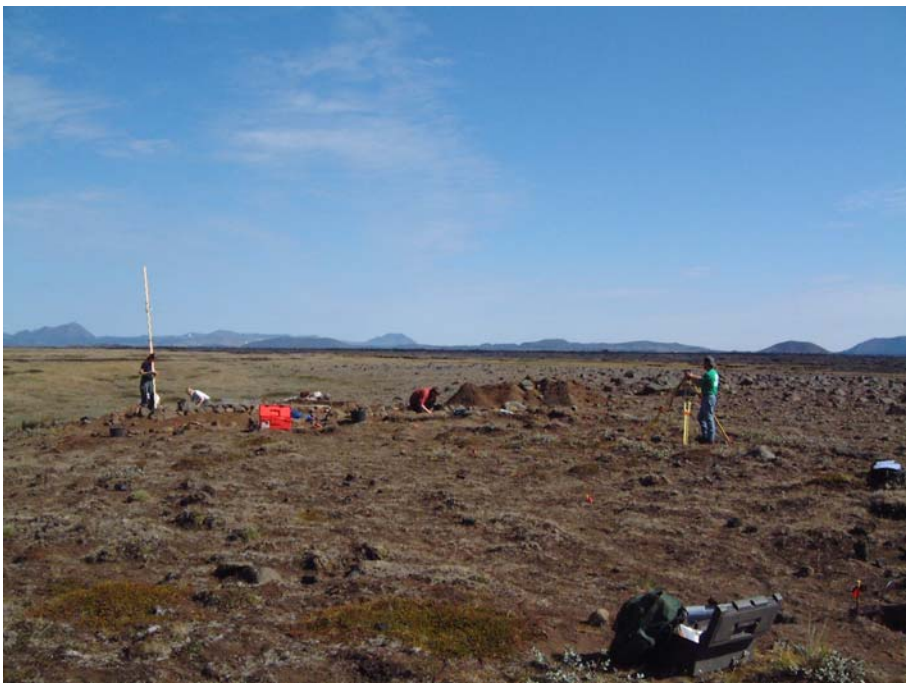
Archaeological investigations at Sveigakot 1998-2000

Orri Vésteinsson ed.



With contributions by Karen Milek, Magnús Á. Sigurgeirsson, Ian Simpson and Clayton Tinsley

Fornleifastofnun Íslands

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On August 28th 1998 the site of Sveigakot was surveyed as a part of the registration of archaeological sites in the district of Skútustaðahreppur.[1] The name of the site is mentioned in a place name inventory for the property of Grænavatn, written by Pétur Jónsson in the middle of the 20th century (exact date not known), but no other information is given.[2] A description of the region published in 1954 mentions Sveigakot as the name of ruins "where men think there was a farm on the route from Grænavatn to Sellönd."[3] This description of Sveigakot is repeated in Helgi Hallgrímsson's Register of Historical Sites in Skútustaðahreppur from 1977, but he did not visit the site.[4] A new place name inventory was written for Grænavatn by Sigurður Þórisson in 1985 where he describes " a small mound or ruins (midden), called Sveigakot."[5] No other information is given and no traditions are known to exist about Sveigakot, although the farmers of Grænavatn have assumed from the place name element –kot and the eroding midden that Sveigakot was once a minor farm.

One of the Grænavatn farmers, Hjörleifur Sigurðarson, pointed out the exact location of Sveigakot. It is located at 65°30.926 N 17°01.726, some 350 m east of the river Kráká and 6 km south of Lake Mývatn (due south of the farm Skútustaðir). Sveigakot is nearly 12 km southeast of Hofstaðir – another Viking age farm. The nearest modern farm to Sveigakot is Baldursheimur on the western side of river Kráká, some 1,5 km to the WNW. The farmstead Grænavatn – on which property Sveigakot is situated – is nearly 3 km to the NNE.

Sveigakot is situated on a flat stretch of land, bounded on its eastern side by a completely barren lava field of the 3800-year-old Laxárhraun, and on the western side by overgrown river channels from river Kráká's springtime flooding of the flatlands south of Lake Mývatn. The site is on a low rise on the very edge of the easternmost river channel, some 150 m west of the lava. To the south and north swathes of grassland stretch further to the east than the site. These are called Sveigar and it is from them that the site draws its

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[1] Elín Ósk Hreiðarsdóttir & Orri Vésteinsson (1999): *Fornleifaskráning í Skútustaðahreppi* III: *Fornleifar við sunnanvert Mývatn, milli Haganess og Garðs*, (FS086), Reykjavík, pp. 75-76.
[2] Pétur Jónsson: 'Grænavatn.' *Örnefnalýsing Mývatnssveitar*, p. 1225, manuscript at the Icelandic Place Name Institute (Örnefnastofnun Íslands).
[3] Jón Sigurðsson: *Lýsing Þingeyjarsýslu* I. *Suður Þingeyjarsýsla*, (Ritsafn Þingeyinga II), Reykjavík 1954, p. 253.
[4] Helgi Hallgrímsson (1977): *Minjalýsing Mývatnssveitar*, Náttúruverndarráð, p. 32.

name, literally meaning "the cottage of the swathes [of grassland]." There are three of these Sveigar, and the site is located between the middle (Miðsveigur) and the southernmost one (Syðstisveigur). While there is reasonably dense grassland on three out of four sides around the site, the site itself is on a denuded piece of land, with a vegetation cover of less than 20%.

The fact that Sveigakot draws its present name from a distinctive and economically important feature in the present landscape suggests that it is not the original name of the farmstead. The vegetation cover must have been radically different when Sveigakot was a functioning farm and the swathes of grassland are not likely to have been such a distinctive feature as they are now that most of the soil cover has been blown away. It is more likely that the name was assigned to the site after it became exposed by erosion. Sveigakot is nowhere mentioned in historical sources, and it is significant that it is not mentioned in Árni Magnússon's and Páll Vídalín's land register from 1712. The register normally lists all farms that were known at the time of its compilation, whether they were occupied or not and even when they had been abandoned for centuries. If the place name had been current at the time and ruins had been visible it would have been mentioned in the register. That it is not may suggest that the site was at that time buried in soil and only became exposed as a result of erosion in the 18th and 19th centuries. When the midden became visible it was given a name based on the name for the surrounding area and the element –kot indicating a minor settlement, no doubt inferred from the marginal location of the site and the fact that the bones suggest a permanent settlement rather than a shieling or outhouse of some sort.

Sveigakot is on the property of Grænavatn, one of the more substantial holdings in the Mývatn region, valued at 30 hundreds in 1712, same as Skútustaðir and Vogar, smaller only than Hofstaðir and Reykjahlíð. Grænavatn is mentioned in the Book of Settlements, as one of the first settlements around Lake Mývatn, the farm of one Þorkell hávi.[6] It does not occur in other medieval sources, but from this alone it can be inferred that Grænavatn was a substantial farm in the 13th century with traditions about early beginnings. Grænavatn had one of four churches in the Mývatn region, an annex-church serviced by the priest in Reykjahlíð. The fact that Grænavatn belonged to the parish of Reykjahlíð and not Skútustaðir – which is much closer – may indicate that at the time parish boundaries became established – in the 12th century – the farmers of Grænavatn wanted to preserve their independence of the Skútustaðir farmer who became the leader of the southern half of the Mývatn region in that period.

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[5] Sigurður Þórisson: *Grænavatn*, manuscript at the Icelandic Place Name Institute (Örnefnastofnun Íslands), p. 11.
[6] *Íslenzk fornrit* I, 282.

Instead they allied themselves with the more distant – and hence less threatening – leader in Reykjahlíð, thus preserving a degree of independence. This independence they seem to have hung on to because when Grænavatn reappears in historical documents – in the 16th century – it is in the context of a bitter dispute with the magnates in Reykjahlíð over ownership of sulphur mines. Among the documents preserved about this dispute are descriptions of the boundaries of Grænavatn by its owner, the eccentric Kolbeinn Arngrímsson.[7] According to these the property was enormous, stretching from just south of Lake Mývatn all the way to Mt. Herðubreið, some 48 km to the southeast. Kráká formed the boundary on the western side but Kolbeinn claimed land all the way to Hafragjá in the east, thus including the vital sulphur mines of Fremrinámar. Sveigakot is clearly well inside these boundaries. Inside the boundaries claimed by Kolbeinn there were according to the Land Register of 1712, two cottages, Þuríðarnes just north of the Grænavatn farm and virtually inside its home field, and Oddastaðir, some 5 km south of Sveigakot, in an area called Sellönd. According to the Register Oddastaðir had been resettled on ancient ruins for 4-5 years in the 1670s, but the site had otherwise been used as a shieling.[8] Sellönd is now a strip of vegetation on either side of a small brook with desert all around it. The name no doubt originally was attached to a much more extensive area, as indicated by the name Sellandafjall on a mountain far to the south of the present Sellönd. Sellönd means 'land of shielings' and apart from Oddastaðir at least two shieling sites are known in the present Sellönd, Höllusel and Sellandasel or Sellandahús. Substantial ruins are still to be seen at both Oddastaðir and Sellandasel, a great home field wall marking the former as more likely to have been a permanently settled farm.

The extent of erosion in this region in the past 1100 years is not known in detail but it is certain that soil-loss has been substantial. It is not certain that the lava field just east of the Sveigakot site ever was covered by soil, but some 200-300 m south of the site the lava is replaced by sand-dunes and rocky hills with scant or no vegetation stretching far inland. Where there is water however – like in Sellönd – there is healthy vegetation and soil profiles on the steep sides of Sellandafjall suggest that this whole area was at one time covered with soils and vegetation, possibly all the way south to the edge of Ódáðahraun, the great lava-desert of the eastern central highlands of Iceland. On the western side of river Kráká, where wetland conditions dominate, there is continuous vegetation some 25 km south of Sveigakot. It is clear that the erosion has been harassing the southern side of the Mývatn region mainly from the southeast, with a great erosion corridor between the mountains Bláfjall and

[7] *Diplomatarium islandicum* XIII, 714-17.
[8] Jarðabók Árna Magnússonar og Páls Vídalín XI, 232.

Sellandafjall. This has created a wedge into the vegetated areas with a north-westerly orientation, Sveigakot directly in its path.

Another major landscape change, also a result of erosion, is the silting up of the Kráká estuary. Some 2 km south of Sveigakot river Kráká flows from a shallow gorge onto a wide and flat plain where it has tended to spread to the northeast although the main river course follows the north-western edge of the flatlands. On the northern part of this plain bogs dominate, with pools and small lakes, Lake Grænavatn being the largest. It is estimated that currently river Kráká deposits some 20 tons of sand on to this plain on a daily basis, sand originating in the unstable desert far to the south.[9] It is not known how long this process has been going on, but even if it only started in the last century or two, it is clear that it has had a profound impact on the environment and radically changed the landscape surrounding the Sveigakot site.

In 1998 the site was investigated briefly. It was noted that on the southern end of a low rise with a north-south orientation there was a wide scatter of animal bones, some charcoal and slag. The animal bones that were lying on the surface were all collected. Although the site was clearly badly eroded, the erosion does not seem to have been active for some time. This was judged mainly by the fact that most of the bones on the surface were weathered, and some had moss growing on them, suggesting that they had lain exposed to the elements for a long time, whereas "fresh" bones were not noticeable. The scatter of bones covered an area of about 10 x 8 m with a distinct concentration in the middle where a small rise could be detected. Some 25 m north of this rise and well outside the main scatter of bones, the remains of a structure were observed (later called Structure 1). This was represented by two parallel lines of stones, seeming to form the northern and southern walls of a house. The structure was aligned east-west and had the approximate dimensions of 12 x 4 m although neither gable end could be detected. On the west side the mound slopes and it may be that the western end of the house has eroded away. The building is 3,4 m wide on the inside in the middle, but the northern wall seemed to curve southwards on the eastern end.

A line of stones adjoining the northern side of Structure 1 at right angles, was suggestive of an additional building (Structure 2). It may be the remains of a smaller building attached to Structure 1, the eastern side of its north wall. The northern limits of this structure were represented by a concave line of stones. It extends 4,5 m to the north and is 4 m from E

[9] *Sandur í Laxá og Kráká. Rannsóknaáætlun 1998*. (Náttúrurannsóknastöð við Mývatn, fjölrit 4). (English abstract: Sediment load and its effect on the biota in the rivers Laxá and Kráká. A research proposal).

to W. A further 7 m long line of stones (Structure 3) was noted to the east of the structure with a somewhat different orientation, aligned SE-NW.

The bones collected from the surface at Sveigakot were analysed by Tom McGovern the following winter. His results showed that the small collection mirrored closely the distribution of species in the faunal assemblages from Viking age deposits at Hofstaðir. On these grounds it was decided in the following year to excavate a test pit in the supposed midden to see if there were archaeological deposits there, if so how deep and extensive, and

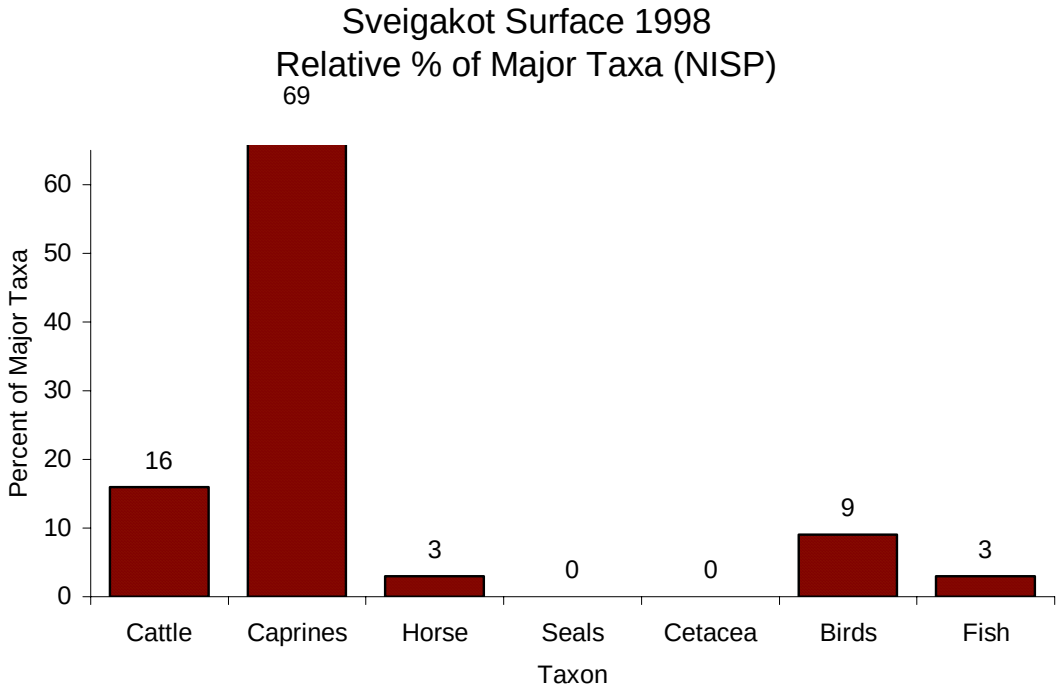


Figure 1. Results of analysis of animal bones form the 1998 surface collection. By Tom McGovern.

also if some firm evidence of the date of the site could be obtained. The Sveigakot collection came at an opportune moment in the larger Hofstaðir project. Since 1996 Tom McGovern had together with colleagues and students worked on the excavation of an extensive midden deposit infilling an abandoned pit house at Hofstaðir. His team had also examined other smaller midden and bone deposits scattered over the site. By the end of the 1998 season the pit-house midden had been fully excavated and it was felt that while the Hofstaðir faunal material was fascinating in its own right it would not be fully understood unless comparative material could be obtained, preferably from the same region. The collection from Sveigakot seemed to indicate that a suitable site had been found for such a comparative study, and on

these grounds it was decided to pull resources from the Hofstaðir project in 1999 to investigate the potential of the Sveigakot site.

In 1999 Tom McGovern directed a trial excavation of the midden at Sveigakot between August 2nd and 18th. A trench, 7 m long and 2 m wide with a 2x2 m extension to the east, was opened, revealing deposits to the depth of 30 cm. It became clear that this was a sheet midden, divided in two principal stratigraphic units by an olive-green tephra. The identity of this tephra remains unclear and during much of the 1999 excavation season the dating of the site was uncertain. To begin with the possibility was entertained that the site might be late medieval or early modern, but the increasing number of objects with a decidedly Viking age character retrieved from the midden, steatite, beads, bone and stone implements together with a complete lack of the types of finds associated with later centuries, such as pottery and glass, seemed to suggest that the site must be early. One of the problems in studying tephras in this region is the lack of soil, which means that tephra sequences are hard to find. Tephrochronologist Magnús Á. Sigurgeirsson finally managed to locate a suitable profile at the side of Sellandafjall. Comparison of the two profiles, at Sveigakot and Sellandafjall, suggested that the olive-green tephra was either the so-called Landnám tephra from AD 871±2 or a hitherto unknown tephra from the same volcanic system deposited sometime in the 10th century. In his report (see below) Magnús favours the latter possibility, suggesting a date of c. 950 AD for the olive-green tephra. The working hypothesis on the date of the site is therefore that it is from the 10th century, with occupation starting shortly after 871 but not continuing far into the 11th century although the erosion of the uppermost deposits makes it difficult to estimate the time of abandonment with any certainty.

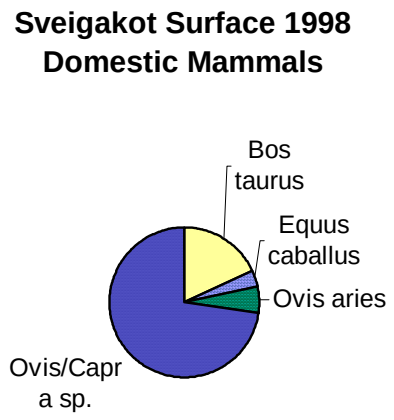


Figure 2. Pie-chart showing the relative proportions of domestic animals in the 1998 surface collection. By Tom McGovern.

The provisional dating of the site to the 10th century based on tephrochronology and typology was furthermore supported by AMS radiocarbon analyses of bones from the lower

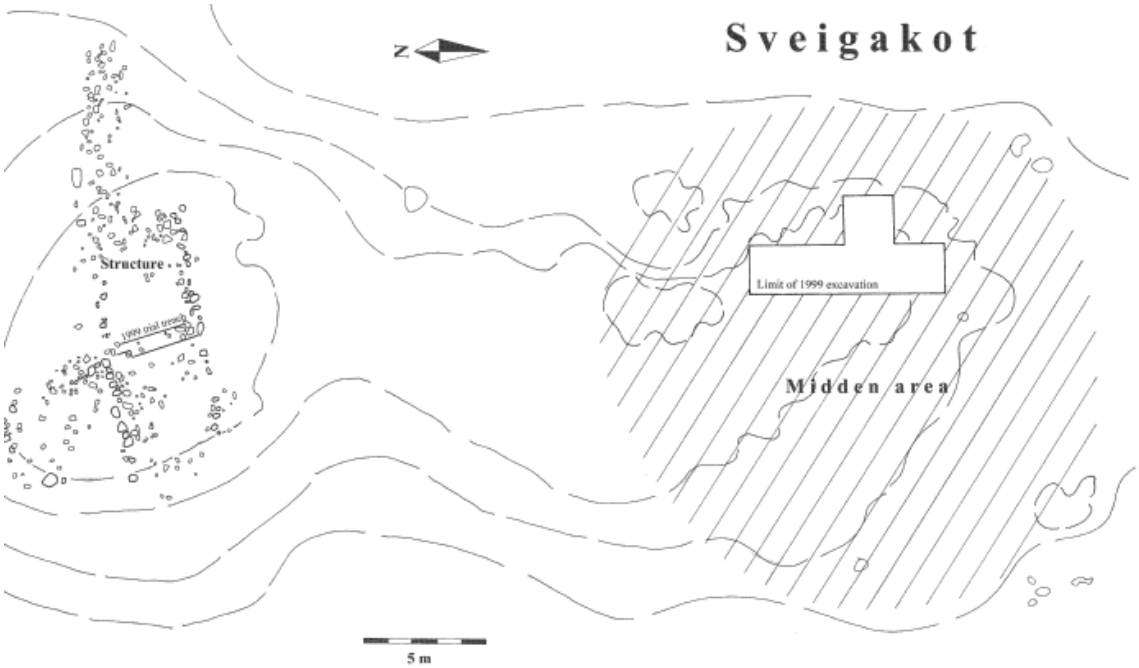


Figure 3. Sveigakot 1999, showing excavation trenches in Structure 1 and Midden area. By Orri Vésteinsson.

part of the midden, giving an age range of A.D. 855 – 1055. [Beta 134144: 1050 ± 40 BP (δ^{13}C -21.0 ‰), 2 sigma calibration A.D. 855 – 1055; Beta 134145: 1000 ± 40 BP (δ^{13}C -19.3 ‰), 2 sigma calibration A.D. 880 – 1015; Beta 134,146: 1040 ± 40 BP (δ^{13}C -21.0 ‰), 2 sigma calibration A.D. 870 – 1005].

