

**SITE WEST OF INTERNATIONAL PAPER  
PORT ELPHINSTONE  
INVERURIE  
ABERDEENSHIRE**



**Archaeological Excavation**

Carried out 8<sup>th</sup> -18<sup>th</sup> May 2012

by

**Murray Archaeological Services Ltd**



**Report No: MAS 2012-15**

**Part 1**

by

**H K Murray and J C Murray**

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**Part 1**

**-Archaeological Excavation-**

**H K Murray and J C Murray**

**With specialist reports by Scott Timpany, Julie Lochrie and Dave Henderson**

**Part 1: The Excavation and Specialist reports**

**Part 2: Appendices and tables**

1. Background
  - 1.1 A Planning Application (APP/2008/1694) was granted permission for the erection a business park on a green field site on land to the N of property area U114C, W of International Paper, Port Elphinstone, Inverurie, Aberdeenshire. An archaeological condition was applied to this application in the context of Scottish Planning Policy (PAN 2/2011, SPP, SHEP).

The condition required that no development should take place before the implementation of a 7-10% archaeological evaluation.
  - 1.2 Murray Archaeological Services Ltd was commissioned by the developer, the Kilbride Group, to undertake the work.
  - 1.3 The evaluation was undertaken on the 25<sup>th</sup> and 26<sup>th</sup> October 2010. This revealed two areas of significant surviving archaeology on the site and as a result of Aberdeenshire Council requested that both areas be fully excavated. A report on the evaluation was produced in 2010 (Murray & Murray 2010).
  - 1.4 The excavation was undertaken between the 8<sup>th</sup> and 18<sup>th</sup> May 2012.
2. The Site
  - 2.1 The site is situated on the E side of the A96 some 2 miles S of Inverurie, between the E side of the former (now disused) road line and the Inverurie Paper Mill works (Illus 1).

NGR: 3779, 8187 (centre). Area 1 (centre) 377891, 818826. Area 2 (centre) 377949, 818646 Parish: Kintore

2.2 At the time of the evaluation and excavation the area was under grass. On the W side of the field an area c 15-16m wide of rough weeds and disturbed ground marked the line of a high pressure gas main. According to the gas company this also extends along the S limit of the site. An overhead electricity cable crosses the S end of the site.



**Illus 1 Site location. Site marked black.**

2.3 The ground slopes down from W to E towards the river but the E edge of the slope has been cut back for construction of part of the Paper Mill works. It appears that this would have formed a fairly prominent gravel ridge above the

W side of the river Don. Within the area of the site on the E side there is a pronounced gully which appears to be a palaeochannel draining towards the Don.

- 2.4 As a result of the evaluation, two areas were excavated (Illus 2). Area 1 was situated on the high ground on the N side of the palaeochannel, near the NE corner of the field; this overlapped the W end of evaluation trench 6. Area 2 was on the high ground to the S of the palaeochannel and at the S end of the development site. It overlapped the S end of evaluation trench 2.

### 3 Methodology

- 3.1 In both the evaluation and excavation the cultivated topsoil was removed by a full slew excavator with a 2m wide toothless ditching bucket. Any possible features were cleaned and excavated by hand. During the excavation, two areas were opened up overlapping the prehistoric features found in evaluation trenches 2 and 6 (Illus 2). The excavation of both areas was extended on all sides to ensure there were no isolated features.
- 3.2 All features were planned, photographed (Appendix 1) and recorded. Details of all features and contexts are catalogued in Appendix 2. The data structure site catalogue of finds is in Appendix 3.
- 3.3 All mapping was done with a Magellan Mobile Mapper CX.

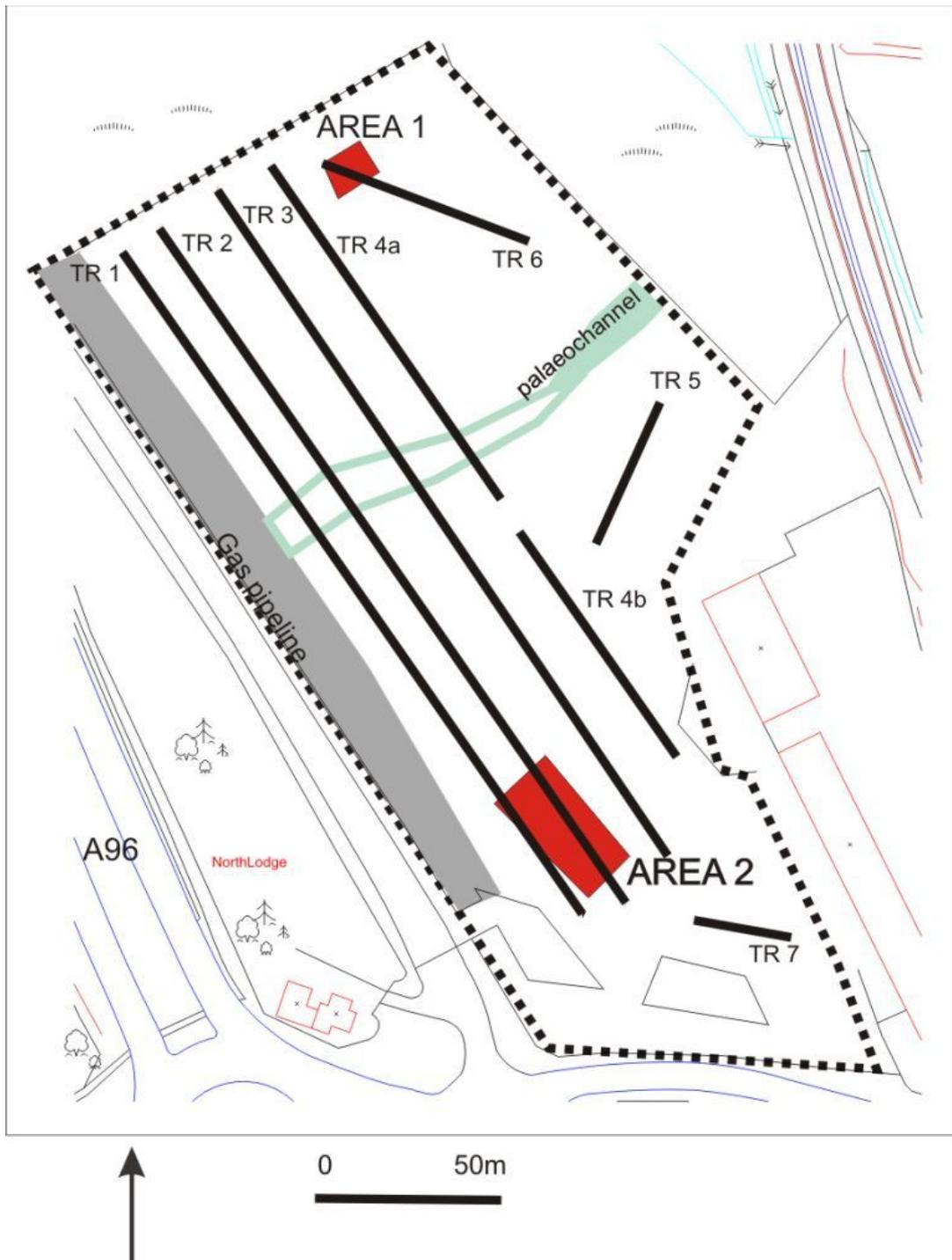
### 4 Results of the Evaluation

- 4.1 A 7-10% evaluation carried out in October 2010 excavated 7 trenches and revealed two areas of prehistoric survival on either side of a palaeochannel (Illus 2).

### 5 Results of the Excavation

#### Area 1 (Illus 3, 5).

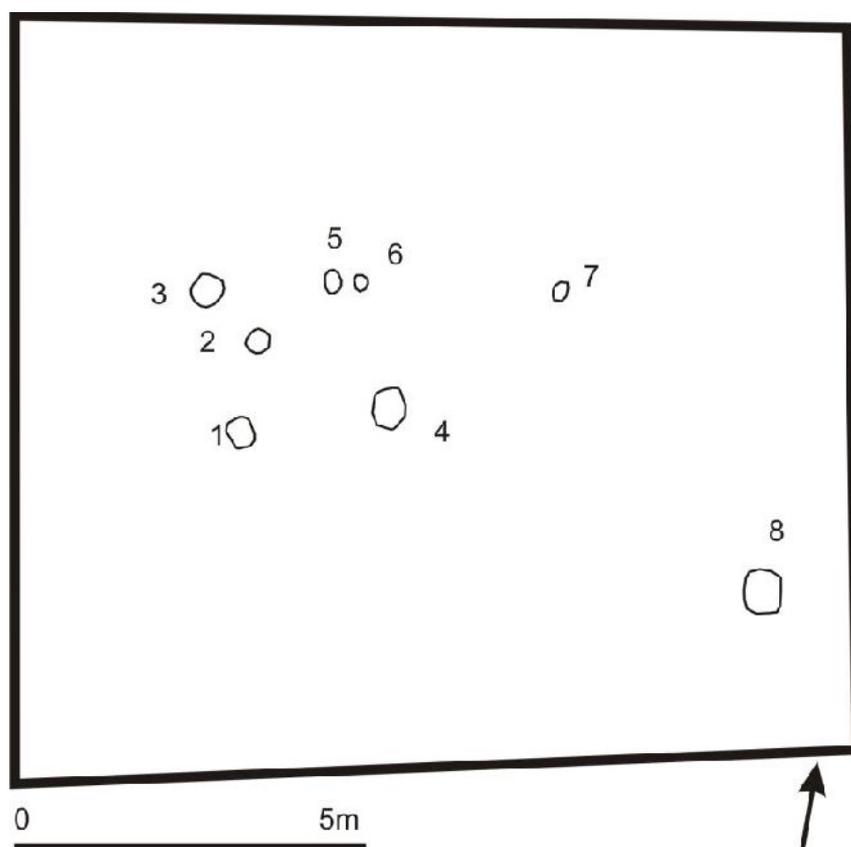
Area 1 was focused on features found in evaluation trench 6 (Murray & Murray 2010, 8-11). The features 1-4 (2010 numbers 12, 16, 17, 18) were re-exposed and an area around them, 11 x 12m, cleaned to the top of natural. Only four new features were revealed and it would appear that either activity in this area was limited or that it had been damaged by cultivation to a greater degree.



**Illus 2** Layout of evaluation trenches and of the excavated areas. Reproduced from Ordnance Survey digital map data, © Crown Copyright, All rights reserved. 2012. License No 1000410404

Features 1, 4 and 5 appeared to be shallow pockets of survival between 550 and 130mm in depth which could not be further interpreted. Feature 1 appeared most likely to be the result of rabbit activity.

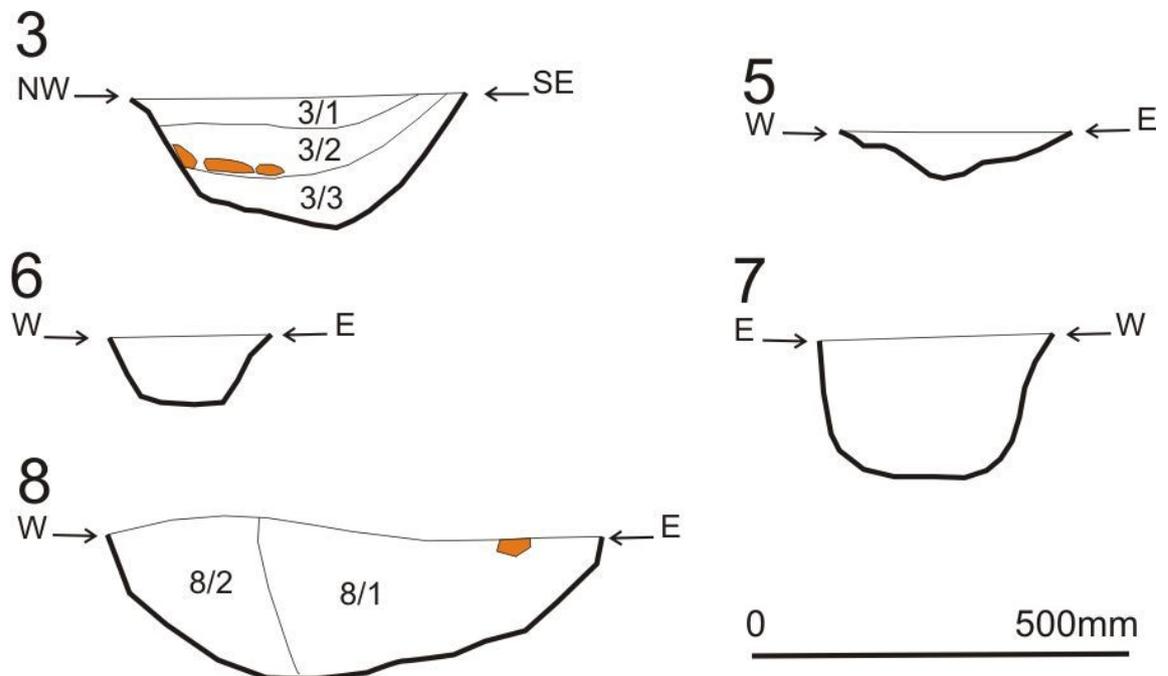
Two small, fairly vertically-sided, features (6 and 7) may have been truncated post-holes or post pits but they can not be dated. Two pits however (3 and 8) both contained pottery of Neolithic date (Lochrie, below). Pit 8 had fragments of four vessels in a generally silty fill with occasional charcoal and would appear purely domestic. Pit 3 yielded fragments of up to eight vessels (Lochrie, below), ranging in probable date to between Early-Mid Neolithic (V9) and Mid-Late Neolithic (V8) and five flints – two chips and three flakes. One of the flakes was of Levallois type and may indicate later Neolithic activity (Ballin, below). When pit 3 was excavated during the evaluation in 2010 it was considered that this was a deliberate deposition as the pottery was set on the top of the basal silty fill (3/3) within a charcoal-rich deposit (3/2). Three small stones were set around the W edge of the pottery and another stone was set directly on top of it (Illus 4, 5). It was observed that the stones were of a distinct red colour with mica flecks and may have been deliberately chosen and may perhaps have been a deliberate burying of selected domestic artefacts/rubbish within or near a domestic/settlement context.



Illus 3 Plan of Area 1 features.



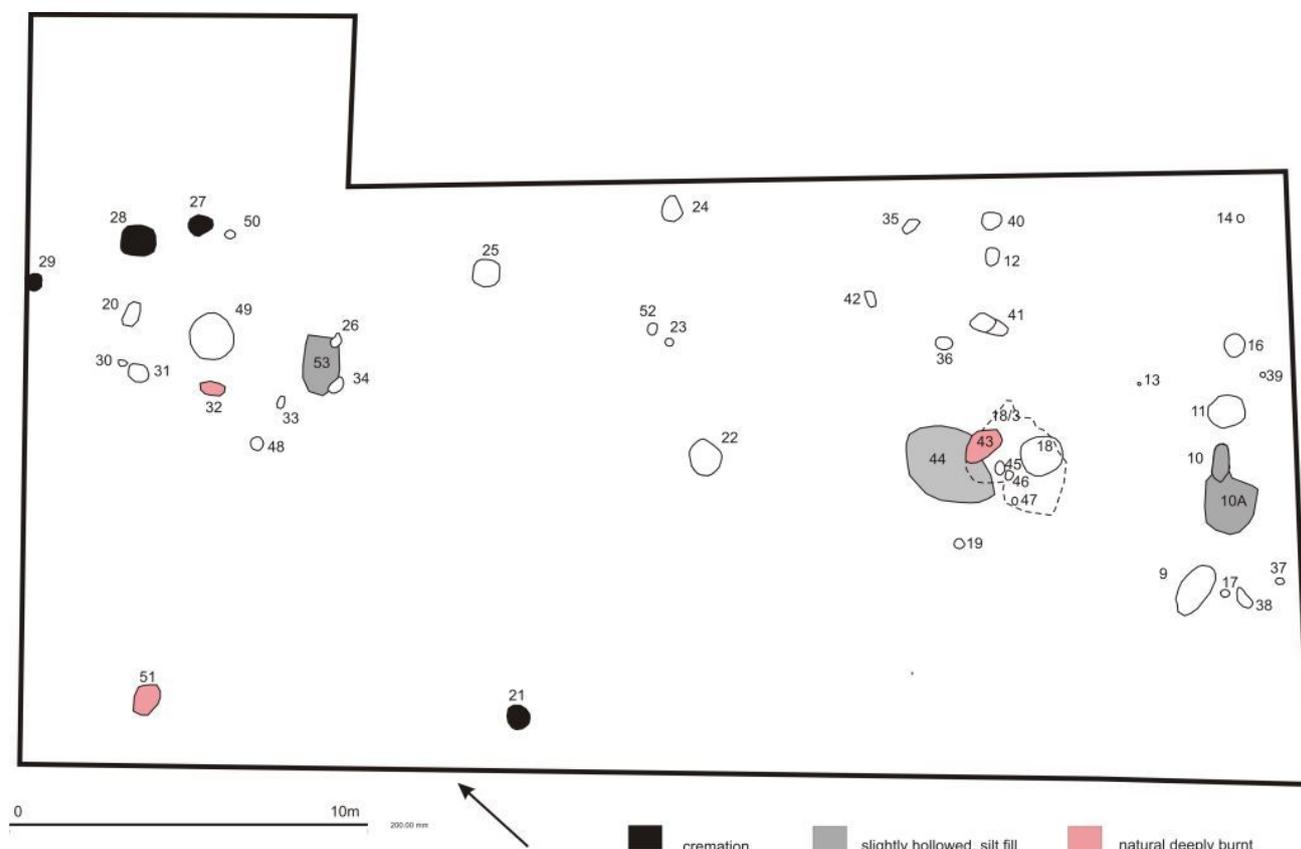
Illus 4 Area 1, feature 3 (2010 evaluation trench 6, 12) showing stone setting around pottery in pit.



