

Archaeological Excavation of a Flat Cemetery at Peafield, Co. Limerick

**Excavation Licence Number: 02E1408
ÆGIS Ref: 141-1**



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**Client:
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Monaleen, Limerick
September 2002**

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This report is based on a template formulated by T.Collins and A. Hayes. ÆGIS acknowledges the information supplied from the Archaeological Survey of Ireland Files, maintained by Dúchas, and the information supplied by the client. The excavations were funded in full by the client.

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I. Abstract

This report details the archaeological resolution of several potential archaeological features identified during monitoring of an adjacent field to the construction of the Limerick Southern Ring Road.

The site was originally monitored by Ms. Sarah McCutcheon, Executive Archaeologist, Limerick County Council. Several archaeological features were identified in this phase, and Aegis Archaeology were then contracted to investigate these features.

The excavation of the site was undertaken by the writer in September under license number 02E1408.

The client funded the project resolution, in full.

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III. Abbreviations Used in Text

Bank Right bank and left bank of a river or stream may be determined when one looks downstream, i.e. in the direction that the river is flowing. It may also be an earthen 'wall' around an enclosure, often associated with a ditch.

Barony, Parish, Townland These terms refer to land divisions in Ireland. The barony is the largest land division in a county, which is formed from a number of parishes. These parishes are in turn made up of several townlands, which are the smallest land division in the country. The origins of these divisions are believed to be in the Early Medieval/Christian period (AD500-AD1000), or may date earlier in the Iron Age (500BC-AD500).

Context Each feature found during the excavations is allocated a number, commonly termed a 'Context Number' in order to record the archaeology.

Ditch A cut feature forming an enclosure and associated with a bank in some cases.

First Edition This relates to editions of the OS 6 inch maps for County Limerick. The first edition map completed for the area dates to the early 1840's and this is referred to in the text as the "first edition".

Fosse Alternative word for ditch

G.S. Grid square

LI - This number is the number of the site on the RMR map (see below). It begins with the county code, here LI for Limerick, the 6-inch sheet number, followed by the number of the archaeological site.

M Metres, all dimensions are given in metres or part of a metre, unless otherwise stated

OS Ordnance Survey

Ph Parish

RMP Record of Monuments and Places. An update of the older SMR, (sites and monuments record), on which all known archaeological sites are marked and listed in an accompanying inventory. The sites marked afford legal protection under the National Monuments Acts 1930-1994. The register is based on the 6 inch map series for the country and is recorded on a county basis.

Sheet This relates to the six inch map for county Limerick, which is divided into sheets. This project is concerned with sheet numbers 30.

Td Townland

1. Introduction

1.1 Background to Excavation

The writer carried out a full excavation of these features over the course of one day. The features were cleaned by hand, in order to determine their extent, then photographed. These features were spread over a large area. They consisted of one large circular pit which displayed evidence of burning, eight small circular pits containing charcoal and cremated bone clustered around a flat sandstone boulder, and one large deep pit containing substantial amounts of cremated human bone, which was isolated from the rest of the pits, and was closest of all the features to the Groody River.

1.2 Location and Topography

These sites are situated in a large undulating field, on the immediate northern side of the Groody River, a small tributary of the river Shannon. The subsoil is predominantly sand, the reason why this field is being excavated by the contractor. This sand will be used in the construction of the Limerick Southern Ring Road. This necessitated the removal of the topsoil, which is when the archaeological features came to light.

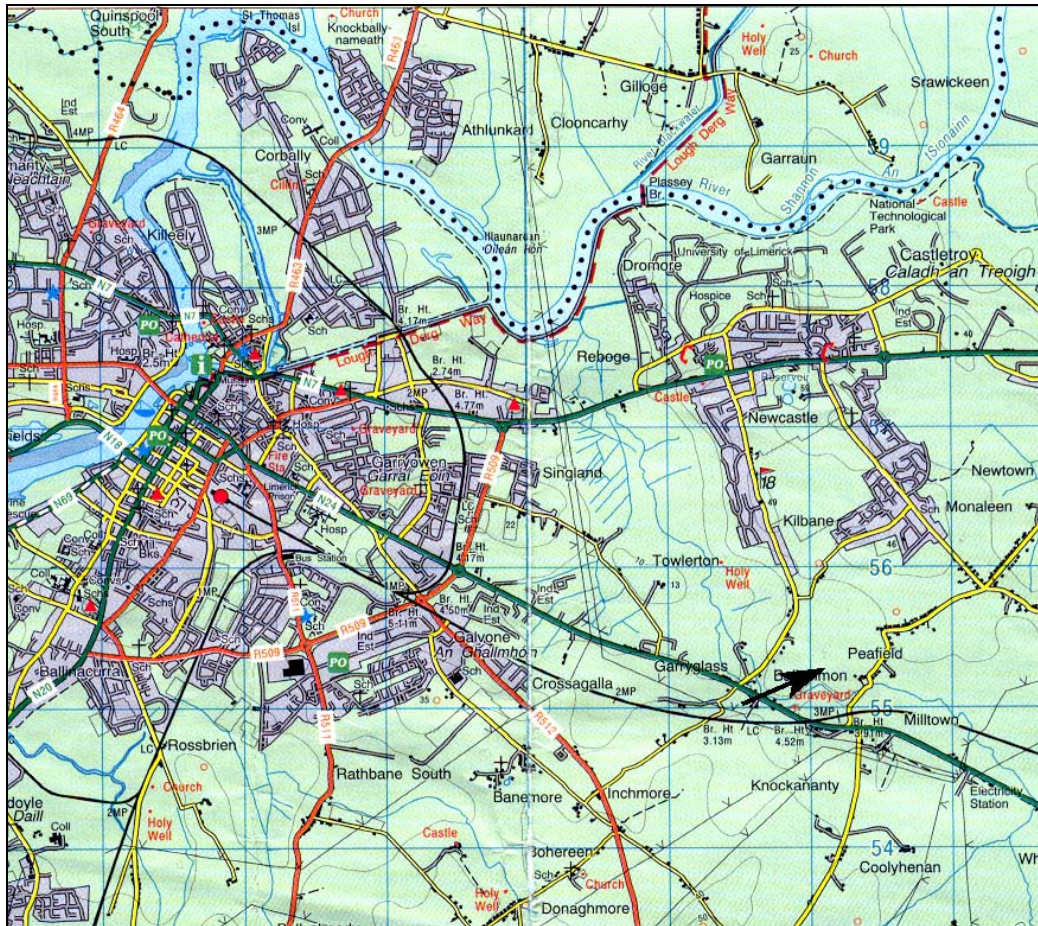


Figure 1. General location map (Discovery Series 65)

The Groody River flows around the large field in which these sites are located, forming the boundary on both the eastern and southern sides. The land drops sharply to the river bank, probably as a result of flooding of the river in the past. The field lies to the immediate southern side of Peafield House, and may have been divided into smaller plots in the past.

The site at Peafield is located in an area of Carboniferous Limestone, while the soils in the area vary; there are areas of brown earth and poorer gley classification type soils (Finch and Ryan 1966).

1.3 Historical Background

The townland of Peafield is in the parish of Kilmurry and the barony of Clanwilliam. The name of the parish derives from *Cill Muire* or the Church of the Blessed Virgin. The extant graveyard and church at Kilmurry was originally the parish church and is now in the ownership of the Church of Ireland. The main castles of the parish were in the townlands of Castletroy and Newcastle and both are still extant. The parish also contained several important mills, the most prominent being the paper and oil mill at Ballyclogh, the paper mill at Anacotty and the flour mills at Ballysimon (Lewis 1837, 191, O'Donovan 1840a, 7-8 & 1840b, 31-35).

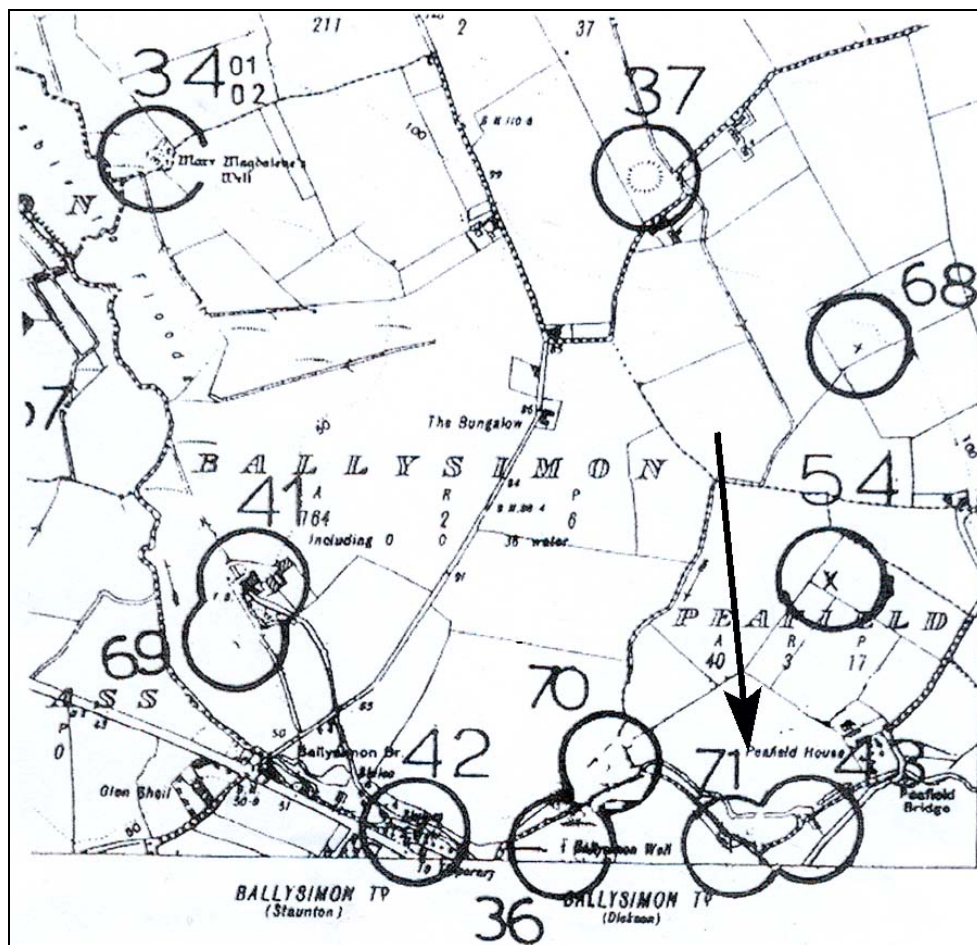


Figure 2. RMP constraint map for Limerick, sheet 5 (site marked with arrow)

A *fulacht fiadh* was recently excavated in the townland of Peafield, approximately 250m to the north of the flat cemetery, which is the subject of this report. A substantial burnt mound was investigated along the line of the Limerick Southern Ring Road by Aegis Archaeology Limited, which contained a trough with timber lining (Collins 2001).

