Hrísheimar 2006

Interim Report

View of Hrísheimar from east of excavation area with the pre-Christian Grave in the foreground

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Contents

1. Introduction

1.1 Site area: Hrísheimar is located in the bend of a gravel ridge formed by a glacial esker deposit (figure 1) (elevation 310 m, 40 24 53 E, 72 67 706 N). The farm area is relatively sheltered by the ridgeline from winds from the N and NE, but is exposed to wind and aeolian erosion from the interior deserts to the S and SW. The site is located near the headwaters of a series of small streams which join just north of the site to form Gautlandalaekur which flows northwards to Arnarvatn and then to the Laxá. A still-extensive bog (certainly much wetter and probably larger in the past) extends south and southwest of the site. Today the site is heavily eroded, with the ridgeline and most of the S and SW portions of the site area reduced to glacial gravels or patches of the distinctive creamy H3 prehistoric tephra. Viking age artifacts (beads, whetstones, copper alloy objects) and animal bones have been weathering out around the site area for over a century, and the place name has been maintained since at least medieval times. Ruins of an early modern *Sel* (shieling) cluster along the southeastern slope of the gravel ridge.

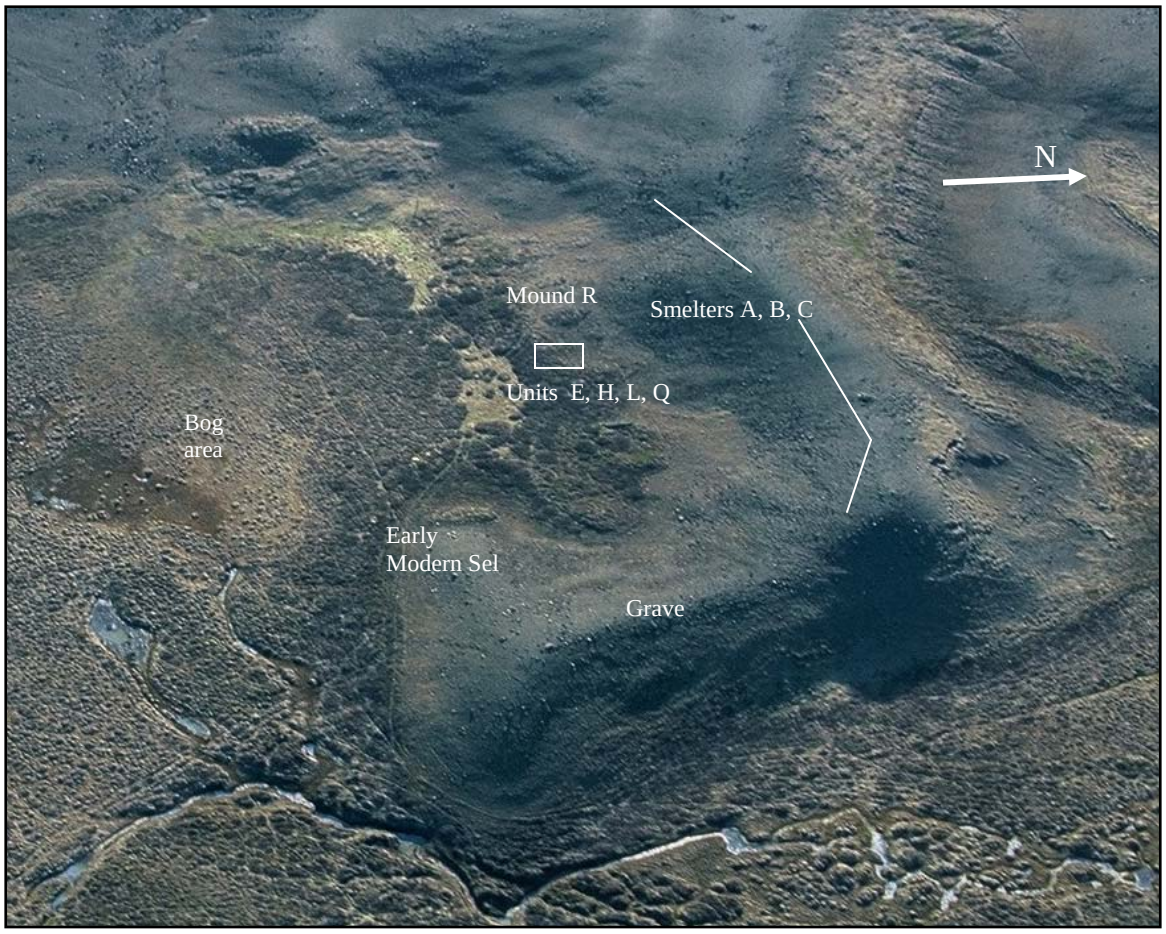

Figure 1. Low angle air photo (Arni Einarsson 2001) of the Hrísheimar site area. Pre-Christian grave overlooks both farm area and the valley running northwards towards Arnarvatn. Mound R (unexcavated) is probably the main hall structure. Remains of wall lines and the set of iron smelters (A, B, C) run along the eroded ridge line to the north of the preserved Viking age deposits excavated 2001-06 (areas E, H, L, Q). Ruins of an early modern Sel or Shieling lie to the SE of the Viking age farm.

1.2 Major Results 2006: In 2006 excavations in Units E and L cleared midden from three structures dating to the early Viking Age, and completed excavations in the southern half of the 2005 exposure (ca 50 sq m), taking this area down to the Landnám tephra sequence (LNS). These structures are; ***C*** a sunken featured structure (pit house), ***D*** a latrine, and ***S*** a shallow depression bounded by post holes possibly representing a very early hut or tent structure. Both C and D are dug into the sloping land surface, and the spoil from their excavation fell directly upon the LNS. Both C and D overly the earlier structure S, and all three structures were in turn covered by later midden deposit. The midden deposits proved exceptionally rich in well preserved bone, bird egg shell, and artifacts. The deposits could be securely divided into two phases based upon tephra surfaces which could be followed horizontally across the entire unit. The