Illus 5 Sections of Area 1 features

Area 2 (Illus 6).

Area 2 was focused on features found in evaluation trench 2 (Murray & Murray 2010, 4-7). Features 30, 31, 49, 26, 10A and the S part of 18/3 (2010 numbers 5, 15, 8, 6, 7 & 14 respectively), which had been identified in 2010 and covered with plastic prior to backfilling, were re-exposed. With the exception of features 30 (2010:5) and 10A (2010: 7) these features had not been excavated in 2010, although there were surface finds from 49 (2010: 8) and 26 (2010: 6). A wide area around all the features, c. 35 x 17m with an extension at the NE corner, was cleaned to the top of natural. The area had been intensively cultivated with frequent modern plough marks visible in the top of the natural and across the top of some features. Inevitably this resulted in many features having been partially or severely truncated and the probability of some plough-dragging of finds. The excavated features were either cut into the natural (pits, cremation pits, post-pits) or deposits surviving in hollows in the top of natural that do not appear to be cut features (survival pockets). Three burnt areas of natural indicated the position of ploughed-out hearths or fires.



**Illus 6 Area 2. Main plan.**

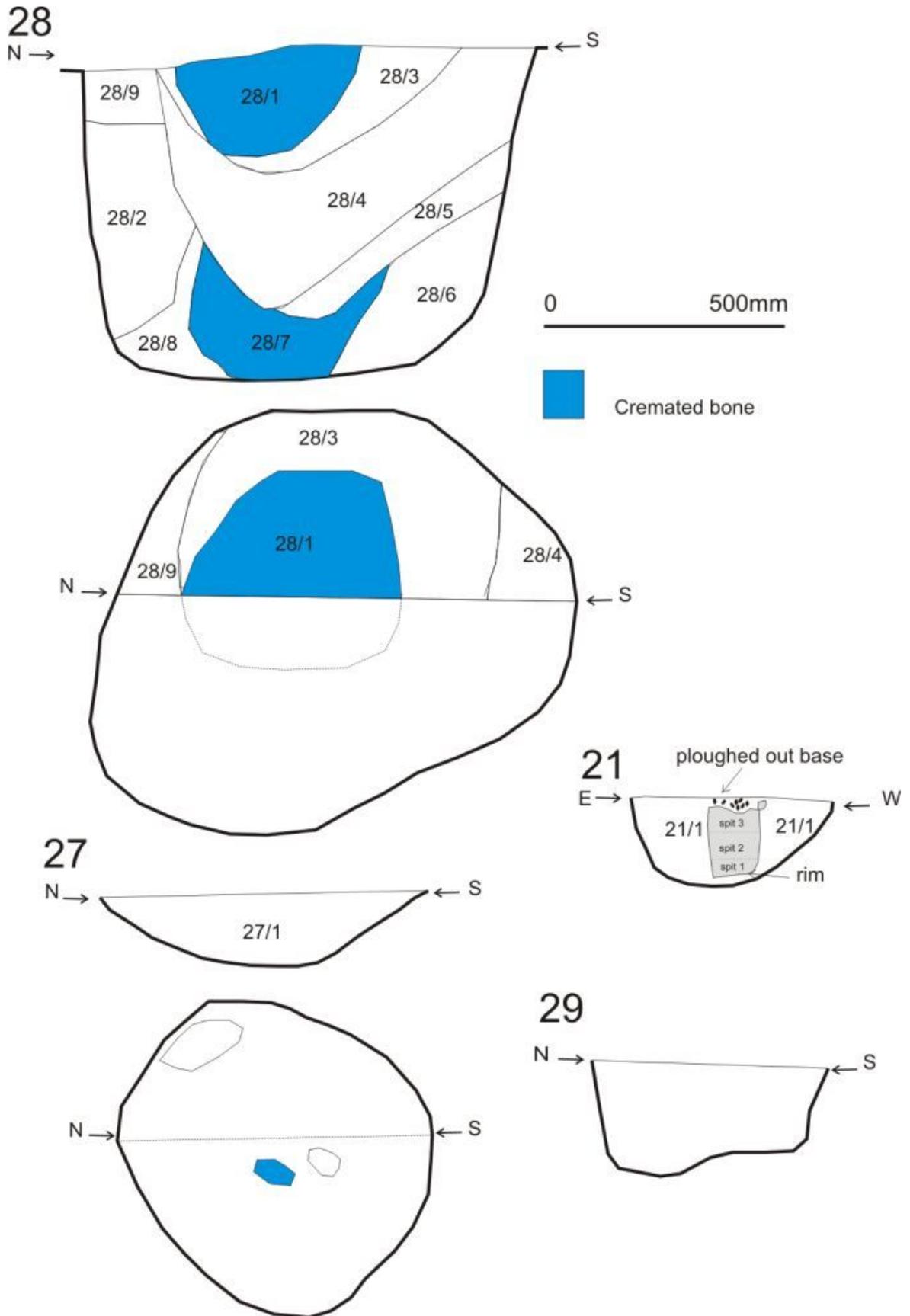
*Cremation pits (Illus 7).*

Four pits contained cremated human bone (Henderson, below). Three of these (27, 28, 29) were close together in a line and may have been a contemporary grouping. The fourth (21) was c 16m to the S and was the only urned cremation. Samples for C14 dating were taken from the urned cremation (21) and from what appeared to be primary (28/7) and secondary (28/1) fills in the most complex cremation (28) in the group of cremations without pottery. The results (Appendix 6) dated the urned cremation to 1499-1414calBC (95.4%) and the primary cremation of pit 28 to 1387-1133calBC (95.4%). A sample from the secondary cremation (28/1) was dated to 1311-1115calBC (95.4%). Clearly there is at least a generation and possibly as long as a couple of hundred years between the cremations. It is nevertheless within a time frame where either oral tradition or a physical marker could have dictated the positioning of the later pit cremation in relation to knowledge of the earlier urned cremation.

**21**

The bucket-shaped urn (Illus 8, 22 and Lochrie below) was inverted in a very small pit (21), 400mm in diameter. The base of the pot (uppermost) had been ploughed away, with the depth of the pit of only surviving to 180mm. The backfill around the pot comprised black, very fine charcoal- rich dust, possibly from the cremation pyre. The cremation was of an adult, tentatively identified as male (Henderson, below). The only artefact in the fill was a small burnt flint flake (Ballin, below).

A C14 sample was submitted of cremated bone from 21/2 and was dated to 1499-1414calBC (95.4%) (Appendix 6).



Illus 7 Plans and sections of pits containing human cremations



**Illus 8 Pit 21 sectioned to show urn**

## 28

Pit 28 was a large, vertically sided pit, 940 x 830mm and 650 deep (Illus 7, 9). The primary deposit (28/7) was a concentration of cremated bone, probably held in an organic container, such as a cloth or basket, when it was deposited. A soft mid-brown sandy fill, probably material from the original digging out of the pit, was backfilled around it (28/6, 28/8) and, tipped in over both, there was a deposit of very black charcoal dust with rare charcoal chunks and some cremated bone (28/5), which Henderson (below) interprets as pyre material. The pit had then been backfilled with clean sandy gravel mixed with patches of silt (28/4, 28/3) and clean sand (28/2), the latter possibly collapsed in from the N side of the pit. A secondary, charcoal-rich deposit (28/1) containing a small quantity of cremated human remains was subsequently dug into the top of the backfilled pit. There were no duplications between these bones and those of the primary deposit so it was not possible on the basis of the cremations to determine if these were from different individuals (Henderson, below). An unburnt stone pendant (Illus 25) was found in the secondary deposit.

Two C14 samples were submitted. A sample of cremated bone from the primary cremation (28/7) was dated to 1387-1133calBC (95.4%). A sample from the secondary cremation (28/1) was dated to 1311-1115calBC (95.4%). This would suggest that the two cremations were perhaps one or two generations apart. It is clear that the site of the earlier cremation was known and may have been marked in some way (Appendix 6).



**Illus 9 Pit 28 section**

## 27

Pit 27 (Illus 7) was a shallow pit, 630mm diameter and 180mm deep, with a charcoal-rich fill ranging from dust to lumps of charcoal and containing a small, concentrated deposit of cremated bone in the base of the fill near the centre of the pit. The cremation was of an adult, gender unknown (Henderson, below). There were no related finds. As this pit was less than a metre from the deep pit 28, it is unlikely that it has been very truncated and this must be regarded as near its original form.

## **29**

The final pit in this group, 29, was only 500 x 580mm and up to 240mm deep (Illus 7). The fill was dark brown fine humic silt with rare charcoal and very small quantity of burnt bone fragments throughout, with the exception of a small pocket of charcoal and larger cremated bone fragments on the E side. The bone from this pit included human cremation and burnt faunal remains (Henderson, below).

### *Pits*

**18** (Illus 10, 11, 12).

This was a bowl-shaped pit, 1.18 x 1.10m and 250mm deep. The basal fill (18/2) was a black, charcoal-rich deposit containing frequent burnt hazel nuts and nutshells as well as occasional grains of naked barley and fragments of burnt animal bone (Timpany, below). Large pieces of two Carinated bowls (V 54, V55. Lochrie, below) and a flake of burnt pitchstone (SF71. Ballin, below) are suggestive of deliberate deposition of selected valuable objects. They would indicate an early Neolithic date.

The basal fill was partially sealed by and partially interleaved with clean yellow redeposited natural (18/4) and partially sealed by a compact grey pebbly silt (18/1); the interleaving of 18/2 and 18/4 suggests they were deposited at the same time. A more general layer of slightly charcoally, very fine, buff/grey silt (Illus 6: 18/3) spread over the pit and extended over a wider area up to c 2 x 2.5m and sealing the burnt hearth area (43) and an irregular silt-filled hollow (44: Illus 2, 18). Hollow 44 was c 2.1 x 1.9m, generally only 20-30mm deep but with a central area c 1 x 1.3m which was up to 120mm deep. Burning from hearth 43 extended down the SE edge of 44, suggesting this might have been open when the hearth was in use. Three small features (45, 46, 47) had similar fill and lay along the edge of 44; they might be the base of truncated post or stake-holes. Feature 19 to the W of this group had a topsoil fill and was probably a stone hole/rabbit hole.



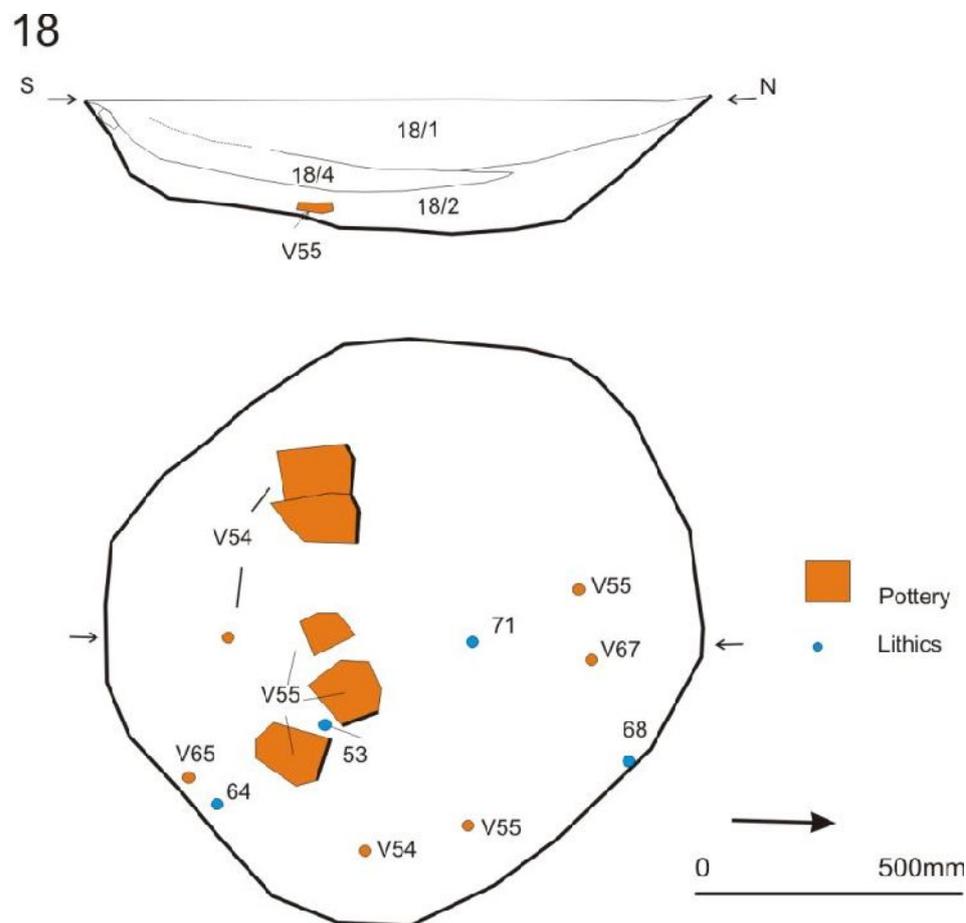
**Illus 10 Section of pit 18**



**Illus 11 Pit 18 with Carinated bowl V54 in situ**

As a result of plough damage there had been some mixing of 18/1 / 18/3 and of 18/1 / 18/2 at the pit edges. The pottery from the general layer 18/3 was all Carinated Ware, dating to the Early/Mid Neolithic but one burnt Levallois-type core might be later Neolithic (Ballin, below).

A nutshell from primary fill 18/2 was sent for C14 and was dated to 3707-3636calBC.  
(Appendix 6).



**Illus 12 Section and plan of pit 18 with finds from 18/2**

#### 49

This large, almost vertically-sided pit, was 1.23 x 1.3m and 500mm deep (Illus 13, 14). The basal fill (49/5) appeared to be a deliberate deposition of selected objects and this seems to be the primary purpose of the pit, with no traces of any earlier fills. This primary charcoal-rich deposit incorporated burnt grains of both naked barley and wheat, either collected with the charcoal from a domestic fire, or burnt deliberately as ritual consumption. Large pieces of several Grooved Ware pots and five flints had been carefully placed in the base of the pit. None of the pots had been complete when deposited.



