Interim Report of Animal Bones from the 2002 Excavations at Skálholt, S Iceland

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E*xecutive Summary*

This is an interim working report on animal bones excavated from 19th century contexts at the site of *Skálholt* in S Iceland in 2002 by Fornleifastofnun Islands. The investigations are ongoing, and this is only the first of a series of zooarchaeological reports on this major site. Fish and bird remains are still under study and will be discussed in later interims, but this paper reports the 2,185 mammal bone fragments (745 of which could be identified as cattle, caprine, and horse) from 14 context. These domestic mammal bones are in most ways similar to other early modern Icelandic archaeofauna, with a strong concentration upon sheep and cattle. Butchery patterns include characteristic bi-perforation of caprine metapodials and some highly patterned preparation of sheep and cattle rib racks for formalized consumption at table.

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The Excavation

The animal bones reported here were excavated by the FSl (Archaeological Institute Iceland) in 2002 from deposits associated with the farm mound (Baejarhóll) at Skálholt, the site of the first Episcopal seat in Iceland. The site developed over the centuries into a major ecclesiastical center, and supported a large population down to the transfer of the bishopric to Reykjavik in 1785 following severe earthquake damage (Lucas 2002). The majority of the material reported here derives from fill dating to the 19th century, after Skálholt had reverted to being a private farmstead. The bone material was sieved (4mm mesh dry sieve) as well as bulk-sampled for floatation, and the current archaeofauna includes many fragments 1 cm long and smaller. Standards of recovery are consistently high. Excavations at Skálholt will continue for at least another four seasons, so this report should be seen as only a first interim and will certainly be revised in light of further work.

Bone Fragment Distribution

Figure 1 presents the distribution of all bone fragments (TNF= total number of fragments, both identified and unidentified) across contexts at Skálholt 2002. Fragments cluster in a few contexts, notably 014, 057, 060, and especially 065.

