and are associated with a wide variety of superstitions and folklore (discussed in Harbison 1994; Price 1959). Slab 360 x 290 x 140mm; dish Diam: *c* 170mm, *c* 40mm deep: at the base of the interior face of the eastern limb of the enclosure wall. Almost certainly not in its original position.

▸ SF149 Decorated rotary quern (Illus 42)
A fragment of a decorated upper stone from a rotary quern. Bands of pecked geometric decoration encircle the central hole and radiate out to the edge. The grinding surface is very rough and convex but there are patches of smooth polished stone visible. Overall Diam: *c* 420mm; Th: 42.5mm. C116: large rubble deposit of unrecyclable stonework derived from robbing of walls (104), (105) and *leacht* structure.

▸ SF3008 Hide rubber, sharpening stone and pounder (Illus 41)
Flattened oval cobble. One face has a slight glossy shine and dark staining from use as a hide rubber. The other face has several cut marks on it from sharpening blades. Some peck marks indicate expedient use as a pounder. 112 x 84 x 42mm; facet 73 x 52mm. (3003): topsoil covering *leacht*.

▸ (3014) Grinder/pounder
End of a cobble with a double ground facet. A small pitted area on one edge of the ground facets indicate light pounding. One side of the cobble is charred suggesting secondary use as a pot-boiler. 51 x 66 x 47mm; facets 47 x 17mm and 25 x 15mm. (3014): rubble collapse around *leacht.*

▸ (3058) Pounder/hammer
Elongated oval cobble (Illus 41). Both ends have pitted areas from pounding. There are also two pitted dents on each long edge. One end has a large flake-scar which has removed most of the pitted facet. The flake was probably dislodged during heavy pounding/light hammering. 107 x 38 x 27mm; facets 17 x 13mm (end), 14 x 15mm and 22 x 11mm (edges). (3058): rebuild or extension to original *leacht*.

▸ SF3077 Circumferential grinder
Sub-circular cobble with ground facets around the entire circumference. Extensively used. Cracking on the surface may suggest secondary use as a pot-boiler. 77 x 76 x 55mm. (3001): topsoil at north end of trench and *leacht*.

▸ SF3258 Tracked stone
Flattened, oval quartz cobble. Both faces have diagonal striations, more pronounced and concentrated on one side than the other. 70 x 48 x 26mm. (3012): possible remnants of a ploughed or worked soil along the south side of the later structure interior.

▸ SF8017 Rotary grindstone (Illus 42)
Fragment of a disc-shaped sharpening stone. The sharpening surface, on the outer edge of the disc, is smooth and slightly convex. The sides and tapered central perforation are roughly shaped – many coarse peck marks can be seen. Diam: 220mm; Diam hole: 70mm; Th: 110mm. C8006: build-up of occupation horizon overlying floor (8012).

Table 20 General lithic artefact list

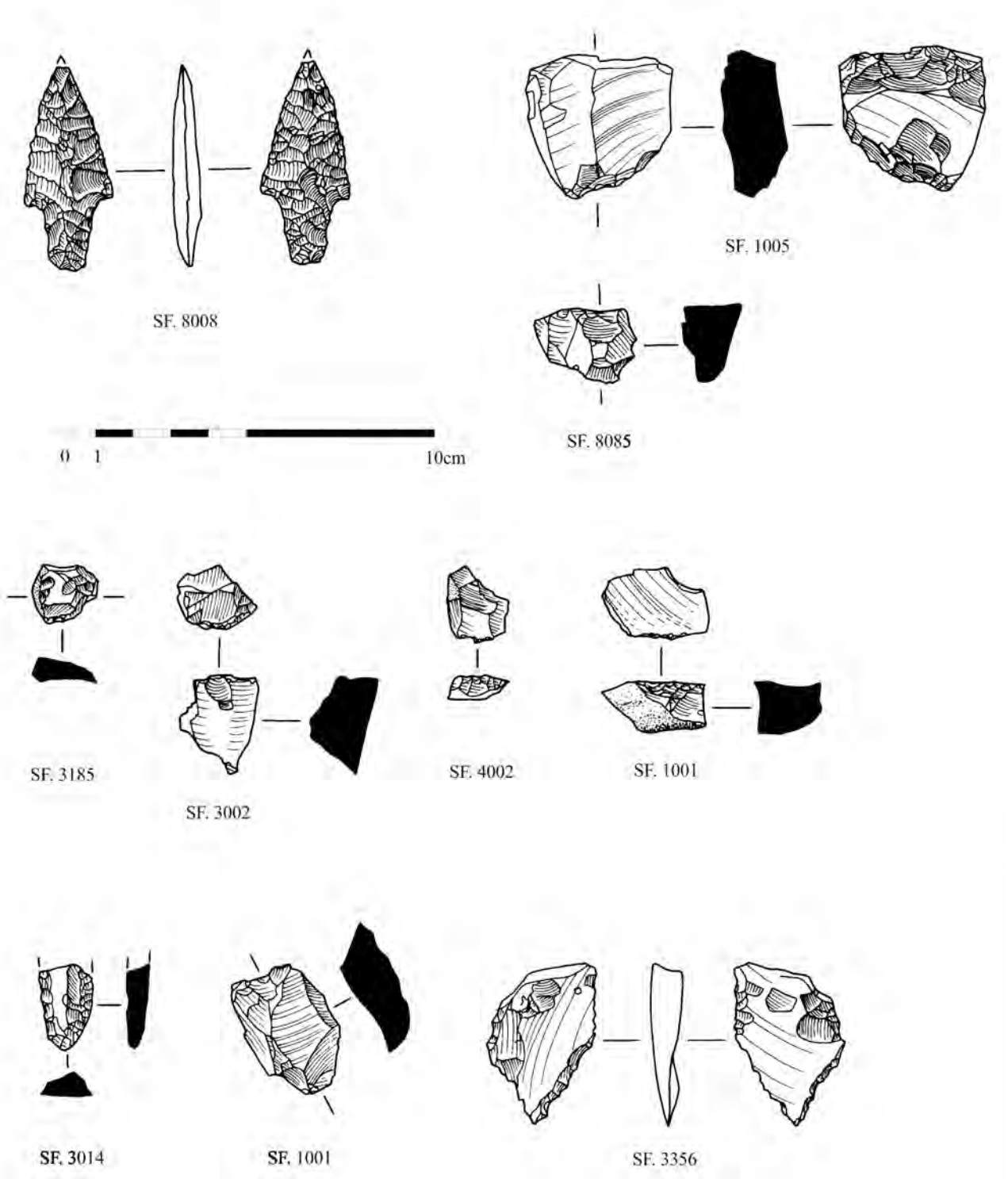
	Flint	*Quartz/rock-crystal*	*Chalcedony*	*Total*
Debitage				
Flakes	39	4	2	45
Microblades	2		w	2
Indeterminate pieces	13	5	1	19
Total debitage	*54*	*9*	*3*	*66*
Cores				
Irregular cores	1			1
Bipolar cores	3			3
Core fragments	1			1
Total cores	*5*			*5*
Tools				
Barbed-and-tanged arrowheads	1			1
Plano-convex knives	1			1
Short end-scrapers	3			3
Side-scrapers	1			1
Scraper-edge fragments	1			1
Piercers	2			2
Pieces with edge-retouch	3			3
Fire-flints	18			18
Total tools	*30*			*30*
Natural objects				
Smooth pebbles		1		1
Crystals, individual		5		5
Crystals, druses		2		2
Total natural objects		*8*		*8*
TOTAL (worked pieces)	89	9	3	101

9.9 The lithic assemblage

Torben Bjarke Ballin

9.9.1 Introduction

A small lithic assemblage (101 worked pieces and eight unworked pieces of relevance to the interpretation of the site) was recovered from the site. The purpose of the present report is to characterise these lithic artefacts in detail, with special reference to raw materials and typo-technological attributes. From this characterisation, it is sought to date and discuss the finds.



Illus 43 Selected lithics

9.9.2 The assemblage (Illus 43)

9.9.2.1 General overview

From the excavations at Baliscate, 101 lithic artefacts were recovered (predominantly flint), supplemented by eight pieces of natural quartz/rock crystal which may have been deposited deliberately at the site in an unworked state. The worked and unworked lithics are listed in Table 20. An intact slate pencil has been retained and catalogued in the finds database, but it has not been included in the analysis below. The definitions of the main lithic categories are as follows:

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

Flakes: All lithic artefacts with one identifiable ventral (positive or convex) surface, GD > 10mm 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 weakness rather than flaking in the usual conchoidal way.

Blades and microblades: Flakes where L ≥ 2W. In the case of blades W > 8mm, in the case of microblades W ≤ 8mm.

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).

GD: Greatest dimension.

Av. dim.: Average dimensions.

9.9.2.2 Raw materials – types, sources and condition

The assemblage is heavily dominated by flint, with *c* nine-tenths of the lithic artefacts being in this material. Approximately one-tenth is quartz, supplemented by three pieces of chalcedony. The flint is generally fine-grained, mottled, grey material, with some pieces being medium-grained, more opaque, and either cream or yellow/light-brown. The latter variety is usually associated with a higher content of fossils, and occasionally internal chalk balls. The cortex is generally abraded, suggesting that probably all flint was collected from a local pebble source, such as a beach wall. Most likely, the procured pebbles would have been in the 40–60mm size category, although some slightly larger pebbles were probably also collected (eg for CAT 83). It is thought that the flint available in the southern parts of the Inner Hebrides (Islay and Jura; eg McCullagh 1989) may have been of a generally higher quality (in terms of purity and flaking properties) than that available further to the north (the Skye and Loch Torridon area; eg Hardy et al in prep). Research by Harding et al (2004) indicates that most of the flint in the general Islay area (including Mull) may be of the same age (Campanian) as the so-called Antrim flint, and that it eroded out of chalk cliffs then extending from Northern Ireland to Scotland.

Most of the worked quartz is white milky quartz, and the fact that no quartz artefacts have cortexes implies that this raw material may have been procured from quarried veins (cf. Ballin 2004) rather than from beach walls or river beds. The unworked quartz crystals may have been collected individually, or in the form of druses or geodes, in Mull's volcanic centre (Heddle 1901: 46, 47). Mull is well known for its relatively pale agates and its bluish-grey chalcedonies, which are also generally associated with the island's volcanic centre (ibid: 56).

