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Chapter 6

The finds

The following reports include the finds from all the sites considered in this volume. Most of the finds, including pottery and lithics, were from the timber hall; these were all plotted on site and their distribution is shown on Fig. 36. No pottery was found in the excavated pits of the pit alignment and lithics were only found in alignment pit 5. No prehistoric finds were associated with any of the smaller Warren Field sites (Murray and Murray, chapter 4.1). Pottery and lithics from the Crathes Castle Overflow Car Park site (Murray and Murray, chapter 4.2) and the single sherd of pottery from Milton Wood (Murray and Murray, chapter 4.3) are discussed here. A discussion of the results of the organic residue analysis of selected pottery samples from both the Warren Field timber hall and the Crathes Castle Overflow Car Park site follows the report on the pottery.

Throughout all reports the contexts are identified as 5/1 (etc) and small finds as SF 123 (etc).

All finds have been deposited in Marischal Museum, University of Aberdeen.

6.1 The pottery

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Introduction

The Warren Field pottery (which was all found inside or near the timber hall, Fig. 36), is a small assemblage, comprising just 133 sherds and six fragments (i.e. pieces less than 10mm × 10mm in size) and weighing only c.550g; the size of the sherds is also small, the largest being only 87mm × 51mm. Nevertheless, it is clear that numerous vessels are represented. The homogeneity in fabric, finish and colour and the small sherd size make it hard to arrive at a definitive estimate of the total number of vessels, but a tentative estimate of between 45 and 52 can be proposed. In almost every case less than one-twentieth of the vessel is represented. This assemblage can be attributed to an early stage of the Carinated Bowl (henceforth, CB) tradition.

The Crathes Castle Overflow Car Park assemblage is much smaller, consisting of just eight sherds from two vessels, weighing c.145g overall. These vessels can also be ascribed to the overall CB tradition, but they constitute an early variant (as seen at Balbridie) – Henshall’s so-called ‘northeast style’ (henceforth CBNE).

During archaeological observation of tree planting pits in Milton Wood near the Warren Field building in 2008 (Murray and Murray 2008 and chapter 4.3), a single sherd of CB pottery was found in a planting pit. Whether this belongs to the early stage of the CB tradition, or to CBNE (or indeed to a later development of the tradition), will be discussed below.

The pottery from the timber hall will be described first, then the Crathes Castle Overflow Car Park material, and finally the Milton Wood sherd. The discussion will cover all the material.

The Warren Field assemblage

Vessel forms, sizes, fabric, finish and manufacture

A detailed, vessel-by-vessel description of the assemblage is presented in archive (Sheridan 2007a). Despite the small number of ‘feature’ sherds (such as rimsherds) present, it is clear that both carinated and uncarinated vessel forms are represented, with all but three vessels likely to fall
into the former category. The uncarinated vessels (Pots 23–25) are described below.

Figures 37–41 show the rim profiles and, where reconstructable, the overall body profiles of the carinated bowls. The latter are based on careful examination of sherd profiles and on diameter estimation; rim forms are extrapolated from the range of extant rim forms as shown in Fig. 37, and neck lengths on Pots 12–15 and 18–19 have been extrapolated from similarly-shaped
carinated vessels from other ‘traditional CB’ Scottish assemblages. These vessel reconstructions are likely to encompass the full range of carinated bowl forms present in the assemblage. No example was found of the collared jar form that has been noted as a rare element in comparable assemblages elsewhere (e.g. at Claish, Stirling and Biggar Common, South Lanarkshire: Sheridan 2002, illus 19; 1997, illus 17.3).