1.4 Excavation Methodology

The resolution project of the site at Peafield was run in accordance with guidelines as set out by English Heritage in its policy document *Management of Archaeological Projects* (1991). Below is the project pathway that was followed:

- Phase 1 Project Plan
- Phase 2 Fieldwork (on-site resolution)
- Phase 3 Assessment of Potential for Analysis
- Phase 4 Analysis and Report Production
- Phase 5 Dissemination

Phase Two- the site excavation, by hand, of the site, used an amended version of the MoLAS (Museum of London Archaeological Service 1994) system of context recording. This is a method of excavation that has been used in Britain since the 1970s and has proved to be very successful, in both the efficiency of on-site recording/excavating and in the formation of the report in post-excavation.

2. Context List

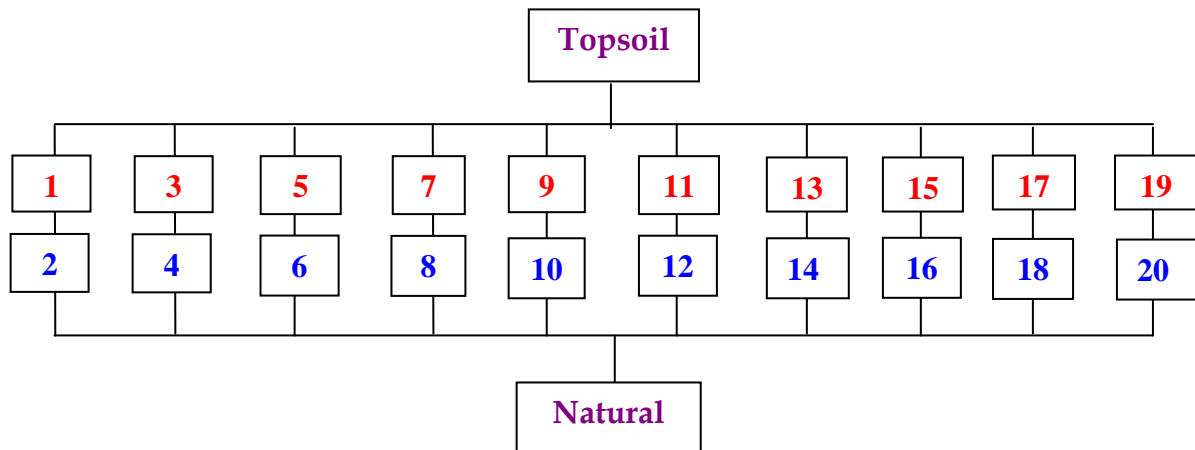
| Context number | Description |
|----------------|-----------------------------|
| 1 | Fill of cremation pit |
| 2 | Cut of cremation pit |
| 3 | Fill of cremation pit |
| 4 | Cut of cremation pit |
| 5 | Fill of cremation pit |
| 6 | Cut of cremation pit |
| 7 | Fill of cremation pit |
| 8 | Cut of cremation pit |
| 9 | Fill of cremation pit |
| 10 | Cut of cremation pit |
| 11 | Fill of cremation pit |
| 12 | Cut of cremation pit |
| 13 | Fill of cremation pit |
| 14 | Cut of cremation pit |
| 15 | Fill of cremation pit |
| 16 | Cut of cremation pit |
| 17 | Fill of large cremation pit |
| 18 | Cut of large cremation pit |
| 19 | Fill of isolated pit |
| 20 | Cut of isolated pit |

3. Stratigraphic Sequence

3.1 Matrix

The first stage of report compilation is the formation of the site matrix. This structure collates all the contexts that have been excavated and recorded, and preserves their stratigraphic relationships in flow chart fashion. The entire interpretation of the site rests on this visual manifestation of the archaeology as excavated. The contexts of the matrix are then grouped and segmented to create features and phases, all of which are described in detail below (section 3.2 Feature Descriptions and section 4: Stratigraphic Interpretation).

Peafield Matrix



Key to Matrix

| | |
|---------|---------|
| Red: | Fill |
| Blue: | Cut |
| Green: | Deposit |
| Purple: | Layer |

3.2 Context Descriptions (plates 1-9)

Context 1

Fill

This was the fill of context 2. It comprised a silty sand, with frequent charcoal and cremated bones. This was 0.40m north-south.

Context 2 (figure 3)

Cut

This cut was sub-circular in plan, with a sharp break of slope at top, sloping sides in to an undulating bottom. This was 0.40m north-south, and had a maximum depth of 0.10m.

Context 3

Fill

This was the fill of context 4. It comprised a silty sand, with frequent charcoal and cremated bones, and was 0.42m north-south.

Context 4 (figure 3)

Cut

This cut was sub-circular in plan, with a sharp break of slope at top at north, but a gradual break of slope at south, a sloping southern side in to an level bottom. This was 0.40m north-south, and had a maximum depth of 0.08m.

Context 5

Fill

This was the fill of context 6. It comprised a silty sand, with frequent charcoal and cremated bones, and was 0.40m north-south.

Context 6 (figure 3)

Cut

This cut was slightly oval in plan in plan, with a sharp break of slope at top, sloping sides into a rounded bottom. This was 0.40m north-south, and had a maximum depth of 0.12m.

Context 7

Fill

This was the fill of context 8. It comprised a silty sand, with frequent charcoal and cremated bones, and was 0.36m north-south.

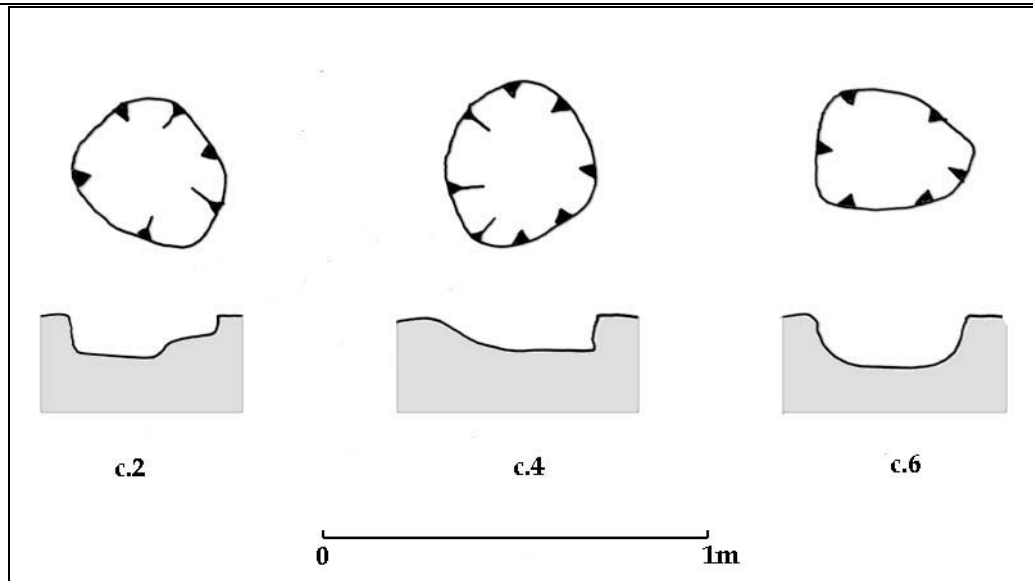


Figure 3. Plan and section of cremation pits, c.2, 4 and 6

Context 8 (figure 3)

Cut

This cut was slightly oblong in plan, with a sharp break of slope at top, vertical sides into a relatively flat bottom. This was 0.36m north-south, and had a maximum depth of 0.10m.

Context 9

Fill

This was the fill of context 10. It comprised a silty sand, with frequent charcoal and cremated bones, and was 0.40m north-south.

Context 10 (figure 3)

Cut

This cut was circular in plan, with a sharp break of slope at top, sloping sides into a rounded bottom. This was 0.40m north-south, and had a maximum depth of 0.18m.

Context 11

Fill

This was the fill of context 12. It comprised a silty sand, with frequent charcoal and cremated bones, and was 0.50m north-south.

Context 12 (figure 3)

Cut

This cut was circular in plan, with a sharp break of slope at top, straight sides into a flat bottom. This was 0.50m north-south, and had a maximum depth of 0.08m.

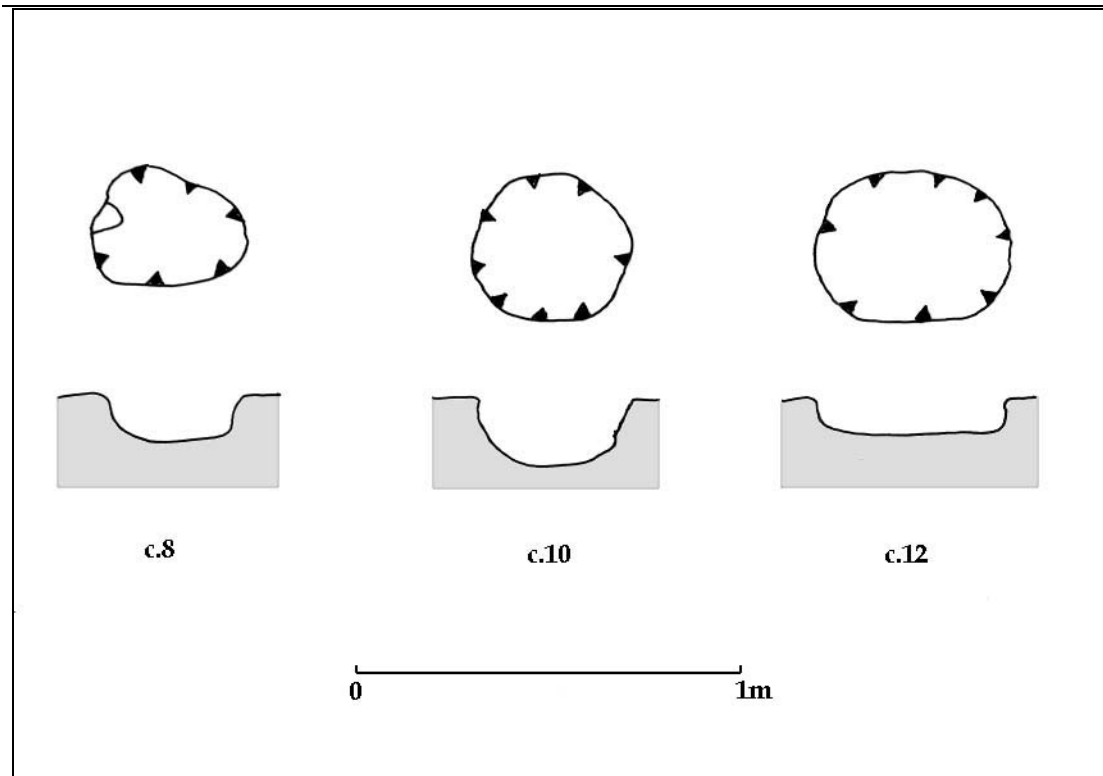


Figure 4. Plan and section of cremation pits, c.8, 10 and 12

Context 13

Fill

This was the shallow fill of context 14. It comprised a silty sand, with frequent charcoal and cremated bones, and was 0.38m north-south.