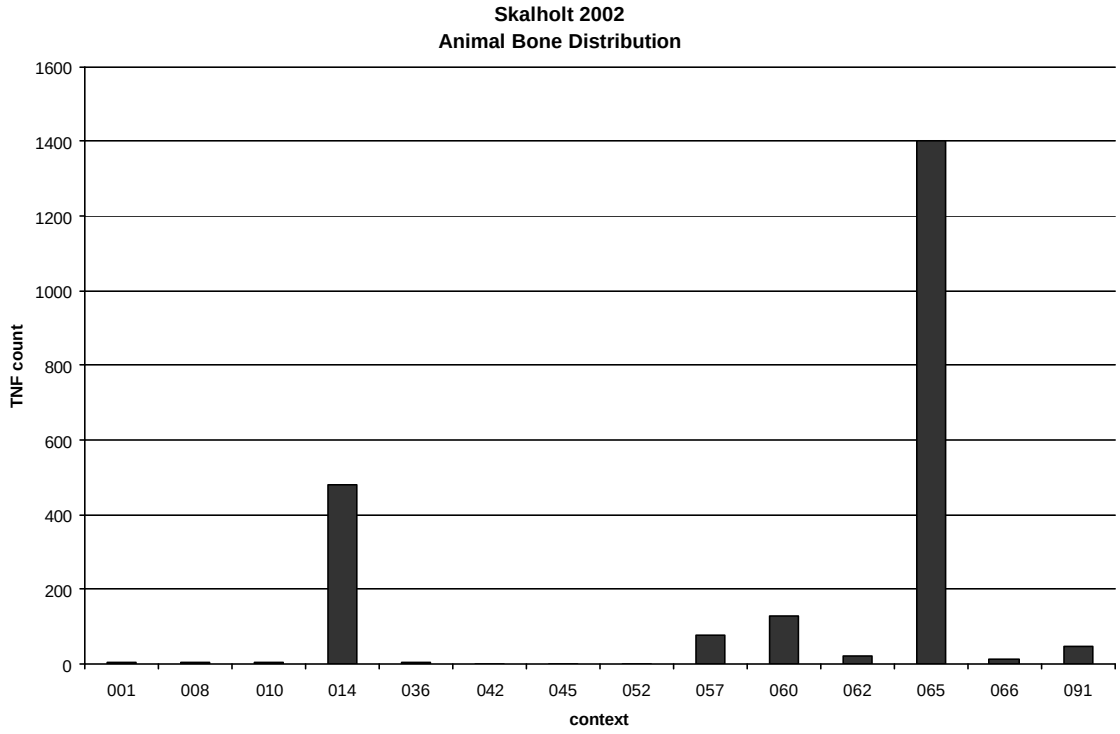


Figure 1

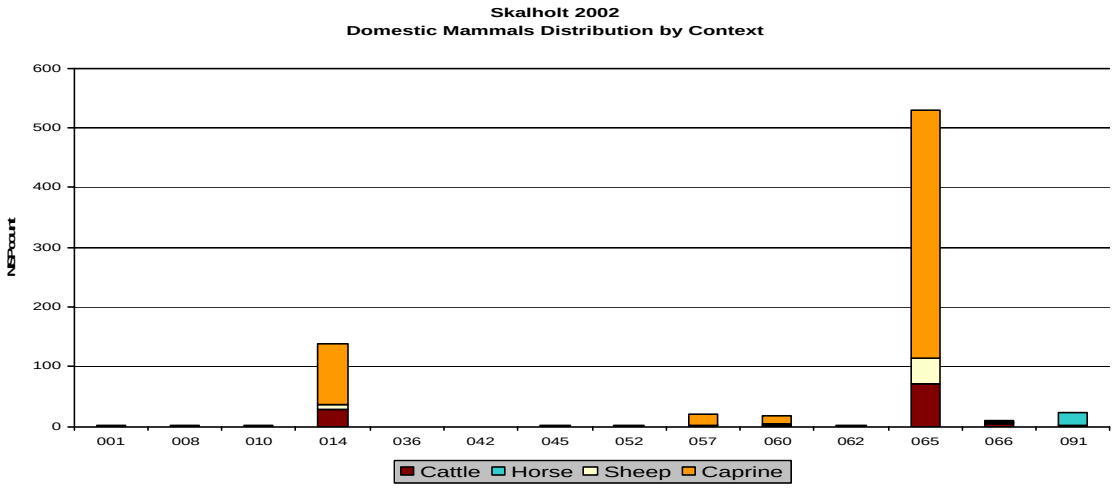
These are all contexts identified by the excavators as 19th c ash dumps (042, 060,062), 19th c midden fill (014) and 19th c midden and dung fill (065). They are thus not associated with the late 18th century bishop's manor, and reflect 19th century agricultural activity at the site. Table 1 presents these data broken down by taxon.

NISP	001	008	010	014	036	042	045	052	057	060	062	065	066	091	total
Cattle	2	1		30			1	1	2	1	1	71	4	2	116
Horse													4	20	24
Sheep				6					1	4		43	1		55
Caprine			2	103					17	13		415			550
total Caprine	0	0	2	109		0	0	0	18	17	0	458	1	0	605
total domestic	2	1	2	139		0	1	1	20	18	1	529	9	22	745
LTM				5		1			1			86	2	27	122
MTM				269					25	42		602			938
STM										1					1
UNIM		1	2	67	2				31	68	22	186			379
TNF TOT.	2	2	4	480	2	1	1	1	77	129	23	1403	11	49	2185

Table 1

Note that "caprine" refers to both sheep and goat collectively as these animals are difficult to identify to species level on many bone elements. In this archaeofauna, all identified caprine were in fact sheep, a common pattern for most early modern Icelandic sites. LTM are fragments assigned to the "Large Terrestrial Mammals" category of animals the size of cattle or horse. MTM are "Medium Terrestrial Mammals" of the sheep-goat-dog-pig size, and STM are "Small Terrestrial Mammals" of the small dog-fox-cat size that cannot be further identified. UNIM are all other unidentified mammal bone fragments.

Figure 2 presents the distribution of the identified domestic mammal bones.