lowest tephra surface is the local manifestation of the Landnám tephra securely dated to AD 871+/-2. No cultural materials were found below this tephra, but midden material was found resting directly upon the LNS over most of the exposed unit. The second tephra surface that could be traced across the unit is a Veiðivötn tephra (referred to in prior reports as V950) dated to the mid-10th century. Current radiocarbon dates for this tephra suggest it probably fell in the first half of the 10th c (perhaps closer to AD 925-930). Sediment core studies now being carried out on Mývatn lake varved deposits may allow a more precise estimation of the age of "V950". These two tephra horizons could be traced across the site, and allow the secure phasing of midden and structural deposits into two main phases: **Phase 1** ca AD 875-950, **Phase 2** ca AD 950-1050. The final phase of occupation is based on radiocarbon AMS dates now available (none of which extend far into the 11th century). The occupation at Hrísheimar thus seems to have been relatively short but intense, with perhaps only 125-150 years of continuous occupation. The establishment of this secure chronology connecting all deposits at Hrísheimar excavated thus far (and allowing precise correlation with layers at Sveigakot and Hofstaðir nearby) was a major project objective for 2006 and will greatly increase the utility of all the Hrísheimar collections for comparative analyses in years to come.

Geo-archaeology survey was made of the extensive bog area to the south of the site by Dr. Ian Lawson (U Leeds) and Dr. Mike Church (U. Durham). Their results suggested that this area had been far wetter and probably much more biologically productive in the Viking age, with much more potential for the regular production of the iron pan which probably provided the majority of the ore smelted at Hrísheimar. Small ponds and wet meadows would also have been attractive habitat for nesting birds and freshwater fish (Lawson et al 2005), as well as providing excellent grazing for domestic stock. Changes in drainage patterns which eventually dried up the small stream passing through the site's homefield may also have affected the renewal and formation of the iron pan deposits. Additional investigations of the bog and its surroundings are planned, and may shed more light on the settlement history of Hrísheimar. Other environmental archaeology investigations will continue in the coming year. Soil micromorphology samples were taken for analysis by Dr. Karen Milek (U Cambridge) from both the midden and latrine fill for further analysis. Very large whole soil samples (virtually 100%) were taken of the latrine fill for further specialist study, and a special study of the iron metallurgy at Hrísheimar will be carried out by specialists from Bradford University.

