
Early Neolithic ritual activity, Bronze Age occupation and medieval activity at Pitlethie Road, Leuchars, Fife

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Introduction

AOC Archaeology Group was commissioned to undertake a programme of archaeological works in advance of a proposed residential development at RAF Leuchars, St Andrews, Fife (Illus 1). The site was located between an extensive complex of cropmarks to the SE and NW of the site (Scheduled Ancient Monuments 6803, 7314 and 5065; Illus 1). In 2004 an excavation was undertaken following a geophysical survey (Gater 2003), evaluation and watching brief (Cook 2004). The excavation identified features relating to the Neolithic, Bronze Age, Early Historic and medieval periods.

Location

The site at Pitlethie Road (centred at NGR: NO 4596 2174) is located in arable land on the NE side of Leuchars (Illus 1), at a height of approximately 10m OD, gently rising from the sea, 3.2km to the east. The soils around Leuchars are reasonably well drained brown forest soils, ideally suited to mixed agriculture (Walker et al 1982).

Archaeological and historical background

While there were no known cropmark features on the site, north-east Fife, and in particular the area around Leuchars, is renowned for the quality of its cropmarks it produces (Maxwell 1983), with the neighbouring areas of Earlshall, Leuchars Castle and Southfield in particular all being Scheduled Ancient Monuments (SAM 6803, 7314 and 5065; Illus 1). The cropmarks generally comprise a mixture of prehistoric and medieval monuments represented by probable domestic settlements such as roundhouses (NMRS: NO42SW 8, NO42SE 28 and NO42SE 31), enclosures (NMRS: NO42SE 28, NO42SE 52, NO42SE 30 and NO42SW 33), linear cropmarks (NMRS: NO42SE 46 and NO42SE 69) and field systems (NMRS: NO42SE 28).

Unfortunately, Fife has not benefited from the same extensive programmes of archaeological survey and excavation undertaken in other regions in Scotland

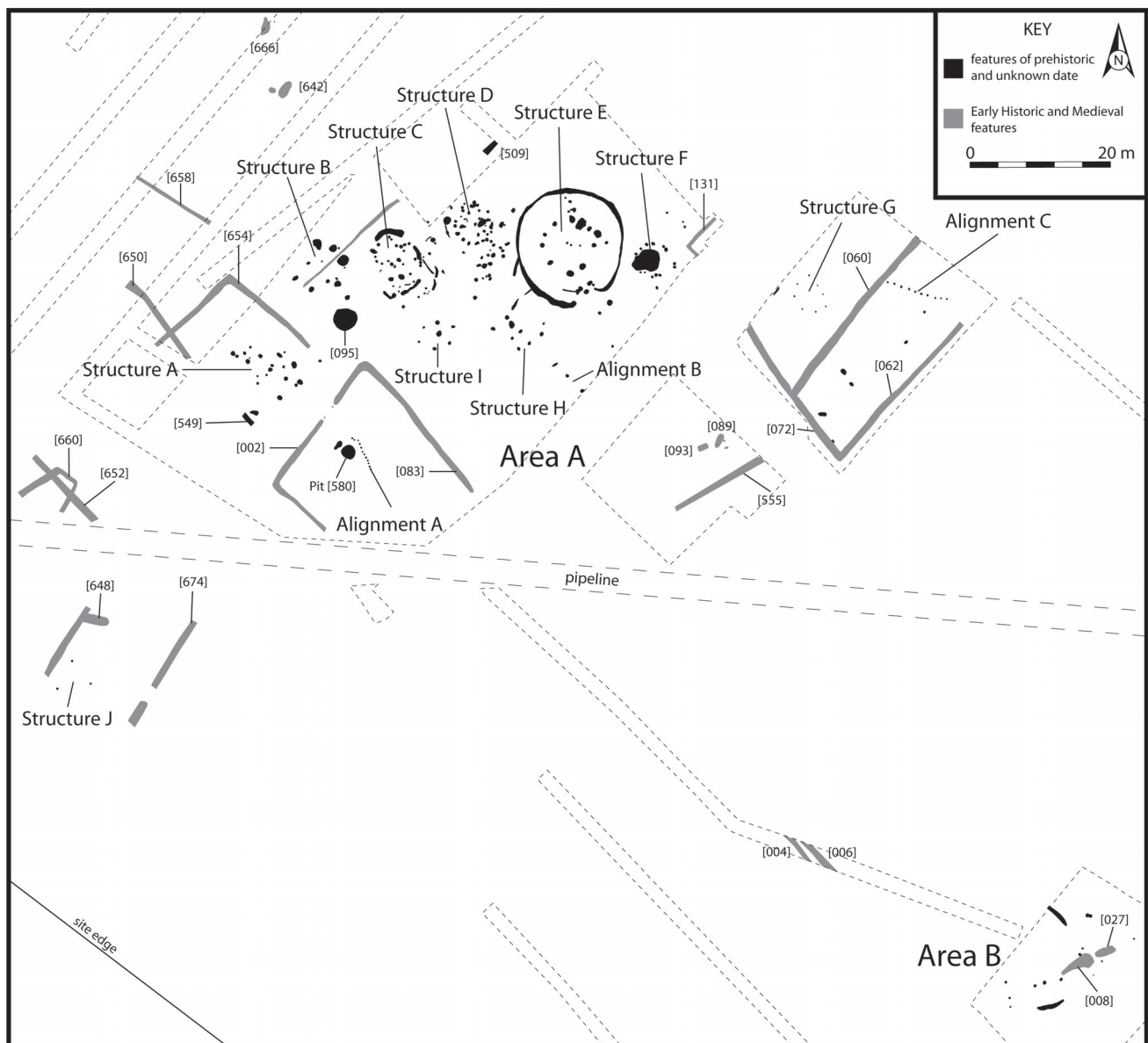
(ie Aberdeenshire, Cook and Dunbar forthcoming; Arran, Barber 1997; south-east Perthshire, RCAHMS 1994; north-east Perthshire, RCAHMS 1990; Sutherland, McCullagh and Tipping 1998). The general lack of commercial development in north-east Fife in particular, together with the degradation of the soils caused by intensive farming (Halliday 1999, 53) means that the archaeological resource of the area is under recorded. Nevertheless, the north-east corner can still boast a wide range of excavations, ranging in date from the Mesolithic (Coles 1971) to the Early Historic period (Driscoll 1997, 76), and it was the richness of the cropmarks that led the Scottish Field School of Archaeology (SFSA) to initiate a programme of works there. Excavations identified settlement evidence relating to the Bronze and Iron Age (North Straiton), the Early Historic (Easter Kinnear) and the medieval (Craigie Hill) (Driscoll 1997, 74). Subsequent excavations at Craigie Hill have identified remains tentatively dated as Neolithic and Bronze Age (Driscoll 1997, 74), although the lack of datable artefacts highlights the difficulty in interpreting cropmark sites (Heather James pers comm.)

The archaeological works

The programme of archaeological works comprised a geophysical survey (Gater 2003), a desk-based assessment by AOC in 2003, an evaluation, excavation and a subsequent watching brief (Cook 2004; Illus 1). Copies of all the reports are lodged with the archive at the Royal Commission of Ancient and Historical Monuments of Scotland.

Due to localised problems which were thought to involve changes in the magnetic flux as a result of the communications and radar equipment used at RAF Leuchars, as well as the unexpected depth of the topsoil, the geophysical survey identified very few features. The two large pits and length of ditch identified were thought to be reminiscent of early field systems or settlement (Gater 2003).

Based on the results of the evaluation, the main excavation area covered 1600 m² and was stripped by a mechanical excavator under supervision. Although the



Illus 2 Site plan showing structures.

site was covered in part by topsoil up to 1m in depth, the entire area was severely truncated by either extensive ploughing or earlier erosion. Despite this truncation, the majority of the small finds recovered from the features and structures were considered in situ, as radiocarbon dating subsequently demonstrated. For example, Bronze Age pottery was restricted to features dated to the Bronze Age. Although the prehistoric features were totally excavated only 49 small finds were identified from over 650 contexts.

The excavation identified a palimpsest of features representing multiple phases of activity dating broadly to the Neolithic, the Bronze Age and the medieval periods (Illus 2). This chronology was confirmed by the suite of radiocarbon dates (Table 1) that were obtained from across the site, as well as by diagnostic artefacts recovered.

The features are described by both period and type. Because the original field interpretation imposed on

some of the features was altered as a result of the post-excavation analyses, structures have been assigned new numbers. The original data is provided in the Data Structure Report, which is lodged with the archive.

Neolithic activity

The only feature dated to the Neolithic was a single large pit [580], subcircular in shape with steep sides running to a flat base (Illus 2, 3 and 4). The pit measured 1.95m from E to W, by 1.4m transversely and was 0.6m in depth (Illus 3). Within a single homogeneous sandy fill [581], a Neolithic polished stone axe (SF 46; Illus 5a), an elliptical laminar stone bead (SF 49; Illus 5b), five scrapers (SF 46.1, 46.2, 46.3, 46.8 and 46.12; Illus 5c) and a saddle quern rubber (SF 46.16; Illus 5d) were found. The pit contained a small amount of charred cereal grain (barley and wheat) and some oak and hazel charcoal. The two samples of oak and

Table 1 Radiocarbon dates.

context	lab code	sample	C14 bp	d ¹³ C	cal 1 sigma 68.20%	cal 2 sigma 95.40%
103	SUERC6911	<i>Corylus avellana</i>	2850±35	26.1‰	1060–930 BC	1130–910 BC
103	SUERC6914	<i>Alnus glutinosa</i>	2895±35	26.8‰	1130–1010 BC	1220–970 BC
121	SUERC7291	<i>Quercus</i> sp	3195±35	25.6‰	1495–1435 BC	1530–1400 BC
121	SUERC6912	<i>Corylus avellana</i>	3250±35	25.3‰	1540–1490 BC (39.2%)	1620–1440 BC
365	SUERC6913	<i>Alnus glutinosa</i>	2805±40	25.6‰	1005–905 BC	1070–830 BC
365	SUERC6918	<i>Corylus avellana</i>	2795±40	25.7‰	1005–900 BC	1050–830 BC
479	SUERC8597	<i>Betula</i> sp	2790±35	26.8‰	1000–900 BC	1020–830 BC
479	SUERC8596	<i>Corylus avellana</i>	2835±35	27.2‰	1040–920 BC	1120–900 BC
540	SUERC8684	<i>Fraxinus excelsior</i>	655±35	24.6‰	AD 1350–1390 (36.1%)	AD 1340–1400 (49.7%)
540	SUERC8897	<i>Quercus</i> sp	3855±40	25.6‰	2350–2270 BC (33.1%)	2470–2200 BC
581	SUERC6928	<i>Quercus</i> sp	5075±40	24.3‰	3880–3800 BC (46.6%)	3970–3780 BC
581	SUERC6923	<i>Corylus avellana</i>	4995±40	26.4‰	3800–3700 BC (58.8%)	3950–3660 BC
611	SUERC6919	<i>Alnus glutinosa</i>	3160±40	26.0‰	1465–1405 BC (53.9%)	1520–1370 BC (92.3%)
611	SUERC7292	<i>Corylus avellana</i>	2920±35	25.7‰	1200–1040 BC	1220–1000 BC (90.0%)
633	SUERC8659	<i>Alnus glutinosa</i>	2900±35	26.4‰	1130–1010 BC	1120–970 BC (93.9%)
633	SUERC8658	<i>Corylus avellana</i>	2875±35	26.2‰	1120–1000 BC	1200–920 BC
667	SUERC6925	<i>Corylus avellana</i>	1190±35	26.3‰	AD 770–890	AD 760–900 (83.2%)
667	SUERC6924	<i>Betula</i> sp	1115±35	25.7‰	AD 890–975	860–1020 (93.6%)
671	SUERC6921	<i>Alnus glutinosa</i>	3205±35	28.1‰	1500–1435 BC	1540–1410 BC (94.3%)
671	SUERC6922	<i>Betula</i> sp	3305±40	27.9‰	1625–1520 BC	1690–1490 BC

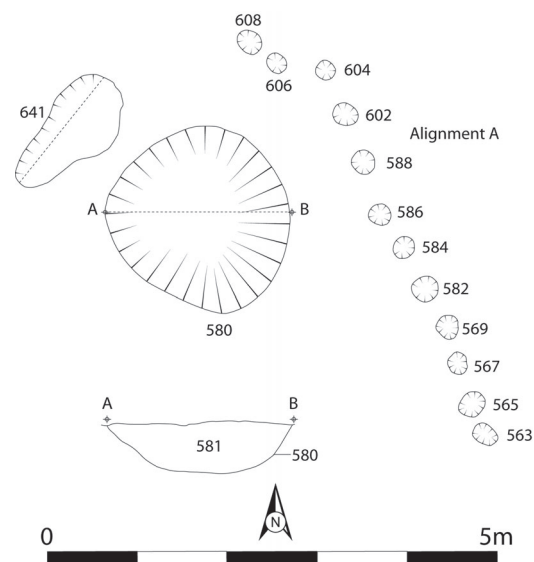
hazel charcoal were radiocarbon dated and produced dates of 3970–3780 BC (SUERC-6928) and 3950–3660 BC (SUERC-6923) respectively.