The excavation of the midden and the subsequent analysis of the faunal assemblage retrieved in 1999 is the subject of Clayton Tinsley's report (see below). On August 8th Mjöll Snæsdóttir and Orri Vésteinsson cut a trial trench across the main structure (Structure 1) on the northern edge of the site. A roughly 0,5 m wide and 3,5 m long trench was placed across the inside of Structure 1, directly south of the line of stones aligned N-S (belonging to Structure 2) which abuts the line of stones representing the inside of the N wall of Structure 1.

The section revealed by the trench contained at the top a 30-40 cm thick deposit of windblown soil and sand, which had accumulated inside the structure (contexts 49-53). This deposit was highly layered, sand mixed with dark brown and light brown silt. It is the product of a series of erosion and soil-deposition phases. Most of the incoming soil seems to be windblown, but some of the coarser sand may have been deposited by floods in river Kráká. On the southern side stones, which had fallen from the south-wall, were embedded in this deposit.

Underneath this there was a 0,5-3 cm thick layer of mottled yellowish white, organic soil, with two bits of charcoal but no other intrusive material (context 54). It was found in all of the trench but becomes thin towards each wall and does not extend under the stones in the walls.

Below this there was a 6-7 cm thick mixed layer of wind-blown material and cultural deposits, patches of grey peat ash with very small fragments of burnt bone, but mostly highly mixed turf (contexts 55-58). Frequent animal bone and charcoal. A whetstone and a iron rod were found in this deposit which extended all over the trench, inside the walls.

Still lower there was a 0,5-1,5 cm thick band of sandy bluish grey soil which formed a distinct layer between small stones placed 1,10-1,20 m from each wall (context 59). In other words the layer covers ca 1 m wide stretch in the middle of the structure. The layer contained frequent charcoal, mostly very small fragments but few animal bones, and was interpreted as a floor. The trench stopped short of this layer but a test pit revealed earlier floor layers (contexts 61 and 63), separated by thin bands of soil (contexts 60 and 62). The earlier floors were 5-7 cm thick, highly layered, mostly light colours, bands of grey ash and more organic yellowish soil. Not very hard but very fat. This floor had formed directly on natural soil, very homogenous middle brown silt (context 64).

Another test pit revealed that the floors had formed inside a cut which is inside the lowest course of stones in the wall. The cut is at least 10 cm deep and cuts through the landnám sequence of tephras as well as the engimatic olive-grey tephra band above the sequence (for a more detailed description of the exposed section see Milek & Simpson's report below).

The trench confirmed that this was indeed the remains of a domestic building, and furthermore that there were substantial archaeological deposits buried under windblown soils which would merit further investigation.

Towards the end of the excavation season in 1999 Ian Simpson and Karen Milek took micromorphology samples from the exposed sections in the midden and Structure 1, discussed in their report below.

North and northeast of the site some 25 circular and oval stone formations were observed during the fieldwork in 1999. Most of these consisted of a large stone in the middle with a number of smaller (10-20 cm) stones placed in concentric circles around it. The formations are all within a short distance of each other (typically 15 m) but they are not arranged in any discernible pattern. The formations were not investigated in 1999 but it was thought possible that they might be associated with the settlement site.

The investigations in 1999 showed conclusively that there were significant arcahaeological deposits left at the Sveigakot site, despite its very eroded appearance. The site was shown to consist of an extensive sheet midden and a long-house, one of the smallest so far observed from Viking age Iceland. The bones retreived from the midden were well preserved and a relatively high number of the 47 objects found could be classified as interesting; beads, bone and metal implements as well as a much higher proportion of steatite objects than at Hofstaðir. The site had been dated to the Viking age and was therefore contemporary with Hofstaðir, while the size of the structure at Sveigakot suggested that it was of much lower status than Hofstaðir.

On these grounds it was decided to aim for a full scale excavation of the Sveigakot site in 1999. An application was submitted to the Icelandic Research Council in the autumn of 1999 for support for an excavation of the site, and an NSF grant was also sought for support of archaeological investigations in the Mývatn region. Both applications were successful, allowing full scale fieldwork to commence in July 2000.

Karen B. Milek & Ian A. Simpson

Geoarchaeological Sampling Report

Introduction

Archaeological investigations at Sveigakot included a geoarchaeological assessment of sediments within the midden (Area M) and the structure (Structure 1) in order to study the depositional and post-depositional processes active in these areas. In the case of the midden, it was a priority to determine the composition of the midden sediments, particularly the quantities of different types of ash, and to assess the rate of midden accumulation, the amount of aeolian input in the midden and the degree of post-depositional disturbance. In the case of the structure, the primary issue was to determine the composition and mode of deposition of the floor and fill sediments, and to derive preliminary interpretations about the structure in order to help guide the future excavation strategy. Micromorphology samples were determined to be the most suitable for answering these types of questions, since they permit the identification and quantification of the mineralogy, structure and texture of archaeological sediments, as well as any bones, shells, artifacts, coprolites, phytoliths, diatoms, ash, pollen, charcoal and plant remains that may be present. In addition, in thin section it is possible to observe the *in situ* relationships of these various components of archaeological sediments, and the degree to which they have been disturbed by soil fauna or root action. The observation of features in thin section that are a product of pedological processes or sedimentary processes also provide information about ancient environmental conditions.

Sampling Rational and Procedure

Area M: Midden

In 1999, archaeological investigations at Sveigakot focused on the bone-rich midden deposit in Area M. The midden contained two stratigraphically distinct anthropogenic horizons, which were separated by a layer of olive-grey very fine sand identified as a tephra from the Veiðivötn volcanic system, tentatively dated to ca. 950 AD (Magnús Sigurgeirsson, this

report). The upper midden horizon contained Contexts 2, 4 and 12 – substantial layers of very dark brown to black silt, rich in charcoal, bone and artefacts – in addition to a thin ashy layer (Context 13) and the smaller "dumps" of midden material (Contexts 3, 5, 6). The lower midden horizon contained an abundance of bone fragments and charcoal embedded in horizons of black, very dark brown and very dark greyish brown silt and light grey ash (Contexts 8, 10, 11). Below Context 11 was the *landnám* tephra dated to 871±2 (Grönvold et al. 1995) – also from Veiðivötn, and other tephras of the so-called *landnám* sequence, a very dark grey Vatnajökull tephra layer, a black Katla tephra layer, and yellowish brown aeolian silts between these tephra layers, which varied in thickness.

The capping of the lower midden by the Veiðivötn tephra is significant because it places Sveigakot among the earliest settlement sites in the whole of the country, and a few decades earlier than the higher status Hofstaðir site, which only has archaeological deposits above this tephra. The early date of the midden at Sveigakot is even more remarkable because of the location of the site in an interior region in the northeast of Iceland. The stratigraphic relationship between the midden layers and the Veiðivötn tephra layers is therefore extremely significant, and a securely sealed stratigraphic context is essential if midden bone is to be used to date the lower midden deposit. Since thin sections are able to reveal the *in situ* relationships between sediments, embedded constituents such as bone and charcoal, and microfaunal disturbance, thin section analysis is the best means of assessing the degree to which the layers in the midden have been affected by post-depositional disturbance (e.g. bioturbation).

Besides addressing the issue of post-depositional processes, the geoarchaeological sampling program at Sveigakot was also designed to address other questions related to site formation processes, including the composition and mode of deposition of sediments in the midden, and their rate of accumulation. Since it permits the identification of phytoliths, diatoms, egg shell, minute bone fragments, wood charcoal and plant tissues in addition to the mineral component of sediments, micromorphological analysis is an extremely effective tool for distinguishing between different types of fuel ash, dung, food waste and turf building debris that may be present in the midden sediments (Courty et al. 1989: 104 ff). A detailed analysis of the midden sediments will therefore contribute to our understanding of the resources available for food, fuel and building materials in the surrounding environment, the degree to which they were exploited, and how their use may have changed over time. This is of particular

importance at Sveigakot, since the surrounding environment is now highly denuded of vegetation and soil cover and is vastly different from what it must have been like when the site was occupied. Data about available wood and plant resources, and how these changed as the environment deteriorated, will contribute to future environmental assessments of the region (see section on future work, below). It will also be interesting to compare the types and relative proportions of charcoal, ash and plant microfossils in the midden sediments at Sveigakot with the midden sediments in Area G at Hofstaðir, which have already been studied in detail (Simpson et al. 1999). This data will supplement the comparison of the faunal remains in both of these middens, which are proving to be remarkably similar despite the vastly different location, size and status of the sites (Tinsley, this report).

Micromorphological analysis will also be able to contribute to the interpretation of the rate of midden accumulation. Although a general idea of the rate of deposition can be gleaned from observations made in the field, periods of standstill or midden stabilisation can be detected in thin section in the form of horizons containing features indicative of soil formation processes (e.g. Simpson and Barrett 1996; Simpson et al. 1998). Such information has profound implications for the interpretation of Sveigakot, where it is still unclear if the site was permanently or only periodically occupied. If significant or multiple episodes of soil formation can be detected in the midden deposit, it would suggest that Sveigakot was not a permanently occupied farm site, but rather a shieling or a subsidiary farm that was only occupied occasionally.

Micromorphological analysis will also provide valuable information about the amount of aeolian input in the midden sediments, and how this may have changed over time. The presence of the Veiðivötn tephra layer between the upper and lower midden horizons indicates that there was at least one period of significant aeolian input. However, in thin section it may be possible to discern other periods of significant aeolian deposition, or a change in the rate of aeolian input in the midden over time. This information would help to address a number of important questions related to the history of the site, such as when erosion and aeolian deposition began to be significant processes at work in the region around the site, and whether these processes had a role in site abandonment. Sveigakot appears to be similar to other early settlement sites that were located further inland than was possible in later periods, and which were abandoned before 1100 AD (Þórarinsson 1977; Sveinbjarnardóttir 1992). The early abandonment of these inland settlements has been blamed

on erosion caused by the overgrazing of animals on delicate highland vegetation, since most of these sites were permanently deserted prior to the climatic deterioration of the late 12th to 14th centuries (Þórarinsson 1977). Thin section analysis should be able to detect if any changes in the rate of aeolian deposition occurred while the midden was being formed, which may be used as a proxy for environmental changes taking place around the site during its occupation. This data will supplement any future environmental assessments of the region (see the section on future work, below), and will contribute to our understanding of the reasons for site abandonment.

Sections on the west side of the excavation (grid lines 900 and 902) were chosen for micromorphology sampling due to the clarity, representativeness and juxtaposition of the midden and tephra layers. After the sections were cleaned, photographed and drawn, micromorphology samples were taken which incorporated both the upper and lower midden layers and the intervening *landnám* tephra layer (samples 1-13, see Figure 1 and Table 1). These samples will not only help to confirm the identification of the Veiðivötn tephra layer, but will show the amount of mixing between layers, and will provide more detail about the composition of the upper and lower midden deposits. In addition, four bulk samples were taken from the section on gridline 900. These will be tested for their magnetic properties in order to complement micromorphological interpretations about different types of fuel ash residues.

		Sample Numbers (SVK-99-##)		
Area	**Sampling Location**	**Micromorphology Sample Numbers**	**Bulk Sample Numbers**	**Processing Location**
M	W Section, Line 902, N-S Profile	1	SVKbulk 1	Stirling
		2	SVKbulk 2	Stirling
		3	SVKbulk 3	Stirling
		4	SVKbulk 4	Stirling
	W Section, Line 900, N-S Profile	11		Cambridge
		12		Cambridge
		13		Cambridge
Str. 1	E Section,Line 215, N-S Profile	05		Cambridge
		06		Cambridge
		07		Cambridge
		08		Cambridge
		09		Cambridge
		10		Cambridge

Table 1. Summary table of sediment samples taken in 1999.

Structure 1

A rectangular stone structure north of Area M was identified during the surface survey of the site, and it was one of the goals of the 1999 field season to carry out an archaeological assessment of this structure. A slot-trench was excavated by Orri Vésteinsson and Mjöll Snæsdóttir on a north-south axis across the width of the building in order to expose a section through the side walls, the internal fill and floor deposits, and any associated tephra layers that might help date the structure (see Figure 2). In section, it was possible to determine that the structure was a shallow sunken-featured building constructed shortly after the fall of the *landnám* tephra sequence. The floors of the structure were only partially exposed, since it was deemed preferable to photograph and excavate them in the future in their entirety, and in plan. However, since it was also a priority to assess the possible function of the building and to learn something of its internal organisation prior to the field season in 2000, two short sections of floor were exposed in section and targeted for micromorphological sampling.

Along the north wall of the structure, the basal deposit consisted of dark reddish brown, very organic silt, with clear horizontal laminations (Context 69). Based on comparisons with similar floor deposits found in Structure D1 at Hofstaðir, it is possible that this layer is composed primarily of decomposed hay, but this interpretation will have to be confirmed by thin section analysis (Sample 5). Above Context 69 was a heterogeneous occupation deposit containing an abundance of charcoal flecks in a mixed matrix of very dark greyish brown and dark yellowish brown silt (Context 68). In contrast, the centre of the structure revealed three distinct floor horizons (Contexts 59, 61, 63) separated by layers of dark yellowish brown or greyish brown silt (Contexts 60, 63). These floor deposits contained finely laminated black, grey and brown silt lenses, with an abundance of charcoal flecks and occasional bone fragments. Although the precise composition of these floor deposits will have to be determined by thin section analysis (Samples 8 and 9), it is clear that they were a product of different activities from those that occurred at the north end of the structure. The silt deposits separating the floor layers may be a result of different episodes of floor construction or periods of temporary abandonment between occupation phases. An analysis of the floor sediments and the silt layers between them will make an essential contribution to interpretations about the activities that took place within the structure, and whether the site was a permanent farm or a periodically occupied settlement.

The fill above the floor of the structure was variable in composition (see Figure 2). Lying directly above the floor and within a thick horizon of very dark, greyish brown sandy silt (Context 55), were horizontal pieces of turf, some of them remarkably long (e.g. some pieces of turf were substantial enough to merit their own context numbers: Contexts 54 and 56). These pieces of turf contained fine lenses of oxidised iron, fine sand, and/or light yellowish brown, very organic silt in different combinations. The micromorphological analysis of Samples 6, 7 and 10 will determine the precise composition of these lenses, and will confirm the interpretation that they are pieces of turf. It is currently believed that they represent turf wall and/or roof collapse, but the length and horizontal orientation of the turf pieces is certainly unusual, and this interpretation will have to be reassessed on the basis of excavation in 2000. Above the horizontal turf collapse and filling in the remainder of the negative feature created by the sunken-featured building, is a mixed horizon of dark yellowish brown, very fine sandy silt and occasional turf fragments.

Methods for Processing and Analysis of Samples

Micromorphology samples are being manufactured and analysed at the Universities of Cambridge and Stirling. They are dried using acetone replacement of water, impregnated with a crystic polyester resin, and thin sectioned following the method described by Murphy (1986). Thin sections are first studied under a light box at a scale of 1:1 and are then analysed using petrological microscopes at magnifications ranging from x4 to x400. Several different light sources are used, including plane polarised light, crossed polarised light, circular polarised light, oblique incident light, and ultra-violet light. Digital image capture and analysis is used in addition to standard descriptions, all of which conform to the internationally accepted terminology in Bullock et al. (1985). In addition, electron microprobe analysis may be conducted on some uncoverslipped thin sections in order to clarify the elemental composition of features that proved difficult to identify by thin section analysis alone.

In thin section, it is possible to identify and quantify the mineralogy, structure and texture of soils and sediments, as well as any bone, shell, artefacts, coprolites, phytoliths, diatoms, ash crystals, pollen, charcoal and plant remains that are present. In addition, it is possible to

observe the presence of iron, manganese, phosphorous, carbonates and clay minerals, the mobility of which can be linked to specific environmental conditions. The interpretation of thin sections will be aided by reference to the experimental and ethnoarchaeological materials collected by the authors and other researchers, and by the accumulated experience of other soil scientists who have been applying micromorphological techniques to archaeological questions (e.g. Courty et al. 1989).

Conclusions and Proposal for Future Work

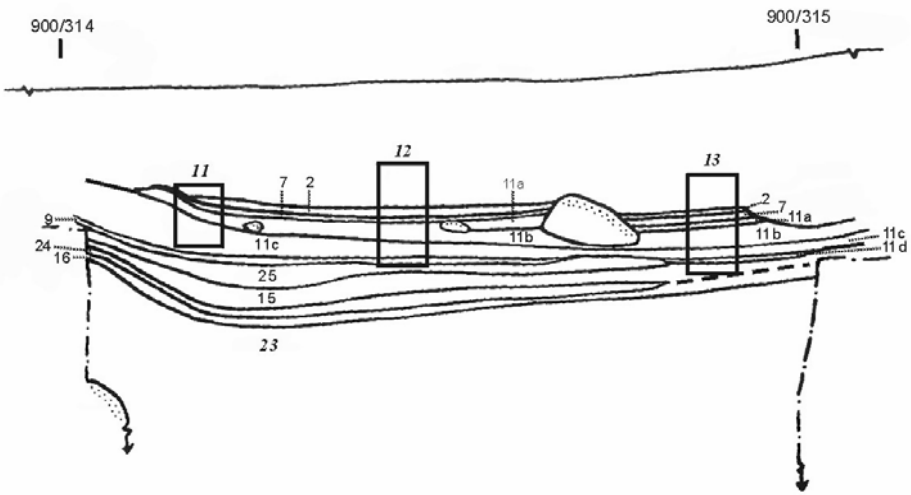
The geoarchaeological investigations carried out at Sveigakot in 1999 will make an important contribution to our understanding of the site formation processes that have been active in the midden (Area M) and Structure 1. In particular, the analysis of the thin sections taken from the midden will result in a better understanding of the pattern of fuel exploitation at the site and how it changed over time, the rate of midden accumulation, the environmental conditions surrounding the site during its occupation, and the degree of post-depositional disturbance of the midden stratigraphy. The micromorphology samples taken from the floor deposits and the fill of Structure 1 will provide a preliminary interpretation of the function of the building, and they may even give an indication of whether the site was continuously or periodically occupied.

Future geoarchaeological investigations at Sveigakot should proceed in three directions:

1) Organisation of activity areas in Structure 1

Ongoing research into the use of space within structures in Iceland has primarily been focussing on the micromorphological analysis of undisturbed floor sediments (e.g. Milek *et al.* 1998; Milek 2000). Structure 1 at Sveigakot appears to have a very well preserved sequence of floor deposits, sealed by 40 cm of turf collapse and aeolian material, and therefore has the potential to provide information about the activities that took place within the structure and how these varied over time. In 2000, it is recommended that the internal occupation deposits be sampled in sufficient detail to extract as much information as possible about the sediments and the anthropogenic materials within them. In addition to continuing the micromorphological sampling program, it is recommended that bulk sediment samples be

Figure 1. West Section of Area M Midden, on Gridline 900, Showing Location of Micromorphology Samples



Context Descriptions (interpretations in *italics*)

1: 10 YR 2/2 very dark brown silt, containing roots = *topsoil, turf, aeolian material*
2: mixed black and very dark brown silt, with charcoal flecks = *upper midden*
7: greenish-grey upper *Landnám* tephra
9: greenish-grey lower *Landnám* tephra
11a: 10 YR 2/2 very dark brown silt
11b: black silt, with abundant charcoal and frequent bone fragments
11c: 10 YR 3/2 very dark greyish brown silt
11d: light grey ash, with charcoal flecks
= *lower midden*
15: very dark grey Vatnajökull tephra
16: black Katla tephra
24: yellowish brown silt
25: yellowish brown silt

0 20 40 cm

Stone

Micromorphology sample

taken on a 0.5x0.5 cm grid across the interior of the structure, including samples for total phosphorous content, magnetic susceptibility, and flotation/heavy residue analysis. An integrated environmental sampling program being carried out on Norse longhouses in the Outer Hebrides has shown that patterns in the distribution of geochemical signals, as well as botanical, faunal and artefactual remains, can provide information about internal divisions and variations in the use of space within structures (Helen Smith, pers. comm.). Since detailed and systematic magnetic susceptibility and total phosphorous sampling has yet to be applied to archaeological structures in Iceland, it would be extremely beneficial to assess the potential of these techniques in an Icelandic context. An integrated geoarchaeological and environmental sampling strategy would greatly enhance our ability to interpret the activities that took place inside Structure 1 at Sveigakot, and how these were spatially organized.

