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by

Malin Holst, Allan Hall and John Carrott

Summary

Charred plant remains and an assemblage of cremated bone, from deposits associated with Bronze Age roundhouses (or in one case a possible henge), encountered during excavations at Agherton Road, near Portstewart, County Londonderry, Northern Ireland, were submitted for assessment.

Plant material suitable for dating by radiocarbon assay has been selected from the samples from Contexts 117 and 231. The other three samples all yielded small concentrations of rather poorly preserved charred wheat and barley, but no chaff or weed seeds were observed. These cereal remains may therefore have originated in food for domestic consumption, or perhaps as a ritual offering, rather than being deposited during cereal processing or through the burning of inadequately threshed straw.

The analysis of the single cremation burial allows only tentative conclusions, as cross-population comparisons could not be carried out. However, osteological analysis found that the individual interred in a pit at Agherton Road was a juvenile, aged between six and twelve years. The effort expended on the cremation of this child, as well as the size of the grave and its proximity to the possible henge, suggests that this child may have been of importance to the community who buried it. This, together with the lack of further burials at the site, suggests an unusual, possibly ritual, function or high status of the burial at Agherton Road.

No further analysis is recommended for the current material.

KEYWORDS: AGHERTON ROAD; NEAR PORTSTEWART; COUNTY LONDONDERRY; NORTHERN IRELAND; ASSESSMENT; BRONZE AGE; PLANT REMAINS; CHARRED PLANT REMAINS; VERTEBRATE REMAINS; HUMAN REMAINS; CREMATED BONE; ?RITUAL

Contact address for authors:

Palaeoecology Research Services
Unit 8
Dabble Duck Industrial Estate
Shildon
County Durham DL4 2RA
United Kingdom

Prepared for:

Archaeological Consultancy Services Ltd
21 Boyne Business Park
Greenhills
Drogheda
County Louth
Republic of Ireland

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Introduction

An archaeological excavation at Agherton Road, near Portstewart, County Londonderry, Northern Ireland (NGR C 8240 3656), was undertaken by Archaeological Consultancy Services Ltd (ACS) during March and April 2003.

Charred plant remains and an assemblage of cremated bone (which had been interred in a pit) associated with Bronze Age roundhouses (or in one case a possible henge) were submitted to PRS for an assessment of their bioarchaeological potential.

Methods

The soil samples were placed onto 1 mm nylon mesh in a sieving tank. The light organic fraction was washed over through a 2 mm sieve into a 500 micron sieve to collect the flots. Each of the soil samples was put through this system twice to ensure that as much material as possible was recovered.

The sediment samples were processed by ACS prior to delivery to PRS and only the small quantities of recovered plant remains and the bone were submitted for assessment.

Plant remains

The submitted remains were examined under the binocular microscope and identified as closely as possible within the constraints of the project.

Plant remains from two of the contexts were assessed specifically for the identification and selection of suitable material for radiocarbon dating. In both cases sufficient material was identified and prepared for submission.

Human bone

The cremated bone was first analysed to determine whether it was human or non-human. The human bone was subsequently sieved through a stack of sieves, with 10 mm, 5 mm and 2 mm mesh sizes. The bone recovered from each sieve was weighed and sorted into identifiable and non-identifiable bone. The identifiable bone was divided into five categories: skull, axial (excluding the skull), upper limb, lower limb and long bone (unidentifiable as to the limb). All identifiable groups of bone were weighed and bagged separately.

Bone colour, fragmentation, preservation and rate of cracking and warping resulting from the burning were recorded in order to obtain information on cremation processes and subsequent funerary rituals.

Preservation was assessed using a grading system of five categories: very poor, poor, moderate, good and excellent. Excellent preservation implied no bone surface erosion and very few or no breaks, whereas very poor preservation indicated complete or almost complete loss of the bone surface due to erosion and severe fragmentation.

Age was determined using standard ageing techniques as specified by Buikstra and Ubelaker (1994) and Scheuer and Black (2000). Determination of sex, which is dependent on the presence of skulls and pelves, follows morphological characteristics described by Cox and Mays 2000.

