VATNSFJÖRÐUR 2006

Framvinduskýrslur / Interim Report

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FORNLEIFASTOFNUN
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YFIRLIT RANNSÓKNA

Guðrún Alda Gísladóttir

Inngangur

Árið 2006 var fjórða ár rannsókna í Vatnsfirði við Ísafjarðardjúp. Þær eru liður í samstarfi nokkurra aðila sem standa að félaginu Vestfirðir á miðöldum. Markmið þessa félags er að stuðla að nýjum rannsóknum á sögu og menningu Vestfjarða á miðöldum og að því standa Hugvísindastofnun HÍ, Fornleifastofnun Íslands, Atvinnuþróunarfélag Vestfirðinga, Byggðasafnið á Ísafirði, Fræðslumiðstöð Vestfjarða, Háskólasetrið á Ísafirði og Senter for studier i vikingtid og nordiske middelalder í Osló. Stendur félagið m.a. fyrir ráðstefnuhaldi, útgáfu á fræðiritum og fræðsluefni, og umfangsmiklum fornleifarannsóknum. Í þessari skýrslu er gerð grein fyrir athugunum á fornleifum. Sumarið 2005 var það umsvifamesta til þessa. Barst verkefninu góður liðsauki á árinu, því Fornleifaskólinn, sem Fornleifastofnun og NABO hafa starfrækt í Mývatnssveit s.l. 8 ár flutti sig um set, kom sér upp bækistöðvum í Reykjanesi og varð þátttakandi í rannsóknunum við Ísafjarðardjúp. Verkefnið hefur verið styrkt m.a. Alþingi, Fornleifasjóði og Rannís.

Yfirlit rannsókna

Fyrsti áfangi fornleifarannsókna fólst í því að taka saman yfirlit yfir fornleifar á Vestfjörðum og stöðu rannsókna í þeim tilgangi að meta hvaða minjaflokka og staði væri heppilegast að hefja rannsóknir á. Hefur samantektin verið birt í Ársriti Sögufélags Ísfirðinga[1], en meðal markverðustu minjastaða er Vatnsfjörður við Ísafjarðardjúp, enda er hann með helstu sögustöðum héraðsins. Var því ákveðið að leggja sérstaka áherslu á athuganir þar. Andrea S. Harðardóttir sagnfræðingur hefur tekið saman sögulegt yfirlit og safnað helstu heimildum um Vatnsfjörð og búsetu þar.[2] Ragnar Edvardsson fornleifafræðingur gerði sérstaka fornleifaskrá yfir Vatnsfjörð og fann 52 fornleifar á jörðinni. Er nú fengið gott yfirlit yfir þekktar og sýnilegar minjar í Vatnsfirði.[3] Ragnar stjórnaði jafnframt forkönnun á bæjarstæði Vatnsfjarðar sumarið 2003. Grafnir voru nokkrir könnunarskurðir, sem m.a. leiddu í ljós að fornleifar í bæjarhól og túni eru vel varðveittar og ákjósanlegt rannsóknarefni. Í túninu fundust leifar skála með langeld í miðju.[4]

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[1] Adolf Friðriksson (2003) Fornleifar á Vestfjörðum. *Ársrit Sögufélags Ísfirðinga* 43: 43-51.
[2] Andrea S. Harðardóttir (2003) Vatnsfjörður við Djúp. *Vatnsfjörður við Ísafjarðardjúp. Rannsóknir sumarið 2003*. Adolf Friðriksson og Torfi H. Tulinius (ritstj), 10-14. Reykjavík: Fornleifastofnun Íslands.
[3] Ragnar Edvardsson (2003) Fornleifaskráning í Vatnsfirði við Ísafjarðardjúp sumarið 2003. *Vatnsfjörður við Ísafjarðardjúp. Rannsóknir sumarið 2003*. Adolf Friðriksson og Torfi H. Tulinius (ritstj), 15-29. Reykjavík: Fornleifastofnun Íslands.
[4] Ragnar Edvardsson (2003) Fornleifarannsókn í Vatnsfirði 2003. *Vatnsfjörður við Ísafjarðardjúp. Rannsóknir sumarið 2003*. Adolf Friðriksson og Torfi H. Tulinius (ritstj), 30-47. Reykjavík: Fornleifastofnun Íslands.

Árið 2004 var rannsókn haldið áfram á skálaleifum, en þær eru um 100 m norðan við gamla bæjarhólinn[5]. Uppgraftarsvæðið var 70 fermetrar að stærð, en hvergi dýpra en 20 sentimetrar. Minjarnar voru aðeins nokkra sentimetra undir yfirborði. Skálinn er um 16 m langur og 6 m breiður að innanmáli og sneri norður og suður. Skilyrði til varðveislu voru ekki góð, jarðvegur var súr og fá dýrabein varðveitt.

Árið 2005 var uppgraftarsvæðið því stækkað verulega til austurs, eða um 310 fermetra. Suðaustast á svæðinu fundust leifar lítillar byggingar sem voru rannsakaðar að hluta undir stjórn Karen Milek. Í ljós kom að húsið hefur líklega verið smiðja, en gæti hafa orðið eldi að bráð. Rannsóknir á fornum bæjum á Íslandi hafa takmarkast við húsin sjálf. Hér var ráðist í þá nýjung að grafa fram og rannsaka opin svæði utan húsa. Að þessu sinni var svæðið milli skála og smiðju opnað og til norðurs á móts við norðurgafl skála. Þar komu fram áberandi, tröðkuð mannvistarlög, svo sem vænta mátti, en athyglisvert var að sjá að þar leyndust einnig soðhola og tvö lítil eldstæði. Líklega hefur eldamennska verið stunduð utandyra og má vera að þessi niðurstaða kalli á frekari athuganir á athöfnum fólks utandyra að fornu en hingað til hefur verið gert. Þetta ár – 2005 – varð verkefnið viðameira. Fornleifaskólinn var fluttur frá Mývatni til Vatnsfjarðar og 11 nemendur víða að úr heiminum stunduðu nám í uppgraftartækni undir leiðsögn kennara. Þá bættist við nýr rannsóknarþáttur þar sem lögð er áhersla á að kanna staðhætti í því augnmiði að varpa ljósi á uppruna og þróun byggðar í Vatnsfirði. Landslagsathuganir eru nýleg en ört vaxandi grein innan fornleifafræði en þar eru minjar og landslag skoðað í nýju ljósi og staðfræðilegu samhengi. Einnig var byrjað á verkefni sem lýtur að því að rannsaka frjósemi jarðvegs og hvernig honum er viðhaldið með áburði. Vonir standa til að með slíkum rannsóknum verði hægt meta grasnytjar og hagvöxt jarðarinnar og hve stóran þátt jarðnytjar túnsins áttu í vexti og framgangi búsins.

Árið 2006 var opnað enn stærra svæði við skálann og þrjár nýjar byggingar fundust – allar frá víkingaöld. Þá hófust einnig rannsóknir á bæjarhól Vatnsfjarðar en þangað er talið að bærinn hafi verið fluttur í öndverðu og verið fram á 20. öld. Þar fundust vel varðveittar leifar seinasta torfbæjar Vatnsfjarðar. Auk þess voru grafnir prufuskurðir til að kanna dýpt og umfang bæjarhólsins í því augnmiði að afmarka og staðsetja rannsóknarsvæði framtíðarinnar. Fornleifaskólinn var starfræktur áfram og 17 nemendur og 2 sjálfboðaliðar frá ýmsum löndum sóttu hann: Noregi, Danmörku, Englandi, Skotlandi, Írlandi, Frakklandi, Bandaríkjunum, Kanada, Ástralíu og Nýja-Sjálandi.

[5] Sbr. Ragnar Edvardsson (2004) *Fornleifarannsókn í Vatnsfirði við Ísafjarðardjúp 2004.* Reykjavik: Fornleifastofnun Íslands.

PROJECT OVERVIEW

Karen Milek

Introduction

July 2007 saw the fourth season of excavation and landscape survey at Vatnsfjörður in Ísafjarðardjúp – the second season in which the team included students from the Field School in North Atlantic Archaeology. The aim of the ongoing investigation of Vatnsfjörður and its landscape is to further the understanding of settlement, land use, and the development of cultural landscapes in the Westfjords. Historical sources suggest that Vatnsfjörður was one of the most important seats of wealth and power in the Westfjords – and indeed in Iceland – from the thirteenth to the seventeenth century, and that the owners of Vatnsfjörður played a pivotal role in the cultural, economic, and social developments of the time (Tulinius 2005). This interdisciplinary project is contributing to the understanding of why and how Vatnsfjörður came to be such an important site, the timing and mechanisms of socio-economic and cultural change in the area, and the dynamic relationship between the people of the region and their landscape/environment up until the twentieth century.

Vatnsfjörður Landscape Project

Archaeological surveys in the region around Vatnsfjörður have been ongoing since 2003 (Edvardsson 2003a), with landscape analysis and phenomenological approaches becoming increasingly important since Oscar Aldred and Christian Keller joined the project in 2005 (Aldred 2005). The goal of the Vatnsfjörður landscape project is to gain an understanding of how the landscape would have appeared to the people who lived in it, moved through it, and interacted with it from the ninth century onwards. The study encompasses the reconstruction of the environment and how it has changed over the past millennium, the reconstruction of where and when monuments and trackways developed in the landscape as people engaged with the world around them, and an attempt to understand why these changes occurred and what they might have meant to the people living in the past. This landscape project is therefore highly interdisciplinary, with information from both the natural sciences and experiential studies of the landscape ultimately being integrated in a GIS.

In 2006, landscape research by Oscar Aldred and students of the Field school in North Atlantic Archaeology focused on two areas that had not been surveyed in 2005. The survey was carried out without reference to documentary sources, and used new, experiential approaches, such as landscape observation, movement, and wayfinding. The survey recorded 65 new sites, adding significantly to the 196 sites that had previously been recorded in the area. Most of these new sites were stone cairns, but new peat cuttings, tracks and structures were also recorded, and Christian Keller identified two possible burials close to the shore of the fjord (see Oscar Aldred, this report).

Since 2005, Ian Simpson and students from the University of Stirling have been studying how the soils and vegetation at Vatnsfjörður would have appeared in the past, whether or not they were perceived and valued as resources by the people living there, and the extent to which people engaged with and changed them. Because it is not yet possible to include a report on this work, the preliminary results will be summarised here. In 2005, Ian Simpson and his team excavated three test pits in the Vatnsfjörður homefield and a section across the homefield boundary wall. So far, unlike in other parts of Iceland, there is no evidence that the homefield soils at Vatnsfjörður were improved through manuring. They are shallow, and where they rest on beach cobbles (e.g. around Areas 2 and 6; see Fig. 1), they are so freely drained that they were severly leached (podsols) and they might have experienced periods of drought (Ian Simspon, pers comm.). The low fertility and possible dryness of these soils is unusual for Iceland, where podsolised environments are rare, but Ian Simpson believes that the situation is not dissimilar to what he has observed in the Eastern Settlement in Greenland.

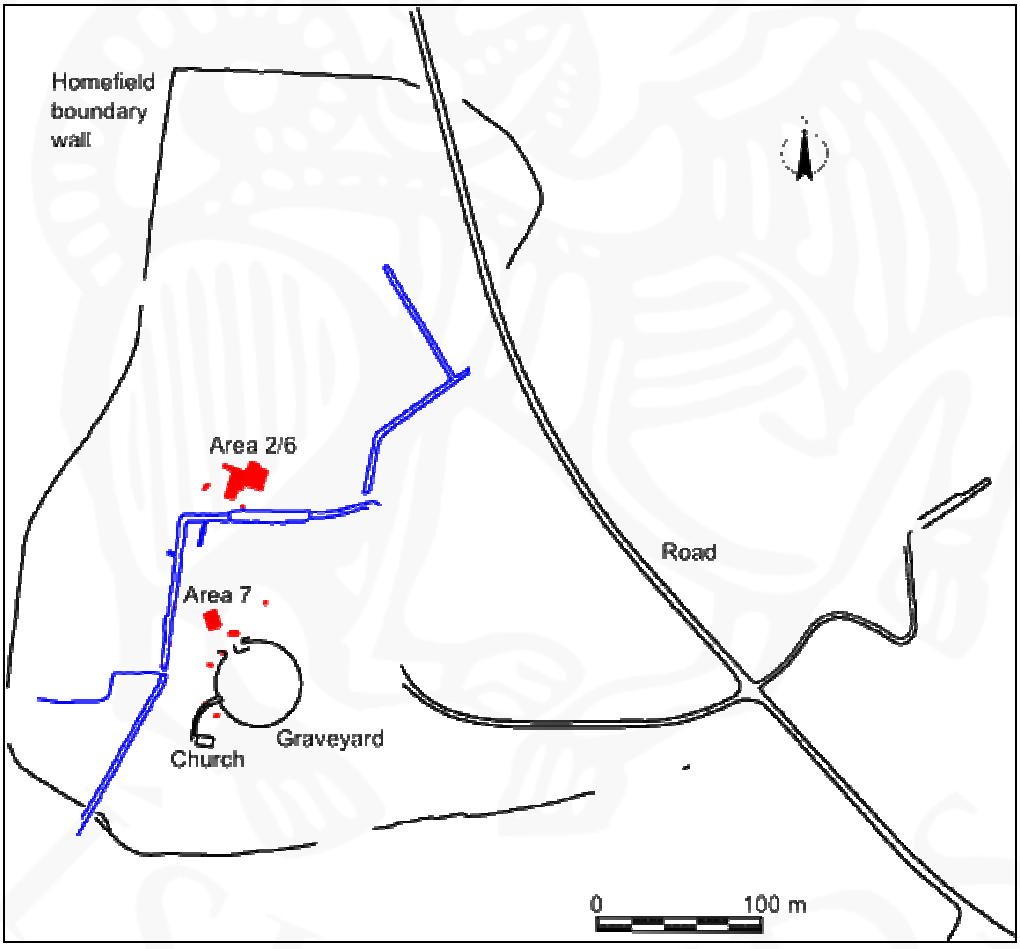

Figure 1. Map of the Vatnsjörður farm, showing the homefield boundary wall, the drainage ditches (blue), and the location of the modern church and graveyard, and the location of the 2006 excavation areas (red).

In contrast to the well-drained, leached soils in the central part of the homefield, on the upper parts of the slope (west of the archaeological excavations and the drainage ditches), where soils are resting on hard bedrock, overly wet conditions have resulted in peat

development. Peat has also developed on the lower, eastern parts of the homefield, which have more recently been drained with the help of ditches (Fig. 1). Charred birch twigs in a burn layer below this peat have been radiocarbon dated to the tenth century (Fig. 2), indicating that peat development post-dated settlement at Vatnsfjörður. The landscape at the time of settlement would therefore have looked very different than it does today. It was probably covered with trees/shrubs of birch and willow, the removal of which changed the hydrology of the site, causing podsolisation of the soils in some areas and peat development in others.