Context 14 (figure 5)

Cut

This cut was circular in plan, with a sharp break of slope at top at north, but a gradual break of slope at south, a straight side at north into a flat bottom, which sloped slightly from a high at south towards north. This was 0.38m north-south, and had a maximum depth of 0.05m.

Context 15

Fill

This was the fill of context 16. It comprised a silty sand, with frequent charcoal and cremated bones, and was 0.50m north-south.

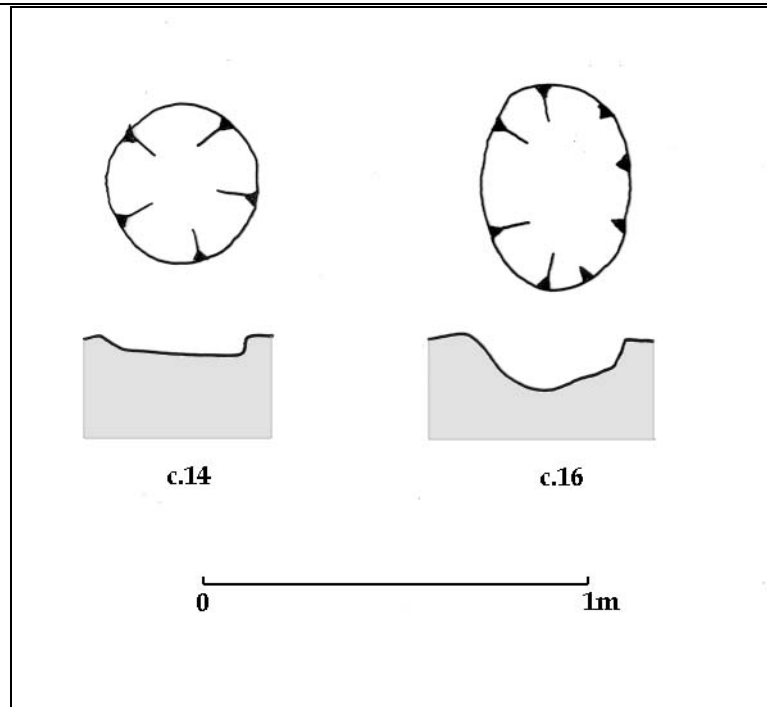


Figure 5. Plan and section of cremation pits, c14 and 16

Context 16 (figure 5)

Cut

This cut was oval in plan, with a sharp break of slope at top at north, but a gradual break of slope at south, concave sides and a flat bottom. This was 0.50m north-south, and had a maximum depth of 0.12m.

Context 17

Fill

This was the fill of context 18. It comprised a silty sand, with frequent charcoal and cremated bones, and was 0.50m north-south.

Context 18 (figure 6)

Cut

This cut was circular in plan, with a sharp break of slope at top at north, straight sides, and a flat bottom. This was 0.50m north-south, and had a maximum depth of 0.40m.

Context 19

Fill

This was the fill of context 20. It comprised a mid-brown silty loam, with occasional charcoal and frequent rounded stones in the upper part of the fill. It measured 2.10m north-south by

1.60m east-west. This feature was located approximately 100m to the north-east of the concentration of burial pits.

Context 20

Cut

This cut was slightly oval in plan, with a sharp break of slope at top at north, concave sides and a flat bottom. This was 2.10m north-south by 1.60m east-west, and had a maximum depth of 0.35m.

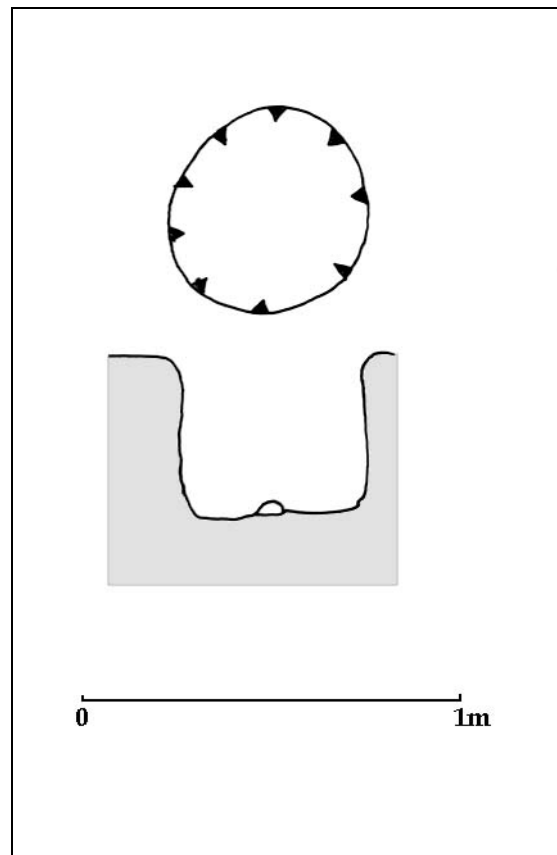


Figure 6. Plan and section of cremation pit, c.18



Plate 1. Cremation pits, unexcavated, around marker stone, from NE



Plate 2 Cremation pits, pre-excitation around marker stone, from NE, with scale



Plate 3. Cremation pit [fill c.9], partially covered by topsoil, from NE



Plate 5. Cremation pit [fill c.13], from E,
Pre-excitation



Plate 4. Cremation pit [fill c.13], from E



Plate 6. Isolated pit [fill c.19], from W



Plate 7. Isolated pit excavated [cut c.20], from W

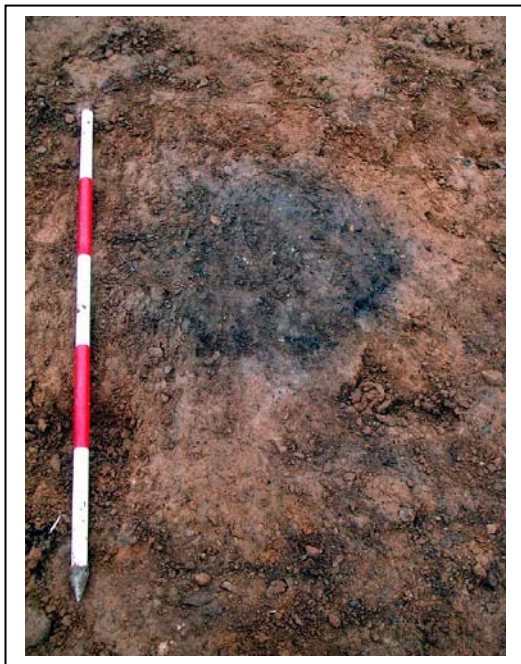


Plate 8. Isolated cremation pit [fill c.17], from S



Plate 9. Isolated cremation pit [cut c.18], from S

-

4. Interpretation of Stratigraphy

There was no above ground trace of the site prior to the removal of the topsoil. These features only became visible when the topsoil was removed. The concentration of cremation pits around the sandstone boulder may mean that this boulder actually functioned as a grave marker.

No physical or stratigraphic relationship existed between the various features. However the concentration of pits in such a small area possibly means that they are co-eval. The burial rite in the isolated cremation pit [cut c.18] near the Groody River is similar to the concentration of pits, and may also prove to be of the same date.

In this instance, we must rely on the results of radiocarbon dating in order to establish the sequence of activity on the site.

Because of the weather conditions on site, all the cremation pits were bulk sampled. These will be processed off-site by a licenced archaeologist and an osteo-archaeologist.

5. Discussion

This site would seem to represent the remains of a flat cemetery. Initial inspection of the fills of each pit did not reveal the presence of pottery.

5.1 Cemeteries

No grave goods were recovered from any of these burials. It does appear that the upper portions of these pits were truncated in antiquity, and evidence for these pits being protected in any way has therefore been lost.

The contents of the burial pits are due to be processed presently by Linda Lynch MA., osteoarchaeologist. It will then be apparent if these cremations were accompanied by grave goods or pottery. Presence of such items would benefit the writer enormously in assigning an initial date for these pits. Until such time as this information becomes available, an general overview of similar prehistoric burial rite is outlined below. A flat cemetery containing a variety of funerary pottery types, as well as two structures, probably houses of Bronze Age date, were excavated by the writer in the adjoining townland of Newtown (Coyne 2001). No detailed interpretation of this site can therefore be advanced at this early stage. For the purpose of this report, it is assumed that the site at Peafield may date broadly from the Bronze Age, but further study and analysis will undoubtedly refine the dating of the cemetery.

The variety of funeral ritual recorded within the burials of the Bronze Age shows the diversity of belief and practice within the period – unburnt burial, cremated burial, cist grave, pit grave, tumulus, flat grave cemetery and solitary burial are all represented. Grave goods may or may not be present with pottery being the most common artefact placed in the graves.

The major pottery types comprise bowl and vase food vessels, enlarged food vessels or vase urns, encrusted urns, cordoned urns and collared urns. There are over 1,300 certain or possible earlier Bronze Age burials recorded from Ireland and even this must be regarded as a minimum number (Waddell 1990, 1).

Cist Burials

Cists are the name given to small stone built “coffins” or “boxes”, which can be dug into the ground surface so forming a flat burial or can be covered by mounds. The cists are roofed with stone lintels and in some cases have a paved stone floor.

Burials in cists can be unburnt or cremated, the classic unburnt burial being the crouched inhumation, where the legs of the body are drawn up to the chest in the foetal position.

Pit Burials

As the name implies, pit burials are the simplest type of Bronze Age burial and consist of a simple pit which may or may not be protected to some degree by the presence of stones or slabs.

Burials in pits are usually cremated and placed in a pottery vessel.

Flat Burials/ Cemeteries

These burials can be in cists or pits but are not covered by a mound, being dug into the ground surface. A small number of flat cemeteries seem to contain pottery of only one tradition, though a mix of traditions is the most common.

Cemetery Mounds

The term “Cemetery Mound” embraces earlier mounds re-used for multiple burial during the Bronze Age, as well as circular mounds specifically constructed to cover several burials or to cover just one or two burials with secondary burials inserted at a later date.

Cemeteries

There is some debate as to the number of burials that constitutes a cemetery, however, Waddell (1990, 28) has taken two burials as indicative of a cemetery and this convention has been followed by more recent research (Mount 1997).

On the basis of the ceramic types contained in the graves, four distinct ceramic traditions have been recognized – The Bowl Tradition, The Vase Tradition, The Collared Urn Tradition and the Cordoned Urn Tradition.

The Bowl Tradition

The pottery of this tradition consists of several forms of highly decorated, hand made bowls, usually between 8-15cms in height. Bowls have mainly been recovered from the north-east of the country in funerary contexts, the greatest number being recovered from cist and pit burials. The burial rite associated with the bowl tradition comprises both unburnt crouched inhumations and cremations of both males and females, adults and children.

The Vase Tradition

The pottery of the vase tradition ranges from small vessels, the so-called vase food vessels to larger cinerary urns. In contrast to the bowl tradition where one pot type was placed with either an unburnt or cremated burial, in this tradition a small vase, larger vase urn or encrusted urn are all usually found with cremated burials. Unburnt burial is rare though it does occur with a small number of vases. Vessels of the vase tradition have the widest distribution being recorded from much of the country.