The cremated bone assemblage was examined for thirty cranial and thirty post-cranial non-metric traits selected from the osteological literature (Buikstra and Ubelaker 1994,

Finnegan 1978, Berry and Berry 1967).

Results

Plant remains

The results are presented in context number order. Archaeological information, provided by the excavator, is given in square brackets. The fills were described by the excavator as 'soft, red/brown, silty sand, with few stone inclusions and only very occasional charcoal flecking', unless stated otherwise.

Context 117 [charred ?wattle, ditchfill associated with roundhouse, Structure A]
Sample 26 (material for selection and identification prior to submission for dating by radiocarbon assay)

The material comprised a small bag of approximately 8 g of charred twig wood of alder/hazel (*Alnus/Corylus*) and willow/poplar/aspen (*Salix/Populus*) to 20 mm by 5 mm in maximum dimension. There were some hazel roundwood fragments (to 10 mm, only a few years' growth being represented) amongst much finer material, and a few larger fragments (to 20 mm) of alder/hazel; some modern roots were also present. The larger bag contained about 140 g of moist, crumbly, black charcoal and sediment, with some roots. This was washed (to 0.3 mm) and dried. It was found to contain further charred willow/poplar/aspen twigs, alder/hazel roundwood (or fragments from larger stems) and hazel twig.

Two subsamples were prepared for possible radiocarbon dating. One (labelled 'Sample A') of about 1.1 g of *Salix/Populus* and *Corylus* twigs picked from amongst the coarser material of alder/hazel (which was probably from larger roundwood) would be suitable for dating by AMS. The second ('Sample B', from the remaining coarser material) of about 11 g of *Alnus/Corylus* should be large enough for dating by standard radiometry.

Context 137 [this layer overlay the fill of pit 162 and may have been a remnant of an occupation surface]
Sample 7 (charred plant remains for assessment)

A spread of near black silty clay with occasional small stone inclusions and charcoal flecking.

The 'seed' sample consisted of about 120 charred cereal grains, rather 'silted', and of rather variable preservation (but mostly recorded as moderate to poor). Most of the grains appeared to be wheat (*Triticum*), very variable in size and shape, and perhaps mostly emmer, *T. dicoccon* (Schrank) with a trace of barley (*Hordeum*). There was also about 28 g of charcoal which contained no further seeds. Apart from a few modern root fragments, this all appeared to be alder/hazel or hazel (to 20 mm), on the basis of checking a subsample.

Context 143 [fill of ditch C144 - this ditch was closely associated with ditch C174 from the Phase 2 circuit]
Sample 4 (charred plant remains for assessment)

The sample of 'seed' comprised 11 rather eroded and/or distorted charred cereal grains, including barley and wheat (perhaps emmer). There was also about 37 g of charcoal, apparently all hazel and alder/hazel (to 15 mm) with some further small and mostly very eroded and/or distorted barley and wheat grains (a few tens at most). No chaff was observed.

Context 210 [posthole fill from roundhouse/?henge, Structure B]
Sample 14 (charred plant remains for assessment)

Soft, medium-brown, silty sand with only occasional stone inclusions and very little charcoal flecking.

Three charred cereal grains had been sorted from this sample—two were barley and the third a rather plump, but broken and distorted, wheat grain. There was also approximately 23 g of charcoal, the largest fragments (to 45 mm) rather brittle and becoming powdery when handled. They included alder/hazel (some perhaps more convincingly being hazel). Some tens of further charred wheat and barley grains were observed amongst the charcoal, but no chaff was present.

Context 231 [ditch fill associated with roundhouse/?henge, Structure B]
Sample 20 (material for selection and identification prior to submission for dating by radiocarbon assay)

The sample comprised a bag of approximately 95 g of loose charcoal and some modern roots—there was large twig/small roundwood material of hazel and willow/poplar/aspen (to 20 mm) and some detached fragments of bark.

A sample of about 40 g of coarser charred twig/roundwood fragments was prepared for dating by standard radiometry, care being taken to remove modern roots.

