

**ARO35: Neolithic pits and Bronze Age settlement
at Colinhill, Strathaven**

by Beth Spence

with contributions from Torben Bjarke Ballin, Beverley Ballin Smith
and Susan Ramsay

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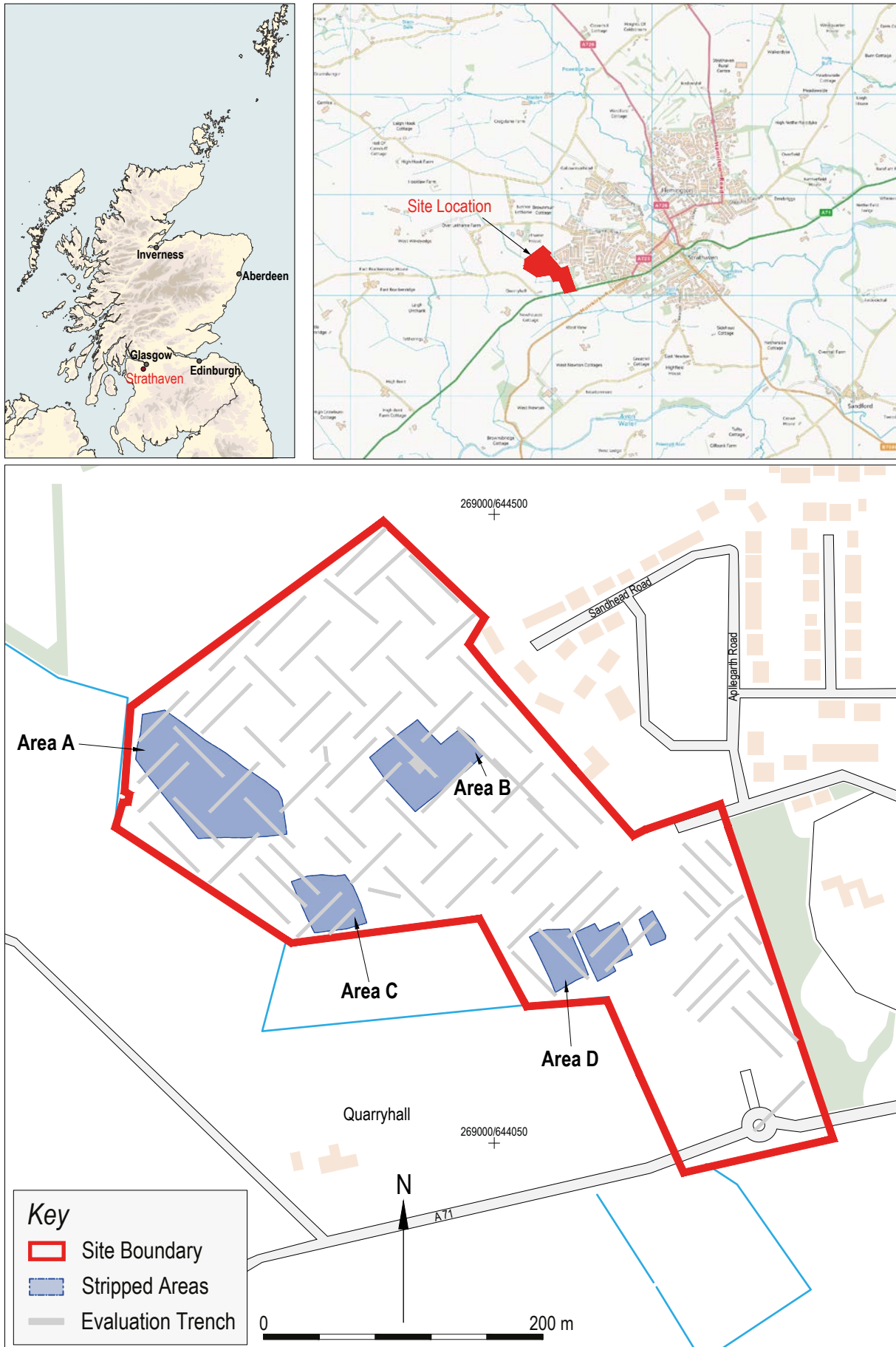
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Figure 1: Site location with outline of the excavated trenches



Summary

Between June and August 2015 GUARD Archaeology Ltd carried out a targeted topsoil strip and excavation at a site proposed for development at Colinhill, Strathaven, South Lanarkshire, following the results of an archaeological evaluation in April 2015. The topsoil strip of four areas centred on NGR: NS 6901 4428 revealed various archaeological features mostly concentrated on the lower plateau to the north-west. These included two adjacent but distinct Bronze Age roundhouses dating to the mid-second millennium BC and a Neolithic pit group dating to the mid-fourth millennium BC. Another group of Neolithic pits were revealed on the upper plateau near the former farmstead of Maggieshill. A range of material culture was recovered during excavation including early Neolithic carinated bowls and middle to later Neolithic Impressed Ware pots, with an unusually large proportion of pitchstone artefacts in the lithic assemblage. The roundhouses are well-defined examples and add to identified sites of the established tradition of Bronze Age settlement in the Lowlands, while the Neolithic pits are typical of a low-level of occupation or activity, increasingly being recognised as a valuable insight into the culture and landscape use of the period.

Introduction

In June 2015 GUARD Archaeology Ltd were commissioned by Stewart Milne Homes, Robertson Homes and L S Smellie and Sons Ltd to undertake a targeted topsoil strip. This was based on the results of a trial trench evaluation carried out in April 2015. The evaluation identified four areas of potential archaeological activity and the subsequent topsoil stripping targeted these areas (Areas A-D) (Spence 2015a). The investigation was also partially influenced by the natural topography, with small pits initially having been identified across two plateau areas at the top of the hill and along the lower break of slope. The work revealed a series of features in these areas, which included two substantial wooden roundhouses, one partially enclosed, and a series of small pits from which a concentration of typically early Neolithic artefacts was recovered including carinated pottery and pitchstone. These features were centred on the lower north-western plateau (Area A). A further collection of small pits was located on the upper plateau, which contained several sherds of decorated Food Vessels (Area B). Although the pits were not stratigraphically related, those of significance were distinctly grouped and shared similar artefactual content and morphology. These relationships were reinforced by post-excavation analysis of the finds and carbonised botanical materials.



Plate 1: The view south across Area A prior to the excavation



Colinhill is located on the south-western outskirts of the former market town of Strathaven and c. 1.65 km to the north of the River Avon gorge. Prior to the investigation, the site was a field under grass and used for grazing, with the presence of occasional furrows indicating historic cultivation. The remains of the two former farmsteads of Colinhill and Maggieshill located on the upper plateau and on the southern downslope area respectively were recorded as part of the evaluation and topsoil strip. Both the main areas of archaeological features had open outlooks to the south and west, and were located at advantageous positions in the landscape. The land sloped gently towards a plateau within the central area of the northern part of the field and then dipped steeply towards the lower slopes and the marshy ground to the south. The area lies between 215 m and 194 m OD. A total of 13,100 m² was stripped of topsoil (Figure 1).

The sloping landforms of the area are a result of the Clyde Plateau Volcanic formation, which comprises igneous bedrock of basalt and hawaiite, covered by glacial and fluvial tills. South of the A71 trunk road the landscape has been affected by drainage and deposits of alluvium of clays, silts, sand and gravel are due to the flow of the Goods Burn and its predecessors (British Geological Survey 2019).

Archaeological background

There were no known archaeological sites present on the area of investigation prior to the commencement of work. However, prehistoric activity has been recorded in the wider local landscape, largely through occasional chance finds. Significant prehistoric artefacts recovered locally have included a middle Bronze Age spearhead (Coles' type D) acquired by the National Museum of Antiquities of Scotland in 1887 (National Record of the Historic Environment Pin no 44848) and a substantial hoard of late Bronze Age metal objects including a sword and multiple rings and spearheads from Peelhill to the west. A polished stone axe held by the Hunterian Museum in the University of Glasgow (NRHE Pin 44847) was also recovered to the immediate south of the site at Colinhill.

Several sites of prehistoric activity have been identified within the wider area. These include a Neolithic palisaded site at Loudon Hill (Atkinson

2000) and a collection of Neolithic pits at Laigh Newton (Toolis 2011) further to the west. A series of Neolithic pits containing pottery and lithic artefacts were also investigated at nearby Snabe Quarry (Kilpatrick 2015). Archaeological work during various phases of development at Larkhall to the north-east has also identified a range of features, including Neolithic pits with carinated pottery (Dutton and Atkinson 2006; Mitchell 2012) and more recently a multi-phase Bronze Age structure (Mooney 2014b; forthcoming b).

Excavation results

The excavation identified two main areas of archaeological activity, located in Areas A and B on the plateau with wide views across the surrounding landscape (Figure 2). Two middle Bronze Age roundhouses were situated in Area A on the lower north-western plateau. Early Neolithic activity was also represented by a group of adjacent pits, identified during the excavation due to the presence of both carinated pottery bowls and pitchstone artefacts. Activity on the upper plateau of Area B included pits containing middle Neolithic Impressed Ware pottery, along with a series of later historic features. Other pits containing no material culture and little carbonised organic material were also present across the remainder of the areas investigated and are not discussed further here.

Neolithic pits

Eight groups of Neolithic pits were identified across the excavated area

Pit group 1, Area A

A group of four pits were located on the gently sloping lower plateau towards the north-west of the development area (Figure 3). They were similar in morphology, all containing dark, mixed and burnt fills within shallow scoops. The most northerly of the pits was A014, which had gently sloping sides, a rounded base and contained mottled silty-clay, with burnt material throughout. It contained a sherd of an early Neolithic carinated bowl, Vessel 1 (see Ballin Smith, below).

Less than 0.2 m to the west was a small pit A011, which had sloping sides and a broad uneven base. Its fill (004) contained mixed scorched silts, with burnt bone and hazel nutshell fragments. A

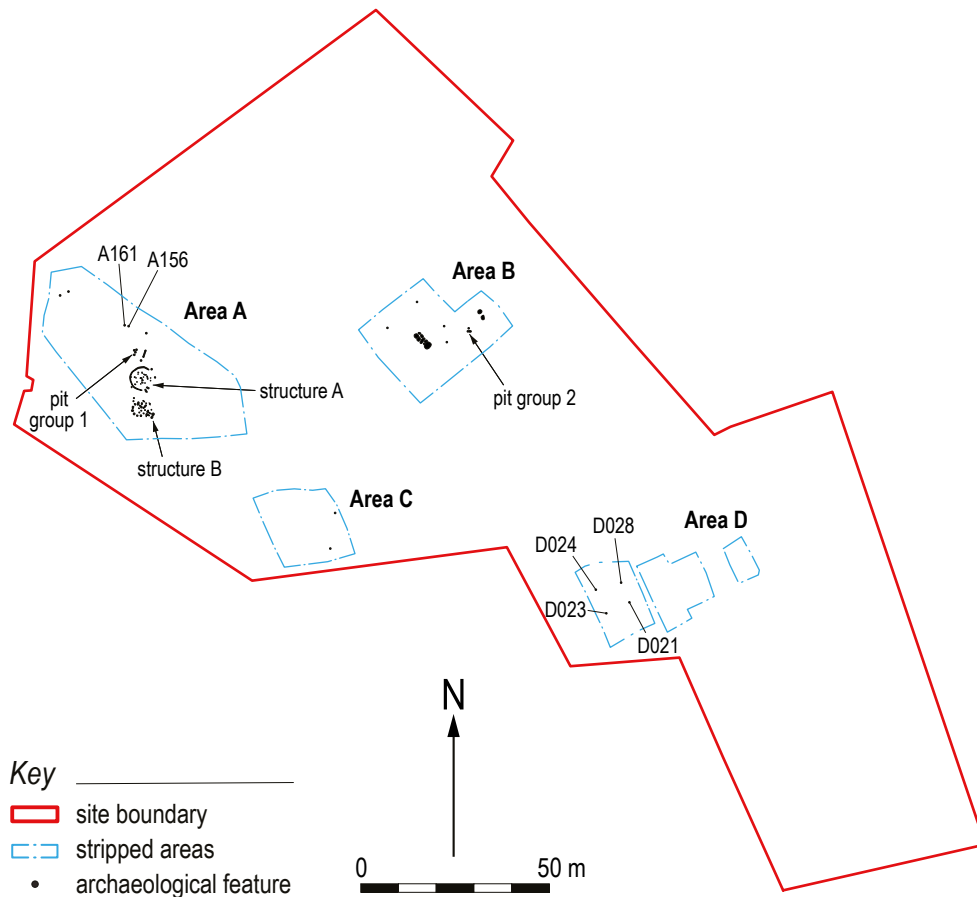


Figure 2: Distribution of features across Areas A and B

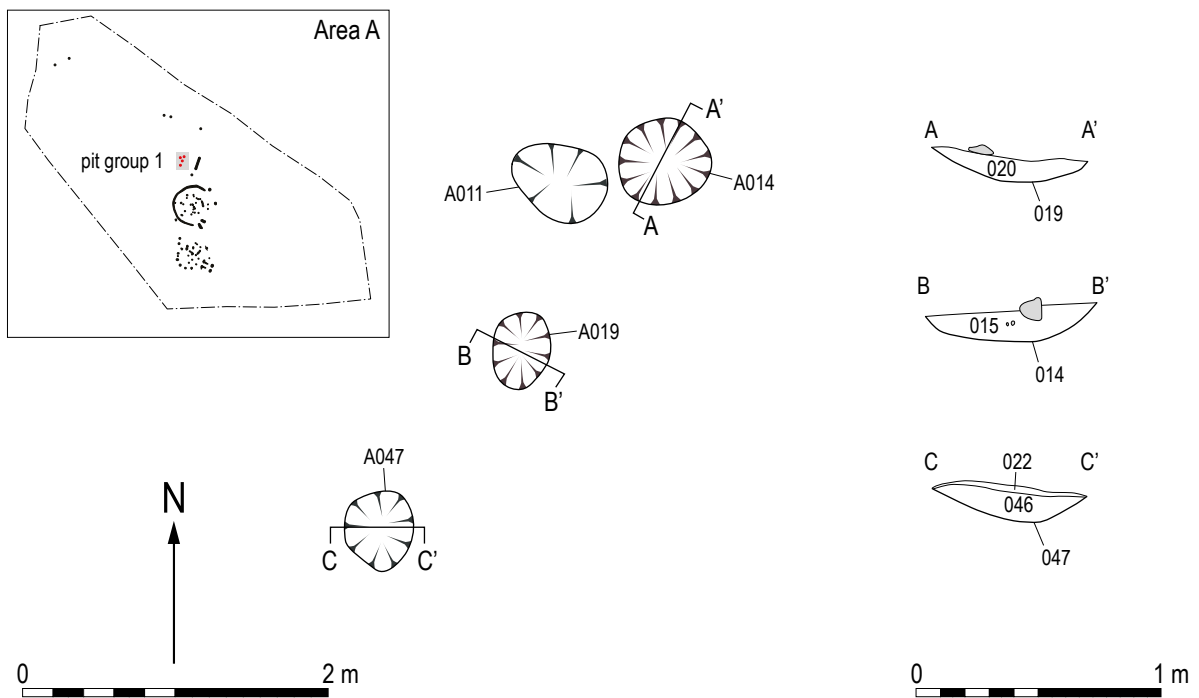


Figure 3: Pit group 1, Area A

total of 18 sherds of early Neolithic pottery (also part of Vessel 1) were recovered from it. The pit also produced several lithic objects including a pitchstone blade (CAT 1) and flake (CAT 3; see Ballin, below). An AMS date of 3708–3637 cal BC (SUERC-67765, see Table 1) was obtained from the fill of this feature, confirming a middle Neolithic date range. This pit was perhaps infilled towards the later end of the dating range suggested by the material assemblage (Plate 2).

