4. Fauna and *fulachta fiadh*: animal bones from burnt mounds on the N9/N10 Carlow Bypass

Auli Tourunen

In the recent past it has often been reported that animal bones are not found in the excavation of burnt mounds/*fulachta fiadh*. Explanations for this lack of faunal remains have ranged from acid soil (Hedges 1974–5, 42) to scavenging animals (O'Kelly 1954, 141) or to specific functions of these sites that would not have resulted in animal bone waste (Barfield & Hodder 1987, 371). But the stated lack of bones from burnt mounds seems to be, at least to some extent, only partly true. Animal bone finds were reported from a burnt mound in Fahee South, Co. Clare (Ó Drisceoil 1988, 675–7). Since then, animal bones associated with burnt mounds have been recovered during a small number of other excavations (several sites listed in catalogues published in Gowen et al. 2005 and Grogan et al. 2007). The animal bone evidence has not been analysed in detail before, however.

The animal bones—both burnt and unburnt—that form the basis of this study were recovered from a number of burnt mounds along the Carlow Bypass section of the N9/N10 Kilcullen–Waterford Scheme: Prumpelstown–Powerstown in counties Carlow and Kildare. The sites were excavated by Headland Archaeology Ltd on behalf of Kildare County Council, Carlow County Council and the National Roads Authority (NRA).

Animal bone patterns reflecting the function of burnt mounds

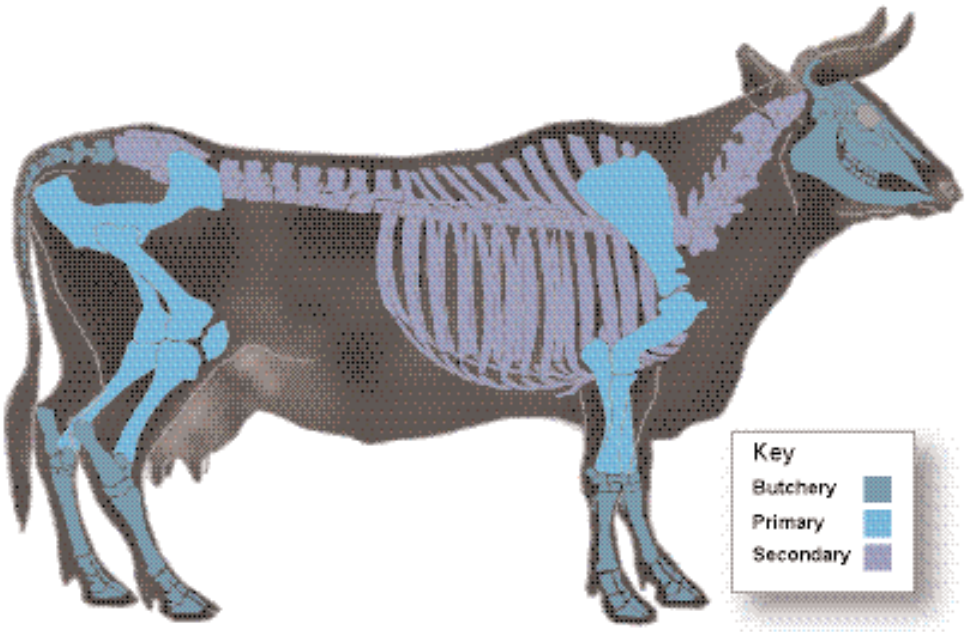
Previous research has presented different possible functions of burnt mounds: cooking (Fahy 1960; O'Kelly 1954), bathing (Barfield & Hodder 1987), textile- or leather-processing (Waddell 2000, 177), grease extraction (Monk 2007) or meat-curing (Roycroft 2006, 38). As different activities create contrasting assemblages of animal bones, faunal studies can help to differentiate the functions associated with the features from which the bones were recovered. Thus a site used for cooking will have a different pattern of animal bones than a site used for tanning or for grease extraction. In this study, two factors were used to examine the activities on burnt mound sites: species and anatomical distribution.