Human bone

Preservation

Despite the fact that the burial had not been interred in an urn, which would aid in protecting the bone, the skeletal remains were well preserved (Table 1). Although the bone was very fragile, the size of the fragments recovered was relatively large. The cremation process had caused little warping, but much bone cracking, which might have contributed to the current brittleness of the bone. Few of the fragments exhibited evidence of erosion, suggesting that the nature of the soil and subsequent land use did not affect bone preservation adversely.

The fragment size of cremated bone is frequently attributed to post-cremation processes. This is because skeletal elements retrieved from modern crematoria tend to be comparatively large before being ground down for scattering or deposition in urns. However, bone is also prone to fragmentation if it is moved while still hot (McKinley 1994, 340). The majority of bones (46%) were 10 mm in size or larger, although few of the fragments exceeded a size of 30 mm with the exception of a femoral head and neck, which was 55 mm long (Table 2). The quantity of bone decreased with sieve size, with 31% of the bone recovered from the 5 mm sieve and 21% recovered from the 2 mm sieve. Bone fragments smaller than 2 mm constituted only a small proportion (2%) of the total assemblage.

The quantity of cremated bone recovered was 614.5 g, which is considerably less than that produced by modern crematoria, which tends to range from 1001.5 g to 2422.5 g with an average of 1625.9g (McKinley 1993). Wahl (1982, 25) found that archaeologically recovered remains of cremated adults tend to weigh (between 250 g and 2500 g), as a result of the commonly practised custom of selecting only some of the cremated bone from the pyre for inclusion in the burial, thereby representing a symbolic, or token, interment. In a study of Bronze Age cremation burials in England, McKinley (1997) also observed that the entire cremated remains were rarely, if ever, interred in the burial. It is estimated from the presence of bone elements, that approximately 60% of the skeleton was represented in this burial.

The cremated bone was very well burnt, causing the complete loss of the organic portion and producing a white colour throughout the assemblage. Bronze Age cremation burials frequently include a small proportion of bone fragments which are less well burnt, suggesting that these may have been at the periphery of the pyre. However, this was not the case for the individual from Agherton Road. According to McKinley (1989), the body requires a minimum temperature of 500 degrees Celsius over seven to eight hours to achieve complete calcination of the bone.

Despite the fragmentation of bone elements it was possible to identify skeletal elements in all but the less than 2 mm category (Table 3). In total, 64% of the bone fragments were identifiable, of which 40% were cranial fragments and 34% were long bone shaft fragments.

Almost the complete skull was represented in the burial, excluding only a few of the facial bones and some of the teeth. The torso was represented by a large number of rib fragments, as well as several vertebral bodies and vertebral arches from all parts of the spine. The more robust parts of the pelvis were also present. The shoulders and hands were the largest identifiable parts of the upper limb, although it is probable that the long bones of the upper limb are within the category of shaft fragments, which could not be identified with any greater accuracy. The largest surviving bone fragments were of lower limb bones, particularly the femur. Few tibial fragments were observed, and only one bone fragment of the fibula was noted. Although some of the tarsals (bones of the foot and ankle) could be identified, only one of the toe bones was present.

No grave goods were found amongst the human bone, but the presence of charcoal flecks in the backfill of the pit suggests that some of the pyre debris had been included in the burial.

Minimum number of individuals

It is not possible to calculate the 'minimum number of individuals' (MNI) for cremation burials, because only a token selection of bone from the pyre tends to be buried. Double burials can be identified only if skeletal elements are duplicated, or if skeletons of different ages are represented in one burial. In this instance, none of the bone elements were duplicated.

Assessment of age and sex

None of the criteria normally used for age determination were represented in the burial, so age determination was based on less reliable criteria. Bone fusion data together with dental development suggested that this individual was a juvenile, aged between six and twelve years. Although a large proportion of the individual was represented in the burial, age is notoriously difficult to establish more closely for individuals of this age group, because the main phases of fusion occur before the age of four years, and after the age of fourteen years. Determination of age between those two fusion phases usually relies on long bone measurements and dental development. However, neither the long bones, nor any of the teeth survived the cremation process intact and therefore age determination has to remain relatively imprecise.