1.3 Research History

The excavations at Hrísheimar have been in progress for five seasons (2000, 2003-06) as part of the international Landscapes of Settlement project. This report presents the preliminary results of the 2006 season. The site area is at the edge of the active erosion front in this part of Mývatnssveit, and excavation can be challenging when strong southern winds blanket the site with dust and grit. Much of the original land surface and associated archaeological deposits have been destroyed completely by wind erosion, and it will never be possible to reconstruct the full range of buildings once associated with this farmstead. Despite these limitations, the site has proven to be surprisingly productive and continued investigations have opened up some new perspectives on Settlement Age economy and settlement in Iceland. The site area has produced many surface finds over the years, including numerous Viking age beads, whetstones, steatite fragments, and (in 2003) a copper/bronze sword chape (Edvardsson et al. 2003). For the first season (2001) the focus of the work was on surveying and test trenching for assessment rather than on large scale excavation, although a quantifiable archaeofauna was recovered from the sunken feature structure H in the 2001 season (McGovern & Tinsley 2001). In 2003, 2004 and 2005 the work intensified with the opening of two large excavation areas, one along the ridgeline above the main farm ruin, the other in an area below the farm ruin (Mound R in Figure 1) that was still covered with grass and appeared to contain intact deposits (box in Figure 1 air photo). In 2003 Adolf Fridriksson successfully recovered a domestic dog bone from a plundered pre-christian grave on the ridgeline NE of the main ruin. The dog bone produced a Viking Age radiocarbon date (with allowance for a partial marine reservoir effect; Fridriksson & McGovern 2004). The area along the ridge line west of the farm mound was given area codes of A, B and C while the other area on the eastern grassy slope below the farm mound was given area designations of E, H, L and Q.

The 2003 season identified an iron ore processing and iron-producing site in areas A–C. The number of furnaces, 19 small and 2 large, indicate that iron was being produced on a large scale and probably over a long period of time. (Edvardsson, R. et al., 2003). This industrial complex remains unique in Icelandic archaeology and it is possible that Hrísheimar represents one of the “iron farms” occasionally mentioned in the written sources. In area H a sunken feature building (pit house) was discovered in 2001. It was filled with stratified midden deposits, which were tested in 2001 (McGovern & Tinsley 2001). This building H was progressively excavated in 2003-04, revealing well defined structural details and indications that the 4x3m structure was probably a workshop rather than a dwelling (Edvardsson, R. et al., 2004). Expansion of the area H excavation unit in an attempt to stratigraphically connect these features to other intact cultural layers demonstrated that the sunken feature structure and the midden within were in fact effectively an “island” of surviving in-situ deposit, as the area directly around ruin H has been deflated down to sterile soil or the prehistoric H3 tephra. However, post-excavation enlargement work with digital photos of the 2001 test trench profiles has allowed documentation of the V950 tephra horizon identified in other parts of the site in 2003 *in situ* in the layers filling structure H. Thus it is possible to achieve direct linkage in phases between area H and areas L and E despite the loss of connecting stratigraphy.

In 2003-05 the area L unit (in a still-turf covered area just to the north of the area H sunken feature structure) was progressively expanded from a test pit to an open area

excavation. Begun as a 3 x 5m unit, this excavation unit expanded by 2004 into a 10 x 8 m open area exposure that connected the L unit to the area H unit in its southwest corner. Re-deposited banded Aeolian natural silts accumulated in this area to a depth of 50 to over 100 cm, covering the Viking Age archaeology with a culturally sterile protective blanket. The effects of severe wind erosion from the south-southwest prior to the period of re-deposition and accumulation were evident, with a truncation surface extending into area L along its southern and south western edges. This stratigraphic truncation has cut diagonally through midden layers and turf structures, creating a deflation surface that proved to slope diagonally across area H and L, exposing deposits of different periods along the sloping southwestern erosion face (bringing the exposed layers into actual stratigraphic phase required careful work not totally completed until the 2006 season). In an attempt to better understand the tephra stratigraphy and to connect it more effectively to the archaeological deposits, a 5 x 1 m trench (Q) was opened from the eastern (downslope) edge of area L in 2003 and expanded in 2004. The Q trench was eventually expanded to 5 x 2 m and was excavated to a depth of nearly 2 m below modern surface in its eastern end. This long deep exposure allowed documentation of a tephra series from the H3 prehistoric tephra up to the H1717 tephra, which seems to immediately predate the massive erosion in early modern times that truncated the archaeological deposits and the gradual accumulation of redeposited andisols which followed. In the Q trench cultural deposits appeared to rest just above the Landnám tephra and between the Veiðivötn ca 950 AD tephra and the H 1104 AD tephra, but until 2005-06 seasons it was not possible to securely connect these tephra horizons to the major archaeological deposits.