Species distribution

The presence and absence or proportion of different animal bones reflects the function of the site. For example, if burnt mounds were used as deer-cooking places, as is sometimes claimed (e.g. O'Kelly 1954), deer bones should be present.

Anatomical distribution

As different anatomical parts are discarded during different phases of butchery, the anatomical distribution of the sample can indicate the activities practised on site (Binford 1978, 1–14; Reitz & Wing 1999, 202–4; Lyman 1994, 223–34). The processing of the carcass of a large mammal (e.g. cattle or horse) can be divided into three different phases: slaughter



Illus. 1—Anatomical elements associated with the different stages of carcass-processing (figure by Sara Nylund & Eavan O'Dochartaigh).

(including skinning and removal of the horn cores), primary butchery (carcass dismemberment) and secondary butchery (preparation for cooking).

The elements associated with the three stages are presented in Illustration 1. Processing starts with skinning the carcass. The lower leg bones, or metapodials, can be left on the skin as handles to aid the later processing of the hide during tanning. The horn sheath with horn cores can also be removed and transported to the place of horn-working, where the bony core is discarded. Bones with little meat around them, such as skulls, jaws, tails and lower leg bones, if not left attached to the skin, are often abandoned in the initial place of slaughter. Their presence during excavation indicates that animals were actually slaughtered on site and not introduced as processed carcasses.

After the slaughter and skinning, the remaining carcass is further processed during primary butchery. This phase includes dismemberment of the carcass to more manageable portions, so that meat can either be transported to the cooking place or preserved by drying or curing. Thus the skeletal parts from which meat is easy to remove (large heavy bones and upper limb bones) are processed and the bones subsequently discarded. Meat is more difficult to strip from the trunk. These bones are often left attached and preserved (for example dried) or cooked with the meat (Binford 1978, 97–101). Therefore these elements are less frequent in the place of slaughter and primary processing and more frequent where the meat was actually consumed.

The pattern of body-part transportation is complex and can be affected by nutritional stress, the need for raw materials or grease extraction. Moreover, the whole process from slaughtering to consumption can be done at a single spot, which means that all the bones will end up in the same deposits. The division described above is partly theoretical as virtually all skeletal parts include some nutrients: cattle tails can be used for soup, and the head and lower legs include some amounts of meat and marrow. In the case of extreme hunger these parts will be consumed as well. In a situation where meat is abundant, however, these parts would

probably not be transported any significant distance: it is simply not worth the trouble, as the valuable parts, like the tongue, can easily be extracted right after slaughter, if desired. In addition, as it is possible to associate certain skeletal elements with certain activities, the basic pattern is very useful when interpreting bone materials and past activities.

Fat exploitation

There are two types of fat in the bone that can be exploited: marrow and bone grease (Outram 2005, 33). Marrow is found inside longbone shafts and can be extracted easily by cracking the longbones open. The resulting pattern seen in an archaeological bone assemblage will be one of undamaged longbone ends and axial elements (e.g. vertebrae and ribs) with fractured splinters of shaft bone. Bone grease is situated inside the bone structure; bones need to be smashed into small pieces and boiled in order to extract it. The resulting pattern will be large numbers of small pieces of spongy bone accompanied by larger shaft splinters.