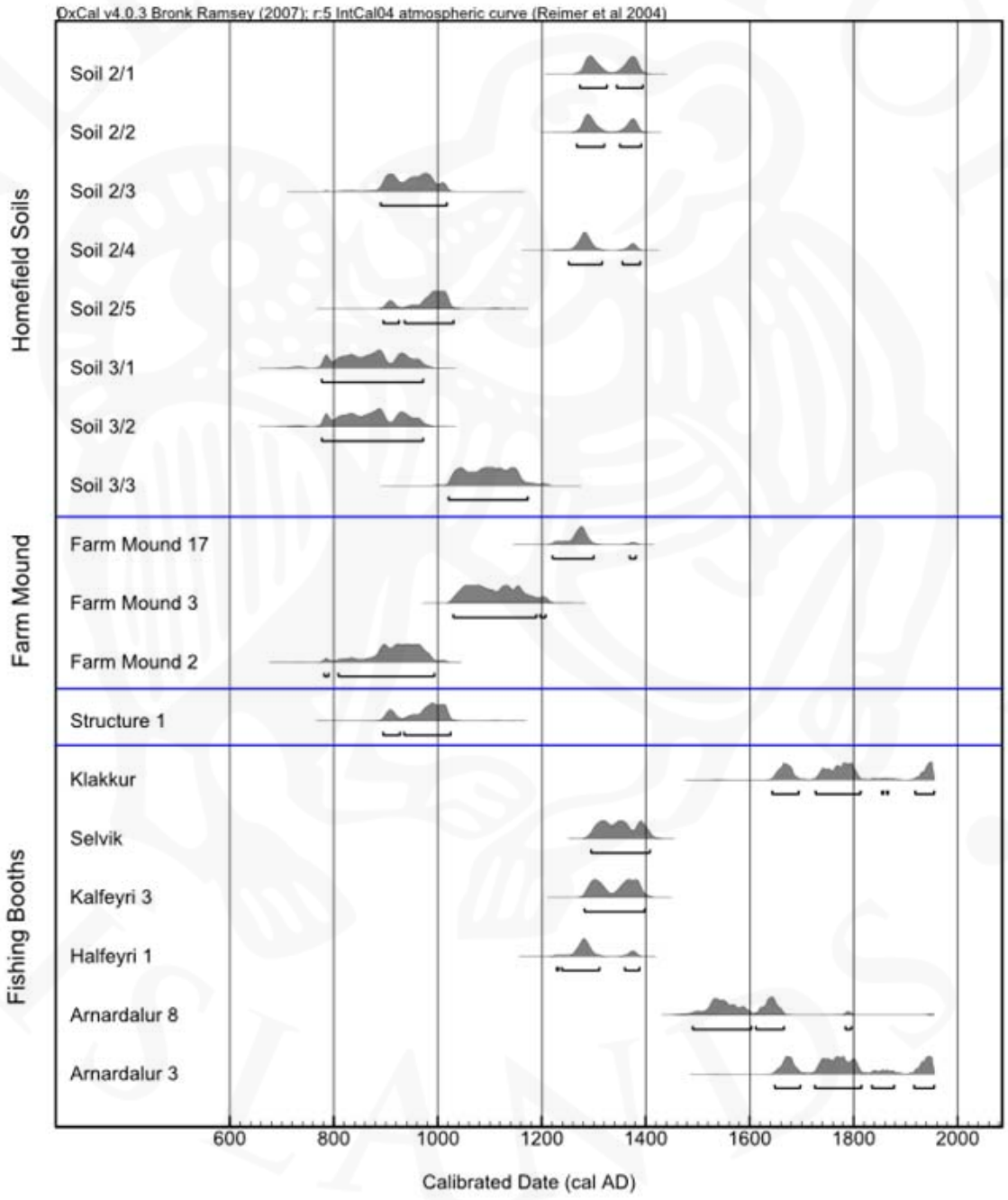

Figure 2. Radiocarbon dates for Vatnsfjörður and fishing booths in Ísafjarðardjúp (2σ range) (Bronk Ramsey 1995; Bronk Ramsey 2001) (dates provided courtesy of Ian Simpson and Tom McGovern)

So far, the study of the homefield soils at Vatnsfjörður suggests that they were not managed or improved in a way that would ensure that successive generations inherited a valuable resource. This provides some interesting new ideas about how people in the past perceived and engaged with the environment in this region. If, in contrast to other parts of Iceland, the farmers at Vatnsfjörður did not view the homefield soils as valuable and worth improving, this begs the question of why. Although their attention might have been focused on marine resources, radiocarbon dates from fishing stations in Ísafjarðardjúp so far suggest that intensive fishing became more important in the thirteenth to fourteenth century (see Fig. 2). How it is that Vatnsfjörður generated its wealth, and whether its dependent farms put more effort into improving their homefields, are questions that will continue to be tackled in the future.

Vatnsfjörður Excavation Project

Ragnar Edvardsson's preliminary survey work and test trenching at Vatnsfjörður in 2003 (Edvardsoon 2003b) was followed up in 2004 by an open area excavation of a Viking Age house (*skáli*) (Area 1) (Edvardsson 2004). This house has been dated to the tenth or early eleventh century on the basis of a radiocarbon essay on a cattle bone from the floor of the building (SUERC-6741: 890-1030 AD at 95% probability; see Fig. 2) and tenth-century artefacts contained within the fill of a pit cut into the east wall of the building. These well-dated artefacts included five glass beads and a gold foil pendant that had originally been mounted on an Irish kite brooch (Fig. 3) (Milek 2005). The tenth-century house was very similar in size, shape, and internal organization to other contemporary dwellings in Iceland, and included two entrances in the east long wall, a central hearth, a three-aisled structure, and a stone box in the main entrance passageway (Edvardsson and McGovern 2005).

Figure 3. Gold foil pendant found in midden [209/287], at Vatnsfjörður, in 2005.

In 2005, when the Field School in North Atlantic Archaeology was moved to Vatnsfjörður, the scale of the excavation doubled. The excavation of the Viking Age house (Structure 1) was completed, and a new excavation area (Area 2) to the east and southeast of the house was opened up. In this area, a smithy was found, as well as an outdoor cooking pit, a couple of temporary outdoor hearths, extensive sheet midden deposits, and a gully on the eastern edge of the dwelling house, which was infilled with domestic rubbish (Milek 2005). There was no stratigraphic connection between the smithy (Structure 3) and the well-dated Viking Age house (Structure 1), and although its proximity to a Viking Age dwelling suggested contemporaneity, the lack of diagnostic artefacts in the smithy meant that it was not possible to be sure about its date.

The aims of the 2006 excavation were twofold: to progress with the exploration of the Viking Age part of the site and to assess the potential of the farm mound for future excavations. To this end, the area around Structure 3 was reopened in order to continue the

excavation of the smithy, and a new excavation area was opened up south of the tenth-century house (Area 6). The goal for this new excavation area was to investigate a new building that had been identified in 2005 in a test pit 15 m south of the tenth-century house, and to see if a stratigraphic connection could be found between Structures 1 and 3. In addition to the expansion of the former excavation areas, nine evaluation trenches were excavated on the farm mound in order to assess its size, the depth of its cultural deposits, and the quality of its preservation.

The excavation of Areas 2 and 6 brought to light three new outbuildings around the smithy, two of which were fully excavated in 2006. One of the long walls of the smithy was abutted by a very small oblong building that had no diagnostic features or finds in it and was probably used for storage (Structure 6). The other fully excavated outbuilding was rectangular, with an entrance in one of its gable walls, a central flat flag stone, and a very thin floor lens containing charcoal, charred seeds, and decomposed plant matter (Structure 5). The only significant find in the building was a small grinding wheel, and this, together with the lack of diagnostic features, the thin floor deposit, and the lack of synanthropic insects in the building, suggests that the building was probably an unheated workroom and/or a storeroom. Surrounding the Viking Age buildings were widespread sheet middens and trampled deposits that produced some of the most interesting and diagnostic artefacts of the excavation, including a Borre-style strap end and a multi-coloured Viking Age glass bead (Milek, this report).

The evaluation trenches revealed that the farm mound is exceptionally large: around 90 m long (north-south) and 60 m wide, with cultural deposits reaching thicknesses of around 1.5 m. The evaluation trench at the top of the farm mound found the last turf dwelling house at Vatnsfjörður (1884-1906), and the trench was extended to reveal very well-preserved wall foundations and a deep cellar infilled with early twentieth-century household rubbish (Area 7). The excellent preservation of the buildings and other cultural deposits in this area suggests that the Vatnsfjörður farm mound has good potential to further the understanding of farm mound formation processes (Gísladóttir and Ævarsson, this report). Three radiocarbon dates from birch charcoal recovered from a section in the farm mound suggest that the occupation of this part of the site began as early as the late ninth or tenth century, and that at least some parts of the farm mound had reached their present height by the thirteenth century (Fig. 2). Future investigation of the farm mound will undoubtedly shed interesting new light on development of the Vatnsfjörður farm, and the cultural and economic changes that took place at the site between the tenth and twentieth century.

Specialist Contributions

The Vatnsfjörður project would not be possible without the large number of specialists who make an important contribution to the understanding of the site and its environment. For example, preliminary analysis of the faunal remains by Albína Pálsdóttir and Tom McGovern (CUNY Northern Science and Education Center) reveals that throughout the occupation of Vatnsfjörður, the consumption of domestic livestock (dominated by caprines and cattle) was heavily supplement by wild resources, such as marine fish, birds, and seals. Although the poorer preservation of bone on the Viking Age part of the site makes it difficult to be certain about the relative importance of fish in this phase, there are hints that between the tenth and nineteenth century there was a marked increase in the importance of

fish resources relative to domestic livestock (Pálsdóttir and McGovern, this report). It is expected that the faunal assemblage recovered from future excavations at the site will provide more detail about the timing of this economic shift.

2006 also saw the addition of archaeoentomological analysis at Vatnsfjörður. An assessment of the insect remains recovered from the floatation of bulk sediment samples was conducted by Véroniques Forbes (Laboratoire d'archéologie environnementale, Université Laval) as part of her Master's dissertation. She found that the sediments in Structures 3, 5 and 6 were dominated by non-synanthropic, out-door species, that normally inhabit wet meadows and grasslands (Forbes, this report). This gives some indication of the local environment of the site, but the lack of synanthropic species within the buildings also suggests that they were not used intensively enough or long enough to create an environment in which insect populations could live out an entire lifecycle.

Some of the specialist contributions to the Vatnsfjörður project are also of wider, regional significance. In northwest Iceland, where there are few tephra layers to contribute to an understanding of site chronology, the identification of any new tephra layer is noteworthy. Magnús Sigurgeirsson's study of the grey tephra layer first observed at Vatnsfjörður in 2005 has confirmed that it is from the Hekla eruption of 1693. This event horizon will be of great help for the dating and phasing of the archaeology in the farm mound, as well as other sites in the region.

The participation of specialists is expected to continue to rise as efforts to investigate the relationship between Vatnsfjörður and its landscape intensify. Under the banner of an interdisciplinary project entitled *Nature-Culture Dynamics in the Westfjords: Vatnsfjörður and its Landscapes from the 10th–20th Century*, a new programme of historical research, and a pilot programme of lake sediment and homefield soil coring will be conducted in 2007. If these pilot studies are successful, the integration of historical, pollen, climate, and sea-level studies into the current programme of landscape analysis will contribute to the growing understanding of Vatnsfjörður's environs, and how the landscape was viewed, used, and shaped by the local population.

Acknowledgements

The Vatnsfjörður Project is made possible through the involvement of a large team of professionals, volunteers, and students from Iceland, North America, Europe, and further afield, who contribute enormous amounts of time, expertise and labour to the project. Under the management of Adolf Friðriksson, Torfi H. Tulinius, Garðar Guðmundsson, and Peter Weiss, the Vatnsfjörður project has received generous financial support from the Icelandic parliament, the University Centre of the Westfjords (Háskólasetur Vestfjarða), and the Westfjords in the Middle Ages Society (Vestfjarða á Miðöldum). The project and field school also benefit from the cooperation of the University of Stirling, the University of Oslo, the University of Iceland, the City University of New York, the North Atlantic Biocultural Organization (NABO), Hugvísindastofnun HÍ, Atvinnuþróunarfélag Vestfirðinga, Byggðasafnið á Ísafirði, Fræðslumiðstöð Vestfjarða. We are extremely grateful to Baldur Vilhelmsson and his family for permitting us to excavate at Vatnsfjörður, and for providing us with facilities and assistance in the field.

The 2006 excavations were directed by Karen Milek and Guðrún Alda Gísladóttir, and the landscape survey was directed by Oscar Aldred. As both a research excavation and a field school, the project is greatly aided by the involvement of Christian Keller of the University of Oslo, Tom McGovern of the City University of New York, and Orri Vésteinsson of the University of Iceland, who organise the intake of students. Fourteen students took part in the excavations and landscape survey in 2006: Alice Whitmore (University of Cambridge, UK), Altaire Harris (Australia/University of Oslo, Norway), Bartlomiej Begziak (Jagiellonian University, Poland), Elijah McStotts (College of Charleston, USA), Ella Ussher (New Zealand), Hege Gjerde (University of Oslo, Norway), Inge Knudsen (University of Oslo, Norway), Maeve McCormick (Ireland/University of Glasgow, UK), Marina Matatova (City University of New York, USA), Maureen Kick (City University of New York, USA), Sandra Coullenot (University of Lyon, France), Sébastien Martel (Laval Univeristy, Canada), Véronique Forbes (Laval University, Canada), and Yannick Guigue (University of Grenoble, France). In addition, the project benefited from the hard work of several volunteers: Dawn Elise Mooney and Nicole Taylor (University of Cambridge, UK), who helped with the on-site flotation programme, and Elizabeth Pierce (University of Glasgow, UK) and Gunnhildur Garðarsdóttir, who helped with the excavations. The students were taught and supervised by the professional staff of the Institute of Archaeology, Iceland, including Astrid Daxböck, Garðar Guðmundsson, Guðrún Alda Gísladóttir, Jonas Secher Schmidt, Karen Milek, Konrad Smiarowski, Mjöll Snæsdóttir, Oscar Adred, and Uggi Ævarsson. In addition, a number of visiting scholars made an important contribution to the teaching programme, including Christian Keller, Ian Simpson, Adolf Friðriksson, Colleen Batey, Graham Langford, Torfi Tulinius, David Craig, Stuart Morrison, and Val Dufeu. Special thanks go to Astrid Daxböck for her behind-the-scenes assistance with the post-excavation work.

Figure 1. Top row from left to right: Uggi Ævarsson, Inge Knudsen, Bartlomiej Begziak, Sandra Coullenot, Ella Ussher, Maureen Kick, Nicole Taylor, Dawn Elise Mooney, Véronique Forbes. Middle row: Konrad Smiarowski, Jonas Secher Schmidt, Karen Milek, Altaire Harris, Hege Gjerde, Maeve McCormick, Elizabeth Pierce, Yannick Guigue, Elijah McStotts, Gunnhildur Garðarsdóttir, Astrid Daxböck. Bottom row: Sébastien Martel, Mjöll Snæsdóttir, Garðar Guðmundsson, Guðrún Alda Gísladóttir, Marina Matatova.

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LANDSCAPE SURVEY IN THE REGION AROUND VATNSFJÖRÐUR

The ‘welcoming position’ into Vatnsfjörður farm from the sea and land (from the south and east) – natural stone (centre), burials (east) and boat house (west).

LANDSCAPE RESEARCH AT VATNSFJÖRÐUR IN 2006

Oscar Aldred
(from Oscar Aldred, 2007, report FS343-03096)

Summary

The landscape research in the Vatnsfjörður region in 2006 focused on two areas that had not been surveyed in 2005. The survey was carried out in conjunction with the Field school in North Atlantic Archaeology, and recorded an additional 65 sites on top of the previously recorded 196 sites. This report outlines the research themes, building on those from 2005, and describes the farm and landscape survey work, including some details on a few interesting sites. It also elaborates further on the main research questions connected to survey methods and practices in Iceland, on movement in and the meaning of landscapes. It outlines a few goals for future work in the area, re-emphasising the point that successful landscape research should maintain a focus on people and local communities and their engagement with the world around them and our role in understanding this.

Figure 1. Monuments and the people who study them: reflections on the past through material things in Vatnsfjörður (2005).

Introduction

The landscape work carried out in 2006 was one part of the field project at Vatnsfjörður. It is a continuing exploratory project that aims to assess the problems in and potential for landscape scale research in the area. This report focuses on the field work element, in particular what was found, what was learnt, and how the future will be (hopefully). The landscape project was also integrated into the field school programme to allow students to gain experience in landscape archaeology. The landscape programme primarily involved fieldwork, lectures and original research by the students, and was lead by Oscar Aldred (Institute of Archaeology, Iceland) and Christian Keller (University of Oslo).

The landscape teaching programme at Vatnsfjörður comprises three elements: lectures on elements of landscape archaeology and analysis, farm survey, and landscape survey. Aerial survey was carried out in 2005 as part of the research programme, but not in 2006; it will be continued in 2007. The main emphasis in this report is on the farm and landscape surveys that were conducted in 2006. Following on from landscape research in 2005, it was decided to minimise the work in 2006 (only 1 week) in order to prepare a more comprehensive programme of research in 2007. This report is therefore relatively brief.