In 2005 a major 100 square meter expansion (area **E**) of open area excavation northwards from the area L profile allowed far better understanding of the relationships between tephra layers, sheet midden deposits, midden fill of sunken featured structures, and revealed the outlines of three structures emerging from beneath the later midden fill (pit houses C and D and structure S) in the southern part of the expanded unit. In 2006 we completed excavation of the midden deposits in the southern part of area E, clearly separating layers above and below the V 950 AD tephra, and recovering substantial collections of bone and artifacts between V 950 and Landnám sequence tephra. The three structures C, D, & S were cleared and documented, revealing details of very early occupation and what may be the oldest latrine in Iceland.

1.3 Methods and Personnel

The methodology for the excavation at Hrísheimar followed the approaches already established at the Hofstaðir and Sveigakot sites as part of the Landscapes of Settlement project, i.e. stratigraphic excavation; single context excavation and recording; 100% dry sieving (4 mm mesh) backed by large scale whole soil sample collection for flotation. The potentially important latrine fill and pit house floor layers were 100% sampled for later analysis. The site was divided into 5 x 5 m planning areas and each archaeological unit was recorded and given a unique context number. The excavation team in 2006 was a combination of experienced graduate students in the archaeology program of the City University of New York and University of Iceland (George Hambrecht, Yekaterina Krivogorskaya, Gudrun Finnsdottir) and the NSF-funded *Research Experience for Undergraduates* team (Courtney Scott, Mike Sternberg, Norie Manigault, Dimitri

Volkhov). The project was led by Ragnar Edvardsson (CUNY Doctoral Program), Dr. Thomas McGovern (Hunter College CUNY) and Dr. Sophia Perdikaris (Brooklyn College, CUNY), with help from Caroline Paulsen from U Aarhus.

1.4 Objectives & Excavation Plan for 2006

Our objectives for 2006 were:

1) Excavate the sunken featured structures whose wall tops had been defined by the end of 2005, document their relationship to the surrounding midden and to the two major tephra layers in the site.

2) Excavate a well documented collection of animal bone and other ecofacts from both major phases, if possible recovering a large and fully quantifiable collection from the earliest phase 1 (between the LNS and V950 tephra). This earliest phase of human occupation of Mývatnssveit was not present at Hofstaðir, and only relatively small collections were made from the very earliest phases at Sveigakot.

3) Complete archaeological excavations along the southwest side of the area L/area E units, establishing the limits of surviving intact midden and structural deposits in this area.

Excavation Plan 2006

In 2005 it was possible to define a low turf wall [279] running across the entire L-E excavation unit, dating to Phase 2 with earlier midden material running beneath. This appeared to be the only structural remains in the northern half of the 10x 10 m area E exposure, and midden layers in the same general area appeared comparatively thin in soil corings. By contrast, the old area L and the southern half of the 2005 area E exposure had revealed multiple wall lines, some clearly forming two sunken featured structures with high densities of animal bone included in their fill. As 2006 was our last fully funded season under the current NSF grant we decided that we should prioritize the more complex southern portion of the 2005 exposure to ensure completion or excavations in this productive area. A temporary standing baulk was established down the middle of unit E to provide a long E-W profile (profile 2), and the area to the south (area L-E) was targeted for intensive excavation. The standing profile 2 provided a valuable 5 meter vertical section, which was used for the extraction of soil micromorphology samples as well as for documenting stratigraphic relationships and supplement the broad horizontal exposure of the open area unit.

2. Excavation Results

2.1 Midden Stratigraphy: Figure 2 presents a view of the vertical profile at the N edge of the 2006 E excavation area (profile 2).