To the south of this were further small pits 019 and 047, both with gently sloping sides and rounded bases. The former had a mottled silty-clay fill from which a pitchstone microblade was recovered (CAT 15), while the latter contained a

lower fill of slightly stony dark-brown/grey silty-sand and upper fill of charcoal and silt. The latter contained a pitchstone blade (CAT 6) and an additional Vessel 1 sherd (Plate 3).



Plate 2: Pit A011 with prehistoric pottery and pitchstone

Sample	Lab Code	$\delta^{13}C$	Area	Context	Radiocarbon Age BP	94.5% probability
004	SUERC-67759 (GU41095)	-27.1 ‰	A	Corylus cf avellana charcoal, context 006, fill of posthole 009	3225 ± 30	1607–1429 cal BC
006	SUERC-67760 (GU41096)	-23.0 ‰	A	Corylus avellana carbonised nutshell, context 004, fill of pit 011	4880 ± 30	3708–3637 cal BC
011	SUERC-67764 (GU41097)	-27.9 ‰	A	Alnus cf glutinosa charcoal, context 016, fill of posthole 018	3578 ± 30	2026–1785 cal BC
017	SUERC-67765 (GU41098)	-25.0 ‰	A	Corylus cf avellana charcoal, context 010, fill of enclosure ditch 051 (Slot E)	4942 ± 30	3778–3654 cal BC
029	SUERC-67766 (GU41099)	-27.3 ‰	A	Alnus cf glutinosa charcoal, context 037 hearth deposit	3092 ± 30	1428–1278 cal BC
038	SUERC-67767 (GU41100)	-28.2 ‰	A	Alnus cf glutinosa charcoal, context 045, fill of pit 064	3614 ± 30	2113–1891 cal BC
041	SUERC-67768 (GU41101)	-25.0 ‰	A	Corylus cf avellana charcoal, context 070, fill of posthole 069	3041 ± 30	1399–1216 cal BC
062	SUERC-67769 (GU41102)	-26.5 ‰	A	Alnus cf glutinosa charcoal, context 093, fill of pit/posthole 094	3032 ± 30	1398–1207 cal BC
064	SUERC-67770 (GU41103)	-26.4 ‰	A	Alnus cf glutinosa charcoal, context 099, fill of posthole 100	3114 ± 30	1442–1290 cal BC
069	SUERC-67774 (GU41104)	-26.9 ‰	A	Alnus cf glutinosa charcoal, context 104, fill of posthole 127	3073 ± 30	1416–1260 cal BC
070	SUERC-67775 (GU41105)	-26.9 ‰	A	Alnus cf glutinosa charcoal, context 114, fill of posthole 126	3015 ± 30	1387–1131 cal BC
082	SUERC-67776 (GU41106)	-26.6 ‰	A	Alnus cf glutinosa charcoal, context 119, fill of posthole 138	3029 ± 30	1396–1135 cal BC
090	SUERC-67777 (GU41107)	-27.7 ‰	A	Alnus cf glutinosa charcoal, context 143, fill of posthole 144	3075 ± 30	1417–1261 cal BC
097	SUERC-67778 (GU41108)	-25.5 ‰	A	Corylus cf avellana charcoal, context 157, fill of pit/posthole 161	3350 ± 30	1737–1534 cal BC
012	SUERC-67779 (GU41109)	-26.8 ‰	B	Alnus cf glutinosa, context 010, fill of pit 028	4470 ± 30	3339–3026 cal BC
023	SUERC-67780 (GU41110)	-26.1 ‰	B	Betula sp charcoal, context 051, deposit	113 ± 30	1680–1939 cal AD
007	SUERC-67784 (GU41111)	-26.6 ‰	D	Alnus cf glutinosa charcoal, context 020, fill of pit 021	2996 ± 30	1376–1123 cal BC
009	SUERC-69657 (GU42153)	-26.8 ‰	A	Alnus cf glutinosa charcoal, context 010, fill of enclosure ditch 051 (Slot A)	3226 ± 30	1607–1429 cal BC
078	SUERC-69658 (GU42154)	-25.3 ‰	A	Betula sp charcoal, context 108, fill of pit 135	2943 ± 30	1258–1247 cal BC

Table 1: Radiocarbon dates



Analysis of the carbonised material (see Ramsay, below) showed that the four features contained similar assemblages, with pit 011 in particular containing large amounts of hazel nutshell with some naked barley and wheat grains, all suggestive of domestic hearth waste.



Plate 3: Pit group 1, Area A. From the SW

Pit group 2, Area B

A second group of four small pits dated to the later middle Neolithic was identified on the upper plateau in Area B. All the pits were rounded measuring between 0.3 m to 0.5 m in diameter with shallow sloping sides and flat bases (Figure 4, Plate 4). The most northerly of these was 028, which contained a dark sandy fill with heated-affected stones and occasional small flecks of burnt bone. An AMS date of 3339–3026 cal BC (SUERC-67779) was obtained from its fill 010, in keeping with the middle to late Neolithic Impressed Ware vessel sherds that were found there. A total of 37 sherds of Vessel 4, and a single decorated rim sherd of Vessel 5 were recovered from this pit (see Ballin Smith, below).



Plate 4: Pit group 2, Area B. From the NW

Pit 034 also contained a mixed pottery assemblage, with a single sherd of Vessel 4 and sherds of the late Neolithic Impressed Ware Vessel 6 recovered from its fill. Both pit 034 and neighbouring pit 035 contained silt-clay fills, while the smallest pit in the group (041) contained fairly sterile sandy-silt.

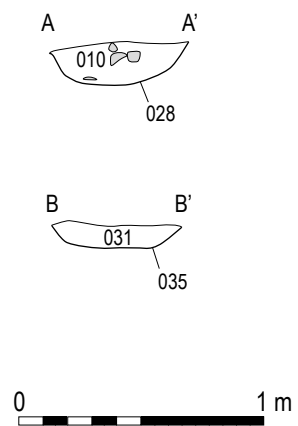
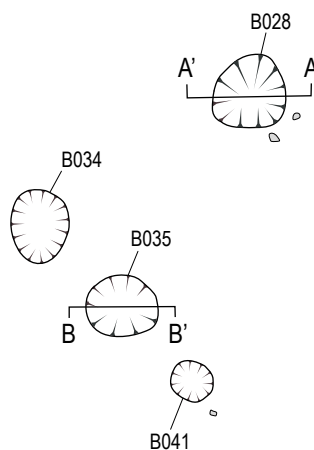
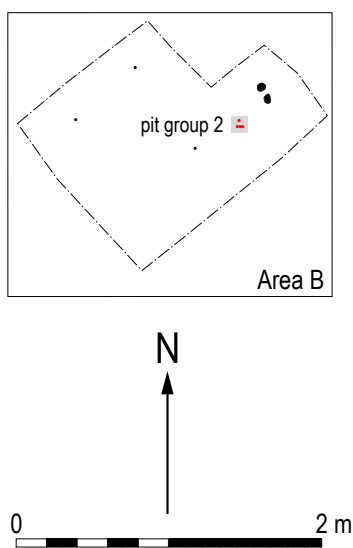


Figure 4: Pit group 2, Area B

As in the case of Pit group 1, analysis of the botanical assemblage from all four pits revealed similar carbonised remains including large numbers of carbonised hazel nutshell (see Ramsay, below).

Bronze Age roundhouses

The structures in Area A were both defined by a central ring of posts and were of similar diameters, 5.8 m for the northern building (Structure A) and 6.2 m for the southern example (Structure B). They were located c. 8 m apart and their radiocarbon dating confirmed a date range across the middle to later second millennium BC. There were, however, distinct structural differences between the two buildings and the direct relationship between them and their contemporary use remains unresolved. Agricultural practices appear to have been responsible for the truncation and lack of survival of occupation deposits in the centre of the structures. The only deposits present in the middle of Structure A were the remains of the hearth.

The material culture assemblage associated with the structures is significant but includes a relatively small the range of materials. Their varying contextual associations of the finds suggests that complex depositional practices may have taken place, with the presence of residual Neolithic material from securely dated Bronze Age features.

Structure A

The northern roundhouse was enclosed within a penannular ditch and was defined by a ring of seven postholes, some with a corresponding internal posthole, and two postholes which lie c.1.5 m beyond the circle of structural timbers. There was also a hearth deposit in the central area, and several larger external pits were present to the east and south-east (Figure 5, Plate 5). The date range of 2113–1278 cal BC (SUERC-67767) was established for this building - the later third and second millenniums BC.

The penannular ditch 051 was flat-bottomed and c. 0.30 m deep. It was more clearly defined to the north, where it had a width of 0.6 m but it thinned to as little as 50 mm to the south. Both terminals were rounded and the enclosed area was c. 11.7 square metres. The grey silty fill of the ditch contained a range of lithic artefactual material including a pitchstone blade, core and chip, a flint flake and several chips and flakes of chert (CATs 7-14, 17; see Ballin, below). The presence of the pitchstone along with a date of 3778–3654 cal BC (SUERC-67765) were problematic, given that the structure and its associated features were all dated within the earlier to mid second millennium. The Neolithic pits are located only 10 m upslope and it seems likely that the earlier material in the ditch may have originated from these and washed into it,



Plate 5: Structure A, Area A. From the SE

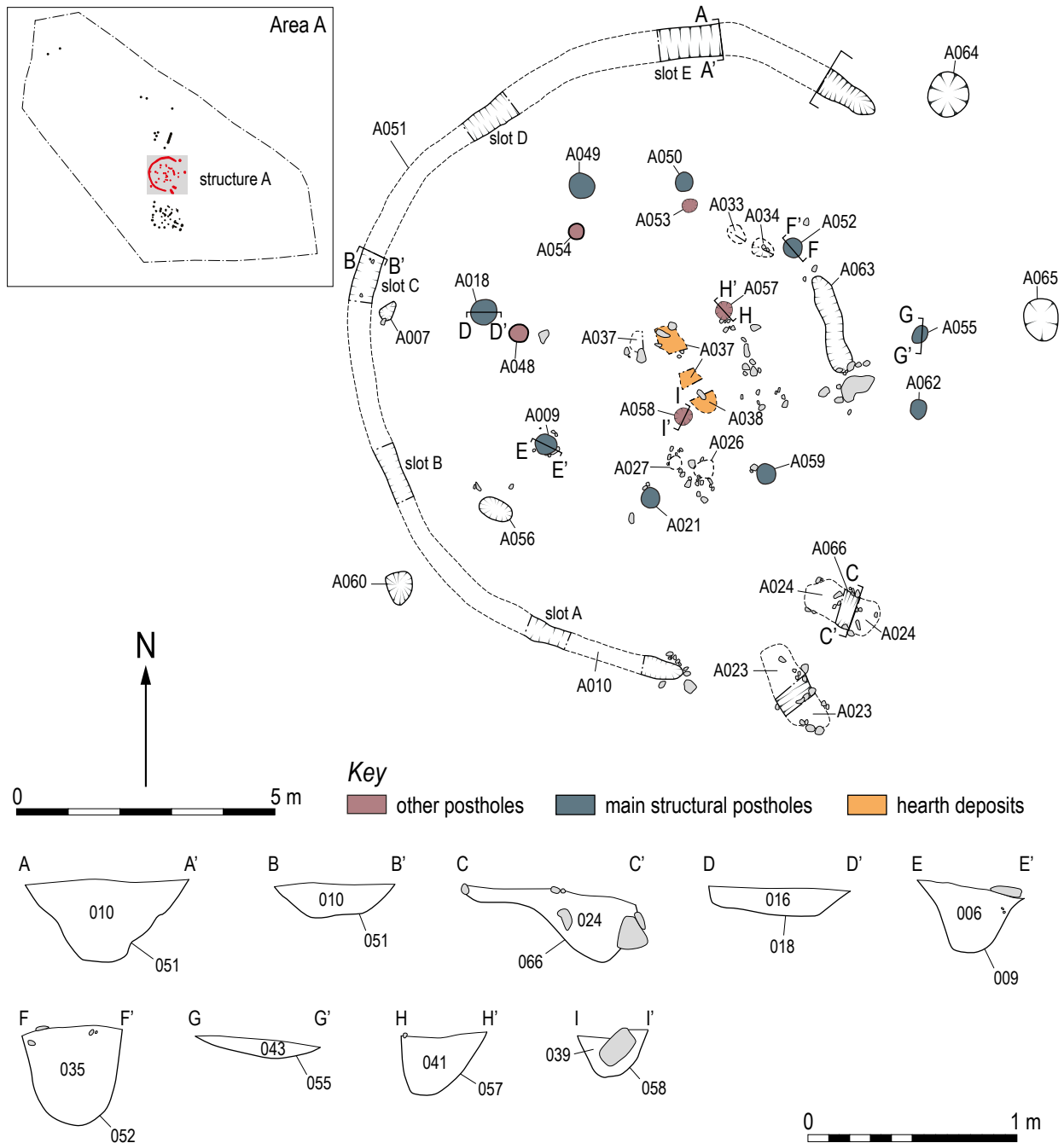


Figure 5: Large pits in the centre of the area

particularly given the small size of the objects in question (see Ballin below). A second date from the ditch fill returned a radiocarbon date range of 1607–1429 cal BC (SUERC-69657), in keeping with the other Structure A dates.

The seven postholes 059, 021, 009, 018, 049, 050 and 052 forming the central ring were uniformly spaced between c. 2 m to 2.5 m apart. The internal area had a diameter of 5.8 m, and the distance from the postholes to the ditch was between 2 m to 3 m. Three of the outer posts 018, 049 and 050 were paired with smaller inner

posts 048, 054 and 053. It seems likely that the pairs of posts demonstrated the requirement for additional reinforcement to the structure on this side, or else were later repairs or alterations to the original structure. Two postholes 057 and 058 were present within the interior of the structure, nominally on either side of the central hearth and opposite the entrance and presumably acting as additional roof supports there.

The postholes had diameters ranging from 0.35 m to 0.55 m and were between 0.1 m to 0.4 m deep. They contained similar dark silt-clay fills



but the only material culture recovered from these was two chips and a flake of chert (CATs 16, 19 and 20; see Ballin below). AMS date ranges of 2026–1785 cal BC (SUERC-67764) and 1607–1429 cal BC (SUERC-67759) were obtained from two of the postholes. Analysis of the botanical materials identified traces of alder, birch, hazel, oak and willow, although the small quantities suggested they originated from scattered hearth waste (see Ramsay, below). There was no evidence to suggest that posts were burnt in situ.

Two other features may have been part of the framework of the structure. These were postholes 055 and 062 located east of ring of structural posts and aligning with the entrance to the building. Their location suggests that there was an entrance structure. The smaller posthole 055, survived only 60 mm in depth. Both it and A062 had dark clay fills and 055 contained a pitchstone blade along with two chips of chert (CATs 18, 22 and 23). The presence of pitchstone suggests it is residual material in this instance.

Within the circle of structural posts were a number of features internal to the building. An irregular deposit 037 measuring 1.1 m in extent and 0.13 m in depth, was identified as hearth material, located in the centre of the structure. It comprised dark silty-clay with occasional flecks of burnt animal bone. A similar pocket of the same material lay to the south (038). Analysis of the carbonised assemblage identified alder charcoal and traces of willow, along with quantities of indeterminate charcoal which could suggest multiple burning events (see Ramsay, below). This, together with the presence of several carbonised barley grains, lends weight to the interpretation of the deposit as the remains of the central domestic hearth but without a formal hearth structure. Within the alignment of the circle of structural posts, but lying between the hearth and the entranceway was a linear feature (A063). It was ephemeral and shallow and no material culture was recovered from it.