The pit was found in close proximity to a shallow pit [641], which was dated to the Bronze Age, and an undated alignment of post-holes, Alignment A, which are described below (Illus 3).

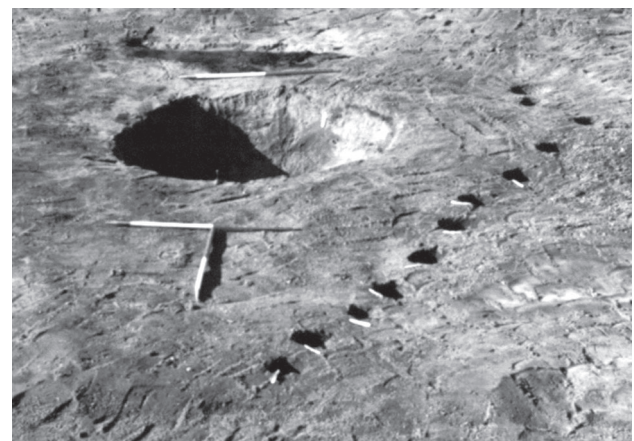
The Bronze Age

A series of eight clusters of post-holes, ring-ditches and other features, which were tentatively identified as roundhouses (the term is applied as a convenience although the structures are not all perfectly round) in the field, were all dated to the Bronze Age, either by radiometric determinations or by the presence of later Bronze Age ceramics. The radiometric dates obtained from the structures indicate that the area was used for settlement from the Middle Bronze Age (Structure F; 1530–1400 BC, SUER-7291) to the Late Bronze Age (Structure D, 1070–830 BC, SUERC-6913).

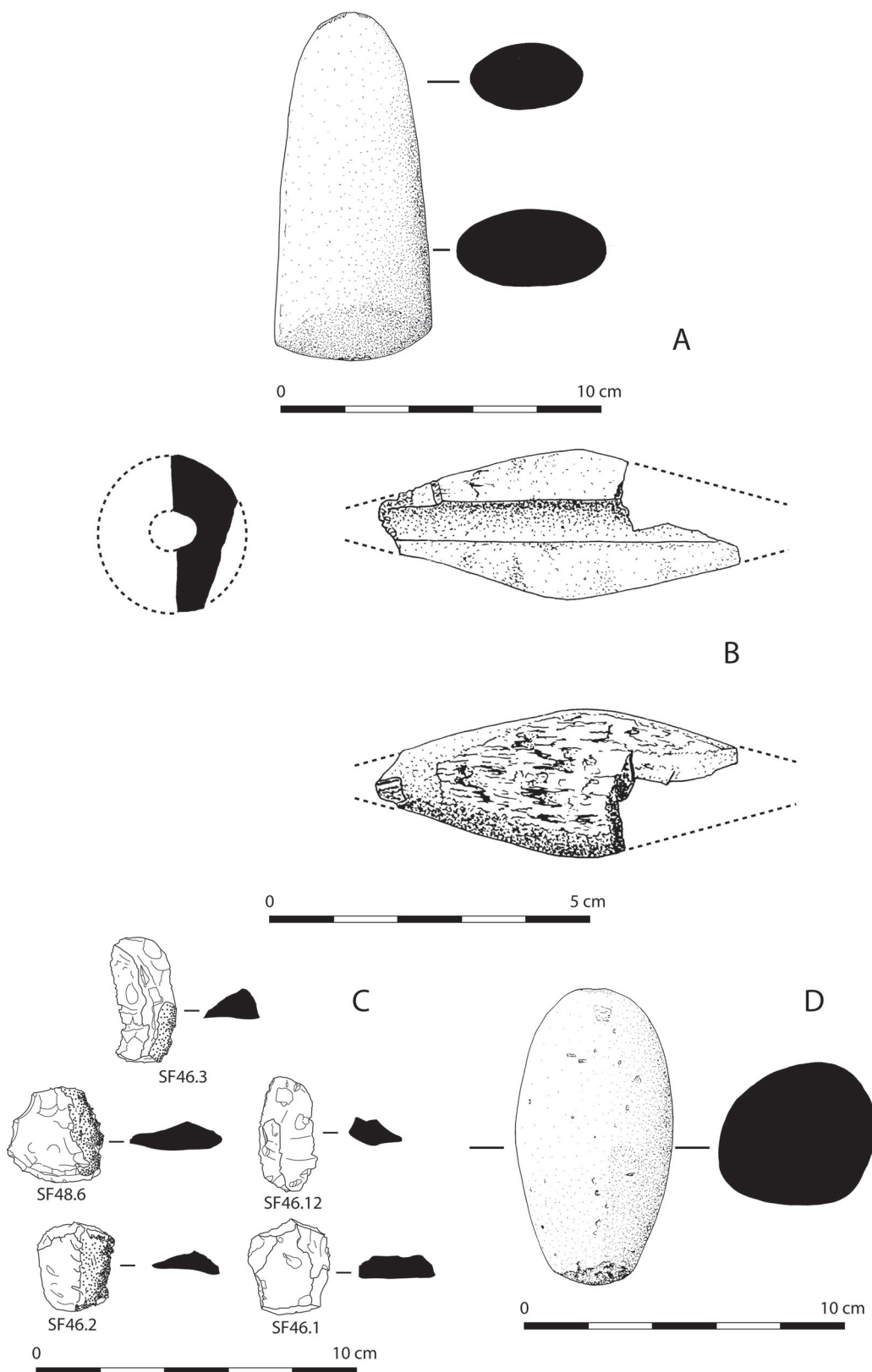
The evidence for the nature of the structures is limited because of the severe truncation across the site. Few internal characteristics such as floor levels or entrances have survived, while the majority of post-holes contained a single homogenous fill, post-pipes or packing rarely surviving. With the exception of G and J, the structures were tightly clustered in an approximate row, within a flat field. The close proximity of the walls of Structures C, D and E suggests that all of them could not have realistically coexisted, their locations being compromised by the positions of the neighbouring houses.



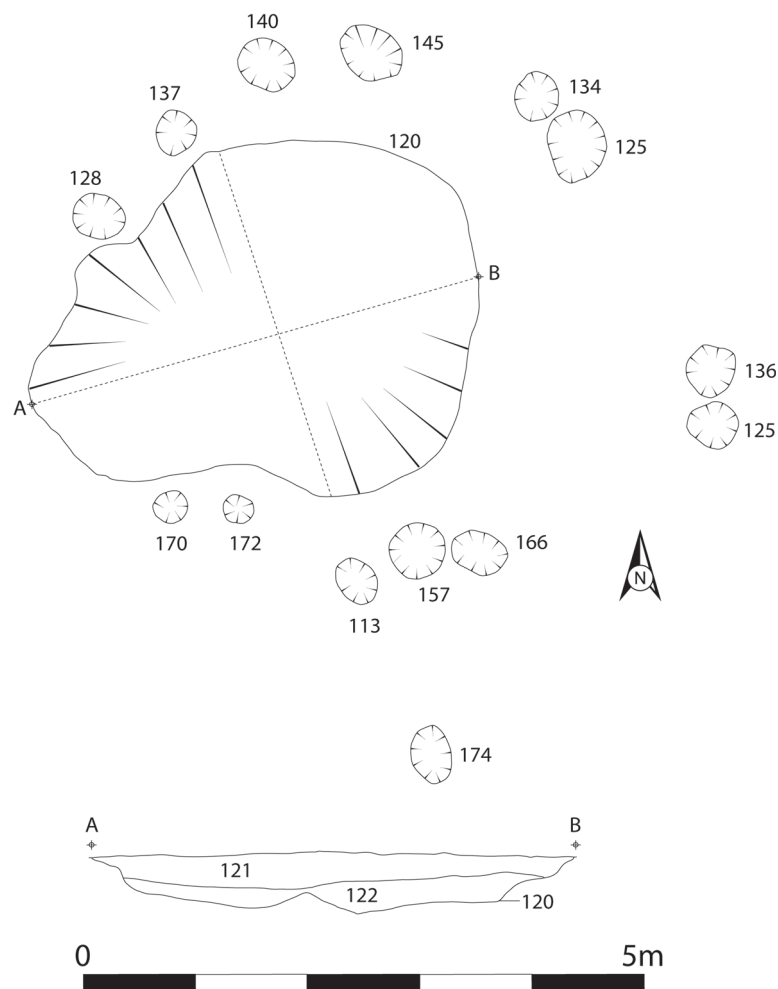
Illus 3 Plan of pits [580 and [641] and Alignment A.



Illus 4 Pits [580] and [641] and Alignment A.



Illus 5 Illustrations of selected artefacts.



Illus 6 Plan of Structure E.

Pit 641

A pit excavated to the immediate W of Pit [580] measured 1.5m from N to S, by 0.78m transversely and 0.12m in depth (Illus 2 and 3). It contained a single fill from which burnt bone, charcoal and two fragments of Late Bronze Age pottery were recovered. The pit is interpreted as the remnants of a cooking pit due to the presence of the burnt remains.

Structure F

This structure consisted of two main elements, a large pit, [120], and 13 post-holes which were positioned around the pit except on its western edge, and which occur in groups of two or three (Illus 6). The entire structure measured approximately 5m from N to S by transversely 6.5m.

The pit base was lined with compact yellow sand, [122] which varied in depth from 0.1m to 0.3m. The upper fill of the pit was a single homogenous sandy silt, [121], from which later Bronze Age pottery was recovered. The feature contained very little charcoal, but two fragments of oak and hazel were dated to 1530–1400 BC (SUERC-7291) and 1620–1440 BC

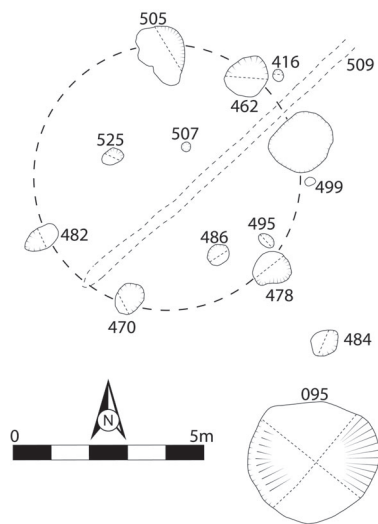
(SUERC-6912) respectively. Structure F shares only the broadest similarities with the other structures on site, the irregular lay-out of the post-holes meaning it is unlikely that they could have supported a roof. The large pit towards the centre of the structure further differentiates it from the roundhouses, while offering no obvious domestic or industrial based function.