The vessel forms (which are all round-based) range from shallow-bellied to deep-bellied bowls, with necks that are either virtually upright or that splay, to varying degrees (with Pot 11 having the widest-splaying neck). Rims are simple and rounded, and straight or minimally everted; all would have been shaped by smoothing from the interior outwards, and on Pots 1–3 this has left a very slight ridge on the exterior. The necks are straight or minimally curving and, in the case of the most widely-splaying examples (i.e. Pots 11, 16 and 17), are long and tall in proportion to the belly: the neck of Pot 11 occupies half of the overall estimated height of the vessel. Carinations are very gentle and, in some cases, near-imperceptible; with Pot 14 it would be more accurate to describe the vessel shape as S-profiled. Vessel size, as based on estimated rim diameter, ranges from c.140mm (Pot 2) to c.360mm (Pot 11), with most vessels falling within the range 170–260mm: in other words, these are medium-sized to large pots. They are also consistently thin-walled – in some cases (as with Pot 1, at just 4.9mm), very thin indeed; if one excludes one anomalous sherd (Pot 22, discussed below), the overall range is 4.3mm to 10.4mm,
Figure 38. Warren Field: reconstructions of Pots 12–15 (by Marion O’Neil)
with most sherds falling within the 5–8mm range. One feature that has also been noted in other assemblages of the CB tradition (e.g. Easterton of Roseisle, Moray; Claish, Stirling; and Eweford, East Lothian: Henshall 1983, 20–22; Sheridan 2002, illus 17.36; Sheridan 2007c) is that sometimes, with a long, splaying neck (as in Pots 11, 16 and 17), the wall thickness decreases towards the bottom of the neck. While this may give weight and stability to a long neck, it also makes for a weak point at, or just above, the carination; and it is here where the pots in question have broken. Notwithstanding
this design weakness, it is clear that considerable skill has been involved in the manufacture of this pottery: to make a large (or even medium-sized) thin-walled bowl requires experience and savoir-faire. It may be that the technique of ‘paddle and anvil’ had been used in the process; here, a smooth stone is struck against the inside of the pot while a paddle is held against the outside, to thin and extend the wall and to achieve a smoothly-curving wall. The absence of the relevant tool-marks from the Warren Field assemblage may simply mean that they were successfully eradicated; traces have been noted in the CBNE assemblage from Balbridie (Cowie and Greig forthcoming).

As regards fabric, once more the assemblage shows a marked consistency (excepting Pot 22): it is very fine, with lithic inclusions generally no larger than 2mm x 2mm and a density of 3% or less. They mostly comprise angular and subangular fragments of a speckly crystalline rock, which has been identified by geologist Fiona McGibbon (pers. comm.) as diorite, and also fragments of its constituent minerals – quartz, feldspar and amphibole. Given the abundance of diorite in
Aberdeenshire (with the Insch granite-diorite complex outcropping not far to the northeast of Crathes), this material could well have been obtained locally. Some of these inclusions probably represent material that had been deliberately crushed and added as filler to clay that had probably been refined through levigation; but the smallest fragments may well have been present naturally in the clay, and suggest that the clay is from an area rich in degraded diorite; once more a local source is likely. Regarding finish, with the exception of Pot 22, the surfaces have all been very carefully smoothed and in many cases they have a slip-like appearance, but this could have been produced through carefule wet-smoothing, combined with rubbing with a material such as animal skin while the clay was leather-hard, rather than by the application of an actual slip. This treatment may well have produced the low surface sheen noted on the interior and exterior of many sherds (e.g. SF 165, Pot 9: Fig. 37); and the occasional presence of tiny mica platelets (once more probably of local origin) lends the surfaces a slightly glittery appearance. In a few cases, a more enhanced surface sheen was achieved through burnishing, at the leather-hard stage, using a pebble or a round-ended spatula of bone or wood. The burnisher used on the exterior of the thin-walled Pot 1 had left traces in the form of indistinct, roughly vertical facets where it had been rubbed up and down, while on Pot 17 (a large bowl with splaying neck), and on a belly sher’d SF 184, the burnisher had produced a more diffuse set of subtle undulations (Fig. 42). On Pot 21 (not illustrated) – another large bowl, probably with a splaying neck – the potter had produced a decorative effect by rubbing the burnisher up and down the neck and deliberately leaving the vertical flutings thus produced clearly visible. This feature is echoed in Pot 16 – yet another bowl with splaying neck – where a similar, but matte, effect (called ‘fingertip fluting’) has been achieved by running a fingertip up and down the neck while the surface was still malleable (Fig. 39). Some correlation would therefore seem to exist between splaying-neck bowls and special surface treatments, but this relationship is not exclusive.