The Cordoned Urn Tradition

Cordoned urns are so named because they usually have one or more raised ribs or cordons encircling their exterior, with a simple bipartite profile and a single horizontal zone of ornament on the uppermost part of the exterior. Cord impressed designs are usual though incised decoration has been noted on a minority of pots. The great majority of these vessels come from burials, mainly simple pit graves. The burial rite is invariably cremation and most of the urns are inverted (a minority stood mouth upwards) while, the bones of both males and females, adults and children have been identified. These vessels are concentrated in the north-east of the country, though scattered examples occur in Donegal, Galway Limerick and Waterford.

The Collared Urn Tradition

The distinguishing feature of these vessels is a collared rim above a concave neck, which gives the vessel a distinctive, angular tripartite profile. The rims are often broad and flat, or beveled, and are sometimes expanded internally and externally. The collars and necks are frequently decorated with cord impressed or incised designs. The greatest number of these

vessels occur inverted, in simple pit graves and containing cremated bone. Again the bones of males and females, adults and children have been recorded.

5.2 Distribution

The distribution of the burial types described above is predominantly eastern, though there are examples in Connacht with distinct groups in Sligo/south Mayo and Galway. Another major group occurs in the south Limerick/north Cork region. However the major groupings are in the east – north Antrim, parts of Down, Derry and Tyrone, mid Fermanagh, south Westmeath, south Dublin, west Wicklow, north Carlow and elsewhere in that region.

The Early Bronze age was for a long time seen as a single grave culture. The individuals were prepared for burial in a variety of ways, while the majority of individuals were cremated, or partially cremated (Mount 1995, 97). It has also been noted that the Early Bronze Age was socially differentiated, where high-ranking individuals were marked out from the rest by more elaborate funerary treatment. The burial record appears to show that single interments were predominantly associated with adult males, while multiple burials were associated with women and children.

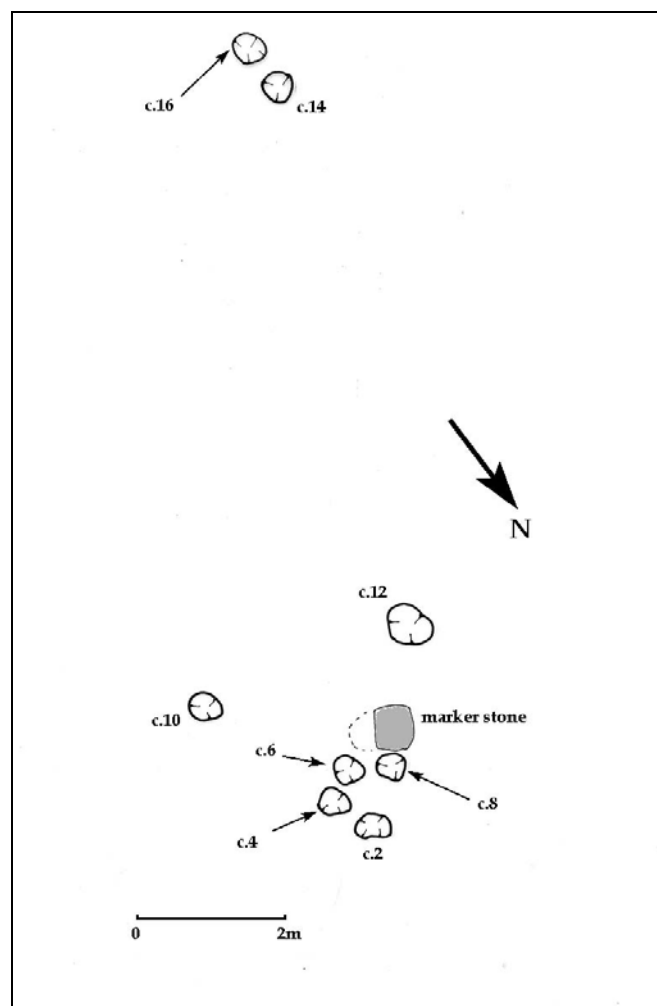


Figure 7. Plan of flat cemetery Isolated burial pit [cut c. 18] is 100m to the SE,

pit [cut c.20] is approximately 80m to the east of cemetery

5.3 Function of this site

This site at Peafield represents the remains of a flat cemetery. In all nine pits containing cremated bone were identified and excavated. Analysis of the pit contents is continuing, and therefore is only assumed at this stage that the cremated bone is human. Similarly, as the entire contents of the pits were bulk sampled, is not known at this stage if any of the pits contained pottery or other grave goods, although none was found during the hand excavation.

However, even without this information, it is reasonable that this is a cemetery, with a burial rite consisting solely of cremation. No structures which might indicate mortuary houses, or habitation areas were uncovered.

6. Find & Sample List

The find numbers below are to be prefixed by the site excavation licence number: 02E1408, followed by the context number and then by the find number of that context, as they are all from 02E1408 this number has been omitted from the catalogues below

No finds were recovered from the initial excavation of the features. All samples will now undergo an intensive sieving programme, in order to extract the bone, charcoal and possible finds.

Samples

| sample number | from context number | details | purpose of sample | treatment |
|---------------|---------------------|-----------|---------------------|-----------|
| 1 | 1 | Bulk soil | Dating and analysis | sieving |
| 2 | 3 | Bulk soil | Dating and analysis | sieving |
| 3 | 5 | Bulk soil | Dating and analysis | sieving |
| 4 | 7 | Bulk soil | Dating and analysis | sieving |
| 5 | 9 | Bulk soil | Dating and analysis | sieving |
| 6 | 11 | Bulk soil | Dating and analysis | sieving |
| 7 | 13 | Bulk soil | Dating and analysis | sieving |
| 8 | 15 | Bulk soil | Dating and analysis | sieving |
| 9 | 17 | Bulk soil | Dating and analysis | sieving |

7. Conclusions

A total of nine pits containing varying quantities of cremated bone were excavated at this site at Peafield. One pit was also excavated which did not contain any bone.

The entire contents of the pits are in the course of being wet sieved and analysed by an osteo-archaeologist.

The pits represent a prehistoric flat cemetery, and results of the post-excavation processing of the excavated material will help to assign a date for this site, and the demographic of the people who were buried there.

8. Non-Technical Summary

8.1 Introduction

This report details the archaeological excavation of a flat cemetery at Peafield, Co. Limerick. This excavation was necessitated due to topsoil stripping associated with the Limerick Southern Ring Road.

8.2 Context list

A context method of recording the archaeology was used at Peafield. This method uses a numbering sequence for the archaeological features found. Each feature or each element in a feature is numbered one to infinity. The context list then is a full list of all the numbers allocated during the excavation (section 2 of the report).

8.3 Stratigraphic Sequence

Section 3 of the report visually shows the numbers allocated during the excavation and the relationships between them in the form of the “matrix”. These relationships are also described in words.

8.4 Interpretation of Stratigraphy

Section 4 attempts to explain what each feature at Peafield was and what it was used for. This is not always possible and sometimes functions of some features remain conjecture. A dating sequence for the site is an important consideration at this point and it is attempted to show the use of the site over time. The section discusses which features are contemporary, that is those that were used at the same time and those that were earlier.

8.5 Discussion

A wider perspective of the site at Peafield is taken in section 5 of this report. The importance of the excavation is also discussed.

8.6 Find and Sample List

All the artefacts found during the excavation must be labelled according to rules as set out by the National Museum of Ireland, statutory depository of all archaeological artefacts, as set out in the National Monuments Acts 1930-1994. There were no finds from the initial excavation although they may be recovered during sieving of the bulk soil samples.

The sample list is a numbered list of the soil samples taken during the excavation for the purposes of analysis. Charcoal samples will also be processed using a wet sieving programme.

8.7 Conclusions

The report concludes with a brief summation on the purpose of the excavation, its preliminary conclusions and further work to be undertaken such as the specialist reports. In light of the specialist reports and the dating results an amended conclusion will be submitted along with the specialist reports as appendices.

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10. Signing off Statement

Archaeological Firm: ÆGIS ARCHAEOLOGY LIMITED

Writers: Frank Coyne (site director and licence holder)

Client Uniform Construction Ltd.
Limerick Southern Ring Road Site Compound,
Monaleen,
Limerick

Signed: _____
Frank Coyne
(Director and licence Holder)

Tracy Collins for ÆGIS ARCHAEOLOGY LIMITED

Dated: September 2002

11. Appendices

11.1_Osteoarchaeological Report on cremated bones excavated at

**Peafield,
Kilmurry,Limerick
Licence no.: 02E1408**

by
**Linda G. Lynch MA MIAI MIAPO
Osteoarchaeologist**

Client:
ÆGIS ARCHAEOLOGY LTD
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Jan. 2011

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Abstract

This report details the osteoarchaeological analysis of human cremated bone recovered during excavations at Peafield in Kilmurry, Limerick by Frank Coyne of ÆGIS ARCHAEOLOGY LTD in 2002 (licence no. 02E1408). The site was excavated as part of the archaeological resolution of the Limerick Southern Ring Road. Human cremains were recovered from nine pits. The Minimum Number of Individuals identified was nine adults. The assessment of the bones indicates a highly complex treatment of the dead, a common factor in many prehistoric cremations.

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Osteological Terms Used

A number of basic terms are used frequently in osteo-archaeology and these are outlined below. The definitions are taken from White and Folkens (1991, 28-35) and Bass (1995, 319-321).

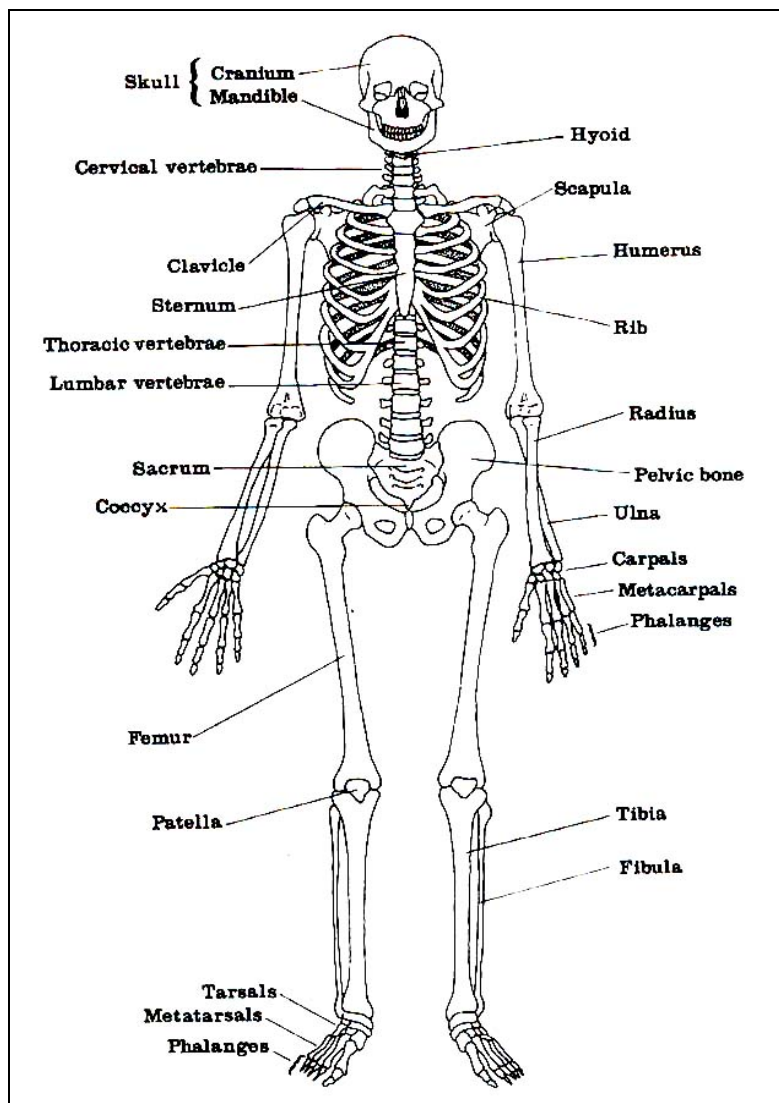


Figure 1. Annotated diagram showing main skeletal elements (after Mays 1998, 2, fig. 1.1)

Directions - General

Superior - toward the head of the body.