Structure J

Structure J was located in the S of the excavation area, some distance from the main cluster of Bronze Age structures (Illus 2). It consisted of only three post-holes defining an equilateral triangle. Two samples of alder and birch recovered from post-hole [671] were radio-carbon dated, producing dates of 1540–1410 BC (SUERC-6921) and 1690–1490 BC (SUERC-6922) respectively.

Structure B

This structure consisted of a ring of six postholes, [478], [470], [482], [505], [462], and [499], which was approximately 7m in diameter (Illus 7). The post-holes were generally much larger than those within the other



Illus 7 Plan of Structure B.

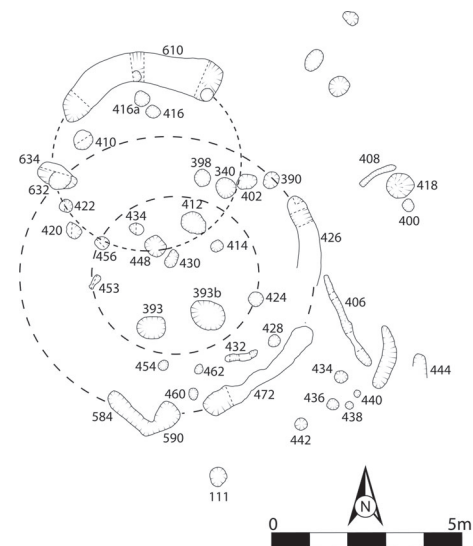
structures measuring from 1.45m to 2m in length by 0.8m to 1.5m in width and 0.28m to 0.45m in depth. Four post-holes, [486], [495], [507] and [525] lay within the interior and were smaller than those within the outer ring. A single rim sherd was recovered from the fill of post-hole [470]. Samples of birch and hazel charcoal from post-hole [479] produced radiocarbon dates of 1020–830 BC (SUERC-8597) and 1120–900 BC (SUERC-8596) respectively. Although the post-holes or pits are organized in an approximate circle, they may form an internal cluster of pits within a no longer extant circle. Structure B was truncated by a later ditch feature [509] (Illus 2 and 7).

Structure C 1

Structure C 1 contained two main elements, post-holes and ring-grooves (Illus 8). Three ring-groove features [590], [472] and [426], and a single post-hole [634] form what is assumed to be the remnants of an outer circle, measuring 7m in diameter. An inner post-ring comprised [453], possibly [456], [424], and [454], and measured 4.10m in diameter. A possible four post entrance, comprising post-holes [393] and [393b] and the ditch terminals of [472] and 590], existed in the south-east facing section and was approximately 0.8m wide, although the back of the post-ring was absent possibly due to truncation caused by a later building. The post-holes varied in size from 0.34 m to 0.7m and 0.26m to 0.7m and up to 0.4m in depth.

Structure C 2

Structure C 2 lay slightly to the north of Structure C 1 and comprised a ring-groove [610] and up to six post-holes [402], [414], [430], possibly [456], [420] and [422], which formed an outer ring 6m in diameter (Illus 8). Although post-hole [456] is mentioned as part of both

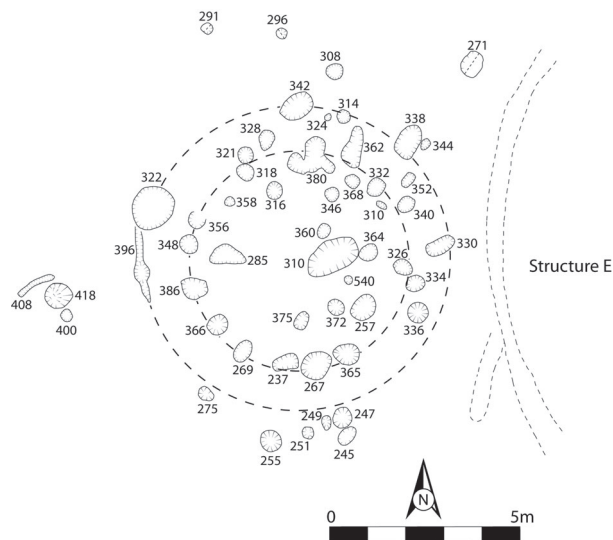


Illus 8 Plan of superimposed Structures C1 and C2.

Structures C1 and C2, it showed no evidence of re-use so can be allocated to neither conclusively. Samples of alder and hazel charcoal were recovered from post-hole [611] and produced radiocarbon dates of 1520–1370 BC (SUERC-6919) and 1220–1000 BC (SUERC-7292) respectively, while two samples of alder and hazel recovered from post-hole [633] produced dates of 1120–970 BC (SUERC-8659) and 1200–920 BC (SUERC-8658). Three of the four dates are so similar as to suggest that the fourth one is the result of contamination by older charcoal. A series of undated features were excavated to the south-east of the structure, though a lack of artefacts or coherent form limits what can be established about them.

Structure D

Structure D consisted of a dense cluster of 32 individual post-holes and pits and it is possible that there are at least two buildings on this stance, a suggestion sub-stantiated by the re-cutting of post-hole [380], although it would be nigh on impossible to disentangle them (Illus 9 and 10). The most coherent element is a roughly circular ring of post-holes which measured 6m in diameter and contained up to 13 individual post-holes [365], [267], [237], [269], [366], [386], [348], [356], [318], [380], [332], [310], and [326]. Lying outside this post-ring is the probable remnants of a ring-groove and post-ring which consisted of a slight slot [396] and at least eight post-holes [342], [314], [338], [330], [247], [249], [275] and [322] which measured 8m in diameter. Late Bronze Age pottery was recovered from both structural (ie [356]) and internal post-holes (ie [375]). Samples of alder and hazel charcoal from post-hole [365] produced radiocarbon dates of 1070–830 BC (SUERC-6913) and 1050–830 BC (SUERC-6918) respectively. Unfortunately no other material was recovered from either the internal features

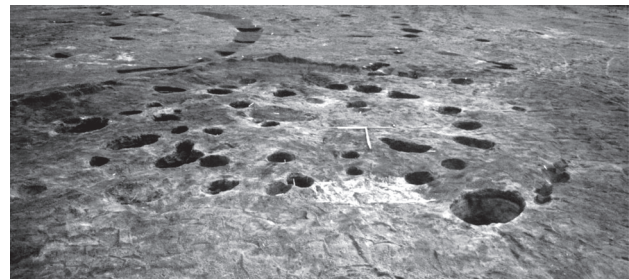


Illus 9 Plan of Structure D.

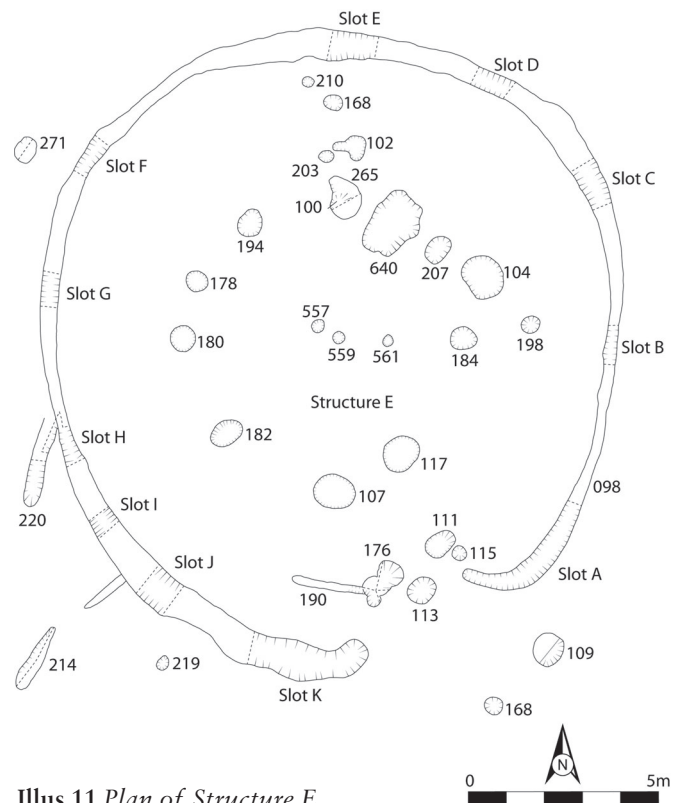
or those excavated to the south of the structure which might have indicated a function for their use.

Structure E

This structure is the most coherent of all those excavated at Pitlethie Road and comprised two main elements, a central post-ring of up to 11 post-holes and a ring-groove with a pair of post-holes at the entrance (Illustrations 11 and 12). The post-holes varied in size, but generally were of substantial design, measuring between 0.55m to 1.1m by 0.60m to 0.75m and were between 0.4m–0.9m in depth. The central post-holes were situated from 2m to 3.5m apart and defined a circle 8m in diameter. The entire central post-ring was enclosed by a ring-groove 15m in diameter and up to 0.4m in breadth. No features were identified in the base of the groove. The entrance lay on the SSE, where the ring-groove terminals turn in towards the inner post-ring, forming a 3m gap. Two post-holes on the inner post-ring, [107] and [117], are paired with two other postholes, [111] and [176], which lie just inside the terminals of the ring-groove, and appear to link the ring-groove and the central post-ring. Three small post-holes, [557], [559] and [561] were identified within the very centre of the roundhouse. Five other features were identified between the central post-ring and the palisade [102], [168], [198] [203], [210], and [265], but contained no artefacts or other diagnostic material. A single sherd of Late Bronze Age pottery was recovered from post-hole [117]. Two samples of hazel and alder charcoal from post-hole [103] were radiocarbon dated and produced dates of 1130–910 BC (SUERC-6911) and 1220–970 BC (SUERC-6914) respectively. The entire structure is much larger than the rest of the structures on site, and constitutes either a large roundhouse or a roundhouse within a small enclosure.



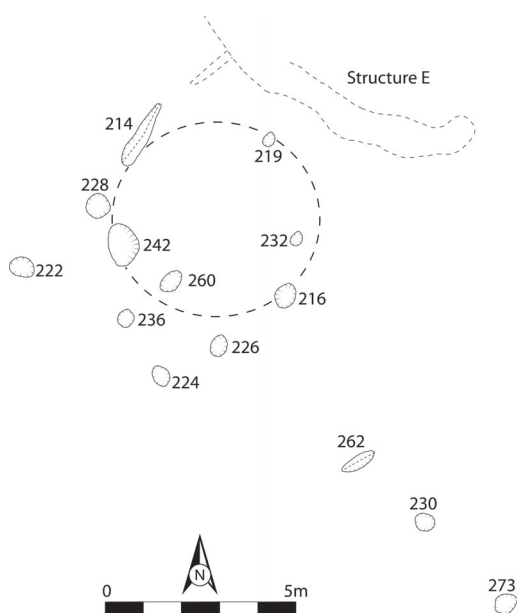
Illus 10 Structure D.



Illus 11 Plan of Structure E.



Illus 12 Structure E



Illus 13 Plan of Structure H.