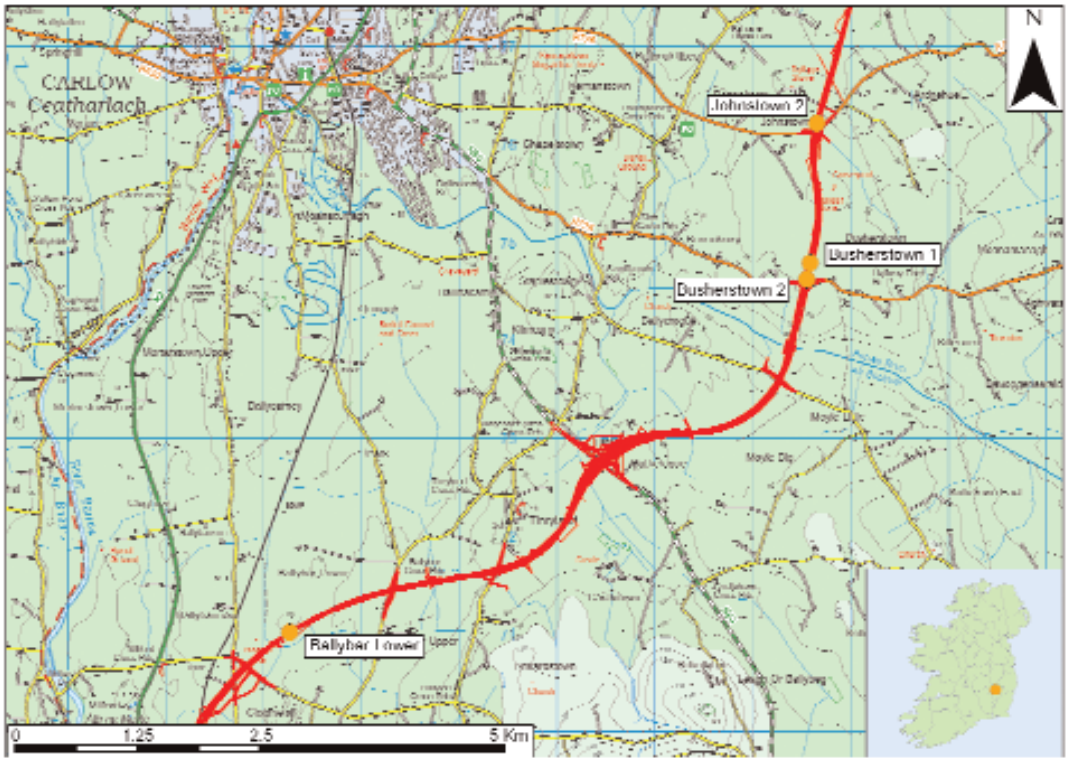
Animal bones from the Carlow Bypass

Animal bones recovered from the burnt mounds during the excavations carried out by Headland Archaeology Ltd on the N9/10 Carlow Bypass were examined against the background described above. A total of 18 burnt mound sites were excavated in Carlow and Kildare; of these, 12 contained animal bone. In three of these burnt mounds bone was only recovered through the sieving of the soil samples. Two burnt mounds contained only burnt bone. The bone material derives from the fills of troughs or pits or, in one case, from subsoil.

Only a few fragments of bone or teeth were recovered from most of the sites, but four of them—Ballybar Lower, Busherstown 1, Busherstown 2 and Johnstown 2 (Illus. 2)—included over 100 identified fragments (Table 1).[1] The radiocarbon dates from these sites span the period from the Early Bronze Age to the Iron Age (see Appendix 1 for details). Most of the sites were isolated burnt mounds with no signs of permanent settlement. Ballybar Lower, however, exhibited an unusually wide range of structures, a timber platform and a very large pit or trough.

Table 1—Species distribution on burnt mounds from the N9/N10 Carlow Bypass

Site	*Cattle*	*Horse*	*Deer*	*Pig*	*Sheep/goat*	*Human*	*Unident.*	*Total*
Ardnehue	11							11
Ballybar Lower	44	4	4	4			357	413
Ballyburn Lower	16			1				17
Burtonhall Demesne	11							11
Busherstown 1							127	127
Busherstown 2	51	7	6	2		1	564	631
Busherstown 3							13	13
Johnstown 1	1							1
Johnstown 2	16	2		1	2		81	102
Prumpelstown Lower	1						7	8
Rathcrogue	1						2	3
Tinryland	4						5	9
Total	156	13	10	8	2	1	1156	1346



Illus. 2—Location map showing the burnt mound sites where most of the animal bone was found (based on the Ordnance Survey Ireland map).