Most of the flints are slightly discoloured (corticated *sensu* Shepherd 1972), probably from contact with air. A relatively large proportion of the flint artefacts had been exposed to fire (22%), with almost half of those being described in the finds database as 'vitrified' or 'almost vitrified'. The term 'vitrified' describes a piece of flint which has been exposed to exceptionally high temperatures,

Table 21 Reduction sequence of all unmodified and modified pieces of debitage

	n	%
Primary	5	8
Secondary	20	34
Tertiary	35	58
TOTAL	60	100

Table 22 Percussion techniques applied to produce the site's technologically definable unmodified and modified flakes and blades

	n	%
Soft percussion	2	5
Hard percussion	24	56
Platform collapse	6	14
Bipolar technique	11	25
TOTAL	43	100

causing its surfaces to partially melt. Temperatures like this are usually associated with cremation pyres, industrial processes or destruction of houses/fortifications by fire rather than domestic hearths (eg Ballin in prep a; in prep b).

9.9.2.3 Debitage

The debitage includes 45 flakes, two microblades, and 19 indeterminate pieces. Approximately four-fifths of the category is flint, supplemented by a small number of quartz and chalcedony objects. The two microblades are not intentional (for example Late Mesolithic) microblades, but simply small hard-hammer and bipolar flakes which accidentally acquired more elongated shapes than most other flakes.

As shown in Table 21, almost half of all specimens are cortical, with five pieces being completely cortex-covered. All quartz blanks are completely cortex-free. The high degree of cortex-cover amongst the flint artefacts is probably partly a result of the use of very small flint pebbles, as small pebbles have more surface area per volume than larger pebbles (cf. Ballin forthcoming a), and partly a result of the applied operational schemas, which did not involve systematic decortication of core rough-outs.

Table 22 shows the applied reduction techniques, with hard percussion and bipolar technique dominating. There are roughly twice as many hard-hammer blanks as bipolar pieces. Two flakes (CAT 38, 49) have relatively discrete bulbs of percussion, indicating the use of soft hammers. Six pieces which suffered platform collapse were probably manufactured by the application of a fairly robust reduction technique, such as hard percussion or bipolar technique.

9.9.2.4 Cores

The five cores include one irregular core, three bipolar cores, and one core fragment. All cores are in flint.

CAT 48 is a small irregular core, measuring 18 x 12 x 11mm. One face may be the remains of a flaking-front worked in a more systematic manner, but in its later stages this piece was reduced in an unschematic fashion. The three bipolar cores embrace two very small pieces (CAT 41, 51; av. dim.: 20 x 15 x 5mm) and one fairly large piece (CAT 87; 37 x 39 x 17mm). The former two include one unifacial core and one bifacial core, both of which have one reduction axis (one set of opposed terminals). The latter is a bifacial piece, also with one reduction axis, which has an abandoned flat platform at one end and a typical bipolar crushed ridge at the other. The flat platform suggests that this object may have been a platform core in an earlier part of its operational schema. CAT 78 is a core fragment (GD: 27mm), which at one end has a carefully trimmed platform-edge. There is little doubt that this is a fragment of a Mesolithic or Neolithic core, but it is uncertain whether it was a single- or dual-platform core.

9.9.2.5 Tools

The assemblage includes 30 tools, all of which are in flint: one barbed-and-tanged arrowhead, one plano-convex knife, five scrapers, two piercers, three pieces with edge-retouch, and 18 fire-flints.

Barbed-and-tanged arrowheads: The site yielded a single large barbed-and-tanged arrowhead with vestigial barbs and a long tang (CAT 76). The piece is slender, and the tang has almost parallel lateral sides (54 x 24 x 8mm). According to Green's (1980: 50) typology, this is an arrowhead of the Ballyclare class. This type is defined partly by shape (such as vestigial barbs), but also by size, with the typological requirements being a minimum weight of 8g and a length x width of at least 1400mm. The weight of the piece is 8.4g, and the L x W is *c* 1300mm, defining CAT 76 as one of the smaller Ballyclare points. These pieces are particularly common in Ireland, as well as in northern and western Britain (ibid: Fig. 48). Both faces have been shaped by robust invasive retouch.

Plano-convex knives: Plano-convex knives were discussed by Clark (1932), but unfortunately

he did not explain how these were to be clearly distinguished from their close formal 'relatives', the scale-flaked knives. As pointed out by Clark (ibid: 158), the term 'plano-convex knife' 'accurately describes the section of the implement', which was usually produced on an elongated flake or blade, and 'the point is normally obtuse, if not rounded...'. The important detail, when considering plano-convex knives to scale-flaked knives, is the point that their *plano-convex shape* must have been formed by invasive retouch, and not simply by the incidental shape of the original blank, whereas scale-flaked knives were shaped entirely by invasive retouch ('scale-flaking') of their *cutting-edge(s)*, usually in association with abrupt retouch of the lateral side opposite the cutting-edge (see also Ballin 2011: 22).

The present piece is the distal fragment of a knife with two scale-flaked edges, and where the invasive retouch covers most of the dorsal face. The proximal end is missing, whereas the distal end is defined by a hinge fracture. It is not possible to determine whether this elongated knife is based on a flake blank or a blade blank (22 x 14 x 6mm).

Scrapers: This heterogeneous category embraces three short end-scrapers, one side-scraper, and a scraper-edge fragment. Two of the end-scrapers (CAT 84, 90) are expedient pieces, with a suitable steep scraper-edge at the distal end of an irregular hard-hammer flake (35 x 24 x 12mm) and a thick bipolar flake (34 x 15 x 14mm), respectively. CAT 63 is the distal end of a heavily burnt or vitrified end-scraper, and the surviving working-edge is convex, steep and highly regular (GD 20mm). CAT 3 is the distal left-lateral fragment of a small side-scraper (GD 19mm), the working-edge of which is steep and slightly convex. The right-lateral side is concave and has clearly been used. The latter may be a concave scraper-edge, or the piece may have been picked up in later times to be used as a fire-flint (see below). CAT 47 is the heavily burnt fragment of an indeterminate steep scraper-edge.

Piercers: Two piercers were recovered from the site, namely a fairly large piece (CAT 45: 44 x 28 x 9mm), and a very small piece which may be a drill tip (CAT 54: 16 x 13 x 6mm). Both are based on hard-hammer flakes. The former has a distal tip formed by propeller retouch, supplemented by some lateral blunting at the proximal end, whereas the latter has a distal tip formed by traditional dorsal retouch. Both have an expedient appearance.

Pieces with edge retouch: Three flake fragments (CAT 34, 40, 79) display various forms of lateral modification. They differ considerably in shape and size (greatest dimension 13–28mm). This tool group probably includes fragments of artefacts with different functions.

Fire-flints: Eighteen pieces have been defined as fire-flints, or likely fire-flints (Ballin 2005).

The Baliscate fire-flints are mostly based on fragments of robust, irregular flakes (15 pieces), irregular flakes (three pieces) or indeterminate pieces (two pieces). The size of the pieces varies considerably (GD 15–53mm), and the blanks seem to have been produced in an entirely unschematic manner. Only five tool blanks were technologically definable, with three pieces having been detached by the application of hard percussion, and two by bipolar technique. Most of the fire-flints only display light wear from use (compared, for example, with similar, more heavily used pieces from Trusty's Hill, Galloway; Ballin in prep b), but in a number of cases notable lateral concavities were formed when the pieces were struck repeatedly by a steel strike-a-light (eg CAT 4, 5).

In Ballin (2005), the author suggested that, on occasion, fire-flints were 'shaped' prior to use, for example, by blunting one or more edges to 1) strengthen the edge about to be struck, or 2) protect the user's fingers during fire-making. CAT 64 has two neatly modified edges, which may represent this form of 'shaping', or the implement may be a reused (later prehistoric?) scraper. The edge opposite the modification has been transformed into a concavity by repeated strikes with a strike-a-light.

9.9.2.6 Natural objects

The collection also includes a number of natural objects, which were retained as they may have been deliberately deposited at this religious location (burial ground/monastic site). This group of finds includes one small smooth oval pebble (CAT 102; GD 24mm), five individual rockcrystal crystals (CAT 97–8, 100–1, 106; GD 9–18mm), and two druses of small milky quartz and rockcrystal crystals (CAT 93, 107; GD 32–67mm). CAT 93 is only part of one crystal-studded wall of a cavity, whereas CAT 107 is an almost intact crystal-filled cavity, a so-called geode.

9.9.3 Technology

As described in the report's introduction, the site represents human activity over hundreds of years, with graves being dug, and buildings and other structures being erected, adjusted and, subsequently, cannibalised for building materials. Due to these activities, and the fact that many (if not most) lithic artefacts were no longer in situ, it is almost impossible to subdivide the assemblage into chronologically well-defined groups, or define detailed chronological schemas.

However, the evidence does allow a small number of observations to be made: 1) soft percussion (two flakes) and invasive retouch (a barbed-and-tanged arrowhead and a plano-convex knife) were applied to produce a number of blanks or implements, and must represent early prehistoric (Mesolithic–Early Bronze Age) approaches, and 2) the blanks for the site's fire-flints are all irregular and based on entirely unschematic reduction, probably dating to later prehistoric or historical times.

9.9.4 Distribution and activities

Table 23 shows the distribution of all worked and unworked lithics, and there are no obvious distributional patterns. Scrutiny of individual artefact contexts also revealed little, although the recovery of the barbed-and-tanged arrowhead (CAT 76) from wall fill (8005), and one of the end-scrapers (CAT 84) from the fill of the *vallum* (C1004), supports the excavator's (Ellis 2012) suggestion that early prehistoric finds may have been brought onto the site when turf (for building work) was being procured from the area around the location (although see below). The fact that most of the finds were retrieved from Trenches 1/3 and 8 probably only reflects the fact that these trenches were the most extensive in terms of area investigated.