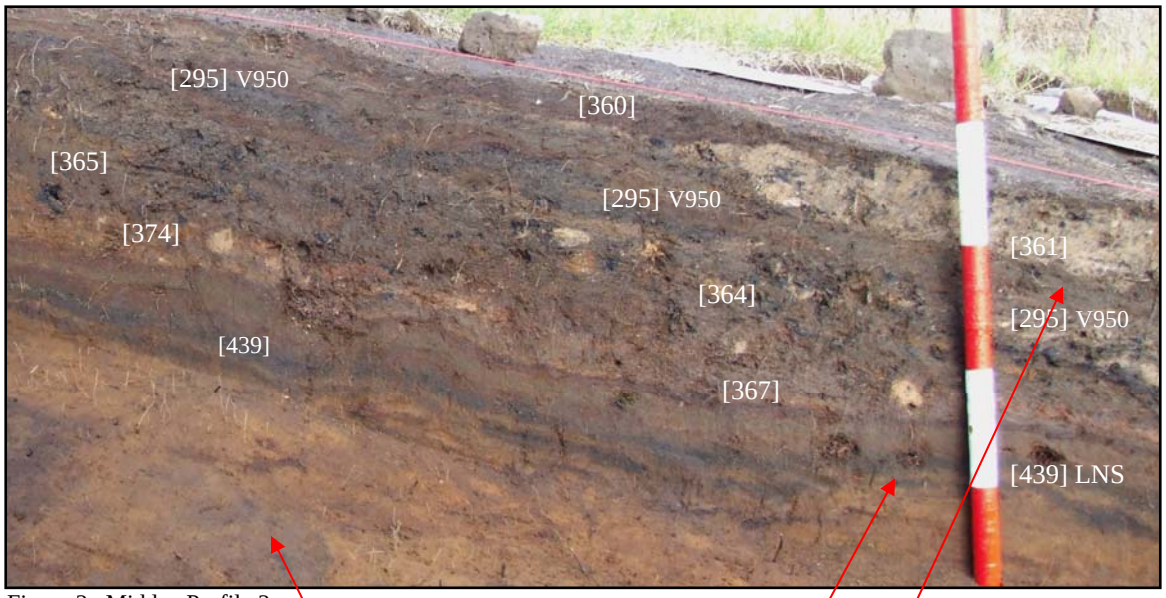

Figure 2. Midden Profile 2

The black and grey banded local manifestation of the LNS [439]is visible at the base of the profile, with the tan natural subsoil evident beneath. Just visible are several root casts left by small trees or shrubs (possibly dwarf willow) that were growing on the slope prior to the LNS. Midden deposits containing large amounts of bone, wood charcoal, ash, and bird egg shell are present both above and below the V950 [295] tephra running diagonally across the profile. Note that the greatest concentration of early phase midden material (below V950 and above the LNS) is in fact in the uphill (photo left) side of the midden deposit. Later midden material seems to have been deliberately dumped further down hill against the later turf retaining wall, possibly to help level out the slope in this area. Midden deposits were extremely rich in well preserved bone and artifacts, with 57 boxes of bone recovered in 2006. Masses of well preserved egg shells were recovered from both above the V950 tephra and directly upon the LNS. The practice of egg collection documented in previous Mývatnssveit excavations now can be shown to date to the earliest period of settlement. The bones of both marine and freshwater fish were also recovered in the lowest layers in direct contact with the LNS. This again indicates the presence of patterns of regional scale resource use documented in later periods in Viking Age Mývatnssveit, and suggests that the very first colonists were already part of extensive social and economic networks (McGovern et al. 2006).

2.2 Sunken Feature Structure C

Sunken feature structure C was found to have nearly vertical standing walls, cut into the soil of the slope on all sides, and built up on the down hill (eastern) side with a low turf wall. The prehistoric tephra striping on the standing walls may indicate the prehistoric bedding angle of the deposits. The pit house was found packed full of well preserved animal bones including some articulated and partly articulated sheep (both adults and young animals), but also including a wider range of species suggesting a more generalized garbage dump. In this dense fill was included a well preserved single sided composite comb, still largely intact. This sunken feature must have been deliberately in filled very rapidly (some long bones were standing vertically against the walls), as there is little or no slumping or melting of the earth walls, as would certainly have occurred if the roofless structure had been exposed to the elements for any length of time (as in structure H or the structure G at Hofstaðir). The upcast spoil from the original excavation of the feature fell directly upon the LNS, and some of the turf blocks used in construction are extremely rich in LNS tephra, heavily banded close below the contemporary root line. This would appear to be a very early construction on the site. Multiple floor layers and a corner hearth were documented, and a line of pierced stones (presumably loom weights) were found in situ on the upper floor (Figure 3 below)

Figure 3, Sunken Feature Structure C with pierced stones *in situ*

Figure 4

Figure 4 shows the same structure C with floor layers and hearth structure removed, showing the complex patterning of post and stake holes penetrating into the natural soil below.

