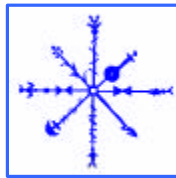


## Report of Cattle and Sheep Skulls Recovered from Hofstaðir, Mývatnssveit N Iceland

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***DRAFT VERSION 1 NORSEC LABORATORY REPORT No.5***

*July 14<sup>th</sup> 2002,*

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*A research product of the North Atlantic Biocultural Organization (NABO) Research  
Cooperative.*

**Introduction:**

In 1996, 1999 and 2000 the Fornleifastofnun Islands (Archaeological Institute Iceland, FSI) excavations at the site of Hofstaðir in the Mývatn district recovered nine domestic cattle skulls and one sheep skull in contexts suggesting that they had been displayed outside the great hall structure for some time before being removed during the dismantling of the hall ca. AD 1000. Two localities

of an outshot room (A2) attached to the great hall at Hofstaðir uncovered a pit deposit which contained the smashed remains of nine cattle skulls and one sheep skull. These did not appear to represent midden deposits of bone refuse derived from primary butchery or meal consumption, and they are not associated with other parts of the body. An examination of the skulls indicated that the whole or partial crania of several cattle and one sheep had some common characteristics;

- 1) Depressed fractures resulting from powerful blows between the eyes were clearly evident on 5 of the cattle skulls and on the single sheep skull.
- 2) Horn core fragments suggesting that the horns had not been removed (as was usual during butchery) on 4 of the cattle skulls. One cattle skull and the sheep skull were naturally polled (hornless), and the remaining cattle skulls were too fragmentary to assess.
- 3) At least two methods appear to have been used to prepare the skulls. In two cases, the lower face and teeth were removed leaving mainly the frontals with horn cores. In the other cases, apparently the whole cranium (less mandible) was displayed.
- 4) All of the cattle skulls which were not too fragmentary to assess showed strongly asymmetrical weathering, with the exterior surface strongly weathered and the interior surfaces essentially unweathered. Heavy weathering suggesting prolonged exposure in a fleshless state was evident on 5 of the cattle skulls.

The elements recovered and the asymmetrical weathering are strongly reminiscent of the two cattle skulls recovered in 1997 from the wall collapse of the SW wall of the great hall. While the function of these bone elements remains unclear and their full interpretation is beyond the scope of this report, some conclusions can be drawn from the condition of the bones and their find context. Where age can be determined, all but one of the cattle are mature but not aged animals. It would appear that the skulls were displayed for some time in an exterior surface subject to wind and weather before being collected together and thrown rather roughly into a pit in room AB, where they remained undisturbed by

subsequent activities. Three additional cattle skulls were recovered in the wall collapse of the great hall, two near the SW corner of the hall (1996) and a third in wall collapse just N of A2 (context 156). Their position and the differential wear on the outside of the skulls suggests that they were originally fixed to the wall or roof of the main structure.

This is a report on fragmentary remains of cattle crania recovered from the SW wall area of the hall (A) excavated by Bruun et al in 1907. The remains are in three major segments, but represent only two individuals. Both are *Bos taurus domesticus* (domestic cattle) and both derive from the 1996 excavations at Hofstaðir, context C15.

#### C15 iii "A"

The first individual (C15 iii) here designated A (*will have to change later skull designations or this one 2002*) is roughly a right half-cranium divided down the mid line including the occiput, frontal, parietal, and maxilla, but lacking the premaxilla. The only fragment of the left half of the skull is the left occipital condyle. One tooth (M1) is in the maxilla, and a second (P3) is loose but clearly associated. The dentition indicates an old juvenile/young adult with the adult M1 just coming into wear and the M2 and M2 still in crypt (unerupted). In developmental terms this would be a young animal but close to full adult size. The fragments here represent the side of the face of the animal, but without the jaw present. Note that this animal was naturally polled (hornless), which is a genetic trait found skeletally in other specimens from late medieval and early modern Iceland and from Norse deposits in Greenland and is still present in low frequency in modern Icelandic cattle.

Cause of death: there is a marked depressed fracture in the frontal, just behind the eye socket. Running across this depression is a straight cut mark made by a metal instrument with a blade at least 5 cm long (and probably double this). The bone around the cut mark shows slight but not marked crushing, suggesting a blow (rather than a slice), but one that was probably somewhat cushioned at the point of impact by skin and tissue. The blow was thus probably delivered to the face of an animal rather than to a bare skull. The cranial fracture along the mid line is certainly partly the result of the impact fracture, and does not show clear signs of further cutting. The skull of most cattle and caprines tends to come apart along the mid line, especially if a strong blow has been delivered to the mid line of the cranium as in this case. My interpretation would be that a blow from an axe or similar weapon killed the animal.