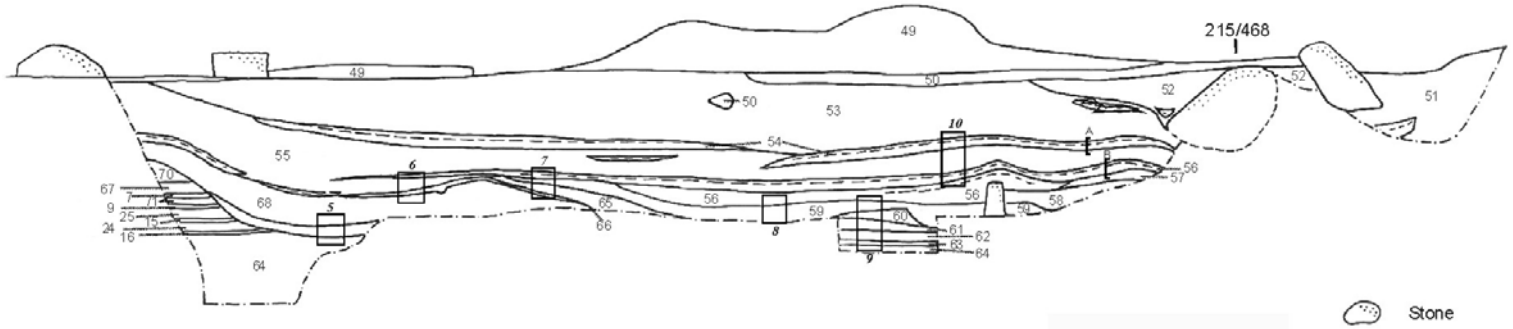
2) Fuel ash residues in Area M midden

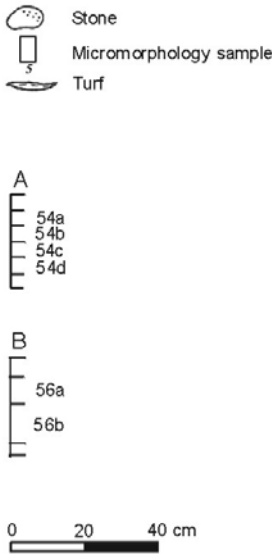
An important objective of geoarchaeological investigations in Mývatnssveit is to quantitatively identify fuel materials from ash residues in the temporally constrained (through tephrochronology), stratified midden deposits at Hofstaðir and Sveigakot. The ultimate goal of this research is to provide data on early fuel utilisation, which can be related to domestic structure characteristics, local environmental change and climatic change. These objectives are being met by testing the following integrated hypotheses:

- that ash from different fuel sources and with different burning temperatures can be quantified using image analyses of thin sectioned midden sediments, and using phytolith analysis;
- that the types of materials used as fuel changed over time, reflecting changes in domestic dwelling structure and organisation, temporal variance in the fuel resource availability, and climatic change.

Control samples of possible fuel sources, fourteen undisturbed sediment samples from stratified midden deposits at Hofstaðir, and seven undisturbed sediment samples from stratified midden deposits at Sveigakot have already been collected and prepared as thin sections. During the summer 2000 excavations at Sveigakot, a further ten undisturbed sediment samples from midden deposits will be collected, allowing comparative analyses with Hofstaðir to be made. The micromorphology and image analyses aspects of this project are being supported by the UK Leverhulme Trust and by the Carnegie Trust for the Universities

Figure 2. East Section of Trench through Structure 1, Showing Location of Micromorphology Samples





Context Descriptions (see also Figure 2; interpretations in *italics*)

49: 10 YR 2/2 very dark brown silt, containing roots = *topsoil, turf, aeolian material*
50: well sorted dark grey and light brown medium sand
51: 10 YR 3/4 dark yellowish brown very fine sandy silt containing occasional turf fragments
52: 10 YR 3/2 very dark greyish brown very fine sandy silt containing a few turf fragments
53: as 051
54a: 5 YR 3/4 dark reddish brown silt = *iron pan*
54b: dark greyish brown fine sand
54c: 10 YR 3/4 dark yellowish brown fine sandy silt
54d: dark greyish brown fine sand
] = *turf*
55: 10 YR 3/2 very dark greyish brown very fine sandy silt
56a: 5 YR 3/4 dark reddish brown silt = *iron pan*
56b: 10 YR 5/4 light yellowish brown very organic silt
] = *turf*
57: 10 YR 3/2 very dark greyish brown silt with abundant charcoal flecks
58: mixed light pink peat ash(?), charcoal flecks and dark brown (10 YR 3/2) silt
59: finely laminated black (10 YR 2/1), grey and brown silt lenses with abundant charcoal flecks = *floor 1*
60: 10 YR 3/2 dark greyish brown silt
61: as 059, with occasional bone = *floor 2*
62: 10 YR 3/4 dark yellowish brown silt
63: as 059 and 061, with occasional bone = *floor 3*
64: 10 YR 3/6 dark yellowish brown silt = *possibly natural subsoil*
65: mixed 10 YR 3/2 very dark greyish brown very fine sandy silt
66: 5 YR 3/2 dark reddish brown silt with charcoal flecks = *possible peat ash*
67: finely laminated 10 YR 3/2 very dark greyish brown and pinkish-brown
68: mixed 10 YR 3/2 very dark greyish brown and 10 YR 3/6 dark yellowish brown silt, with abundant charcoal flecks
69: 5 YR 3/3 dark reddish brown very organic silt; clear horizontal laminations = *possible hay*
70: 10 YR 3/2 very dark greyish brown silt

of Scotland. In addition, small bulk samples for phytolith analysis will be taken from each of the midden sediments, and it is hoped that this assemblage will form part of a Master's project at the University of Cambridge or at University College London.

3) Environmental change and landscape degradation

Ongoing research into the historical dimensions of soil sustainability in Iceland is focusing on the relationship between early sheep grazing pressure and land degradation, and the exploration of these relationships through spatial modeling (GIS). The area around Sveigakot is emerging as one of the key areas to examine this relationship due to the extensive areas of land degradation, the availability of historical information on sheep numbers, and the emergence of high quality archaeological data on site function. The focus of the summer 2000 field-work will be to establish vegetation productivity values for the region and to collect undisturbed and bulk samples from fossil palaeosols in the region to assist with landscape reconstruction. The unusual cairn-like features to the north and north-west of the site may be preserving buried soils that would otherwise have blown away, and it is recommended that a few of these features be investigated with this possibility in mind. In addition, any walls or banks that were constructed as field boundaries around the site should be investigated for buried soils beneath them. The modeling and environmental reconstruction aspects of this research programme are supported by the University of Stirling Research Studentship.

Acknowledgements

The authors gratefully acknowledge the funding bodies that have contributed to the geoarchaeological sampling program at Sveigakot. KM is grateful for the financial support of the Social Sciences and Humanities Research Council of Canada, the United Kingdom Overseas Research Studentship, the Cambridge Commonwealth Trust and Newnham College, Cambridge. Travel to Iceland in 1999 was made possible through a generous travel grant from the Bertha Phillpots Memorial Fund for Old Norse and Icelandic Studies, which was granted by the Department of Anglo-Saxon, Norse and Celtic at the University of Cambridge. IS gratefully acknowledges support from the University of Stirling Faculty Development Fund. Field support for the geoarchaeological sampling program was provided by the North Atlantic Biocultural Organization and the Institute of Archaeology, Iceland.

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Clayton Tinsley

Zooarchaeology of Sveigakot.

A Preliminary Report on the Upper Midden Deposit

Introduction

Sveigakot was first discovered during survey by Orri Vésteinsson of the Institute of Archaeology, Iceland in 1998. The site is located approximately 10 km south of Lake Mývatn and 12 km southeast of the Hofstaðir site (Friðriksson & Vésteinsson 1995, 1996, 1997a, 1997b, Vésteinsson, Friðriksson & McGovern in press). A small rectilinear structure with an extensive eroding midden context was located during the 1998 season. Based on the substantial surface collection of bone and the eroding nature of the site, further investigation was planned in 1999 to better document the midden and structural contexts. In 1999, a section of the eroding midden context (Figure 1) was excavated by the NABO\FSI field school under the direction of Tom McGovern. The faunal material from the 1999 season has now been examined, though additional work on metrics, tooth wear, and species-level identification of fish and birds remains to be done. This is thus a first stage report of preliminary observations rather than any sort of final report on the collection, which we hope will be expanded during the upcoming 2000 season.

Figure 1. Sveigakot from the north.

The midden from Sveigakot consists of multiple layers or stratigraphic units (Figure 2,), and was excavated stratigraphically by natural layers (100% 4 mm mesh dry sieving with major bulk samples for flotation). The midden at present appears to be extensive rather than deep (maximum depth ca 75 cm), but the individual layers can be connected and grouped into two analytical units by major volcanic tephra deposits. The lower of these two tephra (context

0009) has been identified as part of the Landnám sequence (AD 871±2), while the upper (context 0007) is identified as an AD 950 tephra. Artifacts and bones have been found just above the c. AD 871 tephra, and also above the AD 950 tephra, with the majority of the finds in 1999 coming from the upper (post AD 950) deposits. All artifacts (iron, bronze, stone, glass, bone) found thus support a Settlement Period/Viking Age date for the deposit. The midden has also produced three radiocarbon dates (all AMS, terrestrial domestic mammal bone), giving the results AD 900 +/- 40 (Beta Analytic 134144 - cattle bone), AD 950 +/- 40 (Beta Analytic 134145 - cheep bone) and AD 910 +/- 40 (Beta Analytic 134146 - cattle bone)

The 134145 sheep bone and the 134144 cattle bone came from above the AD 950 tephra, while the 134146 Cattle bone comes from below the AD 950 tephra. While 134144 is thus slightly out of stratigraphic order at 1 sigma, all the dates effectively overlap and support the overall dating of these deposits to the 9th-10th c AD. Carbon isotope results suggest that all three individuals were not participating significantly in the marine food web (through sea weed or fish offal consumption).

To date, the majority of the faunal material from the upper midden layer has been analysed (and forms the basis for this report), but the lower layers have not yet produced enough bone to reasonably quantify. The 1999 sample size from the upper midden (stratigraphic contexts: 003, 005, 006, 002, 004, 012, and 013) contains 2,518 identified bone fragments, which more than meets the NABO Zooarchaeology Working Group recommendation (1000 NISP) for inter-site comparisons. At present, the lower layers appear to have much the same overall character as the upper (including significant amounts of cattle and pig bone), but additional excavation in 2000 will be required to allow full comparison of these two major analytical units.

Sample Taphonomy

As in other faunal collections from Iceland that have been recovered by sieving, most of the bone fragments in the Sveigakot collection are small. The majority of the faunal material from

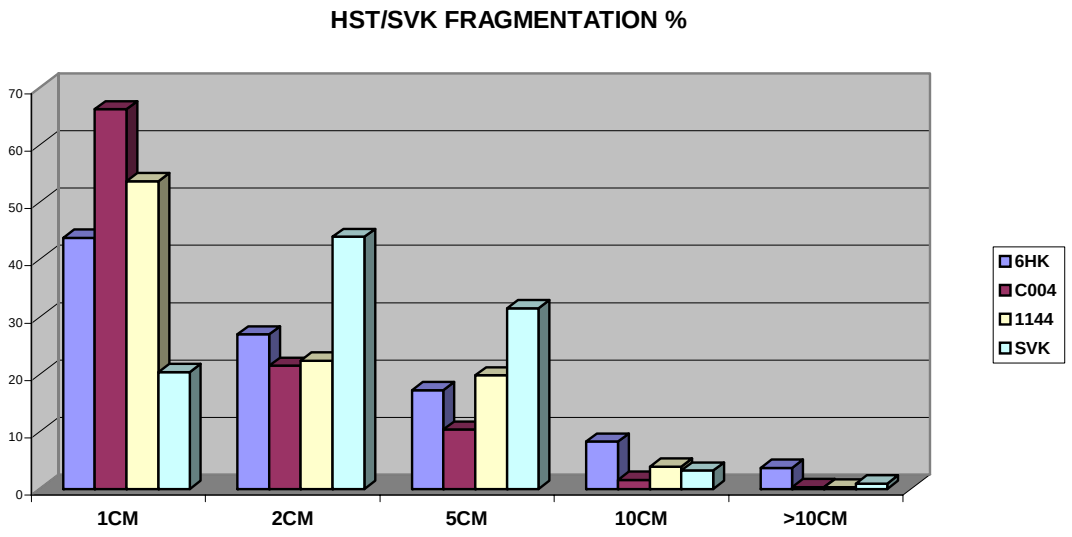


Figure 2. Degrees of fragmentation of the Hofstaðir (6HK, C004, 1144) and Sveigakot (SVK) assemblages.

the upper midden is 2cm or smaller (Figure 2). While over 80% of the faunal sample shows no evidence of burning, a very small percentage of the material is represented by white burned fragments (Figure 3).

When compared to the early settlement site of Hofstaðir, Sveigakot appears to differ in fragmentation. Fragments 1cm and smaller, represent the largest single category of

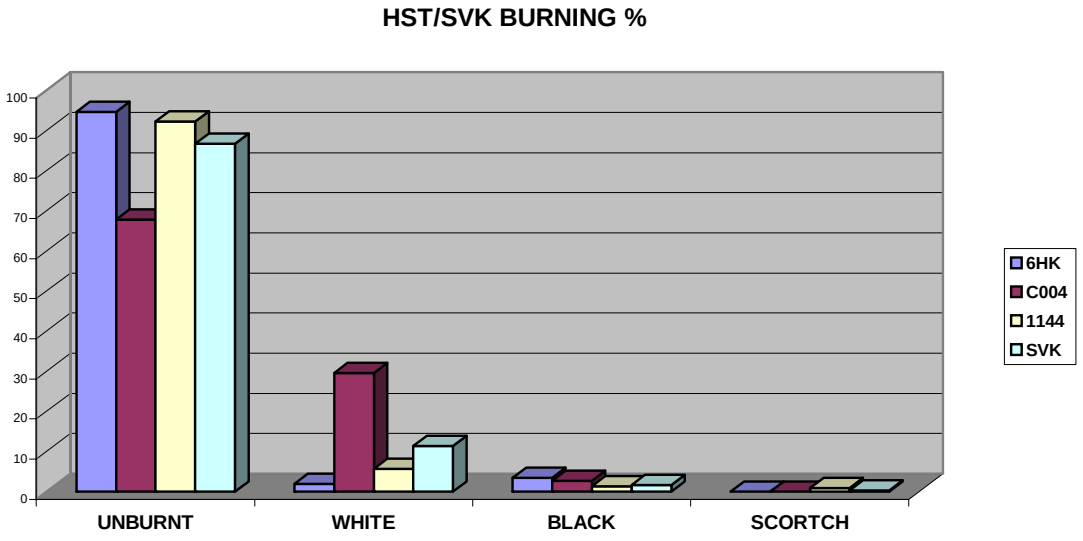


Figure 3. Degrees of burning of the Hofstaðir (6HK, C004, 1144) and Sveigakot (SVK) assemblages.

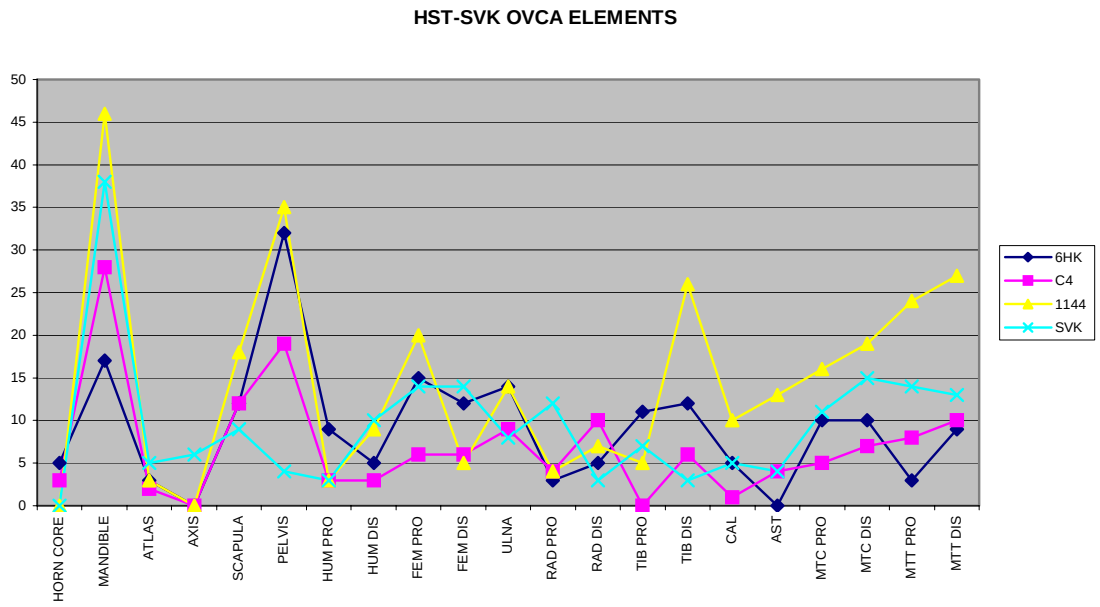


Figure 4. Elements of sheep and goats at Sveigakot (SVK) and Hofstaðir (6HK, C4, 1144).

fragmentation in the studied contexts from Hofstaðir (6HK, C4 and E1144). However, at Sveigakot, the 2cm-1cm category is dominant (Figure 2). The cause of this fragmentation difference and its effect on inter-site comparisons is unclear at this time. However, an analysis of the burned fragments reveals strong similarities between the upper midden of

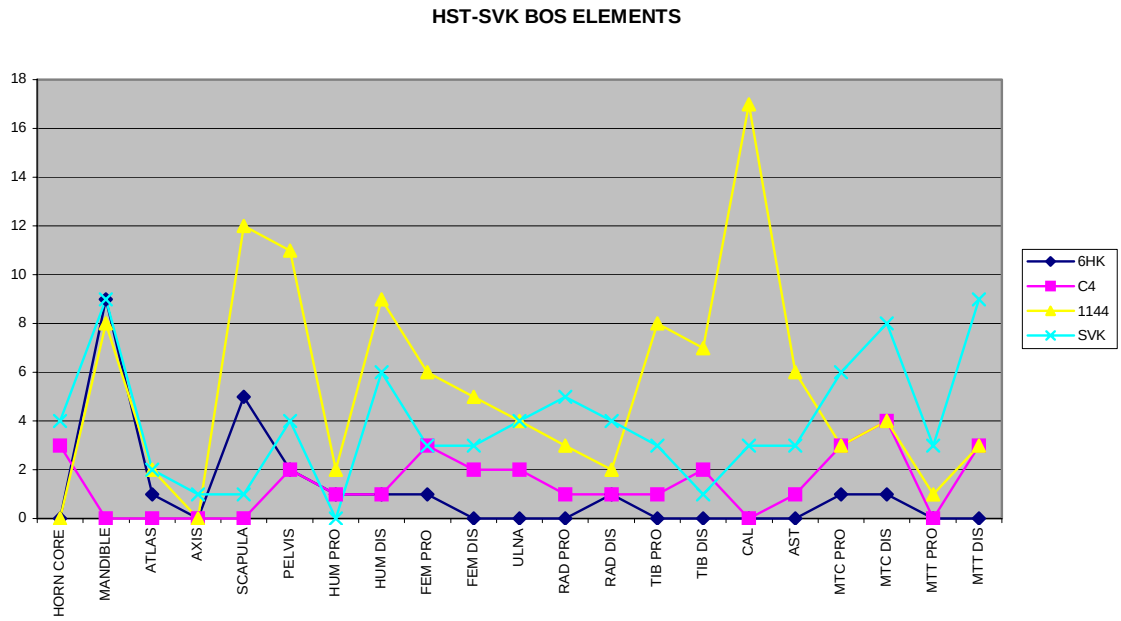


Figure 5. Elements of bos taurus at Sveigakot (SVK) and Hofstaðir (6HK, C4, 1144).

Sveigakot and the studied contexts from Hofstaðir. The Sveigakot material shows some evidence of taphonomic attrition in bone density distribution. When compared to the contexts from Hofstaðir (Figures 4 and 5), dense, durable bones such as mandibles and phalanges appear to be over represented when compared to other less dense bones such as the proximal humerus. This bias could be indicative of environmental effects (weathering, freeze-thaw cycles, etc.) that have been more of a factor at the eroded Sveigakot site than the well-sodded site of Hofstaðir.