Although the fire-flints are likely to be the latest lithic artefacts made and used on the site, they were probably also affected by the constant building and rebuilding of structures, and they were not *necessarily* found where they were originally used or deposited/discarded. However, it is noteworthy that five of these pieces were recovered from possible floor or occupation layers (Contexts 2b003, 4003, 4022, 4028, 8029) and possibly represent domestic activities. Metalworking most likely took place at the site (see Cruickshanks above), and it is possible that some fire-flints were associated with this activity. At the Early Historic site of Trusty's Hill, Galloway, fire-flints were found with metalworking debris (Ballin in prep b).

Although it is quite likely that some flints were brought onto the site embedded in turf, it cannot be ruled out that a spectacular object like the Balliclare point (CAT 76) was inserted into Wall (8005) intentionally. In historical times, it was a commonly held belief that certain spectacular flint objects were thunderbolts, such as fossil sea urchins and belemnites, as well as arrowheads and polished flint axes (eg Evans 1897: 59). As such, they had magical properties and were occasionally inserted into walls or placed under floors to protect against lightning strike.

Although small loose crystals may occasionally be found in almost any geological environment, the recovery of so many individual quartz/rockcrystal crystals and druses is unusual. The number of crystals suggests that they may have been collected in the surrounding area (possibly Mull's volcanic centre) and deposited deliberately, for example, in connection with burial rites, or they may have been deposited with quartz pebbles in the area around the *leacht*. Quartz in its various forms may generally have been imbued with spiritual or magical properties by our ancestors, and quartz pebbles and rockcrystal have been deposited in graves throughout prehistory as well as in historical times (Lebour 1914). At Midross by Loch Lomond (Ballin in prep a), an Early Historic cemetery surrounded by a ditch included a series of graves which contained small amounts of burnt quartz.

9.9.5 Dating

Apart from a small number of Bronze Age objects, most of the site's lithic artefacts are difficult to date. Two flakes (CAT 38, 49) may have been detached by soft percussion and possibly represent Mesolithic or Early Neolithic visits to the area. In Britain, the use of invasive retouch is generally restricted to the Neolithic and Early Bronze Age periods, and the site's barbed-and-tanged arrowhead (CAT 76)

Table 23 Distribution of all worked and unworked lithic objects

	Tr. 1/3	*Tr. 2*	*Tr. 2b*	*Tr. 4*	*Tr. 5*	*Tr. 8*	*Tr. 10*	*Total*
Debitage								
Flakes	27	5	3	4		4	2	*45*
Microblades	1	1						*2*
Indeterminate pieces	14		1	1		3		*19*
Total debitage	*42*	*6*	*4*	*5*		*7*	*2*	*66*
Cores								
Irregular cores	1							*1*
Bipolar cores	2						1	*3*
Core fragments						1		*1*
Total cores	*3*					*1*	*1*	*5*
Tools								
Barbed-and-tanged arrowheads						1		*1*
Plano-convex knives	1							*1*
Short end-scrapers		1	1				1	*3*
Side-scrapers	1							*1*
Scraper-edge fragments	1							*1*
Piercers	1	1						*2*
Pieces with edge-retouch	2					1		*3*
Fire-flints	8		2	3		5		*18*
Total tools	*14*	*2*	*3*	*3*		*7*	*1*	*30*
Natural objects								
Smooth pebbles	1							*1*
Crystals, individual	4			1				*5*
Crystals, druses	1				1			*2*
Total natural objects	*6*			*1*	*1*			*8*
TOTAL (worked pieces)	59	8	7	8		15	4	101

definitely dates to the Early Bronze Age period (Green 1980). The plano-convex knife (CAT 7) (cf. Finlayson 1997) is probably also an Early Bronze Age piece, although these knives were produced in the Neolithic as well (Late Neolithic specimens tend to be blade-based; Manby 1974: 86). The highly regular working edge of burnt end-scraper CAT 63 suggests a similar date (Ballin 2011: 25). Fire-flints are notoriously difficult to date, but the irregular blanks used for all the fire-flints indicate a date after the abandonment of systematic lithic production, such as the Iron Age period or, given the context of the site, more likely later (cf. Ballin 2005).

9.9.6 Conclusion

In general terms, the site is a palimpsest, and it has not been possible to disentangle the various chronological elements. It was possible to date a handful of prehistoric types and technological attributes to the Mesolithic/Neolithic period in general or to the Early Bronze Age, but most lithic debitage, cores and implements remain undated/undatable. Although important object groups like the fire-flints and the quartz/rockcrystal crystals are undiagnostic, the context of the site (cemetery/monastic site) suggests a rather late date, such as the early or later medieval periods.

Due to the site's palimpsest character, the prehistoric artefacts have little research value, whereas the fire-flints add to our knowledge of lithic artefacts manufactured in historical times. Recently, several other fire-flint assemblages have been processed, such as the Early Historic site of Trusty's Hill, Galloway (Ballin in prep b), and the mainly later site of the Glebe on Iona (Ballin in prep c). A similar assemblage from the Shiants was shown to the analyst by Dr Chris Barrowman and excavator Pat Foster, where ballast flint had been smashed to provide blanks for fire-flints and simple cutting implements. The probable distribution of quartz/rockcrystal crystals in connection with the cemetery or pilgrim-related activities also adds to our knowledge on the late use of lithic materials.

9.10 Glass report

K R Murdoch

9.10.1 Introduction

This small assemblage of glass from Baliscate was in excellent condition, with none of the sherds exhibiting any corrosion or even slight surface dulling. This is testament to the neutral or acidic local soil conditions prevailing in the buried environment. The majority of archaeological glass found in Scotland is recovered in or near former structures in which lime mortar had been used. The alkaline conditions generated by the lime mortar are the worst for preservation of glass and most types will exhibit at least the start of corrosion after a few decades of burial.

While this is good news for the preservation of the artefacts, it can make identification more difficult. Many of the typical forms of glass corrode in a predictable manner and this can help with identification and a very loose interpretation of date.

Some sherds are described as having seed, small gas bubbles trapped in the glass due to low furnace temperatures during the manufacture of the raw glass. The glass remains too viscous for the bubbles to escape. Most utilitarian bottles up to the middle of the 19th century have seed.

'Orange peel' is another expression used for a few sherds. This is caused when the hot glass comes into contact with a metal mould which is too cool and the contact surface obtains a pock-marked appearance similar to the peel of an orange.

With the exception of the wine bottle base sherd from (4003) in Structure 1, the rest of the glass was recovered from top or subsoil contexts or wall tumble and is probably later than any permanent occupation of the site. The small medicine phial/bottle is the only item that might suggest otherwise, however, the amount of glass recovered was very small, indicating casual loss rather than occupation.

9.10.2 Bal 182 sherds

The earliest sherd in the assemblage was the part wine bottle base from (4003) which has a profile dating it to the late 17th to early 18th century. The evolution of the glass wine bottle from its introduction into England *c* 1630, Scotland probably slightly later, saw radical changes in shape with time. Many had dated seals and it is relatively easy to allocate a rough date for manufacture based on established date by shape typologies. These bottles, however, were reused over and over again; the practice in Scotland was to fill the bottle in the cellar from a cask for decanting at table or having the bottle refilled by a wine merchant. Rack storage was seldom used until the 19th century.

With the exception of two other sherds from (2000) and (2b002), which might be late 18th century, the rest are mid 19th century or later and few retain enough detail to establish use. The small neck and lip sherd from (2000) is almost certainly a small medicine phial or bottle with a characteristic everted lip. However, since it is clear colourless glass, again that places it no earlier than the mid 19th century.

9.10.3 *Time Team* 71503 sherds

The three sherds from (201) SF123 could easily be from the same or a similar bottle to those from (2000) and (2b002) in the latest excavation group.

The sherd from (201) SF48 has a colour normally associated with medicine bottles in the late 19th to early 20th century, but there is no further detail there to go on.

9.10.4 Catalogue

▸ **2000**
Two sherds bottle, one with vertical mould line, pale fire-bright green with slight 'orange peel' outer. Probably late 19th c.

▸ **2002**
Two sherds bottle, pale dull green tint, outer surface slightly textured, probably late 19th c. Sherd fire-bright flattish glass, very pale green tint, probably from flat-sided bottle, late 19th c, just possibly early 20th.

▸ **2001 SF2006**
Small thick (5.8mm) sherd, pale green tint, late 19th/20th c.

▸ **2000**
Body sherd wine or ale bottle, fire-bright brownish-olive, quite seedy glass and undulating outer surface from mould contact. No later than mid 19th c and possibly late 18th.

▸ **2000**
Neck and lip sherd from small medicine phial/bottle in fire-bright clear glass, lip everted at 90°, late 19th/20th c.

▸ **2b002**
Sherd virtually identical in colour and nature to sherd in 2000 above. Slightly thicker and therefore darker but could still be part of same bottle.

▸ **4003 SF4005**
Part base and kick from wine bottle, fire-bright slightly brownish olive.

Gentle curve through base ring into shallow kick, very seedy glass, rim pontll scar. Profile typical for late 17th to very early 18th c.

71503 Time Team excavation

▸ **201 SF48**
Fire-bright bottle body sherd in pale bluish green, slight 'orange peel' outer surface. Colour reminiscent of late19th-/early 20th-c medicine bottles.

▸ **201 SF123**
Three sherds possibly from the same wine or ale bottle, fire-bright brownish olive, 'orange peel' outer, many small seed. Very similar in colour and nature to the two sherds recovered from Contexts 2000 and 2b002 during the latest excavation. No later than mid 19th c and possibly late 18th.

9.11 Soil micromorphology

Clare Ellis

9.11.1 Method

9.11.1.1 Field sampling
Eight kubiena samples were taken from a variety of deposits revealed during the excavation at Baliscate on the Isle of Mull. Two consecutive samples were taken through (2008), a friable deposit with charcoal inclusions that occurred within a bedding trench which may have originally held some form of fencing or palisade [2005]. A single sample was taken through probable hearth fills (3015, 3085 and 3084). Single samples were also obtained from (8014) and (8016) respectively; these contexts are interpreted as redeposited turf used in the construction of the latest chapel wall. Another sample was obtained from (3064), a pit fill thought to include hearth and other waste material. Finally, two samples were recovered from (3033), a layer of roundwood charcoal, above and below which is a burnt clayey deposit. A summary of the results is given below.