Several small distinct deposits of dark silty-clay and sand (026, 027, 033 and 034) were also present within the structure, possibly remains of the occupation surface. They measured between 0.2 m to 0.5 m in extent and up to 0.1 m in depth, but no material culture was recovered from them. Traces of alder and birch in 026 and 027 indicated that they may be scattered hearth waste.

External to the structure, at the southern terminal of the penannular ditch, were two larger pits, 023 and 024. They measured 1.2 m and 0.75 m in length respectively, and up to 0.3 m in depth. Their fills were of dense, fairly sterile clay. However, 023 contained several fragments of burnt hazelnut shell (see Ramsay, below). It is possible that they may have acted as a gate into the enclosure or were a result of external activities.

Located outside the structure and enclosing ditch to the east and the NE were two large stone-filled pits, 064 and 065 (Plate 6). They were both c. 0.9 m in diameter and 0.45 m in depth. The stones comprising their fills were burnt and scorched silt was present around them. Alder and hazel charcoal were identified along with a fragment of hazel nutshell, indicative of scattered hearth waste. A date range of 2113–1891 cal BC (SUERC-67767) was obtained from fill 045 of 064, which is slightly earlier than the dates from Structure A, but they could relate to the earliest phase of it.



Plate 6: Stone filled pit A065, Area A. From the south

Two additional features were present on the lower plateau c. 20 m north of Structure A (Figure 2). They may have been structural and were dated to the mid second millennium. They were located c. 1.5 m apart and both had steep-sides and were c. 0.25 m in depth. Feature 161 was dated with a range of 1737–1534 cal BC (SUERC-67778), with oak and hazel charcoal along with naked barley identified within its fill. As Ramsay comments (below), naked barley is more commonly associated with Neolithic activity, but it can also be present into the Bronze Age. Feature 155 contained alder and oak charcoal in small amounts, and traces of hulled rather than naked barley within its fill. No material culture was recovered within either feature.



Structure B

The southern building was located c. 8 m south of Structure A, against an outcrop of surface bedrock. It was defined by a ring of eleven postholes forming an internal area of c. 6.2 m in diameter, with four further postholes/pits and linear slot trenches forming an entrance

structure. An additional arrangement of postholes was present to the north and north-east of the main ring. Although it was originally considered that these may define an earlier or later phase of activity, AMS dating has produced a tight range of 1442–1131 cal BC across all features associated with Structure B (Figure 6).

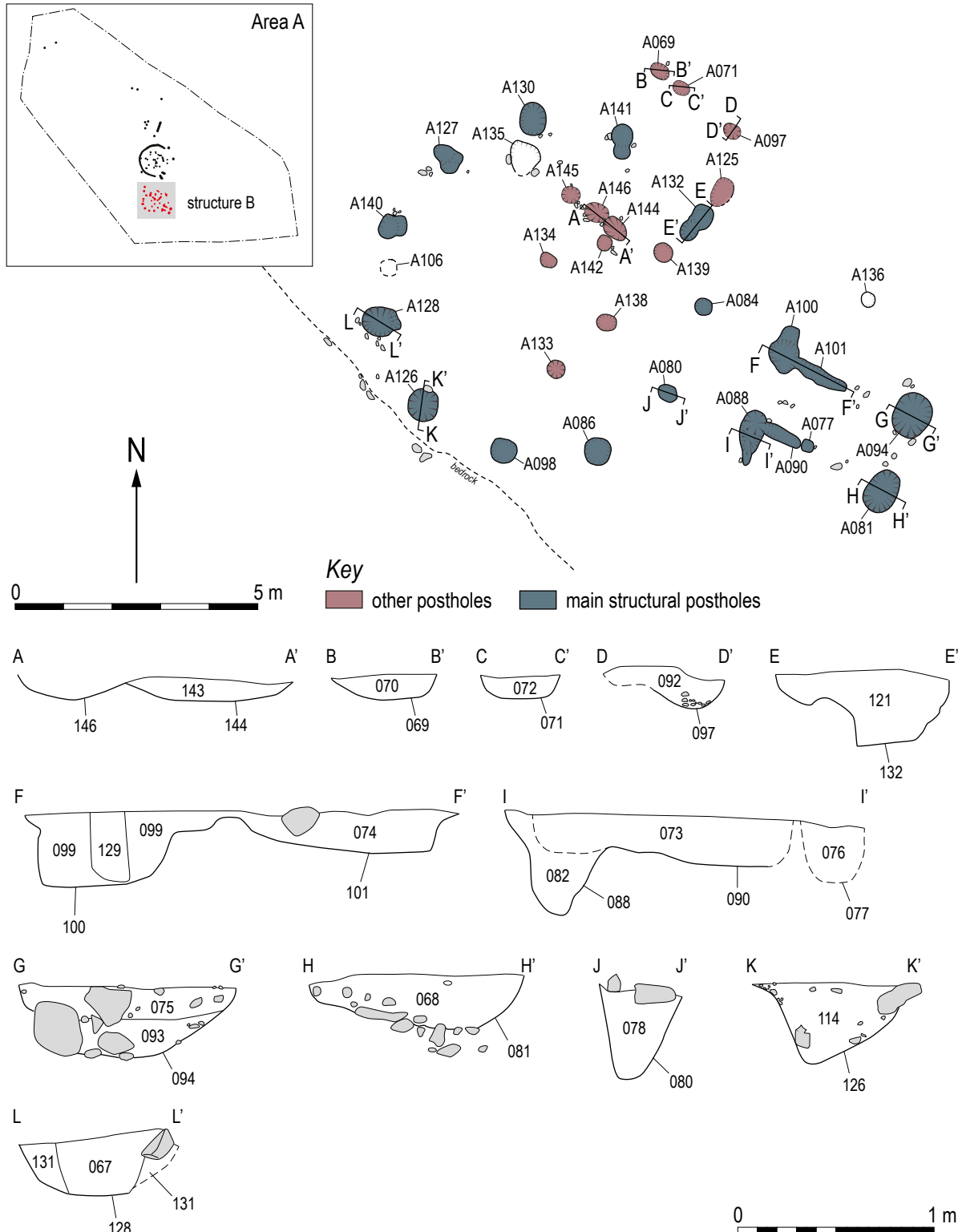


Figure 6: Structure B, details of the building layout



Plate 7: Posthole A132, recut, Area A. From SE

Several postholes may have been replaced, presumably for repair; this is particularly prevalent on the north side of the structure indicating issues there. The eleven postholes 080, 086, 098, 126, 128, 140, 127, 130, 141, 132 and 084 comprise the main structural ring, and measured between 0.5 m and 0.75 m in diameter and up to 0.35 m in depth (Plate 7). They were regularly spaced 1.3 m to 1.4 m apart. All had essentially flat bases and steep or vertical sides, and contained similar grey/brown silty-clay fills. Alder charcoal was present in all the pits, with some birch, hazel and willow. Given the variety and small quantities of charcoal present, the evidence is interpreted as likely hearth or midden material (see Ramsay, below). Dates of 1416–1260 cal BC (SUERC-67774) and 1387–1131 cal BC (SUERC-67775) were obtained from the fills of postholes 127 and 126.

The entrance comprised linear features with sub-rounded postholes (101/100 and 090/088). The postholes contained dark sandy-clay fills, and they had a raised area to one side to aid in the insertion of the posts. Posthole 100 may have been recut because of its distinct fill. The postholes seemed to be earlier than the slots which might suggest that the extended entrance was a later addition to the original construction of the building. The linear features extending from the postholes were both c. 1.25 m in length, and included small posthole 077, which had lengthened the southern wall of the entrance way in line with the northern wall (Plate 8).

AMS dating provided a range of 1442–1290 cal BC from the fill of posthole 100 (SUERC-67770), and botanical analysis identified the presence of alder, hazel and oak, with the fill of posthole 088 also containing traces of birch, willow and cramp (see Ramsay, below). A flint microblade was recovered from the fill (082/088) of the southern posthole, and a pitchstone core (CAT 6) from the fill of the northern posthole (099/100). As Ballin discusses (below), the presence of this early Neolithic object is significant given the mid to later second millennium date achieved from the botanical assemblage from the feature, and may hint at intentional later ritual deposition of an exotic material.



Plate 8: Oblique aerial view of Structure B, Area A. From the NE



Two pits 081 and 094 were present at the ends of the entrance that extended it to the south-east. Both were oval in shaped and measured c. 0.95 m in length with depths of c. 0.5 m. They had dark clayey-silt fills and a charcoal-rich lower fill was identified in 081. Alder, hazel and willow charcoal were present, again indicative of scattered hearth waste (see Ramsay, below), and a chert microblade (CAT 29) was recovered from the lower fill of pit 094. The function of these features is assumed to be structural given their regularity of form, size and their location at the end of the entrance.

A number of other postholes were present both within and external to the main structural ring. The author considers that a turf wall may have been constructed to surrounding the main posts at a distance of c. 1.4 m, to join with the entrance posts A088 and A100. If this was the case, the diameter of the entire enclosed area was likely to be around 9.1 m². The internal postholes of the structure and an annex to the north-east (133, 138, 139, 134, 142, 144, 146, 145, 123, 097, 069 and 071) were generally small, ranging from 0.35 m to 0.5 m in diameter and up to 0.2 m in depth. They contained grey-brown silty-clay and sand and a fairly tight AMS date range was obtained from some of them. The fill 070 of posthole 069 provided a range of 1399–1216 cal BC (SUREC-67768), the fill 143 of posthole 144 was dated to 1414–1261 cal BC (SUERC-67777) with the fill 119 of posthole 138 to 1396–1135 cal BC (SUERC-67776), suggesting that these features were roughly contemporary. Analysis of the carbonised assemblages from the feature fills revealed mixed materials with alder, hazel, birch and oak present, and with some traces of hazel nutshell, again indicative of scattered hearth waste (see Ramsay, below).

It is assumed that this collection of smaller postholes supported internal divisions of space within the interior of the building. Several linear alignments formed by these features can be identified, which could point towards the use of internal panels, with a possible sub-rectangular space defined by 069, 071 and 097 to the north and 145, 146/144 and 139, 132 and 123 to the south, which in effect created an enclosed area within the structure. A further alignment between 139 and 133, suggests a continuation of

the internal division across the entrance to partly screen the interior space of the building from the entrance. Any internal features which required supporting posts to be set into the ground were placed to the east and north-east arc of the structure, as bedrock surfaced to the south-west.

A range of other features were also present within the building. A shallow pit (135) was located close to posthole A130 in the north of the structure. It contained a dark silt-clay fill (108) and the only diagnostic flint artefact from the site. This was a fragment of a roughly finished leaf-shaped arrowhead (CAT 37), which Ballin (below) describes as potentially deposited as a substitute for a more refined example (below). An AMS date of 1258-1047 cal BC (SUERC-69658) was obtained from its fill.

There was also a small circular deposit (106) of dark silty material on the line of the ring of posts on the west side of the building. This may be a surviving pocket of occupation or structural material, although botanical analysis only identified traces of alder charcoal.

A single small posthole (136) was located externally to the north of the entrance, which was similar in size and morphology to the small interior postholes.

A range of material culture was recovered from a number of the feature fills within the building. The lithic assemblage comprises small chips of chert and flint, with the exception of the leaf-shaped arrowhead, the pitchstone conical core and the microblades discussed. Several sherds of pottery were also recovered from the features (Ballin Smith, see below). Sherds of the same Bronze Age vessel (Vessel 3) were recovered from postholes 100 and 140 and possibly also 060, which was located externally to enclosure 010 of Structure A, possibly implying a close association between both structures. Four further sherds of heavily abraded pottery identified as Vessel 7 were recovered from posthole 128; but may equally belong to Vessel 3. A small sherd of cord-impressed late Neolithic/early Bronze Age beaker was recovered from posthole 127 (Vessel 2) in the northern part of the structure. The dating of this piece suggests it predates the construction of Structure B.



It is clear that Area A was the focus of activities from the middle Neolithic, the early Bronze Age and into the mid second millennium BC.

Other prehistoric pits

In Area D pit (021) was located down slope in the south of the area (Figure 2). It was one of the few features with a discernible outline and distinct fill located outside the main concentrations of activity on the plateaus. It was dated to 1376–1123 cal BC (SUERC-67784). The presence of alder, birch, hazel and willow charcoal infers that the feature is not recent (Ramsay, see below). There were several further small features within the vicinity of pit 021, which may be prehistoric in date based on the botanical assemblages.

Small pits 023 and 024 and a small deposit of charcoal 026 all contained hazel charcoal and traces of hazel nutshell, while silty stone deposit 028 contained large quantities of alder charcoal (Ramsay, see below). It is suggested by the carbonised material that these features may also be prehistoric in date and represent transient activity, providing an insight into the wider and less tangible uses of the landscape. For details of these, see the full excavation report (Spence 2015).

Specialist reports

Radiocarbon dates

A total of 19 samples, including two later ones, were submitted to the Scottish Universities Environmental Research Centre (SUERC) for AMS dating (Table 1: Results of AMS dating). Short lived materials such as alder and hazel charcoal were selected for dating and all dates were interpreted utilising the 95.4% probability range. The material culture recovered during excavation strongly suggested that there were various distinct phases of activity represented at Colinhill. Features were therefore selected for dating based on their distinct patterning, morphological relationship with surrounding features and for the presence of material culture. Several disparate features were also dated in order to aid their potential relationship with the established phases of activity, or determine if they were more likely to represent separate activity across the wider area.

Dated material was also intended to aid interpretation of the material culture itself,

which proved particularly useful in discussion of depositional practices, particularly in the case of the lithic material where several artefacts were identified as having been deposited well after their period of original use.

The two dates submitted later were selected to answer specific questions which emerged during the post-excavation analysis. One sample (SUERC-69657) was selected from a different point in the penannular ditch in an attempt to check the initial anomaly of the Neolithic date (SUERC-67765). This later sample proved to be more in keeping with the other dates from Structure A suggesting the Neolithic dated material may have been intrusive. Material was also selected for radiocarbon dating (SUERC-69658) from the pit containing the leaf shaped arrowhead, in order to establish a definitive relationship between this feature and the surrounding middle Bronze Age features.

Carbonised botanical remains

By Susan Ramsay

Summary

The carbonised material recovered from the two roundhouses is thought to be evidence of hearth waste, rather than the remains of any structural elements. There are very few finds of food plant remains from either structure and so these cannot be confirmed as being domestic dwellings on this evidence alone. Radiocarbon dating of charcoal from features within the roundhouses suggests a middle Bronze Age date for their main period of occupation. However, a few earlier dates were also obtained, which suggest previous activity on the site. The dating of the Neolithic pits is confirmed by the botanical remains, with evidence of naked barley and probable bread wheat recorded from these features, as well as oak, which dominated the charcoal assemblages.

Methodology

This archaeobotanical report details the processing, analysis and interpretation of carbonised botanical remains recovered from samples taken during two phases of excavation at the site.

Sample Processing

A programme of bulk sampling was undertaken in



order to examine the carbonised archaeobotanical remains. In total, 138 bulk samples were analysed for the presence of botanical remains from across the whole site, which processed by flotation, using standard methods and sieves of mesh diameter 1 mm and 500 µm for flots, with 2 mm and 4 mm mesh diameters for retents.