Although still in its preliminary stages, skeletal element distribution analysis has revealed some interesting patterns. For the three dominant domesticates (Bos, Caprines {both sheep and goat}, and Sus) all species were represented by both distal meat poor parts such as phalanges as well as meat rich upper limb bones like humeri. The upper midden from Sveigakot appears to represent both butchery waste and meal refuse, apparently similar to midden material from Hofstaðir. The effects of sample survival and taphonomy on the Sveigakot material is an area for ongoing investigation.

Species Present

The identified taxa from Sveigakot currently include:

Domestic Mammals
Cattle (Bos taurus dom)
Sheep (Ovis aries dom)
Goat (Capra hircus dom)
Pig (Sus scrofa dom)
Horse (Equs caballus dom)

Wild Mammals
Arctic Fox (Alopex lagopus)

Birds
Ptarmigan (Lagopus mutus)
Raven (Corvus corax)
Other bird species not yet identified

Fish
Marine (Gadid sp.)
Fresh Water (Salmonid sp.)

Mollusca
Mussel (M edulis)
Gastropod sp.

An analysis of the overall taxa at Sveigakot reveals diverse resource utilization (Figure 6). Domestic mammals, terrestrial birds, and fish (marine and fresh water) reflect a variety of food items being utilized by these early Icelandic settlers.

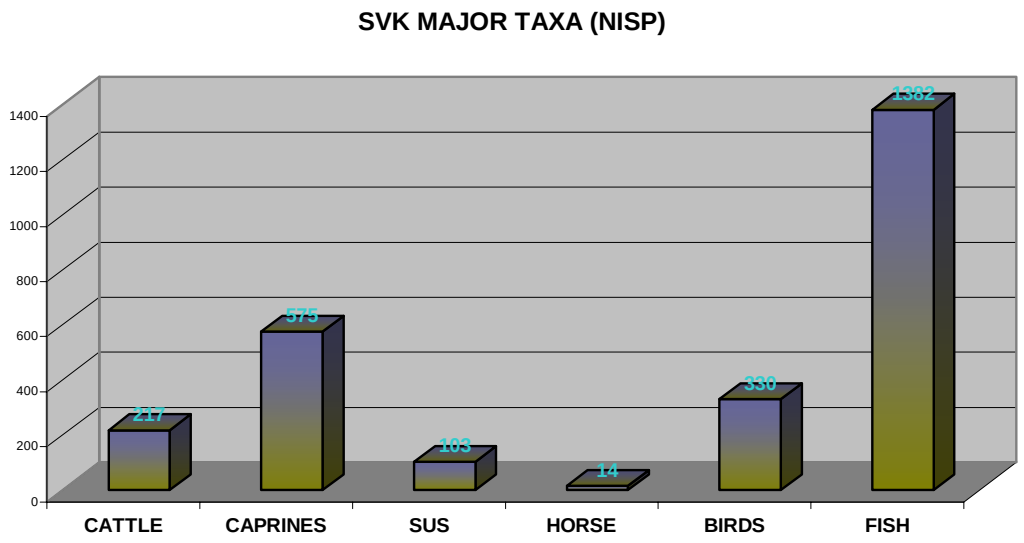


Figure 6. Major taxa of the 1999 Sveigakot faunal assemblage.

The **fish** remains are still being studied but some initial observations have been made (with assistance from Dr. Sophia Perdikaris). Overall, the fish are dominated by fresh water Salmonids (trout, char). Additionally, a small number of marine (Gadid sp.) fish have been recorded from the midden- including both haddock and Atlantic cod. As at Hofstaðir, the fresh water fish are represented by all parts of the skeleton, but the salt-water fish are represented almost entirely by cliethra and caudal vertebrae. This suggests some sort of long distance procurement of preserved salt-water fish reaching inland not only to Hofstaðir but also south of Mývatn to Sveigakot.

Birds are almost entirely represented by the ptarmigan (grouse, *Lagopus mutus*). However, unlike the ptarmigan remains from Hofstaðir, the Sveigakot material appears to represent whole individuals. The Hofstaðir ptarmigan material is mainly made up of only lower leg bones (Tinsley 1999). At Sveigakot, various ptarmigan elements from foot to skull are present in the midden. In addition to the ptarmigan, the remains of one raven were also found, in this case an articulated foot, leg, and partial pelvis. Several other species are present in the Sveigakot bird collection, and will be reported when their identification has been confirmed,

but the material is over 80% Ptarmigan. The significance of the perceived difference in bird utilization/representation between Hofstaðir and Sveigakot is another area for further research.

Wild Mammals at Sveigakot are entirely represented by arctic fox (*Alopex lagopus*), which is somewhat more plentiful in these deposits than on other Icelandic sites. All parts of the fox skeleton are represented, mandibles, long bones, and feet- there is no suggestion of any specialized processing for fur or bounty.

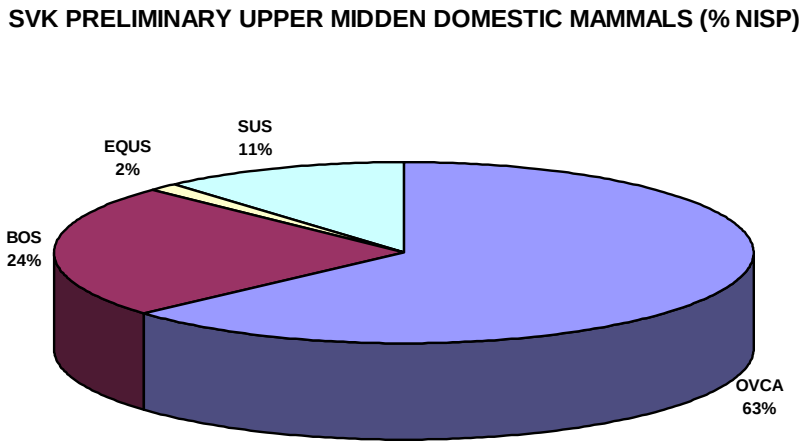


Figure 7. Relative proportions of domestic mammals from Sveigakot.

Domestic mammals are represented by the typical mix of settlement period animals (McGovern, Perdikaris, Tinsley in press) including sheep, goats, cattle, horses and pigs (Figure 7). Of special interest is the relatively high percentages of cattle and pig (of the domesticate total). The percentage of pig in the domesticate total is at present the highest of any site thus excavated in Northern Iceland (Figure 8). This is unexpected given the extremely exposed modern situation of the site, though large pieces of birch bark and substantial pieces of smelting slag also recovered from the same layers suggest a radically different landscape in the mid 10th century. Other early sites in Northern Iceland such as

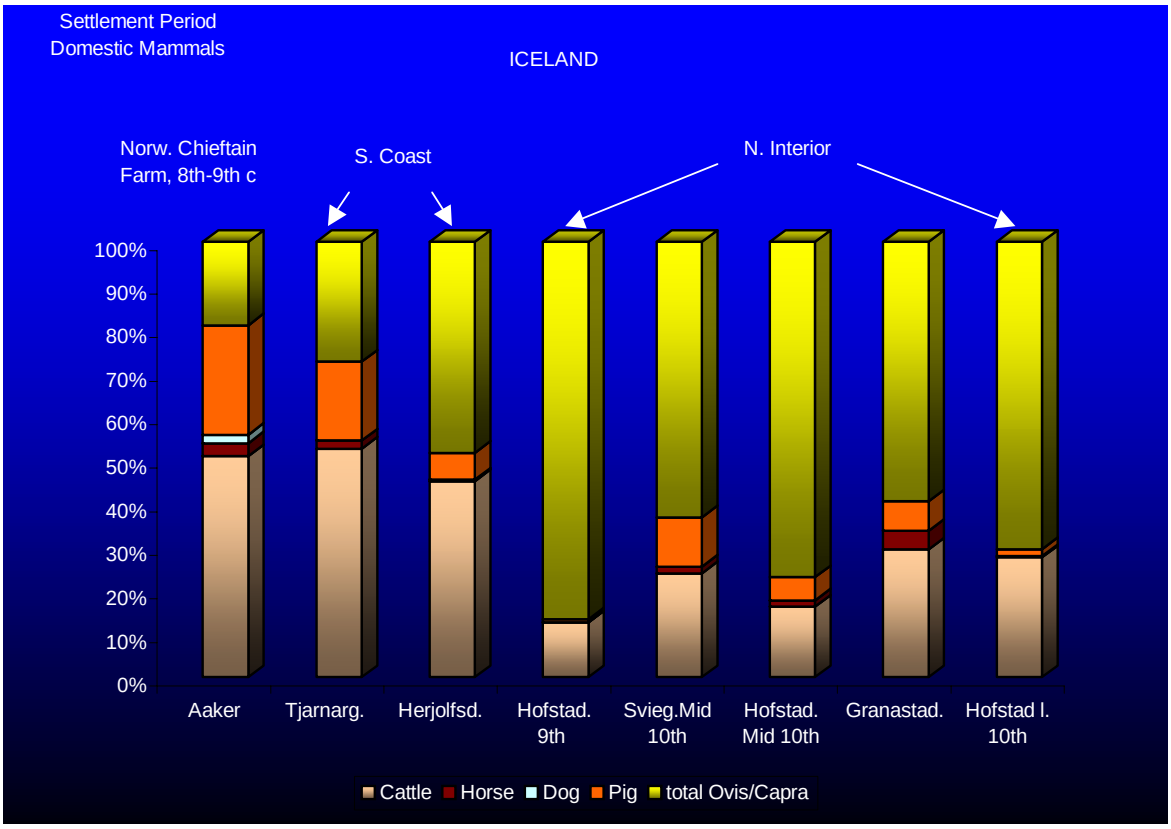


Fig. 8. Proportions of domestic mammals in N-Atlantic Viking age assemblages.

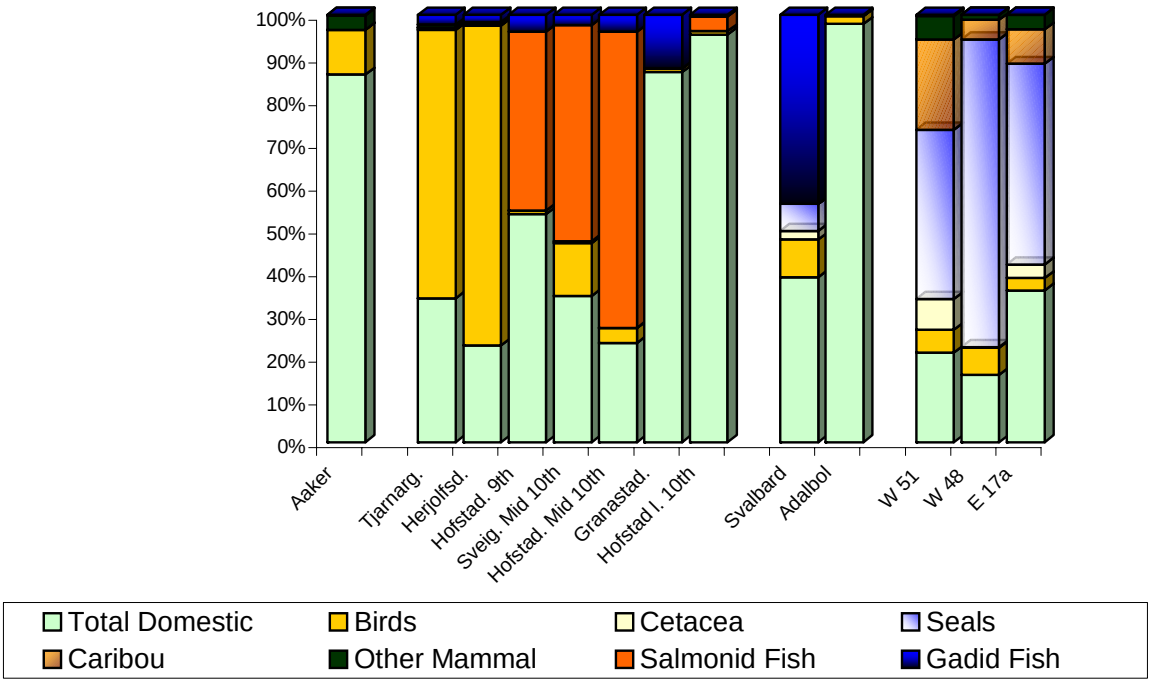


Fig. 9. Major taxa in N-Atlantic Viking age assemblages.

Granastaðir and Hofstaðir both have significant pig remains present (Figure 8). However, Sveigakot clearly represents a site where pig raising was initially quite successful and important in the domestic economy. While additional work is underway on separating sheep from goats, the initial indications from Sveigakot upper midden is that (as at contemporary Hofstaðir) goats also played a significant role in the 9th-10th c economy. As figure 9 indicates, the overall bone collection from mid-10th c Sveigakot shows considerable similarity to the roughly contemporary layers at Hofstaðir, with a major component of fresh water fish and birds supplementing the domestic mammal economy. The interaction of a local subsistence economy incorporating significant numbers of pigs and goats as well as the more familiar Icelandic domesticates with woodland and soils constitutes a major area for cooperative investigation (Amorosi et al 1997, Arnalds 1987, Buckland et al 1994, 1997, 1998, Dugmore & Erskine 1994, Simpson &Milek 1997 Simpson et al 1997,1999a, 1999b Sveinbjarnardóttir 1992).

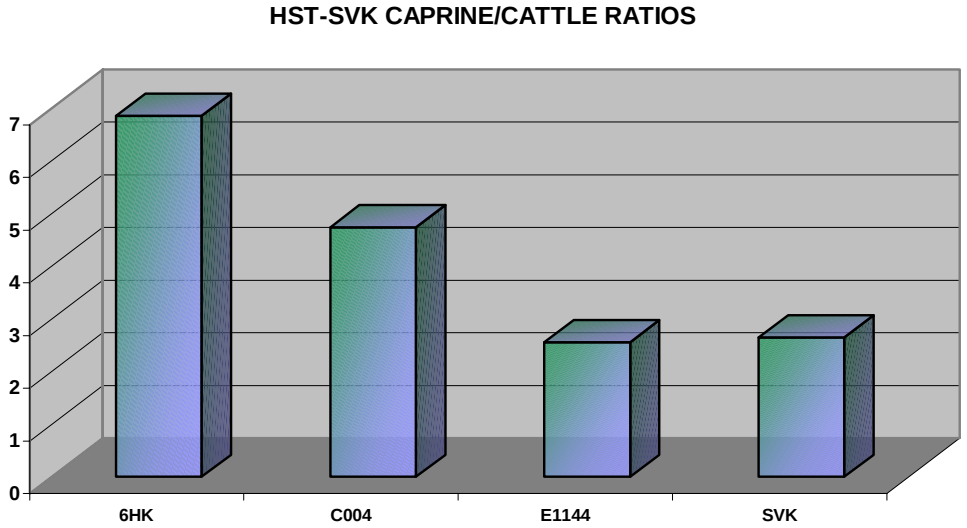
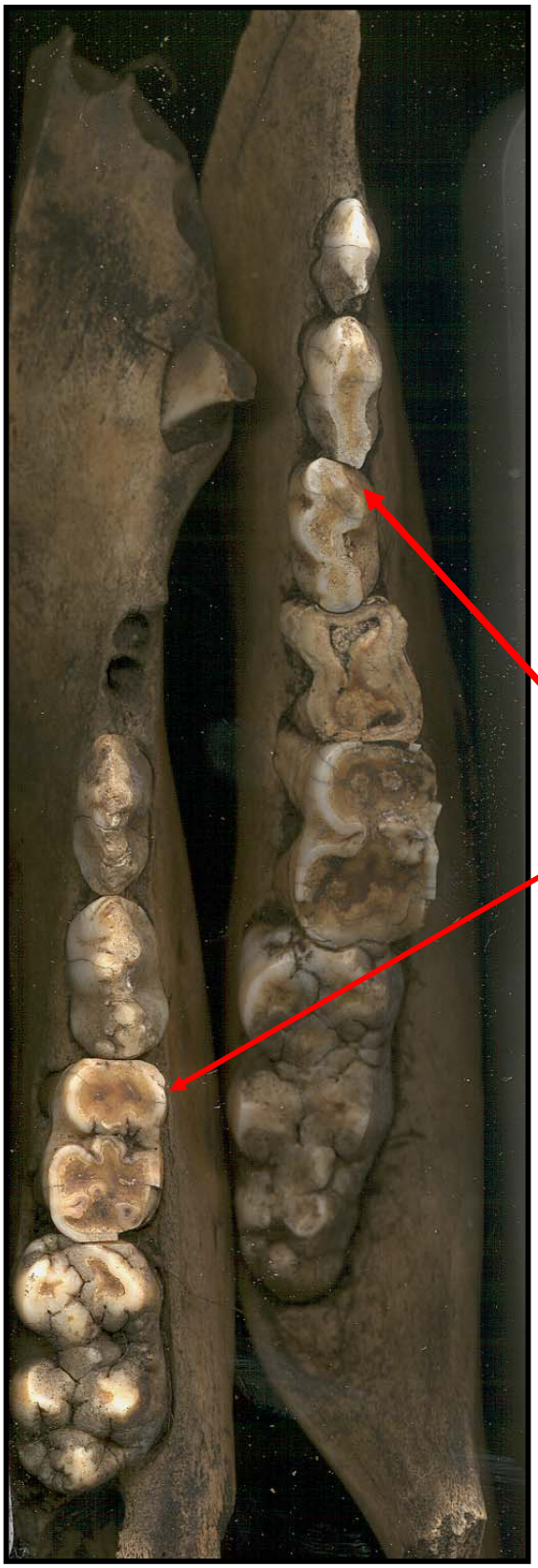


Figure 10. Caprine/Cattle ratios in early to late layers at Hofstaðir and at Sveigakot.

Cattle percentages at Sveigakot represent another surprise given the modern landscape and the small, long-abandoned ruin. The high percentage of cattle (of the domesticate total) present at Sveigakot is similar to that found from the E1144 context at Hofstaðir (roughly contemporary with the great hall). When a caprine/cattle ratio is calculated (Figure 10) both Sveigakot and the later, presumably higher status component of Hofstaðir (E1144) appear to be almost identical. A high percentage of cattle (of the domesticate total) has long been associated with higher status farms in the North Atlantic (McGovern 1992, Perdikaris 1998 and Tinsley

Fig. 11.



Note heavy wear on premolars and first-erupting molars, suggests rapid tooth wear from grit in grazing

SVK 99 M, 002,902/311 , Pig Dental Attrition

Note heavy wear on premolars and first molars, suggesting rapid dental attrition , possibly from increased grit in grazing. to ca AD 950.

Fig. 12. **SVK 99 M 002,902/311 Caprine Tooth Rows**

1999). The relatively high cattle percentage at Sveigakot thus far recovered is thus a bit of a puzzle. Given the preliminary status of the excavation at Sveigakot, it is perhaps a bit premature to discuss the ranking of the farm, or its connection to other sites.

Tooth wear and dental attrition will be subject of specialist analyses by Dr. Ingrid Mainland (University of Bradford), but a few observations can be made from the initial sorting. Figures 11 and 12 illustrate differential wear on both pig and caprine jaws. Note the extreme wear on the premolars and early-erupting first molars combined with relatively unworn second and third molars. This rapid dental wear may be associated with breaching of sod cover and exposure of gritty andisols, but this is speculative at present.

Discussion

Although the faunal analyses are ongoing, Sveigakot appears to be a quite interesting example of an early farmstead in Northern Iceland. With a mixture of wild taxa (birds and fish) and domestic animals (goats and pigs) that is typical of the settlement period in this region of Iceland, it is at first glance unremarkable. However, given its high elevation setting (at 285 masl) and current state of erosion, it would appear that the Sveigakot site was established in a less than ideal location for long term successful farming. In addition, elements of the faunal assemblage appear to reflect a farm of relatively high status for Northern Iceland. Whether Sveigakot was an early attempt at farming in the region by someone of higher status, or rather a farm with connections to a higher-ranking individual/farm is not clear. At present, Sveigakot remains a bit of a mystery, raising many more questions than can be effectively answered with current evidence. Additional work at the site combining investigation of structures, middens, and surrounding landscape will be important in helping us to understand the dynamics of status, provisioning, and environmental impact at this abandoned Viking Age farm.