9.11.1.2 Thin section manufacture and description
The sample was 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 crystic 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 eight samples were assessed using a MEIJI ML9200 polarising microscope following the

principals of Bullock et al (1985), Fitzpatrick (1993) and Stoops (2003). A range of magnifications (40x–400x) and constant light sources (plane polarised light – PPL, cross-polars – XPL, circular polarised light and oblique incident light – OIL) were used in the analysis.

9.11.2 Specific research questions

Samples 13 and 14:

- What is the nature of the ditch fill (2008)?
- How did the deposit (2008) accumulate?
- Is the evidence for in situ burning?
- Did the ditch contain timbers?

Samples 22 and 23:

- Is the lower fill (8016) of the chapel wall made up from redeposited turf?
- Is the fill (8014) of the chapel wall also made up from redeposited turf?
- When was the turf burnt?
- What are the compositional similarities and differences between (8016) and (8014)?

Samples 24 and 25

- Is (3033) wall material? Does it comprise burnt wattle and daub?

Sample 26

- How did the fill of the pit accumulate?
- What is the nature of the pit fill?

Sample 19

- How did the fill of the pit accumulate?
- What is the nature of the pit fill, and is this a hearth pit?

9.11.3 Results

9.11.3.1 Summary descriptions

The fabric of all the sampled contexts has been considerably disturbed by the activities of soil fauna resulting in the domination of crumb and granular microstructures. However, despite the extensive bioturbation, a horizontal band of charcoal survives in (3033) Sample 24, and the three contexts in Sample 19 are also distinguishable although the boundaries have been much disturbed. Another effect of bioturbation is the relative openness of the structures, with numerous voids occurring between crumbs and granules. The decomposition of organic matter within the soil is evident in the relative abundance of soil fungi, typically sclerotia. Although broad bands of charcoal (Samples 24 and 25) and sediment types (Sample 19) survive, there is no apparent preferred orientation to the arrangement of the finer material within any of the contexts.

All but two of the contexts exhibit fine monic-related distribution in which fine material dominates. The upper and lower contexts from Pit [3086] are the only contexts with significant rock content, elsewhere silt dominates. In PPL the sediments are either yellow, yellow-brown or brown in colour and when viewed in XPL the majority of the contexts exhibit a weak stippled-speckled b fabric caused by weathered feldspars and the masking of clay minerals by organic matter and iron oxide. In OIL those sediments and deposits that have been affected by fire are bright orange.

Phytoliths, siliceous plant remains, are generally very few, though there are relatively significant quantities in Samples 22, 23, 24 and 25 and it is these contexts in which there is a considerable turf component to the deposit. Diatom frustles, a cell wall of algae made from hydrated silicon dioxide, occur in the deposits rich in turf and are typical of relatively damp environmental conditions. Small fragments of charcoal are relatively rare and they occur within burnt turf and also as a component in turf deposits that have not been directly burnt but in which the presence of charcoal indicates that they may have midden added to them, perhaps to increase the fertility of the soil during cultivation. The burnt peat deposits generally do not contain charcoal, are bright orange in colour and have little to no mineral content.

9.11.4 Discussion

9.11.4.1 Samples 13 and 14 (2008)

These samples comprise mainly ash derived from silt-rich turf. There are also some clasts of partially carbonised peat. Within the ash are fragments of charcoal, much of which is within a partially infilled channel and is likely to be derived from the deposit above. In addition, there are a few clasts and channels and voids infilled with yellow silt with rare

inclusions of charcoal; this material is interpreted as redeposited natural, perhaps the original up-cast from the ditch. The whole context has been extensively reworked by soil biota and much of this reworking took place prior to the accumulation or dumping of the deposit in the ditch. There is no evidence that the deposit has been burnt in situ.

9.11.4.2 Sample 22 (8016)
This sample was taken from a turf layer excavated from within the latest chapel turf wall. It comprises a redeposited turf with a near central band of burnt organic litter of various plant residues. The litter layer is dominated by crumbs of amorphous dark-brown charred organic matter within which are fragments of burnt grasses and roots. The organic silt (A horizon) below and above the burnt litter layer has not be directly affected by fire. However, many of the components are ash residues, including numerous fragments of charcoal, rounded clasts of the burnt litter layer and a relative abundance of fragmentary phytoliths. The structure of the organic silt is fairly homogeneous, indicating that it has been reworked, certainly by soil biota but also, given the relative abundance of silt-sized charcoal fragments throughout the soil, it may have been manured and cultivated. The lower boundary between the litter layer and the organic silt is sharp, whereas the upper boundary is more diffuse, indicating that the upper turf had only recently been burnt before being cut and inverted when placed in the wall of the possible chapel.

9.11.4.3 Sample 23 (8014)
This sample is derived from the turf layer sitting above (8016) in the possible chapel wall. (8014) is dominated by burnt organic matter and would appear to present a thick layer of burnt turf (O horizon) with a very limited amount of mineral matter. The intensity of the burning increases up the profile, indicating that this turf is the right way up.

9.11.4.4 Sample 24 (3033)
This sample is derived from a deposit located above Wall [3111] and over the trampled surface (3039) which was possibly associated with the building of the *leacht*. The bulk of the material comprises organic silt, very similar in character to the material observed in Sample 22 (8016). Again, the residues of ash, including charcoal, have been incorporated into this turf. The turf is rich in amorphous organic matter that has not been burnt. In contrast, there is only a small amount of mineral material within the layer dominated by roundwood charcoal and some of this mineral material is clearly burnt; presumably burnt at the same time as the roundwood was carbonised. One explanation is that the roundwood wattle was exposed and caught fire. The wattle wall collapsed on top of the inner stone wall, with the outer turf wall or roof then collapsing on top of the burning wattle, smothering the fire and thus causing the carbonisation of the roundwood with only the turf actually in contact with the wood becoming burnt.

9.11.4.5 Sample 25 (3033)
This sample is derived from the base of the turf wall of the chapel and was interpreted in the field as the same deposit as (3033) sampled in Sample 24. The turf on either side of the thin layer of roundwood charcoal has been burnt; the intensity of the burning is highest immediately around the charcoal layer. Roughly 1cm of turf below the roundwood charcoal layer is burnt, whereas 2–3cm of turf above the charcoal have been burnt and even above that the turf is clearly charred. It is possible that the fire was more intense at this location, with more of the outer collapsed turf wall and/or roof being affected by heat. Above the burnt turf horizon, the turf is not burnt but does contain a significant amount of silt-sized charcoal fragments, a clear indication that ash has been added to the turf before it was incorporated into the structure. There is a slight horizontal orientation to the smaller charcoal fragments in the turf which has not burnt. This horizontality may have been caused by the turf of the collapsed wall or roof being spread and levelled out to form the foundation of the later chapel turf wall. Unfortunately, significant post-depositional bioturbation has destroyed much of the original fabric.

9.11.4.6 Sample 26 (3064)
This sample is derived from Pit [3070]. The sample is dominated by pale yellow silt which contains no charcoal and a few rounded rock fragments. This material, interpreted as redeposited natural, has

been partially broken up and mixed with clasts of burnt turf and organic silty turf rich in ash residues, including that derived from turf and wood. There is no evidence for in situ burning. One possible explanation is that the yellow silt formed the base of a hearth which went out of use, was broken up and, along with ash, was disposed of in a pit.

9.11.4.7 Sample 19 (3084 over 3085 over 3015)
The lower context (3015) is a silt rich in small fragments of burnt stone and burnt mineral turf; this could be the burnt remnants of the stone base of the Fire Pit [3086]. The open fire was fuelled with a silty peat or turf (3085). The fire was not cleaned out, with another (3084) being set on top of (3085) mainly composed of silty peat; the heat of the last fire was the most intense, reducing the organic and mineral content to a red-orange silt.

9.11.5 Summary conclusions

1. The ditch fill (2008) does not represent in situ burning, but appears to be dominated by the ash of turf. Mixed with the turf ash are fragments of charcoal and rounded clasts of natural silt, with later silt infills to voids and channels.
2. The turf wall of the chapel is made up of redeposited turf. The upper grass and litter layer in one of the turves within (8016) was burnt before the turf was cut and incorporated into the wall; the turf was inverted.
3. The upper turf layer (8014) has been subject to much more burning than the lower layer (8016) before it was incorporated into the turf wall; on this occasion the turf was placed the right way up.
4. There is evidence that the turf of the chapel wall may have been manured and, by implication, cultivated prior to its incorporation into the wall.
5. The deposit (3033) is a turf located above and below a layer of burnt roundwood, the latter interpreted as the remains a wattle fence or wall. The wattle caught fire and the turf, which was possibly lining the outside of the wattle, or perhaps covered the roof, collapsed on top of the wattle, smothering it and causing the wood to carbonise rather than completely combust.
6. Pit [3070] comprises redeposited silt and ash residues of both turf and wood, as well as clasts of natural which may have been used in the construction of a hearth base. The pit is interpreted as a rubbish pit.
7. Pit [3086] is a pit hearth. The upper ash deposits were not removed, with at least two final firings taking place before it was eventually abandoned. The fuel appears to have been dominated by silty turf or peat with a small wood component which may have been used to start the fire.

10. DISCUSSION

10.1 Late Iron Age and Early Historic period

10.1.1 The cemetery

Up to 18 grave cuts were recorded within Trenches 1/3 and 8. These represent only a small portion of the whole cemetery, with the grave cuts clearly disappearing into excavation section edges and with only a small percentage of the deposits which sealed the burial ground being removed.

The challenge is to determine whether this cemetery is Christian in origin, and whether it is the remains of an unenclosed field cemetery, or the remains of an enclosed formalised church cemetery. The following discussion draws heavily upon the work of Maldonado (2011), a PhD which provides an up-to-date and comprehensive collation and analysis of burial practices of the Late Iron Age in Scotland.