As regards the firing of the carinated bowls, the occasional presence of a dark core (indicating incompletely burnt-out natural organic matter in the clay) suggests rapid firing; but in most cases, the fabric is the same colour throughout, indicating that the pots had been evenly fired. Most of the pots are medium to dark brown in colour; several are black, with these colours having been produced during the firing process.

Four carinated bowl sherds (SF 75 and 227 from axial pit 30, SF 189 from post-pit 71/2 and SF 115 from the topsoil) have cereal grain impressions (Fig. 43), whose species has been identified as bread wheat (Timpany, pers. comm.). These were accidental inclusions, whose presence could be taken to indicate that pottery manufacture was carried out within the domestic context.

Before discussing the uncarinated vessels, it is necessary to mention Pot 22 (not illustrated),
which is represented by a single belly sherd (SF 107, a topsoil find) from a large vessel which is thicker (at c.15mm), coarser-textured and less carefully finished than the rest of the assemblage of carinated bowls. While the vessel’s overall shape cannot be reconstructed, it is nevertheless possible that it comes from a carinated bowl; its lithic inclusions are the same as in the other pots, and there is no need to doubt that this had originally been part of the early Neolithic assemblage. Similar, slightly coarse vessels are occasionally encountered as rare elements in other assemblages of traditional CB pottery (e.g. at Biggar Common, South Lanarkshire: Sheridan 1997, 203).

The uncarinated vessels comprise a small bowl (Pot 23) from pit 30, a smaller bowl or cup (Pot 24) from post-pit 116/1 (=117), and a tiny cup-like vessel (Pot 25) from post-pit 131 (Fig. 41). Around a third of Pot 23 is present; it has an estimated rim diameter of c.160mm and wall thickness of c.10mm and, like Pot 22, its surfaces have not been as carefully smoothed as those of the fine carinated bowls. Wipe marks are clearly visible on the interior, and one of the rim-and-body sherds has broken along a ring joint line, indicating an unevenly-shaped ring joint. The inclusions are of the same rock type as those seen in the rest of the assemblage, but they are larger (ranging up to c.4mm in length) and slightly more abundant (3–5% density). Pot 24 is represented only by a single rim sherd, but enough survives to suggest a rim diameter of 70–80mm. The sherd is thinner-walled (6.2mm) and finer in fabric than Pot 23. Pot 25 is a tiny thumb-pot, just 50mm in its rim diameter and c.5mm deep, its uneven walls (c.6mm thick) reflecting the fact that it had been formed by manipulating a lump of clay. Its inclusions are the same as those seen in the rest of the assemblage, ranging up to 3mm in size, and are at a density of c.3%.

**Function**

Clues as to the vessels’ functions are provided by their shape, size, and evidence for organic encrustations and absorbed lipids (Soberl and Evershed, chapter 6.2). The uncarinated vessels—or at least, Pots 23 and 24 if not also the tiny cup Pot 25—may well have been used as drinking vessels, while some of the carinated bowls had probably been used for serving, and others for cooking foodstuffs. Some could have been used as storage pots, albeit not for large amounts. The special surface finish accorded to some of the widely-splaying bowls suggests an emphasis on display, and hence their probable use as serving vessels. Evidence for cooking is arguably provided by very occasional (and mostly very thin) blackish-brown organic encrustations, seen mostly on the interior surface but occasionally on the exterior (or on both surfaces). It is assumed that this represents the burnt-on remains of the vessels’ former contents, with exterior encrustations indicating spillage (rather than sooting from a hearth). Encrustations were noted on eight sherds, in six cases (SF 25, 54, 59, 80, 104 and 195) occurring on the belly (and being present on the exterior as well as the interior in the case of SF 54 and 80). A relatively thick, crusty deposit covers much of the exterior of the large neck sherd SF 186 (Pot 20, Fig. 40), and rim sherd SF 45 (Pot 6, Fig. 37) has a very thin patch on its exterior surface. The lipid analysis undertaken by Soberl and Evershed confirms that some of the Warren Field pots (and the Crathes
Castle Overflow Car Park pots) had indeed been used for cooking, with traces of ruminant dairy fat and of porcine fat being detected. Whether the ruminant dairy fat in the four samples that showed evidence of heating above 300° C had resulted from the practice of sealing pots with milk while still hot from their initial firing, or from subsequent cooking using dairy fats – timber in a hearth would ignite around 300° C – is hard to prove, but the latter seems likely. The presence of the pig adipose fat – interestingly in the slightly distinctive pot 22 – provides excellent evidence for the use of the pots for cooking.