Inferior - opposite of superior, body parts away from the head.

Anterior - toward the front of the body.

Posterior - opposite of anterior, toward the back of the individual.

Medial - toward the midline of the body.

Lateral - opposite of medial, away from the midline of the body.

Proximal - nearest the axial skeleton, usually used for long bones.

Distal - opposite of proximal, furthest from the axial skeleton.

Palmar - relating to the hand, the palm side

Plantar - relating to the foot, towards the sole of the foot

Dorsal - relating to the hand and foot, the back of the hand, the top side of the foot

External - outer.

Internal - opposite of external, inside.

Endocranial - inner surface of the cranial vault.

Ectocranial - outer surface of the cranial vault.

Direction - Teeth

Mesial - toward the point on the midline where the central incisors contact each other.

Distal - opposite of mesial.

Lingual - toward the tongue.

Labial - opposite of lingual, toward the lips.

Buccal - opposite of lingual, toward the cheeks.

Incisal - the biting surface of the tooth.

Occlusal - the chewing surface of the tooth.

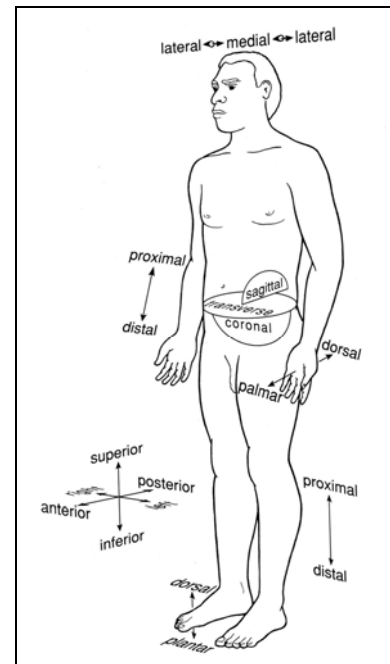


Figure 2. Anatomical directions
(from White & Folkens 1991, 29, Fig. 3.1)

General bone features/terms

Process - a bony eminence.

Eminence - a bony projection, usually not as prominent as a process.

Spine - generally a long, thinner, sharper process than an eminence.

Tuberosity - a large, usually roughened eminence of variable shape, often the site of a ligament attachment.

Tubercle - a small, usually roughened eminence, often a site of a ligament attachment.

Trochanters - two large, prominent, blunt, rugose processes found on the distal femur.

Malleolus - a rounded protuberance adjacent to the ankle joint.

Boss - a smooth round broad eminence.

Articulation - an area in which adjacent bones are in contact at a joint.

Condyle - a rounded articular process.

Epicondyle - a non-articular projection adjacent to a condyle.

Head - a large, rounded, usually articular end of a bone.

Shaft or diaphysis - the long, straight section between the ends of a long bone.

Epiphysis - usually the end portion or extremity of a long bone which is expanded for articulation.

Neck - the section of a bone between the head and the shaft.

Torus - a bony thickening.

Ridge - a linear bony elevation, often roughened.

Crest - a prominent, usually sharp and thin ridge of bone.

Line - a raised linear surface, not as thick as a torus or as sharp as a crest.

Facet - a small articular surface, or tooth contact.

Metaphysis - a line of junction between epiphysis and diaphysis.

Osteoblastic - process of bone formation

Osteoclastic - process of bone resorption

Other osteological terms

C1-C7 - cervical vertebrae (neck) numbered 1-7.

CEJ - cemento-enamel junction, junction of crown of tooth and root.

DJD - degenerative joint disease.

T1-T12 - thoracic vertebrae (torso) numbered 1-12.

TMJ - temporomandibular joint, joint of lower jaw.

L1-L5 - lumbar vertebrae (lower back) numbered 1-5.

S1-S5 - sacral vertebrae (in between left and right pelvis) numbered 1-5.

MC - metacarpal (bones of the palm of the hand).

MT - metatarsal (bones of the arch of the foot).

IAM - Internal Auditory Meatus in temporal bone of cranium.

EAM - External Auditory Meatus in temporal bone of cranium.

MNI - Minimum Number of Individuals.

1. Introduction

1.1 Background to Project

A small cremation cemetery and two outlier pits (Figure 3) were excavated as part of the resolution of the archaeological phase of the construction of the Limerick Southern Ring Road at Peafield in Co. Limerick in 2002. The work was directed by Frank Coyne of Aegis Archaeology Ltd under licence number 02E1408. Eight of the pits (Pits 2, 4, 6, 8, 10, 12, 14, and 16) surrounded a boulder, which may have acted as a marker for the cemetery. All of those eight pits contained cremated bone. A further two pits (18 and 20) lay between 80m and 100m away from the main concentration. Cremated bone was recovered from Pit 18 but Pit 20 did not contain any cremated bone(Coyne 2002).

Below is a summary of the excavation, taken from the ‘excavations’ website (www.excavations.ie):

| |
|---|
| Limerick 2002:1240 Peafield Flat cemetery R623552 02E1408 A series of pits was identified in a large field adjacent to construction work on the Limerick Southern Ring Road at Peafield, Kilmurry. Cleaning of the site revealed that these features consisted of one large oval pit, measuring 2.1m north–south by 1.6m, which contained occasional charcoal flecks, and eight pits concentrated around a flat boulder, each of which contained charcoal and cremated bone. The pits averaged 0.4m in diameter and were 8–200mm deep. A second large pit lay c. 100m east of this concentration of pits. This was circular, measuring 0.5m in diameter, with straight sides, a flat bottom and a maximum depth of 0.4m. It contained large amounts of cremated human bone and charcoal. The contents of the pits were bulk sampled and are currently being processed. Frank Coyne, Aegis Archaeology Ltd, 16 Avondale Court, Corbally, Limerick. |
|---|

Radiocarbon dates have been obtained from from pit 18, from a bone sample from that pit. This is presented in **Table 1**.

| Pit No. | Weight (g) | Date |
|---------|------------|-----------------------------|
| 18 | 1163 | Cal BC 1690 to 1500 (bone). |

Table 1. Radiocarbon dates from Peafield (F. Coyne, pers. comm.)

These dates indicate the cremation dates to the Early/Middle Bronze age.

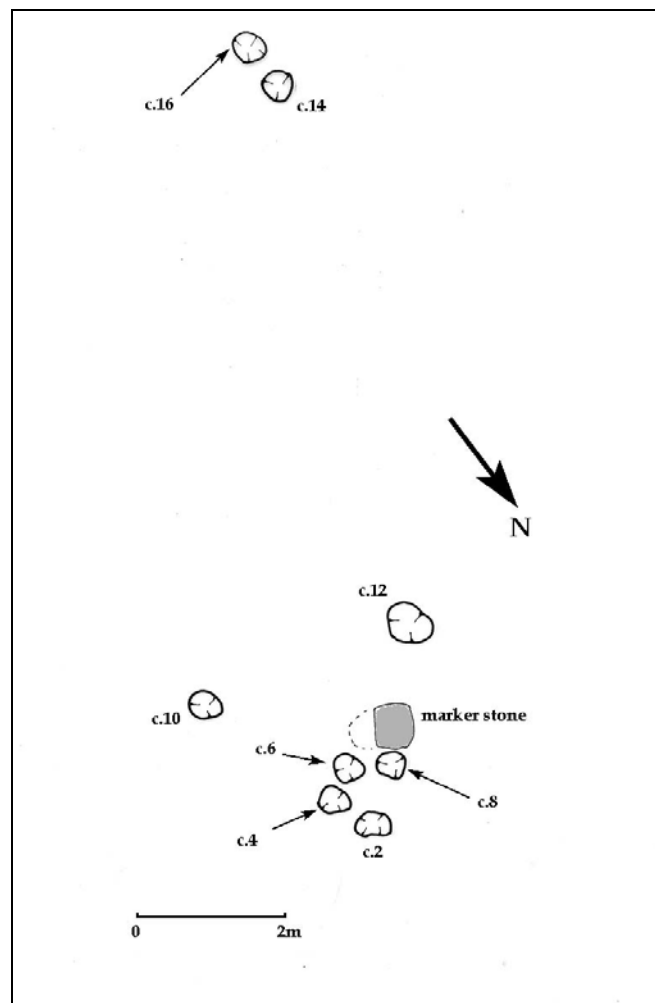


Figure 3. Plan of cemetery (supplied by client).

Pit 18 lay 100m to the southeast of the cemetery, while Pit 20 lay 80m to the east (no cremains recovered in latter).

1.2 Scope of Study

This report details the analysis of the human cremated bone (cremains) recovered during the excavations at Peafield. The materials and methods utilised in this study are described in Section 1.3 and Section 1.4 respectively. The results of the analysis are described in Section 2, while a synthesis and discussion are provided in Section 3. The conclusions of the study are provided in Section 4. References used are listed in Section 5.

1.3 Materials

Human cremains were recovered from nine of the ten pits excavated in Peafield. A list of the context numbers of the fill of each pit (a single fill in every case) along with the context number of the cut of the pit is provided in Table 2.

| | | | | | | | | | |
|--------------------|---|---|---|---|----|----|----|----|----|
| Fill No. | 1 | 3 | 5 | 7 | 9 | 11 | 13 | 15 | 17 |
| Cut/Pit No. | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 |

Table 2. Fill and cut numbers of each of the nine pits containing human cremains

All of the pits had been bulk-sampled during excavation and were processed in post-excavation by careful wet-sieving (Coyne 2002). The volumes of bone recovered from each of the pits is detailed in Section 2, and discussed in Section 3.2.

The bones were received by the writer in clean, labelled bags.