HARRIS MATRIX FOR AREA M - SVEIGAKOT 1999

NOTES

sterile	aeolian deposit	0001
UPPER MIDDEN		0003
Upper smaller midden contexts		0005 0006
Larger dk midden layers		0002
"		0004
"		0012
thin ash layer		0013
TEPHRA SURFACE		0007
LOWER MIDDEN		
Midden layers		0008
		0010
	whetstone	0011
LANDNAM TEPHRA		0009
Natural Sterile Layers Below		
brown sterile soil		025
dark tephra		015
brown sterile soil		024
dark tephra		016
brown sterile soil		023
dark tephra		017
brown sterile soil		022
light cream tephra		018
brown sterile soil		021
cobble surface		020

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Magnús Á. Sigurgeirsson

Greinargerð um gjóskulög

Greinargerð þessi byggir á tveimur heimsóknum að Sveigakoti, dagana 15. og 17. ágúst 1999. Skoðuð voru gjóskulög á uppgraftarsvæðinu og einnig í nágrenni Sveigakots. Greining gjóskulaganna byggir að mestu á fyrri athugunum og verður því ekki fjallað um hvert einstakt gjóskulag hér heldur vísað til fyrri greinargerða um gjóskulög í Mývatnssveit og greinar í Archaeologia islandica (Magnús Á. Sigurgeirsson 1998).

Gjóskulög í Selföndum

Greiningu helstu gjóskulaga má sjá á meðfylgjandi sniðteikningum. Eins og sjá má á sniðunum eru gjóskulög einungis varðveitt undir mannvistarlögum, þ.e. veggjum og sorplögum í Sveigakoti en jarðvegur er hvergi til staðar yfir þeim. Lítill sem enginn jarðvegur er ofan á rústum og sorplögum. Ekki var hlaupið að því að greina gjóskulögin undir mannvistarlögunum og reyndist nauðsynlegt að finna viðmiðunarsnið í nágrenni rústanna, þar sem jarðvegur var ekki raskaður á nokkurn hátt. Hentugt snið fannst í NV-hlíð Sellandafjalls um 10 km (mælt eftir akvegi) sunnan Sveigakots.

Samanburður á gjóskulögum í Sveigakoti og sniðinu við Sellandafjall bendir til að gjóskulögin næst undir mannvistarlögunum í Sveigakoti tilheyri Landnámssyrpunni (LNS) svonefndu. Á milli tveggja efstu laganna í Sveigakoti er þunnt sorplag sem teljast verður mjög athyglisvert enda hefur slíkt ekki sést áður svo vitað sé. Af þessum sökum beindist athyglin einkum að þessum tveimur efstu lögum LNS, og var sértök áhersla lögð á að finna út hvort þessara laga væri Landnámslagið (LNL), sem er frá 871±2 e.Kr. (Grönvold o.fl. 1995). Sýni til smásjárskoðunar voru tekin úr lögunum í Sveigakoti og samsvarandi lögum úr sniðinu við Sellandafjall. Gjóska LNL einkennist öðru fremur af óvenju miklu magni af plagióklaskristöllum, sem kemur vel fram undir smásjá.

Smásjárskoðun á tveimur efstu gjóskulögum LNS við Sellandafjall leiddi í ljós að mun meira er af kristöllum í neðra gjóskulaginu en því efra. Sem bendir til að LNL sé næstefsta lagið en ekki það efsta eins og jafnan hefur verið talið. Þykktardreifing LNL styrkir þessa ályktun en

samkvæmt rannskóknum Guðrúnar Larsen (1984) ætti þykkt LNL í Sellöndum að vera um 0,5 cm, sem er í samræmi við þykkt næstefsta lagsins í LNS. Þykkt efsta lagsins er 1-1,5 cm á þessum slóðum.

Í borsniði úr Syðriflóa í Mývatni greindust tvö basísk (dökk) gjóskulög stuttu ofan LNL (Árni Einarsson o.fl. 1988). Aldur laganna er ákvarðaður út frá þykknunarhraða sets og teljast þau samkvæmt því vera frá ca. 960 og ca. 970 e.Kr. Líklegt er að þessi gjóskulög liggi saman í jarðvegi vegna þess hversu aldur þeirra er líkur. Upptök laganna eru í Grímsvatnakerfinu og Veiðivatnakerfinu. Í Jökuldal og nágrenni eru allt að fimm dökk gjóskulög á milli LNL og H-1158 (Guðrún Larsen 1982). Aldur þeirra er reiknaður út frá þykknunarhraða jarðvegs og raðast þau þannig á tímabilið 905-1080 e.Kr. Guðrún telur að um verulega skekkju geti verið að ræða í þessum útreikningum, einkum hvað varðar elstu lögin. Fjögur þessara laga voru efnagareind og reyndust þau vera upprunnin í Grímsvatnakerfinu og Veiðivatnakerfinu.

Sé gengið út frá því að næstefsta lag LNS í Sellöndum sé Landnámslagið er hægt að reikna út aldur efsta lagsins út frá þykknunarhraða jarðvegs á milli LNL og H-1158. Samkvæmt mælingum úr tveimur sniðum kemur út að þetta gjóskulag sé frá því um 950 e.Kr. Smáskjárskoðun bendir til að umrætt lag sé komið frá Veiðivatnakerfinu fremur en Grímsvatnakerfinu. Byggist sú ályktun einkum á lit gjóskuglersins. Upptök lagsins verða þó ekki staðfest nema með efnagreiningum. Að svo stöddu mætti nota vinnuheitið V~950 fyrir þetta lag. Hugsanlegt er, eins og fyrr er nefnt, að um sé að ræða tvö samliggjandi gjóskulög frá tveimur eldstöðvum.

Niðurstaða

Telja má víst að efsta gjóskulagið undir sorphaugnum í Sveigakoti sé ekki Landnámslagið heldur nokkru yngra lag, sennilega frá því um 950 e.Kr og með upptök í Veiðivatnakerfinu. Þunna sorplagið sem er á milli tveggja efstu laganna er samkvæmt því nokkru yngra en LNL og eldra en efsta lagið (V~950). Þetta sorplag gæti verið frá því um 900 e.Kr. samkvæmt afstöðu til gjóskulaganna.

Lokaorð

Útbreiðsla gjóskulagsins V~950 er ekki þekkt enn sem komið er og ekki upptökin heldur svo öruggt sé. Fullyrða má þó að útbreiðslan nái til Norðurlands, Norðausturlands og Austurlands að hluta. Ljóst er að mikilvægi þessa lags við fornleifarannsóknir í þessum landshlutum er mikið og því brýnt að afla meiri gagna um það, útbreiðslu, aldur og uppruna. Þetta lag ásamt LNL og H-1104/1158 eru mjög öflugt tól til að aldursákvarða mannvistarleifar frá fyrstu öldum byggðar þar sem þau finnast saman. Vel væri við hæfi að fram færu nánari athuganir á efstu lögum LNS á Norðurlandi samhliða fornleifarannsóknum í Mývatnssveit.

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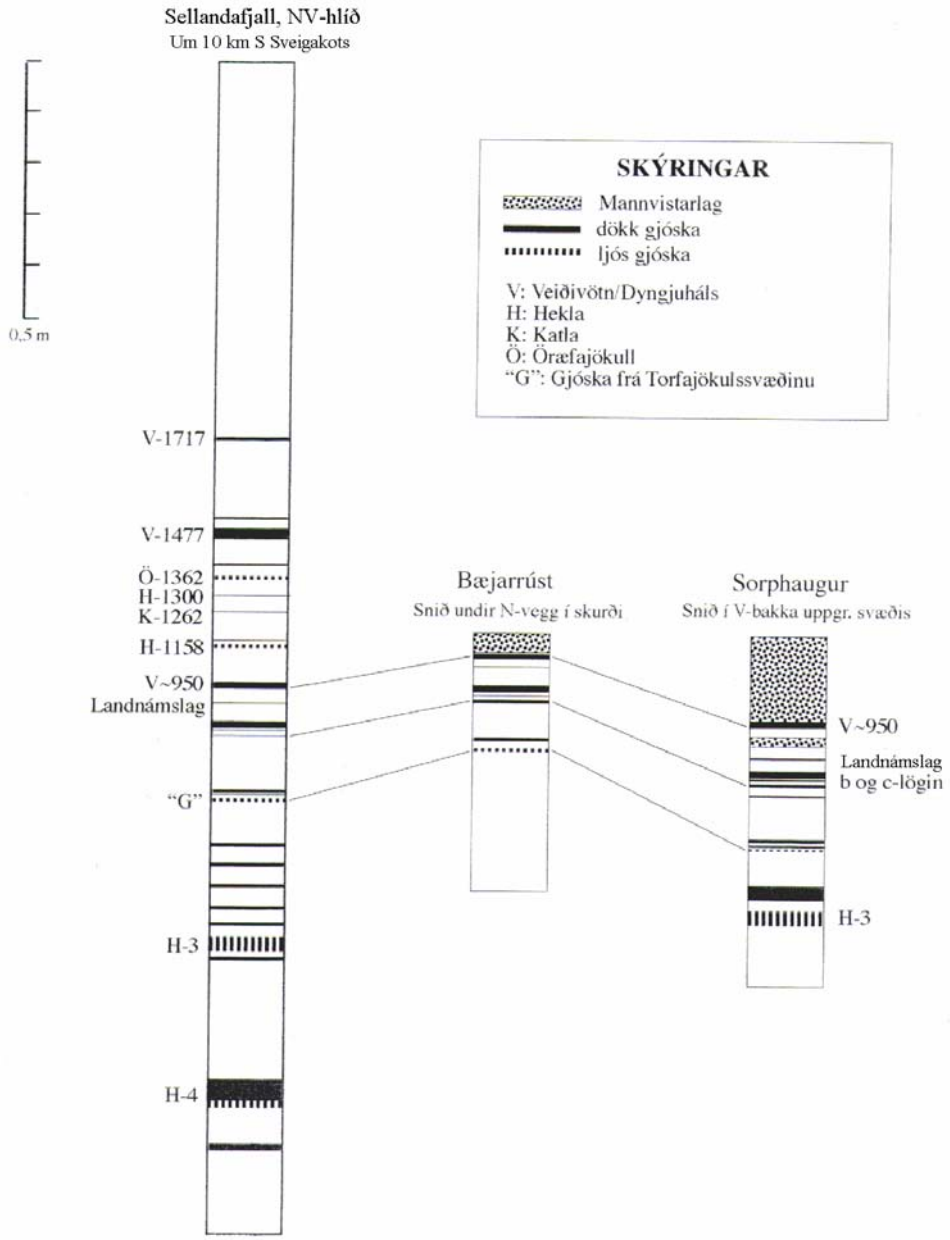
Sveigakot í Sellöndum, Mývatnssveit



Orri Vésteinsson

Archaeological investigations at Sveigakot 2000. Introduction

Excavation commenced at Sveigakot on July 24th and the site was closed for the winter on August 20th. There were three main foci of the investigation; an excavation of Structure 1 under the supervision of Karen Milek, excavations of midden areas M, T and N under the supervision of Tom McGovern and geological investigations both on- and off-site under the supervision of Andrew Dugmore.

Karen Milek's excavation report follows this introduction, but the other investigations will be briefly outlined here, followed by a few remarks on the principal findings and problems that remain to be solved.

Midden excavations

The midden team led by Tom McGovern consisted of Sophia Perdikaris, Clayton Tinsley and a rotation of students from the NABO/FSÍ field school. The midden excavations started on July 24th and in the following days the trench opened in 1999 was extended to the south, west and north. A large 4x5 m extension to the north proved to contain little midden material with poor preservation of bones at the edges. The extension to the south (11 m^2 in all) was rich in midden deposit, most of which was above the olive-green tephra tentatively dated to c. 950 AD. The section on the western side of the 1999 trench and its extension to the north revealed distinct midden deposits, both animal bone and peat-ash below the olive-green tephra all the way down to the *landnám* tephra of 871±2. The 4x2 extension to the west revealed substantial deposits of the lower midden (i.e. below the putative 950 tephra), which were recovered for analysis. The principal midden area has thus produced substantial faunal collections from below and above the olive-green tephra providing a unique opportunity to compare the economy of the initial and later stages of an early settlement site.

It had been noticed in 1999 that there were concentrations of bone scattered over the site, possibly distinct from the main midden area. A survey of these resulted in the opening of two new trenches. Area N is some 12 m WSW of Structure 1, on the west-facing slope. It was 2x2 m and produced a small collection of animal bones from a deposit, which was above stones sitting in a cut. Further investigation of this area was abandoned for the time being

because the midden deposits were clearly associated with structural deposits which merit an open area excavation. Area T was 5x4 m by the end of the season. It is 3 m southwest of the southwest corner of area M on what seems to be the southwestern edge of the site. This area revealed an unusually concentrated pile of bones sitting in a depression, which turned out to be collapsed turf, possibly the walls of a sunken feature. The turf contains the olive-green tephra and this rich deposit therefore belongs to the later phase of occupation at the site. Two radiocarbon dates have been obtained from cattle bones from the bone deposit in area T, both from C055.

1) Beta 146583 (Bos taurus adult): 1040±40 BP ($\delta^{13}C$ -22.7 ‰), 2 sigma calibration AD 910-920 and 960-1030
2) Beta 146584 (Bos taurus neonatal): 1010±40 BP ($\delta^{13}C$ -21.5 ‰), 2-sigma calibration AD 980-1050 and 1100-1140.

These results suggest that the midden in T is slightly later than the upper midden in M but only in terms of decades. They do suggest that the settlement survived at least in to the 11th century and possibly longer.

The midden deposits produced a small number of artifacts, among them several bone-comb fragments, beads, a cross-headed bone pin, a decorated bone piece, a gaming piece and a knife (see list of artifacts at the end of this report).

Other archaeological investigations

The main excavation area around the long-house stopped short of the eastern end of Structure 1 and did not include the row of stones, which observations in 1998 and 1999 had suggested might be the remains of a wall, labelled Structure 3. A small test pit on the southern side of this row of stones, some 3 m east of Structure 1, revealed a compact ash layer with frequent charcoal at a depth of 15 cm. Another test pit 2 m further to the north turned up no cultural deposits whatsoever, suggesting that the line of stones represents the northern edge of a building.

A geological trench placed WNW of Structure 1 in the depression beneath the rise on which the site is situated revealed a line of stones in its eastern end. This line of stones at the foot of the slope has roughly the same orientation, i.e. N-S, but was not investigated further.

On August 13th Mjöll Snæsdóttir and Orri Vésteinsson excavated one of the stone formations observed the previous year just north of the site. The aim of this excavation was to establish the function of these curious features and to see if early soils had been preserved

underneath the stones. Neither aim was successful as it turned out that there was only a layer of stones arranged in uneven concentric circles around a single large stone. The soil underneath the stones was sand and further down gravel. Helgi Jónasson, one of the Grænavatn farmers, has offered an explanation for these features. According to him they are the remains of cairns or piles of stone, which were assembled every autumn in preparation for repair work on a great dam, which kept Kráká from flooding eastwards from its main course. The flooding of Kráká normally begins in early spring when there is still frost, which makes it difficult or impossible to loosen stones from the ground. As a result the Grænavatn farmers had the foresight to assemble stones in autumn and pile them together in small cairns, small enough so that they did not freeze together. The dam, made of stones and turf and some 250 m long, was built on sand and therefore needed considerable repairs every spring if it was to do its job. The dam was in use down to the 1930s but the piling up of stones in the autumn seems to have ceased long before that. The stone formations are therefore the bases of such stone piles, small stones set in the ground to keep the larger ones above from freezing in. They are some 350 m from the dam, on the nearest high and dry spot to it on the eastern side, i.e. on the way from Grænavatn.

Geological investigations

In the week July 31st to August 4th Andrew Dugmore, Anthony Newton and a number of students of the NABO/FSÍ field school made a series of trenches on and around the site as well as further a field. The principal aim of these investigations was twofold: to map the extent and rate of soil degradation and its possible relationship with the site and to securely date the enigmatic olive-green tephra. A 7 m long trench was excavated on site, in the shallow depression just WNW of Structure 1. This turned up archaeological remains in its eastern end as already mentioned, but in the western end a thick accumulation of sand deposited by river Kráká overlay humic and aeolian soils with a number of tephra bands. It is clear that at some point in the past a major change occurred, with river Kráká flooding a hitherto stable landscape, grassland, forest or bog, and turning it into the matrix of sand dunes and river channels which now dominate the landscape just west of the site.

Fuel ash residues

Ian Simpson has analyzed the fuel ash residues in the micromorphology samples taken from the midden in 1999. His principal conclusions are that there were markedly different patterns of fuel utilization at Sveigakot and Hofstaðir.

At both sites there is evidence of turf being subject to low temperature burning, suggesting that turf was the basic domestic fuel resource. Unlike Hofstaðir there was however no evidence of peat utilization at Sveigakot, either for low temperature domestic use, or for high temperature, industrial, activity.

Both sites had evidence of birch being burnt as fuel but unlike Hofstaðir willow was also burnt at Sveigakot.

Evidence was found of cattle manures being used as a fuel at Sveigakot, entirely lacking at Hofstaðir. At neither site has there been found evidence of the utilization of sheep dung as fuel.[10]

Concluding remarks – future work

At the end of the 2000 season it had been established that there are at least three distinct midden phases; the lower midden from c. 870-950, upper midden from after 950 and the midden in T which may be from the early 11th century. All of these deposits have produced substantial collections of animal bones, the analysis of which promises to be revealing for the type of settlement established at Sveigakot and its fate. Substantial midden deposits remain unexcavated and their investigation will be the task of the coming seasons. The T midden raises the possibility that there are more such discrete midden deposits scattered over the site, possibly representing different phases of occupation.

In 1998 three structures had been identified on the surface. The 2000 investigations revealed that Structure 2, a putative extra room adjacent to the long house, was not really a structure – all the stones which seemed to be making up a wall were in fact floating in windblown soil. There are however cultural deposits on the northern side of Structure 1, which indicate that additional buildings were there at one time, predating the last phase of Structure 1. This is most certainly the case with the barrel pit, a feature that is only found inside buildings in Iceland. Apart from Structure 3, which has been confirmed as a building, distinct from, although possibly connected to, Structure 1, a paving with a different

[10] Ian Simpson, Orri Vésteinsson, Tom McGovern, Andrew Dugmore, Clare Peters, and Paul Adderley (forthcoming): 'Fuel resources in landscapes of settlement: an historical ecology of fuel utilisation in northern Iceland.'

orientation from both Structure 1 and 3 has been found between them. As Structure 1 has at least two earlier phases than the one exposed in 2000 it is now clear that the long house site contains a complex of buildings belonging to at least three and possibly more phases.

Apart from area S structural remains have now been found in three other locations on the site; turf collapse in a depression in area T on the southwest corner of the site, possibly the remains of a pit house; stones in a cut in area N a short distance down slope southwest of Structure 1, also possibly a pit house; and a line of stones down slope northwest of Structure 1, probably a fence or field boundary rather than a house. Considering the randomness of the locations of the trenches that revealed these three structures it must be considered likely that other structures remain to be found on the site.

Of all the structural remains so far revealed none can be shown to predate the olive-green tephra, tentatively dated to c. 950 AD. All three phases of Structure 1 postdate it and the tephra is embedded in the turf of the structure in area T. It must be considered likely that there were structures associated with the lower midden (i.e. predating the olive-green tephra), which have yet to be revealed. Structure 1 clearly post-dates the olive-green tephra and its last phase must be somewhat removed from it in time, with a possible 11th century or even a later date. Its structural characteristics; the straight stone lined walls, the dimensions 12x3 m and the barrel pit, all suggest that Structure 1 should not be grouped with the earliest type of structure known in Iceland, which invariably has curved walls, normally of turf only, and an inside width of 5 m or more (e.g. Ísleifsstaðir phase 2, Snjáleifartóftir older phase, Grelutóttir, Granastaðir, Hofstaðir, Hvítárholt). Barrel pits are a common feature on late medieval sites but do not occur in early settlement sites. The oldest datable barrel pit is from a late phase at Hofstaðir, presumably mid or late 11th century. The closest parallels to the Sveigakot long house are the later phase at Snjáleifartóftir, a narrow row of buildings with straight stone lined walls replacing an earlier turf built long house of the early type, and the domestic buildings at Herjólfsdalur, also with straight stone lined walls. The two main domestic buildings at Herjólfsdalur had the inside dimensions of 13x3,5 m and 10x3,5 m respectively and the larger long-house had a barrel pit. The dating of the Herjólfsdalur site has long been disputed, although it is clear that the remains post-date the *landnám* tephra of 871±2. The abandonment phase at Herjólfsdalur was suggested by the excavator to belong to the 11th century, a result that conforms well to the findings at Sveigakot and Snjáleifartóftir.