The evidence for burning of some of the pottery, and its likely cause, is discussed in the next section; suffice it to say here that the use of vessels for cooking is unlikely to have produced the burning-related features that were noted.

Spatial and contextual distribution: taphonomy

As discussed below and elsewhere in this volume (Murray and Murray, chapter 3.3) this pottery relates to activities undertaken during the occupation of the building. Most of the assemblage will probably have found its way into its contexts of discovery around the time of the building's destruction.

The pottery was unevenly distributed (Fig. 36), with around a third of the assemblage (by sherd number; c.140g by weight; around an eighth by estimated vessel number) coming from the axial post pit 30, having arrived there after what has been interpreted as the extraction of a massive post. Most of the rest comes from the post-destruction fills of the post pipes and wall slots of the perimeter walling, especially in the eastern part of the structure, with only a few sherds coming from interior features other than pit 30. (Of the nine small sherds found in context 71, the fill of a possibly disused post-pit in Partition 4, six probably derive from a single vessel.) No pottery was associated with the 'special deposit' pits (89 and 90) in which so much burnt flint was found. Only a few sherds were found in contexts thought to pre-date the destruction of the structure (all being at the structure's east end), but there is no apparent difference between these and the material found in contexts deemed to post-date the destruction phase. Nor is there any obvious patterning with regard to the distribution of particular shapes or sizes of vessel. The small size and homogeneity of the sherds makes it difficult to detect instances where parts of the same vessel had ended up in different parts of the site, and such identifications remain tentative, but in most cases the sherds in question come from adjacent or nearby features (e.g. rim SF 144 from wall trench 115 and neck SF 254 from post-pit 116/1 (=117), together constituting Pot 17, Fig. 39; other possible links are noted in the full catalogue in archive). Most of the other, longer-distance possible linkages may be due to plough movement, particularly where the material in question (as with SF 136) had been found in the topsoil; but in no instance was the distance thus travelled greater than ten metres (as was the case with sherds from Pot 5, Fig. 37, where one rimsherd (SF 43) was found in post-pit 11 and another (SF 138) came from post-pit 114).

As regards the condition of the pottery and the circumstances of its deposition, the unabraded or lightly abraded condition of virtually all of the sherds suggests that they had probably not lain around for long (or, at least, had not been subject to much wear and tear) before entering the fills of the post-pits and wall trenches in which they were discovered. Furthermore, considering the degree of burning involved in the destruction of the building, remarkably few sherds show any sign of significant heat alteration (e.g. oxidation to a pale colour or softening of the fabric), as seen for instance on SF 164 (from 115/1) and SF 210. The latter belongs to Pot 18 and was found in axial pit 30, context 30/2, having apparently arrived with other burnt material – including sherd SF 82 from Pot 11, scorched on one side – shortly after the removal of the post and the burning of the structure. Another sherd from Pot 18, SF 205, which was found in the silt that had subsequently entered pit 30 (30/3), was unburnt. Notwithstanding this paucity of obviously-burnt sherds, a notable feature of the assemblage is the high incidence of spalling, with one third of all the pieces consisting of spalls, or of sherds from which spalls had become detached. While spalling usually occurs during the initial firing of a vessel (Gibson 2002), it can also result from post-depositional burning, as research into the effects of forest fires on buried archaeological material in the United States has confirmed (Winthrop 2004). This work has concluded that spalling takes place when the temperature of the burning exceeds that of the vessel's initial firing (which in the present case may, by analogy with CB pottery from Ireland.
(Sheridan 1991), have been around 900°C. As already seen (Murray and Murray, chapter 3.3), the temperature reached by the burning building could, by analogy with experimental results, have reached or exceeded this. Where spalling occurs during firing, the detached spalls are unlikely to remain part of the active ceramic assemblage; but at Warren Field, their frequency suggests that they may well have been produced during the burning of the structure. If they had been protected in some way from the full force of the flames (e.g. by fallen roofing material), this might account for their unoxidised appearance and hardness.