Figure 2. Marina, Véronique, Sandra, and Inge surveying a cairn on Reykjafjardáls.

Research themes

The northwest presents several challenges to the study of landscapes in Iceland, as discussed in 2005.[6] In summary, the historical development of the land was different in the northwest from other regions in Iceland. Subsistence was based primarily on fishing as opposed to farming, and although in the post-medieval period a transition towards sheep farming took place, fish remained important along with a variety of different resources (for example drift wood); these changes were enforced from outside the Westfjords (Ragnar Evardsson pers com). Any visitor to the northwest of Iceland will soon discover that there was an important symbiotic relationship between nature and culture. The landscape is relatively unpopulated and large areas of land are open and seemingly devoid of cultural activity, but an inquisitive investigation reveals a landscape 'pregnant with the past', waiting to be discovered.[7] Therefore, understanding the environment of the past, such as its geology, soils, and vegetation, allows us to understand the landscape that is closer to past human experiences. Of interest is the nature:culture dichotomy, which is part of a dialectic process that needs to be understood before deriving meaning from the landscape; therefore, some emphasis will be placed on assessing this dichotomy before advancing substantial interpretations on the landscape archaeology. For this report landscapes are distinct from environments: they are created out of people's understanding and engagement with the world around them, rather than being quantified and explained in a formal way.[8] This is a theme that underlies much of the landscape research in the Vatnsfjörður project. This theme is articulated in various ways: analysis through material culture (monuments), through phenomenology and our engagements with monuments (in bodily actions), and through the representations of these encounters in photographs and texts, for example. These three elements are combined in this report.

The research carried out in 2006 was on the one hand a study of an archaeological landscape, one that did not draw on historical documents before field work. Survey was conducted purely by observation, either on the ground or from aerial sources, and followed an approach based on landscape learning, empathy, and perceptive qualities of landscape. By adopting this approach, it became increasingly clear that understanding the movement between places and through the landscape was the *key* theme. Another was based on determining the meaning of landscape: how it was perceived and understood by the individuals and communities in the study area. This was understood by assessing the production of space and social reproduction through practices and forms of engagement with sites; for example, practices connected with folklore, movement and navigation, and establishing locales. Not all of these aspects were investigated in 2006 – only movement. The connections between movement and meaning supports a discourse on the relationships between places and people within a lived and living landscape.

[6] Oscar Aldred (2005) *Landscape Research in the North West: Vatnsfjörður Peninsula*, 3-4. Reykjavík: Forneifastofnun Íslands.
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[8] Barbara Bender (2002) Time and landscape. *Current Anthropology* 43: 103-S112; Ingold 2000.

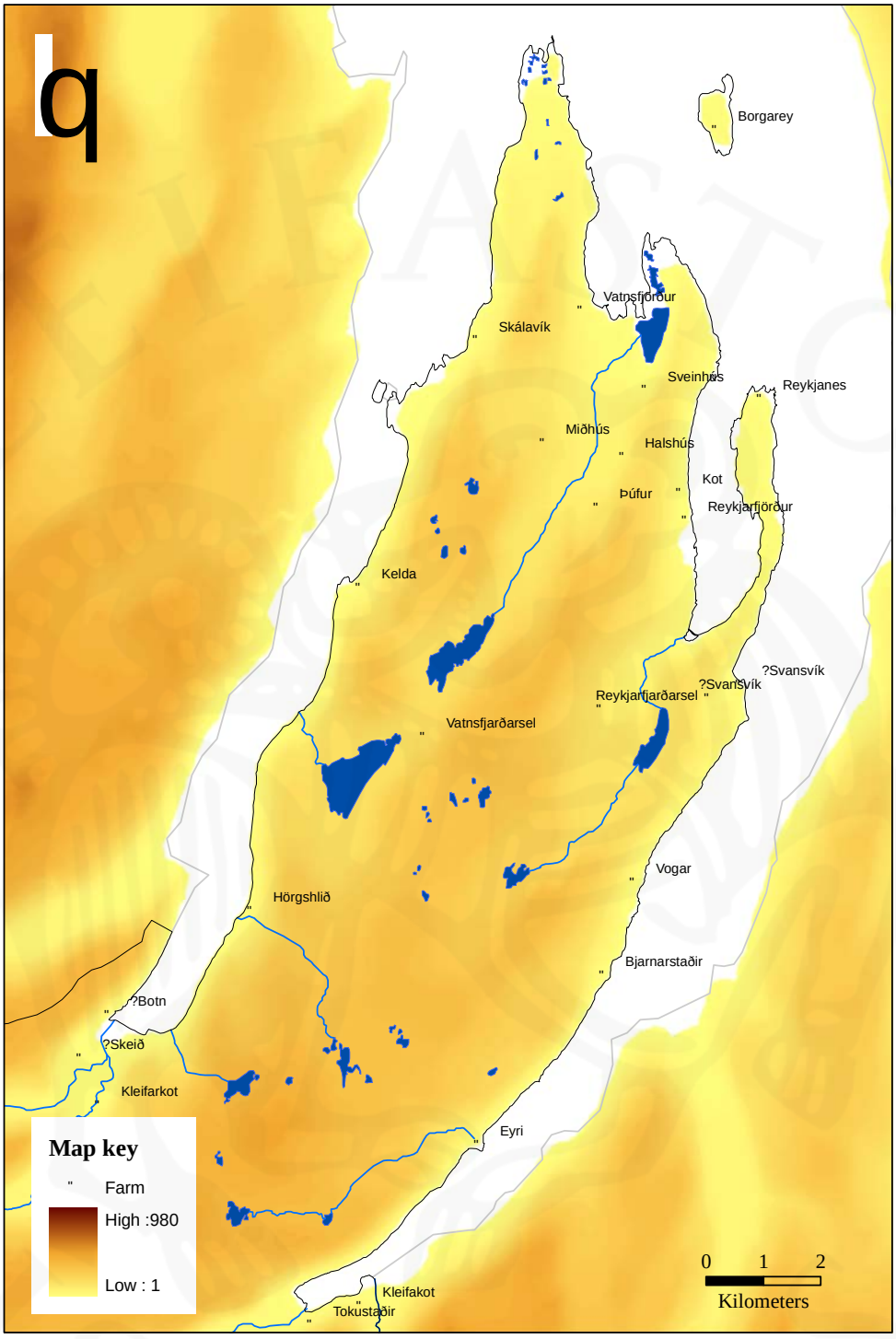

Figure 3. The Vatnsfjörður environs, showing farm locations (black dots), lakes and rivers (blue).

Farm survey

The recognition of undocumented cultural features and archaeological sites through landscape observation is a fundamental part of the field survey process. This occurs on several levels, but the field school programme focused on teaching techniques for how to recognise features and explaining their possible functions and uses. Landscape observation was centred on the farm of Sveinshús, located southeast of Vatnsfjörður. Sveinhús consists of a farm house and several other outbuildings, including a sheep house, an enclosure, an area of plough ridges, and a homefield boundary wall as well as several other structures and possible sites.

Several phases of occupation were apparent at Sveinshús. A farm house was still intact, constructed from wood and corrugated iron, but utilising an older turf and stone structure. At least two phases of boundaries were seen: an outer, stone-built boundary, which enclosed the farm area, and another boundary on the inside edge of the stone built one. The latter was only partially observed on the ground surface, but was clearer on aerial photographs.

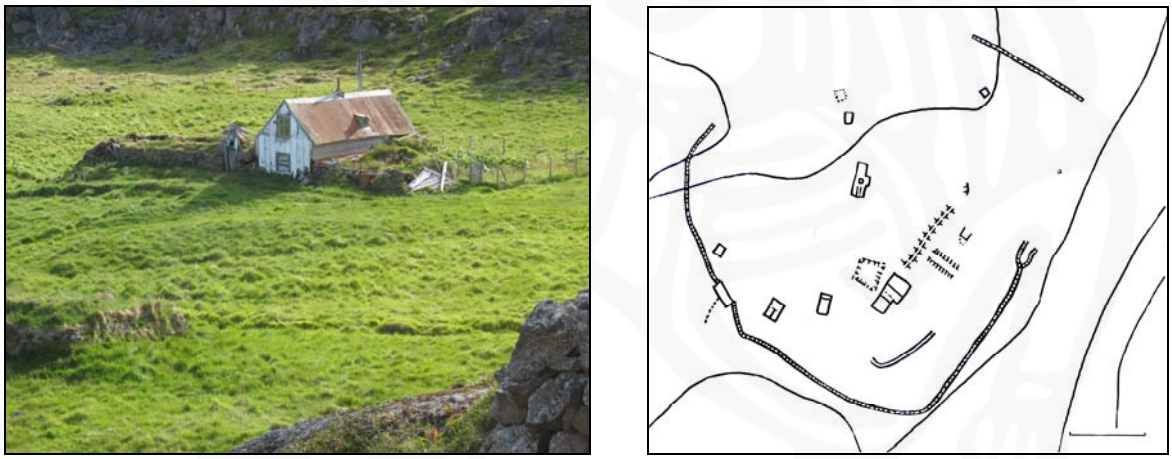

Figure 4. Sveinshús looking southeast towards the most recent farm building (left); plan of Sveinshús (Christian Keller) (right).

Landscape survey

Field survey was carried out in the immediate vicinity of Vatnsfjörður (Fig. 7). It was decided that the field work would primarily survey individual monuments as they were encountered and simultaneously research the practice of movement through the landscape. The survey in 2006 recorded 65 sites, and included descriptions of their form, function, preservation, and dimensions. In addition, each site was located using a handheld GPS and a photograph was taken.

In connection with research into survey practices in Iceland, one of the main aims of the project was to test prior knowledge of archaeological sites from documents against

observations in the field through a combination of landscape logic, familiarity and phenomenology. By adopting this approach, movement across the landscape provided a direct point of contact with the landscape and its materiality; this was used to understand how people might have moved through the landscape in the past and to establish a theoretical framework for identifying their landmarks and the experience of encountering them. Trails of cairns and likely pathways to other sites, such as farms, sheilings, and shelters, were followed and consequently surveyed.

Figure 5. Field survey in action; following a route over Reykjarfjarðarháls.

The field survey took place over 1 week and in 2 areas within the study area (more detailed descriptions of the areas can be found in the 2005 report): 1. Vatnsfjarðarháls on the ridge above Vatnsfjörður and the northern end of Vatnsfjarðardalur; and 2. Reykjarfjarðarháls (Fig. 6).

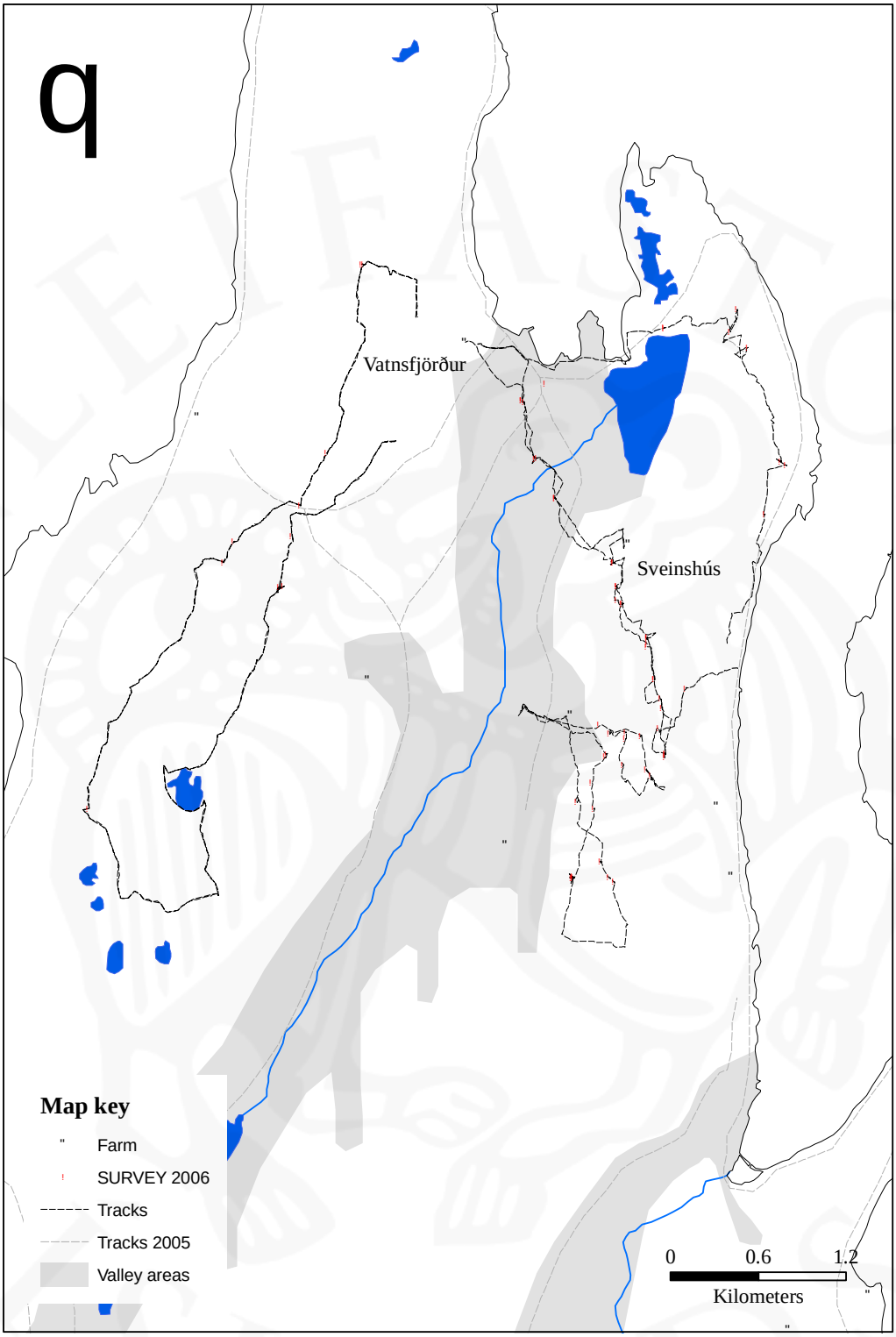

Figure 6. Areas surveyed in 2006.

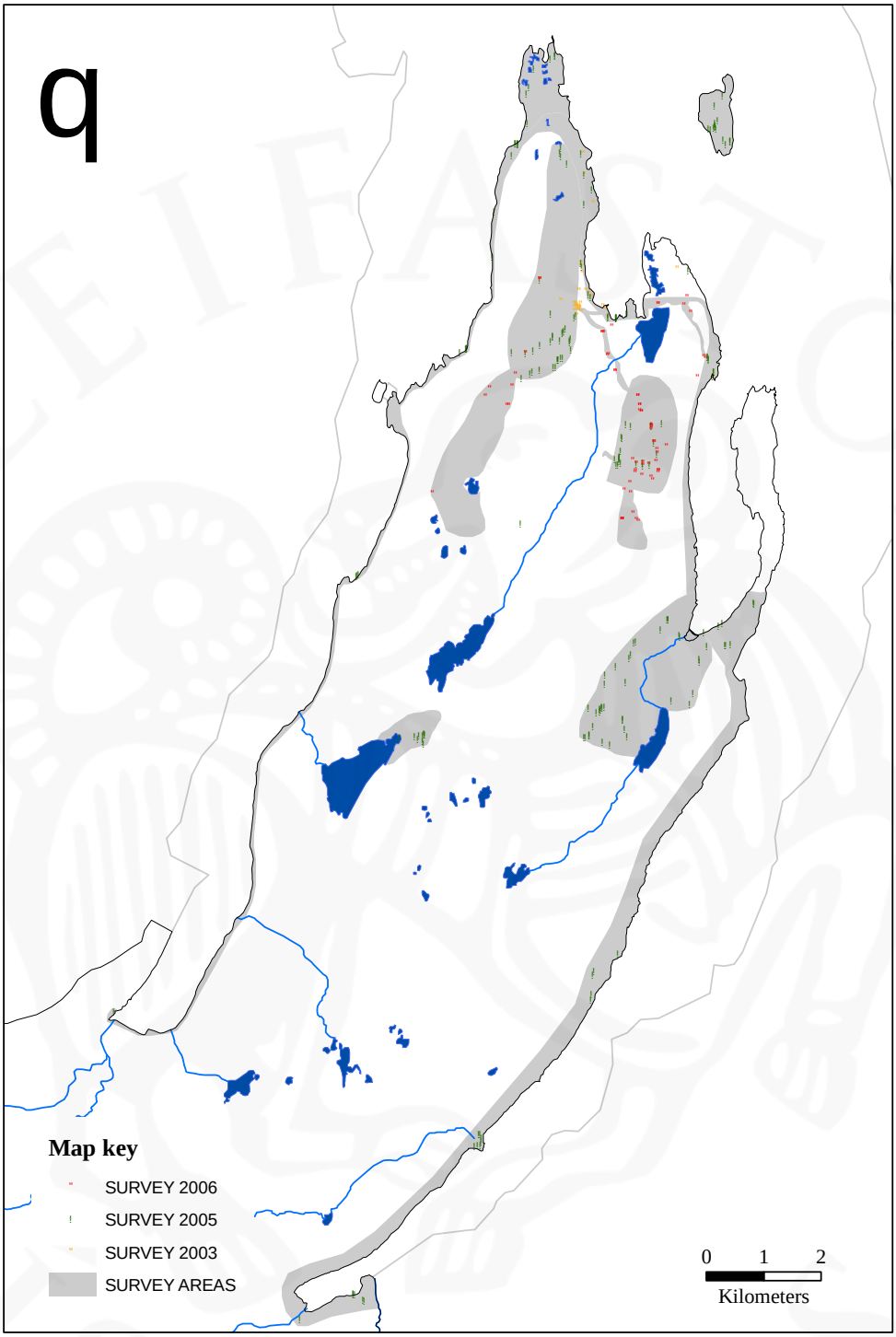

Figure 7. Extent of field survey up to 2006.