These three sites may therefore represent the first stage towards an independent Icelandic building tradition forming in the late 10th and 11th centuries, characterised by straight stone lined walls (a vastly different technique from the turf walls of buildings like

Hofstaðir) and much diminished dimensions, especially as concerns the width. It is likely that these differences represent a major change in the way houses were built, probably from a predominantly timber based technique to a greater reliance on turf and stone as the principal structural elements of a house. The three sites which share these characteristics are found in very different parts of the country, one on a offshore island, another in an inland region in the South and the third in an inland region in the North, suggesting that these changes were fairly uniform across the country. It is likely that further investigations at Sveigakot will throw new light on this subject, which has a direct bearing on the issue of how the new Icelanders adapted their subsistence strategies to a new environment.

When Sveigakot was first surveyed in 1998 it was considered to be a distinct possibility that the remains were those of an early shieling. The apparently limited extent of the structural remains as well as the marginal location of the site seemed to suggest this. This explanation can now be discounted. All the remains so far investigated suggest that Sveigakot was a permanently occupied farm. Structure 1 has all the same characteristics as long-houses normally considered as farms, but more significantly no indications of a seasonal occupation can be seen in the faunal assemblage. The assemblage includes bones of all the animals normally present at Icelandic Viking age farms, and what is more bones from different parts of all the domestic animals are represented, suggesting butchery on site. From what we know of shielings in Iceland a shieling midden should include only the remains of food brought there by the workers, presumably dried fish and small quantities of dried or smoked mutton. It must be considered unlikely that slaughter took place at shielings; they were by their nature summer residences, whereas slaughter took place in autumn to store food for the winter. This does not of course preclude the possibility that the site was for some time, after its abandonment as a farm or in-between periods of permanent occupation, used as a shieling.

Structure 1 at Sveigakot is one of the smallest domestic buildings so far excavated in Iceland, rivalled only by the smaller long-house at Herjólfsdalur. When contrasted with the great hall at nearby Hofstaðir it appears that Sveigakot must have had a much inferior status and should be classified as a poor farm. It is therefore surprising that the faunal collections at Sveigakot show no marked difference to the collections at Hofstaðir. Indeed the Sveigakot animal bone collection has many characteristics normally associated with high status, especially a high pig content and a high cattle to sheep ratio. It is also interesting that relative to Hofstaðir the number of objects found at Sveigakot is quite high, with a much higher number of personal items, such as combs and pins, and identifiable tools such as spindle-

whorls and awls. One reason that suggests itself which can partly explain this difference is that the midden deposition at Hofstaðir seems to have been more complex than at Sveigakot, i.e. if the principal midden in G is the result of floor layers being redeposited making the material more churned up than at Sveigakot where the midden seems to be the result of initial dumping. This may also explain why there are more articulated animal bones at Sveigakot than Hofstaðir. Furthermore it might explain why there are more identifiable objects at Sveigakot, but it does not explain the higher numbers or the higher frequency of objects such as combs. How these differences relate to status is unclear, although the impression from the Sveigakot collection is certainly not of abject poverty.

The apparently contradictory indications as to site status given by the structures on the one hand and the animal bone and object assemblages on the other, may be resolved if Sveigakot is considered not as an independent farm, but an outstation of a wealthy farm of a similar type as Hofstaðir, presumably Grænavatn. This would then be a permanently occupied station, duplicating the economy of the central farm, only at a smaller scale. There are a number of problems with this idea, especially as an outstation would not be expected to be occupied by the same social ranks as a central farm. Another problem is that outstations, while implied by sources like Egils saga, are not known from later centuries and will always be difficult to distinguish archaeologically from cottages or even shielings.

If Sveigakot was an independent farm we must conclude that types of livestock, economic strategies and access to materials and objects, were not significant factors in social stratification in the settlement period. We must assume either that Hofstaðir operated on a much larger scale than Sveigakot, i.e. had more heads of livestock but in the same proportions, or that Hofstaðir is the anomaly, that something apart from its economic success lay behind the building of its enormous long-house.

Whichever is the case it is hoped that further investigations will throw further light on these questions. In Sveigakot in particular a number of questions remain unanswered, both about the economic strategies, the surrounding landscape and the number and extent of structures at the site. In 2001 it is hoped that preliminary investigations can be made at a number of likely Viking ages sites in the Mývatn area in order to obtain more comparative material.

Karen Milek

Area S Interim Report

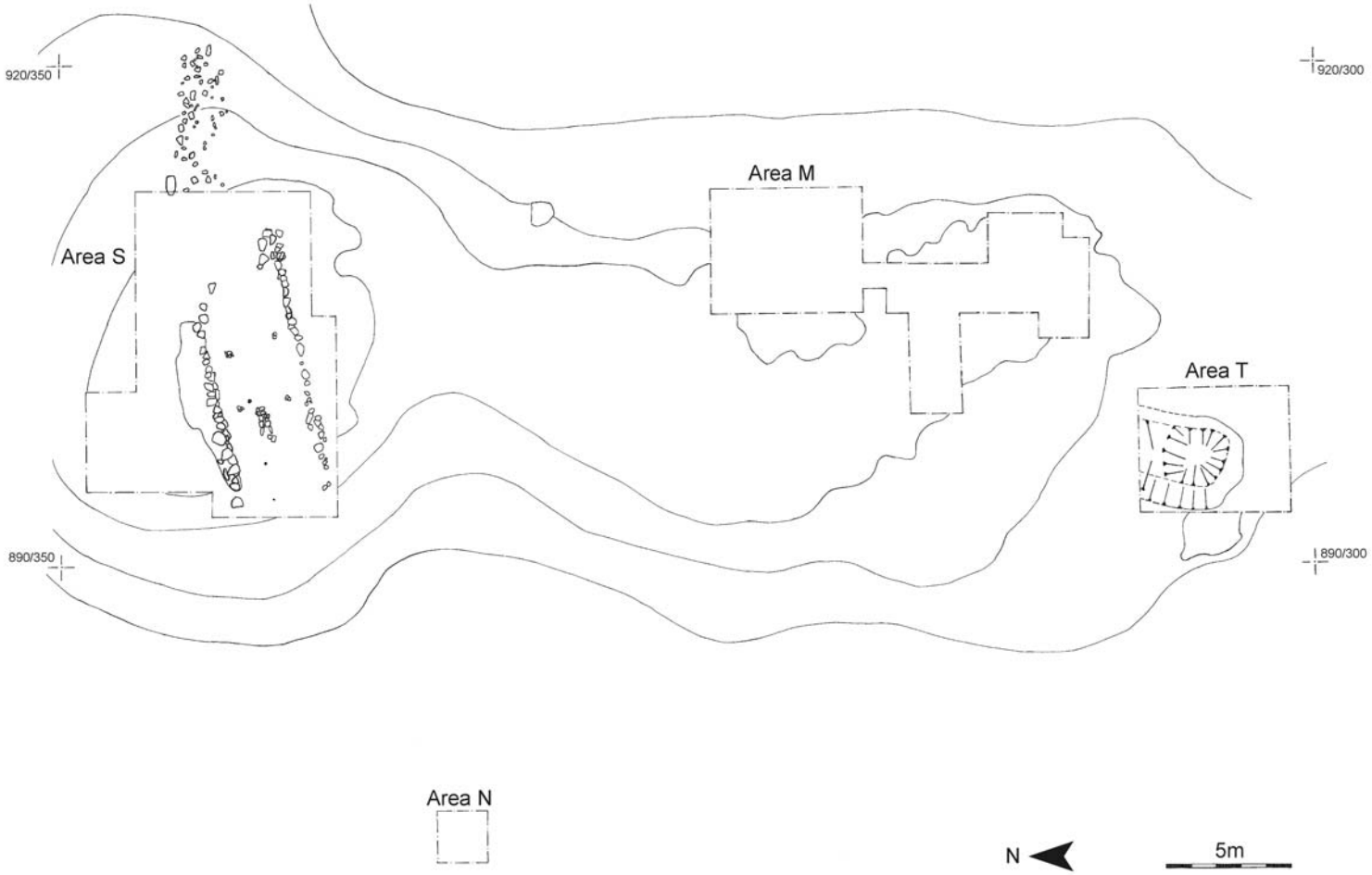
Introduction

In 2000, excavations in Area S at Sveigakot targeted the structural remains that had first been discovered during a surface survey by Orri Vésteinsson in 1998. In 1999, an assessment trench excavated between the two long walls of the most clearly defined structure (Structure 1) had revealed that the building was slightly sunken, and that the internal floor deposits were preserved below several layers of turf collapse and aeolian silt. The assessment trench had also exposed the northern edge of the cut of this sunken building, revealing that its northern long wall had been constructed soon after the deposition of a greenish-grey tephra attributed to 950 AD (Magnús Sigurgeirsson, this report). The structural remains at Sveigakot were therefore chronologically associated with the uppermost midden deposits in Area M (see Figure 1), which contained faunal evidence that suggested that the site had been a fully operational farm in the late 10th century (e.g. on-site meat production as well as consumption; Tinsley, this report). Further investigations of the structures at Sveigakot therefore had the potential to provide information about a Viking Age farmstead on the fringe of the interior, which had been abandoned within a couple of hundred years of its foundation.

The goal of the 2000 field season was to determine the size, function and internal spatial organization of the structures at Sveigakot, to detect if they had changed through time, and to date their use and abandonment. By integrating this information with faunal data from the midden excavations and environmental data from investigations of local sediments, plants, pollen and fuel resources, the excavation in Area S was designed to help answer questions about:

- the status of the site (e.g. was it a shieling or a permanently occupied farmstead? was it a prosperous or a poor farm?);
- how the status of the site changed over time, and why;
- the interaction between the people at Sveigakot and the local and regional environment (e.g. what natural resources were available for food, fuel and building materials, and how were these exploited?);

Figure 1. Sveigakot 2000 site plan



• environmental change on the periphery of the interior desert, the role of human activity in these changes, and how humans in turn were affected by environmental change in terms of their diet, living conditions, etc.

While the excavation goals of the 2000 season were met, ongoing analysis, data integration, and continued on-site and regional investigations will be required in order to answer these larger research questions.

Methodology

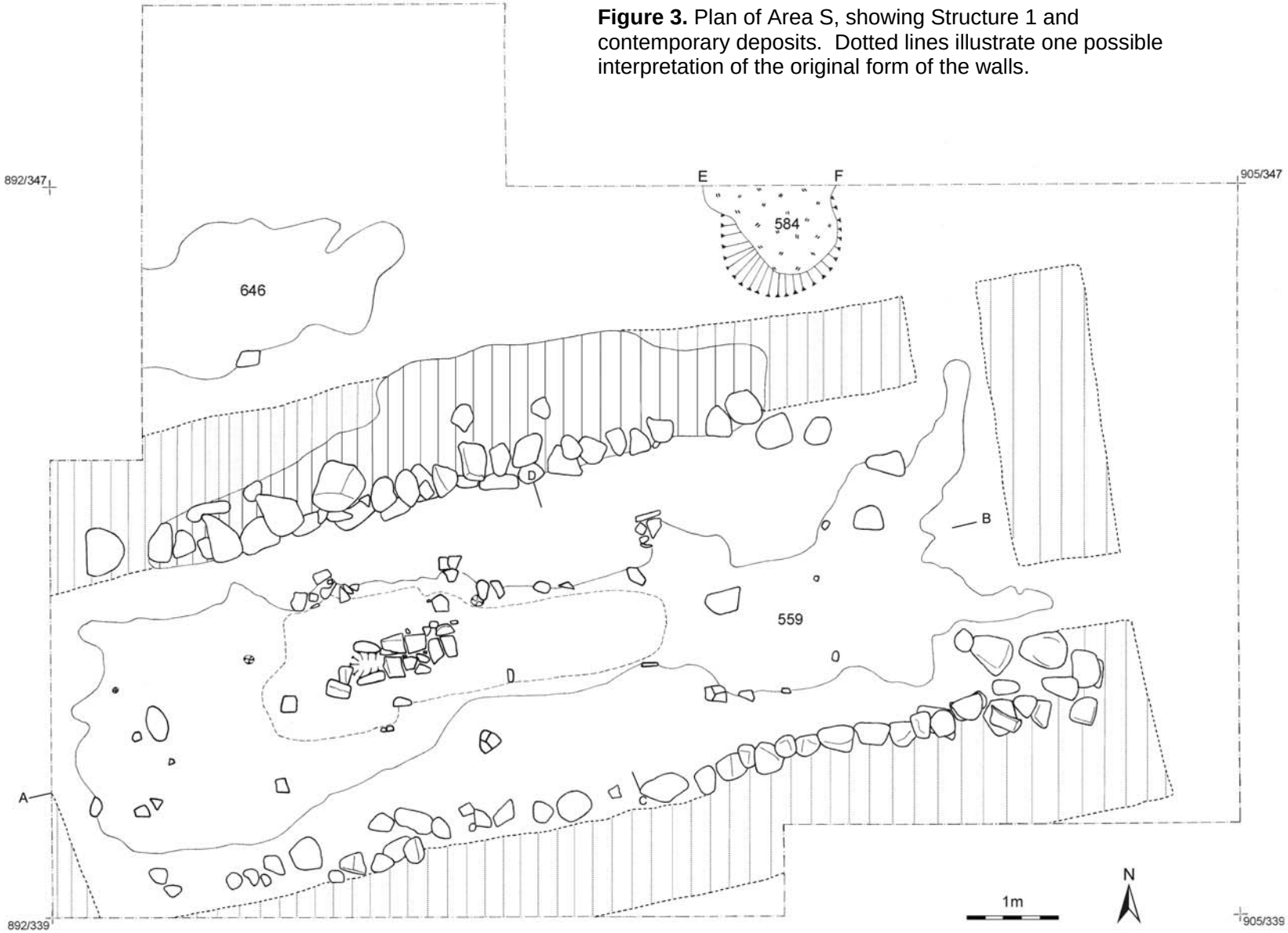
To fully expose Structures 1 and 2, a large excavation area was opened over the structural remains visible on the surface. This area measured 13m long by 10m wide on its western side, and stepped in twice to a width of 7m on its eastern side. The excavation strategy involved the removal of all soil and sediment by hand and the use of single context recording. Selected contexts, mainly occupation deposits within the structures and midden deposits outside of the structures, were sampled and/or dry sieved on site with 4mm mesh. All of the excavated contexts are summarized in Table 1 and are presented in a stratigraphic matrix in Figure 2. This interim report presents the excavation results and preliminary interpretations in a sequence of phases from the most recent to the earliest. These phase groups should be considered preliminary and can be applied only to Area S.

Excavation Results

Phase V: Natural aeolian accumulation from the 12th century to the present

The deposits in Area S that had accumulated above the site after its abandonment consisted mainly of windblown yellowish brown silt and dark grey sand (contexts 549-551). These upper soil horizons have been seriously truncated by wind erosion, which exposed the stones of the collapsed walls and removed any tephra layers that may have once capped the site. The accumulation of aeolian soil was thickest where it had infilled the depression left by the sunken-featured building (Structure 1) and was therefore least exposed to the wind. In addition to deflation processes, down-slope erosion had affected the western edge of the site, where archaeological floor deposits were only centimetres below the surface.

Figure 3. Plan of Area S, showing Structure 1 and contemporary deposits. Dotted lines illustrate one possible interpretation of the original form of the walls.



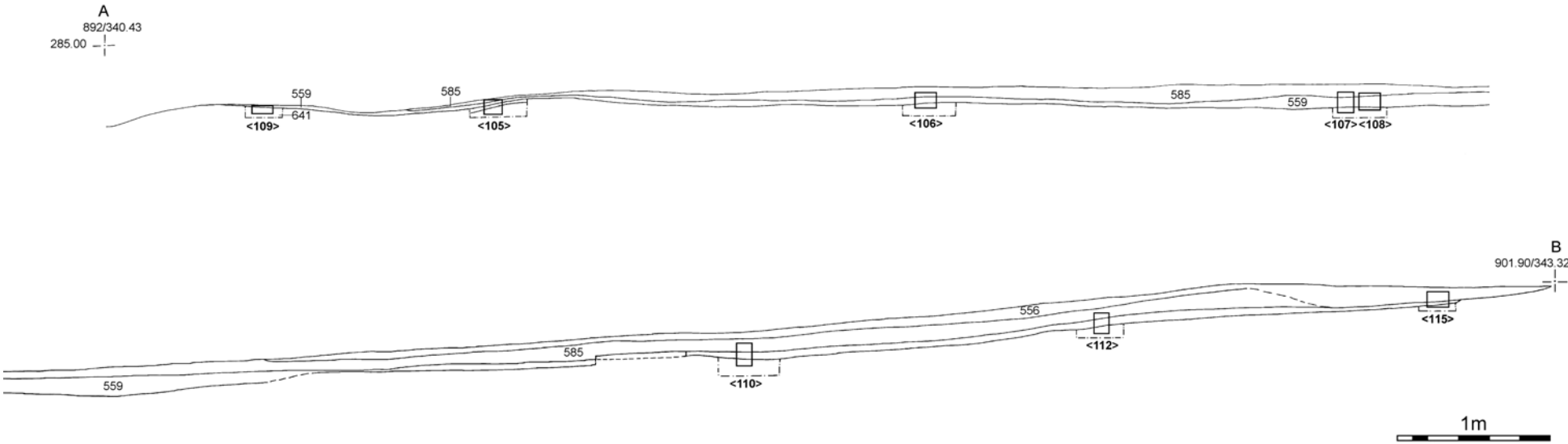
A linear cluster of stones on the surface, which in 1999 had been attributed to Structure 2, were embedded in these aeolian soils (contexts 572 and 573). If Structure 2 did have a stone element in its wall construction, the collapse of these walls must have been concurrent with the accumulation of the aeolian soils. The walls of Structure 1 were better preserved, and although they were partially exposed and partially covered by aeolian deposits, they were for the most part embedded in turf-derived soil materials from the collapsed roof and walls of the structure (see Phase IV, below). The boundary between the windblown deposits and the collapsed turf material tended to be very clear. However, the presence of a few iron objects and a spindle whorl fragment in the aeolian deposits at the eastern end of Structure 1 (context 551) indicates that there had been some reworking of the sediments by cryoturbation and bioturbation.

Phase IV: Site abandonment and structural collapse in the 12th century

The structures in Area S were probably abandoned in or around the 12th century, at which point their turf roofs and walls collapsed. Roof and wall materials were distinguished on the basis of their location and extent in relation to the stone foundations, as well as their colouring, which was a combined result of the type of tephra and the amount of oxidised iron within them. While the roof of turf buildings tends to collapse inwards first, and is confined by the standing walls, the walls themselves can collapse and 'melt' both inwards and outwards. The roof collapse within and immediately above the floors of Structures 1 and 2 was very distinctive, consisting of a firm, reddish-orange and cream coloured turf with an extremely high organic content (technically classified it as peat; contexts 556 and 577). It is likely to have originated in the wetland that once existed just west of the site, and may have been intentionally selected as a roofing material due to the dense root mat and the iron pan, which would have made the roof largely impermeable to rain water. Context 556 did not extend to the western part of Structure 1, but was adjacent to, and probably contemporary with, a sandier turf layer that had collapsed into and around the central hearth (context 583). This indicates that different roofing material was used in the western third of the building, probably due to the different availability or selection of materials during the initial construction of the roof, or during a phase of roof repair. Below parts of context 556, the peaty turf layer had been stained dark brown to grey, and had a higher sand content and charcoal flecking (context 585). It is possible that this layer represents the lower part of the roof, which would probably have been supported by brushwood and stained by soot. All of

Figure 4. Sections through the two main axes of Structure 1, showing the location of micromorphology samples.

East-West Section



North-South Section

these roofing materials were sampled for micromorphological analysis and various bulk sedimentological tests (see Table 2 and Figure 4). This analysis will determine their precise composition, as well as any structural characteristics that may have influenced their selection as roofing materials. Iron nails found in contexts 556 and 585 may have been associated with the supporting roof timbers, while a large iron fish hook sandwiched between context 585 and a hearth stone may have been attached to the roof in order to hang and smoke meat or fish over the hearth.

Above the turf roof collapse, and contained within the walls of Structure 1, was an accumulation of very fine aeolian sand that was somewhat mixed with turf and soil from the collapsing structure (context 555). This sand had probably been deposited in the wind shelter (or 'sand trap') created by the standing turf walls after the collapse of the roof. The turf wall collapse of Structures 1 and 2 varied slightly in colour and composition according to location, and various layers could be associated with the north, south, east or west walls of the structures (see contexts 554, 575, 582, 590, 603 and 605 in Table 1, below). Like the differences in roofing materials, the presence of different types of turf in wall collapse can probably be attributed to the different availability or selection of building materials during various stages of construction or repair.