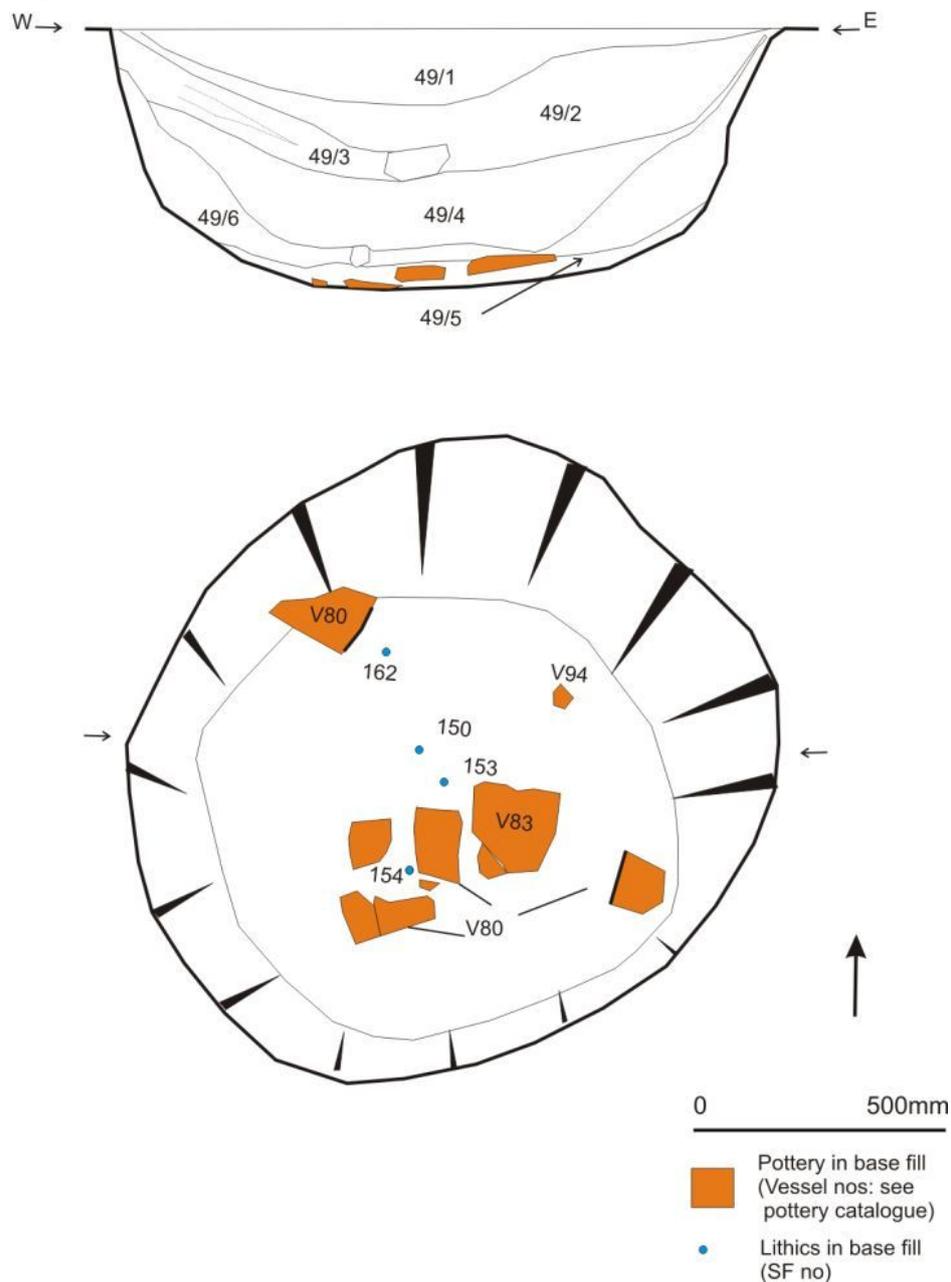
**Illus 13 Pit 49 with S half excavated, showing pottery in primary fill**

This basal deposition had been carefully covered by a layer of clean yellow sand (49/6) with no finds in it. The upper fills, which were mainly dirty silts with varying amounts of charcoal, also contained four flints and fragments of Grooved Ware pottery from a number of vessels. Unlike the primary deposit the pottery in the upper fills tended to be small sherds, with no impression of deliberate placing.

The pottery and the use of Levallois technique on one of the flints would indicate a later Neolithic date.

A sample of charred grain from primary fill 49/5 was sent for C14 dating. It was dated to 3011-2878 calBC (95.4%) (Appendix 6).

49

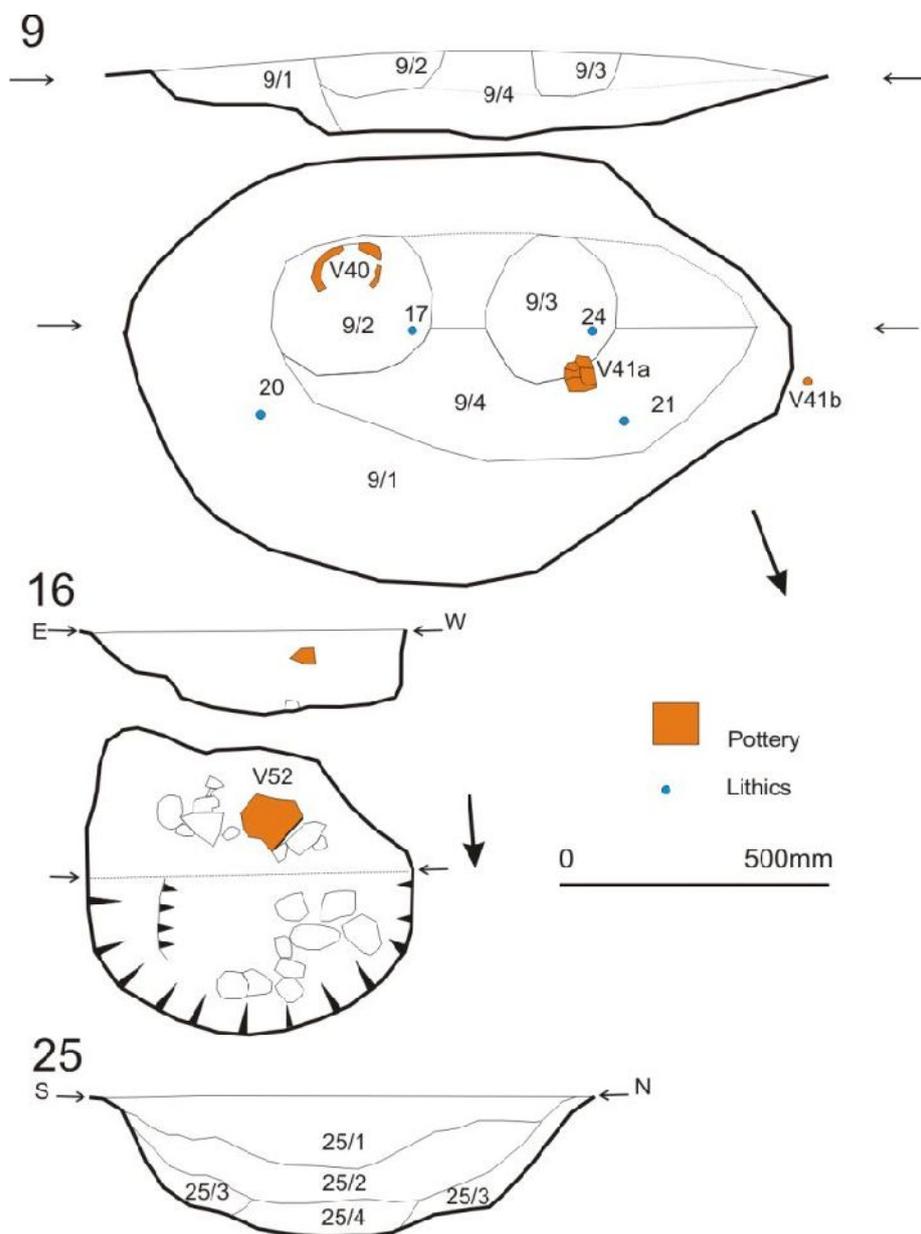


Illus 14 Section and plan of basal fill of pit 49.

9 (Illus 15)

This quite shallow saucer-shaped hollow was 1.22-1.5m x 800mm and 160mm deep, filled with mid-brown silt (9/1) but this appeared to have been cut in the central area where there was a charcoal rich fill (9/4), with rare tiny fragments of burnt animal bone but no artefacts. Two smaller holes cut into the top of this had sandy and silty fills with some charcoal; 9/2 contained a quartz flake (SF 17) and a large portion of a Grooved Ware/Impressed Ware pot (V40. Lochrie, below) set rim down in the fill and

9/3 contained sherds of a non-diagnostic pot (V41A. Lochrie, below) and a flint flake (Ballin, below). Two burnt flint flakes (Ballin, below) and fragments of pottery (V41b) from the top of 9/1 may have been dragged from these internal features. The pottery dates the pit to the mid/late Neolithic.



**Illus 15 Pits 9, 16 and 25**

**16** (Illus 15).

This relatively small pit, 520 x 640mm and 130-140mm deep, had a large portion of a single Grooved Ware pot (V52. Lochrie, below), carefully set in a ring of small

stones. The pot, which had a smoked exterior and traces of an internal organic residue, would appear to have been used in a domestic context, prior to deposition. The fill around and over the pot was silt with moderate amounts of charcoal identified as non-oak roundwood (Timpany, below). The pottery dates the pit to the later Neolithic.

**25** (Illus 15, 16).

This bowl-shaped pit was 1.01m x 630mm and up to 260mm deep. The basal fill was a reddish-brown charcoal rich deposit (25/3), slightly softer in the centre (25/4), with considerable heat-colouration of the underlying natural sand. It had been sealed by clean redeposited natural (25/2) which was heat-coloured to pink at the edges, possibly indicating that the charcoal in the basal deposit may have been still burning when it was sealed. The upper fill (25/1), which contained a single sherd of undiagnostic pottery (V74. Lochrie, below), may be a remnant of a more general layer that accumulated as the pit fills sank, and may post-date the original use of the pit.



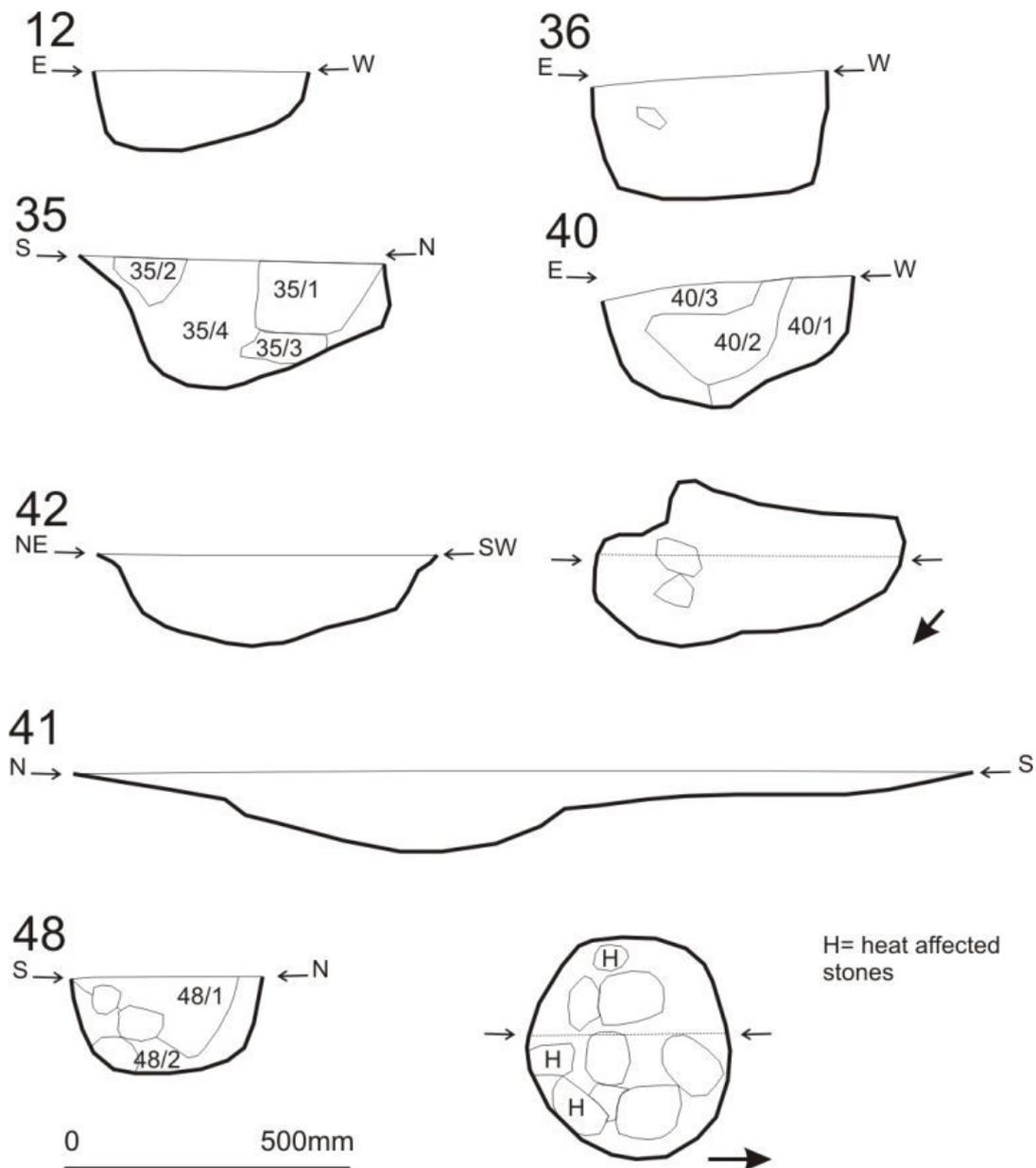
**Illus 16 Pit 25 sectioned.**

#### *Post-pits*

A number of possible post-pits were identified (Illus 17). Five of these (12, 35, 36, 40, 42) were of similar size and depth and formed a group around an irregular area c 3 x 4m. A shallow feature (41), which appeared to be a worn hollow rather than a dug

feature, may have been related. There is insufficient evidence to speculate on the form or function of this structure – it could be anything from a small pen to a drying rack- There were no finds to indicate date.

Feature 48 (Illus 17) had a large number of stones in the fill, some of them heat-cracked from a fire. While it is possible that these were disturbed packing stones, the proximity to hearth 32 might indicate other possible functions such as use as a small (pot sized) cooking pit using hot stones.



Illus 17 Post pits and possibly related features

### *Hearths*

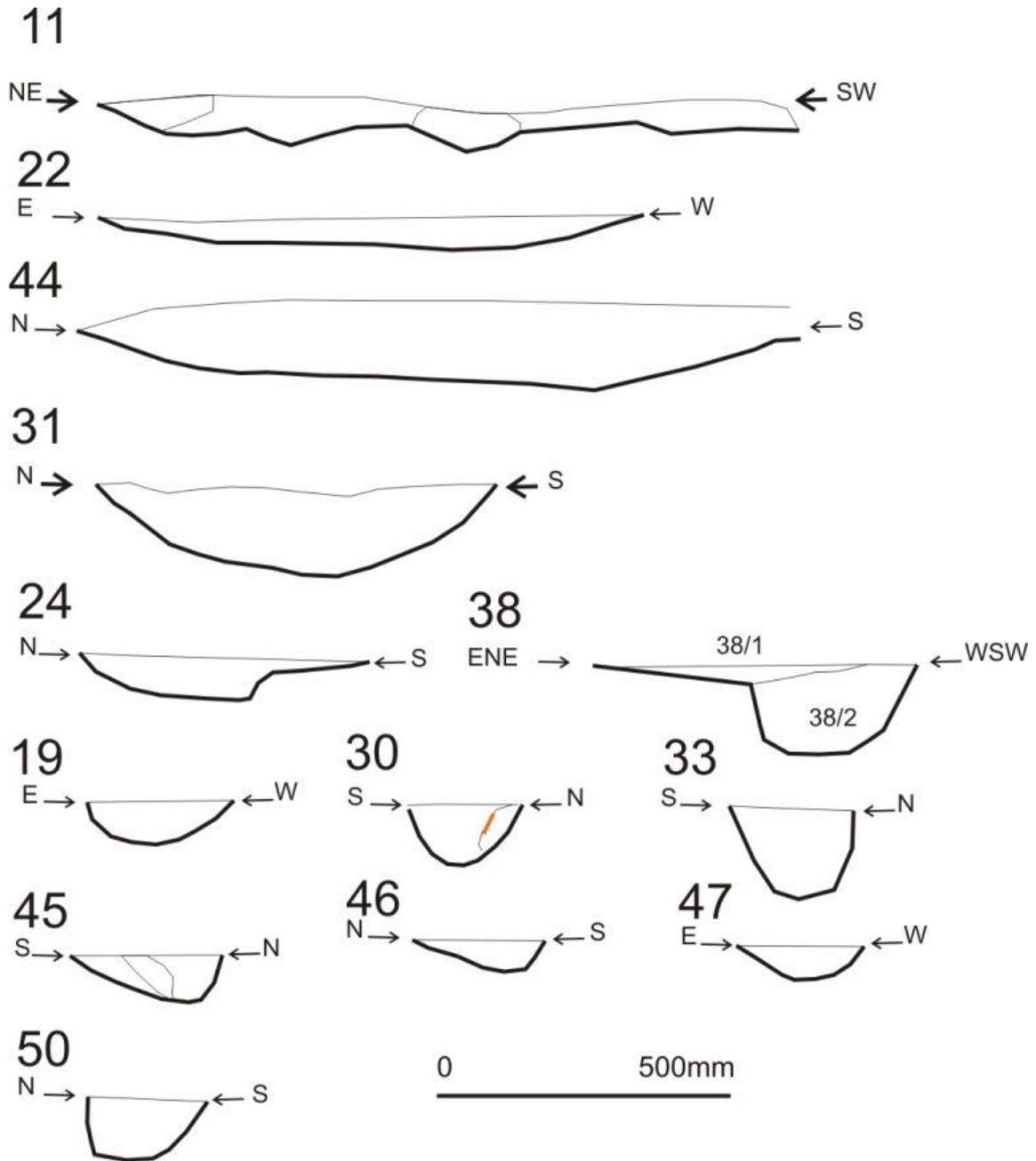
Three areas were identified (Illus 6: 32, 43, 51) where there had been fires of sufficient intensity that the natural sand had been coloured deep red and pink to depths of up to 70mm. There is no evidence of the function of the hearths; the small size makes it unlikely that they relate to the cremations. If they are domestic, they suggest repeat or intensive hearths, as in short-lived cooking fires the ash tends to act as a buffer and limit burning of the subsoil (Murray, unpublished experimental work). Only hearth 32 had traces of charcoal and a burnt stone on the surface, it may relate to the burnt stones in post pit/pit 48 (see above). Hearth 43, beside pit 18, is sealed by 18/3 and may relate to the Early Neolithic domestic activity in this area suggested by the evidence for tool making and food consumption/ preparation (Ballin, below. Timpany, below).