Overall, the presence of small but relatively fresh-looking fragments from numerous vessels, and the position of the pieces within the post-destruction fills of post-pits and wall trenches, suggests the accidental incorporation of material that had been lying in their vicinity inside the building. Plough-truncation of the structure’s floor surface will no doubt have led to the destruction of any other pottery, left in the building at the time of its destruction, which may have been associated with the structure’s use.

The Crathes Castle Overflow Car Park pottery
The aforementioned two pots from the Crathes Castle Overflow Car Park are as follows:

Pot 1: (CCOC SF 6; not illustrated): represented by a single sherd, probably from the upper belly of a thin-walled, fine-textured carinated bowl with vertical, fairly deeply-indented fingertip fluting on its exterior.

Pot 2: (CCOC SF 1, SF 2, and SF 3; Fig. 44): seven sherds, from the rim, neck and belly of a large, thick-walled shallow bowl, with an estimated rim diameter between 260mm and 290mm, a probable depth of c.75mm, and a wall thickness that varies from 16.5mm at the rim, to 13mm at the point of maximum curvature, and 14.5mm at the lower belly. A thin organic encrustation is visible on the interior within this black area, concentrated at the point of the vessel’s maximum curvature; again, this represents the last traces of the vessel’s former contents (Soberl and Evershed, chapter 6.2). The sherds’ fracture surfaces are generally not markedly abraded so, as with Pot 1, it is unlikely that they had lain around for long before being incorporated within their contexts of discovery. The lithic inclusions of both pots constitute minerals of the same speckly igneous stone as noted in the Warren Field pots.

Figure 44. Crathes Castle Overflow Car Park: reconstruction of Pot 2 (by Marion O’Neil)
The Milton Wood sherd

In 2008, a single sherd (not illustrated) was found in Milton Wood, Crathes Castle Estate (Murray and Murray 2008). It is from a flanged rim, whose upper surface has spalled off; the angle between the rim flange and the neck would have been nearly 90 degrees. The sherd is of the same fine fabric and finish as those from the fine pots from the Warren Field timber hall and from the Crathes Castle Overflow Car Park, and it is very likely to belong to the overall CB tradition. See below on where, in the overall development of the CB tradition, this sherd might belong.

Discussion

The assemblages from the Warren Field and Crathes Castle Overflow Car Park sites are of particular interest because they represent closely-juxtaposed variants of the early Neolithic CB tradition. The Warren Field assemblage constitutes a classic example of the earliest, widespread variant – that is, ‘traditional CB’, to use the current author’s terminology (Sheridan 1985; 1997; 2002; 2007b) – while the Overflow Car Park assemblage, found just c.300 metres away, would appear to represent ‘modified CB’ pottery of a type mainly seen in northeast Scotland (Henshall’s ‘northeast style’, our ‘CBNE’: Henshall 1983; 1984). While the latter assemblage remains undated, clues as to its chronological relationship with the Warren Field pottery are provided by another, larger assemblage of CBNE pottery found just across the river at Balbridie, and by a growing body of reliable radiocarbon dates for CBNE pottery elsewhere. This relationship will be explored below. The stylistic attribution and possible dating of the Milton Wood sherd will also be discussed below.