Cairns were the most common site type surveyed. Out of the 65 sites surveyed in 2006, 56 were cairns: stone-built cairns as well as natural stones with stones placed on them (Table 1). These monuments related both to the movement of people and the marking of land for different purposes. Although the multi-functional character is acknowledged and important, it is difficult to separate specific functions for the individual monuments. One method to decipher these monuments is to investigate their location context against a classification of different topographies: valley, coastal, and highland. Specific topographies

will give a clearer understanding of the role the monument serves in the cultural landscape, for example cairns close to the coast are likely to have been used as navigation markers. These reflections on monuments as proxies for particular characters of space and place will be important for the development of specific research themes derived from the landscape survey work. For example, this type of approach creates speculation about the broad understanding of cultural processes seen in the adaptation and uses of the natural environment and in the dynamic or reflexive processes between nature and culture. What follows is a brief description of the results found in each survey area.

Table 1. Sites surveyed in 2006.

Site type	**Count**
Waymarker cairn	45
Sea marker/Waymarker cairn	4
Natural stone/Waymarker cairn/Sea marker	1
Natural stone/Waymarker cairn	4
Natural stone	2
Peat cutting	2
Structure	2
Spring	1
Track	1
Feature	1
Spot find	1
Burial	2

Vatnsfjarðardalur and Vatnsfjarðarháls

The Vatnsfjarðardalur area that was surveyed in 2006 lay towards the north of the valley, close to the farm of Sveinshús and Hálshús. This was complimented by a survey in the Vatnsfjarðarháls area, whose topography consists of long, north-south ridge west of the Vatnsfjörður farm, and which reaches elevations of approximately 200 m above sea level (Fig. 8).

In 2006, 17 sites were surveyed on Vatnsfjarðarháls and in the northern part of Vatnsfjarðardalur. These comprised of cairns (14) as well as a peat-cutting place, a track, and a small structure. Several of the cairns were large natural stones on which stones had been placed (Fig. 9). The cairn in Figure 9 is on the top of Vatnsfjarðarháls, and the stone was distinguishable and quite different to the surrounding ones. It was positioned to suggest a boundary marker, probably between Vatnsfjörður and Skálavík. A GIS viewshed analysis from the cairn performed in 2005 suggested that the cairn was not visible from either side of the ridge but only along its top and from the north. This suggests that it may have been a landmark, such as a boundary stone, which was also used for sea navigation into either Ísafjörður or Mjóifjörður fjords. The cairn may be part of a network of navigation markers, and, in particular, it may be connected with the cairn interpreted as a sea navigation marker on the northern part of Reykjarfjarðarháls, southeast of Vatnsfjörður.

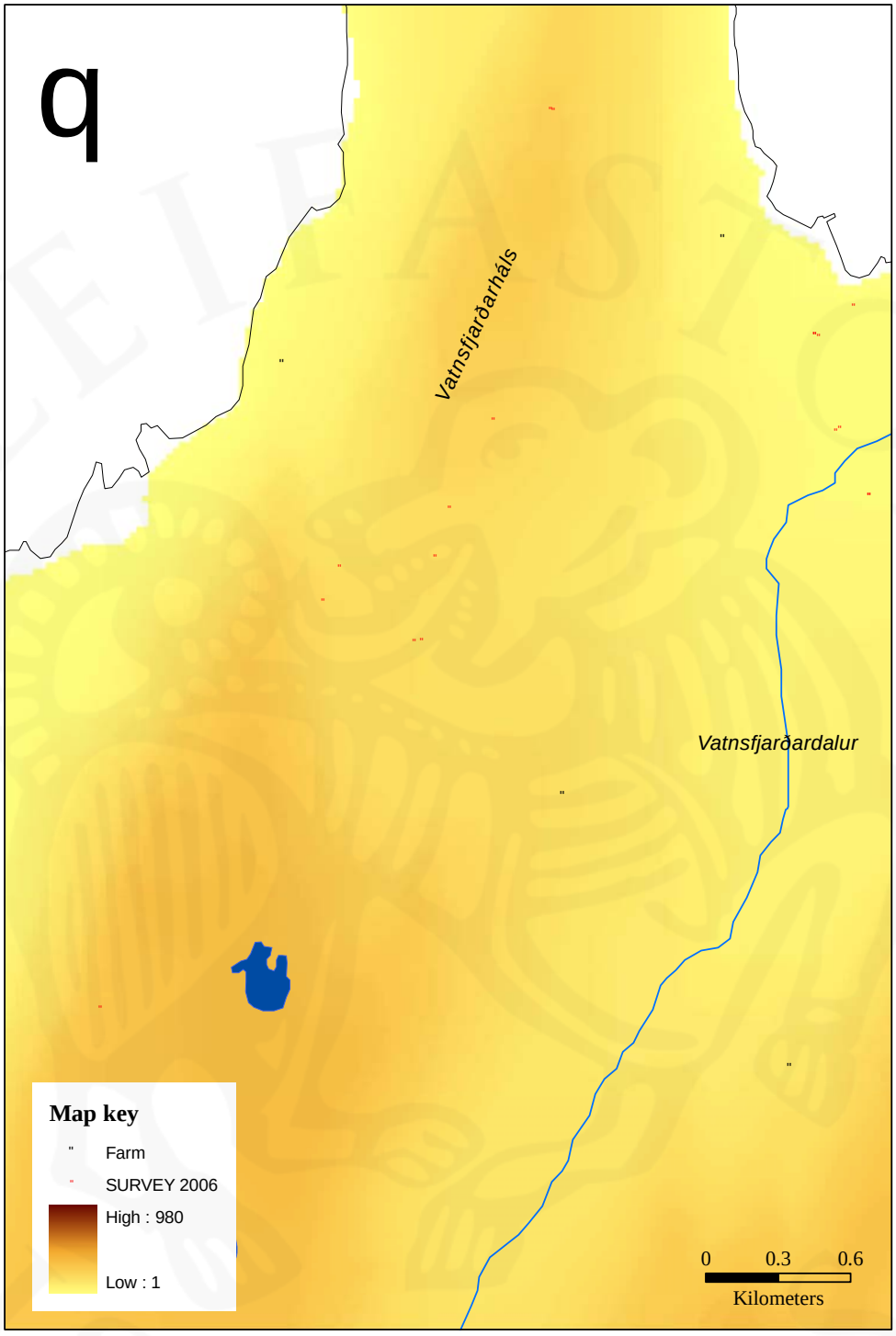

Figure 8. Survey in 2006 in Vatnsfjarðardalur and on Vatnsfjarðarháls.

Figure 9. Cairn (background) and boundary stone (foreground) on top of Vatnsfjarðarháls.

Another natural stone (pictured on the title page of the survey section of this report) may have part of the wider navigation system. However, it may also been used as part of the ideological landscape: as a statement of power in connection with other types of monuments, such as burials (further north and east) and boat houses (north and west). Christian Keller's work on visibility analysis suggests the possible relationship between this stone and a network of features that dominate the bay area, and which may form a 'welcoming position' into Vatnsfjörður. The natural stones, as well as others, such as the one on Vatnsfjarðarháls, form a landscape in which natural monuments become part of the cultural landscape. This is an area of research that will be continued in 2007.

Reykjarfjarðarháls

The survey in Reykjarfjarðarháls comprised 48 sites. The majority of these were cairns or similar monuments, as well as a peat-cutting place, a spring, a structure, an unknown feature, a spot find, and two burials. The survey focused on the southern end of Reykjarfjarðarháls in order to compliment the 2005 survey, which concentrated on areas further north and on the lower reaches around the farm of Hálshús (Fig.10).

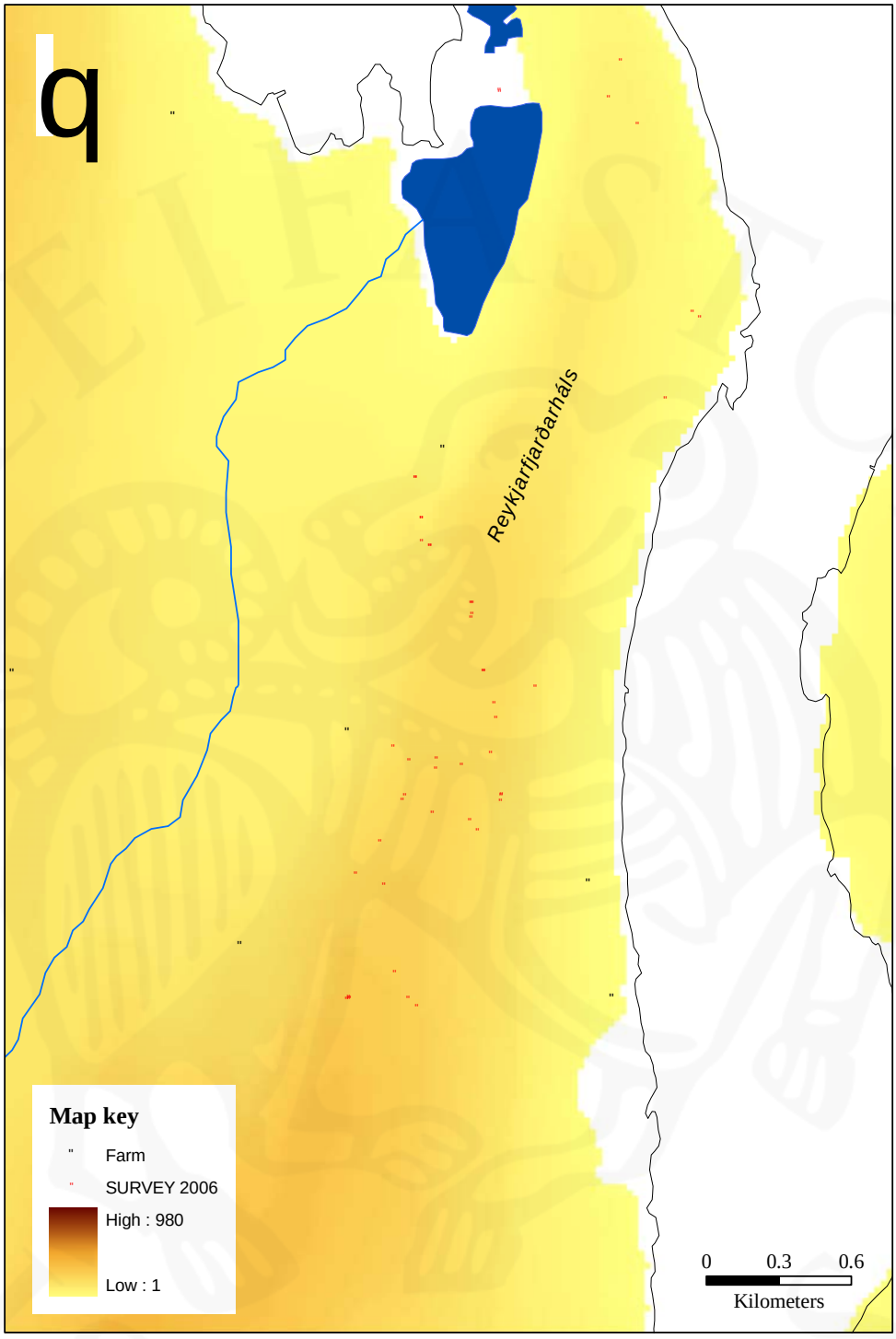

Figure 10. Survey in 2006 on Reykjarfjarðarháls and its vicinity.

Of special interest was a cluster of cairns from which it was possible to discern 2-3 different routes or phases of routes (Fig. 11). The cluster represents a nexus, like a modern day intersection, from which it was possible to follow several different route options. The relationships between the routes was assessed primarily on the visibility between the cairns but also in less obvious ways, such as on the basis of their architecture (though this needs to be reassessed in 2007 with the creation of a specific typology series). Also explored was the possible relationships between pairs of cairns (within close proximity), perhaps similar

to the welcoming position near Vatnsfjörður. These may indicate land boundaries as well as showing safe routes; there were only certain access points up and down slope, for example. The cluster and others like it need further systematic and detailed study.

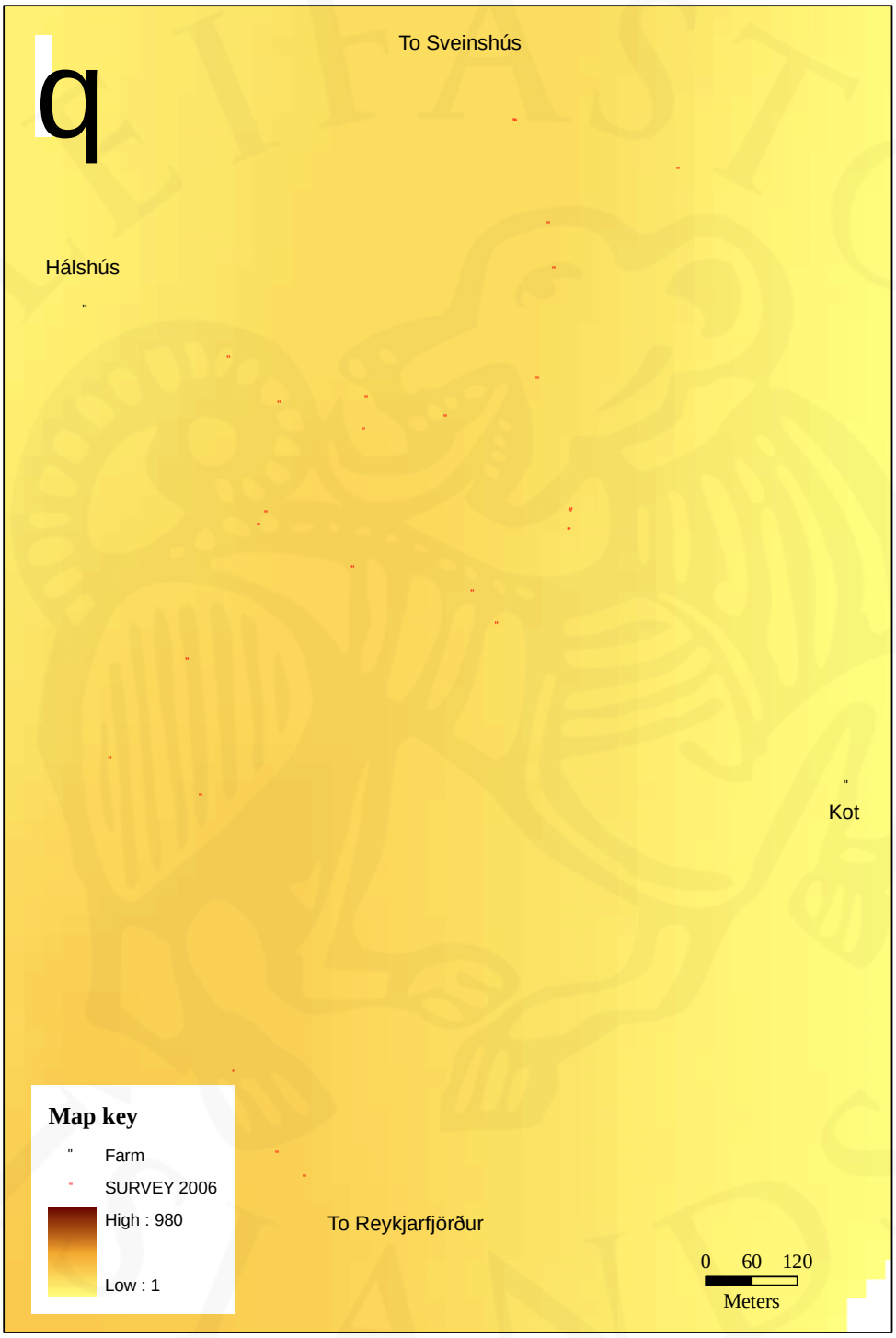

Figure 11. Cairn cluster, indicating a nexus of routes on Reykjarfjarðarháls.