Species distribution

Domestic animals, especially cattle, dominate the sample (see Table 1). Horse and red deer bones are also well represented. The unidentified bone included at least 60 fragments representing large mammals, such as cattle, horse or red deer, but these are pieces too small to be identified to particular species. Some bones from sheep or goat and pig were also present; most of the pig bones derive from Ballybar Lower. One human bone fragment, a piece of femur (thigh bone), was discovered as well. It was badly preserved and probably derived from a disturbed burial. The large numbers of unidentified fragments indicate the fragile nature of the material. Bones were often found in several pieces even if otherwise well preserved and complete—e.g. one red deer metacarpal (front lower leg bone) from Ballybar Lower was found in 61 pieces, quite a jigsaw puzzle for a zooarchaeologist!

The selection of large mammals may have been related to grease extraction because larger bones have more grease in them. The bone material here was very fragmented, but the fractures were caused after burial and not by human action. It seems that most of the bones were complete or almost complete when buried. Bone grease was not exploited, therefore, as the bones were not deliberately cut into small pieces for boiling. One of the longbones, a horse humerus (foreleg bone), was cracked open for marrow extraction, so some marrow exploitation did take place. It seems that the marrow was exploited occasionally but not always. Grease or marrow extraction was not the main function of these sites.

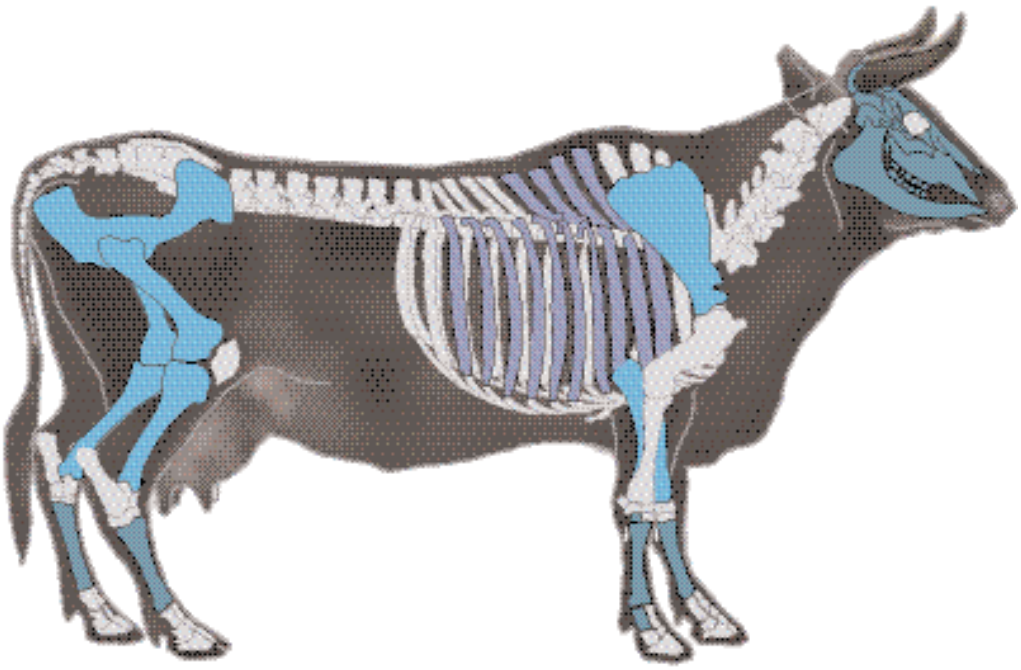


Table of Quantities (NISP)

Butchery		Primary		Secondary	
skull	26	rad	11	rib	10
mand	16	scap	10	thor	4
m/t	11	tib	9		
m/c	8	hum	8		
carp	1	pel	4		
phal1	1	fem	4		
		ulna	2		

Illus. 3—The anatomical distribution of cattle and horse in the sample; most of the bones were of cattle (figure by Sara Nylund & Eavan O'Dochartaigh).

Anatomical distribution

Red deer is represented almost exclusively by antler and lower leg fragments: the only exception was one red deer humerus present in the Ballybar Lower assemblage. Thus the red deer bone assemblage indicates antler-working and tanning activities rather than consumption.

