

**The animal bones from Castle Hill Pumping Station,
Banff**

Headland Site Code CHB01



Worked whale rib from Context 24

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November 2013

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Methods and measurement

Animal bones were recovered from the site both by hand-excavation and sieving of soil samples, as detailed in Stronach (2001).

The mammal and bird bones were identified by direct comparison with modern comparative material and were allocated to particular bone and species where possible. Where it was not possible to identify bones as far as species, the terms *large ungulate*, *small ungulate* and *indeterminate mammal* were used: thus all large vertebrae other than the atlas and axis were described as large ungulate, while small vertebrae were described as small ungulate. Ribs were similarly allocated depending on their size. Large ungulate bones were most likely to have come from cattle, but could also have come from horse or red deer. Similarly, small ungulate bones were most likely to have come from sheep, but could possibly have originated from goat, pig or roe deer. All other mammalian fragments for which neither species nor bone could be ascertained were described as indeterminate mammal.

Measurements were made in accordance with the scheme of von den Driesch (1976) and are expressed in millimetres. Additional measurements on the humerus follow Legge and Rowley-Conwy (1988). Mandibular tooth wear and eruption patterns were assessed using Grant's (1982) scheme for cattle, sheep/goats and pigs, as well as Payne's (1973) scheme for sheep/goats.

Condition scoring

Prior assessment of the bone assemblage had determined that the condition of the bones was generally fair (Henderson 2001). Here, each hand-excavated fragment has been given a numerical condition score in order to allow comparisons between features. The following attributes are scored:

General: provides a general short-hand description of the overall condition of the bone. May be one of the following (numerical score in brackets): very poor (1), poor (2), fair (3), good (4). 'Good' would be applicable to fresh bone.

Surface abrasion: describes the degree of erosion of the surface caused by taphonomic factors such as weathering, soil conditions, etc. Scored as heavy (1), moderate (2) or slight (3).

Density: describes the apparent 'heaviness' of the bone. In general, the more well-preserved a bone is, the heavier and denser it appears to be, whether through retention

of organic material or re-mineralisation from the soil. Scored from 1 to 5, where 1 is the least dense.

Friability: describes the degree of crumbliness. Scored from 1 to 5, where 1 is the most crumbly and 5 is the least crumbly.

Total score for poorly preserved bone is therefore lower than that for well-preserved bone. The most poorly preserved would score only 4 points while the best could potentially score 17 points.

Results

Species recovered: mammals

A full catalogue of the hand-excavated remains is shown in Table 1 and the retents are listed in Table 2 (see Excel spreadsheet).

The hand-excavated assemblage was dominated by the bones of large domestic mammals, particularly cattle (27) and sheep/goat (12). For convenience, the number of fragments is given here in brackets, but see also Table 3 for a summary of hand-excavated bone fragments by feature.

Pig bones were less common (3) and horse (5) only slightly more frequent than pig. Three dog bones were found in total and somewhat interestingly have all the appearance of having come from the same large individual. One of the bones, a left distal humerus, was found in the secondary midden deposit (Context 22) while two of the fragments, a left distal tibia and part of a left innominate (pelvis) came from the upper accumulation above the midden (Context 23). This may be indicative of bioturbation or other disturbance of the midden material.

Wild mammals were represented by a mandible and antler fragments of red deer (*Cervus elaphus*) present in the secondary mound (Context 22) and skull fragments in the fill of Cut 32. One of the antler fragments (Context 22) was cast (naturally shed) and so does not represent an animal which was killed; however a mandible in the same context must represent a dead animal. Similarly, the skull and associated uncast antler fragments in Context 31 must have come from an animal which had died.

Three cetacean fragments were recovered from Context 24, the burning accumulation. The largest fragment, a large piece of worked rib, is most likely from a sperm whale (*Physeter macrocephalus*) (J Herman, Z Timmons, pers comm).

Species recovered: birds

All of the bird bones came, not unexpectedly, from seabirds, most of them gulls. Unfortunately it is not possible to distinguish the bones of the herring gull (*Larus fuscus*) from its close relative the lesser black-backed gull (*L. argentatus*) on

morphological grounds, and juvenile specimens are even more problematic. Seven of the fragments were identified as *L. fuscus/argentatus*, three as *Larus* sp and one as probable gull (cf *Larus* sp). With one exception, these came from the secondary mound, Context 24. One bone, thought to be from the largest of the native gull family, the great black-backed gull (*L. marinus*) was also recovered from the secondary mound.