Sex could not be established for this individual, because sex determination relies on the development of characteristics of the skeleton, which do not develop until late puberty or early adulthood.

Metrical analysis

Cremated bone shrinks at an inconsistent rate (up to 15%) during the cremation process and it was therefore not possible to measure the bone from this cremation burial.

Analysis of non-metric traits

Non-metric traits were not identified in this individual.

Palaeopathological and dental analysis

No evidence for disease was observed in the cremated remains. The lack of pathological lesions may be due to this individual dying of a disease which does not manifest skeletally. Alternatively, the lack of some of the bones may have caused the loss of skeletal lesions of disease. However, it is relatively rare to find pathological conditions in children's skeletons and this is probably a result of the children dying before the conditions could affect the skeleton.

Ten tooth crown fragments and sixteen root fragments were recovered from the burial. Unfortunately, little information could be gained from these teeth, because they were shattered into tiny fragments during the cremation process.

Discussion and statement of potential

Plant material suitable for dating by radiocarbon assay has been selected from the samples from Contexts 117 and 231. The other three samples all yielded small concentrations of rather poorly preserved charred wheat and barley, but no chaff or weed seeds were observed. These cereal remains may therefore have originated in food for domestic consumption, or perhaps as a ritual offering, rather than being deposited during cereal processing or through the burning of inadequately threshed straw.

The analysis of the single cremation burial allows only tentative conclusions, as cross-population comparisons could not be carried out. However, osteological analysis found that the individual interred in a pit at Agherton Road was a juvenile, aged between six and twelve years. The body had been thoroughly cremated, which required the pyre to maintain a consistent temperature of 500 degrees Celsius over a period of seven to eight hours. This suggests considerable expenditure of effort in the amount of wood required, as well as the maintenance of the fire over a long period of time.

Following the cremation process, around 60% of the cremated skeleton was selected from the pyre together with some pyre debris for inclusion in the burial. The bone had been interred in an unusually large burial pit, 0.70m in diameter.

The effort expended on the cremation of this child, as well as the size of the grave and its proximity to the possible henge, suggests that this child may have been of importance to the community who buried it. This, together with the lack of further burials at the site suggests an unusual, possibly ritual, function or high status of the burial at Agherton Road.

Recommendations

No further analysis is recommended for the current material.

Retention and disposal

Other than that required for radiocarbon dating, the current material should be retained as part of the physical archive for the site.

Archive

All material is currently stored by Palaeoecology Research Services (Unit 8,

Dabble Duck Industrial Estate, Shildon, County Durham), along with paper and electronic records pertaining to the work described here.

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Table 1. Agherton Road, near Portstewart, County Londonderry, Northern Ireland: Cremated human bone preservation summary.

Feature No	Feature Type	Inclusions	Bone State	Preservation	Age	Sex	Weight (g)
45	-	-	white	good	6-12 years	-	614.5g

Table 2. Agherton Road, near Portstewart, County Londonderry, Northern Ireland: Cremated bone fragment size summary.

Feature No	10mm (g)	10mm (%)	5mm (g)	5mm (%)	2mm (g)	2mm (%)	Residue (g)	Total human (g)
45	280.4	46	187.6	31	131.7	21	14.8	614.5

Table 3. Agherton Road, near Portstewart, County Londonderry, Northern Ireland: Summary of identifiable elements in the cremation burial.

Feature No	Skull (g)	Skull (%)	Axial (g)	Axial (%)	U L (g)	U L (%)	L L (g)	L L (%)	UIL (g)	UIL (%)	Total ID (g)	Total ID (%)	Total UID (g)	Total UID (%)
45	156.8	40	50.9	13	13.7	3	41.4	10	132.7	34	395.5	64	219.0	36

UL - upper limb; LL - lower limb; UIL - long bone (unidentified as to upper or lower limb); ID - identifiable bone; UID - unidentifiable bone