**The Charred Plant Remains from an early Bronze Age Ring-Ditch at Carterton East (CACE18)**

***by Sharon Cook (Charred plant remains) and Julia Meen (charcoal)***

## *Introduction*

This report describes the charred plant remains and charcoal recovered from eight soil samples taken from the central cremation (samples 20000 and 20001) and fills of the barrow ditch (samples 20002-20007) during the excavation in 2018. All samples were processed using a modified Siraf-type water flotation machine to 250µm (flot) and 500µm mesh (residue) and the flot material sorted using a low power (x10) binocular microscope to extract cereal grains and chaff, smaller seeds and other quantifiable remains.

The flots were also examined to determine whether charcoal identification could be undertaken to characterise the range of wood taxa utilised at the site. In all of the samples, charcoal was of small size and potentially identifiable fragments were low in number; only 15-25 identifications were therefore possible per sample. In samples 20004, 20006 and 20007 no charcoal was of sufficient size for any identifications to be made.

## *Methodology*

Seed identifications were carried out using standard morphological criteria for the cereals (Jacomet 2006) and with reference to the Digital Seed Atlas of the Netherlands (Cappers et al. 2006) for identification of wild plant remains, as well as comparison with modern reference material. Classification and nomenclature of plant material follows Stace (2010).

Quantification of charred plant remains is as follows: cereal grains and the seeds of wild plants were only quantified for items of which more than half was present, this means that all cereal and seed counts may be used to reach an MNI (Minimum number of individual seeds). For legumes, chaff and nutshell fragments the count is for all observed fragments, this means these figures are not suitable for use in calculating MNI.

The five samples selected for charcoal identifications comprised three samples from barrow ditch, and the two sampled spits of the central cremation deposit itself. Samples 20002 and 20003 are both from a dark stabilisation fill within the barrow ditch, while sample 20005 is from the upper fill.

Charcoal identifications were made by fragmenting each selected piece along the transverse, radial and tangential planes as required and examining the exposed sections at up to x400 magnification using a Brunel Metallurgical SP-400BD microscope. Species identification was carried out on the basis of diagnostic anatomical characteristics and following the keys in Hather (2016) and Schweingruber (1990). Nomenclature follows Stace (2010). Wood taxa identifications from the five examined samples are shown in Table 1.

## *Results*

Table 1 lists the charred plant remains identified from each sample. The condition of the charred material is generally poor with the many seeds having damaged and/or missing exterior surfaces as well as heavy external encrustation in many cases. Some seeds in poor condition are identifiable only to family or genus. Generally, the assemblage described here is very is similar to that reported from the evaluation of the same feature (OA 2018).

Land snails of varying species are also present within all flots and include *Cecilioides acicula* which is a modern burrowing snail and likely to be intrusive, for many samples this snail forms the majority of the snail assemblages.

Table 2 provides the charcoal identifications.

## Discussion

### Charred plant remains

The Cremation deposit

The central cremation deposit was sampled in two spits and the majority of charred material was recovered from the lower of the two. Charcoal was common in both spits and is discussed further below, in addition small fragments of hazelnut shell (*Corylus avellana*) and tubers and roots from false oat grass (*Arrhenatherum elatius var. bulbosum*) are present together with two small seeds of wild plants.

The hazelnut shell is a common find within Bronze Age contexts as are the false oat grass tubers; this is a native grass which is commonly found in both cultivated and uncultivated fields and pastures and can be used as livestock fodder. Its presence in large quantities may indicate a pastoral regime although it is commonly found within Bronze Age cremations across north-western Europe and a ritual explanation cannot be ruled out (Roehrs et al. 2012). Robinson (1988) has suggested that the grasses may have been utilised as tinder for the funeral pyre with the bulbs surviving the burning process due to their larger humidity, with the remainder of the grass burning to ash, while Stevens (2008) has hypothesised that they may be the result of the topsoil layer (with accompanying turf) being utilised as a fire barrier and later added to the pyre.

The Barrow Ditch

Of the six samples from the barrow ditch; three originate within the upper fill (Grp 20097), two within the middle fill (Grp 20096) and one within the lower fill (Grp 20095).

The samples from the upper fills contain the largest amount of non-charcoal charred material with all three containing small quantities of cereal grain. While the majority of this grain is in very poor condition, two have features typical of emmer wheat (*Triticum dicoccum*) and one is possibly barley (*Hordeum* sp.). In addition, a single fragment of glume wheat chaff is present but does not retain sufficient characteristics to identify it further although given the date and tentative identification of the grain it seems likely to be emmer. Emmer wheat was a common crop during the Bronze Age and was gradually replaced by spelt (*Triticum spelta*) within the archaeological record during the Iron Age.