One bone of gannet (*Morus bassanus*) was recovered from Context 30, the fill of a pit. The secondary mound, Context 22, contained one bone of cormorant (*Phalacrocorax carbo*) and one of probable greylag goose (*Anser anser*). The burning accumulation (Context 24) contained one fragment which possibly came from a species of wader.

Several small indeterminate juvenile fragments, were recovered from retents (Context 22) and may also have come from gulls.

Age of mammals at death

Few bones preserved evidence of the age of the mammals at death. No cattle mandibles survived and of the bones with epiphyseal evidence, one was from an adult (a distal metacarpal from Context 22) and four fused epiphyses came from either adult or immature animals. No juvenile bones survived.

In the case of sheep/goats, four mandibles survived, providing evidence of animals at Payne's stages D (1–2 years in modern terms), F (3–4 years), H (6–8 years) and I (8–10 years) (Contexts 22, 24 and 30). This is an interesting rate of survival of older animals, but is not unusual in a medieval context as older sheep are still capable of producing good crops of wool and lambs.

Two pig femora provided evidence of the presence of juvenile animals (Context 22).

Evidence of butchery

Evidence of man-made marks was present on the bones of both mammals and birds, implying that not only the expected domestic animals were utilised as food, but that the diet was supplemented by game animals and wild fowl.

Chop marks and knife cuts were most frequently observed on bones of cattle/large ungulate, sheep/goat/small ungulate. A red deer mandible from the secondary mound, Context 22, was chopped twice in a dorso-ventral direction, implying that meat had been removed from the head. The mandible was found in the same deposit as a cast antler which also showed evidence of knife cuts along the edge of the antler beam, but is very unlikely that the two bones came from the same animal. As the antler was shed it may have been picked up and brought to the site as a piece of useful raw material, whereas the mandible was probably associated with a carcass, or at the very least, a complete deer skull from an animal which had been deliberately killed.

Several bird bones also bore knife cuts, indicating food use. These were mainly from the secondary mound (Context 022) and consisted of a cormorant tarso-metatarsus with

a deep knife cut near the proximal end, a scapula from a probable greylag goose with a knife cut near the proximal end, and two radii from herring/lesser black-backed gulls, one of which bore at least eight separate cuts. A coracoid from a gannet in a pit fill (Context 30) also bore a knife cut on the posterior aspect of the shaft.

Worked whalebone



Detail of whalebone from Context 24

Present in the burning accumulation, Context 24, were three fragments of whalebone: a vertebral epiphysis, a fragment of possible rib and a larger rib fragment which has been modified. The larger, curving rib fragment is 885mm long, with a circumference at the widest part of 255mm. It has been identified as having most likely originated from a sperm whale (*Physeter macrocephalus*) (J Herman and Z Timmons, National Museums Scotland). One short end shows signs of recent damage but the opposite short end has been roughly chopped. A series of parallel hacks or deep knife cuts is placed along both the anterior and posterior long edges of the specimen. Placed off-centre is a roughly cut oval hole, penetrating into the central cavity of the bone without cutting through the posterior wall. The oval hole is slightly countersunk within a roughly oval depression measuring 110mm across, surrounded by the knife cuts which have been used to carve it out.

Given the large size of the fragment, it is possible that the bone may have had a structural function. Ethnographically, whalebones have been used as roof supports in Inuit dwellings and it is not impossible that the potential of a large scavenged bone with its own natural curvature might have suggested a similar use as a cruck or roof truss. Further ways in which the bone may have been used include as part of a support for holding a pot over a fire, or a bucket over a well. James Woolett (pers comm) notes that similar objects are used in the construction of Inuit sleds and boats (umiaks), but these are much much smaller and lighter. In this case the bone is so heavy it is not easily portable and so it must represent part of a fixed structure

Elsewhere, incidences of whalebone as a structural material have been recorded at Buckquoy in Orkney, within a farmstead of Pictish date, although the piece found there is much smaller and is described as a 'squared block of cetacean bone with concave upper surface, 142mm by 125mm, 31mm thick' (Ritchie 1977, 197). It was suggested that this whalebone block, described as a socket, functioned as part of the door furniture (ibid, 180 and fig 2). Two perforated cetacean vertebrae interpreted as post sockets were found at Dun Mor Vaul (Mackie 1974, 146, Plate 3).