Phase III: Final occupation phase from the 11th to 12th centuries

The final occupation phase of Structures 1 and 2 is currently placed in the 11th or 12th century, while the initial phase of Structure 1, when it may have been slightly wider, is more firmly dated to the late 10th century (see Phase II, below). Structure 1 in its final phase was a straight-walled, rectangular structure measuring 10 x 3.5m, with a floor sunken approximately 20cm below the contemporary ground surface (Figure 3). The preservation of the walls was variable. The north long wall (context 607), which had been present from the earliest phase of occupation, contained a two-course inner lining of stones intentionally positioned with their flattest side facing the interior of the building. The outer skin of the north long wall was made up of turf containing a greenish-grey tephra attributed to 950 AD. No clear turf courses or wall core were visible, probably due to 'wall-melt', and it is possible that the construction of the wall will be easier to interpret once the structure has been fully excavated.

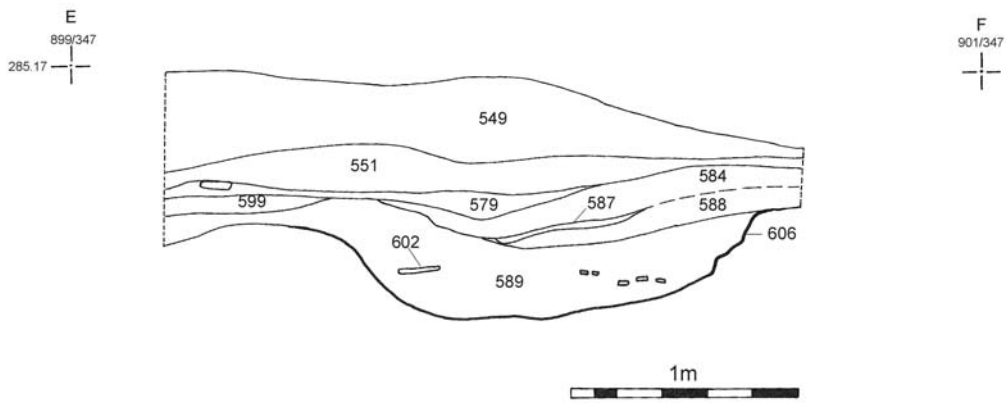
The south long wall of Structure 1 (context 609) was resting on earlier occupation deposits and turf-derived material, and was associated only with the final occupation phase of the building. The rebuilding of the south wall may have resulted in a narrowing of the

original structure, and it will be possible to confirm this in future excavations. Only one course of the inner stone lining of the south wall had survived, and unfortunately, this course had been somewhat damaged by erosion. 'Wall-melt' and wind erosion had also destroyed any evidence of outer turf courses or a wall core. The short walls on the east and west ends of Structure 1 were poorly defined, although their location was made clear by the consistent conformation of internal sediments, including turf roof collapse, aeolian deposits, and floor layers, to the same spatial limits (see Figure 3). The paucity of structural evidence is probably due to erosion, but it is also possible that there may have been a significant timber component to the building, such as gable ends, or timber walls on stone footings, with turf serving only as a thin outer skin.

In its final occupation phase, Structure 1 had a rectangular, stone-lined, central hearth in its western end (context 669). Four large, flat post-pads were arranged in a square in the middle of the building (context 656), all of which exhibited radial cracking and had probably helped to bear the weight of the roof. A row of three small, shallow post-holes just north of the hearth (contexts 593, 638, 667) may be related to internal furnishings. The central floor deposit (context 559) consisted of multiple fine lenses of black and dark grey silt and dark brown, fine sandy silt, which were thickest (up to 4cm) and most compact around the hearth in the centre of the building, and softer and thinner (1cm) at it edges. Tongues of this floor deposit, which extend through the east wall and the eastern end of the north wall, probably indicate the location of entrances. These floor deposits were rich in charcoal and small bone fragments, and contained occasional lenses of peat ash, a several iron nails and a whetstone. Floor 559 was extensively sampled for micromorphological analysis, and was 100% bulk sampled on a 50cm grid for botanical, chemical, magnetic and microartefact analyses in order to study the organisation and use of space in the final occupation phase of Structure 1. Slightly overlapping the edges of floor 559, and lapping up against the northern, western and southern walls of Structure 1, was a mixed occupation deposit that contained turf, peat ash and lenses of decomposed organic matter (possibly hay) and charcoal (contexts 558, 566, 600, 601, 604). Context 558, the thickest and most extensive of these occupation deposits, was comparatively rich in finds, including whetstones, iron nails, a copper alloy weight, and a spindle whorl fragment.

Contemporary with the final occupation phase of Structure 1, and just north of this building, were a series of midden deposits infilling and capping a disused barrel pit (contexts 579, 584, 587, 588; see Figure 5). The composition of these deposits was variable, and included ash, charcoal, burnt and unburnt bone, turf fragments, and finds such as whetstones

Figure 5. Section through barrel pit.



loom weights, iron nails, a flint flake, and a perforated copper alloy strip. This material is interpreted as domestic waste, and is likely to have been produced during the occupation of Structures 1 and 2.

Structure 2, which was just north of Structure 1 and west of the midden deposit, extended past the western edge of the excavation. It had been subjected to erosion, both by wind, and by slope wash on its western edge, so that its collapsed roof (context 577; see Phase IV, above) was only centimetres below the surface. Like the eastern and western walls of Structure 1, the walls of Structure 2 were very poorly defined, although the extent of the roof collapse and floor deposit indicated that the building was approximately 2m wide and 3m long. The floor of Structure 2 (context 646) has not yet been excavated, but it appeared to be very similar in composition to floor 599 in Structure 1 – black, compacted and rich in charcoal. Further excavation is needed in order to understand the size and function of Structure 2, and its relationship with Structure 1.

Phase II: Earlier occupation phases in the late 10th to the 11th century

The removal of the deposits that had accumulated against the north wall of Structure 1 during its final stage of occupation revealed the original cut of the sunken building, and confirmed that it was constructed in the late 10th century, not long after the fall of the 950 AD tephra. The removal of the later occupation deposits revealed an earlier sequence of floors, an

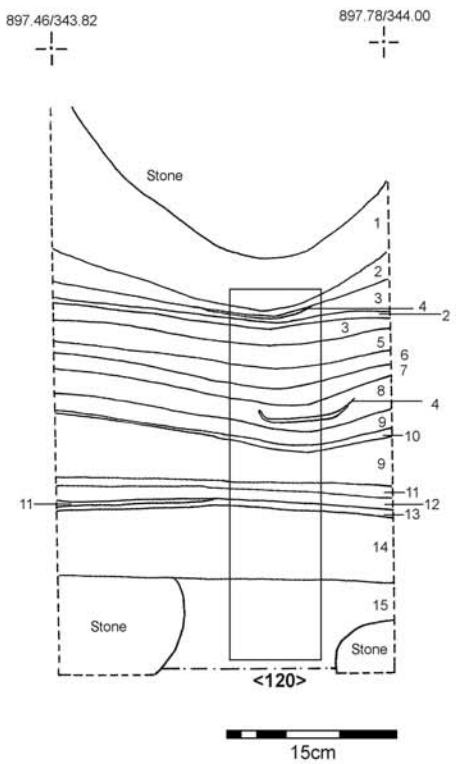
associated stone pavement on the eastern side of Structure 1 (context 624), and a robbed-out hearth just west of the later, stone-lined hearth. A full understanding of how the size, function and internal organisation of this earlier structure (Structure 4) differed from the later one, awaits the removal of the south long wall and further excavation.

Associated with this earlier occupation phase was the construction and use of a barrel pit just north of Structure 1 (context 606; Figure 3). This circular barrel pit was 110cm in diameter, with vertical sides and nearly flat base sunken 20cm below the contemporary ground surface. Like Structure 1, it had been cut in the late 10th century, not long after the fall of the 950 AD tephra. The pit had been filled with medium to coarse dark grey sand from the bed of the Kráká River (context 589), probably to aid drainage and to keep the barrel as dry as possible. A white organic residue was found in a thin, 2-5cm wide ring embedded in the grey sand close to the bottom of the pit (context 602), and since it is very likely that this residue represents the contents of the barrel, it was 100% sampled for organic residue analysis (see Table 2). The floor deposits around the barrel pit were indistinct, being composed mainly of dark brown silty soil, with patches of pale yellow and pinkish-brown organic inclusions that may represent decomposed hay (contexts 595 and 599). Since there were no residues of the barrel itself, it would seem that the barrel had been removed and the open pit later infilled with domestic midden material. As yet, no structural remains have been found associated with the barrel, and it is possible that it consisted of a wooden superstructure on top of stone footings, all of which were later removed for reuse. It is hoped that an extension of the excavation area further north, and the excavation of the north wall of Structure 1, will reveal more about the size and function of this structure (Structure 5).

Phase I: Pre-structural occupation deposits in the late 10th century

Visible within the cuts for the barrel pit and Structure 1, immediately above the 950 AD tephra, was a horizontally laminated, pinkish brown, organic layer that may consist of decomposed hay (contexts 647 and 567). This layer indicates human activity on the site in the mid to late 10th century, prior to the building of these structures, but full excavation of the structures is needed in order to understand what the nature of this activity might have been.

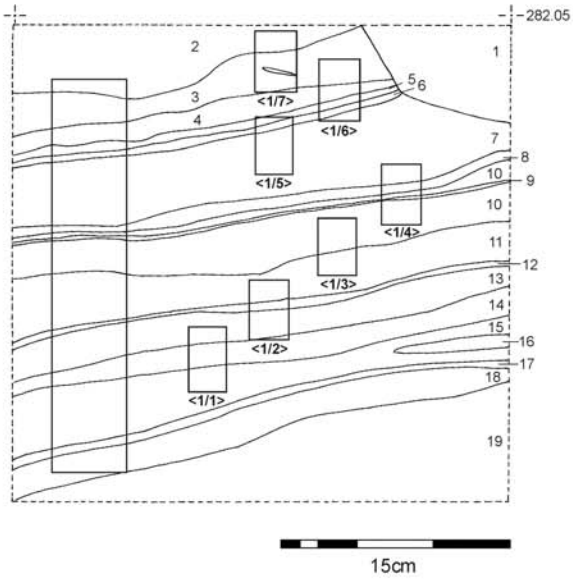
Figure 6. Natural section under north wall of Structure 1, showing *in situ* tephra layers



Key

1 - very dark brown (10 YR 2/2) very fine sandy silt with pinkish brown organic flecks and fine lenses up to 2mm thick = *context 567*
2 - greenish-grey fine sand (2.5 Y 3/2 very dark greyish brown) = *alleged 950 AD tephra*
3 - very dark brown (10 YR 2/2) silt
4 - black (10YR 2/1) humose silt
5 - black (10 YR 2/1) silty very fine sand
6 - dark yellowish brown (10 YR 3/4) very fine sandy silt mixed with greenish-grey very fine sand
7 - coal black silty very fine sand
8 - dark yellowish brown (10 YR 3/4) very fine sandy silt
9 - mottled; as 8, mixed with greenish-grey very fine sandy silt
10 - dark brown (10 YR 3/3) silty very fine sand
11 - very dark greyish brown (10 YR 3/2) silty very fine sand
12 - dark brown (7.5 YR 3/4) very fine sandy silt
13 - very light brown (10 YR 5/3) silt
14 - dark brown (10 YR 3/3) very fine sandy silt
15 - very dark brown (10 YR 2/2) very fine sandy silt

Figure 7. Natural section in geological trench west of Area S, showing *in situ* tephra layers.



1 - black (7.5 YR 2.5/1) medium to coarse river sand
2 - as 1, but on a different bedding angle
3 - very dark brown (10 YR 2/2) silt with occasional lenses of greenish-grey tephra, seemingly reworked
4 - black (7.5 YR 2.5/1) very fine sand
5 - greenish-grey very fine sand
6 - black (10 YR 2/1) fine sand
7 - dark brown (10 YR 3/3) silt
8 - dark brown (10 YR 3/3) silt
9 - dark brown (10 YR 3/3) silt
10 - brown (10 YR 4/3) silt
11 - dark yellowish brown (10 YR 3/4) silt
12 - black (10 YR 2/1) silt
13 - dark brown (10 YR 3/3) silt
14 - very dark brown (10 YR 2/2) very fine sand
15 - very dark greyish brown (10 YR 3/2) silt
16 - black (10 YR 2/1) fine sand
17 - very dark brown (10 YR 2/2) very fine sand
18 - very dark brown (10 YR 2/2) very fine sand
19 - black (10 YR 2/1) fine sand

Conclusion

Although analysis of the faunal, botanical and sediment samples from Area S is ongoing, some preliminary conclusions can already be drawn from the results of the 2000 field season. From the late 10th to the late 11th century, and possibly into the 12th century, there was a complex of rectangular structures at Sveigakot that belonged to the last phase of a permanently occupied farm, which had probably been settled since the late 9th or early 10th centuries. The main living house in the late 11th century had been long and narrow, with stone-lined walls constructed of turf and possibly timber, and a roof of turf and peat, supported by four large posts in the middle of the building. There had been a well-constructed, stone-lined hearth in the middle of the floor towards the western end of the building, which had been fueled with both wood and peat. Living conditions appear to have been good, although the narrowing of the building in its final phase of occupation may indicate that the occupants were experiencing a tightening of resources, or deteriorating climatic conditions. The floor of this house, like many other Icelandic houses in the Viking Age and Medieval Periods, had been blackened with soot and charcoal, but this does not necessarily mean that sanitary conditions were poor, for this material would have effectively absorbed moisture and odours. A detailed, multidisciplinary spatial analysis of this floor will provide information about the organisation of interior activity areas, and thereby contribute to ongoing research into the organisation of social space in Norse houses in the north Atlantic region.[11]

[11] e.g. Smith, H., Parker Pearson, M. and Chapman, J. (in press) Reconstructing house activity areas: environmental archaeology and the interpretation of social space. In U. Albarella (ed.), *Environmental Archaeology: Meaning and Purpose*. Kluwer Academic Publishers.

Table 1: Descriptions of Excavated Contexts

Context	Type	Description	Notes
549	Layer	Loose to friable, dark brown, sandy humose loam containing many roots and covered by variable vegetation (mainly grass and moss)	Living topsoil/turf with high windblown sand component; across the surface of the entire area, but badly eroded by wind; an iron boat nail was found
550	Layer	Loose, light brown and dark grey, well-sorted medium sand	Windblown sand under [549] across the entire area
551	Layer	Friable, dark yellowish brown, very fine sandy silt with occasional turf fragments and a few patches of sand; occasional charcoal and bone fragments	Aeolian silt/soil accumulation across the entire area under [550]; thickest where it infills the depression left by the sunken featured building (S1); an iron nail was found; an iron knife blade, clinch nail, a loom weight and a spindle whorl fragment found when cleaning [550] after spading can undoubtedly be attributed to this layer
554	Layer	Friable, lenses of dark reddish brown silt and dark greyish brown fine sand, turf fragments; very rare charcoal and calcined bone fragments	Turf collapse within the depression in S1 and among the stones of the north and south long walls of S1 (contexts [607] and [609] respectively); probably wall collapse/melt; an iron object (possibly a knife blade) was found
555	Layer	Loose, friable, very dark greyish brown, silty very fine sand; turf (c. 10%) and charcoal (0.01%) inclusions	Aeolian sand accumulation mixed with turf and soil from the collapsing structure; found only within S1, and is probably a result of remaining walls acting as a sand trap
556	Layer	Very firm, orange, reddish brown and pale brown ('cream') peat / very organic turf; occasional bone fragments	Turf collapse within S1 in its centre and eastern ends; probably roof collapse; turf came from a very wet source; high humic content classifies it as peat; very similar to [577]; iron nails were found in this layer, one of which was embedded upright
558	Layer	Firm, friable, pale brown, yellow and grey silt with reddish turf fragments and occasional patches of yellowish brown and pinkish brown organic matter; ash (<5%) and charcoal (<1%) inclusions	Mixed turf, ash, and organic matter on top of floor layer [559]; an occupation deposit on the north, west and southern edges of the interior of S1, which washes up against the stones of the north and south long walls; finds include whetstones, iron nails, a copper alloy weight, and a spindle whorl fragment
559	Layer	Thick (4 cm) and compacted in centre of S1, soft and thin (1 cm) at its edges; multi-laminated black and dark grey charcoal-rich silt and dark brown fine sandy silt; abundant charcoal and small bone fragments, with occasional lenses of peat ash, especially in the centre of the structure	Floor deposit within S1, with small tongues extending north and east which may represent entrances; sampled on a 50 cm grid for spatial analysis and heavily sampled for micromorphological analysis of lenses; sampling squares around the central hearth were left for investigation in 2001; finds include a whetstone and iron nails
566	Layer	Soft, light pinkish brown silt with c. 10% charcoal flecks and occasional small fragments of calcined bone	Lens of peat ash below [591] and above [558], within the north wall of S1; an occupation deposit
571	Layer	Loose, friable, very dark greyish brown silty sand	Small, elongated patch of sand under [551], on the northern edge of Area S
572	Layer	Firm, friable, dark brown silty sand with rare charcoal and bone inclusions	Aeolian silt and sand and soil accumulation under [551]; across most of area north of S1

Context	Type	Description	Notes
574	Layer	Soft, very dark brown very fine sandy silt with lenses of pinkish brown peat ash; occasional charcoal flecks	Turf collapse and peat ash lenses; ash lenses were occasionally very thin and stripy, and therefore appear to have been within the turf; adjacent to and contemporary with [554]
575	Layer	Firm, friable, brown silt with c. 10% charcoal	As [554], but with abundant charcoal and burnt wood, concentrated in a small patch up against the south wall within S1
576	Layer	Firm, friable, very dark greyish brown silty very fine sand mixed with reddish turf fragments	Small layer of turf dump/collapse below [551] north of S1; may be turf collapse from the east wall of S2
577	Layer	Firm, red-orange and pale yellowish brown peat / very organic turf	Turf collapse, probably from the roof of S2; turf came from a very wet source, and has such a high humic content that it can be classified as peat; very similar to [556]
578	Layer	Firm, friable, very dark brown, homogenous, very fine sandy silt loam with high organic content	Very organic soil, possibly a buried topsoil under [551]
579	Layer	Firm, mottled very dark greyish brown, very dark brown and reddish brown silt (peat ash) and very fine sandy silt; frequent bone and charcoal inclusions and fine lenses of decomposed organic matter	Midden dump of variable turf, bone, and organic matter north of S1; finds include iron nail fragments, a flint flake, a thin, perforated copper alloy strip, 3 whetstones, and 4 loom weights; this layer seals the barrel pit
580	Layer	Firm, dark brown sandy silt loam with high organic content	Organic-rich turf collapse above a tongue in floor [559] on the eastern end of S1
581	Layer	Firm, dark brown silt loam with high organic content; frequent charcoal flecks	Charcoal and organic-rich turf collapse, up against the eastern end of the south wall within S1
582	Layer	Firm, friable, brown silt; turf fragments	Turf collapse abutting the outside of the south wall of S1 on its eastern end
583	Layer	Firm, friable, reddish and grey very fine silty sand; turf fragments; rare bone inclusions	Turf collapse within S1 in its centre and western end; probably roof collapse adjacent to and contemporary with [556]; infills the hearth, where an iron nail and a very large fish hook were found
584	Layer	Soft, black/very dark brown silt; abundant charcoal and burnt bone (c. 15%)	Charcoal-rich midden layer below [579], within the fill of the barrel pit; finds include iron slag, a whetstone, and nail fragments
585	Layer	Firm, friable dark brown to grey sandy humic loam; turf fragments; rare charcoal flecks (<0.01%)	Peaty turf collapse containing organic staining, charcoal and sand; below [556] and probably related to this layer; probably lower part of roof
586	Layer	Firm, friable, mottled dark brown and very dark greyish brown very fine silty sand	Aeolian accumulation under [555] against the inner edge of the north wall of S1; like [555] but with a higher organic content, this layer probably accumulated within the collapsing structure, which acted as a sand trap
587	Layer	Soft to firm, mottled brown and olive green silt and very fine sand; turf fragments, charcoal (<5%), occasional bone fragments	Small dump of mixed turf and midden debris below [584], within the fill of barrel pit [606]; one fragment of a whetstone was found
588	Layer	Soft, dark grey with white specks, fine sand and silt; frequent charcoal and charred or calcined bone fragments	Ashy midden layer below [587] within the fill of barrel pit [606]