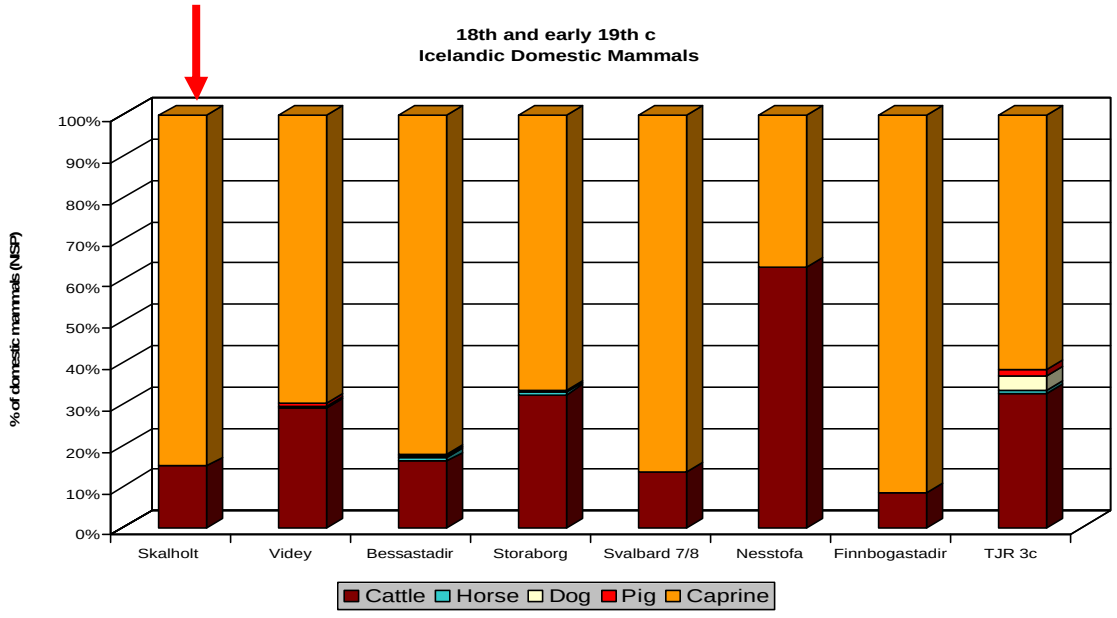
Domestic Mammals Present

The 2002 Skálholt collection includes domestic cattle, sheep, and horse. Pig and goat thus far are completely absent, as is usual in most 19th c Icelandic collections. Note that the horse bones are all concentrated in context 091, and appear to derive from two or three horse skulls rather than complete animals. There is no indication that horses were being eaten. Dog bones are not present in the collection, but the distinctive marks of their teeth are present on a number of bone fragments.

Only context 065 is over the 300 identified (NISP) mammal bone threshold for full quantification. Table 2 presents the relative percentages of the domestic mammals from the 065 context and the total relative percentages for all the securely identified 19th century contexts combined.

Table 2 NISP %	065	total 19th c
Cattle (*Bos taurus* dom. L)	13.42	14.85
Horse (*Equus c*. dom. L)	0.00	0.00
Sheep (*Ovis a.* dom. L)	8.13	7.64
Caprine	78.45	77.51
total Caprine	86.58	85.15

The ratio of all caprine bones to all cattle bones is 6.47 caprine per cattle bone, not a terribly high ratio of cattle given the importance of the site and its location in what has been a cattle-rich district. Figure 3 illustrates the current 19th c Skálholt domestic mammals in comparison to other 18th and early 19th c collections.



It is possible that the high quality of bone recovery in the 2002 Skálholt collection slightly increases the relative proportion of caprines (whose bones are smaller than most cattle bone fragments), but Nesstofa (SW), Finnbogastaðir (NW),

Tjarnargata 3 c (SW), and Svalbarð (NE) were also intensively sieved and the other archaeofauna are at least partially sieved. The status and farming strategy of the 19th c successor farm may be accessible through documentary sources and may repay study.

Age Distribution & Herding Strategy

At present we do not have enough intact tooth rows or long bone ends to effectively carry out a valid study of the distribution of domestic mammal mortality at Skálholt, but it is clear that both adult and young cattle and sheep are present in the collection. Table 3 presents the current count of new born (< 3 month old) cattle and caprine bones by context. The cattle neonates are easily explained as the byproduct of a dairying economy (see discussion in Enghoff 2003), but the number of newborn lamb bones is somewhat surprising. Concentrations of very young lamb bones are often interpreted as markers of stress on the farming system, though all flocks generate some sickly or stillborn lambs. This will be a variable to watch as the investigations continue.

Neonatal Elements (NISP)	001	008	010	014	036	042	045	052	057	060	062	065	066	091
Caprine				4								14		
Cattle				7								9		1

Taphonomy

Taphonomy is the study of the many processes (death, dismemberment, scavenging, decay, excavation, curation) that intervene between the time when a bone is part of a living animal and its arrival in a laboratory for identification. The many non-random transformations of the original skeleton certainly can affect zooarchaeological interpretation (see Lyman 1994 for review), but they also hold important information about the use and abandonment of the contexts in which the bone fragments are found. Investigation of the taphonomic signatures in the growing archaeofauna at Skálholt should be a productive area for collaboration as the program of excavation continues.