The uncultivated plant seeds include vetches (*Vicia/Lathyrus*) and grass seeds (Poaceae) and other plants common in peripheral areas such as field margins such as the various docks (*Rumex* spp.). It is interesting that sample 20004 includes there are a number of fat hen seeds (*Chenopodium album*) which are charred.

Chenopods are frequently discounted within archaeological assemblages as it can be difficult to differentiate charred seeds from uncharred seeds forming part of the soil seed bank. In this case the fact that the seeds were partially ‘exploded’ showed that they were indeed charred. The seeds are commonly assumed to be from weeds of cultivation, but fat-hen may also be a foodstuff (Renfrew and Sanderson 2005, Nesbitt 2005) and it has been suggested as a “lost crop”. However, this interpretation has usually been suggested where the charred seeds are present in much larger

quantities than is the case here, and typically these assemblages are dated to the Neolithic period where they are associated with einkorn wheat (*Triticum monococcum*) (Mueller-Bieniek, Pyzel & Kapcia 2018).

The samples from the middle and lower fills of the ditch contain very little material other than small fragments of charcoal.

*Charcoal*

Cremation deposit 20001

The central cremation deposit was excavated in two spits; of these, lower spit 2 contains a slightly greater quantity of charcoal and shows better preservation. In both spits oak is the dominant taxon, with a small number of diffuse porous fragments amongst the pieces examined. These include blackthorn (*Prunus spinosa*), Maloideae (a group of closely related taxa very difficult to distinguish using anatomical characteristics, which includes hawthorn, apple and whitebeam) and probable field maple (*Acer campestre*).

These results suggest that oak was the main fuel wood used to form the cremation pyre. Oak is an excellent fuel for cremations, being both sturdy enough to form the pyre itself as well as burning at the high temperatures required to consume a body (Campbell 2012: 30). Although not found exclusively, it is often the case that charcoal from prehistoric cremations is composed of a single species, and most commonly this species is oak. An Early Bronze Age cremation from Cotswold Community, located in Ashton Keynes around 20km to the south west of the current site, contained only oak charcoal (Challinor 2010). In a cremation cemetery of the same date, from the site of Gravelly Guy situated just over 10km to the east of Carterton, all but one of the associated charcoal deposits was dominated by oak, with small quantities of hazel and Maloideae type charcoal in some (Gale 2004).

Barrow ditch 20000

There were some differences in the charcoal assemblages from the two samples taken from the dark stabilisation layer in barrow ditch 20000. Almost a third of the identifiable charcoal in sample 20002 was oak (*Quercus* sp), with the remainder dominated by hawthorn type (Maloideae). In contrast, only diffuse porous taxa were identified from sample 20003, with no evidence for oak. The charcoal in this sample is in fairly poor condition, and consequently a large number of the examined items have been given provisional identifications, or are identified only as diffuse porous. Most of the better preserved items from sample 20003 are probably hawthorn type, with a little blackthorn/cherry (*Prunus* sp). The stabilisation layer formed following initial silting in the ditch but whilst the ditch was still open, hence charcoal accumulating in the ditch may derive from activities occurring locally in the Bronze Age landscape. However, although the two samples are taken from different locations in the barrow ditch, the charcoal assemblages are too small to infer that the differences in wood species composition are significant.

The third examined sample from the barrow ditch, 20005, was slightly more mixed, containing charcoal of blackthorn/cherry, hawthorn type, oak and hazel (*Corylus avellana*). This sample was taken from the upper fill, which formed as sediment was reworked into the ditch as the barrow was ploughed and gradually levelled over; the deposit may therefore incorporate material from a mixture of sources.

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*Table 1: Charred plant remains*