### *Miscellaneous features*

There are a number of features which are too indeterminate to categorise. Even allowing for truncation, some appear to be worn hollows comparable to feature 44, which was associated with pit 18 (Illus 18: 11, 22., Illus 6 :10, 20, 53) rather than the base of cut features; these may represent areas of activity which have subsequently silted up. Fills are generally silt, with occasional fragments of charcoal.

Context 22 contained crushed fragments of two Impressed Ware pottery vessels; this probably relates to contexts 52 and 23, both of which also had Impressed Ware pottery, dating this to the Mid-Late Neolithic.

Context 53 had two charcoal patches (26, 34) on its upper surface and nearby two more convincing possible post pits with charcoal- rich fills (30, 33) and possible pit (31) with humic fill. These features yielded small quantities of undiagnostic pottery, all abraded or laminated, suggesting it had derived from domestic waste.



Illus 18 Miscellaneous features

## 6 Charred Plant Remains

S Timpany

### Introduction

Four samples were assessed from the site. Samples were taken from four Neolithic pit features (Pits 9, 16, 18, 49). This report provides the findings of an assessment of the charred plant remains (CPR) from the samples.

### Methods

Samples were processed in laboratory conditions using a standard flotation method (cf. Kenward *et al.*, 1980). This was then sorted by eye and any material of archaeological significance removed. All plant macrofossil samples were analysed using a stereomicroscope at magnifications of x10 and up to x100 where necessary to aid identification. Identifications were confirmed using modern reference material and seed atlases including Cappers *et al.* (2006).

### Results

The results are presented in Appendix 5: Table 1 (retent sample results) and Table 2 (flot sample results). All plant material was preserved by charring.

#### *Charred plant remains*

Charred cereal grain was recovered in two samples (01 and 02) from pits features 18 and 49 (see Table 2). The charred grain assemblage from these two features consists of small quantities of naked barley (*Hordeum vulgare* var *nudum*), probable naked barley (cf. *Hordeum vulgare* var *nudum*) and probable wheat sp. (cf. *Triticum* sp.). Remains of indeterminate cereal grains (*Cerealia* indet.) too degraded to be able to identify to Family or Species level were also found in small quantities. Preservation of the grain was found to be generally poor with only a few grains being able to be identified to species level and broken grains also present.

The only wild taxon present was charred hazel (*Corylus avellana*) nutshell fragments, which were found in abundant quantities within Sample 01; the fill [18/2] of pit 18. Fragment size was observed to range from almost entire nuts through to very small fragments within the sample. Together with the nutshell, the remains of the actual nut were also present in rare quantities within Sample 01.

Charcoal fragments were present in all of the samples with fragment size ranging from <0.5 to 2.1 cm (see Appendix 5: Tables 1 and 2). Abundance of charcoal fragments ranged from rare to abundant, with samples 01 and 02 in particular containing high quantities of charcoal. Charcoal fragments were observed by eye to represent a mix of oak and non-oak charcoal timbers being used as fuel wood. Samples 02 and 04 were also found to contain the remains of roundwood charcoal fragments, likely to represent small branches or rods. Charcoal of twig/roots was also present in Sample 04.

### *Other finds*

Together with the CPR a small range of other materials were also recovered from the processed samples (see Appendix 5: Table 1). Prehistoric pottery sherds were retrieved from three samples (01, 02 and 04) from pits 18, 49 and 16. Worked lithics were found in one sample (01) from pit 18. These were added to the pottery and lithics assemblages. Small quantities of burnt mammal bone were present in two samples (01 and 03) from pits 18 and 9.

## Discussion

### *Neolithic Pit features*

Charcoal fragment were the main CPR to be recovered from the pit features (see Appendix 5: Tables 1 and 2). Fragments were observed to be representative of both oak and non-oak taxa being used as wood fuel, with the presence of roundwood fragments suggesting the use of small branch wood and/or coppiced rods. The occurrence of small fragments of twig/root material suggests a range of different sized timbers were used for wood fuel.

Charred hazel nutshell fragments were found in abundant quantities within pit 18, together with a small quantity of the actual nuts indicating they were being consumed at the site. Hazel nuts have been noted by numerous authors as having been a common wild foodstuff collected by Neolithic peoples (e.g. McComb and Simpson 1999; Bishop et al, 2009). The nuts would have provided a good source of fats, protein, carbohydrates and vitamins, particularly vitamin E (Monk 2000). Pit 18 also contained small quantities of burnt bone and charred cereal grains of naked barley, probable naked barley and indeterminate grain, together with prehistoric pottery

sherds and worked lithics. The assemblage as a whole suggests the discard of remnants of domestic and food waste.

A small quantity of charred cereal grain of naked barley, probable wheat sp and indeterminate grain was recovered from pit 49 together with prehistoric pottery sherds. The pit is again suggestive of representing discarded domestic and food waste. The grain assemblage as a whole from the site indicates naked barley was the main cultivar with wheat sp. also possibly being grown and may represent species such as emmer wheat (*Triticum dicoccum*) and bread wheat (*Triticum aestivum*), which have been recovered from other Neolithic sites in Aberdeenshire (e.g. Timpany, 2008; Murray et al, 2009). This small assemblage of mainly naked barley and probable wheat has been found to represent the main cultivars from Neolithic sites across Scotland (Bishop et al. 2009).

Pits 9 and 16 were found to contain prehistoric pottery sherds and burnt bone, respectively, together with charcoal fragments. Again it seems likely these pit contents reflect domestic and food debris.

### Conclusions

Charcoal fragments of both oak and non-oak taxa were present in all samples.

There is some evidence for agricultural activity from the presence of a small number of naked barley, probable naked barley, probable wheat sp. and indeterminate cereal grains.

Charred hazel nutshell fragments together with charred nuts from within the shell, within pit 18 indicates the consumption of nuts took place.

The assemblages of the pits indicate they contained domestic and food waste.

## 7 The Cremated Human Remains

D Henderson.

### Background

The material was recovered from six contexts: 21/2, the fill of a vessel (V68), which

had been partly truncated by the plough, this material was excavated in three spits; 27 contained a small quantity of cremated human bone in the charcoal-rich fill of a shallow pit; 28/1, 28/5 and 28/7, various fills of a pit, of which 28/7 was the primary deposit of remains, probably in a container, 28/5 material incorporated in surrounding backfill and 28/1 a secondary deposit inserted into the top of the pit-fill; 29 contained a small quantity of cremated remains throughout the fill of a shallow truncated pit.

### The Cremated Bone

A total weight of 617 g of cremated bone was recovered from pit 28 (with 28/1 contributing a scant 20 g), 159 g was recovered from the vessel fill 21/2, 68 g from 27 and 72 g from 29. As a complete adult body will yield an estimated weight of cremated bone of between 1616 g (female) and 2284 g (male) (McKinley 1994), these weights do not represent meticulous collection of every piece of bone from the pyre. Almost all the material was of a white or a very light beige colour and was highly fragmented, with deep longitudinal and transverse fissuring, honeycombed articular fragments and warping. The complete calcination of almost every fragment (a very few fragments were a smoky grey colour, and less than 1% of the material was black) suggests sustained exposure (? over seven hours) to temperatures in excess of 800° Celsius (Lyman 1994, 386), producing very complete cremations.

The assemblage from each context was sorted by passing it through sieves of 10 mm and 5 mm meshes. A few fragments had a maximum dimension of over 50 mm, but most of the bone was in angular fragments of less than 10 mm maximum dimension. As a result of the highly fragmented nature of the material, very little could be positively identified to skeletal element. A catalogue of all identified items is available in the site archive (Appendix 7).

With the exception of a few possible faunal fragments in pit-fill 29, all the identifiable material was human bone, all areas of the skeleton were represented (including small bones of the hands and feet) and no duplication of skeletal elements was noted within each deposit. In comparison with the proportions found in a complete, unburned, skeleton (McKinley 1986, 66), cranial fragments were over-represented and axial elements were under-represented. In the former case, ease of identification has biased the representation of cranial fragments, in the latter it is probable that the mechanical structure of the bone and its position at the centre of the pyre has led to greater

destruction of axial elements.

*Urn Fill 21/2.*

The single individual in the fill of the urn (V68) was represented mostly by fragments of limb bones; some of the fragments were from robust bones with well defined muscle attachments, leading to a tentative identification as male. Only four items of bone from the assemblage were from the skull. As the vessel had been truncated, it is possible that large cranial fragments had been the first to be collected from the pyre (and so were lost along with the base of the urn). The absence of smaller cranial items, such as tooth roots, which would be expected to have percolated towards the "lower" fills of the urn as it was inverted (as found) suggests that there may have been a genuine absence of skull parts in the vessel. As noted above, complete gathering of the remains is rarely found in prehistoric cremations (Mays 1998, 220 -4). No age indicators were evident in the material, although the individual was fully adult.

*Pit 28.*

Context 28/7 was identified as the primary deposit of bone within the pit, and yielded 420 g of cremated remains. All areas of the skeleton were represented, material from the skull, vertebrae, ribs, upper and lower limbs, and fingers and toes were identified. The bone was quite gracile in appearance with no pronounced muscle-scars, the left zygomatic frontal process was smooth and slender and a frontal fragment included the sharp edged upper border of the right orbit with a poorly defined temporal line, suggesting that the individual was female (W.E.A. 1980). All tooth-roots were fully developed, indicating a minimum age of 20 years at death. In the material overlying this deposit (28/5), a further 177 g of bone was recovered. The material was of the same colouration and general robustness as that of the primary deposit, no duplicated items were found and two exactly matching items of bone were identified: the tips of matching petrous temporals were recovered from each deposit. This finding indicates that some, if not all, the remains in both deposits are of the same individual.

Context 28/1 contained a small handful (20g) of cremated bone, inserted into the top of the fill of Pit 28 some time after the initial deposition of the female. It is impossible to determine if this material derived from the same individual. No duplicate bones were identified.

*Context 27.*

The fill of a truncated pit with a small deposit of 68 g of cremated bone. Bone was identified as deriving from an adult (lower molar root completely formed).

*Context 29.*

Cremated bone (72 g) found throughout the fill of a truncated pit. Very little identifiable, the form of some of the cancellous bone suggests some admixture of faunal material. Probably does not derive from a pyre.

## 8 The Finds

### 8.1 The Prehistoric Pottery

Julie Lochrie

#### Introduction

The pottery assemblage numbers 371 sherds, weighing 8.170kg. There are at least 105 vessels present but for the most part these are very fragmentary and represented by few sherds. More substantial portions were present for five vessels (V52, V54, V55, V68 and V80). The assemblage is multi-phase with examples of several different vessel forms including Carinated Bowl pottery, Impressed Ware, Grooved Ware and a bucket-shaped cremation urn.

The excavations were focused on two areas, situated around 230m apart, and mostly revealed features of apparently domestic, funeral and ritual function. The majority of features and pottery were discovered in Area 2, with at least 85 of the vessels found there. The dates from the pottery in this area indicate activity throughout the Neolithic and the middle to later Bronze Age. Evidence from Area 1, by contrast, was limited to eight small truncated features of uncertain purpose likely dating to the earlier and later Neolithic.

#### Methodology

The pottery analysis was carried out using a hand-lens and stereomicroscope where necessary. Measurements are in millimetres (mm) and grams (g) unless otherwise

stated. The following abbreviations have been used: thickness (Th), diameter (Dia), small find (SF) and vessel (V). The term small, medium and large sherds are used, defined as follows: 10-30mm, 30-70mm, >70mm. The term fragment is applied to any sherd below 10mm. A complete pottery catalogue can be found in Appendix 4.

Vessel numbers have been used to indicate where multiple sherds belong, or may belong, to the same pot. In the case of pit 49 the minimum number of vessels was based on feature sherds or sherds clearly belonging to the same vessels. The plain body sherds which could not be related to other sherds were catalogued individually under their small find number (SF102, SF103, SF106, SF108, SF116, SF117, SF123, SF128, SF130, SF131, SF134, SF136, SF139, SF160 and SF184).

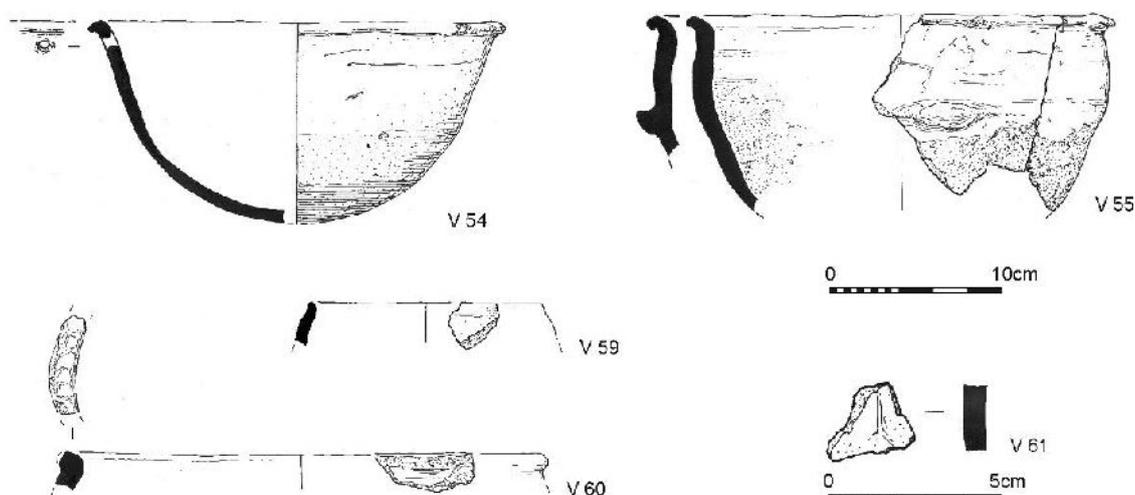
In a few instances it was difficult to discern the type and date of the pottery and these have been discussed separately below.

### The Pottery

*Carinated Bowl Pottery* (Illus 19).

#### **Summary**

There are at least 29 vessels, represented by 68 sherds, belonging or probably belonging to the Carinated Bowl tradition (V16-20, V23, V42-46, V48-51 and V54-67). Most vessels consist of only one or two sherds. This pottery was found in both areas, in the following contexts: Topsoil, [001], [005], [008], [010], [011] [018]. The most remarkable examples are the fourteen vessels from pit 18 in Area 2.



**Illus 19 Carinated Bowl Pottery (Illustrated by Jan Dunbar).**

## Area 1

Whilst there is evidence for other Neolithic pottery types from Area 1 the evidence for pottery of the Carinated Bowl tradition comes from an everted rim sherd and saggy base sherd (V6, V7) from pit 1 and the two burnished sherds (V16, V17) from pits 5 and 8 respectively. The sherds from pit 1 are of similar thickness, c 14mm, and although they are abraded, finger smoothing is visible on the interior of V6. The sherds from pits 5 and 6 are of similar thickness, between 10mm and 13mm, and in the case of V17 it is clearly a large sherd from the lower belly of the vessel.