Discussion

The farm and landscape survey in 2006, although small, made important progress in determining methodologies and the usefulness of the data in contributing towards the wider landscape agenda of the Vatnsfjörður research project. The discussion that follows outlines the potential for further research in the results from 2005 and 2006.

Farm survey

The aims of the landscape work were primarily to investigate the landscape without prior knowledge of its history, and to apply new approaches such as landscape observation, and landscape inquisition based on learning through movement and wayfinding. One assumption used in this research is that when the landscape is experienced primarily from its natural features such as topography, water, and geology, and when one is immersed in the landscape with the specific aim to locate and to find meanings in the monuments and other archaeological sites, this allows a much closer representation of the past. This phenomenological approach gives particular emphasis to the *moment* of encounter and what has been learnt previously from encountering the landscape and other sites. The approach is grounded within a theoretical framework and is used in field survey and archaeological practice that is based on reflective empiricism (i.e. observed entities) without being empiric*ist* (i.e. not all based on the application of experimentation). In contrast to this approach, a document-based archaeological survey of farms retains value when connected to in-the-field observations such as those at Vatnsfjörður, and has particular value for comparing methodologies used in landscape archaeology. So far no documentary survey work has been carried out around the farms of Vatnsfjörður; Sveinshús and Hálshús for example.

Landscape Survey and Movement[9]

Movement as a study of cultural practice is interesting from a number of perspectives. Firstly, it has several related dualisms: it is a routine practice, but each journey is different; it is a bodily practice in action and embodies a human scale perspective, but it is part of a larger scale network. Secondly, movement is a unifying concept in studying the material and ideology of people: routes lie at the convergence or milieu between the physical and mental. Thirdly, the temporal sequences of movement are often situated within a systemic context but one that is not dependant on time: routes are continually reworked and retained within a living landscape context, both in terms of their physical changes, as well as (importantly) in terms of the production of memory and the transmission of knowledge. There are several strategies for looking at movement in the landscape: in terms of the negotiation of landscape; in terms of the political relations between groups, for example, in maintaining access to places and promoting these in the landscape; and in the production of space and the creation of identities that reflect social practices.

The landscape survey so far has concentrated on surveying monuments and sites as they are encountered – recording and mapping them. Very little research has so far been

[9] Based on a paper given at the NABO conference in Quebec 2006: Aldred forthcoming

devoted to understanding the experiences of these encounters and how experiencing them now – through phenomenological approaches to landscape – creates a dialogue with the past. However, the 2007 survey will build on the previous survey work and will aim to gain a perspective on these strategies, encounters and experiences in the landscape. The main goal is to understand *effective knowledge* about people in the past through their inscription and incorporation practices – for example in cairn and route constructions. Traditional studies have relied on an incomplete explanation of the past through an analytical, objective (top-down) approach to reconstructing past environments, where, most often, people are reduced to insignificant participants. In order to substantiate and add to our knowledge of the past at Vatnsfjörður, we need to view the world in which the people lived and gain insights into how they experienced it. Doing so involves combining traditional approaches, such as that derived from historical ecology, with interpretative approaches to encountering monuments. The integration of these two research approaches will allow landscape to be represented and experienced in effective ways and will increase our understanding of the past.

Survey in 2005 and 2006

One of the principal aims of the survey is to compare methodologies, in particular document-based survey and archaeological survey without *a priori* knowledge. Preliminary findings suggest that sites that are located outside the home farm boundary (beyond the *túngarður*) can effectively be found by a survey practice that uses landscape observation without *a priori* knowledge from historical sources. In fact, this method of survey encounters all types of sites, including those that are not usually recorded using the document-based approach, which tends to miss ordinary sites such as cairns. Inside the *túngarður*, sites are well recorded and known by the people who inhabit the present-day farms; therefore, the documentary (including oral histories) and archaeological survey approaches compliment each other. The survey project in the environs of Vatnsfjörður aims to mediate between these two approaches to attain 'total' survey. Although this is technically unattainable, it may be possible to achieve near-total survey in this environment – barring sites that have been destroyed in the past or those which are buried. By using a combination of document-based survey and landscape observation, all visible and known sites will be identified. The next phase of research on survey methodologies will compare systematic approaches to field walking against biased movement, either within an observation practice or within the framework of *a priori* knowledge.

Given the limited extent of the survey work so far, there are only preliminary answers to the question of what have we learnt about the landscape and how people inhabited it. There seems to be a distinction between different environmental zones: coastal, highland, and valley. These land areas can also be thought about in terms of lowland:highland, sea:land, domestic:wild or as internal:external worlds. Archaeological practice also draws on these distinctions through its use of document-based archaeological survey focused around a specific place – the farm – while landscape observation focuses on areas beyond the farm, and in the surrounding land. These two complimentary approaches mediate an infield::known:unknown::outfield evaluation and create an archaeological survey practice that maximises the recording of individual sites in the landscape.

In terms of the habitation of the landscape, the distinctions between different topographic and ideological areas provides insight into the character of space, place, and landscape, and

the types of land marking associated with each. This is helping to create landscape identities that draw distinctions between different types of landscape understandings; for example, between nature:culture or in the landscape taskscape construction in labour::land:landscape::time[10]. The dichotomy nature:culture has already been partially examined in this report (see Research Themes), but the idea lays at the foundation of the landscape work in the Vatnsfjörður environs. Diffusing the nature:culture dichotomy is an important perspective. As has been argued by Tilly, Thomas and Ingold, the idea of culture as distinct from nature is an intellectual construct that inhibits our understanding of human experience and effective knowledge about people in the past.[11] Traditional studies, for example, rely on an insubstantial explanation of the past through a reconstruction of past environments by lenses that either do not see the individual or the local community levels of interaction, or acknowledge them only nominally. People's responses to the world around them, including their social interactions with others and the environments, took place through various levels of engagement (between individuals, groups, and communities) in special and particular ways that cannot simply be reduced to dichotomies as such as nature:culture. The reflexive character of adaptations and interactions are complex constructions. Therefore knowing the past is not simply to reify and objectify data into meaningless parcels of knowledge; it is to know how people experienced the world around them. By diffusing the boundaries between nature:culture more *effective knowledge* about the past is produced – one that is closely related to an actual past and a knowledge that gives account to common *experience* instead of being separated from it. People and things (such as the environment) are in constant motion, always fluid and therefore researching the past as a complex set of dynamics allows a much greater comprehension of it.

Acknowledging these types of incorporations, rather than inscriptions, on the landscape over time gives a better sense of the past. In the Vatnsfjörður environs, for example, the practices of movement are part of these incorporation practices, which are specifically seen in the building and maintenance of routes through the landscape. These individual monuments are seen in traditional archaeological practice as insignificant, but collectively they form an important part of how people engaged with the world around them. These monuments are woven into the world through specific practices of negotiation and tasking; the people in the past, as Ingold says, left a part of themselves in the landscape.[12] Not only are monuments the remaining parts of people's lives, but they carry meanings for our own contingent archaeological understanding, for example, of the passage of time and how the landscape we experience was made. Temporalising the landscape accounts for the working and reworking of landscape features through time on a continuous but *ad hoc* basis (not all parts are always in motion all the time). Routes are a good example of this type of process, although only a small part of the landscape is encountered today, as the cairns are often located in inaccessible places and it is only in our archaeological forms of dwelling that they are part of the reworking of today's landscape. Routes are part of systemic process of encountering a landscape which is in motion.

[10] Ingold (2000).
[11] Christopher Tilley (1994) *A Phenomenology of Landscape*. Oxford: Berg; Christopher Tilley (2004) *The Materiality of Stone: Explorations in Landscape Phenomenology: 1*. Oxford: Berg; Julian Thomas (2004) *Archaeology and Modernity*. London: Routledge; Tim Ingold (2000) *The Perception of the Environment: Essays in Livelihood, Dwelling and Skill.* London: Routledge.
[12] Ingold 2000, p.189.

There are several results from thinking about the landscape in the ways described above. The most important is perhaps that the landscape in the past was perceived differently than it is today. This in itself is not unsurprising or novel, but our archaeological encounters with the past create a much greater relevancy for insignificant features outside the *túngardur* and clearly these played a greater part in the lives of people than they do today. Activities in a taskscape sense occurred here, such as boundary markers between owned land, landmarks indicating routes, and perhaps practical or cosmological meanings in patterned relationships between several individual monuments, such as sea navigation systems or the referencing of large natural stones. The scope for understanding the landscape in terms of human experience is an important and relevant aspect of the Vatnsfjörður project.

Concluding remarks

Over the last two years, the research around Vatnsfjörður has established a good foundation for the future. A comprehensive research programme with specific goals situated in relation to a field school environment will mean that the following years will be of great importance to landscape archaeology in Iceland. Landscape survey will have a much larger profile, with particular emphasis on more systematic survey to substantiate the current coverage of sites. This will include the targeting of specific areas through landscape observation techniques, as well as through traditional documentary and archaeological surveys. In addition, a wider environmental research programme will begin in 2007, which will integrate land management modelling through soil surveys, sea-level research, and local climate and vegetation research. The data will be incorporated into a GIS in order to allow comparative analyses to be modelled and to run alongside the survey data and other archaeological and historical data. This interdisciplinary environmental research will underpin future discussions of nature-culture dynamics in the Westfjords.

Amidst this environmental research, it will be important to maintain focus and dialogue on the adaptation and dynamic processes of engagement by people and local communities on/in/within these environments. This will be achieved through a discourse between different research approaches and techniques. The first approach will involve experiencing landscapes first-hand from our present-day perspective through the study of landscape materiality (seen as diffuse nature and culture) and landscape temporality, where activities or tasks formed a substantial part of the how people experienced the world around them. The second approach will be to view the environs of Vatnsfjörður in a series of time-slices, using archaeological, historical, and environmental data to reconstruct changes in the environment, settlement patterns, and land-use practices over time. The integration of these approaches will produce a dialogue that ultimately intends to address the question of why the socio-economic and cultural history of the Westfjords differed from the rest of Iceland.[13]

[13] The text concerning the second research technique is referencing a Rannís application written by Karen Milek and Torfi Tulinius.

EXCAVATIONS AT VATNSFJÖRÐUR

The new excavation area on the farm mound at Vatnsfjörður (Area 7).

ARCHAEOLOGICAL EXCAVATIONS IN AREAS 2 AND 6

Karen Milek

INTRODUCTION

In 2006, the southeast corner of Area 2 was reopened so that excavations could continue in and around the smithy, Structure 3. This area was extended a further 2 m to the southeast in order to investigate what appeared to be the gravel foundation of the wall of a small building, which was tentatively identified in 2005 (see Fig. 1, Structure 6). In addition, a 158 m^2 area was opened to the west and southwest of Structure 3. The excavation of this new area – Area 6 – had two main goals. The first aim was to find the stratigraphic relationship between Structure 3, which remained undated, and Structure 1, the well-dated tenth-century house that was excavated in 2004-5 (Edvardsson 2005). During the 2005 field season, the cultural deposits associated with these two buildings did not overlap, making it impossible to know the relative date of Structure 3 (Milek 2005). By opening up a larger area between Structures 1 and 3, we hoped to find turf collapse layers, midden layers, and other 'outdoor' deposits that would connect them stratigraphically.

The second main goal of the the excavation in Area 6 was to investigate a putative building that Ragnar Edvardsson had tentatively identified in a small test pit in 2005. Rather than excavating this structure in isolation, it was decided to open up a large area that would encompass not only this building (Structure 4), but all the deposits between it and Structures 1 and 3. Unexpectedly, another small building (Structure 5) that had not been visible on the surface of the ground was found to the north of Structure 4. The 'outdoor' deposits between all of these buildings were also of interest, because they have the potential to reaveal information about outdoor activity areas, and the stratigraphic relationships between the buildings.

EXCAVATION STRATEGY

The excavation of Area 6 began with the opening of an 18 x 8.5 m area that bordered the southwest edge of Area 2, and a 6.5 x 2 m strip that bordered the south edge of Area 1. Since the south wall of Structure 5 was not fully uncovered by this initial excavation area, an additional 3 x 2.5 m area was opened up on its south side to enable the entire building to be excavated in phase (see Fig. 1). By the end of the excavation, Structure 5 and its associated deposits had been excavated down to the natural subsoil. The low wall foundations of Structure 5 were left *in situ*, and were built up with fresh turf in order to permit the outlines of the building to be visible on the surface. Structures 3 and 4, which were not completely excavated, were covered with Terramatting and turf in order to protect them over the winter.

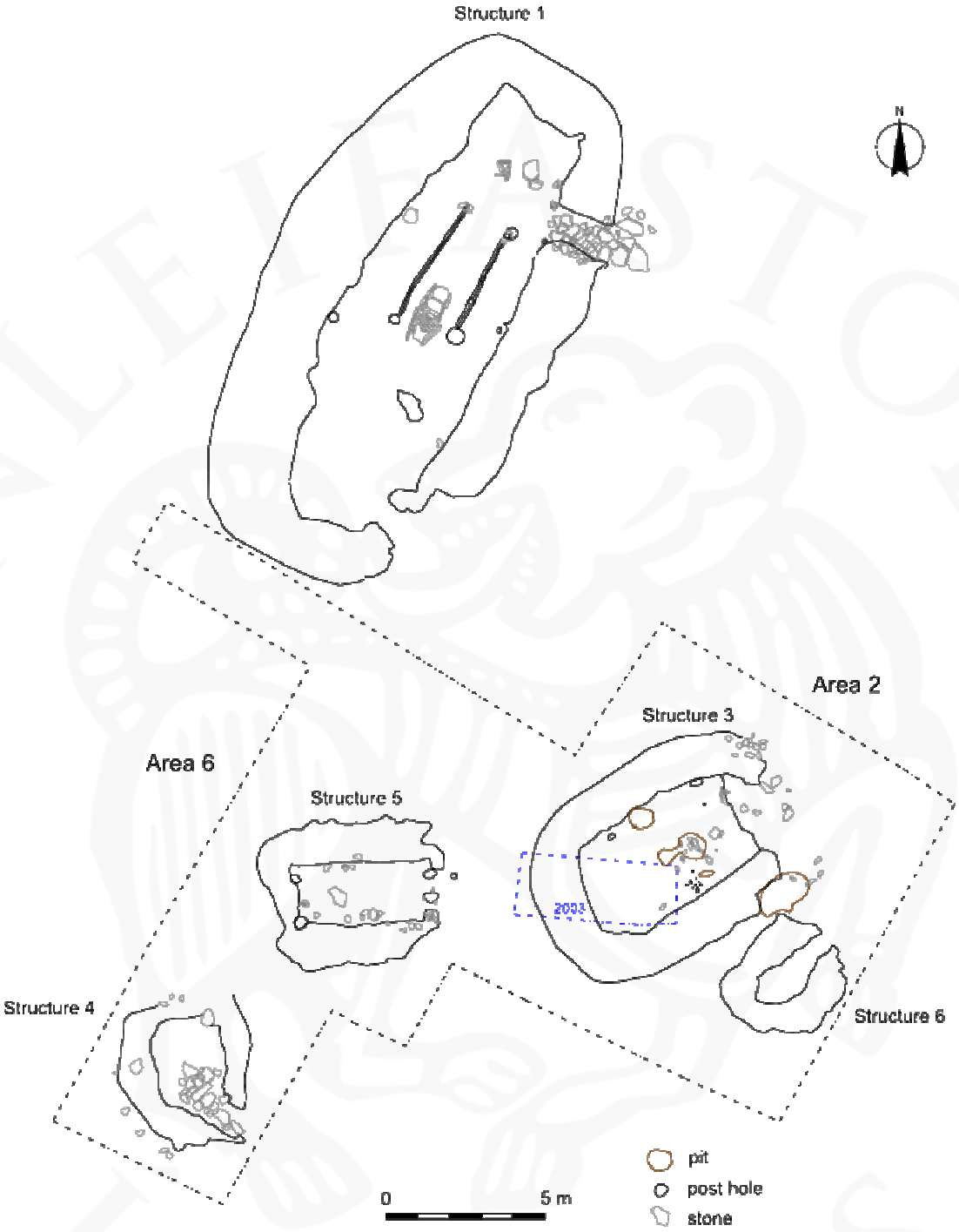

Figure 1. Plan of the 2006 excavation area in relation to Structure 1 (excavated 2004-5) and the 2003 evaluation trench (shown in blue).