Structure H

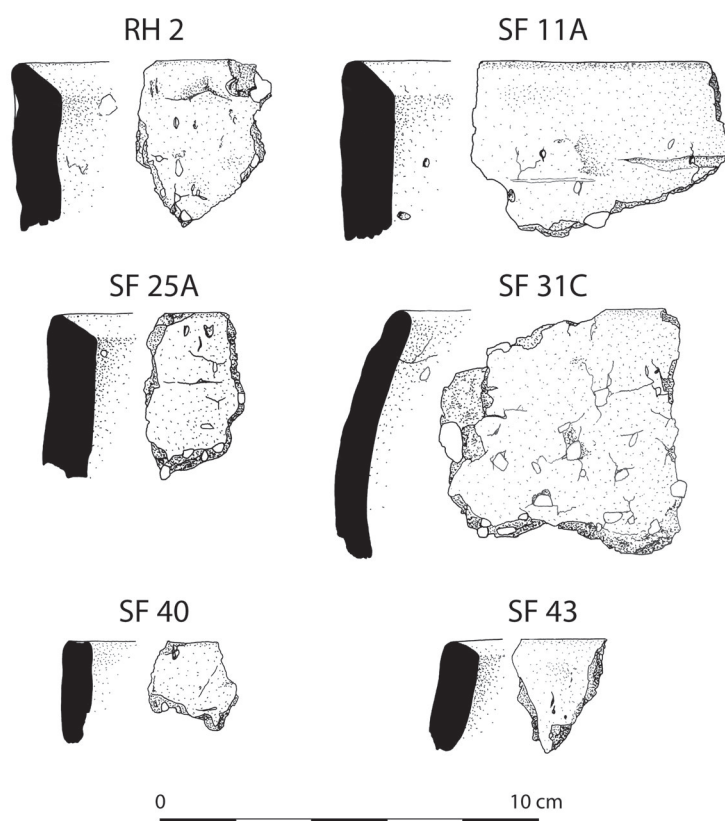
This structure comprised a roughly circular ring of at least three individual post-holes, [216], [219], and [242] and [242] which were found in association with a possible ring-groove [214] measuring up to 6m in diameter (Illus 13). Four sherds of later Bronze Age pottery were recovered from the structure, three from [260] and one from [219] (Illus 14). The full ground plan of the structure may not have survived as it has been truncated by Structure E. Its interpretation is further confused by the position of Alignment B which either truncates or is truncated by it (Illus 2).

Structure I

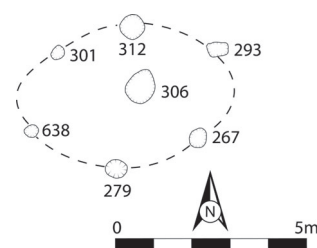
Structure I consisted of six main postholes [267], [279], [638], [301] [312] and [293] measuring about 4.5m from E to W by 4.2 m transversely (Illus 15). A post-hole or pit [306] located in the approximate centre of the structure. A single piece of late Bronze Age pottery was recovered from the structure. Although slightly smaller than the other possible roundhouses, Structure I is interpreted as the eroded remains of a roundhouse.

Structure A

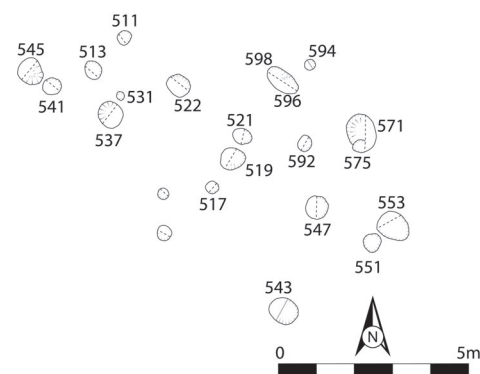
Structure A consisted of up to 20 pits and post-holes which measured between 0.27–0.44m in length by 0.28m to 0.42m in width by 0.23–0.50m in depth (Illus



Illus 14 Selected pieces of Bronze Age ceramic.



Illus 15 Plan of Structure I.



Illus 16 Plan of Structure A.

16). No indication of the direction of the truncation was identified. Despite a complete lack of suitable samples of charcoal for dating purposes, 24 individual pieces of later Bronze Age pottery were recovered from post-holes [511], [543], [553], [571], [575] and [596] (Illus 14). The features formed no obvious pattern, and while it seems likely that they form the remains of a roundhouse, it is not possible to disentangle the precise structure.

Early Historic and medieval activity

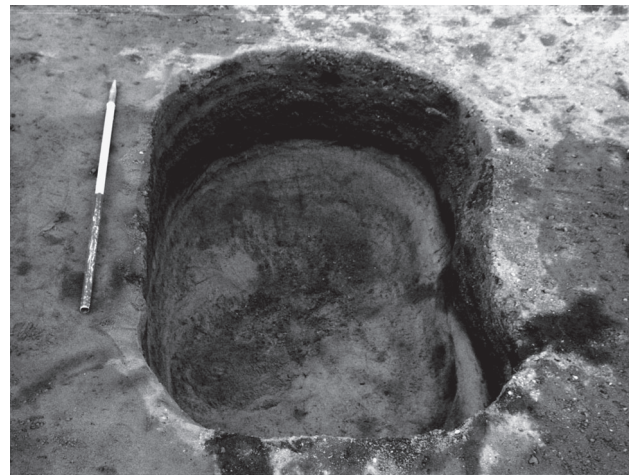
Activity dated to the Early Historic and medieval periods, either by radiocarbon dating, diagnostic artefacts or analogy to dated features, was identified across the site, both truncating earlier features and occupying apparently unused ground. On the whole the medieval features avoided the main concentration of Bronze Age activity.

Field systems

A set of linear ditches were identified running across the site on both a NW to SE and NE to SW alignment (Illus 2). The features were assigned a medieval date due to the presence of medieval pottery in the fill of one example and through analogy with dated examples at Craigie Hill (Freeman, 1997, 67–9). For the most part, the features contained no obvious associations, and were simple, single fill ditches measuring between 0.4m and 0.9m in width and up to 0.5m in depth. Most of the ditches were incomplete, ploughing and erosion having truncated them. However, enough has survived to suggest that there may be both enclosures and field systems present. Ditches [002] and [083] clearly formed part of a discrete enclosure, with two post-holes located at either side of a 2m wide entrance occurring on the north-west side (Illus 2). The enclosure measured about 24m from NW to SE by 21m transversely. The SE of the enclosure could not be investigated due to the presence of a large gas main running through the site. A clear break was observed in ditch [674] and may also represent an entrance into a similar type of enclosure (Illus 2). [654] also consists of two sides of a rectangular enclosure. Ditches ([060], [062], and [072]) differs from the enclosures in that it appears to be part of a complex of rectangular fields rather than a discrete enclosure. The undated post-hole alignments may constitute further divisions in the field systems, but it is impossible to say without dating evidence. In two instances ditches cut one another, ([652] and [660], [650] and [654]), emphasising the multi-period nature of the field systems. However, although the junctions of these features were excavated no clear relationship could be established between the two.

Pits

Pit [008] was found in close proximity to a series of post-holes and linear features in the very SE corner of



Illus 17 Pit [093].

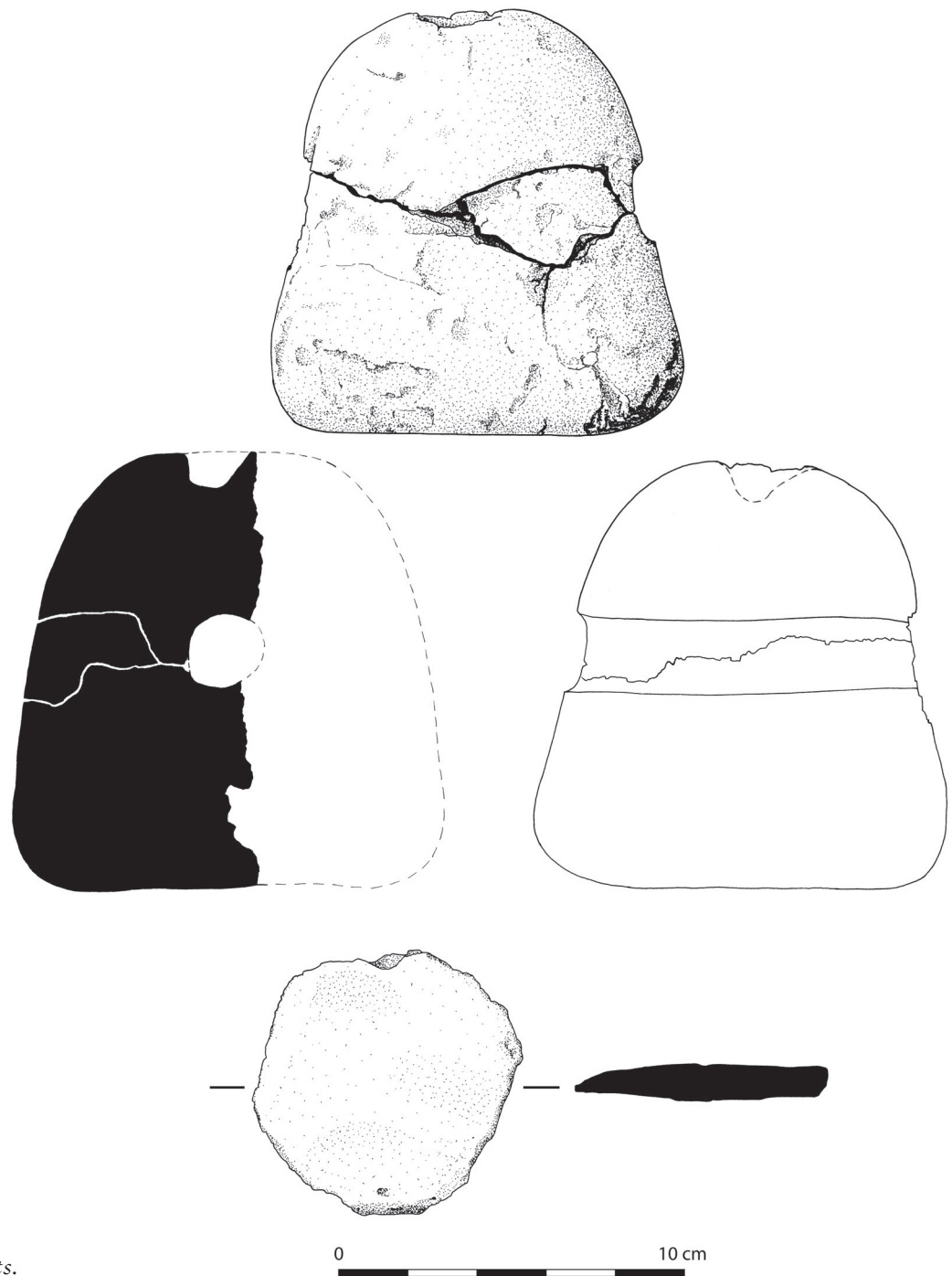
the site (Illus 2). The pit measured 5.7m by 2m and was up to 0.48m deep, and contained a dark brown sand, with frequent charcoal and twig inclusions. The pit was relatively rich in artefacts, containing medieval pottery, a cattle (*bos* sp) maxillary molar, a complete nail, a nail shank and fragmentary evidence associated with iron working. The post-holes and linear cuts around the pit were also investigated but no artefacts or further dating evidence were recovered from them. A linear cut [027] to the south-east of the pit [008], measuring 4.4m in length, by 0.68m in width and up to 0.15m in depth, contained charcoal and may represent fuel debris.

Four large pits, [089], [093], [642], [666], all of similar size and shape were excavated across the site (Illus 2). Generally the pits measured between 2.15m to 2.30m in length by 1m to 1.1m in width and up to 0.8m in depth (Illus 17). Three of them, Pits ([666], [642] and [089]) were associated with single post-holes. The pits had straight edges and a flat base, and contained a single homogenous fill. A clay loom-weight (SF 06; Illus 18) and a single fragment of a medieval jug were recovered from pits [093] and [642], respectively, while a large amount of marine shell was recovered from a third example, [089]. Samples of oak and birch charcoal from pit [666] produced radiocarbon dates of AD 760–900 BC (SUERC-6925) and AD 860–1020 (SUERC-6924) respectively.