## Area 2

The other examples of Carinated Bowl pottery are all from Area 2 with pit 18 containing the most numerous and complete examples. The pit 18 assemblage includes the 60% complete V54 and 20% of V55 (Illus 11, 12, 19). These vessels stand out from the rest of the sherds in this feature as they are very large and have clearly been crushed *in situ*. In terms of condition the sherds range from fairly fresh to lightly abraded, nothing which would suggest the vessels had been left out in the elements before being incorporated into the pit fills. The unusual deposition suggests something other than simple domestic waste which is typically found deposited in small pieces (eg Westgate, Lochrie 2010 b).

Sherds from V54 and V55 were found in (18/1) and (18/2) and two conjoining rim sherds from (18/2) and (18/3). This suggests either that the fills were contemporary, or that each period of deposition involved disturbing the underlying fill.

There are four main forms present amongst the vessels from pit 18: a simple open carinated bowl (V54); a lugged bowl (V55); finger fluted vessels (V58, V60, V61, V62); and a plain sub-hemispherical bowl (V59).

The first of these, V54, is a simple, elegant bowl, burnished to a high shine. It has an open, everted neck with a rolled rim, gently rounded carination and hemispherical base. It would have had a rim diameter of around 240mm. The fine, thin fabric and burnishing disguise much of the production method but a horizontal break line along the belly may be the weak point of a coil join. Two hourglass shaped post-firing perforations positioned either side of a break are likely to be repair holes. There are five other vessels which appear to be similar in form to V54: everted neck sherds

(V56, V57, V63); simple everted/rolled rims (V56, V60); and a small, thin gently curving sherd (V65), but too little remains of these to be certain of overall form.

The second type is represented by baggy-based bowl V55. It has a single upturned lug, upright walls, and a pinched out/rolled, shortly everted rim which has been very inconsistently smoothed under on the exterior, leaving a fairly rough appearance. This vessel has an estimated diameter of around 270mm, only very slightly larger than V54.

The three finger fluted vessels are all represented by a single sherd, each from a different fill with no evidence to suggest they are from the same vessel. They are all well-made and either burnished or smoothed, measuring between 7mm and 10mm in thickness. Rim sherd V60 deserves mention in relation to these sherds, as it has undulating finger impressions to the top of a P-shaped rim. The impressions are of similar width to the finger fluting, although much more shallow. It seems unlikely that these impressions are manufacture marks when the sherd is so well smoothed and burnished. Most probably this sherd is from a finger fluted vessel where the decoration has been continued up onto the rim.

Lastly, the plain sub-hemispherical bowl (V59) is the only example of its type from this context, although it is very similar to the rim sherd of V174 found in context 53. Vessel 59 is represented by a single rim sherd with a shallow concavity to the exterior, 9mm below the rim, enhancing the very slightly everted shape and acting as a small, rounded carination. The overall form would have been baggy or sub-hemispherical.

The other vessels from Area 2 which belong to this tradition include: a small, sharply carinated sherd from the topsoil (V23); and a ripple burnished sherd (V50) from context 11.

### **Comparanda & Dating**

The evolving terminology for Carinated Bowl pottery has been covered at length in several other publications and for these reasons has not been repeated here. The terminology used is the same employed by Sheridan in her publication of the Warren Field Neolithic pottery (Sheridan 2009), similar abbreviations have also been employed and Carinated Bowl will henceforth be abbreviated to CB.

The finger fluted, baggy-based and lugged vessels, in particular, fit within a subset of the CB tradition often termed 'Henshall's north eastern type' (Henshall 1984; 1996)

or more recently CBNE (Sheridan 2009). This sub-style of pottery was identified as being similar to traditional CB pottery but with minor modifications or as Sheridan terms them 'style drifts' (*ibid*). Dates for this 'style drift' indicate it began rather early within the Neolithic, from as early as c 3800 BC (e.g. OxA-8132, OxA-8131, OxA-8133, Deers Den, Alexander 2000, 17; GU-9155, Dubton Farm, MacSween 2002, 41; Warren Field, Sheridan 2009, 92). The examples of CBNE from Kintore, Aberdeenshire suggest they had a long life span, with associated dates ranging from 3810-3650 cal BC to 3710-3620 cal BC and with a particularly late outlying date of 3030-2880 BC (MacSween 2008, 179). The radiocarbon date retrieved from pit 18 is not as early as some of the dates for CBNE (3707 – 3636 cal BC, SUERC-42979) but certainly sits comfortably within the expected date range,

The sub-hemispherical bowl, V59, has comparatives from slightly further afield. There are similar examples from Powmyre Quarry, Angus where a radiocarbon date of 3650-3380 cal BC was retrieved (GU-19633, Sheridan *forthcoming a*). Other similar pots from Balfarg, Fife were identified as belonging within Group 2 of Cowie's scheme which has a date range of 3670-3345 cal BC (GU-2606) (Cowie 1993, 69). Although these dates are slightly later than the C14 date (SUERC-42979) retrieved from pit 18 there is nothing to suggest this vessel was not deposited at the same time as the CBNE.

This CB assemblage fits well within the growing body of evidence for CB pottery and early Neolithic occupation in Aberdeenshire (eg Blackhall, Lochrie 2010b; Boghead, Henshall 1984; Pitdrichie, Lochrie 2010a; Pitglassie, Henshall 1996; Kintore, MacSween 2008; Warren Field, Sheridan 2009; Balbridie, Fairweather and Ralston 1993).

### *Impressed Ware* (Illus 20)

#### **Summary**

Thirteen vessels from four contexts were identified as probable Impressed Ware: V8-15 from Area 1; and V69-73, from Area 2.

#### **Area 1**

Pit 3 contained three examples of Impressed Ware (V8-10: Illus 20). V11-V15 are not diagnostic but can be identified as probable Impressed Ware due to being found in the

same pit. V10 is a fragmentary lug which although similar in fabric to V9, did not appear to belong to either V8 or V9.

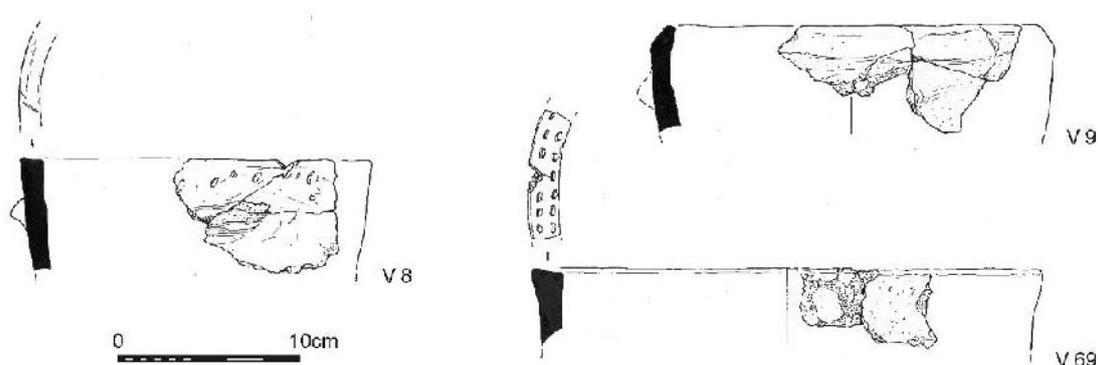
V9 is fairly simple in form; it has a rounded, inturned rim with a rounded to fairly sharp carination *c* 20mm from the rim. A fold of clay and thick, kicked out edge near one of the breaks strongly suggests the location of a lug or other applied feature.

V8 has a squared rim which is slightly expanded on the exterior, although there are no carinated sherds present it is possible that this vessel was carinated like V9. The decoration to V8 consists of fairly random fingernail impressions. Both vessels are of a similar size, with rim diameters of 210mm and 235mm and both have been surface treated, either by a slip or by wiping or smoothing.

## Area 2

Contexts 22 and 52 contained almost identical vessels, V69 (Illus 20) and V71 (they did not conjoin although could convincingly be from the same vessel). The vessels have two rows of horizontal fingernail impressions to the internal rim bevel and a random fingernail impression just above the sharp carination. V69 is around 220mm in rim diameter, V71 is similar but may in fact be a little larger at 250mm. A second Impressed Ware vessel from pit 22 was similarly decorated on the internal bevel with fingernail impressions, in this instance a single row.

The two vessels, V72 and V73, from pit 23 are not particularly diagnostic but share a few characteristics with the other Impressed Ware and their proximity to pit 52 suggests they would best fit within this group. V72 is a thick straight body sherd and V73 includes a small upright rim with internal bevel and two small body sherds, all are undecorated.



Illus 20 Impressed Ware (Illustrated by Jan Dunbar).

## Comparanda & Dating

The Impressed Ware from Area 1 has strong stylistic ties to the CBNE found at Inverurie but the use of fingernail decoration on V8 and their association with later Neolithic lithics (see Ballin, below) implies they are more likely to belong to the Impressed Ware tradition. Impressed Ware pottery dates between *c* 3500 BC and 2900 BC (Kinbeachie, 3500 – 2920, MacSween 2001, Table 1, 63; Kintore, 3530 BC – 3340 BC, MacSween 2008, 181; Meadowend Farm, 3350 BC - 3000/2900 BC, Sheridan *forthcoming b*). Its long lifespan overlaps at its latter end with the use of Grooved Ware (MacSween 2007, fig33.4, 371).

*Grooved Ware* (Illus 21).

## Summary

Grooved Ware was only identified in Area 2. The vast majority (sherds representing 25 vessels) was found in a single pit 49 (V80-105). Further vessels from pit 9 and pit 16 are also probable Grooved Ware.

## Form and Decoration

*Pit 9 and pit 16:* Pit 9 contained a straight sided, slightly shouldered vessel, V40, with a concave internal bevel, no base sherds were present. It has been classed as Grooved Ware due to its overall shape, which is similar to the rest of the Grooved Ware vessels. Its identification is not certain, however, and it is possible that it is in fact Impressed Ware.

The vessel from pit 16 is fairly small and tub shaped, with a rim diameter of 200mm and a base diameter of 145mm. It is undecorated and has sooting and organic encrustation on its exterior indicating its probable use for cooking.

*Pit 49:* The Grooved Ware in pit 49 (Illus 13, 14) included 13 rims with four main forms: pointed (V91); rounded (V90, V86); squared (V88, V84, V52); and bevelled (V82, V85, V87b, V89). Most rims were upright or gently inturred though in some cases they were so small it was difficult to reconstruct more of the wall profile.

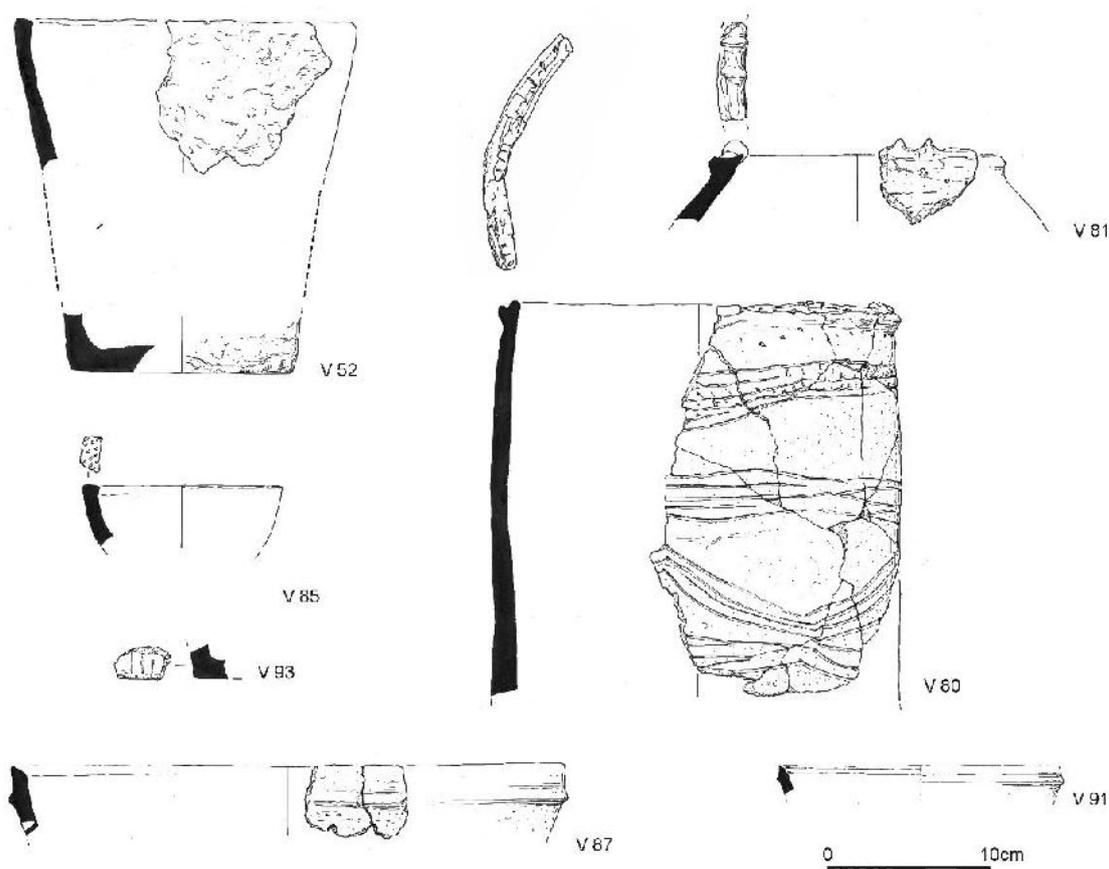
There were only three examples of base sherds and in two instances it was possible to estimate a base diameter of between 145 and 180mm. This wide base is typical of Grooved Ware. The base of V52 (Illus 21) was very straight sided, while V92 and V93 are slightly kicked out (Illus 21: V93). These latter two also show vertical lines

of incised decoration, implying the vessel was decorated over the whole surface. All over body decoration of this type is another defining characteristic of Grooved Ware. Grooved Ware is typically highly decorated and the examples in this assemblage are no exception. The decorative techniques employ a range of incised and applied decoration. Incised decoration is by far the most common, appearing on 10 examples (V80, V91, V92, V93, V95, V99, V102, V103, V104). The lines are a mixture of shallow grooves and deeper, sharper incisions and there is one example of complex incised decoration used to give a false relief affect The applied decoration almost exclusively takes the form of applied strips or cordons (V80, V81, V87a, V89, V91, V98, V100, V105) but in the case of V81 the applied decoration takes the form of small strips or 'pellets' placed over the top of the rim (Illus 21). There is no evidence for pinched out cordons although in some cases the manufacturing technique is impossible to distinguish. The three examples of impressed motifs include small deep dots, larger circular and sub square (V80, V81, V85) impressions. The least common form of decoration occurs on V87 and V89. These final two vessels include decoration a little different to the other impressed examples (see below).

In a few cases the overall vessel form and decorative scheme could be discerned and these examples deserve further discussion. Two examples (V91, V85: Illus 21) are represented only by single rim sherds, but the decoration is unique within the Grooved Ware assemblage. The rim of V91 is completely upright and gently pointed. It has two incised horizontal lines to the interior below the rim, and a small horizontal ridge on the exterior. The decoration to V85 is more unusual for Grooved Ware. The internally bevelled rim is decorated upon its surface with rows of very small deeply impressed dots. The rim is inturned and from a vessel of diameter up to 350mm. The next two examples are similarly decorated to each other. V87 is straight walled with a very oblique internal bevel and a cordon to the exterior, below which are conical sectioned, circular impressions which are not quite perforations but are close. V89 has a gently inturned rim with a very concave internal bevel. On the exterior, below horizontal cordons are very similar impressions to V87 which are not quite perforations, just shy of piercing the entirety of the wall.

The two most highly decorated vessels (V80, V81: Illus 21) employ a range of decorative techniques. Both vessels have fairly simple decoration to the middle and lower body with intricate details to the rims, both are also of a similar size, between 230 and 240mm rim diameter. Most remained of V80, indicating very slightly convex

walls, an inturned rim and overall barrel shape. The exterior walls of the lower body are decorated with diagonal incised lines; the highest band of lines are accompanied by small vertical stab marks; above this are a row of horizontal sub-square impressions and finally a thick horizontal cordon. The very top of the rim includes a complex pattern of vertical and horizontal scores, giving a slightly clumsy but vaguely false-relief wavy line effect. V81 is a quite different shape with a short straight neck and shoulder, its overall form is unclear. Standing up to 7mm proud of the rim are two applied strips below which is a horizontal cordon, a row of impressed dots and finally horizontal incised lines.