The excavation of Areas 2 and 6 was supervised by the author with the assistance of Astrid Daxböck, Jonas Secher Smidt, and Konrad Smiarowski. The excavation was staffed by the international group of students and volunteers taking part in the Field School in North Atlantic Archaeology. The excavation was conducted entirely by hand using the single context recording system, and followed the guidelines issued by the Institute of

Archaeology, Iceland (Lucas 2003). The aeolian deposits that covered the site were excavated using a combination of trowelling and controlled hoeing and spading, and 25% of this material was dry sieved using a 4 mm standing screen. All of the underlying deposits were excavated by trowel, and were 25-100% sieved, depending on their apparent sterility or richness. Turf collapse deposits, for example, were 25% sieved, while midden layers and pit fills were 100% sieved. Floor layers were 100% sampled on a 50 cm^2 grid. Small bulk samples (100-200 ml) from each of these grid squares were taken for chemical analysis, and all the remaining sediment in each grid square was taken for flotation and wet sieving with 1 mm mesh. In addition, a micromorphology sample was taken from the floor of Structure 5, as a comparison to the micromorphology samples that were taken from the floors of Structure 3 in 2005.

Figure 2. Overview of Areas 2 and 6 near the end of the excavation, facing northeast, showing structures 3-6.

EXCAVATION RESULTS

AREA 2

Structure 3

Structure 3 contained a complex series of floor deposits and internal features, which demonstrated that the use of space inside the building had changed slightly over time. The earliest features were shallow pits cut into the underlying podsol, of which the brown-coloured, organic A horizon, appears to have been left intact (unit [6104]). The central pit,

[6126], which had an unusual, tongued shape, was associated with stones and ash deposits, and was almost certainly a hearth (see Fig. 3). Adjacent to the northwest long wall of the building there was a shallow, circular pit, [6100], which was lined with charred timbers, and may represent the *in situ* charring of a barrel in a small pit. Opposite this feature, adjacent to the southeast long wall, a cluster of stake holes was uncovered ([6155]). At the end of the field season, a number of possible stake holes were tentatively identified in the western part of the building as well, and these will be explored further in 2007. Associated with these features was a large dump of iron slag in the eastern corner of the building, which contained an impressive 50.1 kg of iron-working waste ([6057]).

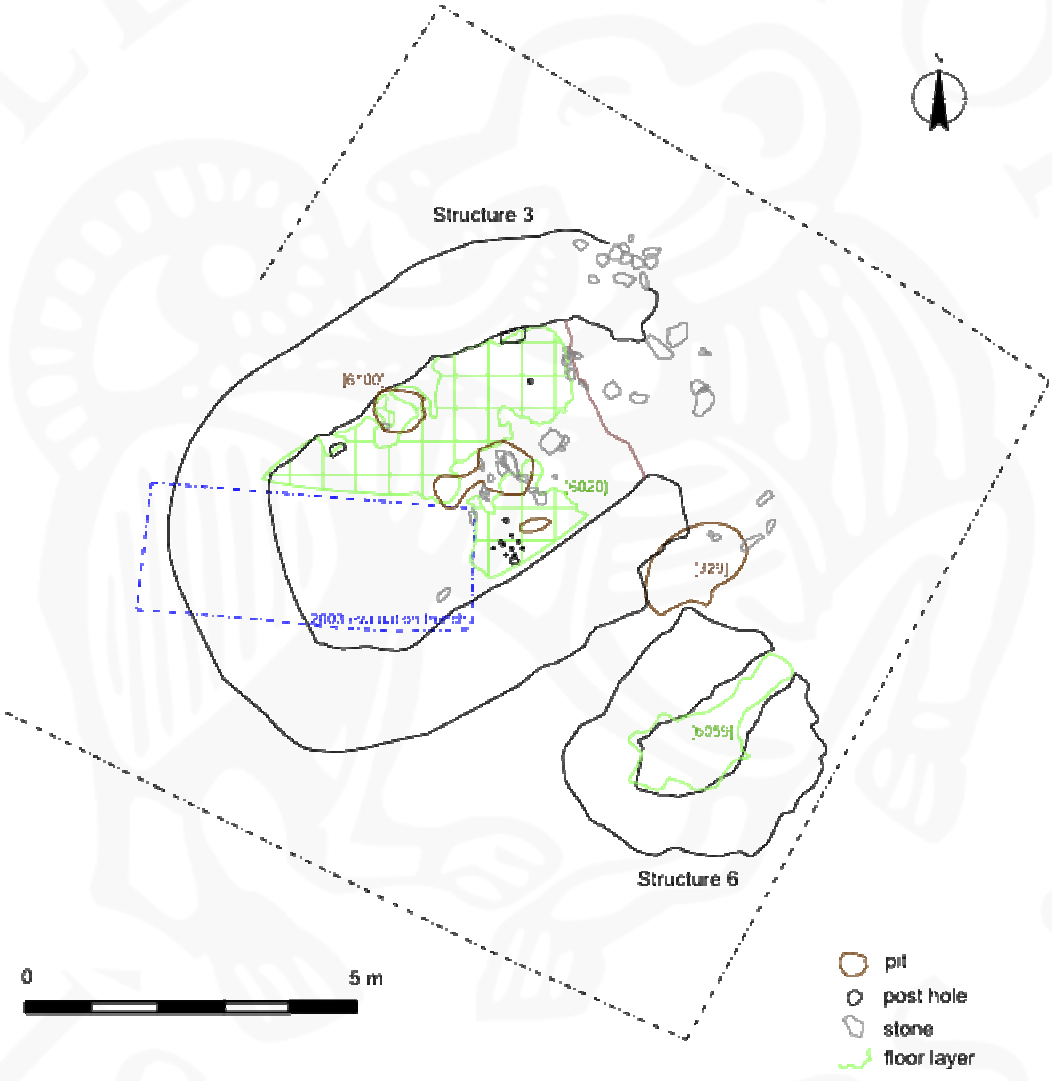

Figure 3. Plan of Area 2, showing the major floor deposits and features in Structures 3 and 6. Floor deposit [6020], in Structure 3, is shown with its sampling grid. All of the other floor deposits in Structure 3 were sampled on the same grid. The pit features in Structure 3, shown in brown, were lying under floor [6020].

The slag dump, pits, and associated small floor deposits – mainly patches of turf, charcoal, and/or ash – were overlain by the most substantial floor layer in Structure 3, [6020] (Fig. 3). This black deposit was rich in charcoal and charred seaweed, and contained an abundance of iron slag as well as as an iron punch (find 38; see Guðrún Alda Gísladóttir's

artefact report, below). Since [6020] lipped up over the edges of the slag dump and the pits, but did not completely seal them, it probably accumulated while these features were in use. The uppermost floor deposit, however, [6010], completely sealed the barrel pit on the west wall of the building, and covered most of the central hearth, indicating that these features went out of use in the latter stages of the building's life. [6010] was a mottled, silty, and charcoal-rich floor layer, which contained abundant lumps of slag and patches of charred seaweed. It also contained a number of flat stones, which could have been used as post pads, and which appear to have replaced the earlier post holes adjacent to the northwestern long wall (compare Figs 3 and 4). The pit that was cut into the eastern end of the southeast long wall and used to dump slag, [329] could either have been associated with this later phase of the building, or with the post-abandonment phase. It is hoped that further work on the northeast gable end of the building in 2007 will help to clarify this.

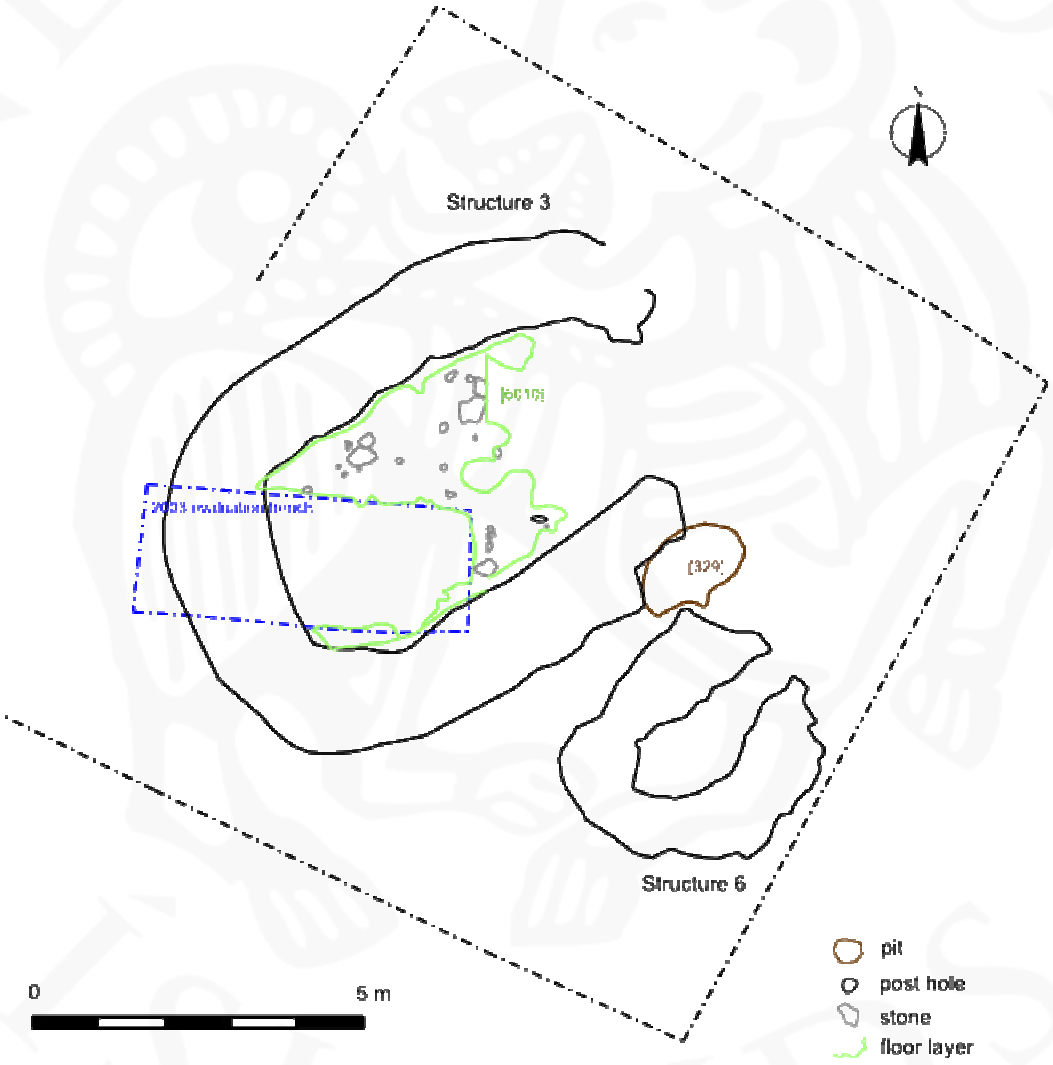

Figure 4. The later floor deposit in Structure 3, [6010], showing a reorganisation of space relative to floor [6020], and the replacement of post holes with post pads.

It is unfortunate that both the gable ends of Structure 3 have been disturbed, making it difficult to know how the building appeared in these areas. The floors in the 2003 evaluation trench were excavated out of sequence with the rest of the building, and future

work must try to match the two sequences (Edvardsson 2003). It is clear, however, that there is no gap for an entrance in the southwest gable wall. The northeast gable end of Structure 3 remains problematic as well, and the area may have been disturbed when the Vatnsfjörður homefield was bulldozed. A very clear partition is visible in the floor of the building close to this gable end (see Fig. 3), but the northeast gable wall and a clear entrance have yet to be defined. This will be the first priority of the 2007 field season.

In 2005, it was noted that the turf collapse deposit surrounding Structure 3 appeared to have been burnt, and that a scorch mark was visible on the ground surface below this burnt turf (Milek 2005). In 2006, this extensive burnt turf layer, [6103], was excavated, and the scorch mark underlying it was observed again. Most of the finds in this layer were slag and nails, but, significantly, a Borre-style copper alloy strap end was also found in it (find 14; see Guðrún Alda Gísladóttir's report, below). Although finds in turf collapse layers cannot be used for anything other than a *terminus post-quem* date, the presence of a tenth-century artefact in the collapse of Structure 3 does lend strength to the idea that the building may date to the Viking Age.

Structure 6

Southeast of Structure 3, the low gravel ridges suspected in 2005 to be wall foundations were found to be associated with a very small building, which was named Structure 6. The internal dimensions of this building were only c. 2 x 1.5 m, and it did not contain any internal features, so its function remains a mystery. The roof of this building must have been supported by the turf walls themselves, rather than by a timber frame – a common practice in small buildings in the 19th-20th century (Ágústsson 1998, figs. 128, 150; Jónasson 1961, 471; Mjöll Snæsdóttir, pers. comm.). The floor of Structure 6, [6059], was slightly sunken, and rested on the beach gravel/cobbles underlying the site (see Fig. 3). This means that the thin soil layer overlying the beach gravel/cobbles in Structures 3 and 5 (see below) had been stripped away when this structure was built. Floor [6059] consisted of gravel mixed with charcoal, and since there was no hearth feature within Structure 6 itself, it must be assumed that this material had been intentionally brought to Structure 6 and spread inside it. Although the function of Structure 6 is difficult to assertain, the practices of stripping the floors down to the level of the well-drained gravel, and sprinkling charcoal on them, would have served to make them as dry as possible. It is possible that this little building was a storage shed (e.g. for fuel) associated with the metalworking activity in Structure 3.

To the north of Structure 6, there is a sheet midden ([6129]) that has yet to be excavated because it underlies some of the turf collapse deposits still being investigated at the north end of Structure 3. When this deposit was first uncovered, a polychrome glass bead was found in it, which belongs to a rare subtype of Callmer's type B (B082; Callmer 1977). Elín Ósk Hreiðarsdóttir dates the bead – and therefore the *terminus post quem* for the deposition of this layer – to the tenth century (see Guðrún Alda Gísladóttir's report, below). Although the precise stratigraphic relationship between the sheet midden [6129] and the use phase of Structures 3 and 6 has yet to be determined, this find adds further strength to the idea put forward in 2005, that the smithy was probably roughly contemporary with the main residential building, Structure 1 (Milek 2005).