Undated structures

Structure G

Structure G consisted of eight post-holes [614], [616], [621], [622], [624], [626], [628] and [631], arranged in a circular setting 5.1m NW to SE by 4m transversely (Illus 2). The post-holes were generally a lot smaller than those found in other structures on the site (0.23m–0.27m in diameter and between 0.12m–0.17m deep) and were relatively widely spaced apart, ranging from 1.37m to 2.22m. Neither artefacts nor ecofacts were recovered from the structure.



Illus 18 *Selected artefacts.*

Alignment A

An alignment of 12 post-holes was identified to the immediate N of Pit [580], running on a NW to SE alignment (Illus 2, 3 and 4). The post-holes were between 0.19m and 0.35m in diameter by between 0.1m–0.19m in depth. The post-holes were spaced between 0.1m and 0.4m apart, the total surviving length of the alignment being 5m. They contained a single homogenous fill, with no obvious post-pipes, artefacts or charcoal being found. As the post-holes were orientated on the same basic alignment as the medieval ditches, they may date to the same period, forming some sort of internal division. Alternatively they may

relate to the same period as Pit [580], perhaps forming some sort of windbreak.

Alignment B

Alignment B consists of five post-holes, [273], [230], [262], [226] and [228], running on a NW to SE alignment (Illus 2). The post-holes measured from 0.45m to 0.59m in diameter and from 0.26m to 0.29m in depth. The post-holes were very widely spaced, from 4m and 16m apart, the total length of the alignment being 16m. Alignment B lies on broadly the same axis as the medieval ditches and, like Alignment A, may form part of the same field system.

Alignment C

Alignment C consisted of ten post-holes on an E–W alignment (Illus 2). The post-holes measured from 0.18m to 0.26m in diameter and were from 0.18m to 0.35m in depth. The post-holes were spaced from between 0.2m to 0.3m apart, the total length of the alignment being 10m. The alignment appears to respect the fields system within which it lies so it is possible that it represent an internal division within the system.

Pit [095]

Pit [095], located towards the centre of the site appeared to have no clear associations with any other features. The pit measuring 3.2m by 2.8m and up to 1.1m, contained two separate fills, an upper fill [096] comprising a dark brown sandy silt, measuring 0.9m in depth and a lower fill [097] of eroded natural orange sand. Both fills were notable for their almost complete absence of inclusions of stone or artefacts. However, in contrast to the majority of the features the upper fill contained cereal grains and fragments of heather, the depth probably contributing to their survival.

Specialist reports

The following specialist reports are edited versions. The full texts, drawings and appendices are stored with the rest of the site archive in the National Monuments Record of Scotland (RCAHMS).

Radiocarbon dating

Martin Cook

The general absence of better preserved and taphonomically secure charcoal on the site, meant that only a small proportion of the features could be dated. As charcoal was sparse and oak was present, raising as it does the possibility of old age error, two samples from each of the chosen features were dated, with wherever possible a third sample selected should the first two be statistically different (Ashmore 1999). The results are presented in Table 1.

Generally, the radiocarbon determinations were reliable, in that the pairs of samples from the same context produced comparable results. However, in two cases the paired dates were radically different. Samples of ash and oak charcoal from post-hole [540] produced radiocarbon dates of AD1340–1400 (SUERC-8684) and 2470–2200 BC (SUERC-8897) respectively. Unfortunately, no other datable material was recovered from the sample to obtain a third date. However, because pit [540], an isolated feature to the S of Structure A, could not be assigned to any specific structure the dates tell us little other than there was activity on site within these two periods. The only other dates that varied substantially were from Structure C, where four samples were dated (See Structure C above). Three

of the four dates were so similar as to suggest that they date the activity within the structure while the fourth one is the result of contamination by older charcoal.

The pottery assemblage

Ann MacSween

Summary of assemblage

The assemblage from Pitlethie Road comprises 37 sherds as well as a number of smaller fragments and crumbs, representing 17 vessels. Most vessels are represented by one or two sherds, the maximum number of sherds from the same vessel being four (SF 31C, [554]).

The pottery is all undecorated and there are few distinguishing features. Rim sherds either had an interior bevel (two from Structure H; SF 50 and 11A; Illus 14), one from Structure A (SF 25A; Illus 14), one from Pit [641]; SF 43; Illus 14), were plain (one from a vessel with an inverted profile from Structure A; SF 31C; Illus 14), or were flat (one from Structure A; SF 40; Illus 14). One sherd (from SF 28A, Structure A; Illus 14) may be from a carinated vessel. Where basal type could be determined, the vessels were flat-based. Wall thickness is variable, from 7–14mm. In no case could rim or basal diameter be determined.

The fabrics are generally fine clay with 10–20% of rock fragments, although there are a few sherds with 30–50% of inclusions, and one with 80% from Structure H. Most sherds have had their surfaces smoothed before firing and there are a few examples of wiped surfaces.

Most of the sherds were from post-hole fills. The distribution across the excavated features was as follows –Structure E (one sherd), Structure H (five sherds and one fragment), Structure D (three sherds and six fragments), Structure C (one sherd), Structure A (24 sherds plus fragments), Structure F (one sherd), Structure B (one rim sherd) and Pit [636] (two sherds and a fragment).

There is nothing within the assemblage to suggest chronological variation, either in terms of morphology or fabric, although the sample is very small.

Clay

As well as the pottery sherds there are lumps of low-fired clay from Structure H and Structure A and, while it cannot be proven, it is possible that these derive from making pots within the structures. Alternatively, as Hunter suggests below, small fragments of fired clay could easily represent indistinguishable pieces of clay artefacts such as loom weights, which have been misidentified.

Comparative material

It is very difficult to date this type of pottery apart from to say that it is probably later prehistoric in date.

The pottery from Pitlethie Road is not as thick and heavily tempered as the pottery from many of the later assemblages in the south such as Lintshie Gutter (Smith 1995, illus 10.12) or Blairhall Burn, Dumfriesshire (Cowie 1998, illus 12.50), but this could be functional.

‘Later Bronze Age domestic pottery’ in Scotland, often labelled in the literature as ‘Flat-rimmed Ware’, is generally undecorated and undiagnostic. Traits which recur in assemblages of the later Bronze Age in Scotland include bucket or barrel-shaped vessels, plain, flat or slightly splayed rims and sometimes a band of finger-tip corrugation below the rim. Assemblages have been recovered throughout mainland Scotland (see, for example, Halliday (1988) who summarises assemblages from the east of Scotland). The relatively small number of excavations of domestic later Bronze Age sites in lowland Scotland (see Ashmore 1996, 91 and 103 for summary maps) means that the pottery of this period in Scotland is poorly defined.

Medieval pottery

Naomi Crowley

A medieval ditch [060] and Pit [642] produced three sherds of medieval pottery, all body sherds. SF 45, a pale green glazed sherd from [643], is from a jug. SF 04, the two sherds from [060], are unglazed and small and it is not possible to determine the form of vessel. The sherds are all Scottish White Gritty Ware. Recent work has identified three potential production centres for this fabric in Lothian, Borders and Fife Regions, although the White Gritty Ware Sourcing Project suggests that the kilns were far more widespread (Crowley pers comm). Production is dated from the 12th century to the 15th century.

The clay loom-weight

Dawn McLaren and Fraser Hunter

Weight SF 06 (Illus 18) Three conjoining fragments, representing approximately 50% of a short conical fired clay weight, probably a loom-weight. The other obvious possibility, a metal-working tuyère, is dismissed because of the horizontal perforation and the lack of any evidence of extreme heating. The weight is sub-circular in section and perforated horizontally. The oval perforation (Diam 13.5–18mm) begins at mid-height and slopes irregularly upwards to emerge 45mm from the upper surface. A small oval hollow (18.5 x 15 x 10mm) has been made in the centre of the domed upper surface with a finger when the clay was still wet; its function is unclear and may have been for decorative purposes. Diam 119.5mm H 212mm.

Discussion

The fragments were recovered from the fill of a sub-rectangular pit [093], one of a small cluster of features isolated from the main concentration of activity on the site. Although no direct dating evidence is available, the

pit is similar in structure to one elsewhere on the site [642] which contained a fragment of medieval pottery.

Although weights could be used for a range of purposes, clay examples are generally identified as loom-weights because of instances where they are found in concentrations as if from a collapsed loom. They are in fact rare in Scotland, although more common at certain periods; thus there are examples (of a different shape from Pitlethie Road) from Anglo-Saxon contexts (eg Ratho and Dunbar; Norton and MacSween 1995; Cox 2000, 163–7). As the type is not locally common, interpretation is not completely certain, but on balance the parallels to other objects generally interpreted as loom-weights is accepted. The limited evidence does not allow close dating.

Bun-shaped weights are the most common form, with a long currency of use from the Bronze Age into the medieval period, but several other forms were also in use; fragments of several pyramidal and cylindrical clay loom-weights were recovered from disturbed late Bronze Age deposits at Reading Business Park in the Kennet Valley (Jennings 1992, 58, fig. 52) and four pyramidal examples were associated with medieval burials at St Peter’s Church, Humberside (Youngs et al 1983, 185). Although the Pitlethie Road example is not chronologically distinctive, a very similar, but slightly narrower and more elongated conical clay weight comes from Traprain Law, East Lothian (Cree 1924, 258, fig. 14). Cree records this as coming from the first phase of activity on Traprain, which would suggest a late Bronze Age date, although the security of the stratigraphy is uncertain. Three further perforated conical clay loom-weights are known to the writers: two from Ravensby in Forfar (*Proc Soc Antiq Scot* 9 (1870–2), 154) and one from Galson, Lewis (Edwards 1924, 199). Two stray finds of perforated sub-oval fired clay loom-weights come from Newton of Montblair, Banffshire (*Proc Soc Antiq Scot* 2 (1854–7), 347; 3 (1857–9), 68–9), while a further fragment of a sub-oval weight was recovered from topsoil at the later prehistoric hut-circle at Ormiston, Fife (Sherriff 1988, 104, illus 4); a medieval decorated stone was also found in this context and the loom-weight cannot be closely dated. It is likely that further objects of this form have been previously overlooked, as small fragments could be easily mis-identified as the remains of daub.

Coarse stone

Rob Engl

The excavation at Pitlethie Road produced six coarse stone artefacts. The artefacts were grouped according to general characteristics such as morphology, use-wear and probable function. A detailed description of each individual artefact is given below.

The site is situated within a solid geology largely comprised of Carboniferous sedimentary rocks such as sandstone and subordinate shales and limestones, together with igneous dolerites. All the artefacts have been made on locally derived materials (Table 2).

Table 2 *Coarse stone assemblage by type.*

artefact type	material	total
quern rubber	sandstone	1
hammerstone	igneous	1
stone disc	sandstone	1
rubbing stone	igneous, sandstone	2
?manuport	quartzite	1

Saddle-quern rubber SF 46.16 (74mm x 81mm x 47mm) [581]

(Illus 5d) The excavation recovered a single small angular fragment of possible saddle-quern rubber from Pit [580]. The working face of the artefact is slightly convex and has evidence of pitting on the central portion. This would have occurred through the repeated use of a hammerstone during the grinding of grain.

Hammerstone SF 46.14 (91mm x 50mm x 45mm) [581]

A hammerstone made on an oval waterworn cobble of igneous rock was recovered from Pit [580]. This artefact has heavy use-wear applied to a single end forming a convex facet.