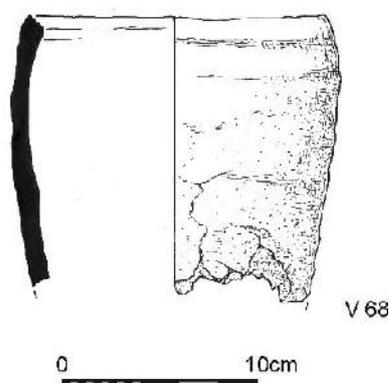
Illus 21 Grooved Ware. (Illustrated by Jan Dunbar).

### Comparanda & Dating

Few of the sherds from pit 49 could be conjoined to reconstruct the vessels, partly due to the likelihood they are from many different vessels. Only in a couple of instances could overall form be discerned. The most common type of decoration was applied cordons and incised lines. Straight sided and gently convex sided walls were most commonly noted and a range of rim forms were present. It has been noted (MacSween

1995) that it is often difficult to place Scottish Grooved Ware within Wainwright and Longworth's (1971) classification system. Vessels V155 and V169 fit best within the Woodlands sub-style (*ibid*) and can also be classed as MacSween's no. 7 (1995, 42).

Similar examples of the Woodlands sub-style can be found at Kintore, Aberdeenshire (Cook and Dunbar, 2008) Raigmore, Inverness (Simpson 1999) and Balfarg, Fife (Barclay and Russell-White, 1993). Kintore included decorative techniques such as false relief wavy lines, applied pellets to rim, applied cordons, incised decoration and sub circular impressions (MacSween 2008). Similarly most aspects of the assemblage can find parallels in the Balfarg Grooved Ware (Henshall 1993): deep circular impressions, cordons, false relief, applied strips to rims. The bases from Inverurie Paper Mill decorated with vertical incised lines are similar to one example from Kintore (*ibid*, 182, V273, Fig 143) and another from Raigmore, Inverness (Simpson 1999, 128, Illus 13.3.6). Looking further afield V155 and V169 have similarities with Woodlands style vessels from Yeavinger, Yorkshire (Sheridan *pers comm.*; Hope Taylor 1977) and Pit 7 at Garton Slack, Yorkshire (Manby 1999, 63). A radiocarbon date from pit 49 (3011 – 2878 cal BC, SUERC-42980) proves to be most closely comparable with two of the dates from Kintore (3040 – 2920 cal BC, SUERC1382; 3030-2860 cal BC, MacSween 2008, 187). It is clear however that the Woodlands sub-style does not have a tight chronological bracket as the dating from Raigmore ranges between 2873-2509 cal BC (SRR-425) and 2468-2298 cal BC (SRR-429) (Simpson 1999, 125) while the Balfarg assemblage encompasses a range of between c 3300 to 2500 cal BC (Barclay and Russell White 1993, 161)



Illus 22 Cremation urn. (Illustrated by Jan Dunbar).

*Cremation Urn* (Illus 8, 22).

Vessel 68 is a partially intact cremation urn. It is bucket-shaped with slightly convex walls and an internal bevel. It was discovered inverted in pit 21 in Area 2, the base having been ploughed away. Bucket-shaped vessels used for cremations have mostly been radiocarbon dated to between c 1600 BC and 800 BC (Sheridan 2003, 211; 2007, 169-170) and the C14 date retrieved from cremated bone from the urn does not fall outwith this date range (1499 – 1414 cal BC, SUERC-42984).

#### *Sherds/Contexts of uncertain date*

Sherds representing a minimum of sixteen vessels are of uncertain date. All of these are from Area 2 and all are almost certainly Neolithic but definitive identification has been inhibited by small sherd size and characteristics shared between wares.

In three examples (V2: pit 30; V76: pit 31; V79: pit 34) there are absolutely no diagnostic characteristics or associated evidence to aid dating.

#### **South-East pits**

Pit 10 contains six vessels, V42-47. The sherds of V43-V45 are completely undiagnostic. V42 and V46 are similarly featureless but burnishing strongly suggests they belong to the Carinated Bowl tradition. V47 is an upright slightly pointed rim sherd with medium sized thick straight body sherds, reminiscent of the Grooved Ware on site.

Pit 17 contains a very small curving sherd which may be from a carination or shoulder.

#### **North-West Pits**

There are four features and six vessels from the north-western features which are of uncertain date.

Pit 53 contains at least three vessels. V4 is a featureless body sherd but V3 and V5 contain some more diagnostic elements. V3 has some possible fingernail decoration which can occasionally appear on mod CB, commonly appears on Impressed Ware and very rarely on Grooved Ware (Simpson 1999, 129). V5 consists of a rim and body sherd which is very comparable to V59 the early to middle Neolithic sub-

hemispherical bowl. The burnishing on the sherds supports this further; however this context is situated some distance away from the other early to middle Neolithic pottery.

Pits 25 and 26 both contain very small sherds (V74, V75) which may be broken pieces of rims, carinations or applied features which have detached from the wall of the vessel. The rim sherd from pit 31 has an expanded interior and flattened top.

## **Discussion**

### *Area 1*

The pottery in Area 1 can all be dated to the Neolithic. CBNE and Impressed Ware pottery were both found in this area. Due to the similar characteristics between the two it is assumed the latter is heavily influenced by the former. However there is no evidence from the site which supports any overlap in dating. In fact later Neolithic lithics found in the same pit as the Impressed Ware suggest this dates towards the latter end of the Impressed Ware range. As CBNE is almost never dated this late, it strongly points towards two distinct phases of occupation one around *c* 3800 – 3600 BC and the other nearer *c* 3300 – 2900 BC. All the pottery appears domestic but the lack of structures and few features means speculation as to type or level of activity is hindered.

### *Area 2*

It is possible the Neolithic pottery in Area 2 represents the same occupation as that in Area 1. However, piecing together a coherent chronology for Area 2 is problematic when so many of the vessel forms are long lived and have overlaps in use. None of the different wares were found in the same pits, which as at Kintore may indicate discrete activity at different times or by different peoples (Macswen 2008, 179). Several vessels proved difficult to conclusively date and whilst almost certainly Neolithic there is no evidence for closer dating of pits 10, 17, 25, 26, 30, 31, and 35. The only structural evidence for occupation comes from a small, circular group of postholes directly north-east of pit 18 and east of pit 22 but no pottery was found here and the date of the structure or its function remains unclear.

The evidence for the earliest activity is provided by the vessels in pits 11, 10 and 18. This activity dates to the early Neolithic between at least *c* 3900 and 3300 cal BC. Pit

18 provides the most interesting part of this assemblage. The large sections from one side only of V54 and V44 are echoed at Chapelfield, Stirling, where specific parts of pots seemed to have been selected for deposition (Squair and Jones 2002, 162). This would seem to be depositional practice. One which carries with it connections far more complex than merely domestic but ritualistic activities bound within the roles of ceramic use in Neolithic society and ultimately its discard.

The Impressed Ware phase of Area 2 is the most poorly understood phase as only three small pit features can be ascribed to this phase. The small sherds and vessel types contained within would point towards domestic activity. Impressed Ware has a long period of use between 3500 BC and 2900 BC which can overlap with dates from CB and Grooved Ware traditions. As with the other wares on site there is absolutely no evidence to associate them by context or distribution and as mentioned above it is possible this indicates periods of activity at different times or by different peoples.

The Grooved Ware was found in fairly isolated pits or small pit groups which have several parallels throughout Scotland. There even seems to be a pattern during this period where one or two very large portions of Grooved Ware vessels are found in isolated pits or small pits groups accompanied with many smaller and fewer sherds from other vessels (Mountcastle Quarry, Fife, Lochrie 2008; Powmyre Quarry, Angus, Lochrie 2009; Midmill, Aberdeenshire, Lochrie 2010c; Echline Fields, South Queensferry, Lochrie 2012). Quite what the circumstances of their deposition are is not fully understood but like the earlier Neolithic pit it would seem to be a ritualised activity where an active decision was made to select material for inclusion. Residue on a few of the Grooved Ware vessels provides evidence that at some point they have been used in a domestic context.

The final phase of prehistoric activity on site is the middle Bronze Age cremation, no pottery or other artefacts post date this. The bucket-shaped urn from pit 21 is the only urned cremation but three other cremations in pits 27, 28 and 29 seem to indicate the area was used as a small cremation cemetery. The date retrieved from cremated bone from pit 28 (1387 – 1133 cal BC (SUERC-42985) indicates that this and the urned cremation, whilst broadly middle Bronze Age, were not deposited at the same date but separated by some time. This seems to suggest that the pit cremations were not directly related to the urn cremation but that the people of the middle Bronze Age still

recognised this area as a meaningful, important or symbolic place and continued to use it for several centuries.

There is no evidence whatsoever to relate the various wares with one another, despite the potential for overlap in dating. The earlier Neolithic activity probably took the form of domestic settlement with a single example of a ritualised deposit. This single example, pit 18 was related to some *in situ* burning along with large quantities of hazelnuts which may hint at some special activity involving food and fire. The Impressed Ware occurs in only a few pits and nothing is suggested by them other than domestic waste. The later Neolithic Grooved Ware, as previously discussed, is often described as ritualised in its deposition and this certainly seems to be the case here. Whilst the Grooved Ware activity is possibly ritual this type of deposition is not yet fully understood. One of the pots shows clear signs of organic residues indicating it had once been used in food preparation or consumption. The activity in the middle to later Bronze Age is separated from all other activity on site by as much as 900 years. It is the only activity on site which is not tightly bound to domestic activities and it is unlikely the site was used for settlement by the middle to later Bronze Age.

## 8.2 The Lithic Assemblage

Torben Bjarke Ballin

### Introduction

In connection with archaeological investigations at Inverurie Paper Mill, Inverurie, Aberdeenshire, numerous archaeological features were recorded. Most of these features were pits relating to funereal and ritual activities, whereas others were postholes, indicating the presence of a domestic dwelling near the pits.

Most pits contained pottery and lithic artefacts (in total, 40 lithic artefacts). The recovery of diagnostic ceramics suggested that some of the features dated to the Early Neolithic period, whereas others dated to the later Neolithic and the Bronze Age. The features were distributed across two main areas, Area 1 and 2, with the former including lithic-bearing pits 1 and 3, whereas the latter included lithic-bearing pits 9, 18, 21 and 49.

The purpose of the present report is to characterize the lithic artefacts in detail, with special reference to raw-materials, typological composition and technology. From this characterization, it is sought to date and interpret the finds to the degree this is possible. The evaluation of the lithic material is based upon a detailed catalogue of all the lithic finds from Inverurie Paper Mill, and in the present report the artefacts are referred to by their original SF no.

### Raw materials

The assemblage includes three different lithic raw materials, namely flint (35 pieces), quartz (four pieces) and pitchstone (one piece). Much of the flint is in fine-grained orange/brown/honey-coloured varieties, but the assemblage also includes coarser/impure grey and cream forms. Both flint groups are common in Aberdeenshire (Ballin forthcoming a; Suddaby & Ballin 2011), where they were probably collected from the shores of the North Sea (eg, Harker 2002). Although the lithic finds include much later Neolithic material (see below), no finds were identified as being in exotic Yorkshire flint (a small number of pieces are too heat-affected to be safely identifiable). This is in contrast to the finds from the later Neolithic ritual depositions at Midmill, also Aberdeenshire (Ballin forthcoming b), where exotic flint appears to have been specifically selected for deposition. The importation of Yorkshire flint into Scotland is generally associated with the use of the sophisticated Levallois-like technique and the later Neolithic period (Ballin 2011a; 2011b; Suddaby & Ballin 2011).

The site's quartz is white milky quartz with few impurities and acceptable flaking properties. Like in most other parts of Scotland, this quartz is thought to have been procured from local sources (Ballin 2008, 75). The solitary pitchstone flake, on the other hand, was obtained through an extensive exchange network, having been procured from outcrops on the Isle of Arran in the Firth of Clyde (Ballin 2009). The piece is in aphyric almost black volcanic glass, suggesting that it derives from sources in eastern Arran (Ballin & Faithfull 2009).

### The Lithic Finds (Illus 23).

From the excavations at Inverurie Paper Mill, 40 lithic artefacts were recovered. They are listed in Table 1 below. A small number of finds derive from topsoil, but most were recovered from a number of pits in Areas 1 and 2. Pits 1 and 3 in Area 1 yielded

two and five pieces, respectively. In Area 2, the finds were distributed across the pits in the following manner: Pit 9: four pieces; Pit 18: 15 pieces; Pit 21: one piece; and Pit 49: nine pieces. The definitions of the main lithic categories are as follows:

*Chips*: All flakes and indeterminate pieces the greatest dimension (GD) of which is  $\leq 10$  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.

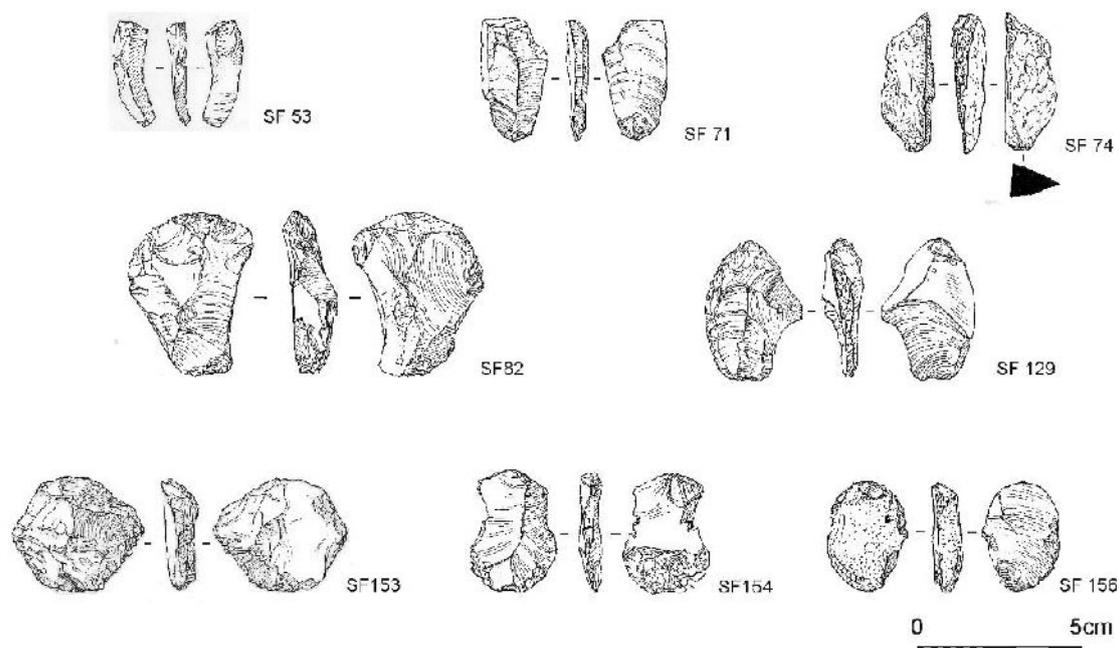
*Blades and microblades*: Flakes where  $L \geq 2W$ . In the case of blades  $W > 8$  mm, in the case of microblades  $W \leq 8$  mm.

*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).

<b>Area 1</b>	<i>Pit 1</i>	<i>Pit 3</i>				<i>Total</i>
Chips		2				2
Flakes	2	3				5
<b>Total Area 1</b>	<b>2</b>	<b>5</b>				<b>7</b>
<b>Area 2</b>	<i>Topsoil</i>	<i>Pit 9</i>	<i>Pit 18</i>	<i>Pit 21</i>	<i>Pit 49</i>	<i>Total</i>
Chips			7			7
Flakes	4	3	4	1	3	15
Blades			1			1
Discoidal cores			1			1
Bipolar cores					2	2
Scale-flaked knives					1	1
Short end-scrapers					1	1
Pieces with edge-retouch		1	2		2	5
<b>Total Area 2</b>	<b>4</b>	<b>4</b>	<b>15</b>	<b>1</b>	<b>9</b>	<b>33</b>
<b>TOTAL</b>						<b>40</b>

**Table 1. General list of lithic artefacts**



**Illus 23 Lithic artefacts. (Illustrated by Jan Dunbar).**

#### *Area 1*

##### **Pit 1 (SF 192-93)**

Pit 1 yielded two lithic artefacts, namely two fragments of indeterminate flint flakes. They are both burnt. Their greatest dimensions (GD) are 12mm and 17mm, respectively.