Mulville (2002) has studied the incidence of cetacean bone found at sites on the Atlantic seaboard of Scotland and has found evidence that not only were whales and their relatives used for food and for the structural capacities of their bones but that the bones themselves were often used as fuel. The high oil content of the bones confers a 'fuel utility' and burnt whalebone has been found in association with metal working at Iron Age Bornish (ibid 43–4). A smaller fragment from Castle Hill, Banff, probably also a rib (Context 24), is in poorer, abraded condition than the structural fragment, with signs of recent breakage at each short end. It is not possible to say whether it was originally modified as an artefact, but it does show signs of burning, implying it may have been used as fuel.

Discussion

The detailed study of the animal bone assemblage shows that the occupants of the site, as well as obtaining their food supply from domestic animals and fishing, also exploited other marine resources, particularly seabirds, and when the opportunity presented itself, the occasional stranded whale. Whales in particular had other uses besides that as a food source. Cetacean bones from Castle Hill were used structurally and possibly as a source of fuel, as evidenced by burning.

Wild land mammals do not appear to have played a large part in the economy of the site. Two deposits of red deer fragments, one consisting of a mandible and cast antler (from the secondary mound) and a skull fragment with attached antler found in a linear cut, indicate both that shed antlers were collected, and that large animals were indeed hunted. Antlers were a valuable natural resource, much favoured for the production of combs because of the raw material's mechanical strength and greater resistance to breakage than bone (MacGregor 1985, 28).

That seabirds were consumed is indicated by the knife cuts present on bones of goose, cormorant, gannet and gull species. This appears to indicate deliberate hunting of adult, and to a lesser extent, juvenile birds, although there remains a chance that some of them may have been a by-catch of sea-fishing. Evidence of use of seabirds as food in the medieval period on the north-east coast of Scotland has also been found at sites in North Berwick, at Forth Street and at the site of the Scottish Seabird Centre, where the gannets of the Bass Rock were exploited (Smith 2008a, 64; Smith forthcoming). Gannet bones have also been recovered from medieval St Andrews (Smith 1997, 106) and from the Isle of May (Smith 2008b, 95).

As at North Berwick and the May, although a small number of all bird species came from juveniles, the majority of the bones from Banff Castle Hill come from birds which in an osteological sense were adults. In an ornithological sense some of these may still have been immature non-breeders but these cannot be distinguished from true breeding adults from the remains found at Banff. Certainly the few bones of cormorant and gannet were osteologically adult, although some of the gull bones were incompletely formed and could therefore be ascribed to juveniles

Somewhat surprisingly, no bones of the auk family were retrieved from the Banff Castle Hill middens. Birds such as guillemots and razorbills were commonly exploited along Scotland's east coast and were found in large numbers in the medieval and post-medieval deposits on the Isle of May (ibid, 96). The explanation for the lack of auks at Castle Hill may be that the meat supply obtained from other, more easily harvested bird species was sufficient for the needs of the inhabitants. It may have been felt unnecessary to travel the 11 miles or so to the east to gain the teeming seabird cliffs of Troup Head. Perhaps the cliffs were deemed too dangerous to attempt the collection of eggs and young birds, although in the past the perilous cliffs of St Kilda, for example, were no deterrent to the harvesting of seabirds. Today Troup Head is famous as a seabird 'city' and it is likely this was also the case in the medieval period, although population fluctuations are known to occur through time.

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Acknowledgements

Grateful thanks are due to Dr Jerry Herman and Zena Timmons of the National Museum of Scotland for their helpful comments on the identification of the whalebone. Tom McGovern and colleagues from the North Atlantic Biocultural Organisation (NABO) Vicki Szabo, James Woollett and Cecilia Anderung also generously shared ideas on the structural use of whalebone.

Table 3 Summary table of animal bone fragments by feature (hand-excavated)

No of fragments (NISP)									
Species	Primary midden	Secondary mound	Burning accumulation	Upper accumulation	Enclosure	Pit 29	Cut 32	total	
cattle	1	12	10	1					24
cf cattle		3							3
sheep/goat	1	4	5	1			1		12
pig		1							1
horse		1		4					5
red deer*		2						1	3
dog		1		2					3
Cetacean			3						3
LU	3	23	3	4				2	35
SU	3	15	5				2		25
IM	3	19	12	12		1	2		49
gannet							1		1
cormorant		1							1
herring/LBB gull		7							7
greater BB gull		1							1
Larus sp		2	1						3
cf Larus sp		1							1
wader sp			1						1
cf greylag goose		1							1
indeterminate bird		5		1					6
total	11	99	40	25	1	6	3	185	

*includes cast antler