1.4 Methods

All of the cremains submitted to the writer for analysis were human in origin. Any diagnostic fragments of bone were recorded in detail, in order to later establish a minimum number of individuals (MNI). Unfortunately, due to the small sizes of the fragments and the low volumes of bone recovered, it was not possible to determine either the age-at-death or the sex of any individual. No pathological lesions were present on any of the recovered bones.

Fragment size was recorded in any samples weighing 10g or more. The graded sieve sizes used were <2mm, 2-<5mm, 5-<10mm, 10>mm. There may be some overlap, for example a fragment longer than 5mm but narrower than 5mm may fall into the 2-5mm category. However, the divisions are a good indicator of general size grades. The largest fragment in each sample was measured using a Powerfix® Electronic Digital Caliper.

All samples were also weighed, both in terms of the overall weight of the cremains, the weights of the various fragment size grades, and the weights of diagnostic fragments. The scales used was a Kenex® Notebook NB-2000, which weighs in 0.1g increments. Despite the cremains being cleaned after excavation, there are likely to be microscopic soil particles embedded in the bones, which may have added to the various bone weights. However, these are likely to be minimal. As with the fragment-size grades, the weights must be taken as to be largely indicative of the actual true figures.

All of the raw osteological data on the cremains recovered from Peafield are housed with the writer. The cremains will be returned to the client on completion of this report.

2. Analysis

Cremated bone was recovered from nine of the ten pits excavated at Peafield. The analysis of the cremains recovered from the pits is presented below in numerical order.

Pit 2, fill context 1

The cremains recovered from this pit weighed 9.1g in total. This comprised 62 fragments. All cremains were human in origin and all of the fragments were from long bones.

There is no evidence of duplication of skeletal elements, and neither is there any indication of other individuals of different ages-at-death in the sample, such as a child and an adult. The cremains are those of a single probable adult individual. It was not possible to determine a more accurate age-at-death, and it was not possible to determine the sex of the individual. No dental conditions and/or skeletal pathological lesions were present on the cremains.

The largest fragment was from a long bone and it measured 35.81mm in length. The cremains were generally white in colour.

Pit 4, fill context 3

The sample of cremains recovered from this pit weighed 35.3g in total. This comprised 162 fragments. All cremains were human in origin. All of the fragments were from long bones.

There is no evidence of duplication of skeletal elements, and neither is there any indication of other individuals of different ages-at-death in the sample, such as a child and an adult. The cremains are those of a single probable adult individual. It was not possible to determine a

more accurate age-at-death, and it was not possible to determine the sex of the individual. No dental conditions and/or skeletal pathological lesions were present on the cremains.

The largest fragment was from a long bone and it measured 30.84mm in length. A summary of the weights of the various fragment sizes is presented in Table 3.

| Size Grade (mm) | Weight (g) | % of Total |
|-----------------|-------------|------------|
| <2 | 0.1 | 0.3 |
| 2-<5 | 11.3 | 32 |
| 5-<10 | 19.6 | 55.5 |
| 10>mm | 4.3 | 12.2 |
| <i>Total</i> | <i>35.3</i> | <i>100</i> |

Table 3. Graded fragment size of cremains from Pit 4

The cremains were generally white in colour. There were visible traces of soot on the bones.

Pit 6, fill context 5

The cremains recovered from this pit weighed 5.4g in total. This comprised 29 fragments. All cremains were human in origin. All of the fragments were from long bones.

There is no evidence of duplication of skeletal elements, and neither is there any indication of other individuals of different ages-at-death in the sample, such as a child and an adult. The cremains are those of a single probable adult individual. It was not possible to determine a more accurate age-at-death, and it was not possible to determine the sex of the individual. No dental conditions and/or skeletal pathological lesions were present on the cremains.

The largest fragment was from a long bone and it measured 20.28mm in length. The cremains were generally white in colour and concentric fractures were apparent.

Pit 8, fill context 7

The cremains recovered from this pit weighed 0.6g in total. This comprised 7 fragments. All cremains were probable human in origin. The largest fragment was from a probable long bone and it measured 12.01mm in length. The cremains were generally white in colour.

Pit 10, fill context 9

This comprised a total of 193.7g or 822 fragments of cremated bone, identifiable as human in origin. It was possible to positively identify 85.1g or 43.9% of the total sample to bone type. A summary of the identified elements is provided in Table 4.

| Main Skeletal Division | Identified Skeletal Elements | Total weight (g) |
|-------------------------------|--|-------------------------|
| Cranium and mandible | Vault fragments; Frontal process of left zygomatic; Zygomatic process of right temporal. | 9.3 |
| Torso | - | |
| Limbs | Unidentified long bone fragments; Unsided patella fragment. | 75.8 |
| Unidentified fragments | | 108.6 |
| <i>Total</i> | | <i>193.7</i> |

Table 4. Identified human cremains in Pit 10, including weights of main skeletal parts

There is no evidence of duplication of skeletal elements, and neither is there any indication of other individuals of different ages-at-death in the sample, such as a child and an adult. The cremains are those of a single possible adult individual. It was not possible to determine a more accurate age-at-death, and it was not possible to determine the sex of the individual. No dental conditions and/or skeletal pathological lesions were present on the cremains.

The largest fragment was from a long bone and it measured 44.96mm in length. A summary of the weights of the various fragment sizes is presented in Table 5.

| Size Grade (mm) | Weight (g) | % of Total |
|-----------------|--------------|------------|
| <2 | 1.6 | 0.8 |
| 2-<5 | 51.3 | 26.5 |
| 5-<10 | 54.2 | 28 |
| 10>mm | 86.6 | 44.7 |
| <i>Total</i> | <i>193.7</i> | <i>100</i> |

Table 5. Graded fragment size of cremains from Pit 10

The cremains were generally white in colour and concentric fractures were visible.

Pit 12, fill context 11

The cremains recovered from this pit weighed 0.4g. This comprised 13 fragments. All cremains were probable human in origin. The largest fragment measured 9.58mm in length. The cremains were generally white in colour.

Pit 14, fill context 13

This comprised a total of 157.7g or 643 fragments of cremated bone, identifiable as human in origin. It was possible to positively identify 71.7g or 45.5% of the total sample to bone type. A summary of the identified elements is provided in Table 6.

| Main Skeletal Division | Identified Skeletal Elements | Total weight (g) |
|------------------------|------------------------------|------------------|
| Cranium and mandible | Vault fragments. | 10.6 |
| Torso | Iliac body fragment. | 3.4 |
| Limbs | Long bone fragments. | 57.7 |
| Unidentified fragments | | 86 |
| <i>Total</i> | | <i>157.7</i> |

Table 6. Identified human cremains in Pit 14, including weights of main skeletal parts

There is no evidence of duplication of skeletal elements, and neither is there any indication of other individuals of different ages-at-death in the sample, such as a child and an adult. The cremains are those of a single probable adult individual. It was not possible to determine a more accurate age-at-death, and it was not possible to determine the sex of the individual. No dental conditions and/or skeletal pathological lesions were present on the cremains. The

largest fragment was from a long bone and it measured 43.39mm in length. A summary of the weights of the various fragment sizes is presented in Table 7.

| Size Grade (mm) | Weight (g) | % of Total |
|-----------------|--------------|-------------|
| <2 | 1.1 | 0.7 |
| 2-<5 | 35.2 | 22.3 |
| 5-<10 | 59.2 | 37.5 |
| 10>mm | 62.2 | 39.4 |
| <i>Total</i> | <i>157.7</i> | <i>99.9</i> |

Table 7. Graded fragment size of cremains from Pit 14

The cremains were generally white in colour and concentric fractures were present.

Pit 16, fill context 15

This comprised a total of 18.4g or 119 fragments of cremated bone, identifiable as human in origin. All of the cremains were from long bones.

There is no evidence of duplication of skeletal elements, and neither is there any indication of other individuals of different ages-at-death in the sample, such as a child and an adult. The cremains are those of a single probable adult individual. It was not possible to determine a more accurate age-at-death, and it was not possible to determine the sex of the individual. No dental conditions and/or skeletal pathological lesions were present on the cremains.

The largest fragment was from a long bone and it measured 21.87mm in length. A summary of the weights of the various fragment sizes is presented in Table 8.

| Size Grade (mm) | Weight (g) | % of Total |
|-----------------|-------------|-------------|
| <2 | 0.1 | 0.5 |
| 2-<5 | 7 | 38 |
| 5-<10 | 10 | 54.3 |
| 10>mm | 1.3 | 7.1 |
| <i>Total</i> | <i>18.4</i> | <i>99.9</i> |

Table 8. Graded fragment size of cremains from Pit 16

The cremains were generally white in colour. There were visible traces of soot on the bones.

Pit 18, fill context 17

This comprised a total of 1163g or 2982 fragments of cremated bone, identifiable as human in origin. It was possible to positively identify 558.4g or 48% of the total sample to bone type. A summary of the identified elements is provided in Table 9.

| Main Skeletal Division | Identified Skeletal Elements | Total weight (g) |
|------------------------|---|------------------|
| Cranium and mandible | Vault fragments; Fragment of anterior of ascending ramus just inferior to coronoid with fragment of mandibular fossa; Medial aspect of right orbit; Fragment of frontal with temporal line; 5 root fragments. | 141.6 |
| Torso | Body and dens of C2; 3 rib shaft fragments; Fragment of body of S1?; 1 iliac body fragments. | 16.1 |
| Limbs | Long bone shaft fragments; 7 convex epiphyseal fragments; Distal half of a proximal foot phalanx; Distal hand phalanx. | 400.7 |
| Unidentified fragments | | 604.6 |
| <i>Total</i> | | <i>1163</i> |

Table 9. Identified human cremains in Pit 18, including weights of main skeletal parts

There is no evidence of duplication of skeletal elements, and neither is there any indication of other individuals of different ages-at-death in the sample, such as a child and an adult. The cremains are those of a single probable adult individual. It was not possible to determine a more accurate age-at-death, and it was not possible to determine the sex of the individual. No dental conditions and/or skeletal pathological lesions were present on the cremains.

The largest fragment was from a long bone and it measured 66.16mm in length. A summary of the weights of the various fragment sizes is presented in Table 10.

| Size Grade (mm) | Weight (g) | % of Total |
|-----------------|------------|------------|
|-----------------|------------|------------|

| | | |
|--------------|-------------|------------|
| <2 | 75.7 | 6.5 |
| 2-<5 | 145.5 | 12.5 |
| 5-<10 | 238.2 | 20.5 |
| 10>mm | 703.6 | 60.5 |
| <i>Total</i> | <i>1163</i> | <i>100</i> |

Table 10. Graded fragment size of cremains from Pit 18

The cremains were generally white in colour and concentric fractures were present.

A radiocarbon date has been obtained from a single long bone fragment from this sample, which weighed 9.8g (sample was submitted for dating after osteoarchaeological analysis). The date was Cal BC 1690 to 1500.