Note that the specimen is in good condition overall with little weathering apparent on either interior or exterior surfaces.

#### C15 c i, cii "B"

The second animal (B) is represented by a paired left and right frontal and horn core set, the two halves were found close together in excavation, but not connected. The frontal extends down to the orbit, but the occiput and maxilla have been broken away prior to deposition. The halves match perfectly along the mid line and were probably attached together before being broken apart at burial—the fracture edges are not abraded and match closely. While teeth area basent the fusion state and the surface character of the frontals indicate a fully mature individual of a conformation similar to modern Icelandic cattle, with horns moderate in length and carried straight and only slightly curved forward and upwards. From the size of the horn cores this animal is most likely to have been male (bull). Note that neither horn core shows any indication that the horn sheath was removed, which is very unusual. Virtually all horn cores I have seen from Iceland or Greenland have been snapped from the frontal and the horn sheath removed for use in craft production (this includes fragments recovered from the fill fo G at Hofstaðir as well. The preservation of the intact horn is unusual if not unique.

Cause of death: this animal also shows a clear depressed fracture on the midline of the frontal just above the eyes. No cut marks are visible, but the depressed fracture was clearly caused by a strong blow.

Note; This specimen is far more heavily weathered than specimen “A” and the weathering is not evenly distributed. The bones of the interior of the cranium have smooth surfaces showing little weathering, while the exterior (front) surface shows extensive checking, cracking, and localized exfoliation. This weathering is consistent with the bare bone being exposed for some time (months or years) to direct contact with sun wind and rain. Note that when excavated this specimen was lying face down, not face up, and the differential weathering must have occurred at some point before the specimen was broken and deposited where it was found. Note again that the clean nature of the break indicates that the specimen was only broken at or shortly before burial and it would have appeared as a complete rack of horns prior to burial.

## Description of the Bone Fragments

### **Skull A**

Figure 1 presents a lateral view (from left side) of the fragmentary cattle skull A. The skull is represented by left maxilla and most of the frontals, temporals, and occipital bones. Note that this



individual is naturally polled (hornless), a genetic trait that appears in modern Icelandic cattle and which has been observed archaeologically in both Iceland (Amorosi 1996) and medieval Greenland (McGovern 1985, McGovern et al. 1996). This early specimen confirms the presence of this trait in the Landnám cattle population taken into the N Atlantic islands by the early Scandinavian settlers.

Figure 2 presents a medial view from the front (anterior) surface, providing a better view of the depressed fracture between the eyes. No healing was observed in the margins of this massive wound, and it almost certainly caused the animal's death. This sort of mid-cranial smash by a mallet or the blunt end of an axe (usually combined with cutting the animal's jugular to catch the blood) was of course the standard NW European method of large animal slaughter from Neolithic down to recent times. The entire skull was probably originally present, and was broken (and the right maxilla lost) prior to final deposition in context 159. Skull A showed substantial weathering on the external surface of the frontals, extending to the penetration of the compact bone surface around the right orbit (see figure 3). This degree of weathering suggests exposure in a fleshless or partly defleshed condition for some time (months or years). The interior surface of skull A (figure 4) was unweathered and in essentially fresh condition, suggesting that it had not been exposed in the same way. The right occipital condyle has been sheared off by a powerful blow from above by an axe or heavy cleaver, probably detaching the head.



Fig. 2 Skull A



**Figure 3**  
Skull A  
Erosion of  
compact  
surface  
above orbit



**Figure 4** Skull A  
Showing relatively  
unweathered  
ventral (bottom)  
surface and marks  
of powerful  
chopping blow to  
the occipital area  
probably severing  
the head.

**Skull B**

Skull B is also *Bos taurus*, and also shows evidence of massive trauma. A depressed fracture between the eyes extends into the brain case below, certainly a fatal wound. This individual was by far the largest in the group, and the conformation of the frontals suggests that it is a bull (though of the small Viking-medieval type). This skull lacks maxilla or lower face, and these seem to have

been removed during the initial preparation of the cranium rather than being broken away when the skull was disposed of in the pit context 159. Note that while the ends of the horn cores have subsequently broken away, they were not cut from the frontals during initial butchery for horn extraction, as was the normal



Figure 5



Figure 6

practice. In its original condition, this specimen would have had a full rack of horns. The external surface of the skull is heavily weathered, showing flaking and exfoliation of the compact surface, while the interior surface is again comparatively smooth and unweathered. Again this pattern suggests prolonged exposure of a fleshless skull for a period of months or years. This specimen seems to have been additionally modified by having nearly the whole occipital (base) of the skull

removed, possibly to make the frontal rest flat against a surface.