Macrofossil analysis

Dried flots and sorted retents were examined using a binocular microscope at variable magnifications of x4 - x45. For each sample, estimation of the total volume of carbonised material >2 mm and >4 mm was made and all charcoal >4 mm was identified. All carbonised and uncarbonised seeds were identified and any other plant macrofossil remains were noted. 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 and vascular plant nomenclature follows Stace (1997).

Results

Area A - Structure A

This roundhouse consisted of a ring ditch with an interior posthole structure and a central hearth. The ditch (051) was penannular and its fill (010) produced large quantities of alder charcoal, with traces of birch and hazel, two grains of barley and a fragment of hazel nutshell. This carbonised assemblage appears to contain at least a proportion of domestic hearth waste. Hazel charcoal from the ditch fill (010) produced an early Neolithic AMS date of 3778–3654 cal BC (SUERC-67765).

The central area of the roundhouse was defined by a circle of seven postholes (025/059, 013/021, 006/009, 016/018, 020/049, 031/050 and 035/052). Of these, the three postholes situated towards the north of the circle also had an adjacent posthole located towards the centre of the roundhouse. These 'inner' postholes were 016/048, 023/054 and 022/053. A gap in the ring of posts suggested the entrance lay towards the east.

The posthole fills contained only small quantities of mixed charcoal, with alder, birch, hazel, oak

and willow all represented within this posthole grouping. No charcoal type was present in significant quantities and it appears that these carbonised assemblages are probably the remains of scattered domestic hearth waste that has percolated down into the posthole fills. There is no evidence for any posts having been burnt in situ. Hazel charcoal from the fill (006) of posthole 009 produced a middle Bronze Age AMS date of 1607–1429 cal BC (SUERC-67759). However, alder charcoal from the fill (016) of an inner posthole 048 produced a slightly earlier date of 2026–1785 cal BC (SUERC-67764). This suggests that there may have been more than one phase of building on the site, particularly with the much earlier date for the enclosure ditch.

Two further postholes may suggest the presence of an entrance structure at the eastern side of the roundhouse. However, the fill (042) of posthole 062 produced no carbonised remains and the fill (042) of posthole 055, fill contained only a trace of alder charcoal.

Structure A - associated features

In addition to the postholes were a number of other features that were associated with the roundhouse. Two additional interior postholes (039/058 and 041/057) produced alder charcoal, but not in sufficient quantities to suggest posts burnt in situ. It is more likely that this charcoal is scatter from the central hearth.

The fill (036) of linear feature (063) produced a small amount of alder charcoal. It was thought that this feature may have a structural origin but this cannot be confirmed from the carbonised assemblage. Two deposits of similar material (033 and 034) produced only traces of charcoal and so do not add to the interpretation of this structure.

A central deposit of charcoal-rich material (037) in the centre of the structure was thought to be the remains of a central hearth. The carbonised assemblage was mainly alder charcoal with small amounts of willow also present. There were also significant quantities of indeterminate charcoal that may suggest multiple burning events. The presence of a few carbonised barley grains lends weight to the interpretation of this feature as a domestic hearth. A further deposit of carbonised material (038) that was located at the southern



extent of (037) is very similar in composition and so probably represents further hearth waste from the central hearth. Alder charcoal from hearth deposit (037) produced a middle-Bronze Age AMS date of 1428–1278 cal BC (SUERC-67766).

Two further deposits of material (026 and 027), within the roundhouse produced indeterminate charcoal and traces of alder or birch. Again, these are probably the remains of scattered hearth waste. A similar pocket of silty material (007) with charcoal flecks was located outside the enclosure ditch but immediately adjacent to it. However, this deposit produced only a trace of alder charcoal.

Two large stone-filled pits (045/064 and 044/065), with heat affected stones were located to the north-east of the enclosure. Fill (044) produced only a small amount of alder charcoal and a fragment of hazel nutshell, whilst fill (045) produced larger quantities of alder with the addition of small amounts of hazel. There is no evidence that these pits are structural in origin and are more likely to contain scattered hearth waste. Alder charcoal from the fill (045) of pit (064) produced an early Bronze Age AMS date of 2113–1891 cal BC (SUERC-67767).

There were several other features that were located within the vicinity of the enclosure ditch. A small pit (008/056) contained only a trace of hazel charcoal. A clay deposit (023) to the south-east of the southern ditch terminal produced only indeterminate charcoal but several fragments of burnt hazel nutshell, whilst a posthole (061/060) near the northern ditch terminal produced only traces of birch charcoal.

Area A - Structure B

This structure comprised a main ring of eleven regularly spaced postholes: (078/080, 083/086, 096/098, 114/126, 067/131/128, 105/140, 104/127, 109/130, 111/141, 121/132 and 137/084). The posthole fills all contained alder charcoal, with small quantities of birch, hazel, and willow also present in some fills. Although alder was ubiquitous, it is not possible to say that alder formed the original posts since the quantities of charcoal involved were relatively small and other types were often present. It is more likely that this material was either hearth/midden waste used as part of the packing within the postholes or that it

simply trickled down into the posthole fills from scattered domestic hearth waste. Alder charcoal from the fill (104) of posthole (127) produced a mid/late Bronze Age AMS date of 1416–1260 cal BC (SUERC-67759). A similar date of 1387–1131 cal BC (SUERC-67775) was obtained from alder charcoal from the fill (114) of posthole (126).

Posthole (086) appeared to have been truncated or re-cut (089). The fill (085) of this re-cut contained a large amount of alder charcoal, but with birch, hazel and oak also present. This assemblage suggests the remains of hearth waste rather than the remains of structural material and has a very similar carbonised assemblage to that of posthole (126).

Structure B – entrance

The entrance slots were formed by linear grooves (090 and 101), both of which appeared to truncate an oval posthole. The fill (074) of the northern groove (101) contained a mixed charcoal assemblage of alder, hazel and oak, whilst the fill (073) of the southern groove (090) produced only small amounts of alder and oak charcoal. The fill (082) of posthole (088) lay at the north-western end of groove (090) and contained a significant assemblage of charcoal, with alder and oak dominating, but with birch, hazel, willow and traces of cramp also present. The fill (099) of posthole (100) lay at the north-western end of groove (101) but contained only small amounts of alder and hazel charcoal. A possible recut fill (129) within posthole (100) only produced traces of alder charcoal. Alder charcoal from the fill (099) of posthole (100) produced a middle-Bronze Age AMS date of 1442–1290 cal BC (SUERC-67770).

Further large, postholes lay at the south-eastern ends of both entrance postholes and grooves. Posthole (081) lay towards the south-east of groove (090) and its fill (068) contained a mixed charcoal assemblage of alder, hazel and willow. The fills (075 and 093) of posthole (094) produced only alder and hazel charcoal. Again, the carbonised assemblages from these features suggest hearth waste rather than structural material is present. Alder charcoal from the fill (093) of posthole (094) produced a middle/late Bronze Age AMS date of 1398–1207 cal BC (SUERC-67769). A further small posthole (077) was located at the southern end of groove (090) but its fill (076) contained only traces of alder charcoal.



Structure B – interior features

Some of the internal features may have acted as supports or divisions within the roundhouse structure. The fill (120) of small posthole (139) in the north-east of the interior produced significant amounts of alder charcoal, but with hazel also present. Although alder may be a structural timber, this assemblage is probably the result of scattered hearth waste since no evidence for in situ burning was noted in the posthole. To the south-west of this feature was another small posthole (138) with a similar carbonised assemblage of alder and hazel in its fill (119), but with the addition of birch charcoal and a trace of hazel nutshell. This lends weight to the assumption that hearth waste is present. Alder charcoal from the fill (119) of posthole (138) produced a middle/late Bronze Age AMS date of 1396–1135 cal BC (SUERC-67776). A third posthole (133) to the south-west produced only a small amount of birch charcoal in its fill (118).

Several features lay towards the centre of the structure. Posthole (134) was the most central of these but contained only a trace of alder charcoal in its fill (115). A group of four adjacent features were located to the north of this. Posthole (145), fill (110), also contained only traces of alder charcoal, whilst (146) contained more alder charcoal with a small amount of birch also present in its fill (112). The fill (143) of pit (144) produced alder and hazel charcoal, and a further small posthole (142), actually produced the most charcoal of all these features in its fill (116), with alder, birch and hazel all present. As before, these carbonised assemblages would suggest scattered hearth waste and do not provide any evidence for the presence of structural features. Alder charcoal from the fill (143) of pit (144) produced a middle/late Bronze Age AMS date of 1417–1261 cal BC (SUERC-67777).

Structure B – exterior features

A number of features were located to the north of the roundhouse but it is not clear whether these are directly related to the structure. Two small postholes, (070/069 and 092/097) produced only small amounts of mixed charcoal, with no evidence for posts burnt in situ. Hazel charcoal from the fill (070) of posthole (069) produced a middle/late Bronze Age AMS date of 1399–1216 cal BC (SUERC-67768). To the south of posthole

(097), and directly adjacent to posthole (132) of the main post ring, was a shallow pit (123), fill (123), but this also produced only a small amount of mixed alder and oak charcoal. A small posthole (136) to the north of the northern entrance slot also contained traces of alder charcoal in its fill (124).

A number of deposits (079, 103 and 106) were located in the vicinity of the roundhouse but they contained only small amounts of alder charcoal, whilst (087) produced only indeterminate charcoal and a fragment of hazel nutshell. The carbonised assemblages from these exterior features are probably the result of scattered hearth or midden waste that seems to be located over much of the site.

Area A - Pit group 1

A group of four prehistoric pits was located to the north of the Structure A. Pottery from these fills has been identified as being early Neolithic in date. The pits (004/012/011, 015/014, 020/019 and 022/046/047) produced very similar carbonised material. Their charcoal assemblages were dominated by oak, with alder and lesser quantities of hazel also present. In addition, large quantities of carbonised hazel nutshell were present within all the fills, with over 2000 fragments of nutshell identified from fill (004) of pit (011). Carbonised hazel nutshell from fill (004) produced an early Neolithic AMS date of 3708–3637 cal BC (SUERC-67760). The fill (004) also produced a few cereal grains, with naked barley and cf bread wheat identified from this context. This combination of cereal types is very indicative of the Neolithic in Scotland. These fills are probably the remains of domestic hearth waste but it is not clear whether any or all of these pits were actually fire pits or whether they have been used to dispose of hearth waste.

Area B - Pit group 2

Four small pits or postholes were dated to the middle to late Neolithic on the basis of prehistoric pottery. Pits/postholes (010/028), 006/034, 031/035 and 037/041) all contained very similar carbonised assemblages that were dominated by alder charcoal with lesser amounts of hazel also present. In addition, all of these pit fills contained significant numbers of carbonised hazel nutshell fragments. Alder charcoal from the fill (010) of pit



(028) also produced a late Neolithic AMS date of 3339–3026 cal BC (SUERC-67779), in agreement with the dating evidence from the pottery. These botanical remains probably represent the remains of hearth or midden waste.

Area D

Several small pit features were located within the excavation but no artefactual finds were recovered from within them to help with dating. Pit (023) produced small amounts of hazel and oak charcoal, with fragments of hazel nutshell in its fill (018). This assemblage suggests a prehistoric date for this feature. Further to the north-west was a smaller pit (024), fill (022), which only produced hazel charcoal and traces of hazel nutshell. The small amount of carbonised material present is not really sufficient to suggest a date or use for this feature.

Further upslope were three features. Pit (027) did not produce any carbonised remains but the fill (020) of pit (021) contained traces of alder, birch, hazel and willow charcoal. Alder charcoal from this fill (020) produced a late Bronze Age AMS date of 1376–1123 cal BC (SUERC-67784). This diverse assemblage suggests that this feature is not modern but little else can be inferred from the remains.

A small charcoal deposit (026) produced hazel charcoal and hazel nutshell, possibly indicating a prehistoric date, while deposit (028) contained large quantities of alder charcoal with cobble stones. It is not clear what this feature represents.

Discussion

Evidence for prehistoric activity was found with the two roundhouses and the pits in Areas A and B. It is difficult to determine whether the two roundhouses are related since they have very different forms of construction. It is suggested that these are dwellings but there is very little evidence for food plant remains in either structure. Roundhouse A contained a few carbonised grains of barley but the roundhouse B has no evidence for cereal grains in any of the contexts examined. The radiocarbon results suggests that both roundhouses date to the mid-Bronze Age but there are a few earlier dates, which suggest that the site may have been occupied for a considerable period of time prior to the construction of these structures.

There is also no clear evidence for the wood that was used in the construction of these buildings. Although alder charcoal was commonly found in the posthole fills, this was also the commonest type present within the central hearth of the enclosure structure. It appears that most, if not all, the charcoal recovered from the posthole fills of both roundhouses comes either from scattered material from hearths or from deliberate use of midden/hearth material as post-packing. Although alder appears to have been the main tree type used for fuel, there is also evidence for birch, hazel, oak, cherry type and willow being burnt. The reliance on alder for fuel suggests that other tree types may have been less available. However, oak and hazel should have formed a significant part of the woodlands of the region during the Bronze Age and so this may indicate either deliberate selection of alder or simply that local environment favoured the growth of alder.

The later Neolithic pits/postholes within Area B have been securely dated based on the pottery sherds that were recovered from these features. The carbonised assemblages from these pits also show plenty of alder charcoal but with significant quantities of hazel, and particularly hazel nutshell, also present. These assemblages would seem to be domestic hearth waste but the significant presence of hazel nutshell makes these assemblages very different to those from the roundhouses. This is further evidence for the roundhouses being later in date than these features.

The Neolithic pits in Area A were also dated by the presence of diagnostic pottery sherds. However, the carbonised assemblages would have suggested a Neolithic date, even without this artefactual evidence. The charcoal assemblages are dominated by oak, alder and hazel but there are also very large quantities of hazel nutshell present, which generally suggests a Mesolithic or Neolithic date for these types of features. The additional presence of a few carbonised grains of naked barley and probable bread wheat make a Neolithic date for the activities here more certain. Naked barley and wheat were commonly grown during this period in Scotland but were generally replaced by hulled barley from the Bronze Age onwards (Bishop et al., 2009; Dickson and Dickson, 2000).



Lithic artefacts

By Torben Ballin

Introduction

From the excavated area, a small assemblage of 39 chert, flint and pitchstone artefacts were recovered. This report characterizes the site's lithic artefacts in detail, with special reference to raw-materials, typo-technological attributes, and on-site distribution. From this characterization, the finds and their dating are discussed, in particular the pitchstone objects. The analysis of the lithic material is based upon a detailed catalogue (provided in the site archive), and in the present report the artefacts are referred to by their catalogue number (CAT no.).

The assemblage

From the excavations 39 lithic artefacts were recovered, which are listed in Table 2. In total, 87% of this small assemblage is debitage, whereas 3% is cores and 10% tools.

Type	Chert	Flint	Pitchstone	Total
Chips	15	5	2	22
Flakes	3	1		4
Blades		1	4	5
Microblades	1	1	1	3
Conical cores			1	1
Leaf-shaped arrowheads		1		1
Pieces w edge-retouch			3	3
TOTAL	19	9	11	39

Table 2: General lithic artefact list

The definitions of the main lithic categories are as follows:

- **Chips:** All flakes and indeterminate pieces the greatest dimension (GD) of which is ≤ 10 mm.
- **Flakes:** All lithic artefacts with one identifiable ventral (positive or convex) surface, $GD > 10$ mm and $L < 2W$ (L = length; W = width).
- **Indeterminate pieces:** Lithic artefacts which cannot be unequivocally identified as either flakes or cores. Generally the problem of identification is due to irregular breaks, frost-shattering or fire-crazing. *Chunks* are larger indeterminate pieces, and in, for example, the case of quartz, the problem of identification usually originates from a piece flaking along natural planes of weakness rather than flaking in the usual conchoidal way.