##### **Pit 3 (SF 187-91)**

With five pieces, the assemblage from pit 3 is numerically larger. All finds are in flint. Two of the artefacts are chips and three are flakes. It was possible to technologically define two of the three flakes, with SF 190 being an indeterminate platform flake, whereas SF 191 is a hard percussion flake, detached by the application of Levallois-like technique. Most of the pieces are smaller than 14mm, whereas the GD of SF 191 is 32mm. The latter is slightly burnt. The presence of a Levallois-like flake suggests a date in the later Neolithic period (within the Impressed Ware/Grooved Ware framework; Ballin 2011a; 2011b; Suddaby & Ballin 2011).

#### *Area 2*

##### **Topsoil (SF 40, 89, 164, 194)**

Unstratified finds from the topsoil include four flint objects. Two are indeterminate flakes, SF 164 is a hard percussion flake (manufactured in Levallois-like technique),

and SF 40 is a bipolar flake. SF 40 and one of the indeterminate flakes have been exposed to fire. The GD of the flakes varies between 28mm and 35mm. The application of Levallois-like technique suggests that SF 164 is datable to the later Neolithic period (Ballin 2011a; 2011b; Suddaby & Ballin 2011).

**Pit 9** (SF 17, 20-1, 24)

Four artefacts were recovered from pit 9, namely three flakes and one piece with edge-retouch. Two of the flakes are in flint with one flake being in milky quartz (SF 17). One flake is indeterminate, whereas it was possible to identify one flint flake (17 x 14 x 4mm) and the quartz flake (23 x 24 x 7mm) as bipolar pieces. SF 20, which is a bipolar flint flake, has sporadic retouch or use-wear at its distal left corner. SF 21 and the bipolar flint flake have been exposed to fire. This small assemblage includes no diagnostic elements.

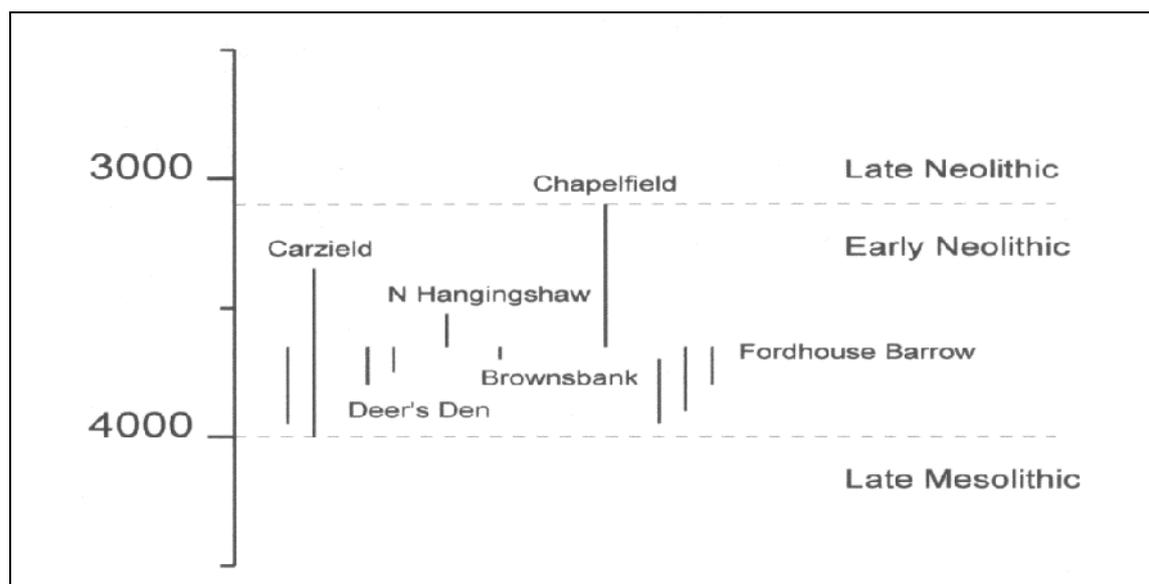
**Pit 18** (SF 53, 64-5, 68, 71, 74, 81-3, 197-202)

With 15 pieces, this assemblage is the numerically largest of the six pit assemblages from the Inverurie Paper Mill excavation. It includes 11 pieces in flint, three in quartz, and one in pitchstone (SF 71). The artefacts embrace: seven chips (two of which are quartz), four flakes (one of which is pitchstone), one blade, one discoidal core, and two pieces with edge-retouch (one of which is quartz).

Several of the flint chips are small pressure-flaked pieces, suggesting that they may be debris from the modification of tools. Two of the flakes are indeterminate flakes, with one flint flake (SF 65) and the pitchstone flake (SF 71: Illus 23) having been detached by the application of hard percussion; the flint flakes are all fragments, but the intact pitchstone flake measures 39 x 21 x 5mm. The unmodified flint blade SF 53 (Illus 23) (33 x 11 x 4mm) was manufactured in indeterminate platform technique. SF 82 (Illus 23) (51 x 40 x 14mm) is a fragmented discoidal core – most probably an exhausted Levallois-like core (Ballin 2011a; 2011b; Suddaby & Ballin 2011). One hard-hammer blade in quartz (SF 74: 43 x 18 x 11mm. :Illus 23) has proximal edge-retouch (probably to facilitate hafting), whereas the proximal fragment of a hard-hammer flake in flint (SF 81: GD 31mm) has sporadic retouch along one lateral side and ?full scale-flaking along the opposite lateral side. SF 81 may be the remains of a simple scale-flaked knife.

Four pieces from the pit (SF 68, 71: Illus 23, 81, 83) have been burnt. The pitchstone flake (SF 71) displays the characteristic colour change associated with burnt volcanic glass (Ballin 2009), with the unaffected proximal end being black, and the burnt distal end being light green and showing ‘micro-crazing’ (ibid., Plates 11, 12). It is thought that most of these pieces, not least the burnt ones, are associated with the actual pit deposition, whereas others may not be. The unburnt, pressure-flaked chips may have entered the pit with the back-fill, and therefore represent (Early Neolithic?) activities (tool production) at the site prior to the deposition, whereas the discoidal core (SF 82) was recovered from Context 18/3 over and immediately around Pit 18. If SF 82 truly is an exhausted Levallois-like core, this piece dates to the later Neolithic, and therefore post-dates the pit deposition.

The main diagnostic element of the assemblage from Pit 18 is its association with a Carinated Bowl, suggesting an Early Neolithic date. The burnt pitchstone flake corroborates this date, as it was recovered from Context 18/2, the same layer as the pottery at the bottom of the pit. On the Scottish mainland, a number of pitchstone artefacts (mostly microblades) have been recovered from radiocarbon dated pits, and the dates (Illus 24) were generally limited to the first half of the Early Neolithic period (Ballin 2009, 31). Several of these pits also included sherds of Carinated Bowl pottery and fragments of Group 6 axeheads.



Illus 24 Radiocarbon dated archaeological pitchstone from pits (Ballin 2009, Fig. 12).

### **Pit 21 (SF 196)**

Only one lithic artefact was retrieved from Pit 21, namely a small (GD 11mm) burnt bipolar flake. SF 196 is undiagnostic, but the association with an urn (containing human remains) suggests a Bronze Age date.

### **Pit 49**

The assemblage from Pit 49 includes nine lithic artefacts, all of which are in flint. Three pieces are unmodified flakes, supplemented by two bipolar cores, one scale-flaked knife, one short end-scraper, and two flakes with edge-retouch. One flake is technologically indeterminate, whereas the other two (SF 147, 150) were detached by hard percussion. SF 150 has had most of its bulbar area removed by bifacial modification and should possibly be considered a tool. Only SF 147 is intact; it measures 34 x 20 x 9mm.

The two bipolar cores (SF 153: Illus 23, 162) are fairly large pieces, with the former measuring 36 x 36 x 11mm, and the latter 44 x 65 x 15mm. SF 162 is a large bipolar flake which was subsequently recycled as a core. SF 129 is a scale-flaked knife on a ?hard-hammer flake (44 x 31 x 12mm) with regular, slightly convex scale-flaking along its left lateral side (Illus 23). This edge is relatively steep and probably represents blunting retouch. The piece most likely had a scale-flaked cutting-edge along its right lateral side, which is now missing. The implement was 'decommissioned' by placing it on an anvil and hitting it with a hammerstone. SF 156 is a well-executed short end-scraper on a bipolar flake (34 x 25 x 9mm: Illus 23). Its regularly convex distal working-edge has a notable overhang, suggesting that it is a used piece. It also has flat use-wear along its left lateral side, indicating additional use as an expedient knife. The two edge-retouched pieces are flake tools, with one (SF 154: Illus 23) flake being based on hard percussion (Levallois-like technique) and the other (SF 115) on combined hard percussion/bipolar technique (two proximal impact points). The former (GD 38mm) has distal retouch on both lateral sides, and it is missing its distal end; it may be a broken end-scraper. The latter intact tool (36 x 23 x 6mm) has two shallow concave retouches near the distal end (one either side), and it is uncertain which function(s) it served.

Two flints (indeterminate flake SF 141 and retouched piece SF 154) are burnt, with the former being from the central part of the pit and the latter from the bottom and in

contact with the feature's pottery. The main diagnostic element of the assemblage from Pit 49 is its association with Grooved Ware sherds, indicating a later Neolithic date. This date is supported by SF 154 (which may be the disintegrated remains of a scraper), and the fact that the tool blank was manufactured in Levallois-like technique (Ballin 2011a; 2011b; Suddaby & Ballin 2011).

### Discussion

During excavations at Inverurie Paper Mill, a small assemblage of lithic artefacts was recovered. Seven pieces were retrieved from two small pits (Pits 1 and 3) in Area 1, with the remainder having been recovered from four pits (Pits 9, 18, 21 and 49) in Area 2. Pit 18 was dated to the Early Neolithic period (Carinated Pottery and pitchstone); Pit 3 to the later Neolithic (the presence of a Levallois-like flake); and Pit 49 also to the later Neolithic (Grooved Ware and the presence of a Levallois-like tool blank). Pit 21 only contained one lithic artefact, a plain undiagnostic flake, but the presence of an urn suggests a Bronze Age date.

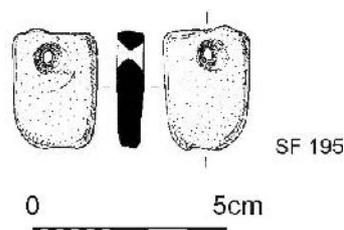
The site's chronology is complex, and although the features are dominated by pits, the lithic finds probably also represent domestic settlement at the site before, between, and after the pit depositions. This is indicated at Pit 18 by fine debris from tool making at the bottom of the feature, which is thought to have entered the pit with the back-fill (thus pre-dating the deposition), as well as by a later Neolithic Levallois-like core from the feature's immediate surroundings (thus post-dating the deposition). It is impossible to say whether the four artefacts from the topsoil represent domestic settlement or destroyed pits, but the fact that two (half) of these unstratified finds are burnt suggests the latter.

Most of the pits contained sherds or large portions of pots, and although pit 21 is definitely a cremation burial, the other (probably mainly Early and later Neolithic) lithic-bearing pits did not contain any funereal indicators and may therefore represent ritual depositions. However, although among the lithic bearing pits, only pit 21 is a cremation burial, the other depositions probably also involved the use of fire (feasting or ritual destruction of wealth by fire; cf. Larsson 2004), with almost 40% of the lithic artefacts (14 of 40) having been exposed to fire. Flake SF 83 from pit 18 has been so heavily burnt that it is technically a vitrified (superficially melted) piece.

Ritual deposition of pots with lithic artefacts is a well-known feature in the Scottish Neolithic, with Early Neolithic pit clusters being known from, for example, Chapelfield, near Stirling (Atkinson 2002, 186), and later Neolithic pits from, for example, Midmill in Aberdeenshire (Murray & Murray forthcoming; Ballin forthcoming b). Although the pits at Chapelfield and Midmill display a degree of selective deposition, many of the lithics from the present site are relatively plain, although pitchstone and scale-flaked knives may represent more valuable pieces.

### 8.3 Stone Pendant

**SF 195** A perforated stone pendant (unburnt) was found during wet-sieving of the secondary cremation deposit (28/1) in cremation pit 28. C14 dating of this secondary cremation was 1311-1115calBC (95.4%). The pendant was a naturally-shaped water-worn pebble of slightly tapering rectangular shape with an hour glass perforation from both sides. L:31mm, W: 22mm, Th: 5mm. (Illus 25).



**Illus 25** Stone pendant from pit 28. (Illustrated by Jan Dunbar).

While stone pendants are not common, there are a number of examples associated with Bronze Age cremations in E and NE Scotland. Although at least two were with female cremations, the pendants do not appear to have been gender specific. The closest parallel, found with an urned cremation is from Drumdurno, Aberdeenshire (DES 1960, 2; Aberdeen University Museums ABDUA 14750), which is with a young adult of unidentifiable gender (pers comm Margaret Hutchison), with a C14 date of 1740-1500 cal BC (GrA-19050). Others include Kiltry Knock, Banffshire, found with the cremations of an adult female, an infant and a child in an Enlarged Food Vessel Urn (Shepherd and Cowie, 1977, fig 3:1); Loanhead of Daviot found with the cremation of an adult male in the centre of the Late Bronze Age enclosed cremation cemetery (Kilbride Jones 1936, fig 10:A) and Pitcairn, Fife unstratified in a cairn associated with both a Food Vessel inhumation and urned cremations (Barclay,

1978, fig 1:b). The so-called pendant from Seggiecroock, Aberdeenshire, found associated with a cinerary urn (Callander 1905, fig 1) has two perforations and is both shaped and decorated.

## 9 Discussion

The evidence indicates that there has been intermittent use of the site between the Early Neolithic and the Bronze Age. Discussion of the nature of the use must be regarded as speculative on such a plough truncated site but is worth attempting.

Early/Mid Neolithic Early/ Mid Neolithic activity is attested by Carinated Bowl pottery (Lochrie, above), by a pitchstone flake (Ballin, above) and by C14 dates of 3707-3636 calBC from pit 18. In Area 2 there appear to be two foci of this activity. At the S end of the site there are a series of shallow hollows (11, 10, 44) and some possible post pits (45, 46, 47, 17, 37, 38, 39) in an area c 10m across, centred on hearth 43 and pit 18. Although there is little horizontal stratigraphy, hollow 44, hearth 43, 'stake-holes' 45-47 and pit 18 are all sealed by layer 18/3 and may therefore have been contemporary. The fact that they were sealed also suggests that the excavated depths are their real depths, without truncation. Hollows 10 and 11 had silty gravelly fills similar to hollow 44, with some charcoal throughout; 10 also yielded Carinated Bowl pottery. A possible post-built structure (35, 40, 12, 42, 36, and 41) to the E cannot be dated but may be contemporary or could be later.

The overall impression is of domestic activity with the apparently selected and formal deposition in pit 18 as part of, rather than separated from, this activity. The grain and hazelnuts in the pit may be a ritual offering of food, but also indicate both some of the diet and farming activities of the people who placed it there. As both Pollard (1997, 116) and Alexander (2000) have stressed ritual need not be regarded as separate from the domestic.

Alexander (2000, 65), discussing similarly ephemeral remains at Deer's Den a few miles to the S near Kintore, speculates that they may represent very light construction, possibly tents. Similarly stake holes near an Early Neolithic pit at Forrest Road, Kintore were interpreted as a windbreak (Cook and Dunbar 2008, 55-6). The evidence

from Garthdee (Murray & Murray, forthcoming) could also suggest the possibility of sod or earthen walls, but whereas on that site there was a great density of finds in the floor area, the general paucity of finds in this site (including a paucity of finds in the ploughsoil) may better be regarded as a quite short-lived use of the site. To some extent this could support Noble (2006, 59) in his interpretation of a large degree of mobility within the population. However, in view of the position of this site within the highly ritualized landscape that extended alongside the Don from Kintore up towards Inverurie, culminating at the conjunction of the Urie and the Don, it might be equally valid to propose that there may have been intermittent movement and short term settlement of small groups within the population, comparable for example to pilgrimages such as the Hajj to Mecca or the medieval pilgrim road to Compostella. On the other hand the apparent number of heavy, highly breakable pots (c. 30 CB vessels. Lochrie, above) represented on the site is more suggestive of settlement for at least months or several years/planting seasons.

The Carinated pottery from Area 1 suggests some Early Neolithic activity in this area but as the two excavated areas were some 150m apart and separated by the distinct hollow of the palaeochannel, it does not necessarily follow that the two areas of activity denote activity by the same group of people or at the exact same time.