AREA 6

Structure 4

The complex sequence of turf collapse layers is still being peeled away from Structure 4, but the basic shape of the building is beginning to emerge (see Figs 2 and 5). It is a small, slightly sunken, rather square turf building, with internal dimesions that are presently c. 2.8 x 2.2 m, and with a stone pavement in its southeast corner ([6151]). On the southwest side of the building there is a shallow gully in the natural beach cobbles that bears a very close resemblance to the gullies that surround Structures 1 and 3. This feature was probably created when cobbles and gravel were taken and used for the foundations for the turf walls. On the northeast side of the building, the ground slopes down to the next lowest beach ridge, where Structure 5 was found.

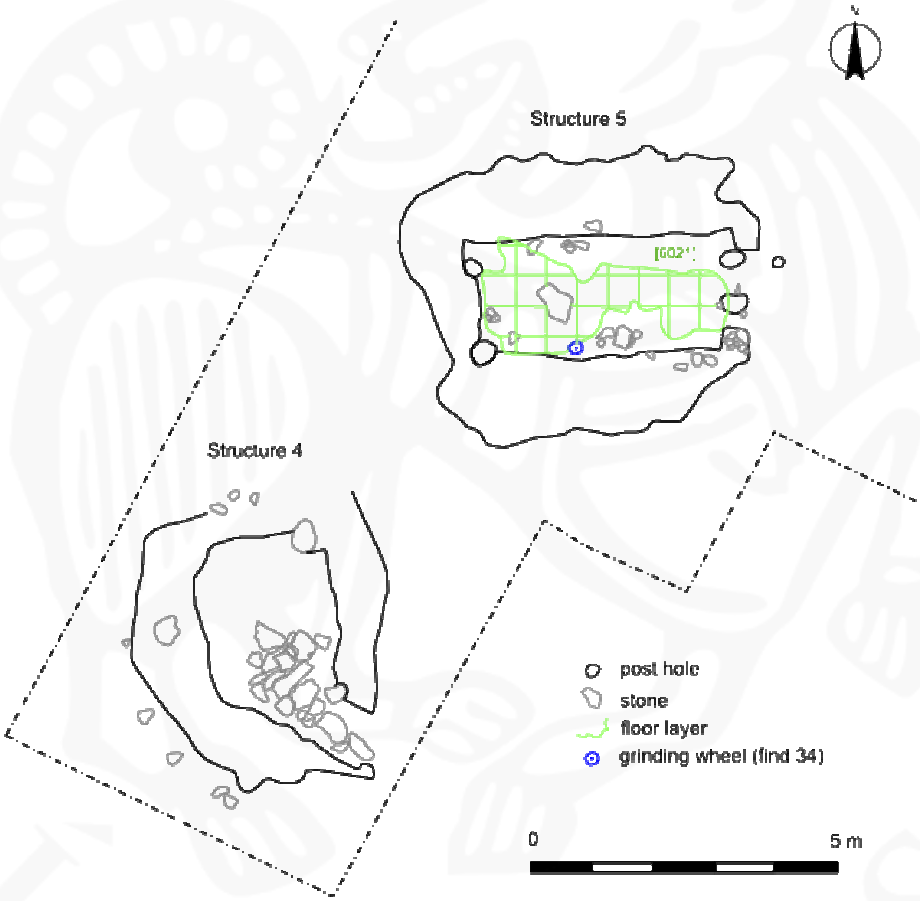

Figure 5. Plan of Area 6, showing the stone pavement in Structure 4 and the main floor layer in Structure 5, [6021]. The underlying grey soil was sampled on the same grid.

Structure 5

Structure 5 was a small, rectangular turf building, which had internal dimensions of 4.1 x 1.9 m, and which was oriented with its long axis east-west (Fig. 5). The entrance to the building was at the east gable wall, where two post holes probably mark the locations of

the door posts. One small post hole was also found just outside this probable doorway, suggesting that there might have been a porch.

The floor of Structure 5 rested directly on the grey, eluviated (leached) horizon of the podsol that underlies the site (Fig. 6). The floor deposit, [6021], was very dark brown due to the presence of decomposing organic matter and the presence of very small charcoal fragments, but it was not very thick relative to the floor deposits in Structures 1 and 3. In most places, it was only 1-2 mm thick, and it only accumulated to a thickness of around 1.5 cm around the large central flat stone. In addition to a pair of post holes at each of the gable ends, there are a number of flat stones adjacent to the northern and southern long walls that could have served as post pads. Also of interest is the grinding wheel that was found on the southern edge of the building, right on the edge of floor [6021] (Fig. 5, find 34). This was the only artefact found during the excavation of Structure 5, and it is of course tempting to attribute this find to the use of the building. It should also be kept in mind that this stone could have been reused as a post pad. Nevertheless, since there are no other diagnostic features or deposits in this small outbuilding, it remains possible that it had been used as a storeroom and/or as a workshop.

Figure . Structure 5 after excavation, facing southwest, showing the grey floor layer that is the eluviated (leached) E horizon of the natural podsol.

DISCUSSION

The datable artefacts loosely associated with the smithy in Area 2 suggest that it is probably Viking Age. However, it remains impossible to tie the strigraphy associated with Structures 3 and 5 with Structure 1. The southern edge of the south gable wall of Structure

1 ([6008]) rested directly on the natural, and did not overlap with the sheet midden that extended north of Structure 5 and west of Structure 3 ([6125]). It will therefore be essential to get independent, absolute dates for Structures 3 and 5, and charred seeds from the floors of these buildings will be targeted for dating.

Even though it was not possible to find linking stratigraphy between Structures 3-6 and Structure 1, the discovery of three new outbuildings in the Viking Age part of the site means that the exploratory goals of the 2006 field season must be deemed a success. Interestingly, none of the new outbuildings conformed to building types that had previously been found on Viking Age Icelandic farmsteads (Milek 2006). In fact, it is quickly becoming 'usual' to find 'unusual' types of outbuildings: the recent open area excavations at Hofstaðir and Sveigakot in Mývatnssveit, and the excavation at Herjólfsdalur in the Westmann Islands, all produced outbuildings with a variety forms and functions. In contrast to the conformity of residential buildings, outbuildings appear to have been a forum for innovation, where individuals could cater for their own personal needs and tastes. The 2007 field season will continue to explore the area south of Structure 1, where an evaluation trench suggested there was likely to be yet another building (see below). The ongoing study of the building sequence at Vatnsfjörður, integrated with the study of changing material culture, subsistence economics, environmental conditions, and human-landscape interactions, has tremendous potential to contribute to our understanding of social developments at this important farm and the whole of the Westfjords.

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EVALUATION OF THE FARM MOUND AREA

Guðrún Alda Gísladóttir and Uggi Ævarsson

INTRODUCTION

The farm mound at Vatnsfjörður has from the beginning been one of the main areas of focus for the Vatnsfjörður research project. In 2003, three evaluation trenches were excavated in the homefield at Vatnsfjörður, and one of these (Trench 2) was dug on the farm mound.[14] The results were promising, since the condition of the archaeology within the mound appeared to be good, and included such finds as a stone wall, midden deposits, and artefacts dating from the 18th-20th century. In 2005 a further three evaluation trenches were placed in the homefield to search for midden deposits.[15] Trench 5 was excavated on the slope east of the highest part of the mound, and yielded well-preserved bones and 18th - 19th century artefacts. In addition, coring revealed cultural deposits (mainly midden layers) down to at least 1,5 m deep in a ca. 20 m² area in the slope. The farm mound is located south of the Viking age area that has been under excavation since 2004.

It is not possible to define the exact size of the farm mound at Vatnsfjörður – or farm mounds in general – by looking at them in the landscape. Farm mounds are created by generations of people (and animals) and usually consist of assembled material derived from houses made of stone, turf and wood, and all their waste and rubbish. This causes a mound to be produced, and since people preferably chose small hills to build their farms on (e.g. because of better water drainage), these places are continuously occupied for many years, increasing the mounding effect. Therefore, farm mounds are usually on top of natural mounds and are also culturally formed.

Icelandic farm complexes usually consist of a small cluster of dwellings and outhouses, which are either connected or close to each other – often on a farm mound. Although the focus of activity usually took place on the mound, there were variations between generations in the organisation of the farm complex, which is why the limits of farm mounds were variable and the activity areas on them changed in size through time. Usually farms were located at the same place for centuries and the mound at Vatnsfjörður probably contains the history of the farm site since it was moved – for some unknown reason – from the Viking Age area to the north.

[14] Ragnar Edvardsson (2003) Fornleifarannsókn í Vatnsfirði 2003. In Adolf Friðriksson and Torfi H. Tulinius (eds), *Vatnsfjörður við Ísafjarðardjúp: rannsóknir sumarið 2003*, 30-40. Reykjavík: Fornleifastofnun Íslands.
[15] Tom McGovern et al. (2005) Midden Investigation at Vatnsfjord, NW Iceland July 2005. In Adolf Friðriksson, Torfi H. Tulinius, and Garðar Guðmundsson (eds), *Vatnsfjörður 2005: Fieldwork at Vatnsfjörður, NW Iceland 2005*, 63-71. Reykjavík: Fornleifastofnun Íslands.

Figure 1. Overview of Vatnsfjörður, facing facing SE. (*Kirkjugarður*=graveyard)

Figure 2. Overview of Vatnsfjörður, facing NW.

The farm mound at Vatnsfjörður is at the bottom of a mountain slope that rises to the west (Figs. 1 and 2). Below the mound, to the east, the homefield gently slopes down to the sea. The land rises quite steeply in a series of terraces towards the west, towards an upland area called Vatnsfjarðarháls (199 m a.s.l.), which forms a prominent feature in the landscape. The farm mound was partially levelled in the mid-20th century, mainly on its south and east sides. The northern part of the farm mound is undisturbed by levelling, but it is truncated by 20th-century concrete outhouses. Even in the areas that had been levelled, archaeology can be seen on the bumpy ground surface. A little stream runs through the western part of the farm mound, just west of its highest point. The stream channel was deepened by machine in the latter half of the 20th century, creating deep sections at the western and northern parts of the mound. These sections were partly cleaned and recorded in the summer of 2006 (Test Trenches 11, 13, 16, 17). West of the stream channel (uphill), the homefield was not levelled, and there are many ruins of outhouses, thick occupation deposits, and midden deposits, but how far the mound extends to the west is uncertain.

During the 2003 field season a large part of the farm mound and its surroundings were contour surveyed and the resulting map revealed the topographic detail of the mound and a number of structures visible on the ground surface (Fig. 3). Some of those houses can be seen on 20th century homefield maps (Fig. 4). The maps are from 1913 and ca. 1920 and give useful information about the activity at the site in early 20th century. Another useful source is the autobiography of Tryggvi Þorsteinsson, who moved to Vatnsfjörður as a child in 1929 (*Á æskuslóðum við Djúp*). He portrays changes and activity on the farm mound and amongst other things he describes houses on the farm mound, and quotes a man who was a part of a group that built the last turf dwelling house in 1884. It was partly built on foundations of an earlier farm and whilst constructing it, they found a collapsed tunnel that seemed to go straight to the graveyard.[16] It should be noted that in 1912 a new concrete church was built just SW of the graveyard, and that all of the earlier churches – as is traditional in Iceland – had probably been situated within the graveyard itself. Tryggvi describes the remnants of that old farmhouse that was inhabited until 1906, when a wooden house with shallow cellar was built at the south side of the mound.[17] Whilst building the new house, the earlier dwelling place was partly removed, but it continued to be used as a storage place and a smithy. Probably in 1930, a massive turf wall around the graveyard was demolished and levelled by machines. The width of the wall is surmised to have been 1,5 m and its height reached the waist of an adult.[18] In the 1990´s a large circular stone wall was built around the graveyard and a deep circular ditch was dug around it. Only a ca. 12 m long strip on the north side of the graveyard was left intact because the constructors believed they had found the tunnel leading from the old farm to the graveyard/church. Apart from that area, the ditch around the graveyard was dug down to the natural soils. When the present dwelling house was built in the latter half of the 20th century, it was placed east of the farm mound, so it did not affect any archaeology on the mound.

[16] Tryggvi Þorsteinsson (2007) *Á æskuslóðum við Djúp*, 37. Vestfirska forlagið, Brekka í Dýrafirði.
[17] Tryggvi Þorsteinsson (2007) *Á æskuslóðum við Djúp*, 38-40. Vestfirska forlagið, Brekka í Dýrafirði.
[18] Tryggvi Þorsteinsson (2007) *Á æskuslóðum við Djúp*, 38. Vestfirska forlagið, Brekka í Dýrafirði.

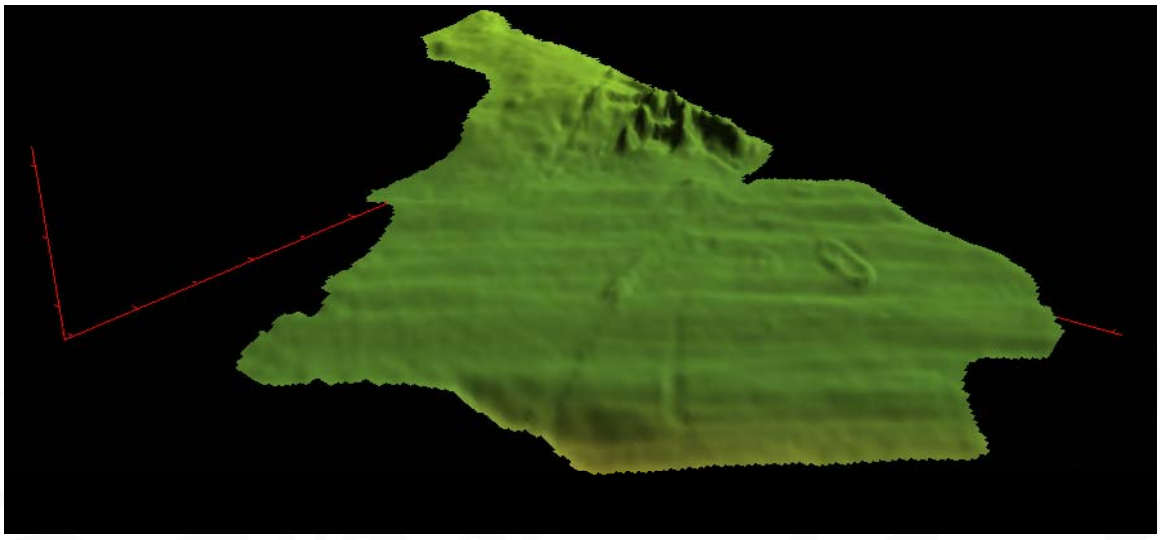

Figure 3a. Topographic map, facing SW. The Viking age house can be seen to the right and the farm mound rises south of it. The highest surfaces are the modern buildings. (Garðar Guðmundsson 2003)