Burning

Figure 4 presents the distribution of burnt bone by context. Some contexts (with few bones total) have a very high percentage of burnt bone and were probably correctly interpreted in the field as ash dumps from hearth cleaning. Note however the very different percentage of burnt bone in the more bone-rich contexts 014 (ca 25% burnt) and 065 (>5% burnt). These differences may be chance, or may relate to different sources of these midden-like dumps. As work on *in situ* 18th c floor deposits goes forward, burning of bone may provide useful behavioral evidence.

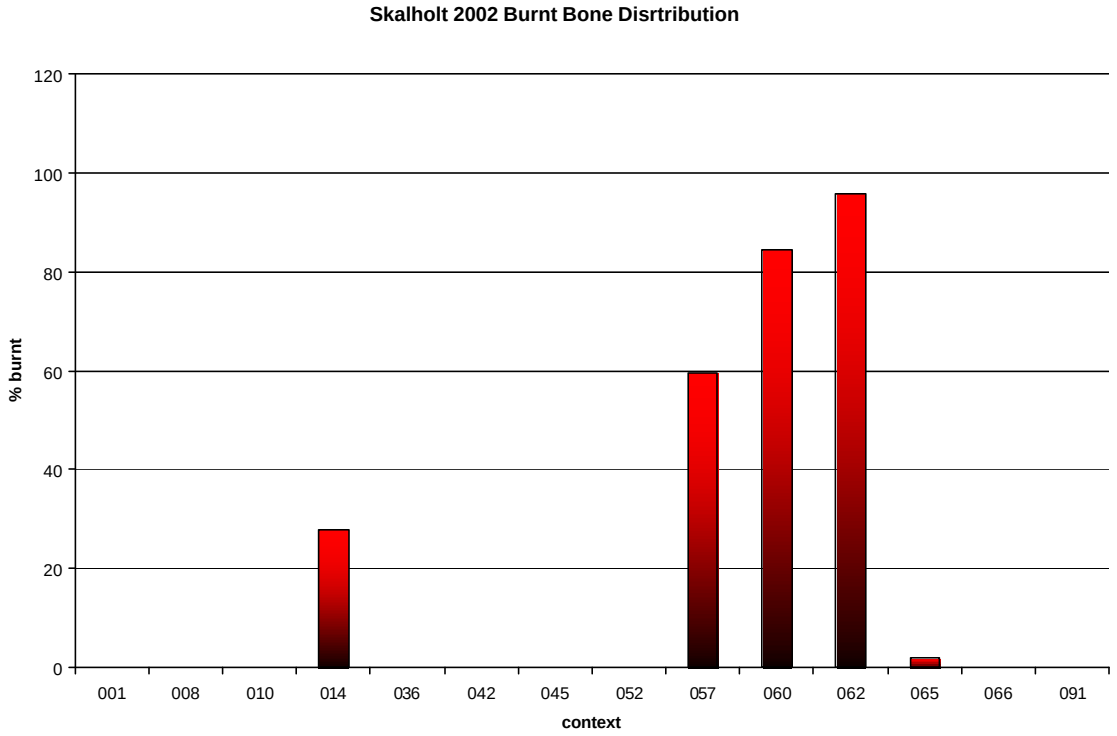


Figure 4

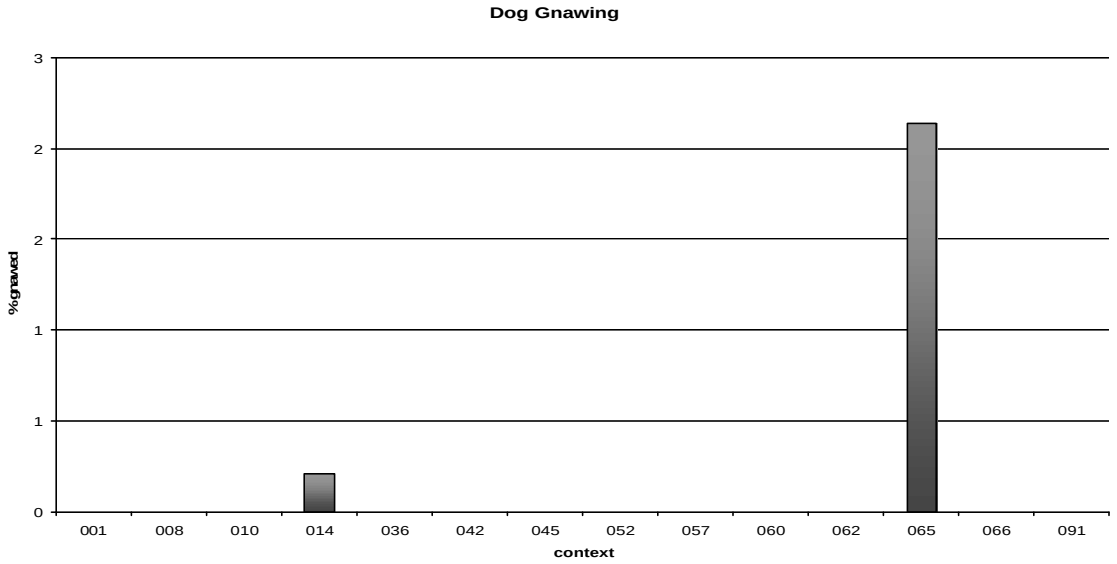


Figure 5

Dog Gnawing

As figure 5 illustrates, dog gnawing marks were not evenly distributed across the bone bearing 2002 contexts, with a notable concentration in the 065 collection. Dogs clearly had access to the bones in this context, though sample size issues make it difficult at present to build a case for their exclusion from access to other bone material. This will also be an indicator to monitor as work continues.

Butchery Marks

Many bone elements show marks left by metal tools, and these reflect multiple and often overlapping patterns of damage left by the reduction of a whole slaughtered animal into dismembered cuts (rib racks, limbs, crania) which would be treated differently as they were cooked fresh or prepared for storage (usually by smoking or pickling). These initial processing marks were usually left by heavy chopping tools (cleavers or axes). Cooking, carving, and consumption of meals also leaves marks on bone, but usually slice marks (knife drawn along the bone) rather than heavy chopping cuts. Marrow extraction also was associated with consumption, especially the distinctive use of biperforation of sheep metapodials, which would have to be performed by the end consumer (marrow is sucked from the bone after holes are cut in the proximal and distal ends). This highly visible marrow extraction technique (first described by Bigelow 1984 for Shetlandic examples) became common in Iceland after ca. AD 1100 and was nearly universal by the 19th c. The Skálholt archaeofauna has many examples of this technique, including some metapodials with more than one perforation on the proximal end (Figure 6 above).