There is a number of features to suggest that the cemetery at Baliscate is probably Christian. Firstly, all the graves as revealed were oriented west to east or a slight variation on this orientation, and although this orientation is not exclusive to Christianity, the lack of any graves with an alternative orientation certainly suggests a unified burial rite. The second indication is the distinct lack

of grave goods; although not unknown from early Christian burial, they are rare. The third and most persuasive indication is the presence of head boxes, in this case formed from plough-scored cobbles and irregular blocks of basalt set either side of the head and capped by a third stone. Maldonado (2011) has shown that head boxes almost always occur on church sites, with only a single example known from Balblair Resolis enclosed field cemetery which dates to the ninth to tenth century. He also concludes that head boxes have their origins in the seventh century AD and were adopted because of:

> a growing anxiety over salvation and the way the grave could help or hinder this process ... these kinds of graves portrayed a perceived need for the corpse to remain intact and correctly positioned even after the grave is closed [...]. As such, what these new practices are signalling is Christian beliefs regarding penance and the afterlife and they are best interpreted as ways to ensure this extended process of transformation is completed with minimal interruption. (Maldonado 2011: 202–3)

Monastic cemetery sites are dominated by male burials, sometimes with a higher proportion of subadult burials than would otherwise be expected. Female burials are rare in monastic cemeteries, in contrast to field cemeteries where female and young adults dominate (Maldonado 2011: 261). At Baliscate, of the seven identifiable individuals, two were juveniles and four were adults, with one of the adults being of a mature age; unfortunately, it was not possible to ascribe sex to any of these individuals. The occurrence of subadults and infants within a cemetery can also be indicative of Christian burial as infant and subadult burials are rare in non-Christian burial contexts. Furthermore, the presence of youths does not preclude the cemetery being monastic; at Inchmarnock, children were being educated and trained for a religious life within the monastic complex (Lowe 2008: 262). Similarly, at the monastic settlement of Illaunloughan Island, County Derry, the juvenile skeletal remains were interpreted as those of fostered children destined for a religious life (White-Marshall & Walsh 2005: 84–5).

The occurrence of intercutting graves indicates the presence of either an early church structure or a venerated structure such as a shrine or saint's burial close to which people desired to be buried. Rennie (1999) postulates that the small enclosure at Ardnadam, Argyll which sealed an Iron Age roundhouse may have delineated a sanctified area focusing on one grave and a four post-hole setting for a possible portable altar, although why a portable altar would require a post setting is unclear. However, at Baliscate there is no archaeological evidence of a church or venerated structure, but the remains of either could very easily be masked by the presence of unexcavated younger deposits. It is unlikely that the possible *leacht* is the venerated structure as it most probably dates to a later phase (see below). However, because of its rarity the possible *leacht* was unexcavated and so its date of inception remains a matter of conjecture.

10.1.2 Metalworking

There is a correlation between Early Historic ecclesiastical cemetery sites and earlier settlement with evidence of craft production and especially metalworking; such correlations are documented at the monastic sites of Barhobble, Dumfries & Galloway; Whithorn, Dumfries & Galloway; Portmahomack, Ross and Cromarty and Inchmarnock, Argyll and Bute (Maldonado 2011). Maldonado (2011: 222) goes on to suggest that in western Scotland, as in Ireland, the pattern followed in establishing monastic sites is one of planned settlement with burial as a secondary concern. At Baliscate there is some evidence for earlier domestic settlement and craft production before the inception of the cemetery. Plough cultivation was taking place on the terrace before the construction and subsequent backfilling of the bedding trench for the organic Fence [2005], though it is not possible to tell whether this is part of an enclosure or large structure. The inclusions of slag within the lower fills of the gully suggest nearby metalworking while the upper fill of the gully is more typical of domestic middens. In addition, two of the grave fills yielded slag and one a possible fragment of furnace lining or tuyere. Near contemporary industrial activity is also indicated by Pit [3030] which cut one of the graves but was sealed by a soil (8018) that effectively capped the cemetery; the pit contained slag, slag rake out material and, again, possible furnace lining or tuyere.

10.1.3 Enclosure

Graves in open, unenclosed field cemeteries of the Late Iron Age/Early Historic period rarely intercut as there was no containment of the burial ground and hence no pressure on space, whereas those in church or consecrated ground often show intercutting and/or superimposition and/or the sharing of graves (Maldonado 2011). Many of the graves at Baliscate intercut and the period of time which elapsed between one burial and that of the next was relatively short, at least not to be distinguishable by radiocarbon dating. This indicates that there must have been considerable pressure on the available space within the cemetery. This pressure may have come from the desire for those being buried to be interred as close as possible to a feature of veneration, or alternatively it may be the result of the presence of a small enclosure encircling consecrated ground outside of which burial was deemed undesirable.

The presence of an enclosure, whether it be a wall, some form of palisade or a ditch around the cemetery has not been proven, but there is a number of possible candidates, including the sixth- to seventh-century bedding trench [2005] recorded in Trenches 2 and 2b, the pre-ninth-century Gully [3112] recorded on the east side of the cemetery and the stone and turf and timber Wall [3105]. The backfill of the bedding trench [2005] dates to between the second half of the sixth century and the first half of the seventh century and so unless midden material from an earlier phase of occupation was used to infill the gully, it is unlikely that this fence line would have been functional at the same time as the cemetery was in use. Only a small length of Gully [3112] was uncovered and it appeared to be part of a close curve, possibly of a circle, making it more akin to a small structural feature rather than a large enclosure ditch. Another candidate is Wall [3105], though this may have been too large (see below for further discussion). The apparent lack of graves in the northern part of Trench 1/3 next to this wall is probably a consequence of the masking effect of later soil build-up rather than a true absence, but only further excavation would determine this.

The extrapolation of the stone, turf and timber Wall [3105] north-westwards sees this feature coincide with the large enclosure bank where it takes a near right-angle turn northwards (Illus 9). The construction technique of both features is very similar to the bank of the *vallum monasterii* on Iona where the earthen bank was revetted with stone (Thomas 1971). Dating evidence for both features is limited, though Wall [3105] is earlier than the ninth century AD (being capped by burnt barley (SUERC-47442)) and the lower bank material (1008) has a *terminus post quem* date of the late seventh or eighth century AD (SUERC-42452), indicating that the bank may have been constructed in the second half of the eighth century AD. It is tentatively proposed that these features are coeval, part of an oval enclosure that occupied the highest and flattest part of the terrace (Illus 9). If this is accepted, then the missing stretch lies to the south-east where it may have run along the base of the natural slope, where there are a number of loose blocks of stone, to then join with the bank, which can still be seen today. The northern limb of this enclosure is likely to be roughly contemporary, as it exhibits a similar method of construction. The majority of known Early Historic period monastic sites are enclosed by curvilinear ditches and/or banks and/or walls. The monastic enclosure can be multifaceted, serving to divide the space into areas with specific functions (eg Lowe 2008: 255). At Baliscate, only two divisions are apparent: the western enclosure contains the burials, craft production and possibly settlement while more mundane activities, including the processing of crops, may have been restricted to the lower eastern area. The single visible entrance into the enclosure complex at Baliscate was located at the eastern tip of the enclosure, where a small stone and turf structure located on the outside may have served as a gatesman shelter.

10.1.4 Summary

The radiocarbon dates indicate that occupation and Early Historic period semi-industrial activity began on the site between AD 465 and 610 and lasted for 230–500 years. We can be sure that at Baliscate during the Early Historic period there was a burial ground, most probably Christian, set alongside or over a pre-existing settlement within which some metalworking was taking place. However, what is actually being hinted at by the fragmentary archaeological record (head boxes; intercutting graves; two large, conjoined enclosures; correlation

of metalworking activity and burial) is the presence of a probable Christian community, taking the form of an enclosed settlement.

The size of the area enclosed at Baliscate is roughly 1.37 hectares, smaller than St Blane's on the Isle of Bute and St Moluag's on the island of Lismore, each roughly at 2 hectares (Laing et al 1998; Fisher 2006: 121–2), but significantly bigger than many of the smaller west coast monastic sites, such as Inchmarnock, Argyll and Bute (Lowe 2008); Nave Island, Islay (though Caldwell (2001) notes a larger adjoining enclosure to the north which, if part of a larger monastic *vallum*, would give an area of roughly 1.69 hectares) and St Patrick's, Tiree (RCAHMS 1980: 164–6). Lowe (2008: 263) suggests that the small size of Inchmarnock, when compared to its contemporary and possible mother settlement of St Blane's, is a reflection of relative status and if the same logic is applied to Baliscate then the implication is that Baliscate, with some of the monastic attributes (Carver 2009) (ie enclosure, Christian burial, metalworking and grain production), may have been a minor monastic site of the seventh and eighth centuries AD.

However, without specific evidence such as carved stone slabs or sculpture and accoutrements of literacy (eg the making of vellum, writing implements or motif pieces), the monastic nature of Baliscate cannot be proved beyond doubt. Caldwell (2008: 26) suggests that the monastery was the only type of religious institution in the Early Historic *Gàidhealtachd*, although it is clear that some of these rapidly grew into centres of population (eg Sharpe 1995: 81; Carver 2008: 120). But it is increasingly argued that because of our reliance on a limited number of early documentary sources which were written by monastic authors, the role and importance of secular clergy attached to royal and noble households is under-represented (Fraser 2009: 87). Alternatively, the cemetery at Baliscate may have been a consequence of a secular priest operating from a small chapel set within a community centred on a noble household.

The choice of location for the site, be it a monastery or Christian community, may have been influenced by a number of socio-political as well as environmental factors, such as the presence of an established pre-existing site, the elevated but relatively sheltered position, the well-drained and fertile nature of the soil, the presence of a nearby and plentiful burn and the relative proximity to the sea. The land would have probably been under the control of the *Cenél Loairn*, with their caput suspected to be at the royal fort of Dunollie, and so if a monastic establishment, or indeed a consecrated burial ground, then the land on which the site is located may have been gifted to the brethren or patronage provided by one of the aristocracy of this kin-group, perhaps as a means of providing spiritual legitimacy (Nieke 2006; Lobay 2009: 83).