2.3 Sunken Feature D- the latrine

Directly down slope from sunken feature structure D was a remarkable two-level sunken feature. This structure D had been bisected by the 2003-4 L profile (profile 1) and its excavation in 2006 made many of the bedding angle changes observed in profile 1 more comprehensible. This small building is cut into the slope like structure C, and makes use of the slope to achieve two different floor levels. The higher level is illustrated in figure 5, and comprised a small platform (ca 2 x 1 m) with a set of substantial post holes at each end, and an irregular row of smaller stake holes in the middle. It is possible that the large holes supported a railing or seat, and the smaller stakes supported a foot rest or step.

Figure 5 view of upper level of D, looking down slope (E). The clean out in the lower level is still partly filled with grayish organic deposit.

Figure 6 illustrates the lower level of D showing the banding of the multiple prehistoric tephra that were cut though when the pit was dug out. The lower level is approximately a meter below the upper level, and when discovered was filled with a laminated grey-brown organic deposit [432] which lacked artifacts or significant amounts of bone. In the event that this is privy soil, multiple studies (parasitology, biomolecular) could potentially be done on these deposits and a 100% sample was collected. Note that a low turf wall surrounded both levels of the latrine, with blocks containing large amounts of the LNS tephra, much as in the turf wall construction associated with structure C.

Figure 6

Figure 7 illustrates the direct contact of the upcast spoil from the original excavation of the D lower level with the banded local manifestation of the LNS.

2.4 Early post hole feature S. The structure S is not a sunken feature, but a depression (ca. 5-7 cm below the natural surface level) in the surface of the natural soil and the LNS associated with it. It appears as a narrow depression with post holes associated on each side. (figures 8, 9) It definitely pre- dates both structures C and D, as it is truncated in the north end by the cut of the latrine D, and the eastern turf wall of C overlies its post holes. Probably between a quarter and a third of the structure has been destroyed by the cut of D and what remains is about 3.5 m long (N-S) by ca 2.5 m wide (E-W). The post holes are fairly large, with a diameter of 5- 7 cm, and they slant inwards towards the mid line of the depression. If poles are inserted they tend to cross at about 1.5 m above ground level. In the final day of excavation, a cow horn was found close to a post hole [486] associated with the structure. This depression and set of post holes are open to multiple

interpretations, but it appears to represent a small hut or even a tent structure, built upon the LNS and predating the very early Structures C and D. Is this the remains of a very early campsite dating to the first days of the farm?

Figure 8. The floor depression and post holes of S, looking West (uphill) Note the tan natural subsoil and grey LNS tephra mixed in the depression area. Structure D pit truncates the depression of S.

Figure 9 . Structure S looking from the south along its long axis, with the structure D truncation visible.