Meat saws came into widespread use in Europe by professional butchers for preparing the "new cuisine" of the late 17th-18th c in which diners received symmetrically prepared cuts of meat (chops, steaks, etc.) familiar to modern diners, arranged upon the new sets of matching ceramic plates whose fragments would come to dominate later post-medieval archaeological contexts all over the world. This complex of sawn meat and matching table service was of course initially reserved for elite diners and was certainly an important marker of Enlightenment age modernity (as suggested by Deetz 1971). Most early modern diners continued to eat from common bowls and make use of belt knives, trenchers, and table surfaces as had their medieval ancestors, leaving much the same marks on their bone refuse. The distinctive marks of meat saws do not appear in Icelandic archaeofauna (as yet) until late 19th-early 20th c urban contexts. However, standardized cuts of meat were being prepared and consumed in 18th –early 19th c Iceland, making use of traditional axe or heavy cleaver to chop (rather than saw) cattle and sheep rib racks into regular (ca 10 cm long) segments for consumption on the new tableware. These distinctive segments have been identified at Bessastaðir and Nesstofa in contexts

associated with the Danish administrative households, and also appear in context 065 at Skálholt (83 examples of medium terrestrial mammal and 6 examples of large terrestrial mammal rib, almost certainly sheep and cattle respectively). Whatever the reduced circumstances of the 19th c farm, it would appear that some standards were being maintained in dining.

As figure 7 illustrates, it is possible to track the marks left by initial slaughter and dismemberment (chop marks) and the marks of consumption (slices and marrow extraction) in different contexts. In this case, as in most middens, all stages of butchery and consumption seem to be mixed together in three of our four larger contexts, though in varied proportion. This indicator may become more informative as *in situ* 18th c floor layers yield more bone.