The Warren Field assemblage is typical of traditional CB assemblages in every respect – its vessel shapes (with carinated forms predominating) and sizes, its rim and carination forms, its wall thickness, fabric and surface finish, and its methods of manufacture. These vary little over the large geographical area in which traditional CB pottery has been found (i.e. much of Britain and most of Ireland) and this consistency, together with the fact that this pottery has been made by skilled potters, following an established tradition, supports the view that its makers were initially members of immigrant, pioneering farming communities, rather than acculturated indigenous Mesolithic communities. (See Sheridan 2007b for a detailed discussion of CB pottery, its origins, and its relationship with early farming communities in northern Britain.) That these communities were in contact with each other from a very early stage is demonstrated, at Warren Field, by the presence of imported Arran pitchstone (Warren, chapter 6.3 and cf. Sheridan 2007b); it may also be shown in the choice of a speckly igneous stone as the pottery filler, since similar material has been noted in several other traditional CB assemblages in Scotland (e.g. at Claish, Stirling (Sheridan 2002) and from Eweford and Pencaig Hill, East Lothian (Sheridan 2007c)). It is also present in the Balbridie CBNE assemblage, although there crushed quartz/ite predominates. This use of the same general kind of stone as a filler in different assemblages need not imply the circulation of the pottery itself, but rather a sharing of knowledge as to what constitutes a good type of stone to protect vessels from thermal shock during firing; diorite and granite, being igneous rocks, are ideal.

The Warren Field assemblage is also typical of those found in comparable early Neolithic timber halls in Scotland – including the newly-discovered example from Lockerbie and also including Balbridie, with its CBNE assemblage – insofar as it is a fairly small assemblage, comprising small amounts of a considerable number of vessels. (By way of comparison, the Warren Field assemblage amounted to c.0.55kg of pottery representing 45–52 vessels; at Claish, the figures are c.2.7kg and 60–68 vessels; at Balbridie, c.2.9kg and 60+ vessels (Cowie, pers. comm); and at Lockerbie c.0.8kg and 46+ vessels). This, plus the similarly small lithic assemblages from these buildings, may well relate to the taphonomy of these structures: if each was deliberately decommissioned and burnt down, then some kind of clearing out may have occurred as part of the decommissioning. The size and nature of these ceramic assemblages contrasts with that of some traditional CB assemblages from other kinds of site in Scotland. In terms of the abundance of pottery present, on a square metre by square metre basis the small (c.11m × 8m), oval house recently excavated near the mouth of the Dee at Garthdee, Aberdeen (Murray 2005; Murray and Murray 2005b) – and which is associated with reliable radiocarbon dates that are statistically indistinguishable from those relating to Warren Field – has produced a significantly more
substantial assemblage than has Warren Field and the other large buildings. Furthermore, several examples could be cited, from other settlement and funerary sites, where much larger body sherds, and/or much greater proportions of individual vessels, are represented (e.g. Newbridge, City of Edinburgh; Auchategan, Argyll and Bute; Carzfield and Cairnholy, Dumfries and Galloway; and, with CBNE assemblages, Boghead and Eastern of Roseisle, Moray: Sheridan 2007b, Fig. 8; Piggott and Powell 1949; Henshall 1983).

The Warren Field assemblage is one of a growing number of finds of traditional CB pottery in northeast Scotland (Sheridan 2007b, Fig. 1), the next nearest of which comes from a pit at Park Quarry, Durriss, less than 7 kilometres to the east along the Dee (Shepherd and Greig 1991). The aforementioned Gartside find is c.20 kilometres to the northeast along the river; and the broader distribution of this type of pottery suggests that its users were attracted to the rich agricultural soils of this part of Scotland. The radiocarbon dates obtained for the Warren Field assemblage – with the results of Bayesian analysis placing its use between 3810–3760 cal BC (start) and 3780–3700 cal BC (end) (68% probability; see Marshall, chapter 5) – are consistent with the overall picture that has been emerging for traditional CB pottery throughout its area of distribution (Sheridan 2007b). As far as most of Britain and Ireland is concerned, it constitutes the earliest type of pottery to be used.