- **Blades and microblades:** Flakes where $L \geq 2W$. In the case of blades $W > 8$ mm, in the case of microblades $W \leq 8$ mm.
- **Cores:** Artefacts with only dorsal (negative or concave) surfaces – if three or more flakes have been detached, the piece is a core, if fewer than three flakes have been detached, the piece is a split or flaked pebble.
- **Tools:** Artefacts with secondary retouch (modification).
- *Av. Dim* = Average dimensions

Raw materials – types, sources and condition

The only lithic raw materials recovered from the site are chert (19 pieces or 49%), flint (nine pieces or 23%) and pitchstone (11 pieces or 28%). Although the chert chips are all flat and relatively sharp-edges, as would be expected from artefactual chips, it is possible that some of them may be natural. If the chips are disregarded, pitchstone becomes the most common of the three raw materials present (53%), followed by chert and flint (23.5% each).

Identification of the flint and chert used at Colinhill was made difficult by the fact that most of these pieces are minuscule, as well as discoloured by weathering, but a small number of flake and blade fragments were large enough to allow assessment. The chert objects are generally light-grey, fine-grained and homogeneous with good flaking properties, although some of them are characterized by the presence of coated internal fault planes. The chert would have been present in the local geological environment and could have been procured locally (Ballin and Ward 2013; Paterson and Ward 2013). The flint tends to be cream-coloured to light-yellow and slightly opaque, corresponding to the attributes expected from Antrim flint. So-called Antrim flint occurs on either side of the Irish Sea (Smith 1880), and may have been procured from the local shores of Ayrshire, and Dumfries and Galloway.

The pitchstone was clearly procured from the Isle of Arran in the Firth of Clyde, the only place in Britain from which knappable volcanic glass could have been obtained (Ballin 2009). Although pitchstone is available from in situ outcrops on Arran (Ballin and Faithfull 2009), at least some of the pieces recovered at Colinhill were procured from pebble sources, as indicated by



the abraded cortex of for example CAT 7 and CAT 8. On Arran, pitchstone occurs in a number of colours (black, green, steel-grey, etc.; *ibid.*), but all pieces from the present site are black, and the fact that they are aphyric suggests procurement from the eastern parts of Arran (the Corriegills/Monamore area; *ibid.*), where natural glass from all other parts of the island tends to be more or less porphyritic - that is, containing phenocrysts.

It was possible to subdivide the pitchstone from the present site into four different types (for definition of components, see Table 3), namely: 1) Black, aphyric; 2) black, aphyric, parallel bands of crystallites; 3) black, aphyric, densely packed with evenly spaced crystallites; and 4) black, with tiny spherulites. The two Group 1 pieces are both chips and they could have been detached from pieces of the other three pitchstone types, rather than represent a separate group. The occurrence of at least three different types of pitchstone at Colinhill suggests that these pieces could have been procured from a number of different sources in eastern Arran, although some pitchstone outcrops are characterized by the presence of differently composed bands of glass.

Component	Description
1	Glassy matrix
2	Phenocrysts: larger isolated or clustered crystals formed at depth during slow cooling
3	Spherulites: finely crystalline, usually radiating intergrowths of quartz and feldspar indicating devitrification of the glass phase
4	Crystallites (formerly occasionally termed microlites): very small skeletal or dendritic crystals, often Fe-Mg silicates, in glass; banding in pitchstones is often marked by variation in crystallite density
5	Other alteration products

Table 3: Pitchstone components (Ballin and Faithfull 2009, 5)

Debitage

In total, 34 pieces of debitage were retrieved from the site (Table 2). Most of these are chert, supplemented by roughly equal numbers of flint and pitchstone artefacts. The debitage includes 22 tiny chips, four flakes, five blades and three microblades. The technologically definable flakes are hard percussion specimens, whereas the blades and microblades (apart from one bipolar microblade CAT 29) are soft percussion specimens.

Interestingly, the unmodified and lightly modified pitchstone blades are considerably larger than those recovered from most sites on the Scottish mainland (Ballin 2009), as well as those from radiocarbon-dated pits (Ballin 2015). Two intact pieces are quite large, measuring 36 by 13 by 5 mm (CAT 5) and 33 by 15 by 7mm (CAT 1) (both Figure 7), whereas one (CAT 7) is only slightly broader than microblades (see definition above), measuring 20 by 9 by 5mm. The remaining fragments of pitchstone blades have widths of 7 mm, 8 mm and 16mm, respectively (CAT 15, 23 and 2). In terms of size, the Colinhill pitchstone blades correspond best to those found at early Neolithic Auchategan in Argyll and Bute (Ballin 2006).

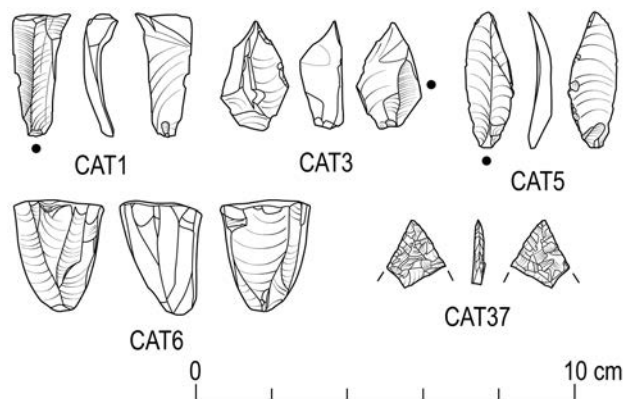


Figure 7: Lithic artefacts

Cores

The collection includes one core (CAT 6) (Figure 7), which is a large conical single-platform core in pitchstone. This piece is a highly regular blade core, measuring 29 by 23 by 22 mm, and it was reduced along its entire circumference. Apart from one flake scar, the surfaces of CAT 6 with its circumferential flaking-front, is characterized by scars left by the detachment of eight or nine regular blades.

The platform of this core is faceted, probably as a result of the detachment of a series of partial plat-form rejuvenation flakes, and the core's platform-edge has been neatly trimmed and abraded (rubbed) along the entire platform circumference. The platform appears to have areas with surviving abraded pebble cortex, but the fact that this abrasion is limited to the platform's peripheral parts, as well as the fact that parts of this abrasion is somewhat shiny, suggests that this surface characteristic may have been formed by rubbing the platform surface in connection with the trimming of the platform-



edge. This interpretation is further supported by almost microscopic parallel striations in the abraded parts of the platform.

One piece in pitchstone (CAT 8) has been defined as a piece with edge-retouch (see tool section), as consensus is to define a lithic piece according to its last usage. However, this implement is based on an abandoned core, and should therefore also be briefly mentioned in this section. Prior to its transformation into a tool, this piece was a small, flat unifacial single-platform core (22 by 24 by 9 mm) with a cortical 'back-side', and it has a faceted platform at one end. As the core was abandoned after the detachment of the last series of flakes/blades, the knapper had no reason to prepare or adjust the platform-edge (which would usually happen between the detachment of blank series), but at one corner of the platform-edge the piece retains peripheral platform abrasion similar to that described above in connection with the presentation of CAT 6, and it must be assumed that the platform-edge of this core was also trimmed and abraded regularly during its 'life-time'.

Tools

Only four tools were found at the site: the fragment of a leaf-shaped arrowhead in flint (CAT 37), and three pieces with simple edge-retouch in pitchstone (CAT 3, 5 and 8).

The leaf-shaped arrowhead fragment measures 18 by 15 by 4 mm, and it is the tip of a point (Figure 7). Due to the fragmentation of the piece, it is not possible to classify it in more detail, that is, determine whether it is the tip of a drop-shaped, kite-shaped, or double-pointed piece, but judging from the thickness of the object, CAT 37 is most likely to be the fragment of a relatively small point, belonging to Green's (1980, 71) size categories 3 or 4.

The three pitchstone implements are expedient pieces, with sporadic edge-retouch, and they may represent a number of different functions. CAT 3 is a simple hard percussion flake with sporadic retouch along one edge, and one corner appears to have been modified into a tip suggesting use as a piercer (Figure 7). However, as this 'tip' only has retouch along one edge, where a formal piercer is defined by two retouched edges merging into a point (Ballin 1996; Butler 2005), CAT 3 must be classed as a retouched piece rather than a piercer.

CAT 5, which is based on a regular soft percussion blade, has been blunted by sporadic retouched along the left lateral side, proximal end, most likely to protect the user's finger (Figure 7). It also has near-microscopic chipping of its left lateral side, and it displays scars from flat 'spin-offs' along its other lateral side, indicating use as a knife. CAT 8 (partially characterized above), is defined by having sporadic steep retouch along both lateral sides, and it may have been used for scraping without the creation of a more regular formal working-edge.

Technology

This technological summary is based on information presented in the raw material, debitage (tool blanks), core and tool sections above.

The composition and character of the numerically small chert and flint sub-assemblages do not allow any detailed assessment of the technological approaches applied to produce the chert and flint blanks, but the leaf-shaped point CAT 37 was clearly shaped by the application of invasive retouch.

The pitchstone assemblage, on the other hand, includes several blades, cores and tools, and a number of technologically relevant observations could be made. The pitchstone finds clearly represent a broad-blade industry, where blades with widths between 7 mm and 16 mm were manufactured on prepared single-platform cores. One core (CAT 6) is a highly regular, and aesthetically pleasing, conical core with an almost circular platform worked along its entire circumference. Another core (CAT 8), which was later recycled and transformed into a piece with sporadic edge-retouch, is a unifacial single-platform core with a cortical 'back-side'.

CAT 8 shows how the knappers at Colinhill regularly rejuvenated the core platforms by the detachment of partial core tablets, and how the platform-edge was adjusted between blade series by trimming and abrasion. A tiny surviving area of abrasion at the corner of CAT 6's platform-edge indicates that this piece may have been cared for in the same manner. However, CAT 8 also informs us that at Colinhill conical pitchstone cores were adjusted by substantial abrasion of the peripheral parts of the actual platform, near the platform-



edge. This approach is further supported by the surviving unmodified and modified pitchstone broad-blades (e.g. CAT 1 and 5), which have had the spurs along the platform-edge (between old blade-scars) entirely removed by rubbing/abrasion.

Distribution and activities

The lithic objects probably represent several different processes of deposition: 1) some pieces were probably buried in features with the backfill, and they therefore predate these features (by days, years or centuries) and represent general onsite activities and waste from the production and use of lithic tools; 2) some 'precious' pieces may have been deliberately deposited in features by the people who made them, thereby being contemporary with the features in a stricter sense, and representing some form of symbolic behaviour; and 3) some 'precious' pieces may have been picked up by later settlers on the site and then deliberately deposited in features, possibly years or centuries later, and also representing some form of symbolic behaviour.

It is not always possible to determine with absolute certainty which lithic artefacts were deposited in which way, but most likely the tiniest objects – such as chert, flint and pitchstone chips, as well as plain blank fragments – were deposited with the backfill, whereas more well-executed pieces (e.g. the leaf-shaped point) and exotic materials (e.g. the pitchstone artefacts, less the two chips which measure approximately 2 mm across) may represent symbolic/ritual behaviour. Although the leaf-shaped point (CAT 37) is clearly incomplete, this piece was not necessarily perceived by its creator as scrap but could have been deposited as a representation of the original complete piece, following the *pars pro toto* principle (Henriksen 1998). In the same way, fragments of pitchstone objects may still have been perceived as 'special' as they are after all exotic pieces representing a logistical effort (cf. discussion in Ballin 2009, 73; also Ballin 2015). The latter has been referred to by Beck and Shennan (1991, 138) as an added 'mysterious aspect'. It has therefore been chosen in the following to focus on the site's only spectacular flint object (the arrowhead) and the pitchstone objects.

Pit group 1: Three of the clusters' pits contained pitchstone objects, namely Pit 011, 019 and 047.

Pit 011 contained the impressive pitchstone blade CAT 1, retouched pitchstone flake CAT 3, and 18 early Neolithic potsherds. This pit showed signs of burning and also contained burnt bone and hazelnut shells. From pit 019 the fragment of a pitchstone microblade was recovered (CAT 15), and this feature also showed signs of burning (charcoal). From pit 047 the elegant retouched pitchstone blade CAT 5 was retrieved, as well as a fine sherd of early Neolithic pottery and charcoal.

Structure A, the roundhouse: From the ring-ditch itself, two macroscopic pitchstone objects were recovered - blade CAT 7 and retouched core CAT 8. A fragment of a pitchstone blade was found in the fill of internal posthole 055.

Structure B (roundhouse): From this structure two 'special' lithic objects were retrieved, namely the leaf-shaped flint arrowhead (CAT 37) and the, in relative terms, large conical core in pitchstone (CAT 6) (at the present time probably the most impressive and well-executed pitchstone object recovered off Arran itself). The former was found in (hearth) pit 135 towards the rear of the building, and the latter in posthole 100, one of the two postholes marking the entrance. Both main entrance posts (postholes 088 and 100) also contained Bronze Age pottery.

It is thought that most of the smallest debris in the features across all three groups of features – including the tiny chips of exotic pitchstone – is residual knapping debris which entered the features with the back-fill. The pit depositions outside the buildings may represent depositions of the kind discussed in Ballin (2015), where pitchstone form part of a 'depositional package', with the full package including Arran pitchstone, flakes from Group VI polished axe-heads, and Carinated Bowl type pottery, occasionally also burnt bone, even human bone. The finds from Pit 11 is an 'archetypal' ritual early Neolithic deposition of this kind, containing a large pitchstone blade, a pitchstone implement and pottery of the Carinated Bowl tradition, and it was dated to 3708-3637 cal BC (SUERC-67760).

The finds from features forming part of the two roundhouses represent a much more complex picture. A series of radiocarbon-dates define these two buildings as early-middle Bronze Age houses, and although the ditch around the northernmost structure returned an early Neolithic date (3778-



3654 cal BC; SUERC 67765), it clearly formed part of the Bronze Age structure. Among other things, this feature included a proper pitchstone blade, and with the Bronze Age representing a flake industry, this piece obviously pre-dates the structure. Most likely, even the nicer pieces in the ditch, as well as the datable organic material on which SUERC-67760 is based, entered the feature with the back-fill. This interpretation should be extended to CAT 23, a likely early Neolithic blade which was recovered from a small pit (055) associated with the house.

The two ‘special’ objects retrieved from structure B (a fragmented leaf-shaped arrowhead in flint and a beautiful conical blade core in exotic pitchstone) probably both represent cases of ‘nice’ early Neolithic objects found by the site’s Bronze Age settlers, curated in the way modern people might curate found fossils and antiquities (‘curios’), and subsequently deposited as some form of offering. Some depositions inside prehistoric buildings, either in internal pits or structural postholes, may represent a form of ‘cornerstone ritual’, where sacrifices were made in connection with the laying down of the corner or foundation stone to protect the building, a practice followed even today, for example in the form of depositing so-called ‘time capsules’.

One other case in particular displays similarities with the latter, namely that of Doon Hill in East Lothian, where a small collection of worked pitchstone was recovered from what is now perceived to be an early Neolithic timber hall – the greater of the two halls at Doon Hill, East Lothian (Ballin 2009; Brophy and Sheridan 2012, 62). A 10 mm wide pitchstone blade was recovered from

one of two twin roof-bearing posts in the central part of the hall, with another five pieces of burnt pitchstone deriving from two southern wall posts. In addition, a 12 mm wide blade was recovered from a posthole in the hall’s north-eastern corner. Moreover, the pitchstone was associated with a leaf-shaped arrowhead of flint, recovered from a posthole in the hall’s northern long-side, as well as pottery of the Carinated Bowl tradition.