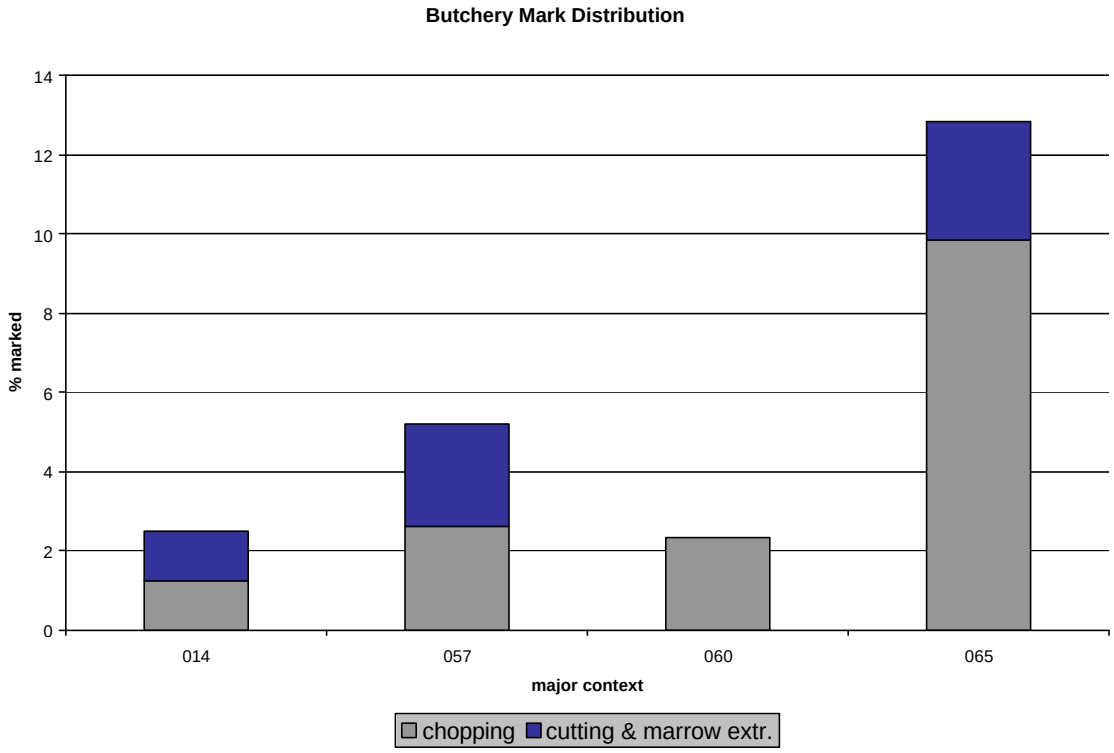


Figure 7

Possibilities for Further Research

While this is no more than a first interim report, it is clear that zooarchaeology can contribute in several areas of research as the collaborative project continues.

- **Activity area interpretation**: concentrations of skeletal elements or of species in different parts of the structures, distribution of burnt fragments, dog chewing and different fragment sizes all can aid in interpretation of the use of space within the 18th c manor.

- **Status, wealth, & modernization**: the 18th c manor contained many individuals of different age, status, wealth, and exposure to European Enlightenment culture. Perhaps no place in Iceland saw such dynamic intermixing of traditional late medieval elite lifestyles and new early modern innovations. The minor evidence of butchery pattern is only one example of what must have been many collisions between long proven food ways and new elite tastes, and the bone collections will reflect many of these changes.

- **Role of ecclesiastical elites in farm management**: Ian Simpson's geoarchaeological work (Simpson in Lucas 2002) at Skálholt has already raised the possibility that ecclesiastical farm managers may have introduced new techniques to Icelandic agriculture in the past. If so, then such innovation was probably not restricted to soil management strategy, but may also have included altered animal herding approaches. One major shift in European agriculture in the 16th-18th c was the introduction of so called "improved breeds" of domestic stock. These highly selected animals rapidly displaced traditional stock breeds in most of western Europe by the 19th century, and there is a substantial zooarchaeological literature on the identification of such introductions in the archaeological record (see Dobney et al 1999). If improved breeds were imported to Iceland before the known 19th c cases, then Skálholt might be the most likely center for such experimentation.

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