#### Mid/Late Neolithic

Sherds from up to 13 Impressed Ware pots, in residual features (22, 52, 23) in Area 2, and from pit 3 in Area 1, where they were found in a formal deposit with a flint flake of probable mid/late Neolithic technology (Ballin, above) may be representative of a separate stage of activity on the site.

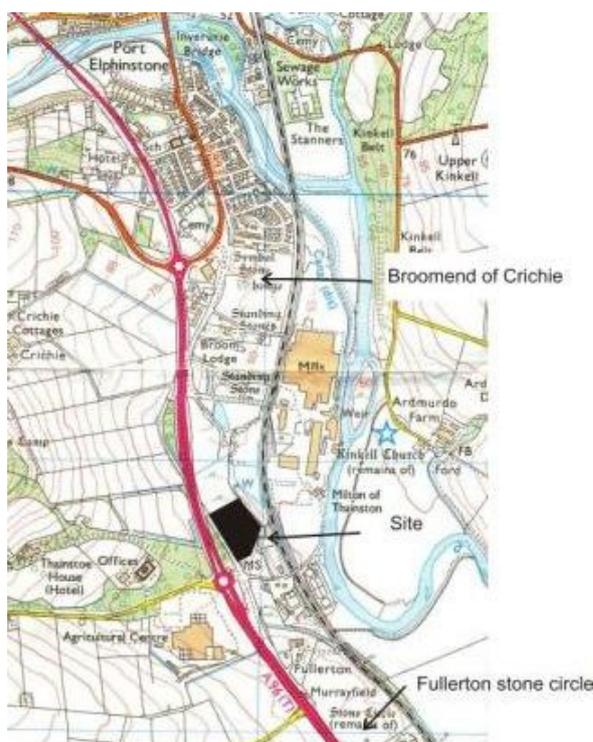
#### Late Neolithic

The definite later Neolithic activity is restricted to three pits with Grooved Ware pottery (9, 16, 49) and two sherds of possible Grooved Ware (top of 10, 26) which are near the Grooved Ware pits and may have been plough dragged. All three of the Grooved Ware pits are clearly deliberate ritualized deposits, the most significant being the large pit 49 which had a carefully sealed basal fill which can be C14 dated to 3011-2878calBC. Grain of both naked barley and wheat from this primary fill gives an indication of the diet and cultivation of the pit-diggers, but the small quantities suggest their inclusion may be incidental rather than deliberate. The upper fill appeared unstructured and may just be the result of whatever was around, possibly in a domestic context, when backfilling took place. This pit was very similar in size to

Grooved Ware pits with similar structured deposits excavated at Midmill, Kintore (Murray & Murray forthcoming and 2007, 2008, 2010) and pits 46 and 52 from Forest Road, Kintore (Cook & Dunbar, 2008,74-8).

### Bronze Age

Bronze Age activity on the site appears limited to a small group of cremations, possibly a remnant of a larger cemetery. The three dated examples range over some 200 years, the earliest cremation being in a plain urn, the later examples in simple pits. The two cremations in pit 28 show a re-use of an earlier cremation pit after one or two generations showing a precise knowledge of the earlier event and underlining the evident continuities shown in this very ploughed out cremation cluster. This series can best be seen in the context of the clusters of cremations, such as the 3 cinerary urns from S of Broom Lodge (NJ71NE0010), and the urn found at Broomend (NJ71NE0009), focused towards the henge at Broomend of Crichtie and the related monuments in that area (Illus 26).



**Illus 26 Site in relation to Broomend of Crichtie henge and avenue and to Fullerton stone circle**  
In conclusion, although the site has been badly plough truncated, the excavated evidence underlines the density of prehistoric activity along the river terraces above the Don.

## 10 References

- Alexander, D 2000 'Excavation of Neolithic pits, later Prehistoric structures and a Roman temporary camp along the line of the A96 Kintore and Blackburn Bypass', *Proceedings of the Society of Antiquaries of Scotland*, 130, 11-76.
- Atkinson J 2002 'Excavation of a Neolithic occupation site at Chapelfield, Cowie, Stirling'. *Proceedings of the Society of Antiquaries of Scotland*, 132, 139-92.
- Ballin T B 2008 'Quartz Technology in Scottish Prehistory'. *Scottish Archaeological Internet Reports (SAIR)* 26 (2008). [<http://www.sair.org.uk/sair26/index.html>].
- Ballin, T B 2009 *Archaeological Pitchstone in Northern Britain. Characterization and interpretation of an important prehistoric source*. British Archaeological Reports British Series 476. Oxford: Archaeopress.
- Ballin, T B 2011a 'The Levallois-like approach of Late Neolithic Britain: a discussion based on finds from the Stoneyhill Project, Aberdeenshire'. In A Saville (ed.) *Flint and Stone in the Neolithic Period*. Neolithic Studies Group Seminar Papers 11, 37-61. Oxford: Oxbow Books.
- Ballin, T B 2011b *Overhowden and Airhouse, Scottish Borders. Characterization and interpretation of two spectacular lithic assemblages from sites near the Overhowden Henge*. British Archaeological Reports British Series 539. Oxford: Archaeopress.
- Ballin, T B forthcoming a: The Lithic Assemblage. In A Cameron 'Excavations at the Green, Aberdeen: a medieval Carmelite House revealed'. *Internet Archaeology*.
- Ballin forthcoming b 'The lithic assemblage', in H K Murray & J C Murray *Midmill SE, Kintore, Aberdeenshire*.
- Ballin, T B, & Faithfull, J 2009: Gazetteer of Arran Pitchstone Sources. Presentation of exposed pitchstone dykes and sills across the Isle of Arran, and discussion of

the possible archaeological relevance of these outcrops. *Scottish Archaeological Internet Reports (SAIR)* 38. [<http://www.sair.org.uk/sair38/index.html>].

Barclay G J 1978 'The excavation of a cairn at Pitcairn, Glenrothes, Fife'.

*Proceedings of the Society of Antiquaries of Scotland*, 109, 361-66.

Barclay, G J & Russell-White, C J 1993 'Excavations in the ceremonial complex of the fourth to second millennium BC at Balfarg/Balbirnie, Glentworth, Fife'.

*Proceedings of the Society of Antiquaries of Scotland*, 123, 43-210.

Bishop R R, Church M J & Rowley-Conwy P A 2009 'Cereals, fruits and nuts in the Scottish Neolithic', *Proceedings of the Society of Antiquaries of Scotland*, 139, 47-103.

Callander J G 1905 'Notice of two cinerary urns and a pendant of slate found at Seggiecrook, in the parish of Kennethmont, Aberdeenshire', *Proceedings of the Society of Antiquaries of Scotland*, 39, 184-9.

Cappers R T J, Bekker R M & Jans J E A 2006. *Digital seed atlas of the Netherlands*, Barkhuis Publishing and Groningen University Library: Groningen.

Cook M & Dunbar L 2008 *Rituals, roundhouses and Romans: Excavations at Kintore, Aberdeenshire 2000-2006. Vol 1: Forest Road*. STAR: Edinburgh.

Cowie, T G 1993 'The Neolithic Pottery', in G J Barclay & C J Russell-White, 1993, 65-76.

Fairweather, A D & Ralston, I 1993 'The Neolithic timber hall at Balbridie, Grampian Region, Scotland: the building, the date, the plant macrofossils', *Antiquity*, 67, 313-23.

Harker, S D 2002 'Cretaceous', in N H Trewin (ed.) *The Geology of Scotland*. London: The Geological Society.

- Henshall, A S 1984 'Appendix 2: The Pottery', in H A W Burl, 'Report on the excavation of a Neolithic mound at Boghead, Speymouth Forest, Fochabers, Moray, 1972 and 1974', *Proceedings of the Society of Antiquaries of Scotland*, 114, 35-73.
- Henshall, A 1993 'The Grooved Ware', in Barclay, G J and Russell-White, C J, 1993, 94- 108.
- Henshall, A 1996 'The Pottery', in Shepherd, A 'A Neolithic ring-mound at Midtown of Pitglassie, Auchterless, Aberdeenshire', *Proceedings of the Society of Antiquaries of Scotland*, 126, 29-33.
- Hope-Taylor, B 1977 *Yeavinger. An Anglo-British Centre of Early Northumbria*, HMSO, London.
- Kenward H K, Hall A R & Jones A KG. 1980 'A tested set of techniques for the extraction of plant and animal microfossils from archaeological deposits', *Science and Archaeology*, 22, 3-15.
- Kilbride Jones H E 1936 'A Late Bronze Age cemetery; being an account of the excavations of 1935 at Loanhead of Daviot, Aberdeenshire', *Proceedings of the Society of Antiquaries of Scotland*, 70, 278-310.
- Larsson, L 2004 'Axeheads and fire – the transformation of wealth', in E A Walker, F Wenban-Smith, & F Healy (eds.) *Lithics in Action. Papers from the Conference Lithic Studies in the Year 2000*. Oxbow Books / Lithic Studies Society Occasional Paper 8. Oxford: Oxbow Books / Lithic Studies Society.
- Lochrie, J 2008 'Finds Assessment', in M Kimber, *Mountcastle Quarry, Letham, Fife. Results of an archaeologically monitored topsoil strip*. Unpublished Client Report, Headland Archaeology Ltd, 4-5.

- Lochrie, J 2009 'Finds Assessment', in A Robertson, *Data Structure report of an Archaeological Watching Brief at Powmyre Sand and Gravel Quarry, Glamis, Angus*, Unpublished Client Report, Headland Archaeology UK Ltd.
- Lochrie, J 2010a *Prehistoric Pottery Summary Report, Pitdrichie Quarry, Drumlithe, Aberdeenshire*, Unpublished Client Report, Murray Archaeological Services Ltd.
- Lochrie, J 2010b *Prehistoric Pottery Report, Westgate Residential Development, Blackhall Road, Inverurie*, Unpublished Client Report, Murray Archaeological Services Ltd.
- Lochrie, J 2010c *Prehistoric Pottery Report, Midmill, Kintore, Aberdeenshire*, Unpublished Client Report, Murray Archaeological Services Ltd.
- Lochrie, J 2012 *Prehistoric Pottery, Echline Field, Queensferry*, Unpublished Client Report, Headland Archaeology Ltd.
- Lyman R L 1994 *Vertebrate Taphonomy*. Cambridge.
- Mays S 1998 *The Archaeology of Human Bones*. Routledge.
- McComb, A M G & Simpson, D 1999 'The wild bunch: exploitation of the hazel in prehistoric Ireland', *Ulster Journal of Archaeological Science*, 58, 1–16.
- McKinley J I 1986 'Cremations: Expectations, Methodologies and Realities', in Roberts C A, Lee F & Bintliff J (eds.) *Burial Archaeology. Current research, methods and developments*. (= BAR British Series 211) Oxford, 65–76.
- McKinley J I 1993 'Bone fragment size and weights of bone from modern British cremations and the implications for the interpretation of archaeological cremations', *International Journal of Osteoarchaeology* 3, 283–7.

- MacSween, A 1995 'Grooved Ware from Scotland: aspects of decoration', in Kinnes, I & Varndell G *Unbaked Urns of rudely shape: Essays on British and Irish Pottery for Ian Longworth*, Oxbow Monograph 55, Oxford, 41–8.
- MacSween, A 2001 'Pottery', in G J Barclay *et al* 'A possible Neolithic settlement and Kinbeachie, Black Isle, Highland', *Proceedings of the Society of Antiquaries of Scotland*, 131, 57-85.
- MacSween, A 2002 'Pottery Report', in K Cameron, 'The excavation of Neolithic pits and Iron Age souterrains at Dubton Farm, Brechin, Angus', *Tayside and Fife Archaeological Journal*, 8, 34-42.
- MacSween, A 2007 'The Meldon Bridge period: the pottery from south and east Scotland twenty years on', in C Burgess, P Topping & F Lynch (eds), *Beyond Stonehenge: Essays on the Bronze Age in Honour of Colin Burgess*, 367–76.
- MacSween, A 2008 'The Prehistoric Pottery', in M Cook & L Dunbar, 2008, 173- 89.
- Mandby, T G 1999 'Grooved Ware Sites in Yorkshire and Northern England: 1974-1994', in R Cleal, and A MacSween, *Grooved Ware in Britain and Ireland*, Oxbow Books: Oxford, 47-57.
- Monk, M.A. 2000 'Seeds and Soils of Discontent: an Environmental Archaeological Contribution to the Nature of the Early Neolithic', in A Desmond *et al* (eds), *New Agendas in Irish Prehistory: Papers in Commemoration of Liz Anderson*, 67–87. Wordwell: Bray.
- Murray H K, Murray J C & Fraser S M. 2009 *A tale of the unknown unknowns: a Mesolithic pit alignment and a Neolithic timber hall at Warren Field, Crathes, Aberdeenshire*. Oxbow Books: Oxford.
- Murray, H K & Murray, J C 2007 'Midmill South East Kintore', *Discovery and Excavation Scotland*, 8, 25-6.

- Murray, H K & Murray, J C 2008 Midmill South East Kintore', *Discovery and Excavation Scotland*, 9, 24-5.
- Murray, H K & Murray, J C 2010 Midmill South East Kintore', *Discovery and Excavation Scotland*, 11, 25-6.
- Murray, H K & Murray, J C forthcoming *Midmill SE, Kintore, Aberdeenshire*.
- Murray, H K & Murray, J C forthcoming *Garthdee, Aberdeen*.
- Noble, G 2006 *Neolithic Scotland: Timber, stone, earth and fire*. Edinburgh: Edinburgh University Press, 59.
- Pollard, A 1997 'Excavation of a Neolithic settlement and ritual complex at Beckton Farm, Lockerbie, Dumfries & Galloway', *Proceedings of the Society of Antiquaries of Scotland*, 127, 69-121.
- Sheridan, A 2003 'New dates for Scottish Bronze Age Cinerary Urns: Results from the National Museums of Scotland Dating Cremated Bones Project', *Prehistoric Pottery, People, Pattern and Purpose, Occasional Publication No.4*, BAR International Series 1156: Oxford, 201-66.
- Sheridan, A 2007 'Dating the Scottish Bronze Age: 'There is clearly much that the material can still tell us'', in C Burgess, P Topping, & F Lynch, (eds) *Beyond Stonehenge. Essays on the Bronze Age in Honour of Colin Burgess*, Oxbow Books: Oxford, 162-85.
- Sheridan, A 2009 'The Pottery' in H K Murray, J C Murray, and S M Fraser, 2009, 81-93.
- Sheridan, A forthcoming a 'Pottery', in E Bailey & A Smith, 'The excavation of Neolithic, Bronze Age and Early Historic features at Powmyre Quarry, Strathmore, Angus', *Tayside and Fife Archaeological Journal*.

Sheridan, A forthcoming b 'The Pottery', in E Jones & A Sheridan, *Pots, pits and roundhouses at Meadowend Farm, Clackmannan, Tayside and Fife* Archaeological Committee Monograph.

Shepherd, I A G & Cowie, T G 1977 'An enlarged food-vessel urn burial and associated artifacts from Kiltry Knock, Alvah, Banff and Buchan', *Proceedings of the Society of Antiquaries of Scotland*, 108 (1976-7), 114-23.

Simpson, D 1999 'Grooved Ware Pottery from Stoneyfield, Raigmore, Inverness', in R Cleal & A MacSween (eds), *Grooved Ware in Britain and Ireland*, Oxbow Books: Oxford, 125-32.

Squair, R & Jones, A 2002 'Prehistoric Pottery', in J A Atkinson, 'Excavation of a Neolithic occupation site at Chapelfield, Cowie, Stirling', *Proceedings of the Society of Antiquaries of Scotland*, 132, 139-92.

Suddaby, I & Ballin, T B 2011 'Late Neolithic and Late Bronze Age lithic assemblages associated with a cairn and other prehistoric features at Stoneyhill Farm, Longhaven, Peterhead, Aberdeenshire, 2002-03'. *Scottish Archaeological Internet Reports (SAIR)* 45. [<http://www.sair.org.uk/sair45/index.html>].

Timpany S. 2008 *Palaeoenvironmental Analyses of Samples from Garthdee, Aberdeenshire*. Unpublished Report. Headland Archaeology Ltd.

Wainwright, G J & Longworth, I H 1971 'Durrington Walls: Excavations 1966-8, London Workshop of European Anthropologists. 1980 Recommendations for age and sex diagnoses of skeletons', *Journal of Human Evolution* 9, 517 - 49.

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