Rubbing stone SF 20.1 (112mm x 84mm x 53mm) [457]

A rectangular rubbing stone made on a cobble of pitted igneous rock was recovered from Structure 4. The working face is slightly convex with some of the natural pitting of the rock having being smoothed away through use.

Rubbing stone SF 7.2 (62mm x 55mm x 50mm)

Context unstratified

Small sandstone fragment A single smoothed area of use is present on one face.**Manuports** SF 12.1 (69mm x 33mm x 28mm) [278]**Quartzite cobble** Smooth, oval and waterworn with no apparent traces of wear. Recovered from an isolated feature.**Stone disc** SF 8.1 (77mm x 77mm x 12mm) [028] (Illus 18)**Piece of sandstone** Circular with roughly shaped edges, recovered from an isolated feature. This artefact is a probable pot-lid.*Discussion*

The artefacts retrieved from the excavations at Pitlethie Road provide a small domestic assemblage probably related to activities such as food processing, tool production and the processing of hides. Chronologically these artefacts are found throughout later prehistory.

Chipped stone

Rob Engl

Introduction

A total of 15 chipped stone artefacts were recovered from Pitlethie Road (Table 3). The artefacts were grouped according to general characteristics such as morphology, use-wear and probable function. A more detailed description of each artefact is contained within the archive. All the artefacts were of flint with the exception of one piece of silicified limestone (SF 46.11)

and one piece of mudstone (SF 46.4). Nine of the flint artefacts show evidence of being heat affected including all five of the scrapers (Illus 5 C). The flint is of relatively poor quality with many potlid fractures and fissures present. Where present the cortex shows that the flint is of small pebble form and probably originated within nearby raised beach deposits.

Table 3 *The lithic assemblage by type.*

type	total
flakes	5
blades	2
chips	1
chunks	1
bipolar cores	1
endscrapers	3
sidescrapers	2

Assemblage

The small size of the assemblage prevents much elucidation on the nature of the primary technology employed at Pitlethie Road. Only one unstratified core (SF 46.14) of bipolar type was retrieved. The flakes and blades within the assemblage show the use of a relatively poorly controlled hard hammer technique, though this was probably due to the restrictions imposed by the poor quality and size of the material.

Five of the artefacts (SF 46.1, SF 46.2, SF 46.3, SF 46.8 and 46.12, Illus 5c) which showed evidence of secondary modification were recovered from Pit [580]. All of these artefacts were poorly made and all are heat affected. The first three of these artefacts are simple endscrapers, with coarse abrupt retouch being applied to the distal end of thick flakes. SF 46.8 and 46.12 are sidescrapers with abrupt retouch applied along the left lateral edges.

Discussion

The chipped stone artefacts recovered at Pitlethie Road represent a small domestic assemblage of Neolithic or Early Bronze Age date. Of great significance is that 13 of the artefacts including all five scrapers were recovered from [581], a fill of Pit [580] alongside a hammerstone (SF 46.14). The presence of lithic artefacts as part of the range of 'chosen' materials found within pits is seen as a form of structured deposition typical of the Neo-lithic (Thomas 1999, 64–74). The presence of five scrapers within a single pit feature would suggest that these pieces were specifically chosen and may reflect a group of items identified with a specific function or event. The fact that all five of the scrapers appear heat affected may also indicate that this was intended to signify that their active use was at an end. The deliberate breaking of artefacts and their subsequent interment is a feature of Neolithic pits (Thomas 1999, 64–74).

The stone axehead

Alison Sheridan

Stone axehead SF 46 (Illus 5a) Complete ground stone axehead, polished to a low sheen over most of its surface; length (to nearest mm) 108mm; maximum width (at blade) 48mm; maximum thickness 26mm; weight (to nearest gram) 214g, recovered from Pit [580] (Illus 3). A small flake had been detached from the butt end in antiquity. The face shape is very slightly asymmetrical, the profile symmetrical, and the cross-section oval with flattened sides. The butt is rounded; the blade is slightly blunt, gently curved and slightly asymmetrical; and the sides are fairly straight and splaying, with a variably defined facet along each side. Whether the slight asymmetry of the blade is due to the axehead's use is unclear, but this is possible; there are no signs of blade damage. The surface is pocked where original surface irregularities have not been ground smooth; indeed, given the hardness and texture of the stone, it may have been pecked into rough shape (thereby leaving pock-marks) before grinding and polishing. The stone is a dark bluish-grey with some cream-coloured and some blackish mineral inclusions. Macroscopic identification was kindly carried out by Dr Vin Davis of the Implement Petrology Group, who concluded that it is an altered dolerite. Its ultimate origin could have been the central Highlands of Scotland, but its proximate origin may well have been fairly local glacial drift deposits, from which it would have been selected as a cobble.

Ground and polished stone axeheads are known to have been used in Scotland from the early Neolithic (c 3900 BC) and for at least two millennia thereafter, their use declining after the introduction of metal axeheads. This example, which is fairly small but by no means miniature, could have been used for chopping small trees and/or miscellaneous kinds of wood trimming and shaping. Like many other stone axeheads, it could also have been used as a weapon if required for that purpose. There is no haft stain, although it would have been hafted when in use. Its presence in the pit fill, as a usable, intact item, suggests that it may have been part of a deliberately placed deposit, with a specific significance, rather than simply discarded 'rubbish'.

The large elliptical Neolithic bead fragment

Alison Sheridan

Large bead fragment SF 49 (Illus 5b)

Around a third of a large elliptical bead, which has broken along its perforation and has also lost its outer surface and part of its wall. Its existing length is 57.4mm, but its original length, assuming that it had been symmetrical, may have been as much as 64mm. It is 24mm wide and its surviving thickness is 8.9mm, but it would originally have been at least twice as thick. The longitudinal, parallel-sided perforation is 6.1mm in diameter. In profile the bead is elliptical, and in cross-section it may originally have been a slender ellipse. Only part of one original end survives, and this is oblique (presumably to allow adjacent beads to hang neatly on a

strand). The surviving outer surface is very smooth and has been polished to a low sheen; when viewed under a binocular microscope, shallow, multi-directional striations from this process can be seen. Where the outer surface has laminated off, the surviving fracture plane is blackish and rough-textured, and looks as though it has probably been charred superficially from contact with a hot substance. The fracture surface at the perforation is naturally fairly smooth, since the bead has broken along a plane of lamination. The perforation is very smooth, and it appears to have been drilled almost entirely from one end of the bead: close to the surviving fragment of the bead end the angle of the perforation changes very slightly, and this may indicate that a short 'starter hole' had been drilled from this end, to prevent the drill from damaging it as it approached. The nature of the tool used to effect the perforation is unclear, and there is no internal rilling such as would indicate the use of a bow drill (as has been noted, for example, in the manufacture of Early Bronze Age jet beads: Sheridan and Davis 2002, fig 9); all that one can say is that the perforation has been skilfully done.

The material used to make the bead is a blackish, fine-grained, laminar stone; the slightly brown colour over part of its surface relates to the sediment in which it had lain. From its texture and fracture properties, it does not appear to be jet or lignite, and this was confirmed through compositional analysis using X-ray fluorescence spectroscopy (undertaken by Dr Jim Tate of the NMS Department of Conservation and Analytical Research: see archive report for details). The bead was analysed alongside raw material samples of Whitby jet, cannel coal from the Wemyss coast of Fife, and oil shale from Inverbrora, Sutherland. It was found to be high in iron and to have no zirconium, and although it did not match the cannel coal or oil shale samples exactly, there can be no doubt that it belongs to that family of materials and is marginally closer to an oil shale than to a cannel coal. In terms of the provenance of the raw material, a source in Fife or the Central Belt is possible; in order to obtain a better idea of the source, the removal of a small sample for examination by reflected light microscopy would be necessary.

Discussion

This bead forms part of a relatively rare but widely-distributed type of Neolithic bead, made from Whitby jet and similar-looking materials, and found in both funerary and non-funerary contexts. These beads were discussed in detail by Isobel Smith in her report on the find from the Neolithic house at Padholme Road, Fengate, Cambridgeshire (Smith 1974), and while there is not universal agreement about whether the beads do all belong to a single, coherent tradition (Gilmour and Roberts pers comm), for the sake of convenience they can be discussed together here. This type is best represented by the set of twelve variously-shaped examples found (together with four amber beads from the same necklace and an edge-polished flint axehead)

Table 4 *List of large Neolithic beads of jet and similar-looking substances from Britain.*
(nb *This list does not purport to be exhaustive*)

findspot	number and shape of bead/s	context	reference
<i>Scotland</i>			
Pitlethie Road, Leuchars, Fife	1: fragmentary, elliptical, no collar	pit	this report
Greenbrae, Cruden, Aberdeenshire	12: various shapes including collared	unclear (old find),	Kenworthy 1977 hoard or possibly a grave
Watch Hill, Loch Skene, Dumfries and Galloway	1: slender elliptical	stray, bottom of a peat bog	<i>Proc Soc Antiq Scot</i> 13 (1878–9), 126–7
Pencaitland parish, East Lothian	1: broad elliptical	stray, in a burn	ibid
Fendom Sands, Highland	1: fragmentary, medium-width, elliptical <i>possible example</i>	stray	unpubl, NMS X.BK
no location, probably Scotland	1: elliptical <i>possible example</i>	no information	unpubl, NMS X.FJ 87
<i>England</i>			
Quarry House, Hepburn Moor, Northumberland	1: broad elliptical	possibly funerary	Jobey 1981, 40, fig 8.17
Maiden's Grave Farm, Bridlington, East Riding of Yorkshire	1: broad elliptical, collared	old land surface below ?round or long barrow	Kinnes and Longworth 1985, 146, UN.103
Painsthorpe Wold barrow 4, East Riding of Yorkshire	1: broad elliptical	old land surface below round barrow	Mortimer 1905, 116, fig 275
Padholme Road, Fengate, Cambridgeshire	1: broad elliptical, collared	fill of wall slot of Neolithic house	Smith 1974
Isleham Fen, Cambridgeshire	1: elliptical	stray find in fen	Smith 1974, 42 (with further reference)
Eton Rowing Lake Area 6, Buckinghamshire	1: fragmentary, elliptical	midden, thought to be domestic	Allen et al 2004, 90
Brentry Hill, Henbury, Gloucestershire	1: elliptical	stray find	Smith 1974, 42 (with further reference)
Eyford, Gloucestershire	1: circular	Severn–Cotswold chambered cairn	Clarke et al 1985, 234 (with further references)
Notgrove, Gloucestershire	1: broad elliptical	Severn–Cotswold chambered cairn	Clarke et al 1985, 235 (with further references)
Windmill Hill, Wiltshire	1: broad elliptical	causewayed enclosure	Smith 1965, 134–5
Maiden Castle, Dorset	1: roughout for slender elliptical	causewayed enclosure	Wheeler 1943, 18–4, fig 52
Hembury, Devon	1: fragmentary, broad elliptical	enclosure	Liddell 1932, 180–1, pl XVI, 1–2 (nb also illustrates example from Camors, Birttany)
Hazard Hill, Totnes, Devon	1: fragmentary, slender elliptical	enclosure	Houlder 1963, 30, fig 8.12

at Greenbrae, Aberdeenshire (Kenworthy 1977; Clarke et al 1985, fig 3.38). In Scotland some 15 definite examples have been found (including the Greenbrae and Pitlethie Road specimens), and there are two further possible examples (Table 4); distributionally, there appears to be an east coast bias. Elsewhere, beads of comparable shape and size to the Scottish examples have been found in the east and south of England—the list presented in Table 4 does not purport to be exhaustive—and examples (in both jet-like materials

and in other types of stone) are known from Ireland, although here some almost certainly date to the Late Bronze Age (Frazer 1892; Smith 1974, 42; Late Bronze Age displays, National Museum of Ireland). The Greenbrae assemblage shows that these beads can vary widely in their size and shape, with some having collar-like projections at their ends.