The anatomical distribution of cattle and horse exhibits a different pattern (Illus. 3). The assemblage included plenty of fragments from heads and limbs, while vertebrae and ribs were present in fewer numbers. This pattern is typical of waste from slaughter and primary butchery (Binford 1978, 115). The low numbers of trunk elements indicate that meat was not consumed on the spot.

Discussion

In addition to evidence from faunal remains, the burnt mound sites exhibit other types of evidence relating to their use. They are places with access to water and are often located far away from settlement sites. Many burnt mounds have produced scrapers and whetstones, while associated features include pits and post-holes.

Where bones occur, it seems likely that these sites were used for tanning hides and processing antlers and possibly also horns. Tanning is an activity that often took place outside occupation areas, near rivers or lakes because of the need for water but also because of the characteristic odours associated with the activity (MacKinnon 2004, 222; Serjeantson 1989, 135). Antler and horn need to be soaked or boiled in water before processing (MacGregor 1985, 64, 66). In addition, scrapers might be connected with the processing of hides. The other bone evidence indicates that large domestic animals were slaughtered and that the meat was processed, but not consumed, on site. Whether meat was transported to other sites for immediate consumption or was preserved by curing, drying or burying it in anaerobic (oxygen-free) conditions (Roycroft 2006, 39) is as yet undetermined. The post-holes and pits often found at these sites could relate to these activities.

The absence of bone material from burnt mounds may be due to several factors, such as acidic soil conditions or cleaning processes. Burnt bone does survive better than unburnt bone in acidic soil. The presence of burnt bone proves that bone material was indeed present on the site in the past, even if the unburnt bone may have been destroyed. Above all, the recovery of this type of evidence requires careful sampling, as seen in the material of this study. The lack of bones from six of the sites excavated on this road scheme may be due to the cleaning process, however. Cleaning was sometimes carried out through the filling of a trough or pit, which preserved part of the bone material. If these sites were not permanently occupied but only visited, bones were probably simply discarded to the margins of the site, where they would gradually decompose or be eaten by wild animals. A similar practice can still be seen near present-day hunting cabins in Finland, located away from settlements and visited only during the hunting season: skulls and longbones of elk are simply dumped in the forest a short distance away and left to rot.

Burnt mounds were probably multifunctional, 'backyard' sites where various activities of a messy nature were carried out. Meat-processing, tanning and antler-working may have been only a few of the functions of these features. The examined samples cover only a fraction of the chronological and spatial variation that the sites exhibit, however: more studies are required to examine the matter thoroughly. For example, the material from Ballybar Lower differs from that recovered from the other sites and exhibits signs of consumption as well. It is likely that the site had a more complex function, perhaps being partly domestic in nature. Moreover, not all of the animal bones recovered from burnt mound sites in Ireland are dominated by cattle; the only identified species in five burnt mounds excavated by the Lisheen Mine Archaeological Project in County Tipperary was sheep (or goat) (Stevens 2005, 326). Animal bones have been recovered from burnt mounds during other projects carried out by Headland Archaeology Ltd in counties Galway and Tipperary, but the excavations on the N9/N10 in counties Carlow and Kildare, ongoing at the time of writing, have already produced more material. Thus, in the future, more comprehensive and multidisciplinary research will be possible.

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Note

1. Ballybar Lower, Co. Kildare; NGR 272265, 171013; height 75 m OD; excavation reg. no. E2618; ministerial direction no. AO21/060; excavation director Liam Hackett.
Busherstown 1, Co. Carlow; NGR 277581, 174789; height 80 m OD; excavation reg. no. E2583; ministerial direction no. A021/025; excavation director Áine Richardson.
Busherstown 2, Co. Carlow; NGR 277545, 174624; height 80 m OD; excavation reg. no. E2584; ministerial direction no. A021/026; excavation director Áine Richardson.
Johnstown 2, Co. Carlow; NGR 277650, 176216; height 84 m OD; excavation reg. no. E2586; ministerial direction no. A021/028; excavation director Áine Richardson.