10.2 Viking Age and Later Norse period

Occupation of the site continued into the ninth and perhaps the tenth century, though the cemetery appears to have gone out of use in the earlier part of the eighth century, perhaps reflecting the breakup of the monastic estate and/or the influence or threat of Viking raiders (Dumville 1997: 17–18), or even more simply a shift in the location of the burial ground. Much of Dál Riata was under the political control of the Norse by the late ninth century, evidenced in the Sagas, Irish annals, and place-names, as well as the archaeological record (Caldwell 2008: 27–30). Iona was certainly attacked by Norse raiders in 795, 802, 806 (when 86 monks were killed) and 825 (Dumville 1997: 19), and later in 986 by Irish Danes (Clancy 2013: 67), and the recent recovery of two Norse pins and other typically Norse artefacts dating to the ninth or tenth century attest to their physical presence and very probable occupation (Guard Archaeology pers comm). Further evidence for the presence of Norse warriors has also recently been uncovered just over the Sound of Mull in Ardnamurchan in the form of a boat burial which is likely to be ninth or tenth century in date (Cobb et al 2011). Interestingly, Alcock & Alcock (1987) argue that the Norse were successfully repelled from the mainland during the late eighth and early ninth centuries, with Dunollie perhaps playing a major role in the defence of Dál Riata. However, the identification of a possible Norse bead at Loch Glashan, a motif piece with Norse-style ring-plait ornament from Bruach an Druimein, Poltalloch (Crone and Campbell 2005: 126) and a fragment of Viking ring money from Dunbeg (Ellis 2016) does indicate a degree of Norse influence along coastal mainland Argyll. Furthermore, at Baliscate

the influence of Norse settlers may be visible in the architecture of the longhouse and kiln-barn (see below for further discussion).

The community at Baliscate in the ninth and tenth centuries may have been more secular than ecclesiastical, although the existence of the possible *leacht* may indicate that the site continued to be an important Christian centre. Christianity had by the end of the tenth century been adopted by the leading Norse magnates and became widely accepted within the increasingly gaelicised culture of the isles (Jennings 1998: 43; Caldwell 2008: 31; Woolf 2007: 310–11). The extension to the possible *leacht* took place before the collapse of the wattle and turf structure (early to mid 14th century) but although the date of its primary construction remains unknown, it is likely to have been after the eighth century and the abandonment of the cemetery. *Leachta* in Ireland are thought to date from between the ninth and eleventh centuries (O'Sullivan & Ó Carragáin 2008: 321). Charcoal from soil beneath a *leacht* at Ollamurray provides a *terminus post quem* for its construction to after the late eighth to tenth century AD (O'Sullivan & Ó Carragáin 2008: 320). Thomas (1971: 144) notes that the term *leacht* is derived from Old Irish *lecht* and Latin *lectus* 'bed or grave', although he knows of no example that covers a grave and therefore the monument type should be regarded as some sort of special altar. *Leachta* are typically square to rectangular, of drystone construction with a flat top on which decorated slabs and/or decorated cobbles are found (Thomas 1971: 169). Following Thomas, *leachta* are traditionally seen as outdoor altars, though this view has been challenged by Hunwicke (2006: 49) who argues that they are often too low and large to function as altars and mass was usually celebrated inside the church centred on a wooden altar. But at a small church an outside altar may have been used for specific masses or for stational liturgies which also served to articulate the space within the monastery (O'Sullivan & Ó Carragáin 2008: 324–5). O'Sullivan & Ó Carragáin (2008: 326) note that *leachta* are often in exposed and isolated positions, possibly because of their role in processional liturgies. *Leachta* are fundamentally an Irish phenomenon and, although a number of possible *leachta* in Argyll have been identified by the Royal Commission for Ancient and Historic Monuments (RCAHMS 1980) and on Islay by Waters (2013), none have been excavated and their existence in Scotland remains to be proven.

The possible *leacht* at Baliscate cannot be linked stratigraphically with any known structure (though it is entirely possible that one exists below younger deposits) so, rather than being an outside altar adjacent to a church, perhaps it was a satellite station. This possible *leacht*, the possible cross-base cairn (Trench 5) and the other possible cross-base cairn (Trench 11) may have been liturgical stations positioned along a route that ended with mass in the principal church, the latter as yet unidentified. However, a rather battered *leacht*, similar in appearance to the cairn in Trench 5, has recently been excavated at Glendalough, Co. Wicklow, Ireland and was found to have been constructed in the 20th century (Warren & McDermott 2012) and serves as a reminder that without any dating evidence it is entirely possible that these two cairns may be the remnants of later field clearance and have no religious connotation.

The small white water-worn quartz pebbles located within the extension of the *leacht* at Baliscate are thought to have been deposited on the original *leacht*, as indicated by the recovery by *Time Team* (Wessex 2010) of at least two quartz pebbles from the upper fill of the *leacht*, as some form of religious token which was accompanied by a petitionary prayer. The significance of white pebbles is explained in Adomnán's *Life of St Columba*, where he tells of the miracle of St Columba who took a white stone from a river and blessed it so that it would work as a cure (Sharpe 1995, Vita Columba II: 34). Direct evidence of the use of white quartz with early ecclesiastical sites is limited but includes the probable early Christian monastic site of Ardnadam, Argyll where a pile of white quartz stone and numerous quartz pebbles within the grave fills were recorded (Rennie 1999). Other Scottish examples where water-worn quartz pebbles were recovered from medieval graves include Whithorn and the Isle of May (Insoll 2002: 21; Daniell 2005: 163). Water-worn white quartz pebbles were also recovered from a number of post-medieval graves at St Ronan's medieval parish church on Iona (O'Sullivan 1994: 334). Also on Iona, up until the late 1800s, nine white quartz pebbles were set within three cup marks located on a sacred stone next to St Oran's chapel with

associated ritual and curative powers (Thompson 2005: 118). Furthermore, white quartz in the form of water-worn pebbles, chippings and crystals has a long tradition of being connected with the dead, from the Neolithic period right through to the Early Modern period (Thompson 2005; Arthur & Murray 2014: 6). Thompson (2005: 132) suggests that its appeal is in its light refracting and reflecting quality echoing the sun, moon and fire and it may have long been associated with housing the spirits, a means of connection between this and the after-world.

Located within the rubble collapse of the enclosure wall was a bullaun stone, although this is not thought to be in situ. A second smaller bullaun stone was recovered during the *Time Team* excavations from the wall of the sheep fank (Trench 2 Phase 12). In Ireland there is a clear association of bullaun stones with ecclesiastical sites and this association is also apparent in Scotland, although many bedrock-bounded bullaun bowls are associated with 18th-century settlement and were used as mortars to break up grain (Dolan 2009). Elsewhere in Argyll, other possible bullaun stones, sometimes erroneously recorded as knocking stones, occur on sites with some kind of religious association (including place-name or local memory). These include Killiemor (Canmore Site number NM43NE 7), Killeyan, Islay (NR24SE 4), Kildalven (NS08NW 9) Inchmarnock, St Blane's and, finally, an elaborate portable bullaun stone found adjacent to a medieval cross within the burial ground at Finlaggan on Islay (D Caldwell pers comm). Bullaun stones may have served many purposes, from mortars for grinding grain or ore (Dolan 2009), to holding water for baptism, or holding water for the washing of hands and feet before entering a church (Ó Carragáin 2010). Bullaun stones and rounded beach cobbles are also often associated with *leachta*, where the turning of a stone in an anticlockwise direction either on the top of the *leacht* or within the bowl of the bullaun was fundamental to ritualised liturgical cursing that was sanctioned by the Church (Ó Carragáin 2010: 335–6). Many of the beach cobbles associated with probable 11th-century *leachta* at Inishmurray are decorated with cross motifs (O'Sullivan & Ó Carragáin 2008: 94, 335–41) and, although no decorated cobbles were discovered at Baliscate, probable prehistoric worked cobbles recovered from the *leacht*, and associated rubble and one from the top of the enclosure wall may have been reused within the bullaun bowls. A large decorated cursing stone was recently found on the Isle of Canna (Canna Local History Group 2012) and a similar rounded, cross-decorated beach pebble on Eilean an Tighe is also likely to have been a cursing stone (Fisher 2001: 116). The base of the medieval cross at Kilchoman on Islay may have also been used in a similar manner, housing a number of ground-out hollows (Caldwell 2008: 13). Ó Carragáin (2010: 338) describes the modern cursing ritual on Inishmurray which includes walking a ritualised circuit around the island in the reverse, anticlockwise, direction while turning a cursing stone, and there appears to be evidence of cursing rituals by Irish clerics dating back to the seventh century (O'Sullivan & Ó Carragáin 2008: 339). Perhaps similar liturgical cursing processions in the early medieval period utilising the portable bullaun stone, the possible *leacht* and possible cairns can be imagined at Baliscate.

Intriguingly, excavation around the two standing stones located some 250m below on the lower terrace below the site revealed the presence of a small scoop within which was recovered a small amount of cremated bone; the bone was covered by a large piece of charcoal (Wright 2004: 32). Unfortunately, the species of the wood used to obtain a radiocarbon date was not determined and neither was the cremated bone identified to species (Sheridan 2006). However, despite these shortcomings, the find is worthy of mention since the charcoal was radiocarbon dated to AD 770–890 (SUERC-11988). The implication, though certainly not proven, is that daily life within the settlement looking down upon these ancient standing stones was dominated by Christian doctrine, whereas outwith the confines of the enclosing bank, pagan rites of burial continued, with the dead being cremated and placed adjacent to ancestral monuments to aid passage into the afterlife.

10.2.1 Hiatus

After AD 800–975 there followed a period of between seventy to two hundred years when the main ecclesiastical site may have been abandoned and this could be a reflection of the abandonment,

or in some cases the depopulation, of the larger monastic establishments, such as Iona, due to continued Viking raids. However, Jennings (1998: 47–8) suggests there is clear evidence for the survival of the monastic community on Iona and the spread of Christianity amongst the Norse settlers must have been achieved through the network of monasteries and paruchia churches which survived into this period. Given the limited lateral extent of the excavations, it is entirely plausible that activity and occupation was focused elsewhere within the enclosure during this time period, ie around the longhouse and kiln-barn, with the area immediately around the possible *leacht* reserved for procession and liturgical prayer.

10.2.2 The longhouse and kiln

A substantial kiln was in operation in the later Norse period, AD 1042–1220 (Table 1). Only three post-holes were recorded within the actual enclosing structure and these relate to the kiln rather than being supports for a roof. The relative lack of stone rubble, coupled with the considerable depth of fine silt within and around the structure, indicates that the stone and earth walls served as a footing for a turf structure. As there were no internal post-holes or post-pads, it seems likely that the roof was either supported directly upon the turf walls, with timber supports located within the turf wall, or alternatively the roof structure may have spanned the turf wall, transferring much of the load to the external ground surface. The kiln within the barn was free-standing. The two structures may be contemporary, or the kiln may have been set into a slightly earlier building, as it is offset from the centre of the enclosing building.