Just as the number of finds of traditional CB pottery is growing in northeast Scotland, so are the finds of CBNE pottery, as seen for example at the Crathes Castle Overflow Car Park and at Balbridie nearby (see Sheridan 2007b, Fig. 1 for a distribution map). The main characteristics of CBNE pottery were originally defined by Audrey Henshall (1983) and have been reviewed recently by the author in the light of more recent discoveries (Sheridan 2007b). Essentially, this type of pottery represents an early and innovative deviation from the ‘traditional CB’ canon, while still retaining very close links to its ‘parent’ tradition. The links are demonstrated, for example, in the continuing use of certain vessel forms, with carinated bowls featuring prominently (as at Balbridie) and being represented in Pot 1 at the Crathes Castle Overflow Car Park; similarly, the tiny pinch-pot ‘cup’ form noted in the Warren Field assemblage (Fig. 41) is also present at Balbridie (Cowie and Greig forthcoming). The continuing use of fingertip fluting is reflected in the Balbridie assemblage, and is again represented in Pot 1 in the Overflow Car Park. Where the CBNE style deviates from traditional CB pottery is in a greater variability in vessel form, wall thickness, surface finish and fabric (with a greater incidence of relatively coarse fabrics); a greater incidence of fingertip fluting and of fluted, or ‘ripple’ burning; and also the occasional use of lugs or of impressed or incised decoration, as seen in Pot 2 in the Overflow Car Park (Fig. 44). Indeed, it is this latter pot that has determined the Overflow Car Park assemblage’s attribution to the CBNE style since, on its own, the fingertip-fluted sherd representing Pot 1 could equally have belonged to a traditional CB assemblage. The Overflow Car Park Pot 2 finds generalised parallels in other CBNE assemblages: its comparanda include the slightly coarse but still nevertheless carinated bowls from Eastern of Roseisle, Moray (Henshall 1983, Fig. 3.21–2) and the four angular bipartite coarseware bowls from Balbridie (Ralston 1982, Fig. 1; Cowie and Greig forthcoming). The latter, along with other angular-profiled decorated vessels from CBNE assemblages (e.g. Urquhart, Moray: Henshall 1983, Fig. 5.3.7 and Spurrryhillock, Aberdeenshire: Cowie 1997, illus 6, SF 2) have plausibly been proposed as forerunners of the Unstan Bowl, as seen in Orkney and in the Western Isles in contexts dating from c.3600 cal BC (Henshall 1983; Cowie 1997).

As regards the chronological relationship between traditional CB pottery and the CBNE style – and, more specifically, between the Warren Field assemblage and those from the Crathes Castle Overflow Car Park and Balbridie – it has been recognised for some time that CBNE pottery represents a very early case of ‘style drift’, emerging not long after the initial appearance of the tradition as a whole (Sheridan 2002). Marshall’s Bayesian analysis of the Balbridie and Warren Field radiocarbon dates (chapter 5) makes it clear, unfortunately, that the currently-available set of dates from Balbridie do not allow us to make a definitive statement about sequence and interval here; the addition of half a dozen new high-quality dates for the Balbridie structure would help resolve the uncertainty. However, looking at the wider picture for well-dated CBNE assemblages (Sheridan 2007b, Fig. 6 and Appendix), it seems likely – even without carrying out Bayesian analysis – that CBNE could have emerged within a few generations of the first appearance of CB pottery. The newly-obtained radiocarbon date of 4995±35
BP (GrA-34772, 3940–3660 cal BC for cremated human bone associated with CBNE pottery at the funerary monument at Midtown of Pitglossie (Shepherd 1996; Sheridan and Bradley 2007) confirms this impression. In this author's opinion, then, the CBNE pottery found at Balbridie and in the Crathes Castle Overflow Car Park postdates the Warren Field pottery, but not necessarily by very long; by one or two generations at the most. Indeed, it could be that the Balbridie structure was built by the immediate descendants of the people who built and burned down the Warren Field structure – or even by those people themselves. The pottery suggests that it is not necessary to posit exact contemporaneity (and intervisiblity) between these two large buildings.