However, Doon Hill is an example of prehistoric people depositing objects produced by themselves, whereas Colinhill is an example of prehistoric people depositing objects which may predate the ritual event by as much as a millennium.

Dating

The assemblage includes a number of diagnostic elements, such as the leaf-shaped flint arrowhead, the pitchstone blades and cores, and associated radiocarbon-dates. The arrowhead is clearly an early Neolithic piece (Green 1980; Butler 2005), but as it was not possible to characterize the fragmented point in greater detail, it is not possible to suggest any more specific date (kite-shaped arrowheads, for example, tend to date to the later part of the early Neolithic; Green 1980).

Although it cannot be ruled out that the odd pitchstone artefact found its way from Arran (where volcanic glass was used throughout prehistory) to the Scottish mainland in Mesolithic times, the systematic exchange in Arran pitchstone is clearly a post Mesolithic phenomenon, with all radiocarbon-dated pitchstone from mainland pits being early Neolithic (Figure 8), supplemented by a small number of pieces having been

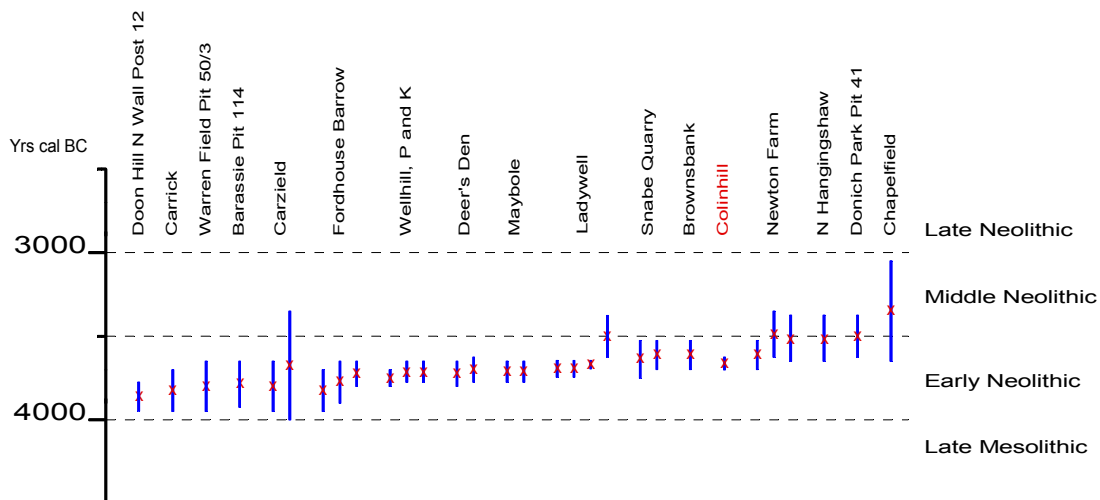


Figure 8: The dating of worked pitchstone from pits

typologically dated to the middle Neolithic, and in Argyll and Bute, as well as on Orkney, also to the late Neolithic and early Bronze Age periods (Ballin et al. 2008; Ballin 2009; 2013; 2015).

As the blades from the site were produced by the application of soft percussion, where most middle and late Neolithic blades tend to have been manufactured by the application of more robust approaches (Ballin 2011b; Suddaby and Ballin 2011), the pitchstone blades are likely to pre-date the middle Neolithic. Furthermore, the transition between the early and middle Neolithic periods marks a shift in technology, from the production of regular blades on conical cores to the production of flakes and blades on Levallois-like cores, although some middle and late Neolithic blades were also manufactured on traditional single-platform cores (Ballin 2011a). The conical microblade core CAT 6, however, clearly pre-dates the middle Neolithic.

The 19 radiocarbon dates suggest activity at Colinhill in the early Neolithic period (two dates), the middle Neolithic period (one date), the early and middle Bronze Age periods (13 dates), and in post medieval times (one date). However, only five radiocarbon-dates were associated with lithic artefacts, all from Area A.

Although all datable lithic artefacts appear to have been produced in the early Neolithic, they were not necessarily deposited during this period. As mentioned above (distribution section), some pieces may represent deliberate deposition in the early Neolithic period (pit 011), whereas for example conical core CAT 6 may have been found by later settlers and inserted into the posthole of an entrance post in connection with a possible cornerstone ritual.

Discussion

Although the lithic collection from Colinhill is numerically small, it is nonetheless quite interesting, providing additional information on a number of pitchstone-related issues. They are: 1) the intra-site deposition of worked pitchstone off Arran; and 2) the exchange network responsible for the inter-site distribution of Arran pitchstone across northern Britain in Neolithic times.

Intra-site spatial distribution of worked pitchstone

As mentioned above, and discussed in Ballin (2009; 2015), the distribution of pitchstone across individual prehistoric sites defines this raw material as one which was perceived on the Scottish mainland as ‘special’. A depositional practice appears to have developed in Neolithic times, following which worked pitchstone was deposited in pits and postholes with other ‘special’ objects, such as flakes struck off imported Group VI polished axe-heads (possibly following the pars pro toto principle and representing the original complete axe-heads), at Fordhouse Barrow in Angus ten pitchstone artefacts, mainly microblades, were accompanied by a burnt fragment of a large leaf-shaped object (again, possibly following the pars pro toto principle; Ballin 2004) and at Deer’s Den in Aberdeenshire a leaf-shaped point had also been deposited with pitchstone (Alexander 2000). These depositions also frequently include early Neolithic carinated vessels or sherds from such vessels (Ballin 2015). Other finds from these features may include burnt animal or human bone. Above, it was suggested that these depositions possibly represent as yet unspecified ritual behaviour, or in some cases activity associated with the construction of a

SUERC code	Area	Context	Feature	Date cal BC	Period	Finds
67760	A	4	Pit 011, pit group 1	3708-3637	EN	Pitchstone flake w retouch; pitchstone blade
67765	A	10	Enclosure ditch, structure A	3778-3654	EN	3 chert chips; 1 pitchstone chip; 2 chert flakes; 1 flint flake; 1 pitchstone blade; 1 pitchstone core w retouch
67767	A	45	Pit 064, structure A	2113-1891	EBA	Pitchstone chip
67769	A	93	Posthole/pit 094, structure B	1398-1207	EBA/MBA	Chert microblade
67770	A	99	Posthole 100, structure B	1442-1290	MBA	Flint chip; chert chip; pitchstone conical microblade core

Table 4: The radiocarbon dates associated with lithic artefacts

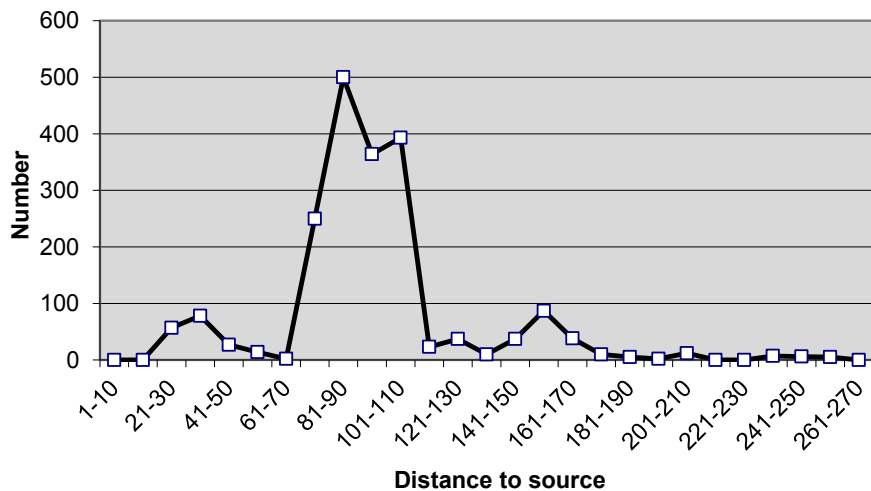


Figure 9: Fall-off curve (worked pitchstone) for northern Britain (Ballin 2009, Fig. 27)

dwelling, but at Fordhouse Barrow the deposition is likely to be linked to the mound and Neolithic burial practices.

Inter-site spatial distribution of worked pitchstone

In Ballin (2009) an attempt was made to define the Neolithic exchange network on the basis of the evidence available at the time. Since then, new evidence has emerged, adding to and supporting the picture presented in that volume. The author defined a number of distributional trends, and in southern and central Scotland worked pitchstone seems to cluster in an apparently non-random fashion. It was suggested that some notable clusters in Argyll and Bute may have formed as a function of this part of western Scotland possibly having had close territorial links with Arran (possibly being part of the same social territory), but on the mainland east of Arran the general trend is that pitchstone artefacts are found in relatively high numbers on the coast (where Arran pitchstone ‘made land-fall’?), and further inland there appears to be a zone characterized by relatively small amounts of worked pitchstone (although it is present), followed by notable clusters (Figure 9), such as the Biggar area in South Lanarkshire (Ballin and Ward 2008), which may in Neolithic times have been a separate social territory. It is uncertain whether the higher numbers of worked pitchstone around Biggar is due to special kin-based links between the Biggar area and Arran, or whether these numbers are due to Biggar’s special logistical position at the so-called ‘Biggar Gap’ between the River Clyde and the River Tweed, linking east and west.

Colinhill is located near Strathaven and situated only a few tens of kilometres west of Biggar. The site is located near Avon Water (locally known as the River Avon), which is a side branch of the River Clyde. As indicated above, the assemblage from Colinhill has a very high pitchstone ratio (without chips, 53%), with the pitchstone component including a spectacular core, several notably large blades, and a number of tools, but it is uncertain whether this links the site to the prehistoric ‘Biggar territory’, or whether the reason for the large numbers of pitchstone artefacts at Colinhill is that this site is situated near a river, giving the site’s settlers easy access to other parts of the surrounding world, particularly around the Clyde basin.

Prehistoric pottery

By Beverley Ballin Smith

Introduction

Both Area A and Area B of the site produced prehistoric coarse pottery. Sherds from a total of seven vessels came from features ranging in date across all phases of the Neolithic, into the late Neolithic and Bronze Age transition and into the middle Bronze Age. A total of 176 sherds were analysed amounting to 1.86 kg in weight.

Methodology

All the sherds were gently brushed before they were examined with a x6 hand lens. Their attributes and statistics were compiled on an archivable spreadsheet using Microsoft Excel. The pottery was analysed according to the revised guidelines of the Prehistoric Ceramics

Research Group (1997), and the CfA's Standards and Guidance for the collection, documentation, conservation and research of archaeological materials (December 2014). The pottery was counted, weighed and its thickness measured. It was also examined for information on manufacturing techniques including surface finishing (including decoration), firing, as well as rim, body and base forms. Adhesions, wear, damage, and taphonomic processes were noted. Finally, the analysis of the vessels forms their uses and their dating was considered.

Description of the pieces

This assemblage represents a minimum of seven different vessels, four from Area A and three from Area B. Sherds were recovered by hand during the excavation, and these tend to be the larger pieces, while others recovered from soil samples are generally small and usually heavily abraded. However, in this assemblage, a large base fragment was also found in a soil sample as well as pottery fragments less 0.5 mm in size. Post-depositional changes include abrasion and loss of surfaces, with root erosion and lamination of sherds. Some of this is possibly due to mechanical movement in the soil, the percolation of rainwater and the infiltration of roots, but in other examples, firing at low temperatures is a contributory factor. The composition of the pottery includes rims, base sherds, a carination, body sherds as well as fragments and dust (Table 5).

Vessel	Area	Rim sherds	Base sherds	Body sherd	Weight (g)	Average wall thickness (mm)
1	A	7	0	26	845.1	11.5-13.1
2	A	2	0	0	1.3	5.8
3	A	2	0	3	334	15.9
4	B	2	2	34	168.3	19.3
5	B	1	0	0	48.2	14
6	B	2	0	4	123	17.7
7	A	0	1	3	53.1	17.5
Totals		16	3	70	1573	

Table 5: Pottery statistics

Vessel 1

A total of 25 sherds (SFs 1, 3 6-9, 11 13-20, 22, 25, 26 and sample 6) with possibly another 10 associated sherds form this vessel from Area A. The sherds weight a total of 860.5 g and comprise mostly body sherds with six rim fragments and one carinated sherd, with an average sherd weight of

24.6 g. The thickness of the pottery ranges from 6.6 to 14.8 mm, with an average sherd thickness of 11.5-13.1 mm, but this measurement varies depending on where the sherd is from in the vessel. The pottery was found in the fills of three pits (004/011, 015/014 and 046/047) forming pit group 1 situated north of the structures which dominated the centre of the plateau. There were also two unstratified sherds, which probably belong to this vessel.

The pottery was made using local clays and manufactured locally. The clay in this instance was mixed with coarse to very coarse gravel which included quartz and amphibolite or diorite, that form part of the till covering the bedrock in this area of Strathaven (British Geological Survey 2019). A stream, the Goods Burn, which flows E/W, c. 0.5 km south of the site might have been the source of the gravel added to the clay as temper. Much of the gravel or rock is rounded and largely unidentified. The addition to the clay of vegetable matter in the form of cut grasses (hay or straw) in all sherds was not confirmed with only some exhibiting vesicles where the material had been burnt away during firing.

This vessel was well made with a traditional rounded base although no sherds survived from near the base of the pot. A carination at the shoulder was part of the design, which separated the rounded belly of the pot from the slightly convex neck above. A predominantly rounded but irregularly moulded rim finished the top of the pot (Figure 10).

Apart from the uneven thickness of the pottery and the irregularly shaped rim, the vessel was burnished before it was fired. The smooth external surface, with slight horizontal ridging caused by polishing indicates that this pot was treated to a surface finish which would have left it hard and shiny, but little of the latter survives. The pot was well-fired, which produced a hard fabric. The vessel is typical of an early Neolithic carinated bowl.

Some of the associated sherds thought to belong to this vessel are burnt, abraded and came from pit 015/014 and an unstratified context. This distribution may indicate that the vessel was originally buried in pit 004/011, possibly in a cracked or fragmented state, but it was disturbed

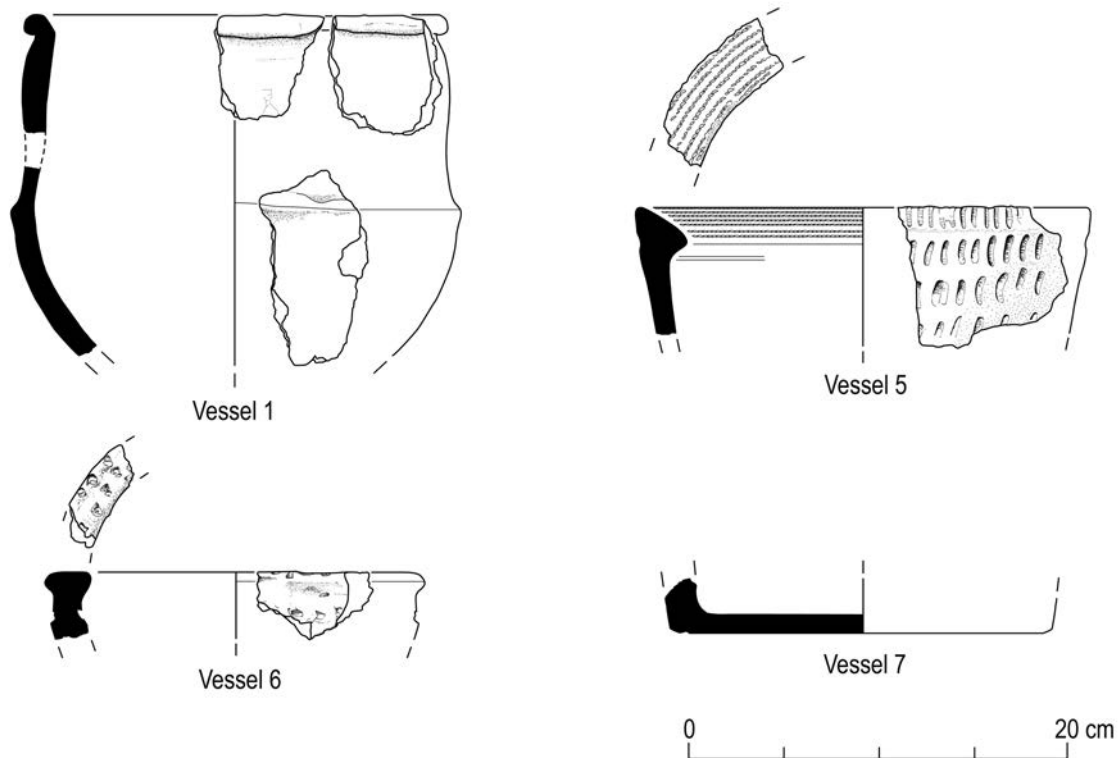


Figure 10: Pottery Vessel 1 (early Neolithic carinated bowl), Vessels 5 and 6 (middle-late Neolithic Impressed Ware) and Vessel 7 (flat base)

through later activities, with some sherds removed to become incorporated in the fill of a nearby pit or scattered in the vicinity. Deeper modern ploughing may have been the cause of this distribution and the abrasion of sherds.