The dating of these beads leaves much to be desired, and if the Pitlethie Road bead is indeed contemporary with the radiocarbon-dated material in the pit fill—

round 3800/3700 cal BC (SUERC-6923; Table 1)—then it would appear to be the earliest dated example, or at least among the earliest. Other potentially early candidates are the fragmentary beads from Eton Rowing Lake in the Middle Thames Valley (Allen et al 2004) and from the house at Fengate (Smith 1974). The former was found in a midden, and cereal grains, hazelnut shells and a cattle bone from the same midden have produced dates within the 3900–3530 cal BC range. It is therefore possible that the bead was as early as this; but unfortunately it was not closely associated with any of the dated material. Confusion surrounds the dating of the Fengate example, since two widely-spaced radiocarbon dates (one comparable with the aforementioned Pitlethie Road date, at 4960 ± 64 BP, the other much later at 4395 ± 50 BP: GaK-4196–7) were obtained from charcoal in the foundation trenches of the house in the 1970s (Pryor 1974. In any case, there is now some doubt as to the reliability of radiocarbon dates from the Gakusan laboratory: Ashmore et al 2000).

By analogy with finds from Middle Neolithic rich single inhumation graves in Yorkshire – and largely on the basis of the parallels there for the associated edge-polished flint axehead (eg Manby 1979, fig 4.3) – the Greenbrae necklace can be placed within the date range c 3600–3200/3100 BC, and possibly towards the end of that period (Manby–et al. 2003, 49–53). Although it remains unclear whether the necklace and axehead had been a hoard deposit or a set of grave goods (Kenworthy 1977, 85), there can be no doubt that the axehead and most, if not all, of the black beads – if not the whole necklace – had been imported from the Whitby area of North Yorkshire (Sheridan and Davis 2002, 815). The large elliptical beads from possible and probable funerary contexts in Yorkshire and Northumberland may well have belonged to that particular tradition and date bracket.

As for the southern English beads (other than the aforementioned Eton Rowing Lake and Fengate examples), the current radiocarbon dating programmes concerning long barrows, chamber tombs and causewayed enclosures led by Alasdair Whittle and Frances Healy suggest that the beads from the Cotswold–Severn chamber tombs at Notgrove and Eyford (Gloucestershire) probably date to after c 3750 BC, and those from the causewayed enclosure at Maiden Castle (Dorset), and from other enclosed sites at Hembury and Hazard Hill (Devon) probably date to after c 3650 BC (Whittle in press; Healy 2004). In theory, therefore, they could be roughly contemporary with the northern British examples.

The picture which is emerging in Scotland, from analysis of the Scottish examples (mostly by Mary Davis, formerly of NMS, now of the National Museums and Galleries of Wales), is of the importation of this type of bead from Whitby (as seen in the Greenbrae jet beads), and its copying in locally-available substitute materials, as here. The examples from Loch Skene and Pencaitland (Table 4) are both of non-jet materials; the other Scottish examples have not yet been analysed.

The vitrified material

Dawn McLaren and Andrew Heald

A selection of vitrified material was recovered from a set of features believed to be medieval in origin due to their association with artefacts of this date range. 69g of material was visually examined, which allows it to be broadly categorised on criteria of morphology, density, colour and vesicularity. The slag has been described using common terminology (eg McDonnell 1994; Starley 2000). The majority of pieces were less than 1g and within this small assemblage few samples could be categorised conclusively. However, where discernible they appear to fall into two types: a small amount suggestive of ironworking; and those created during a range of pyrotechnic processes, and not necessarily metalworking. A full catalogue of the material is given in the archive report.

Although no diagnostic bulk ironworking slags (eg tapped slag, hearth bottoms) were recovered 20g of slag appears to be associated with ironworking. Two dense fractured slag fragments from Pit [008] are best described as unclassified ironworking slags. Such slags can be produced during iron smelting and smithing. Two slag spheres were found in the same general context. Slag spheres are formed as spherical globules of molten slag ejected during smithing and when found in sufficient quantities are indicative of in situ smithing. A small amount of flat, partially magnetic flakes (c 10mm across by 0.5mm in thickness) were also recovered, the majority from Pit [008] and isolated feature [036]. Some of these flakes may be hammer-scale—small flakes of iron produced by the impact of the hammers on hot iron during either the refining of iron blooms or the working or wrought iron. Although differentiating between small flake fragments eroding from an iron object and those associated with ironworking is not always possible, the fact that the material was from the same context as the other ironworking slags suggests that some of the material may indeed be hammer-scale. The authors believe that it is only when sufficient amounts of hammer-scale are recovered and ideally in association with other diagnostic metalworking debris that their association with ironworking becomes valid.

A small amount of material from Pitlethie Road (6g) is low-density slags characterised by their vitreous and vesicular nature, low density and friability. This type of slag is variously called fuel ash slag, cinder or prill. It is formed when material such as earth, clay, stones or ceramics are subjected to high temperatures, for example in a hearth. These can be formed during any high temperature pyrotechnic process and are not necessarily indicative of deliberate industrial activity. Three samples, classed as cinder from [008] and [036] are magnetic. This high iron component, and the fact that all samples derive from contexts with other probable smithing debris, suggest that they were created during ironworking. The remaining samples ([009], [453], [477] and [643]), which are not magnetic,

are best described as fuel ash slag. The remaining material is amorphous burnt material, including burnt organic remains.

Iron fragments

Minute fragments of iron were recognised among the slag collection: a complete nail [008], a nail shank [654] and miscellaneous fragments [008].

Discussion

The Pitlethie Road vitrified material contains many samples that do not appear to be associated with metalworking processes. Much of the material can be formed during any high temperature pyrotechnic process and are not necessarily indicative of deliberate industrial activity. The majority of the material that is probably associated with ironworking was recovered from Pit [008], an isolated feature of apparently medieval date. However, the amount of hammerscale and slag spheres from the site is so small that it cannot be taken as evidence of in situ activity.

Marine shell

Ruby Ceron-Carrasco

Marine shell remains were recovered from five contexts, [081], [089], [146], [547] and [553]. However, only one of these, Pit [089] which is considered to be medieval in date, produced significant quantities.

The samples contained two species of shell-fish, of which the most significant was the common cockle *Cerastoderma edule* which occurred in very small quantities. The only other marine species identified in this assemblage was the carpet clam *Venus pullastra*. In total 1031 cockle shells and fragments of clam were identified. A small fragment of shell from a terrestrial snail of the family group Helicinae from ditch [146] was also recovered.

Clams are members of the same family (bivalves) as cockles, mussels, scallops and oysters. These small shellfish have a sweet flavour and a firm texture and are available throughout the year but are at their best in the autumn (Ellis 1995). The carpet clam is found in muddy sand between tide-marks (Laverack and Blacker 1974). At Pitlethie Road only small fragments of these were recovered from the fill of a pit [553] in Structure A.

Cockles are bivalves found all around the coast of Scotland particularly in sandy bays and estuaries, especially at low tide and are in season from May to December (Campbell 1989). Gathering of these has traditionally been done by hand: digging, raking and sieving and loaded into crails; horses and carts were used to carry the haul off the sands (Fenton 1984). They are usually cooked by steaming but they can also be poached, broiled, baked or barbecued (Ellis 1995). Fenton (1984) describes how in the early 19th century cockles were a principal component of the diet of the poorer classes especially during periods of extreme poverty. Records for the Western Isles in the 17th

century also attest to this (Martin 1719). However, cockles were also at times considered a delicacy, being transported long distances when in season (Fenton 1984).

It is quite clear therefore that, whatever the period or circumstances of the consumer, cockles have always been an important source of nourishment. The most likely source for both the cockle remains and also the small fragments of clam shell recovered at Pitlethie is Eden Bay and harbour where these species, particularly cockles, were abundant (Laverack and Blacker 1974).

The macroplant assemblage

Allan Hall and Robin Inglis

The macroplant assemblage from Pitlethie Road was generally of very poor quality and consisted mainly of wood charcoal with a very small amount of cereal grain.

Only 20 contexts contained charcoal and much of it was too fragmented or mineralised for further analysis. The most common species was alder (*Alnus glutinosa*) which constituted 38% of the total assemblage. Hazel (*Corylus avellana*), oak (*Quercus* sp.) and ash (*Fraxinus excelsior*) were also present, along with smaller quantities of birch (*Betula* sp.), willow (*Salix* sp.) and cherry (*Prunus* sp.).

The fill of Pit [580] was richest in terms of cereal grains. It yielded a modest assemblage (200–300 grains) which comprised about equal proportions of barley and wheat, the latter almost certainly including some specimens of emmer and some of spelt. There was no cereal chaff and a single charred weed seed (a fruit of goose-grass, *Galium aparine* L.). The only other context which contained cereal grains was isolated pit 095 which contained one example each of barley (*Hordeum*), emmer and spelt wheat (*Triticum dicoccon* Schrank/*T. spelta* L.). It also included some fragments (to 5mm) that may have been heather (*Calluna vulgaris* (L.) Hull) root/basal twig and two structures that may be lesser celandine (cf *Ranunculus ficaria* L.) tuber. The last two taxa may have originated in burnt material such as roofing or turves but the minute quantities are hardly conclusive. The assemblage is too small to make further inferences.

Discussion

Early Prehistoric activity

The earliest human activity identified at Pitlethie Road is the construction of Pit [580], which is dated to the Early Neolithic. Although north-east Fife has seen human activity since the Mesolithic period (Morton, Coles 1971), evidence for subsequent Neolithic settlement is rare, despite funerary and burial remains being relatively common (Barclay 1996, 61–75; 2003, 71–81). Neolithic artefacts have also been found in the area, such as the Group VI type stone axe from Craigie Farm

(Reid 1982, 10), the flint axe from Leuchars (NMRS: NO42SE25), the type 4a carved stone ball from Leuchars (Marshall 1979), a late Neolithic flint arrowhead (NMRS: NO42SE15) and the schistose mace-head from Rhynd (Coutts 1971).

Due to the degree of truncation on the site we cannot determine whether Pit [580] was an isolated feature or part of a domestic or funerary complex, for instance. While it is common for pits reflecting structural deposition to be identified in isolation, they have usually been identified as part of a tradition of ritual activity as at the multi-phased henge monuments at Cairnpapple (Piggot 1948, 7) and Balfarg (Barclay and Russell-White 1993). Whatever its original position, the rich artefact assemblage it contained identifies it as a significant feature. The material recovered from the single homogenous fill comprised 13 of the 15 chipped stone artefacts (including five burnt scrapers) recovered from the site, a saddle quern rubber, a hammer stone, a polished stone axe and an elliptical bead, which also showed signs of being heat affected. The pit also contained the only assemblage of charred cereal grains found on the site. Although the chipped and coarse stone tools and the cereal grain could be explained as domestic rubbish disposal, it is unlikely that either the axe or the bead, both prestige items, would have been discarded as rubbish (Thomas 1999, 66). The recovery of the bead is of even more significance as such items are more usually found in funerary contexts (Table 4), highlighting their sacred associations and by implication the pit.

Recent work on pits dating from the Early Neolithic have highlighted the ritual nature of both the material deposited and the act of excavation and it is in this context that the assemblage should be considered (Barclay 1983, 166–8; Atkinson 2002, 185–8). Structured deposition has been recorded at sites across Scotland (Bannockburn, Rideout 1996, 56–7; Chapelfield, Atkinson 2002, 185–88; Kintore, Cook and Dunbar forthcoming), but is more often associated with multiple fills, suggesting an extended period of use. Pit [580] possessed relatively clean sides and was filled with a homogenous sand indicating that the feature was probably backfilled soon after excavation.