There is some similarity in scale, plan and construction method between this building and the Viking longhouse of Drimore, Uist. The latter had a bow-shaped western end but a straight, though angled, eastern end wall which was constructed from a core of turf and which was revetted on the inside with a thin drystone wall that would have supported a turf wall (MacLaren 1974). The rectangular Norse longhouse at Bornais also appears to have been primarily constructed from turf and stone (Pearson et al 2004: 133–7). At Bornais, the low internal revetment stone wall would have provided a solid foundation for a timber wall plate into which timber uprights would have been slotted and which in turn would have supported a wall plate set into the turf wall at roof level into which the rafters would have been set (Sharples 2005: 183). Sharples notes that if wood was scarce the timber wall plate was not vital to the construction as the upright timbers supporting the upper wall plate could have sat directly upon the wall or stone post pads. Given the similarities in the method of construction between the various Norse longhouse buildings, it is plausible that what is being seen at Baliscate is the direct influence of Norse settlers. At the eastern end of the building, a small patch of mixed occupation material, cut by the flue of the kiln, was the only indication that the structure may have functioned as a domestic longhouse prior to being reused; unfortunately, a lack of time prevented further exploration of this deposit.

The kiln had its own enclosing structure made from hazel withies capped with turf; this superstructure caught fire and collapsed while a batch of oats was being dried and was never reused. The presence of a superstructure may indicate that the kiln was free-standing and had been located within the ruins of the earlier longhouse rather than within a roofed barn. The secondary flue also appears to have had an upper organic structure clad in turf. Presumably elsewhere, perhaps within the barn, the grain was threshed or beaten to remove the awns or chaff after kilning; however, storage of the unthreshed or processed grain would have likely been in another structure where the risk of destruction by fire was smaller (cf. Lowe 2006: 108). The lack of weed seeds within the carbonised oats found within the kiln bowl demonstrates that the crop had already been processed and was being dried for either long-term storage or for the removal of the husks before grinding. The charcoal content from ash within the flue is again indicative of the presence of a birch and hazel wattle superstructure over the length of the flue.

An example of a Norse kiln-barn is that at Bornais, which comprised a sub-rectangular stone- and turf-built barn with attached but external kiln, the second phase of which had a 2.65m-long stone-lined and stone-capped flue. The use of this kiln/barn dates from the 13th–15th centuries and it was used to dry barley, oats and rye (Sharples 2005: 96). Another similar example is a sub-rectangular

structure at Birsay, to which a corn-drying kiln was added (Morris 1996: 132). Similarly-shaped kiln-barns with stone footings and timber walls have been excavated at the monastic site of Hoddom, Dumfriesshire, although these date to the eighth to ninth century AD with the later kilns being square (Lowe 2006). Lowe (2006: 108) suggests that the use of a specialised kiln-barn implies large-scale arable cultivation as opposed to a small-scale subsistence economy. In plan a parallel is the kiln at Machrins on Colonsay (Ritchie 1980), but unfortunately this structure remains undated. Whether or not the kiln at Baliscate was housed within a barn, as opposed to being sited within an unroofed ruined longhouse, it may have served a relatively large and organised, possibly ecclesiastical, community which was growing both oats and barley, or which received teinds in the form of processed grain. However, the excavation revealed no other known contemporary structures or deposits, although this is probably a consequence of the limited lateral extent of the archaeological excavations, and so, unfortunately, it is not possible to determine whether this kiln is part of a secular farm or part of a monastic complex.

10.3 Later medieval period

10.3.1 Wattle and turf structure

A slightly later trampled soil (3035) was recorded in Trench 1/3 and although statistically the radiocarbon dates from the oats within the Trench 4 kiln (4048) and that from the burnt organic residue on pottery recovered from the trampled soil are independent of one another, a short period of time elapsed between the abandonment of the kiln and the cooking of food stuffs within this ceramic vessel. Contemporary with the trampled soil was a dirty occupation horizon (3047) through which four probable squared structural post-holes and a pit, [3070], filled with rubbish were cut in the mid to late 13th century AD. However, it has not been possible to define the size and nature of this structure. To the west, waste rich in ash, carbonised grains of barley, oats and all types of charcoal had been dumped and trampled into the hollow of an earlier Early Historic period grave. There was no buried turf horizon between this dump and the upper fill of the grave and similarly there was no buried soil over the graves, eg [3075], or under floor (3047), the implication being that the topsoil had been stripped off before the current phase of occupation, to be used in the construction of the structure associated with the post-holes and the occupation deposits. This period of occupation is characterised by mixed ashy deposits, derived from domestic waste and spent fuel; a single fragment of slag recovered from the floor hints at metalworking taking place in the vicinity.

In the early 14th century, a wattle and turf structure was erected over the earlier graves. Only a very small portion of this wall was excavated and revealed. At the east end the structure had a low stone clay-bonded footing some 2m wide, but on the south side the wattle panelling may have been supported by uprights set within a sill beam. The squared post-holes, discussed above, may also be part of this structure. Turf sods were built up against the wattle to form a wide and solid wall and it is probable that the roof was also covered by turf. Cereal, mostly barley, was being stored, probably in sacks, up against the internal wattle panelling. The structure was destroyed by fire and collapsed in on itself; the turf walls smothered the flames, starving the fire of oxygen and resulting in the carbonisation of the wattle panelling and grain. Just to the north of the site was a contemporary domestic cooking pit which appears to have been located outdoors. Interestingly, the dominant grain being dried for consumption on this fire was oats, while in the adjacent structure barley was being stored. It is possible that the barley was destined for consumption elsewhere or was going to be used to make beer or was being stored for reseeding the following year. Metal fittings, including a rove and a wall plate from slightly later deposits (8029) and the turf wall (3006) may be discarded timber fixings of the collapsed wattle and turf building. There is no archaeological evidence that the wattle and timber building was used for anything but occupation and the storage of grain; although it remains a possibility that any cleric may have lived and worked within a single building and may not have made such a clear-cut distinction between secular and spiritual space as we do today.

10.3.2 Extension to the possible *leacht*

Just to the east of the wattle and turf structure was the possible *leacht*. This was extended around the

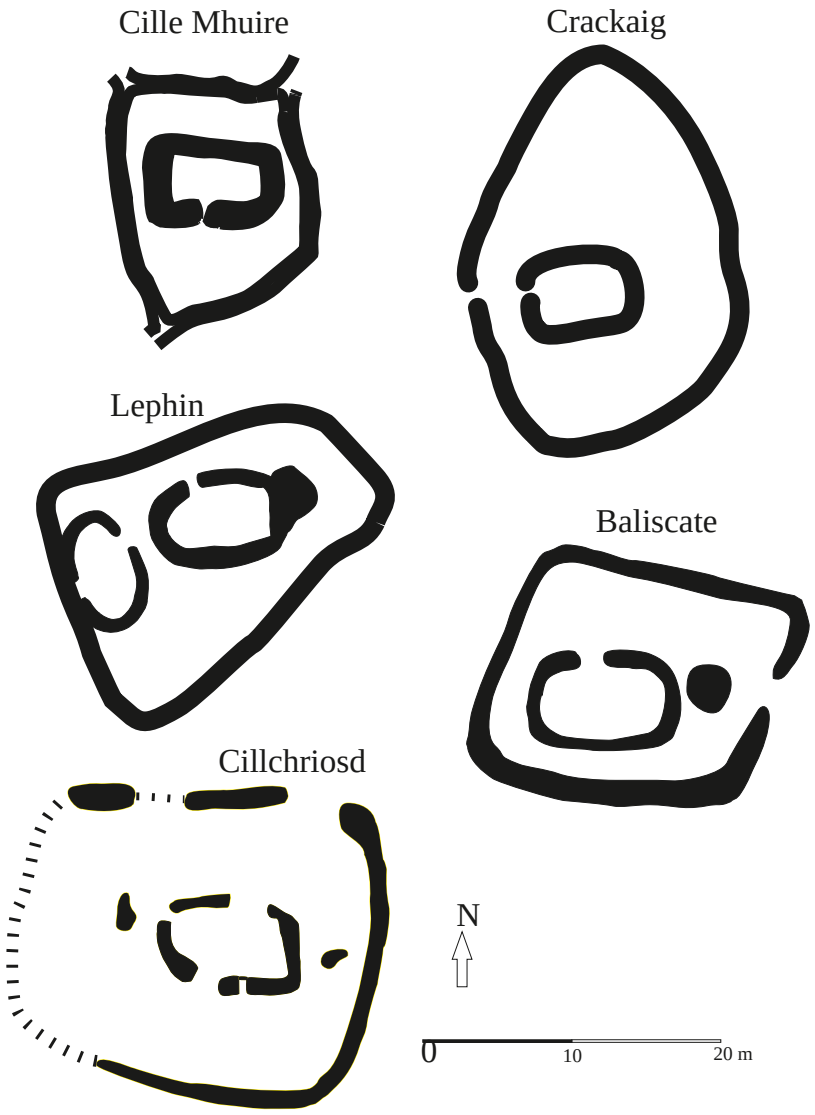
same time as the wattle and turf structure was built. The method of drystone walling employed in the extension was much coarser than that of the original and the white quartz pebbles within the rubble fill are thought to have been derived from the top of the *leacht*. This renewal of the *leacht* implies that it was still recognised as an important piece of Christian religious furniture and was perhaps even used as such. However, the presence of a seemingly secular building in which grain was certainly being stored adjacent to a *leacht*, with all its associated religious connotations, is anomalous and requires further exploration.