| **Sample No** | | 20000 | 20001 | 20002 | 20003 | 20004 | 20005 | 20006 | 20007 |
|---|---|---|---|---|---|---|---|---|---|
| **Context No** | | 20002 | 20002 | 20014 | 20063 | 20008 | 20088 | 20040 | 20050 |
| **Feature** | | 20001 | 20001 | 20012 | 20061 | 20009 | 20020 | 20037 | 20077 |
| **Group** | | | | 20096 | 20096 | 20097 | 20097 | 20097 | 20095 |
| **Description** | | Cremation – Spit 1 | Cremation – Spit 2 | Middle fill of ring-ditch | Middle fill of ring-ditch | Upper fill of ring-ditch | Upper fill of ring-ditch | Upper fill of ring-ditch | Lower fill of ring-ditch |
| **Date** | | Early Bronze Age | Early Bronze Age | Early Bronze Age | Early Bronze Age | Middle Bronze Age | Middle Bronze Age | Middle Bronze Age | Early Bronze Age |
| **Phase** | | | | | | | | | |
| **Processed Volume (L)** | | 7 | 10 | 10 | 20 | 40 | 36 | 40 | 25 |
| **Flot Volume (ml)** | | 25 | 75 | 50 | 25 | 25 | 30 | 20 | 25 |
| **Flot Analysed** | | | | | | | | | |
| | | | | | | | | | |
| **Charcoal** | >4mm | ** | *** | ** | ** | * | * | | |
| | 2-4mm | *** | **** | *** | *** | ** | *** | ** | ** |
| | | | | | | | | | |
| **Cereal grain** | | | | | | | | | |
| *Triticum* diococcum | emmer wheat | | | | | 1 | 1 | | |
| *cf Hordeum* sp. | cf. barley | | | | | 1 | | | |
| Cerealia | indet cereal | | | | | 3F | | | |
| | | | | | | | | | |
| **Chaff** | | | | | | | | | |
| *Triticum dicoccum/spelta* | emmer/spelt glume base fragment | | | | | | 1F | | |
| *Hordeum sp.* | barley rachis fragment | 1F | | | | | | | |
| | | | | | | | | | |
| **Fruit, Nutshell etc** | | | | | | | | | |
| *Corylus avellana* | hazelnut shell | 6F | 7F | | | 3F | 1F | | |
| | | | | | | | | | |
| **Wild Species** | | | | | | | | | |
| *cf*. Fabaceae | pea family (small) | | | | | 1 | | | |
| *Vicia/Lathyrus sp. <2 mm* | vetch/vetchling/tare etc | | 1F | | | 1F | | 1F | |
| *Brassica* sp. | cabbage family | | | | | | | 2F | |
| *Falliopia Convolvulus* | black bindweed | | | | | 1 | | | |
| *Rumex sp.* | docks | | | | | 1 | | | |
| *Rumex cf acetosella* | sheep's sorrel | | | | | 1F | | | |
| Caryophyllaceae | pink family | | 1 | | | | | | |
| *Chenopodium album* | fat-hen | | | | | 10F | 1F | | |
| Poaceae | grass seeds (various) | | | | | 3 | | | |
| | | | | | | | | | |
| **Other** | | | | | | | | | |
| Indet. | seed/fruit | | | | | 1 | | | 1 |

| **Sample No** | | 20000 | 20001 | 20002 | 20003 | 20004 | 20005 | 20006 | 20007 |
|---|---|---|---|---|---|---|---|---|---|
| **Context No** | | 20002 | 20002 | 20014 | 20063 | 20008 | 20088 | 20040 | 20050 |
| Indet | root/rhysome | | 4 | | | | 1 | | |
| *Arrhenatherum elatius var. bulbosum* | false oat grass tubers | 2 | 8, 11F | | 2F | | | 1 | |
| *cf. Arrhenatherum elatius var. bulbosum* | *cf*. false oat grass roots | | 7 | | | | | | |
| | | | | | | | | | |
| *1-4, **5-24, ***25-99, ****100+<br>F Denotes fragmented or otherwise damaged/missing external details | | | | | | | | | |

*Table 2: Wood taxa identifications*

| **Sample No** | | 20000 | 20001 | 20002 | 20003 | 20005 |
|---|---|---|---|---|---|---|
| **Context No** | | 20002 | 20002 | 20014 | 20063 | 20088 |
| **Feature** | | 20001 | 20001 | 20012 | 20061 | 20020 |
| **Description** | | Cremation – Spit 1 | Cremation – Spit 2 | Middle fill of ring-ditch | Middle fill of ring-ditch | Upper fill of ring- ditch |
| **Date** | | Early Bronze Age | Early Bronze Age | Early Bronze Age | Early Bronze Age | Middle Bronze Age |
| Maloideae | hawthorn type | | | 13 | 1 | |
| cf Maloideae | cf hawthorn type | 1 | | 1 | 5 | 4 |
| *Prunus spinosa* L. | blackthorn | | 2 | | | |
| *Prunus* sp. | blackthorn/cherry | | | 1 | 1 | 2 |
| cf *Prunus* sp | cf blackthorn/ cherry | 1 | | | | |
| *Prunus*/Maloideae | blackthorn/cherry/ hawthorn type | | | 3 | 1 | |
| *Quercus* sp. | oak | 12 | 11 | 7 | | 1 |
| cf *Acer campestre* L. | cf field maple | | 1 | | | |
| *Corylus avellana* L. | hazel | | | | | 4 |
| Diffuse porous | | | | | 7 (r) | 1 |
| indet | | 1 | 1 | | | 3 |
| **TOTAL** | | **15** | **15** | **25** | **15** | **15** |