3. Synthesis and Discussion

3.1 Summary of Analysis

A summary of the analysis of the human cremains from Peafield is provided in Table 11.

| Pit and Context Nos | Weight (g) | No. of frags | Identification | Condition | Date | Largest frag. (mm) |
|---------------------|------------|--------------|----------------|---------------------------------------|-----------------------------|--------------------|
| Pit 2, C.1 | 9.1 | 62 | Probable adult | White in colour | . | 35.81 |
| Pit 4, C.3 | 35.3 | 162 | Probable adult | White in colour, with soot | . | 30.84 |
| Pit 6, C.5 | 5.4 | 29 | Probable adult | White in colour, concentric fractures | | 20.28 |
| Pit 8, C.7 | 0.6 | 7 | Probable human | White in colour | - | 12.01 |
| Pit 10, C.9 | 193.7 | 822 | Probable adult | White in colour, concentric fractures | - | 44.96 |
| Pit 12, C.11 | 0.4 | 13 | Probable human | White in colour | - | 9.58 |
| Pit 14, C.13 | 157.7 | 643 | Probable adult | White in colour, concentric fractures | - | 43.39 |
| Pit 16, C.15 | 18.4 | 119 | Probable adult | White in colour, with soot | - | 21.87 |
| Pit 18, C.17 | 1163 | 2982 | Probable adult | White in colour, concentric fractures | Cal BC 1690 to 1500 (bone). | 66.16 |

Table 11. Summary of analysis of Peafield cremations

3.2 Discussion

Overall, the weight of human cremains from this cemetery was quite low, a factor which is relatively common in Irish archaeological contexts. The total weight of bone recovered across the nine pits containing cremains was 1583.6g. Pit 18 accounted for 73.4% (1163g/1583g) of the total weight. Figure 4 illustrates the disparity between the volumes of bones in the various pits. The charcoal evidence (see Table 1) indicates that the isolated Pit 18 is broadly contemporary with the main grouping of pits. It is not clear however why this large deposit of bone was buried separately away from the collection of smaller pits, assuming that they are indeed contemporary.

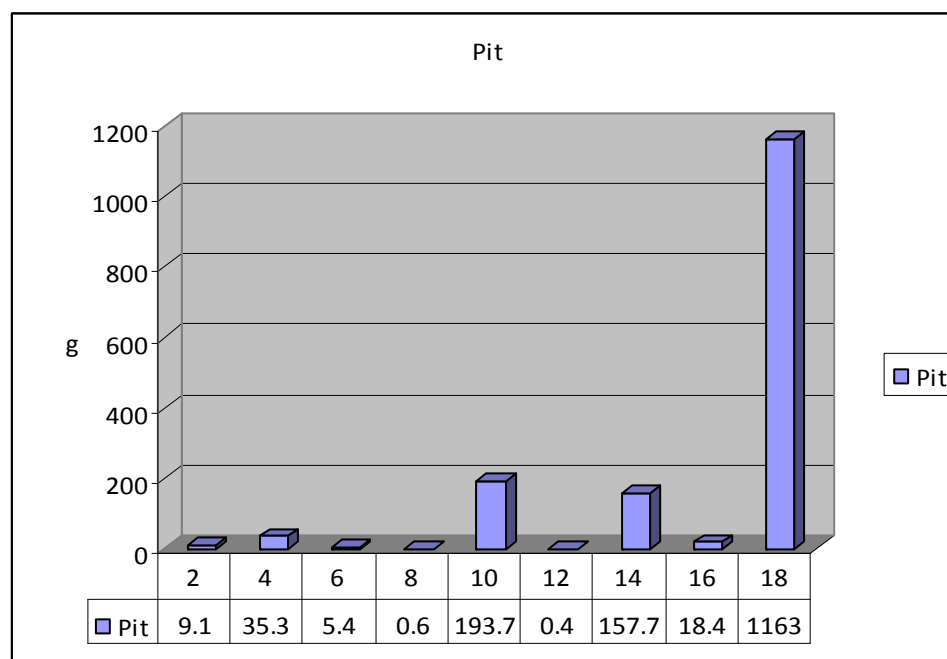


Figure 4. Weight of cremains as recovered per pit

A number of studies have been undertaken in recent times on the weights of modern cremated adult individuals, and the results are varied. McKinley found that the weight of the cremated remains of a complete adult may range from approximately 1600g to 3500g (McKinley 1989). A recent study of cremations of white American cadavers (excluding amputees) found that the average female adult cremation weighed 2350.17g while the average male adult cremation weighed 3379.77g (Bass and Jantz 2004). Similar strong disparities between female and male cremation weights have been observed in other studies (for example Silva *et al* 2009; Warren and Maples 1997). Bass and Jantz (2004) also found that the older an individual is at the time of death then the lighter the resulting cremated

bone. However, somewhat paradoxically, Silva *et al* (2009) found that older males had a high bone weight and they linked this with increased bone mass due to high mechanical loading over time. The variety however, in total bone weights of cremated adults in modern contexts is truly diverse. In the study by Warren and Maples (1997) the lowest weight recorded was just 876g.

Archaeological cremains actually rarely reach the higher levels noted above. None of the large number of Middle to Late Bronze Age cremation deposits, which were recently excavated during the construction of the Gas Pipeline to the west, exceeded 1kg in weight (Lynch and O'Donnell 2007). In a recent study of European cremations the average weights of cremations from each of the Urnfield culture period, the La Tène period and the Imperial Roman period were found to be just 393g, 347g, and 317g respectively (Wahl 2008). It is entirely possible that the 1583.6g of cremains from Peafield represent the complete remains of a single adult.

A summary of the diagnostic fragments from each sample is provided in Table 12.

| Pit | Weight | Cranial | Torso | Long bones | % identified |
|-----|--------|---|---|---|--------------|
| 2 | 9.1 | | | Long bones. | 100 |
| 4 | 35.3 | | | Long bones. | 100 |
| 6 | 5.4 | | | Long bones. | 100 |
| 8 | 0.6 | | | | 0 |
| 10 | 193.7 | Vault fragments; Frontal process of left zygomatic; Zygomatic process of right temporal. | | Unsided patella fragment; Unidentified long bone fragments. | 43.9 |
| 12 | 0.4 | | | | 0 |
| 14 | 157.7 | Vault fragments. | Iliac body fragment. | Long bone fragments. | 45.5 |
| 16 | 18.4 | | | Long bones. | 100 |
| 18 | 1163 | Vault fragments; Fragment of anterior of ascending ramus just inferior to coronoid with fragment of mandibular fossa; Medial aspect of right orbit; Fragment of frontal with temporal line; 5 root fragments. | Body and dens of C2; 3 rib shaft fragments; Fragment of body of S1?; 1 iliac body fragments. | Long bone shaft fragments; 7 convex epiphyseal fragments; Distal half of a proximal foot phalanx; Distal hand phalanx. | 44.8 |

Table 12. Identified fragments from the Peafield cremations

No juvenile remains were present in the samples and no sample contained the remains of more than one individual. When the diagnostic skeletal elements are assessed across all of the cremains it is apparent that there is no duplication of fragments. This might suggest that the cremains from Peafield actually do represent the deposition of the bones of a single adult individual in at least nine separate pits. Certainly, all of the cremains were white, which indicates complete cremation of all of the body elements represented on the site. This would argue in favour of the premise that all of the cremains are from a single individual.

However, if the cremains represent the remains of up to nine probable adults, then a significant amount of the cremains were not deposited in the excavated pits. Only the large deposit of 1163g of bone in Pit 18 could possibly represent the remains of a complete adult. It is possible that a significant volume of bone has disintegrated in the soil through time. However, studies have indicated that cremated bone tends to survive very well in most soils, including acidic environments (Mays 1998, 209). The cremains were scientifically excavated and recovered and therefore loss of bones during the excavation and post-excavation stage may be essentially dismissed. Therefore it is likely that portions of the cremations were utilized in other ways. Water may have had a ritual significance in terms of the cremation process (see Lynch and O'Donnell 2007) and perhaps some of a cremation was deposited in water. Also, evidence has emerged in recent years (for example see Lynch *et al* 2010) that portions of cremations, or even single fragments, may have been retained for some time prior to deposition (as shown by patterns of wear) and it is possible that this is the case at Peafield.

Another aspect of the cremains needs to be considered in terms of assessing whether the cremations represent a single individual or multiple individuals. At least two of the cremations – Pit 4 (18.4g) and Pit 16 (35.3g) – had a 'sooty' appearance. While the bones were completely cremated they were covered in a fine black soot-like substance. This may suggest that these bones were processed after cremation in a different manner to the bones in the other pits. It is possible that the other cremations were subject to washing/rinsing after cremation, or indeed that water had been used to cool the cremations to allow handling. In contrast, the cremains in Pit 4 and Pit 16 may have been left to cool where they were cremated and then were gathered and deposited in the pits. The post-cremation processes are difficult to assess. But it is evident that the further processing of the bones after cremation was an important factor. While it is entirely possible that selected portions

of a single cremation were processed in different manners, it seems more probable that the nine cremation pits at Peafield actually do represent up to nine different individuals.

Bone fragment size is an important consideration in terms of assessing post-cremation processing. All of the samples weighing more than 10g were assessed for fragment size. The results of the assessment are presented in Figure 5.