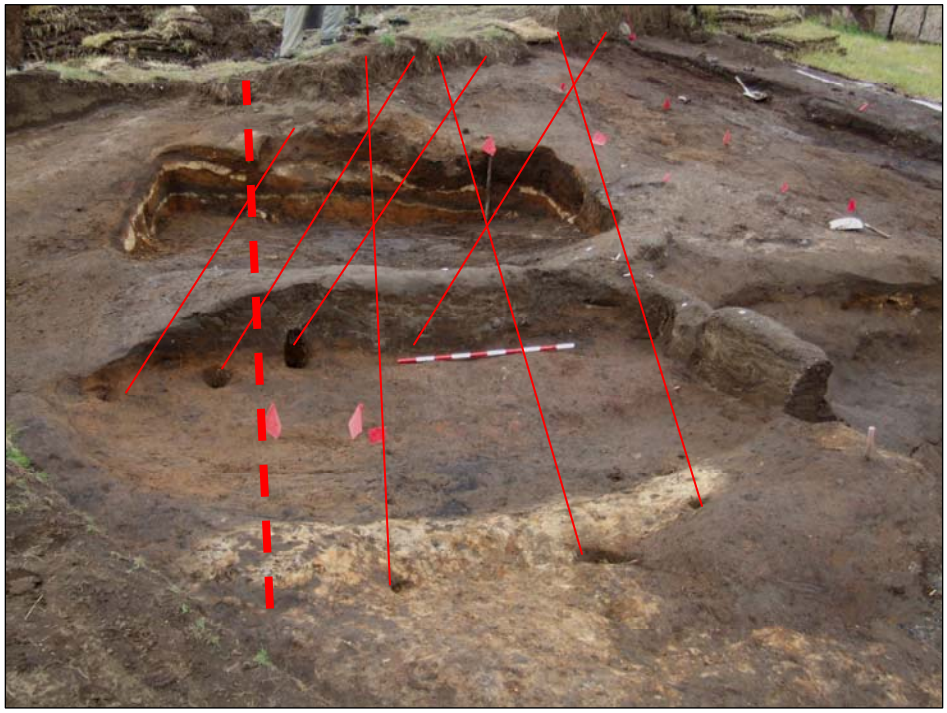

Figure 10. Structure S with post holes filled as a speculative reconstruction.

While post-excavation analysis continues, it seems clear that very early structures are present at Hrísheimar, and that the site must have been settled in the very first wave of the 9th century Landnám. The masses of egg shell and the definite marine fish bones found directly upon the LNS suggest that later community resource use patterns seem to have been established remarkably early (McGovern, Perdikaris, Einarsson & Sidell 2006).

3. Finds Overview

The 2006 season recovered over 60 finds, most of which are nails and other small iron objects. The finds include one nearly complete single sided composite comb with iron rivets (HRH 06 33, figure 11) from the fill of Structure C (below the V950 tephra). A multi-colored glass bead (HRH 06 32) was also recovered (figure 12) as was a finely made small schist whetstone (HRH 06 19) and an enigmatic pierced copper-alloy disk (HRH 06 2) and several steatite spindle whorls.

Analysis of the finds is ongoing, but the 2006 artifacts closely match many types already collected from Hrísheimar and all appear to date to the Viking age.

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4. Chronology of Occupation and Abandonment

Figure 16 presents a graph of the currently available AMS C14 determinations for Hofstaðir (discussed more fully in Edvardsson & McGovern 2005 report). The radiocarbon dates do confirm the overall picture presented by the tephra and artifactual

dating evidence- Hrísheimar was occupied early in the settlement period, certainly in the late 9th century. It seems to have prospered during the 10th century, but not in the 11th. None of the available radiocarbon dates (including those from the [002] deflation zone) provide any calibrated date maximum beyond AD 1020 even at the extreme of a two-sigma distribution (and it is highly unlikely that this late 'tail' of the distribution accurately reflects the calendar date). In the Q trench, several centimeters of sterile deposit separated the uppermost cultural deposit from the H 1104 tephra. While it is impossible to be certain that all portions of the site were abandoned at once, it seems unlikely that all deposition would cease in an active midden area so close to the main farm building. Present evidence thus suggests abandonment sometime in the early 11th century.

While the cycles of abandonment and re-occupation that have characterized Sveigakot may relate to declining status and impoverishment of what may always have been a somewhat marginal farm, it is difficult to read the Hrísheimar record in a similar way. Hrísheimar was certainly a substantial farm in the 10th c, with heavy investment in specialized iron production and what appears to be a flourishing farm economy. Pre-christian elite burial and objects like the sword-chape found in 2003 suggest an at least moderately wealthy household able to honor lineage members. Failure is of course not the only cause for farm abandonment. If iron production had passed its peak at Hrísheimar, or political currents became unfavorable, a relatively wealthy household might choose to relocate rather than see its fortunes decline. By 1000 AD, such settlers could have moved down hill to occupy newly deforested mid-valley locations, or perhaps joined other Icelanders in moving westwards to Greenland. Further work on the farm mound may help clarify these issues, as will expanded multi-disciplinary investigations of the larger Mývatnssveit landscape.