Context	Type	Description	Notes
590	Layer	Firm, reddish brown sandy silt; turf fragments	Turf collapse, probably related to the collapse of the eastern wall of S1
591	Layer	Firm, friable, mottled yellowish brown silt and very dark brown sand	Mottled sand and silt lens overlying peat ash lens [566] on the northern, central edge of S1
592	Fill	Loose to friable very dark brown silty fine sand	Fill of post-hole [593], in S1
593	Cut	Circular, 10 cm diameter, 10 cm deep	Cut of post-hole in S1
594	Layer	Firm, dark brown, silty sand; occasional charcoal fragments	Lens of aeolian sand accumulation east of S1
595	Layer	Soft to firm, dark brown silt with reddish-brown patches of decomposed organic matter and rare charcoal flecks	Possibly a floor deposit associated with the use of the barrel
596	Fill	Friable brown sandy silt	Fill of post-hole [597], in S1
597	Cut	Shallow, sub-rectangular, with rounded corners, sloping sides and a bowl-shaped base	Cut of post-hole in S1, abutting a post-pad
598	Layer	Firm, dark greyish brown silt; frequent charcoal	Charcoal dump east of S1, deposited prior to the collapse of the eastern wall and therefore probably associated with the last phase of occupation of S1
599	Layer	Soft to firm dark brown silt with pale yellow organic inclusions and occasional turf fragments containing olive green tephra (<5%)	Possibly a floor deposit associated with the use of the barrel, under [595]
600	Layer	Very firm, mottled pinkish brown and light yellowish brown peaty/very organic silt	Organic lens, possibly consisting of decomposed hay, in the south-west corner of S1; an occupation deposit just above floor [559]
601	Layer	Firm, dark greyish brown very fine sandy silt and large charcoal pieces (50%); rare small fragment of calcined bone	Charcoal dump in the south-west corner of S1; an occupation deposit under [558] and above [604]
602	Layer	Soft, pale grey to white fine silt / amorphous organic matter	White organic residue forming a narrow ring within the black sand [589] that lined the barrel pit
603	Layer	Firm, dark, yellowish brown silt with grey and purplish brown turf fragments	Thin layer of turf collapse, on the north edge of the north wall [607] of S1; above turf collapse [605]
604	Layer	Firm, very dark brown silt and pinkish-brown decomposed organic matter	Lens of mixed silt and decomposed organic matter, probably hay, in the south-west corner of S1; an occupation deposit just above floor [559]
605	Layer	Firm, dark yellowish brown silt; turf fragments	Turf collapse on the north wall [607] of S1
606	Cut	Circular, with vertical sides and a nearly flat, slightly undulating base	Cut of barrel pit north of S1
607	Structural element	Turf wall (no courses visible) with a two-course inner lining of stones; turf contains a greenish-grey tephra that can probably be attributed to 950 AD	North long wall of S1

Context	Type	Description	Notes
609	Structural element	One-course of stone, slightly disturbed and discontinuous, running in a straight line 10 m long	South long wall of S1; probably the footing for a timber wall or the inner stone lining of a turf wall that has now eroded away
637	Fill	Friable to loose, very dark brown silty fine sand	Fill of post-hole [638], in S1
638	Cut	Round, 14 cm diameter, 9 cm deep	Cut of post-hole in S1
656	Structural element	4 flat stone post-pads that form a square; three are 20x30 cm, while the fourth is 15x20 cm; all have radial breaks	Post pads which are contemporary with floor [559], and form a square in the centre of S1; they were covered by [558], but it is likely that this material had accumulated around the posts and fell back onto the stones when the posts were removed prior to the abandonment of S1
667	Cut	Circular, 6 cm diameter, 3 cm deep	Cut of small post-hole in the western end of S1; probably the negative feature resulting from the accumulation of [559] around a small post
668	Fill	Friable to loose, very dark brown silty fine sand	Fill of post-hole [667], in S1
669	Structural element	Stone-lined hearth, 1.4 x 0.4 m	Central hearth in S1, oriented east-west

Table 2: Geoarchaeological Samples Taken

Sampling Location	Micromorphology Samples	Block Samples for Subsampling	Bulk Sample Numbers
Context 602 (white organic residue in barrel pit)			104
Context 589 (possible coprolite?)			213
Context 589 (sand fill of barrel pit)			230
Context 556			113
Context 585			114
Structure 1 roof and floor: contexts 556, 559, 585	105 106 107 109 110 112 115 116 117 118 119	108 111	
Tephra Profile in Geological Trench West of Area S	Pr. 1/1 Pr. 1/2 Pr. 1/3 Pr. 1/4 Pr. 1/5 Pr. 1/6 Pr. 1/7		

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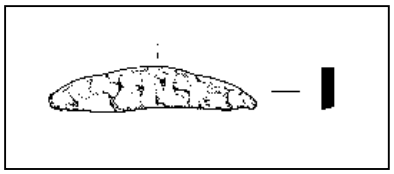
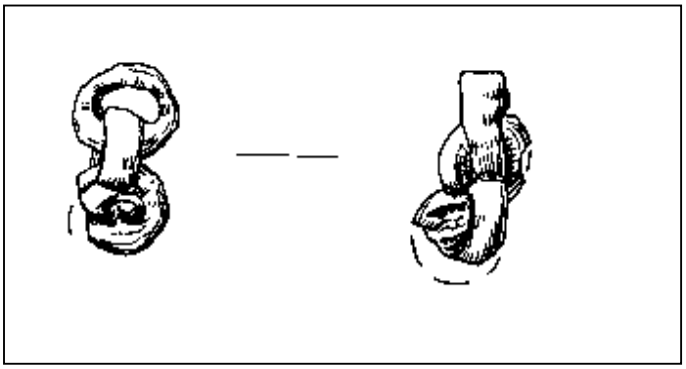
Appendix:

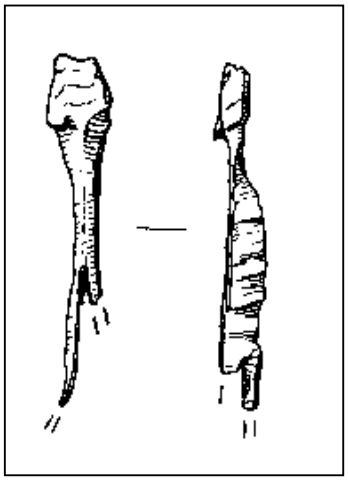
Find list 1999



99-004

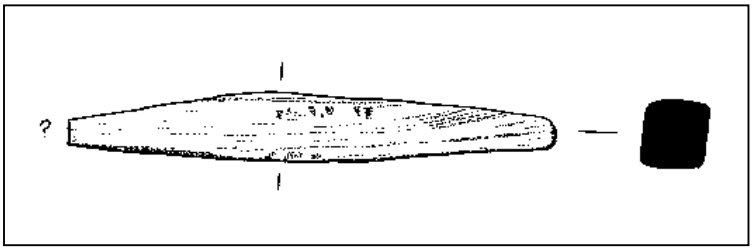
Find no.	Area	Context	Description
99-001	M	002	Small steatite fragment
99-002	S	102	Iron skewer?
99-003	M	002	Iron nail
99-004	M	002	Engraved copper alloy object



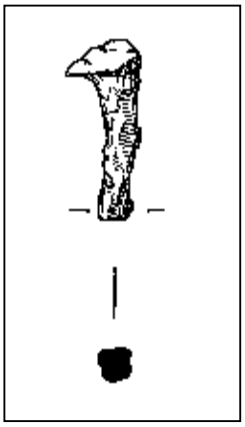


99-019

99-005	M	004	Small iron chain
99-006	M	004	Point of bone pin
99-007	M	004	Steatite spindle whorl
99-008	M	002	Steatite spindle whorl
99-009	M	002	Point of bone pin
99-010	M	004	Spatulate headed bone pin
99-011	M	005	Blue glass bead
99-012	M	004	Yellow (?) glass bead

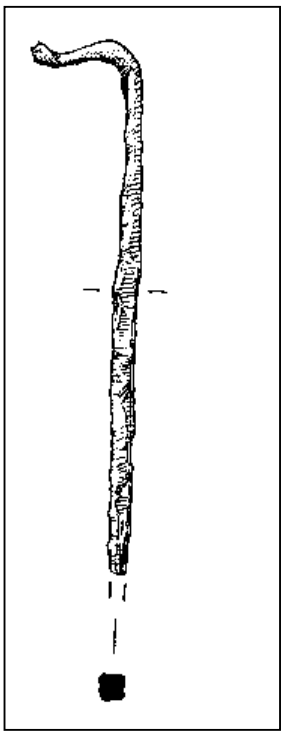


99-013	M	006	Whetstone
99-014	S	102	Whetstone
99-015	M	011	Whetstone
99-016	M	002	Iron object
99-017	M	002	Iron object - hook?
99-018	M	002	2 lumps of slag
99-019	M	002	Iron object
99-020	M	002	Iron object
99-021	S	001	Iron object
99-022	M	002	Iron object
99-023	M	001	Iron object
99-024	M	002	Iron nail
99-025	M	002	Iron nail
99-026	M	002	Iron object

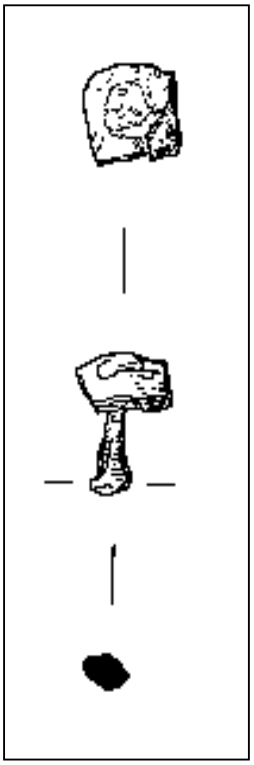


99-025

99-027	M	002	Iron object
99-028	M	001	Iron hook?
99-029	M	002	Slag
99-030	M	001	Small iron nail
99-031	M	001	Iron nail
99-032	M	001	Iron object
99-033	S	102	Quartz pebbles
99-034	M	002	Iron nail
99-035	M	002	Iron object
99-036	M	002	Iron object
99-037	M	002	Iron object
99-038	M	004	Iron object
99-039	M	002	Iron object
99-040	S	063	Iron object
99-041	M	010	Charcoal
99-042	M	008	Iron object
99-043	M	002	Iron object
99-044	M	003	Iron object
99-045	M	012	Iron object
99-046	M	004	Iron object
99-047	M	005	Iron objects, including part of a nail.
99-048	M	004	Part of an iron nail
99-049	M	005	Iron object, including head of a nail, part of leg.
99-050	M	004	Iron nails, head of a nail and parts of legs
99-051	M	005	Head of an iron nail
99-052	M	006	Leg of an iron nail
99-053	M	001/002	Legs of iron nails
99-054	M	002	Rove plate, iron
99-055	M	012	Legs of iron nails
99-056	M	004	Head of an iron nail
99-057	M	002	Leg of an iron nail
99-058	S	102	Leg of an iron nail
99-059	M	002	Iron object
99-060	M	004/005	Iron object
99-061	M	001/002	Slag
99-062	M		Slag
99-063	M	002	Slag
99-064	M	007	Slag
99-065	M	012	Slag
99-066	M	001/002	Piece of schist
99-067	M	012	Iron object
99-068	M	002	Piece of schist
99-069	M	001/002	Broken bone pin



99-028

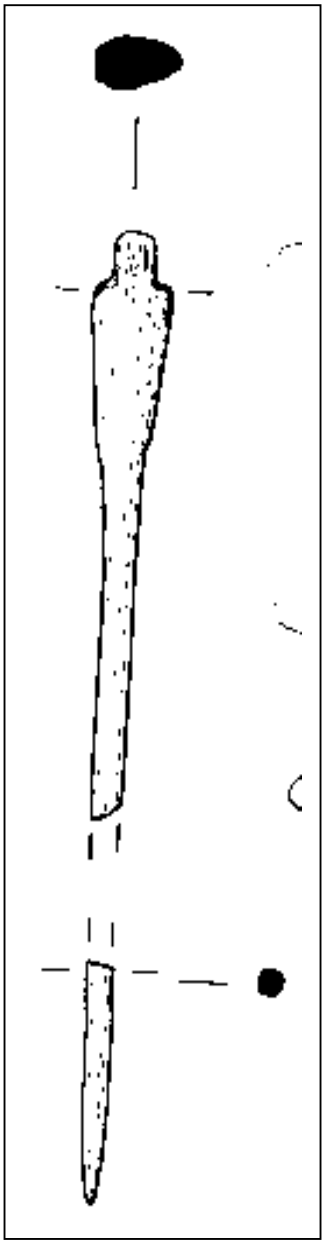


99-036

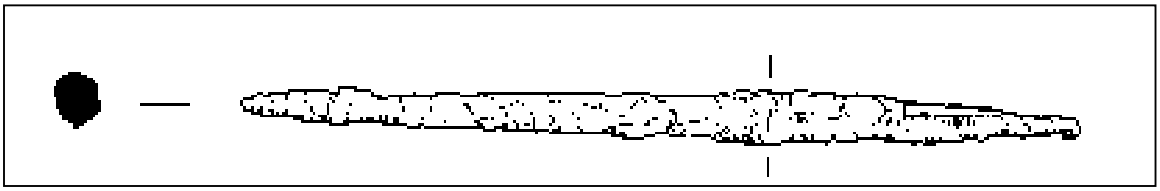
Find list 2000

Find no.	Area	Context	Description
00-001	M	001	Iron nail
00-002	M	001	Small fragment of iron nail

00-003	M	001	Small plate or strip of iron with nail puncture (hole)
00-004	M	001	Crudely worked piece of red stone
00-005	M	001	2 small iron bits
00-006	T	055	Spindle whorl of red sandstone - one-third of the whole
00-007	T	055	2 iron nail fragments, with heads broken off
00-008	T	055	Iron objects - possible nail heads
00-009	T	055	Small round, polished stone, quartz
00-010	T	058	Iron nail with broken tip
00-011	T	058	Flat round object of red sandstone
00-012	T	055	Iron nail
00-013	T	055	Stone with one curved, worked side, possible spindle whorl fragment
00-014	T	060	2 small globular fragments of slag
00-015	T	060	Iron nail - head broken off
00-016	T	055	2 broken iron nails
00-017	T	055	Small iron hook
00-018	T	055	Small iron fragment
00-019	T	055	2 fragments of red sandstone (worked). Possible spindle whorl fragments
00-020	T	055	Whetstone - broken into 2 pieces, chocolate brown
00-021	T	055	Decorated bone piece, possible spoon handle
00-022	T	058	Single sided bone comb, well preserved teeth (broken)
00-023	T	055	Bone comb, decorated with parallel lines at terminals and on body, with iron rivets, broken
00-024	T	055	Bone gaming piece, round base, peaked top
00-025	T	026-08	Iron buckle/ring
00-026	T	058	Bone comb fragment, center part with rivet holes (terminal)
00-027	T	surface	Dark grey whetstone; contains mica
00-028	M	045-046	Iron knife blade, small
00-029	T	058	cross headed bone pin, burnt; broken
00-030	M	003	perforated copper alloy strip or plate
00-031	M	027	Red sandstone fragment -possible spindle whorl



99-010



99-002

00-032	T	058	Possible broken iron knife blade
00-033	T	055	Worked whale bone
00-034	M	026-008	Iron rivet
00-035	T	055	Stone bead, round, with 2 flat sides
00-036	M	004	Iron lamp
00-037	M	004	Iron boat nail
00-038	M	012	Iron awl
00-039	M	004	Bone pin - 2 fragments; broken; burnt
00-040	M	027	Iron plate with a short lip (2 mm) and 3 rivets
00-041	M	002	Iron nail, slightly bent
00-042	M	013	Iron fragment - knife blade?
00-043	M	stray find	Iron ring
00-044	M	026	Slag
00-045	M	028	Subrounded pebble (broken)
00-046	T	001	Red sandstone, round; worked base; slightly burnt
00-047	M	026	Rounded pebble
00-048	M	008	Iron object
00-049	M	004	Iron nail
00-050	M	008	Slag?
00-051	M	004	Whetstone, bluish grey; contains mica
00-052	M	001	Red sandstone fragment with worked rim; 16mm thick; partly burnt; lightly abraded
00-053	S	550	Red sandstone - possible spindle whorl fragment: 2 flat sides; round; 11 mm thick to perforation
00-054	S	573	Red sandstone - 1 worked side, abraded
00-055	S	585	Red sandstone - possible spindle whorl fragment; semi-rounded; 4 worked sides;
00-056	S	558	Red sandstone - possible spindle whorl fragment; rounded
00-057	S	558	Metamorphic rock (schist ?). Whetstone; fragmented in situ, very fine grained, contains mica; pale green
00-058	S	579	Whetstone; parallel scoring visible on 1 worked side; rounded on one end, broken on the other
00-059	S	579	Whetstone – very small fragment of whetstone; pale greenish-brown; contains mica
00-060	S	558	Whetstone - very small whetstone fragment; pale green; contains mica
00-061	S	587	Whetstone – very small whetstone fragment; pale brownish-green; contains mica
00-062	S	584	Whetstone – very small whetstone fragment, pale brownish-green; contains mica
00-063	S	559	Whetstone – broken; pale green; slightly tapered
00-064	S	579	Whetstone – 3 very small whetstone fragmentss; pale brownish-green; contains mica
00-065	S	579	Small chert flake (grey)
00-066	M	026, 901/3	Unusual, multi-coloured (white, green, dark purple) subrounded pebble
00-067	S	584	Round, polished pebble
00-068	S	579	2 round, polished quartz pebbles
00-069	S	579	Subrounded, partially polished pebble

00-070	S	558	Finely laminated stone; flat; possible worked edge
00-071	S	579	Loom weight – multiple perforations; subrounded; partially burnt
00-072	S	579	Loom weight – rounded, 1 perforation; fine grained basalt
00-073	S	579	Loom weight – subrounded, 1 perforation
00-074	S	579	Loom weight – subrounded, 1 perforation
00-075	S	550	Loom weight – subrounded, 1 perforation
00-076	S	588?	Loom weight –subrounded, multiple perforations
00-077	S	550	Slag – globular, irregularly shaped; one with 2 visible breaks
00-078	S	573	Slag – globular, irregular shaped; one with clear break
00-079	S	584	Slag – small, perfectly spherical globule of what appears to be iron slag.
00-080	S	584	Slag – small fragment, irregularly shaped
00-081	M	026	Slag – globular, with 2 clear breaks
00-082	S	558	Copper alloy, weight? Round, with 2 flat sides. Plain (no markings)
00-083	S	608	Copper alloy, possible weight or counterweight. 2 round balls, with 2 flat sides, attached by a rod or rivet.
00-084	S	579	Copper alloy strip with 2 perforations, 17x7x0.5mm
00-085	T	058	Copper alloy plate with 1 rivet perforation. Decorated (engraved) on one side
00-086	S	583	Iron nail – bent; head broken off
00-087	S	559	Iron square
00-088	S	618	Iron strip with rivet
00-089	S	583	Very long iron fish hook, with barb
00-090	M	004	2 fragments of iron (possible nails)
00-091	S	558	2 broken iron nails (large)
00-092	S	556	Large iron nail, tip broken off
00-093	S	551	Broken iron nail
00-094	M	005	Broken iron nail
00-095	S	550	Possible knife-blade, iron
00-096	S	550	Clinch nail
00-097	S	556	Possible iron nail head
00-098	T	063	Iron nail
00-099	S	554	Possible broken knife blade, iron
00-100	S	579	Broken iron nails
00-101	S	584	Possible broken nail
00-102	S	584	Iron object
00-103	M	026,008	Iron nail
00-104	S	549	Iron boat nail
00-105	S	573	Iron boat nail or large rivet
00-106	T	058	Iron plate with short lip on one side (2mm); broken
00-107	T	060	Unidentifiable miscellaneous iron fragments
00-108	T	055	Flaked chert nodule; pale greyish-brown (part of 00-065)
00-109	T	055	Flaked chert nodule (part of 00-065)
00-110	M	008	Iron nail - head is 13x14mm
00-111	S	558	Bone fragment with iron rivet
00-112	S	559	Possible grinding-stone fragments; flat bases with slight

			polish; slightly burnt
00-113	S	559	Small pebble; possibly flaked/worked
00-114	S	559	Iron nail, tip broken off
00-115	T	055	Rim of Iron vessel or container, with 2 rivet holes
00-116	T	055	Bone pin, fragment
00-117	T	055	Fragment of cu alloy
00-118	T	001	Iron nail fragments
00-119	T	055	2 iron nails, 3 stones, piece of charcoal
00-120	T	055	Slag
00-121	M	002	Whetstone fragment, with a hole
00-122	S	581	Charcoal
00-123	S	555	Iron fragment
00-124	M	002	Schist?
00-125	S	579	5 miscellaneous stones and 1 iron fragment