**Skull C** (*Bos taurus*) appears to have shattered into five major fragments when deposited in the pit, and is represented by parts of the occipital, parietal, and frontals. The skull originally had horn cores but these have been broken off and were not associated with the smashed cranial elements.



**Skull D** comprises most of the frontals and the right zygomatic and maxilla of another cattle skull (*Bos taurus*) with a depressed fracture between the eyes (figure 8). The horn cores are now missing, but seem to have been lost to decay or damage when the skull was placed in the pit, as there are no cut marks around the base of the horn cores. The three fragments fit together.





**Skull E** comprises a set of cattle frontals with attached horn cores, partial parietals and part of the occipital (figure 9). The skull shows effects of a massive crushing blow between the eyes, which produced a depressed fracture extending into the brain case and which would have been immediately fatal. This skull is very similar in preparation to skull B, comprising the same set of elements and also exhibiting considerable weathering on its upper surface but little or none on its lower surface. This skull is much smaller than skull B and probably does not derive from a bull.



Figure 9

**Skull F** is represented by a cattle maxilla and premaxilla, with a single surviving second molar (M2, Grant wear state g).

**Skull G** is the only sheep (*Ovis aries*) skull in the group, and is represented by most of the skull including both halves of the maxilla (figure 10). This individual is unusual as it is naturally polled (hornless) like the cattle skull A. This trait was very rare in medieval Icelandic stock, and modern Icelandic sheep are almost all horned (both sexes). This would have been an unusual animal in the farmyard of the 10<sup>th</sup>-11<sup>th</sup> c. AD. The skull shows a powerful impact between the eyes, causing a fatal depressed fracture just as in the cattle skulls. This mode of butchery is a bit unusual, as most sheep and goat skulls recovered in large enough fragments from midden and other refuse deposits do not show such depressed fractures. A more common specialized sheep skull processing method was to split the skull lengthwise along the sagittal plane to produce a dish very similar to the modern *svíð* still enjoyed in Iceland. The mid-frontal smashing would preclude *svíð* production, and this is the only clear example of this form of butchery applied to caprines that we have seen in the Mývatn collections.



Figure 10

**Skull H** is an isolated cattle maxilla that cannot match any of the other cranial fragments. It is a juvenile with nearly unworn first and second molars.

## Summary Data

Table 1 presents the summary of the characteristics of the 8 specimens. All but skull G are cattle, and all that have preserved frontals have evidence of depressed fractures. Two skulls (one cattle and one sheep) are naturally polled. And it is not possible to tell if a horn core was attached to skulls C, F, and H. All show evidence of differential weathering on the upper (external) surface and appear to have been displayed outdoors for some time (months or years) before being finally deposited in the pit context 159. Some skulls seem to have originally been displayed whole, with lower face and nasal bones attached, but others (B and E in particular) seem to have been displayed as a set of frontals with attached horns.

**Table 1**

Skull Characteristics	Specimen							
	A	B	C	D	E	F	G	H
Species	<i>Bos t.</i>	<i>Bos t.</i>	<i>Bos t.</i>	<i>Bos t.</i>	<i>Bos t.</i>	<i>Bos t.</i>	<i>Ovis a.</i>	<i>Bos t.</i>
Depressed fracture	Yes	yes	?	yes	yes	?	yes	?
Horn Core present	nat. polled	yes	?	yes	yes	?	nat. polled	?
Maxilla Present	Yes	no	no	yes	no	yes	yes	yes

Table 2 presents the dental eruption and wear states of the maxillary teeth associated with four of the skulls (tooth wear scored according to Grant 1985). All but skull H were full adult (H is a late juvenile), and none showed extremely heavy wear associated with very old animals. While the sample is small, the general impression given is of animals in their prime rather than very young or very old individuals.

**Table 2**

Specimen	Tooth Wear (A.Grant)				
	P3	P4	M1	M2	M3
A	<i>g</i>	<i>g</i>	<i>k</i>	<i>k</i>	<i>j</i>
D		<i>f</i>	<i>k</i>	<i>k</i>	<i>j</i>
F				<i>g</i>	
H			<i>d</i>	<i>d</i>	

### ***The 1997 Skull Finds***

Copy 8-17-02

Report of analysis of two cattle cranial fragments from Hofstaðir (1996)

Tom McGovern (original written June 20<sup>th</sup> 1998)

***Conclusions***

***References***