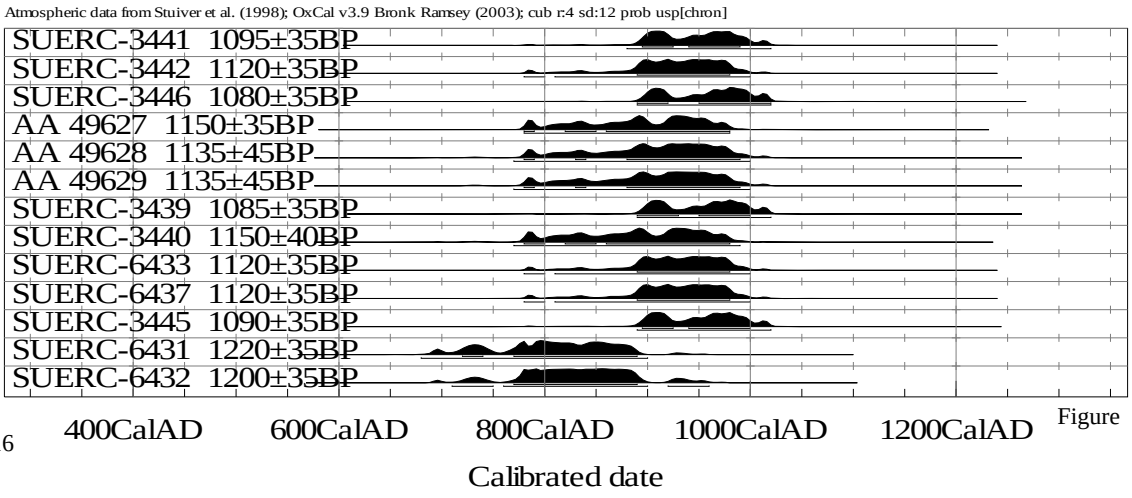

Figure 16

6. Publication and Dissemination

In 2006 the field team cooperated closely with Zach Zorich, senior editor for *Archaeology* Magazine, in the documentation of the overall results of the work of the Mývatn Landscapes of Settlement project. This collaboration produced a popular outreach article; "Iceland's Unwritten Saga" (Z. Zorich 2007, March/April issue

Archaeology pp 46-51) which introduced Hrísheimar and the project to a large international audience. A series of scholarly articles also appeared in 2006 and the first half of 2007 in *Environmental Archaeology, Radiocarbon, Human Ecology, American Anthropologist, and The Holocene*, with the *American Anthropologist* paper presenting a major multi-authored overview of the Landscapes of Settlement Project as a whole (McGovern, Vesteinsson et al 2007). More publications are planned, and the next year will see increasing post-excavation analysis of finds and samples of all types. No further excavation is planned in 2007 to allow researchers time to process the extensive collections made in 2005-06.

7. Recommendations for Further Research

Major objectives of the Hrísheimar investigations have been met; a very large archaeofauna and substantial artifact collections have now been recovered from deposits we can confidently phase by radiocarbon and tephra, including major collections from the earliest phase dating between ca. 875-950. Several rare structure types have been documented (iron smelting complex, latrine, early pit houses), and the site is being increasingly integrated into larger scale environmental studies. The limits of intact stratigraphy seem to have been firmly established along the southern end of the area preserved from erosion by the Aeolian accumulation. This is an appropriate point to let laboratory and publication work to catch up to the highly productive field seasons, and to pause the excavation work.

However, Hrísheimar still requires additional field investigation in the future. We still lack evidence for the size and nature of what is probably the main structure of the farm on the mound R between the intensively excavated ridgeline smelter complex (A,B,C) and the middens and early pit house complex down slope to the west (E,H, L, Q). Some midden material remains unexcavated in the northern end of area E, and an expansion from the eastern side of E right up through the mound R area is recommended to pick up any traces of additional structures and to more effectively connect the midden deposits with the main farm structures. The boulder field to the NW of area E (between area E and the smelters A,B,C) may have the remains of heavily eroded structures present- some wall lines suggest some surviving patterning among the boulders. Some stones with natural holes in them of a size that could be used for loom weights have been picked up in this area, as have a variety of small objects over the years. It will also be extremely useful to further connect the environmental archaeology of the bog area with the site, as it is at least possible that the bog/wet meadows provided the initial reason for settlement, and that drainage changes and loss of iron pan deposition may have been one of the factors leading to the abandonment of the site. A pause to allow for post-excavation catch up is certainly indicated for 2007, but at least one more season of excavation will be required to fully understand the remarkable archaeology of the site of Hrísheimar.

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