Vessel 2

This vessel comprises a single body sherd, SF 30, part of a late Neolithic/early Bronze Age Beaker found in the fill, context 104 of pit 127, in structure B in Area A. The sherd is small, weighing only 1.3 g with a thickness of 5.8 mm. The pottery is manufactured in local clay with fine unidentified rock temper. The presence of organic temper was not confirmed.

The sherd is decorated with four parallel lines of deep incised cord impressions but evidence indicates that the pot may have been burnished before firing.

Vessel 3

Two plain rim sherds (SF 31 and 35), three body sherds (SF 32, 36 and 37) and 27 fragments (Sample 64) came from the fills of three pits (099/100, 105/140 and 061/060) predominantly associated with the structure B in Area A but also from a pit close to structure A, and are part of a

single vessel. The total weight of pottery is 334 g and the average thickness of measurable sherds is 15.9 mm, indicative of a large, heavy and plain vessel.

The pottery is highly fragmented and has a significant amount (20-30%) of coarse/very coarse pale-coloured gravel to the clay. One piece of stone filler in Sample 64 is c. 20 mm long, although the majority are much smaller. The presence of organic material in the pottery composition has not been determined.

The rim sherds have thick, slightly flattened tops. They are slightly everted with a broad finger runnel beneath, to a slight carination or shoulder. The diameter of the rim is 120 mm, with c. 25% of the rim surviving. The pale colour of the pottery, its clearly visible temper and its friable condition is due to the failure of the various components of the clay to fuse together during firing. This is a result of the firing not reaching a temperature of about 1000° C (see Appleby 2016). SF 32 is better preserved and better finished than the majority of sherds, but this could be due to a later refiring in another pit, as an introduced object. This pottery is likely to be the remains of Bronze Age pot.



Vessel 4

The pottery from this vessel derives from pits within pit group 2 in Area B. It was found in the fills of pits 010/028 and 006/034, which lay c. 1 m apart, and comprises a total of 38 sherds (SF 6, 9-13, and sample 12), but only one sherd (SF 3) was found in pit 034. The collection includes two base and two rims sherds, and the remainder are body sherds. The total weight of the pottery is 168.3 g, and the sherds have an average thickness of 19.3 mm.

The type of stone temper added to the clay includes quartz rock and sand but other fragments are unidentified. It is possible that vegetable matter was also added to the clay mix but only one sherd confirmed its presence. Although the pottery was well-fired, to a reddish-yellow colour, one of its most significant characteristics is that it is prone to lamination and spalling, with many of the sherds losing one or both surfaces caused primarily by root penetration.

The surviving surfaces indicate that the pottery was made to be very smooth, possibly by burnishing, but impressions of vegetable matter also indicate the vessel was wiped with straw or grass. Base sherds and others possibly from near the base are burnt, with deep impressions from burnt out and eroded vegetable matter present. The pottery also contains food residues indicating its use as a cooking pot.

The only decoration found on the pottery survived on the interior of both rim sherds which have three parallel rows of fine cord impression. This may indicate that the vessel was possibly middle–late Neolithic or early Bronze Age in date.

Vessel 5

This pot is represented by a single rim sherd, SF 4, found in the fill (010) of pit 028 part of pit group 2 Area B, weighing 48.2 g, with a wall thickness of 14 mm. The pottery contains very coarse grits which include some coarse sand as well as other unidentified rock but it is not certain if the clay mix also contained vegetable matter. However, part of the piece has broken away due to heavy root infiltration. The pottery is reasonably well-made but has one poorly masked coil join below the rim externally. The bevelled rim has been shaped from clay that was applied over the

last coil of the body of the vessel to provide an external diameter of 120 mm with c. 10% of the rim present (Figure 10). It was shaped into a wedge 30 mm wide and smoothed below it where the rim joined the internal surface. The surface of the vessel was presumably smoothed all over before the decoration was incised but there is no evidence of external finishing. The pottery is hard, well-fired and predominantly yellowish-brown in colour but there is some burning of the surface and abrasion due to taphonomic changes in the ditch in which it was buried.

The exterior of the sherd has four rows of curved, convex ridge motifs impressed into the clay. Four parallel rows of curved impressions, which according to Gibson and Woods (1997, 133-4), was most likely created by short lengths of whipped cord. The top row of the design is placed partly on the edge of the rim, with the succeeding rows placed at regular intervals down the vessel. The interior bevel of the rim is decorated with seven closely positioned parallel cord impressions. It is likely that this is a bowl of the middle to late Neolithic Impressed ware tradition.

Vessel 6

Six sherds (two rim sherds and four body sherds, SF 15-17) weighing 123 g, came from the fill (006) of pit 034 in pit group 2 in Area B. The average sherd thickness is 17.7 mm. The pottery has very coarse rock temper of basalt /mixed gravel, coarse pink degraded rock - quartz and other minerals, but the addition of vegetable matter is uncertain. The pottery is heavy and the loss of surfaces has been noted on three sherds. The surface of the best preserved sherd is smoothed and has been wiped and carbonised food deposits have been noted. The pottery is hard and reasonably well-fired.

The vessel was finished by a 23 mm broad and flat T-shaped rim, where the clay at the top slightly spreads out to both sides forming the bar of the T. Approximately 12.5% of the rim survives which measured 100 mm in diameter. The join of the rim to the body of the vessel is finished with a light finger runnel beneath the splay of the rim externally, but a deeper moulding is noted internally. Two rows of oblique designs are impressed into the rim with a row below. The impressions are created by a small bird humerus. Another sherd has a single impression suggesting



that the decoration may have continued down the body of the vessel. The vessel is an example of middle to late Neolithic impressed ware (Figure 10).

Vessel 7

This pottery, from sample 065, found in the fill 067 of posthole 128 is associated with the NW arc of the structure B in Area A. Four sherds, including a base sherd, weigh 53.1 g. Although the surfaces of the pottery had been lost, the wall of the base sherd measured 17.5 mm in width and its diameter was c. 100 mm with c. 12% of the arc of the base present (Figure 10). The unidentified temper in the sherd is coarse to very coarse with c. 20% forming part of the clay matrix. There are strong similarities with Vessel 3, and it is possible that this well fired piece (because it had been reheated on a hearth) is part of the same vessel.

Discussion

Location and date of the pottery

Represented in this assemblage are the fragmentary remains of an early Neolithic Carinated Bowl, two middle- to late-Neolithic Impressed Ware vessels, a late Neolithic/early Bronze Age Beaker, with sherds of three unspecified Bronze Age vessels. All the pottery came from the fills of pits and postholes.

Vessel 1, the early Neolithic pottery, was found in the fills of three out of four pits in pit group 1 in Area A. The pits were identified by the excavator (Spence 2015b) due to the presence of charred deposits, which included burnt bone and charcoal. The bulk of the pottery came from pit 011, which also included pitchstone and flint artefacts. Additional sherds from this vessel were located in the other two pits, one of which also contained a pitchstone artefact (see Ballin this volume). It is quite likely that disposal of the main part of the vessel took place as the pit was backfilled. However, as sherds were found in other pits it suggests that the vessel had broken prior to backfilling, and loose pieces were simply swept or shovelled into the pits along with other domestic detritus and the pitchstone. The combination of the pottery type, the presence of pitchstone, and the lack of other residual or later material, indicates that the depositional activities associated with the use of these pits took place in the early Neolithic. A radiocarbon date of

3708–3637 cal BC (SUERC 67760) from pit 011 is consistent with this interpretation

Structure B in the southern part of the excavated area is the location of Vessels 2, 3 and 7. It is highly likely that the single sherd of a beaker (Vessel 2) was a residual piece that became incorporated accidentally into the fill of a posthole in the northern arc of the structure.

Fragments of Vessel 3 and 7 (possible the same vessel) were also found in the fills of postholes of this same building: the former by the entrance and in a posthole to the north-west, and the latter in a posthole to the west. These pieces were well distributed across the building and may imply that the pot or pots were residual, i.e. earlier than the construction of the building and possibly early Bronze Age in date. Ballin (above) suggests that the pitchstone core and pottery deposited in pit 100 could be a foundation deposit for the building. A radiocarbon date from the fill of one of the postholes (SUERC 67770) suggested that the structure was in use sometime around 1442–1290 cal BC (middle Bronze Age).

In the middle of Area B, the pits of pit group 2 were all positioned close to each other. Sherds from Vessels 4 and 5 were found in the fill of pit 028, and fragments of Vessels 4 and 6 were located in a nearby pit (034), indicating some relationship between the pits and activities associated with them. A deliberate act of deposition and distribution of pottery including the highly decorated rims of Vessels 5 and 6, and the decorated rim of Vessel 7, cannot be ruled out, and suggests the contemporary use of the two larger pits of this group as possible heart pits. All the pots are probably middle to late Neolithic in date, with the radiocarbon date from pit 028 suggesting the pottery was in currency around the period 3339–3026 cal BC (SUERC 67779, middle Neolithic).

Comparison of the pottery

Vessels of early Neolithic date have become increasingly common finds during archaeological work over the last couple of decades, and especially in the western part of the Scottish lowlands. Cowie (1993) catalogued the Neolithic pottery of the central and eastern parts of Scotland where the rolled-over rim to a carinated bowl was typical of pottery of the period, similar



to Vessel 1 from Colinhill. Recent work on dating these vessels commonly suggest the currency of these pots in this region begins c. 3700 cal BC, or slightly earlier.

More recent publications have stressed the relationship of Neolithic pottery and pits at Cambuslang (MacSween 2009, 10-12; O'Brien 2009, 1), Laign Newton (Ballin Smith 2011, 20-23), Snabe Quarry (Ballin Smith 2015a), Midross, Loch Lomond (Ballin Smith forthcoming a) and at Douglasmuir (Ballin Smith forthcoming b). At these and other sites, the research into activities concerning the disposal or placement of pottery in pits, with or without other similarly dated objects like pitchstone artefacts, is ongoing. In some cases, such as Laign Newton, where mainly rim sherds from pottery of different periods was found in the same pit, the act of gathering and burying pottery may have been deliberate or structured deposition (Toolis 2011, 44). Other examples, such as those at Colinhill, are more domestic in nature, indicating the disposal of broken pots as waste materials along with food debris and that from hearths. The abrasion of vessels noted by MacSween at Cambuslang (2009, 10-12) may be due to the scattering of broken vessels, the movement of midden material and the burial of waste, all having an impact on the survival of fragments of pottery.

The fragments of two, possibly three, middle- to late-Neolithic Impressed Ware vessels found in the fills of closely positioned pits, one of which was radiocarbon dated, are further additions to the corpus of this style in Scotland. The largest assemblage of Impressed Ware vessels recovered so far in Scotland was found at Meldon, Peebleshire (Johnson 1999, 53-76, and further discussed by MacSween 1999, 77-79), and the date of the pottery has been further debated in Scotland by Sheridan 1997 and 2008. It was considered to be a mainly Late Neolithic ware, called Peterborough Ware in England, with similar pottery found in Wales and Ireland (Gibson 2002, 80). However, the dates of manufacture and use of this pottery has been pushed back due to the production of radiocarbon dates into the middle Neolithic (the second half of the fourth millennium BC).

Colinhill is just one of a number of sites that have been excavated, published or reported on

recently in South Ayrshire, East Ayrshire and South Lanarkshire that have produced Impressed Ware pots. Eight vessels came from Ladywell (Ballin Smith forthcoming c), which were radiocarbon dated to a period between 3366 to 3037 cal BC – the middle Neolithic. Other pots include Vessel 5 from Barassie (Ballin Smith 2017, 74-83), eight decorated vessels from Monkton (Ballin Smith 2015b), and sherds of Impressed ware from Laign Newton (Ballin Smith 2011, 21-22). Further discussion of this ware and its date can be found in (Ballin Smith forthcoming c).

A new addition to the corpus is the seven vessels found at Ayr Academy (Ballin Smith 2019), with one dated to c. 3310-2919 cal BC. This collection produced a range of shapes and designs, some of which are closely paralleled in the pots from Colinhill. Vessel 7 from Ayr is similar to Vessel 6 from Colinhill in the use of a small bird humerus for the decoration of the broad rim top and the vessel body. Vessel 14 from Ayr is a bowl with a decorated broad, bevelled, internal rim and is a close match to Vessel 5 from Colinhill which would have been a very similarly sized pot. The external appearance of each pot differed but the form, shape and decoration of the rim implies transference of ideas and techniques between the two sites.

Conclusions

The conclusions drawn from this assemblage are that the landscape was used throughout the Neolithic and into the Bronze Age, perhaps not in a continuum, but the place was visited and revisited several times. Activities were spread out with people favouring specific places in the landscape for meeting, camping and living. The dating of activities can be partly demonstrated by pottery typology but also by other artefacts left behind, and also by radiocarbon dates.

What is of interest are the traditions of pottery making for the early Neolithic, the middle and later Neolithic and into the Bronze Age that were not simply region-wide but confirm people were part of a much larger society where ideas and meanings were transferred and past on. The form of a rim, the shape of a pot, even the decoration and the tools used to make the motifs were probably part of the transmission of information from one group to another. Each new archaeological discovery plays its part in



providing us with a better understanding of how society worked in prehistory.

General discussion

The excavation results along with the results of the post excavation dating and specialist analysis identify several phases of activity on the site. Possible transient use of the site is seen in pit group 1 originating from the earlier Neolithic and pit group 2 dated within the later middle Neolithic, while the roundhouses demonstrate more settled use falling broadly within the middle Bronze Age. More ephemeral activity has also been identified more disparately across Area A and within Area D to the south with at least two further middle Bronze Age dates established. There is little else which can currently be gleaned from these features given the lack of indicative artefactual or ecofactual material or identifiable patterning beyond the implication that activity was potentially more extensive than can be tangibly identified.

Although relatively small, the material culture assemblage contains an interesting range of materials that is a significant indicator of activity taking place on the site, specifically in suggesting processes of structured or belief-driven deposition associated with all three of the broader periods of activity.

Neolithic pit groups

The Neolithic pit groups identified on the upper and lower plateaus are indicative of the 'low level inhabitation' activities generally discussed by Sheridan et al. (ScARF, 2012) as being significant indicators of use of the landscape across the period and of peoples' relationship with it.