The close physical relationship between pit [580] and Alignment A (Illus 2) does raise the possibility that they are indeed associated and brings to mind the use of basic temporary structures or wind breaks during the Mesolithic (Fife Ness, Wickham-Jones and Dalland 1998) and Neolithic (Cook 2000, 108). Recent excavations have highlighted the mobile nature of the Early Neolithic in which temporary, light structures would have been constructed (Alexander 2000, 65–66). It is possible that the posts represent a temporary wind-break used during a short lived hunting or fishing trip, which was open briefly and then backfilled, the material used being deposited, and the site closed (Thomas 1999). Similarly, the structure shares some broad similarities with Building 4 at Millfield, Northumberland, which comprised a circular setting of post-holes

and a large pit positioned to the side, and contained a predominately domestic assemblage (Johnson and Waddington 2006, 15). However, in contrast to Millfield, the special nature of the assemblage from pit [580] militates against this more prosaic explanation.

Despite the lack of any large scale funerary or ritual monuments in the area, Pit [580] suggests that the area around Pitlethie Road was a centre for such activity during the Early Neolithic. The recovery of the large elliptical bead, of which there are only 15 known examples in Scotland, certainly enhances the significance of the pit and area during this time.

Bronze Age activity

The majority of dated activity at Pitlethie Road occurred in the Bronze Age. Although an Early Bronze Age date was obtained from a single pit [540], the majority of structures can be placed within two broad phases of activity dating between approximately 1620–1410 BC (Structure F and J) and 1220–830 BC (Structures B, C, D and E).

Unfortunately there is a general absence of well dated, comparable activity in NE Fife at this time, with evidence being restricted to a few stray finds of pottery and flint at Tentsmuir (Paul 1905; Longworth 1967), three roundhouses at North Straiton (dated by pottery, Harding 2005, 99) and roundhouses and a burnt mound at Drumoig (Philips and Bradley, 2004, 29).

Both Structures F and J date to the Middle Bronze Age. While it is clear that they represent activity at this date their function is far from clear. Structure J which was located to the SE of the main settlement, is represented by only three post-holes and although it could be the remnants of a roundhouse it compares in size with four poster structures such as those excavated at Reading Business Park (Brossler 2001). Although various interpretations have been suggested for four posters ranging from excarnation platforms to focal points for ritual activity (Ellison and Drewett 1976; Bradley 1978), the close proximity of the Bronze Age settlement would suggest that it may have possessed a more practical function such as a granary.

Similarly, the general lack of ecofacts and artefacts from Structure F limits any conclusion we can make regarding its function, but two analogies can be offered. A large pit enclosed by stake holes was excavated at Chapelfield, Stirlingshire (Atkinson 2002, 149). Although the function of the structure could not be satisfactorily established, material recovered from the feature produced a Mesolithic date. Another site excavated at Upper Largie, in the Kilmartin Valley, consisted of a large pit and associated ring of post-holes, dated to the Early Bronze Age (Ellis forthcoming). The presence of samples of wood within the central pit, together with its location in the Kilmartin Valley, has led the excavator to suggest that it is related to ritual practice (Ellis forthcoming).

It is clear that although activity increased in the Late Bronze Age, the majority of the structures could not

have co-existed, due to the close proximity of the structures and the subsequent overlapping of ground-plans. While clusters of Bronze Age roundhouses have been identified, at Carn Dubh (Rideout 1995) for example, the apparent arrangement of the structures in an E–W alignment suggests that the clustering may be a result of settlement moving sequentially across the landscape. Therefore, although Structures B, C, D and E fall within the same broad date range it is unlikely that they are contemporaneous.

Research on both the duration of timber structures and the occupation of Bronze Age settlement has highlighted the relative short periods associated with the lifetimes of both. Dendrochronological analysis of wetland sites has consistently demonstrated the short duration of these types of settlement, often no more than a generation (Barber and Crone 2001), and there is growing evidence from excavations across Scotland to suggest that whole settlements could have been similarly short lived (Lairg, McCullagh and Tipping 1998; Arran, Barber 1997). Halliday further suggests that these settlements appear to migrate across the landscape, returning periodically to the same locations (Halliday 1999, 49–65), an idea supported by the evidence from such sites as Kintore (Cook and Dunbar forthcoming). The complex ground patterns recorded for Structures C and D certainly suggest that the structures are multi-phased buildings, in which the same location was repeatedly used for settlement. If this were the case, then the settlement may represent at least eleven domestic structures, taking in to account Structures A, B, C (possibly two structures), D (possibly two structures), E, F, G, H and I. The radiocarbon dates span a period of approximately 800 years, from c1620 to 830 BC so a structure could have been constructed every 70–80 years, the former house stances going under the plough (as at Tormore, Arran, Barber 1997). In other words, the settlement at Pitlethie Road may represent no more than the settlement of a single house, the house stance shifting around over the centuries.

Despite the truncation witnessed across the site, the ground plans of Structures C, D, and E suggest that the structures share broad constructional techniques. They have two main elements, a central post-ring which would have supported the load bearing ring-beam (Reynolds 1982), and an outer ring-groove acting as either a foundation trench for further timbers or a low wall (Harding 2005, 96). The recovery of hazel and alder charcoal, species commonly used in the construction of woven wicker screens and walling, from the ring-groove of Structure C hints at the presence of such a wall. Only in Structure E does the ring-groove fully survive, although an element of the ring-groove exists in Structures C1 and C2, while a secondary ring of post-holes is present in Structure D. The absence of a ring-groove within the other structures is likely to be a consequence of erosion, a problem common to plough truncated sites (Barclay 1983, 62). Alternatively, the completeness of Structure E may suggest that this structure was the latest in the development sequence,

as constructional techniques improved. Despite the survival of only two entrances across the settlement, their SE facing direction further supports the suggestion of shifting stances across the area, with continuity in the settlement. Recent papers have discussed the nature of roundhouse organisation in relation to artefact distribution (Fitzpatrick 1994, 68–72), patterns of erosion (O’Sullivan, 1998) and the movement of the sun (Fitzpatrick 1997; Parker-Pearson et al; 2004), but these have been based on better preserved sites and an exploration of the evidence from Pitlethie Road in these terms would not contribute to the debate.

The small amount of environmental data recovered can only hint at the economy of the site, but analogies with other sites indicates a mixed economy would have prevailed (Barclay 1983, 70; Cowie and Shepherd 2003, 162–5). The small, but widespread occurrence of burnt bone throughout the roundhouses (Structures A, C, D and E) suggest that meat was consumed in the settlement, while the identification of the burnt hazelnut shell and the common cockle indicates the range of wild resources which would have been fully exploited.

In summary, it is clear that the area was a focus for Bronze Age activity from at least the Middle Bronze Age. However, as always on plough-truncated sites it is difficult to disentangle the chronology of settlement and activity on the site and consequently, the intricacies of Bronze Age life cannot be further elucidated.

Early Historic and medieval activity

The evidence for Early Historic and medieval activity consists of six pits and linear ditches forming field systems and enclosures. Of the six pits, two have produced pottery dating to the 12th to 15th centuries, one has produced radiocarbon dates ranging from the 8th to 10th centuries, and one has produced a clay loom-weight which cannot be ascribed to a period.

We therefore have only one feature which is clearly Early Historic although the possibility remains that the other undated pits, including the pit containing the loom-weight, also belong to this period. The name Pitlethie certainly has its origins in the Pictish period, the word *pett* meaning ‘holding, farm’ (Taylor 2003), and it is usually associated with well sheltered, well drained soils, which are best suited to arable agriculture (Driscoll 1991, 91). In its existing form the name *pett* originates some time after the middle of the 9th century, when the Gaels occupied north-east Fife, and it has been suggested that the incoming people would have adopted both the name and the pre-existing land divisions (Driscoll 1991, 91–2). Such were the advantages of the existing land-use that Driscoll suggests that under the majority of farms in Angus, Fife and Perthshire, the heartland of the Picts, a Pictish farm would have existed (Driscoll 1997, 74). The pits at Pitlethie Road may be a very small relic of this Pictish rural landscape.

The linear ditches have been ascribed a medieval date due to the presence of dated pottery and on the

basis of their similarity to other dated systems in the area. Excavations by the Scottish Field School of Archaeology identified similar linear ditches at North Straiton, which were dated to the 12th or 13th centuries (Watkins 1988, 12), and Craigie Hill (Freeman 1997, 67–9) both of which lie to the NW of the site. The field systems at Craigie Hill were assigned a general medieval date, although the excavator highlights the possibility of a terminus ante quem of c1760, based on the evidence of the direction of plough furrows and details shown on General Roy's Map (Freeman 1997, 68). Generally the evidence suggests that a strip field system was being employed in the area between the 13th and 18th centuries (Freeman 1997).

As stated above, two of the pits are definitely medieval and it is possible that the other undated pits belong to this period, too. Pit [008] contains a range of material which is suggestive of a domestic midden, some of its contents implying that some sort of metalworking activity may have occurred within the vicinity. The remaining pits are harder to interpret, given the lack of ecofactual and artefactual evidence. With the exception of pit [008], the fills of these features was homogenous and clean, suggesting immediate backfilling after excavation. The initial interpretation of the features as either retting or tanning pits was dismissed as there is no immediate source of water, an essential component of both trades. The difficulty in attributing function to medieval pits because of their frequent reuse over time has been highlighted by Coleman, albeit in an urban context (2004, 300). In urban locations pits would have been reused to bury refuse, both domestic and industrial. In a rural context space would have not been so limited, and midden material would have been scattered across the fields, but it is possible that excavated features were reused for secondary purposes.

Despite an obvious lack of any settlement evidence, the range of features and artefacts derived from the medieval period indicates that the area around was Pitlathie Road occupied from the 9th century onwards. While the field systems emphasise the agricultural use of the area, the recovery of metalworking debris and the loom-weight suggest the existence of small scale industrial processes in the area at this time. The possible existence of kilns in the nearby Tentsmuir and Balchristie areas further supports this (MacGregor 1998, 84; Hall 2002, 138–44). The location of the domestic settlement associated with these features is at present unknown, but it is possible that the current position of Pitlathie Farm overlies it.

Conclusion

The excavations at Pitlathie Road have demonstrated that, despite the absence of any cropmark evidence on the site, it is far from a blank area in terms of early activity. Under the deep topsoil, which probably hindered the development of cropmarks over the

features, evidence for activity of Early Neolithic, Bronze Age, Early Historic and medieval date has been found, and although individually none of the features are of great significance, they nevertheless contribute to our knowledge of early activity in the area. Prior to the excavation, little or no Neolithic activity was known in the area, so the identification of the pit and its contents, specifically the rare elliptical bead and the polished stone axe are of particular importance. While the presence of Bronze Age activity was known in the area, the Pitlathie Road excavations have contributed something to our understanding of its nature. The excavations have therefore highlighted the potential of areas within coastal lowlands, which might otherwise be overlooked because of their lack of cropmark evidence.

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Abstract

A multi-phased site identified during excavations undertaken in advance of a residential development at Pitlethie Road, Leuchars, Fife comprised features relating to the Neolithic, Bronze Age and medieval periods. The features included a large artefact rich pit dating to the Neolithic, Bronze Age roundhouses and medieval field systems. Although the site produced only a small material assemblage, a polished stone axe, a rare elliptical bead and a large amount of Bronze Age pot were recovered.

Keywords

Bronze Age
Fife
Leuchars
medieval
Neolithic

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