10.3.3 Turf and stone structure

A major remodelling of the site occurred very soon after the destruction of the wattle and turf structure. A turf- and stone-built, sub-rectangular structure was constructed and surrounded by a stone and turf enclosure. The eastern and southern sides of the structure were built directly above the remains of the wattle and turf walls, though no earlier structure was apparent under it on the northern side (Trench 8), indicating that either the remains had been completely destroyed, or more likely that the wattle and turf structure had never extended this far west. The entrance to the structure was located within the north-facing wall. Some of the turf used in the construction of this latest structure was stripped off the immediate area, truncating the burnt remains of the wattle and turf building. The turf and stone wall was around 1.90m thick, with an inner face of large basalt slabs set on edge and an outer face of rounded cobbles interwoven with turves. Slim posts ran vertically up through the turf wall, which may have been used to provide anchor points for the turves as well as providing additional load-bearing support to the roof. The roof was supported on each side of the building by squared posts which were positioned hard up against the basalt facing stones. At the eastern end, the posts were set out slightly from the wall in a sweeping arc that mirrored the bow-like end of the building. The roof may have been pitched. Internally the structure measured around 8m east to west and 3.5m north to south; no accurate measurement of the external dimensions was possible, though with a 1.9m-wide wall it would be around 9.9m long and 5.4m wide. The interior of the building was used primarily for domestic-type occupation, with evidence for nearby metalworking.

The stone and turf structure sat within a sub-rectangular enclosure some 15.7 x 18.7m, with an east-facing entrance. The method of construction of this enclosure bank was similar to that employed in the stone and turf structure, with basalt orthostats forming the inner face, an earthen core and outer facing of interwoven cobbles and turf. The inner façade of the enclosure would have been neat, almost formalised, while the outer façade is likely to have resembled an earthen bank. Given the similarity in the mode of construction of the turf and stone structure and the enclosure bank, it is reasonable to assume that they are contemporary.

The ecclesiastical nature of the site in the 13th and 14th centuries is indicated by the following physical evidence. The possible *leacht* had been extended in this period, implying a continued or renewed appreciation of its religious significance, even if it was now being utilised in a different way. The same may be true for the two bullaun stone bowls. The large bullaun stone bowl found next to the enclosure wall amongst rubble was probably moved to this location when the enclosure was built. The RCAHMS classification of Baliscate as a chapel site was presumably based upon comparison of the ground plan with other chapel sites, the most obvious on Mull being Crackaig (Canmore Site number NM34NE 2) (Illus 44). However, other sites with very similar ground plans, and in some cases also place-name evidence for their Christian origins, have been dismissed by the RCAHMS as chapel sites, despite local memory of them being burial grounds, specifically Lephin (RCAHMS 1980; Name Book 1868–1878; Canmore Site number NM45NW 9), Cillchriosd (RCAHMS 1980, RCAHMS 1980: 133; Canmore Site number NM35SE 13) and Cille Mhuire (RCAHMS 1980; Canmore Site number NM31NW 4) (Illus 44). It is clear from the surveys carried out by the author and the team of volunteers that all these sites have been laid out following the same basic rule of size and proportion; the second building at Lephin, described by the RCAHMS as an outbuilding, lies over the ruined enclosure wall and is clearly much later in date. Furthermore, at Lephin, and possibly Cillchriosd, discrete piles of rubble at the eastern end of the chapel mirror the location of the possible



Illus 44 Ground plans of probably medieval chapels and their enclosures on Mull. Based on surveys carried out by Argyll Archaeology and volunteers

leacht at Baliscate. A slightly smaller stone and turf rectangular structure at Ardnadam (Rennie 1999) has been interpreted as an early Christian chapel contemporary with the early Christian burials; the latter identified as such because of the presence of a number of cross-marked grave markers. However, given the recovery of a single sherd of 13th-/14th-century pottery from an associated structure and the lack of any other datable material from the chapel, it is plausible that this chapel is also medieval in date. Interestingly, the structure within the enclosure at Baliscate had a north-facing entrance, which is the most common entrance orientation of chapels from the 12th/13th century on Mull (RCAHMS 1980, 30–1).

However, there is also a significant and contrary body of archaeological evidence relating to the 13th-/14th-century structure and enclosure that indicates that this may not have been a chapel but an enclosed farm. Firstly, and perhaps most significantly, within the enclosure there are no contemporary 13th- or 14th-century burials. Clearly, no burials would be expected if the structures are the remains of a small enclosed farmstead. But if it was a chapel then the enclosure may not have been designed to contain burials, rather its function may have been to provide a visual and physical boundary between the sacred and the profane, with the local populace perhaps being buried in the church of St Mary located below in Tobermory. Although this type of

enclosed structure is relatively common (see above for parallels on Mull), there have been no other archaeological investigations (Ardnadam on the Cowal peninsula being an exception (Rennie 1999)) and it is not known whether burials are present within the boundary of any of these similar sites. Secondly, the evidence for domestic occupation is compelling and includes: the numerous dirty 'floor' layers excavated from within the structure which contained a large quantity of carbonised material including cereal grains and hazelnut shells; sherds of domestic pottery; internal and external hearths; a few pits also containing domestic refuse; the remnants of iron tools; and evidence for nearby metalworking on a scale that indicates a smithy in the vicinity. It seems, then, that the utilisation of the building as a chapel, if it ever was one, must have been short lived.

On the balance of evidence, the enclosed structure at Baliscate is thought, but clearly not proven, to have been constructed as a chapel. The choice of location is likely to have been influenced by the existence of the possible *leacht*, a practice seen in relation to other parochial churches, which were often built on existing or pre-existing religious sites, including those with features attributed to early Christian sites, such as a holy well and sub-circular burial enclosures (Bridgland 2006: 88). The construction of the chapel was possibly prompted by the fashion for pilgrimage as well as, perhaps, the desire to increase funds to the parish and secure personal salvation. The chapel was probably built by local people, with perhaps limited patronage provided by a local and probably politically aspirational family, themselves inspired perhaps by the not inconsiderable patronage which John I Lord of the Isles showed to the Church (Caldwell 2008: 54). Possibly someone of note visited the chapel, as a silver long-cross penny, recovered by *Time Team* from the rubble of the chapel, dates to between 1320 and 1335. This coin was either lost or perhaps deliberately incorporated into the turf of the chapel wall; intriguingly, a bent half groat of Robert II was incorporated into the wall of the late 14th-century chapel on Eilean Mor, Finglaggan (D Caldwell pers comm). Bridgland (2006: 90) speculates that the poor quality of the vicars at this time was perhaps due to the plague and also the poverty of the dioceses. It is possible that the chapel may have gone out of use as a chapel because of a sudden decline in population, or alternatively because it shared a vicar whose responsibilities were stretched too thinly across a large parish. The enclosed structure was abandoned well before the reformation of 1560 when Scotland formally broke from the Papacy and the celebration of mass was forbidden. However, the medieval chapel of St Mary in Tobermory (Canmore Site number NM55NW 2) would have provided a nearby alternative location for worship and burial as it was certainly established by the early16th century and it may have a much earlier foundation, being associated in name at least to the holy well of Tobar Mhoire (the well of Mary) (Canmore Site number NM55NW 3).

10.3.4 The barn

The barn, abandoned in the early 13th century (Trench 4), was subsequently renovated, probably around the same time as the chapel was built in the very late 13th or early 14th century. Internal, single-skinned stone walls were constructed to subdivide the interior. The method of construction of these walls is very similar to the construction of the inner face of the chapel and the inner face of the small enclosure wall. During this period the structure was used as a dwelling, with mixed grain being dried over a small oven for personal consumption and small-scale metalworking, probably including the mending of agricultural tools, also taking place around the same hearth.

10.4 Post-medieval period

The once thriving probable Christian community melted into obscurity and there is no reference to either a monastic settlement or a later medieval chapel in any known documentary sources and knowledge of the existence of the whole site was apparently lost. In the late 16th century, the barn was reused as a domestic dwelling with small-scale metalworking probably taking place. Then, in the late 18th or early 19th century, a small hearth was built within the ruin, but this appears to be a momentary action with no permanent occupation. Also during the late 18th and early 19th century, the enclosure wall/bank and the latest turf and stone structure were robbed, with much of this stone probably used to build the sheep fank located on its western side. A small bothy was built by the

shepherd in one corner of the sheep fank. The bothy then became the focus of later Victorian picnics.

11. SUMMARY

The excavation at Baliscate has, like so many research-driven excavations before it, unearthed many questions as well as answers. We have tested our hypotheses and in many cases have substantiated or disproved these. In summary:

- There is an earlier sixth- to early seventh-century AD phase of settlement.
- There is a seventh- to eighth-century AD apparent Christian cemetery, which is likely to be part of a monastic establishment, enclosed by a probable, slightly later *vallum* – ninth to late tenth century AD.
- There is a possible *leacht* dating to between the ninth and thirteenth centuries AD; the function of the two cairns remains elusive.
- There is no beehive cell, rather a late 11th- to early 13th-century AD longhouse and 12th-century AD corn-drying kiln.
- A 14th-century AD wattle and turf structure is superseded by an enclosed turf and stone structure. It cannot be proven whether these were primarily used for secular or ecclesiastical purposes.
- Permanent settlement ceased in the mid 15th century.

The excavation has also once again highlighted the difficulty of small-scale, sample excavation, especially when attempting to identify function beyond mundane activities. Further excavation of similar enclosed, chapel-like sites located throughout Argyll is urgently required to determine whether these are indeed all chapel sites, all farmsteads or a more complex palimpsest. Wide-scale excavation may also allow for the development of a chronological and typological framework of the early Christian Church in Argyll, beyond that which currently simply consists of 'a 12th-century origin of enclosed stone chapel sites which perhaps have an early Christian foundation'.

The site remains surrounded by a sitka spruce planation, but this is to be felled in the near future. Once felling is completed, Forestry Commission Scotland in consultation with Mull Museum will decide the how the site will be preserved for the future and how it might be best presented to the public. In addition, Mull Museum has produced and distributed to all the volunteers and professional archaeologists a glossy booklet. The booklet explains the history of the project and how the project was successfully achieved, and provides a summary of the findings of the excavation; booklets are available from Mull Museum. During the excavation, the professional team were aided by 51 volunteers, many of whom took part in the on-site archaeological training programme. In addition, 179 school children from all over Mull, accompanied by 26 teachers, visited the excavation. Visitors were welcomed daily to the site and the open day attracted a further 136 people.

Finally, the excavation at Baliscate was a hugely successful community enterprise, the achievement of which brought a great sense of pride and enjoyment to the many volunteers and professional archaeologists alike.

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