A final point relates these observations on ceramics to the dynamics of the hypothetical colonisation process, as elaborated elsewhere by the author (Sheridan 2007b). As Fig. 34 demonstrates, the construction of large structures such as Warren Field occurred over a short period at the beginning of the CB Neolithic. (The subsequent revival of the practice several centuries later, for instance at Littleour, need not concern us here.) One plausible explanation would be to see the construction of Warren Field as a communal house for a group of immigrant farmers from the Continent. The suggested ceremonial initiation of the structure by planting its axial posts, and its subsequent labour-intensive construction, would both express and reinforce the incomers' identity, and stake a claim to the land.

The last pottery to be considered here is the single sherd found in the Milton Wood tree planting pit; and here the fact that it was a single stray find, unassociated with any other sherds, means that one has to approach its 'reading' with caution. While the angularity of the rim flange does not find any close parallels among the CB pottery at Warren Field, or among the CBNE pottery at Balbridie, nevertheless it could, theoretically, belong within either variant of the CB tradition. It could also conceivably belong to a slightly later development of the CB tradition. The earliest kind of CB pottery in Scotland does indeed include some carinated bowls with markedly everted rims (e.g. at Carzield, Dumfries and Galloway (pot 1: Sheridan 1993) and Auchategan, Argyll and Bute (Marshall 1978, fig. 13c); and although the Warren Field building assemblage contains no vessels with rims closely comparable to this, an early stage in the CB tradition cannot be ruled out. Flanged rims are apparently rare in the CBNE repertoire, although one example is known from Midtown of Pitglossie (Shepherd 1996, illus 14.6). They feature prominently in a slightly later variant of CB pottery, found in several parts of Scotland and also in Northern Ireland (e.g. at Achnacre and at Balloch Hill, Argyll and Bute: Henshall 1972, 303; Peltenburg 1982, fig. 12, 250).

A radiocarbon date relevant to this variant has recently been obtained from a site at Culduthel, Highland, indicating its use c.3600–3500 cal BC (Cook pers. comm.). However, with these slightly later pots, the rims are usually heavier than the Milton Wood example. Whatever its actual date, however, it is likely that this sherd belongs within the first half of the fourth millennium BC.

6.2 Organic residue analysis of pottery from Warren Field timber hall and the Crathes Castle Overflow Car Park site
Lucija Šoberl and Richard Evershed
Introduction
The porous nature of unglazed pottery vessels ensures that, during the processing of food and other organic materials, lipids become absorbed into the vessel wall. These lipids include remnant animal fats, plant oils and plant waxes, which are known to survive in archaeological deposits for several thousand years (Evershed et al. 1999). They are recoverable by solvent extraction, and are then quantified and identified by high temperature-gas chromatography (HTGC), GC/mass spectrometry (GC/MS; Evershed et al. 1990) and GC-combustion-isotope ratio mass spectrometry (GC-C-IRMS; Evershed et al. 1994; Mottram et al. 1999).

Identifying from lipid extracts the types of commodity processed in the pottery vessels rests on detailed knowledge of diagnostic compounds and their associated degradation products arising during the use or burial of the pot. For example, triacylglycerols, which are the major constituents of modern animal fats and vegetable oils, are degraded to diacylglycerols, monoa cylglycerols and free fatty acids during burial/vessel use. In archaeological pottery, free fatty acids commonly dominate lipid extracts (Evershed 1993), with their origins having been verified through laboratory degradation experiments (e.g. Charters et al. 1997; Dudd and Evershed 1998; Evershed 2008).