The AMS dates indicate that although the two groups fall broadly within the early and the middle Neolithic, they likely date to either extreme of this and could be up to 700 years apart in origin. It is likely that the two locations at Colinhill were selected for their topographic outlook, with both having open landscapes to the south and west towards the Avon Water gorge. The pit groups were relatively isolated and did not appear to have any structural associations; although the possibility is not ruled out that there may be further unknown features present in the vicinity. However, activity here seems likely to have been

transient or short term, with the nature of its survival demonstrating an engagement with the surrounding landscape.

The artefactual assemblages present within the pits are typical of those increasingly associated with groups dated within the earlier Neolithic. Becket and MacGregor discuss the suite of materials present in various examples of Neolithic pit concentrations in south-west Scotland, including sites at Warehouse 37 near Girvan, Maybole, and the Carrick (Becket and MacGregor 2012). Assemblages included a range of Carinated Bowl pottery, pitchstone tools, worked stone tools, axe-head fragments and burnt bone and stone fragments. Various other recent examples in the south-west have also been seen to demonstrate this including at Ladywell (Mooney 2014a; forthcoming a) and the Curragh (Spence 2015c; forthcoming) both north of Girvan, and more locally at Loudon Hill (Atkinson 2000, 45), Snabe Quarry Area C (Kilpatrick 2015, 10-11) and Larkhall Academy (Dutton and Atkinson 2006, 14). The earlier group of pits at Colinhill clearly conforms to this identified range of materials, with the presence of the Carinated Bowl pottery and pitchstone. The similar preference for these materials also noted here given that all pottery from the earlier group originates from apparently the same vessel (Vessel 1) distributed across several features.

Other shared traits identified by Becket and MacGregor include elements of taphonomy, with many examples demonstrating a clearly dug feature which shows little signs of weathering, along with a single mixed fill, suggesting that the material may have been worked and mixed prior to a swift deposition after the feature was dug (Becket and MacGregor 2012, 58). The earlier group at Colinhill also demonstrates these characteristics, with all showing unweathered pits and all but one containing a single mixed deposit.

In exploring ideas around the meaning of the activity surrounding deposition in this distinct way, Becket and MacGregor note the idea of 'different scales of landscape inhabitation' being represented, through the mixing of more everyday materials such as domestic waste with more exotic materials like the pitchstone (Becket and MacGregor 2012, 61). Noble et al. have also



discussed similar ideas in relation to Mesolithic and Neolithic pit deposition in their consideration of the representation of the 'full spectrum of lifecycle events' (Noble et al. 2016, 191). These ideas at least seem feasible and illustrate the partial motivation behind the materials selected for structured deposition, particularly when considering the outlook from the locations at Colinhill. Both the Neolithic pit groups at Colinhill are located on the more pronounced plateau areas, with the lower Area A likely inhabited again in the Bronze Age for its favourable topographical attributes. It seems possible that given the outlook over the surrounding landscape at the location of the pits there could be an element of symbolism in the range of the uses and activity which takes place there.

Although the later Area B group falls outside this identified suite of materials there are similarities. These features also contained fragmentary pottery, and all also contained a single mixed fill within an unweathered hole suggesting a single intentional depositional event. This continuation of comparable activity later in the Neolithic could point towards the persistence of ideas of lifecycle and landscape connection - broad concepts quite likely widely appreciated as fundamental to existence throughout the period.

As has also been discussed elsewhere (Brophy and Noble 2016, 65), that a singular explanation for pit deposition practices is not feasible given the range of contexts that individual pits and pit groups are identified in, with extensive revisiting evident at some sites and re-use of existing pit or structural features evident at others. The two groups of four pits at Colinhill are less complex by comparison, and far less substantial than other concentrations, however the presence of the two groups around 180 m apart does suggest that the area around the upper slopes of Colinhill may have been sporadically revisited for the practice of pit usage followed by deposition. The same fundamental ideas of celebrating or marking lifecycles and landscapes may persist, even if this is sporadic and no real longevity of a singular tradition can be identified.

In consideration of pit activity at Colinhill, as at many other sites, it is worth noting that interpretation is realistically limited to an understanding that can only be implied from the

material recovered, and as has been pointed out elsewhere this inherently tends to lend priority to features with diagnostic artefactual and botanical material and can skew the interpretation (Becket and MacGregor 2012, 58; Brophy and Noble 2012, 68-69). Although there is little else that can be deduced from features with no diagnostic material and no locational or morphological patterning, this does not dismiss the possibility that activities around these at Colinhill may also have been significant and explored similar ideas, albeit in a now less tangible manner.

Another significant aspect arising both from the practice of pit deposition and from the types and form of objects present is an insight into the exchange of materials and ideas, particularly on a regional level across the wider south-west of Scotland; both Ballin and Ballin Smith raise this in their discussions of the lithic and pottery assemblages. Ballin considers the Arran pitchstone material as particularly significant here, suggesting that the particularly high proportion of pitchstone within the Colinhill lithic assemblage could be connected to the sites' proximity to the exchange hotspot at Biggar between the Clyde to the west and the Tweed to the east, which previously has been identified as an area of high pitchstone concentrations. Equally, Colinhill may have benefitted from its proximity to the River Avon, which as a tributary of the Clyde would render the Clyde estuary and wider south-west coastal areas easily accessible.

Ballin Smith also comments on exchange in relation to the pottery assemblage, although of style and technique rather than materials. Other examples of early Neolithic Carinated Bowl pottery within the south-west are noted, as are the stylistic attributes of the three identified middle-late Neolithic Impressed Ware vessels, particularly those with identifiable decoration (Vessels 5 and 6). Ballin Smith describes the similarities in style across a number of vessels identified during recent work at various locations across the south-west, suggesting that the similarities may suggest transference of techniques and styles between these areas. The suggestion from the artefactual material recovered would seem to be that the site at Colinhill benefitted from its location near waterways, making it accessible for both the exchange of materials and ideas throughout the Neolithic and Bronze Ages.



Bronze Age structures

Establishing the exact relationship between the structures is somewhat problematic given that they are not stratigraphically related, however consideration of the structural form and the material and botanical assemblages provides an insight into the comparable nature of activity and construction.

Dating shows that Structure A is on average slightly earlier, however the two general established date ranges overlap by some 160 years. It is possible that the two structures may have overlapped in use with activity around Structure A perhaps expanding into the later Structure B, with focus eventually shifting altogether. However, equally they could have been constructed at different times with Structure B a straight replacement of A, or perhaps reusing a former site still known for its favourable locational attributes.

It is necessary to consider the likely lifespan of the structures. Reynolds has discussed general timeframes involved in required replacement or alteration cycles of posts in his experimental study of the decay of the reconstructed Pimperne roundhouse, of similar dimensions and construction to Structure B (Reynolds 1995), although with substantial disparities in the realistic conditions of use given that the experimental structure was unoccupied. Halliday has also discussed the lifecycle of a single-phase roundhouse, based on a figure of around 20 years although suggesting that it may be as little as 10 years (Halliday 2007, 54). Given that there is evidence within both structures at Colinhill of possible repairs or replacements being made to the postholes as seen in the recuts visible in Structure B and the 'pairings' seen in the Structure A post-ring, it seems evident that attempts were made to prolong the life of the structures. This is perhaps unsurprising given the efforts which would have gone in to the initial construction of the structures, with perhaps as little as a decade or less not seeming a great deal in return for the labour and resources involved. Some of the postholes within Structure B show evidence of perhaps several replacements with up to three possible rounded redigging visible in A132, although it is also feasible that these may be the result of more than one attempt at reset or repair.

Both Pope and Halliday have explored the idea of sporadic occupation of roundhouses (Pope 2015, 165; Halliday 2007, 54). Pope identifies this specifically in relation to eastern coastal roundhouses possibly for seasonal coastal activities. However, the possibility of seasonal or broken periods of use could potentially apply at Colinhill, with maintenance connected to phases of use. Taking all of this into consideration, it seems possible that each structure may have been in use for several decades allowing a realistic timeframe for activities or a group of inhabitants to expand to the point of requiring a second structure or else complete replacement.

It is also necessary to consider the potential nature of the activity around each structure. Structure B would appear to be typical of a turf or earth constructed ring-bank and post-built structure with a south-east facing entrance arrangement (as Pope 2015). The arrangement of contemporary internal postholes within the structure suggests that there was some form of division(s) creating spatial distinction within the interior, possibly partially channelling the entranceway into the wider internal space or sheltering the hearth from the entrance. Given the scale of the structure and the more complex interior arrangement along with the presence of domestic waste material within the postholes, it seems feasible that this was primarily a domestic structure with internal areas perhaps designated for different activities; it is possible that livestock could also have been occasional or seasonal inhabitants. This is generally in keeping with Pope's recent chronology which describes a lowland return to this form of architecture during the middle Bronze Age; the projected size of Structure B at 9.1 m is also roughly in keeping with the slightly smaller diameters put forward here as typical of structures in the west and south at this time (Pope 2015, 177-178).

Structure A is slightly more ambiguous, particularly in defining the role that the penannular ditch played in the arrangement. Given that the ditch only partially enclosed the ring of posts it seems perhaps more likely that it existed as an adjacent feature rather than as a structural component of the building. Its terminal and greater depth to the north could indicate the possibility of it being an open ditch for the purposes of draining run-off away from the



structure, either from the roof or from the sloping ground to the north. Alternatively, the ditch could have acted as a slot containing either a series of posts or panels forming a partial fence or wall around the structure. This would have acted as a shelter or windbreak towards the more exposed west, given that the north is sheltered by higher ground, and without disturbing the open outlook to the south and east.

Another functional possibility of the ditch, used with an upstanding feature of some kind, may have been as a means of channelling and controlling livestock. This is suggested at the site at West Acres, Newton Mearns where three phases of middle Bronze Age activity were identified in a series of palisades with the partial ditches suggested as a means of corralling livestock around a central structure for activities such as milking or shearing (Toolis 2005, 494-96).

This raises the question of the form of Structure A itself, specifically how the structure was walled. It seems possible that similarly to Structure B a turf or earthen ring-bank existed outside the central post-ring, as suggested by the placement of the possible entrance posts A055 and A062. This would enlarge the internal diameter of the structure to around 9.5 m. However, it would leave an outer channel of only around 0.85 m between the outer wall and the ditch, probably less if the likely width of a circular bank is taken into consideration. This makes the use of this gap as a passable area for the control of livestock improbable, and implies that the ditch was either an open channel or it housed a simple hurdle wall. In this way Structure A incorporates elements of Pope's ring-bank and post constructed houses along with potentially an element of ring-groove as seen in the ditch (Pope 2015, 171). Although there were no visible post impressions within the ditch, it was well-defined and did not show the signs of wear or weathering that may be expected of a feature left open for a prolonged period.

It seems likely then that Structure A was of a similar domestic arrangement to Structure B, with the additional surviving central hearth deposit reaffirming this. The hearth was preserved here by the deeper overburden deposits present above the area of Structure A due to its position at the break of slope, as opposed to the shallower deposits above Structure B nearer

the underlying bedrock. Various other internal features may also indicate some form support, or internal partitions similar to those in Structure B, although less extensive. Again, there may be a focus towards the entrance of the structure, with shallow linear feature A063 crossing the natural point of entry. This feature may have contained a hurdle wall that controlled or directed passage from the entrance as well as protecting the hearth and the interior of the structure from the weather at the doorway. A comparative parallel for this was present relatively locally in the recent excavations of a middle Bronze Age roundhouse at Larkhall where the arrangement of postholes also suggested a channelled entrance into the interior space (Mooney 2014b; forthcoming b).

In terms of spatial allocation, features such as the large stone-filled pits external to the structure and ditch hint at further activity areas. The site at Whelphill further south within South Lanarkshire demonstrated all the features of an established smallholding, with external features including an 'annexe' enclosure and further long enclosures which could have been utilised for animal husbandry, as well as ard marks indicating cultivation (Masser 2009, 3-7). Although nothing this complex survives around either of the Colinhill houses, it is assumed that a level of cultivation and small scale animal husbandry likely took place here prior to the decline of lowland pastoralism in the late Bronze Age (Pope 2015, 176). As previously noted this may even have involved an element of co-habitation of people and animals within the structures themselves. It would seem then that there are potential parallels both in structural layout and likely use of the two Colinhill roundhouses, with some potential for successive chronology as indicated by the dating.

The other significant aspect which the structures apparently share is in the presence of earlier Neolithic material within features. Ballin describes the processes by which this is likely to have happened. Within Structure A small pitchstone objects were recovered from within the fill of the ditch, consisting of a macroscopic blade and retouched core (CATn7 and 8). Another small retouched blade was also present within entrance posthole A055 (CAT 23). It is suggested that these objects are small enough that they may have originated from the earlier Neolithic activity on the site and ended up unintentionally within



the backfill of these features; this is feasible given the proximity of these features to pit Group 1 and their location downslope.

However, this becomes less likely as a means of deposition for the objects recovered within the features of Structure B. The two 'special' lithic objects recovered here were the early Neolithic leaf shaped flint arrowhead from internal pit A135 (CAT 37) and the pitchstone conical core from the entrance posthole A100 (CAT 6), which is cited as a particularly well-executed example (see Ballin, above). Given the larger size and more defined form of these objects, along with the greater distance from the known earlier Neolithic pit group, it seems probable that there was an intentional aspect to the deposition of these objects. The structural features associated with Structure B returned a consistent middle Bronze Age date range, including material from the two feature fills in question, with the latter falling into the later Bronze Age. It is suggested by Ballin that these objects, again likely deriving from the earlier activity on the site, were found by its later Bronze Age occupants who retained them for their 'exotic' form and material. They may then have been intentionally deposited within both features.

Although the suggestion of intentional deposition is somewhat tentative, and Ballin Smith favours a residual explanation for the presence of Vessels 2, 3 and 7 within postholes A060, A100, A128 and A140, it is not beyond the bounds of plausibility. This potentially makes consideration of the lifecycle of these objects particularly interesting, with it being possible that they may have been deposited with a ritual aspect twice, over a millennium apart; firstly, as part of the structured deposition of an early Neolithic Carinated Bowl assemblage from a nearby pit, and then again on their discovery in the middle Bronze Age as part of the roundhouse construction. At the very least it seems conceivable that the objects held significance for their 'exotic' attributes during more than one phase of activity at Colinhill.

Conclusions

The location at Colinhill adds to the growing corpus of examples of both Neolithic pit groups demonstrating structured deposition, as well as providing two further examples of lowland

Bronze Age settlement structures. The site seems likely to have been identified multiple times for its inherent locational attributes, namely topography and its proximity to a significant waterway and likely arterial travel route. The deposition of the artefactual material at Colinhill is of particular interest. The Neolithic evidence seems to demonstrate the intentional deposition of a range of mixed and partial materials, tying them in to current discussions of this practice and belief systems behind this activity. The later Bronze Age features also show an interesting aspect to deposition, with the possibility that the same 'exotic' items were identified and intentionally deposited within structural features. As the second deposition of the lithic objects is too far removed chronologically to represent a continuity of tradition, it would seem to be a testament to the fundamental properties of the material itself, as in both cases this is almost certainly what identified the objects as distinct and therefore desirable.

Both the Neolithic pit groups and the Bronze Age structures can be considered further examples of established practices which can add to current discussions exploring the form and nature of activity around these features, within a local and regional context.

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The finds have been declared to the Treasure Trove Unit, Edinburgh, and the archive will be deposited with Historic Environment Scotland, Edinburgh.



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