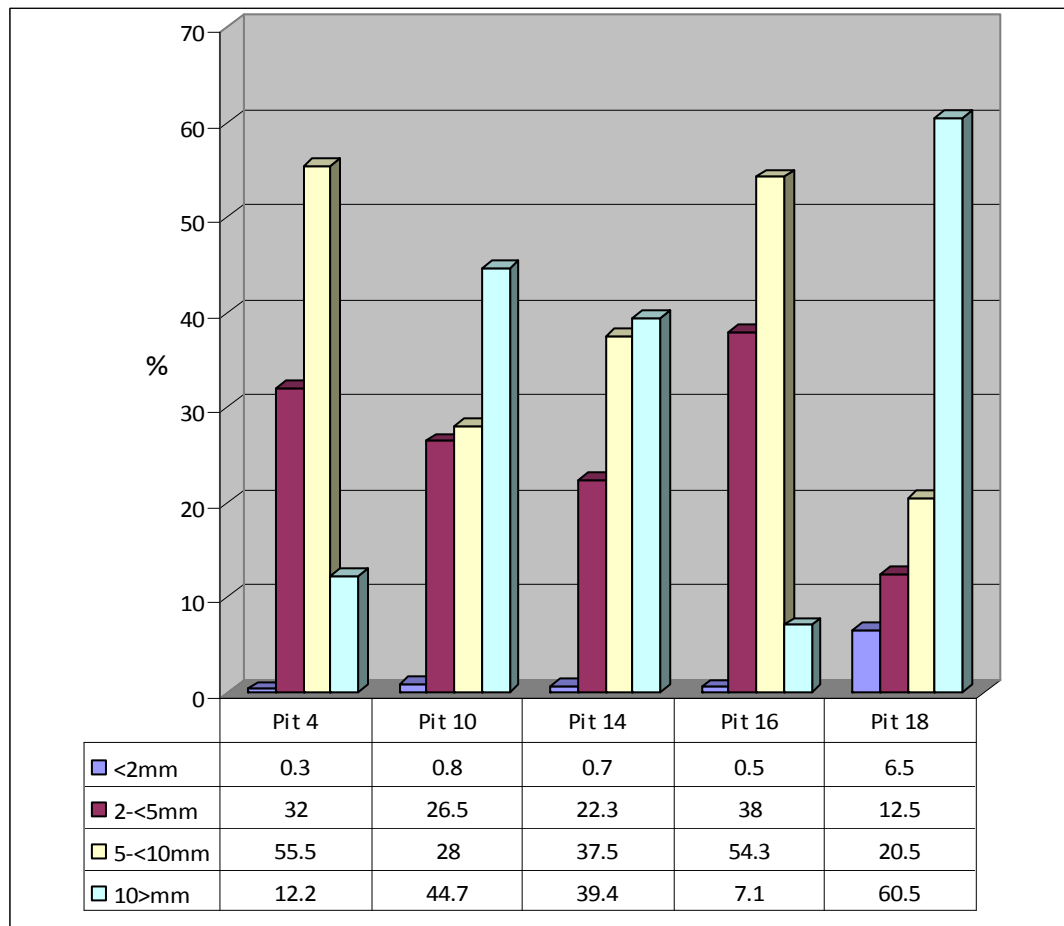


Figure 5. Fragment sizes of cremains samples weighing 10>g

There was significant variation across the five pits (10>g) in terms of fragment size. In Pit 18 (1163g) just over 60% of the sample was 10>mm. In contrast, in Pit 4 (35.3g) just 12.2% of the fragments were greater than 10mm in size. Similar low results were evident in Pit 16 (18.4g). In Pits 10 (193.7g) and 14 (157.7g) 44.7% and 39.4% of the cremains were greater than 10mm respectively. This suggests that it may simply be that the lower the volume of bone the smaller the fragment sizes.

Fragment size has been extensively studied in terms of cremations. A generalized study of cremation burials in Britain found that, on average, 50% of the fragments were greater than 10mm in size (McKinley 1994, 340). In ideal archaeological circumstances, cremated bone fragments may be in excess of 30mm and can be up to 140cm in size (McKinley 1994, 342). In that study, McKinley found no substantial evidence of deliberate post-cremation fragmentation of the deposits. In the case of the Peafield cremations there is no significant evidence that the cremains were heavily processed after cremation by pounding. The pounding of cremated bone appears to have been particularly prevalent in the Middle and Later Bronze Age in Ireland (see Lynch and O'Donnell 2007). Based on the radiocarbon dates obtained for the Peafield cremations to date, the cemetery dates to the Early/Middle Bronze Age. The relatively large size of the bone fragments would appear to partly confirm those dates.

The actual diagnostic fragments were also examined. In a typical adult individual, the bones of the cranium will weigh approximately 18.2% of the total skeleton, the torso bones 23.1%, and the limb bones 58.7% (McKinley 1989). This may also be translated to complete adult cremains samples. Just three of the samples from Peafield were large enough to allow such analysis. These were Pit 10 (193.7g), Pit 14 (157.7g), and Pit 18 (1163g). These are presented in Figure 6, with the expected rates also illustrated.

The torso elements are significantly underrepresented in all three cremains samples from Peafield. However, this is a common finding in Irish archaeological contexts and is likely to be related to the fragility of most of those skeletal elements. The limbs are overrepresented and it is possible that this is directly related to the general robusticity of those skeletal elements. The cranial remains are somewhat overrepresented in the large deposit in Pit 18, and underrepresented in Pit 10 and Pit 14. Given that the latter two pits in particular contained quite low volumes of cremains (193.7g and 157.7g respectively) it is difficult to ascertain whether there was any deliberate selection of body parts for deposition. However, some of the pits that contained much smaller deposits of bones comprised exclusively of long bones. These were Pits 2, 4, 6, and 16. This suggests that there was at least some degree of selectivity in the bones that were finally deposited. When a body is cremated in a modern crematorium the outline of the body will be preserved very clearly in the cremains afterwards. This can also occur in pyre-cremations, if the pyre is not stoked too much. The exclusive long bone deposits in some of the smaller pits suggest that at least those elements were specifically targeted for deposition.

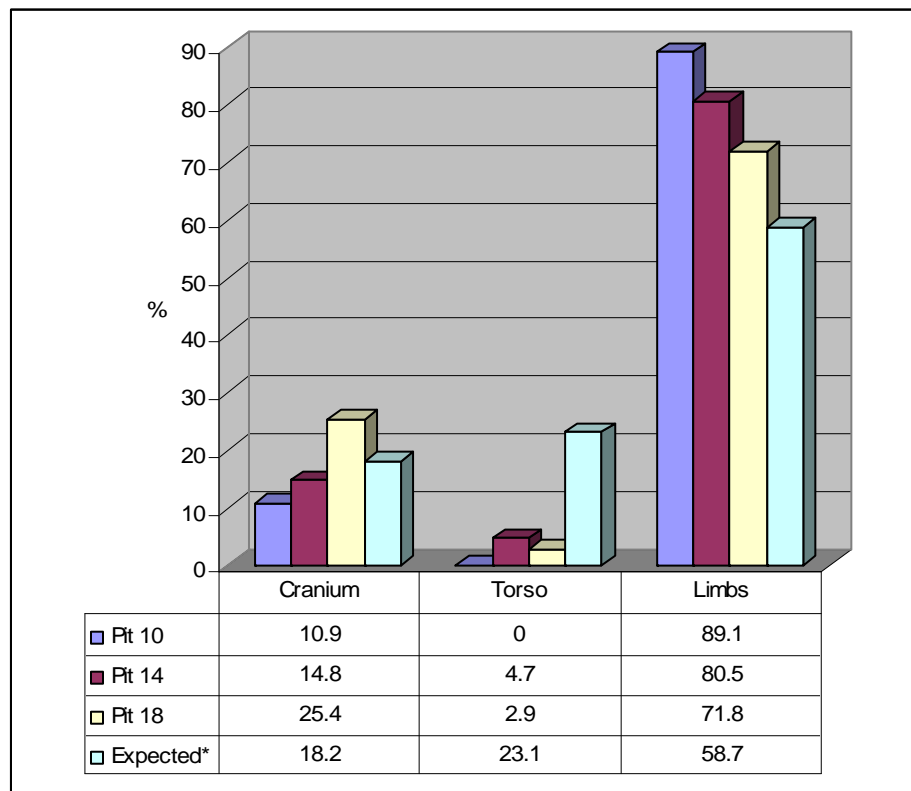


Figure 6. Identified skeletal elements in comparison to expected rates

* from McKinley 1989

Clearly the cremains in the nine pits differ significantly from each other in many aspects. However, in two aspects they are similar, suggesting that they may indeed be all contemporary. All of the cremated bone fragments from Peafield, without exception, were all white in colour. This indicates complete cremation at pyre temperatures of between 654°C and 1200°C (after Mays 1998, 217). It suggests that the complete cremation of the body was important, perhaps the final obliteration of the flesh. It also indicates that the society that undertook the cremations were very adept at the complex processes involved. In addition, the fractures that were evident in the fragments reveal that at least some of the cremations were of complete fleshed bodies. Most of the samples of cremains recovered were too small to assess the fracture patterns in detail. However, concentric fractures (as opposed to straight fractures) were apparent in the long bone fragments of a number of samples. These include the cremains from Pits 6, 10, 14, and 18. Fractures occur when, as a result of the intense burning, the bones begin to shrink, crack, and shatter. Concentric or U-shaped fractures are frequently recorded in cremains, particularly in long bones and concentric fissures in the proximal heads of the femora and humerus. These concentric fractures only occur in fleshed fresh bones as a result of the forces exuded by the burning

and constricting flesh (McKinley 2000). This indicates that fleshed bodies were being cremated, rather than dry bones.

4. Conclusions

The volume of bone recovered from the cremation cemetery at Peafield was relatively low in volume. However, the osteoarchaeological analysis of the cremated remains has revealed some intriguing insights into this ancient practice. It appears that the remains of up to nine probable adults were deposited in pits at Peafield, with most of them focused around a possible marker boulder. One large pit, isolated from the others, contained the highest volume of bone. A tenth 'empty' pit may have been a cenotaph-like feature. The complete cremation of the fleshed body appears to have been an important factor. Although there was no evidence that the bones were processed after cremation by pounding, there was evidence of differential treatment of some samples. At least two samples of cremains retained a soot-like substance, presumably from the pyre itself. The other appeared to have been cleaned before deposition. In addition, at least in some instances, only selected portions of cremains were chosen for deposition.

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11.2 Peafield, Co. Limerick: Report on Bronze Razors.

Dr. Charles Mount

Find. No. 02E1408:17:1 Razor

Razor 02E1408:17:1 has a surviving length of 59mm and a maximum width of 30mm and is just 2mm thick. The razor is incomplete, missing its butt and tang with a longitudinal break and there is a fragment of the blade missing. There is a rivet hole cut through the razor 28 mm from the end of the blade. This indicates an attempt to re-haft the razor, probably after the original haft was broken. Decoration consists of two parallel grooves on both faces, slightly diverging and ranging from 11.5mm apart at the broken butt end to 13mm near the end of the blade. The razor resembles examples from Pollacorrage, Co. Galway, Carrowjames, Co. Mayo and Newcastle, Co. Wicklow, (Kavanagh 1991, Pgs. 91-2, 94 & 100; Fig nos 27.13, 28.22 & 31.39).

Found in a pit burial, context 18, with cremated bone and another razor Find. No. 02E1408:17:2.

Find No. 02E1408:17:2 is the more complete of the two. A long and narrow form, the razor is missing the end of its tang and the end of the blade has been slightly bent and the point is missing. The razor is 58mm long and 20mm wide and 5mm thick. There is no indication of decoration. This razor is similar to examples from Kilmore and Rahinashurock, Co. Westmeath (Kavanagh 1991, Pgs. 98 & 100; Fig nos 30.32 & 31.36).

Found in a pit burial, context 18, with cremated bone and another razor Find. No. 02E1408:17:1.

Discussion

Bronze razors are unusual finds and the discovery of a pair in the same burial is hitherto unparalleled within an Irish context. Prior to this discovery 44 Irish razors were detailed by Kavanagh (1991) and the Peafield finds bring the total number currently known to 46. Kavanagh noted that 31 of the razors she examined derived from burials in which all the identified remains were adult males. The Peafield pair was probably associated with at least one adult male.

Associations

This is the first time that a pair of razors has been found in association.

Dating

O'Sullivan & Bayliss (Pers Comm.) using Bayesian analysis looked at the dating of Irish razors and their most common association, cordoned urns. They concluded that razors started to appear in graves in the period *1885–1615 cal BC (95%)* probably from *1765–1690 cal. BC (42%)* and stopped appearing in graves in the period *1680–1395 cal. BC (95%)*, probably in *1600–1480 cal. BC (61% probability)*. The radiocarbon date of 1690–1500 cal. BC (Beta–292723) obtained from associated bone in the Peafield pit burial fits well within the razor sequence and suggests that the burial was made in the earlier part of the radiocarbon date range.