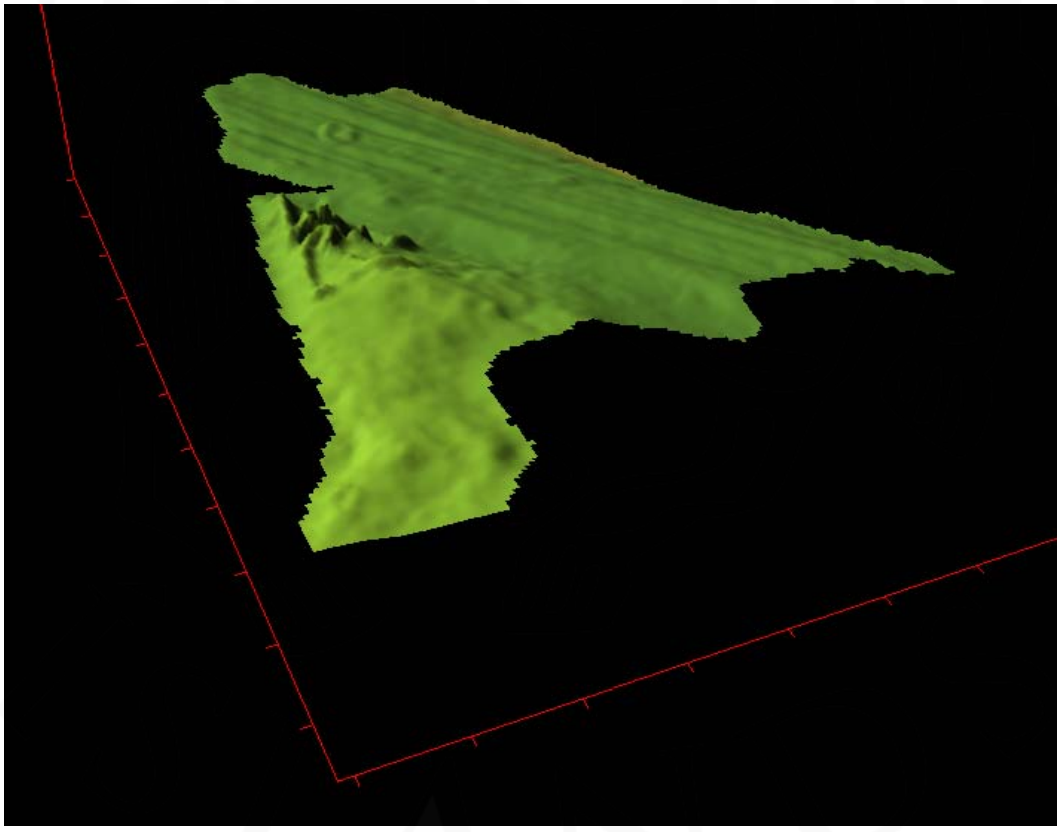

Figure 3b. Topographic map, facing NE. The Viking Age house is in the background, and the farm mound is in the foreground. The edge of the surveyed area to the left coincides with the stream channel and the circular edge to the right coincides with the graveyard. The ruins of the modern buildings can be seen as high bumps on the mound. (Garðar Guðmundsson 2003)

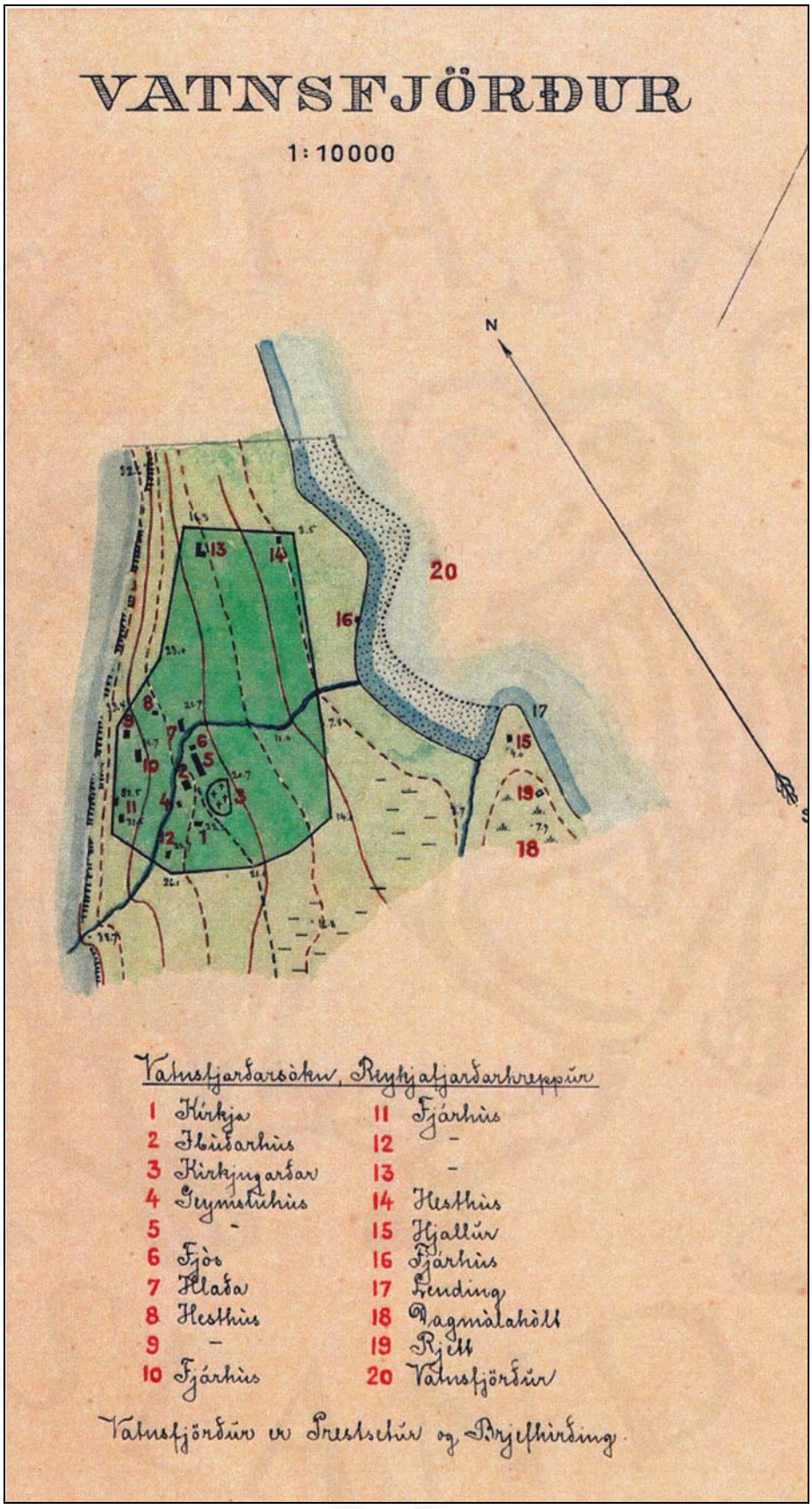

Figure 4. The 1913 homefield map of Vatnsfjörður (from Landmælingar Íslands).

AIMS AND METHODS

The future research agenda for the farm mound will partly be based on the results of the evaluation work done in the 2006 field season. The aim of the work was to investigate the preservation conditions in the farm mound, the research potential of future excavations, the depth of the occupation deposits, and, last but not least, to assess the size of the farm mound. The results contributed to the information that had already been collected since 2003, producing a better understanding of the mound, its contents, and its position in the landscape.

An archaeological evaluation was carried out on the farm mound in order to assess the value and potential scale of further investigations. This took the form of test trench excavations and the cleaning of sections along the banks of the stream. Intrusive excavation was kept to a minimum in order to preserve the deposits *in situ* until a wider excavation programme can be undertaken. The evaluation trenches and sections are described below.

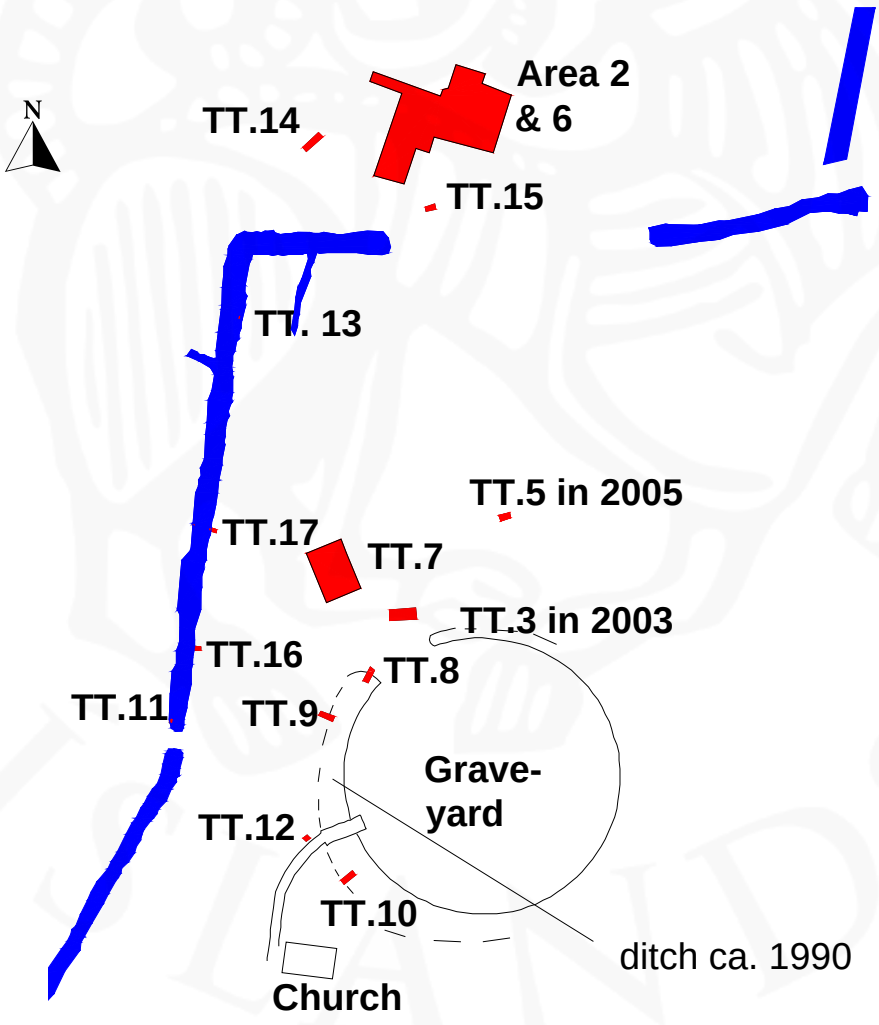

Figure 5. Map of the home field at Vatnsfjörður (Garðar Guðmundsson, 2003), showing the 2006 test trenches (TT) and excavation Area 7 in red and the stream in blue.

EVALUATION TRENCHES AND SECTIONS

Evaluation Trench 7 / Excavation Area 7

By using the home field maps from 1913 and ca.1920 (Fig. 4) it was possible to locate the remnants of the last turf dwelling house on the main mound: a conventional turf house with timber-panelled front gables. The old dwelling house was built in 1884, and was lived in until 1906, when a wooden house was built. After it ceased to be used as a dwelling house, the turf house was partly demolished and was used as a store room and a smithy – for how long is not certain, but probably until the mid-20th century.

The aim of Evaluation Trench 7 was to find the 19th century house, and if that succeeded, to make an effort to understand the uppermost sequences of the site and its process of abandonment. The first 10x2m trench partly exposed the SW edge of a wall [6570]. During the excavation the area was expanded 3 m to the east to get a better understanding of the feature. That exposed the other side of the wall, which was orientated NW-SE. The wall dominated the area, but on its NE side there was an indication of transverse walls attached to [6570], which were orientated NE-SW. To follow this up it was decided to enlarge the area for a third time, a further 2 m to east. By the end of the field season evaluation trench 7 became a 70 m² area and the final phase of the well preserved remains of the 19th century house was revealed.

The archaeology was immediately below the surface and all excavated deposits were post-abandonment and destruction layers: peat ash dumps, 20th century rubbish dumps, and stone and turf collapse from walls, roofs and the levelling of the homefield. The large wall [6570] is probably an outer wall of house no. 5 on the homefield map from 1913 (Fig. 4); on the map from ca. 1920 it is the house east of the *kálgarður* (the vegetable garden). The limit of wall [6570] is obscured by the limits of excavation but its breadth is ca. 1,8 m. Morphologically the wall has a stone face on both its internal and external sides, consisting of flat basalt stones of various sizes, with turf and earth between the faces. The transverse wall [6509] (by the SE limits of excavation) was made only from stone but the other transverse wall [6579] (by the NW limits) was more conventional: made from turf and stone. The large wall [6570] had an opening which seems to have been blocked at one point. Even though the large wall was a dominating feature in this small area, the cellar [group 6528] was also notable. A peat ash dump [6510] was a fill of a cellar that was 0,8-1 m deep, 2,1 m NW-SE, 1,7 m SW-NE. It was filled with 3,57 m³ of modern rubbish: all kinds of interesting finds dating to the demolition event in the mid 20th century, including ceramics, pipes, radio batteries, rubber shoes, eggs, fish bones, etc.. All of the finds were noted and catalogued but in most cases only samples were taken back to the office (see finds discussion).

After the excavation of the modern rubbish dump, the cellar revealed a partial but interesting section through the farm mound. It had been dug through earlier occupation deposits, turf and stone walls, floors and dumps – all earlier than the 1884 walls. Micromorphology and chemical samples were taken from contexts [6572-6577] (see section drawing). In total, 2133 artefacts were registered to c. 90 finds numbers. 5,9 kg of bones were retrieved from Evaluation Trench 7. The assemblage was diverse and it chiefly

dated to the 20th century. The oldest notable artefact was a clay pipe bowl dated to 17th century.[19]

Figure 6. Area 7 (10x7 m^2). [6570] is the turf wall orientated NW-SE, and [6509] and [6579] are walls orientated SW-NE. The cellar has group number [6528]. Green represents a timber structure [6520]. White stones have not yet received a context number.

[19] See Gavin Lucas' discussion, below.

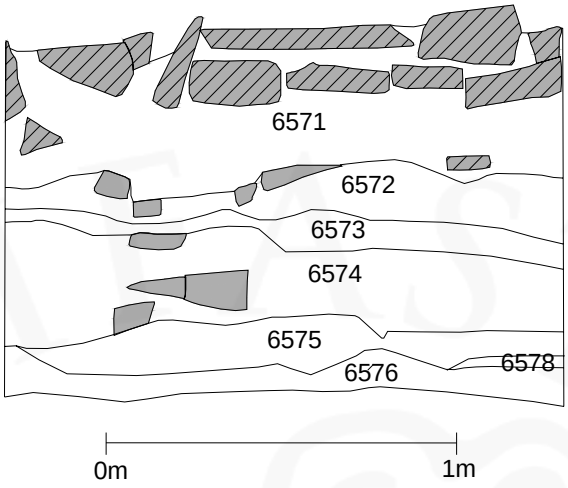

Figure 7. SE facing section in cellar group [6528]. The hatched stones represent the late 19th-century phase (the last phase).

Figure 8. Area 7 facing SW. Cellar [6528] and outer wall [6570] dominate the area. Wall [6509] is at the limits of excavation to the left on the picture and beside a stone-lined floor. Wall [6579] is to the right, by the limits of the excavation.

Evaluation Trench 8

Trench 8 was 1x3 m long and was orientated NNE-SSW. It was situated 15 m SE of Area 7, on the edge of the ditch around the graveyard (see Fig. 5).

Approximately 15 cm beneath the ground surface there was a cluster of basalt stones [6582]. The nature of this stone heap is not clear, but it could be a collapsed wall or a dump – old or recent. It could possibly be a consequence of the rebuilding of the graveyard wall in the 1990's. Just south of the stone cluster was a layer of peat ash [6581], which went under the stones. When the graveyard wall was rebuilt in ca. 1990, this area was probably very much effected by the constructions. It is probable that the lower (east) part of the slope, from the farm mound down to the graveyard, was totally truncated due to the construction of a ditch around the graveyard, and as was expected, it had destroyed the archaeology completely at the lower edge of the slope. The lower part of peat ash layer [6581] was obviously truncated by this activity. Apart from the peat ash and the cluster of stones [6582], other cultural layers were not visible. A plastic bottle was dug out from the southern end of the trench, just above the gravel at the base.

A few fragments of bone were found (find 599), as well as modern glass and some modern iron objects.

Figure 9. Trial trench 8, facing N.

Evaluation Trench 9

Evaluation Trench 9 was 2,6x1 m, and was orientated E-W. It was situated 20 m south of Area 7 (see Fig. 5), on the slope of the ditch around the graveyard. Two sections from this trench were drawn: a south-facing section and an east-facing section.

The cultural layers in the lower, eastern, part of the slope were truncated by graveyard developments in ca. 1990. Definite remnants of anthropogenic or cultural activity began at the top break of slope at a depth of ca. 0,35 m: layer [6517], a blackish sandy silt with bits of charcoal. Layers [6518-6525] were all occupation deposits: mixed layers with burnt bones, ash, charcoal and turf debris. Towards the base of the trench, turf became more evident in layers [6522, 6524, 6525]. Layer [6522] was first considered to be a floor, but whilst excavating it was interpreted as a midden dump. Layer [6525] was organic, with burnt bones, charcoal, peat ash, and turf debris, and was at its thickest ca. 0.25 m. This layer rested directly on the natural gravel. The cultural layers are right under the topsoil, even though the ground slopes down eastwards and had been disturbed by the graveyard developments in ca. 1990.

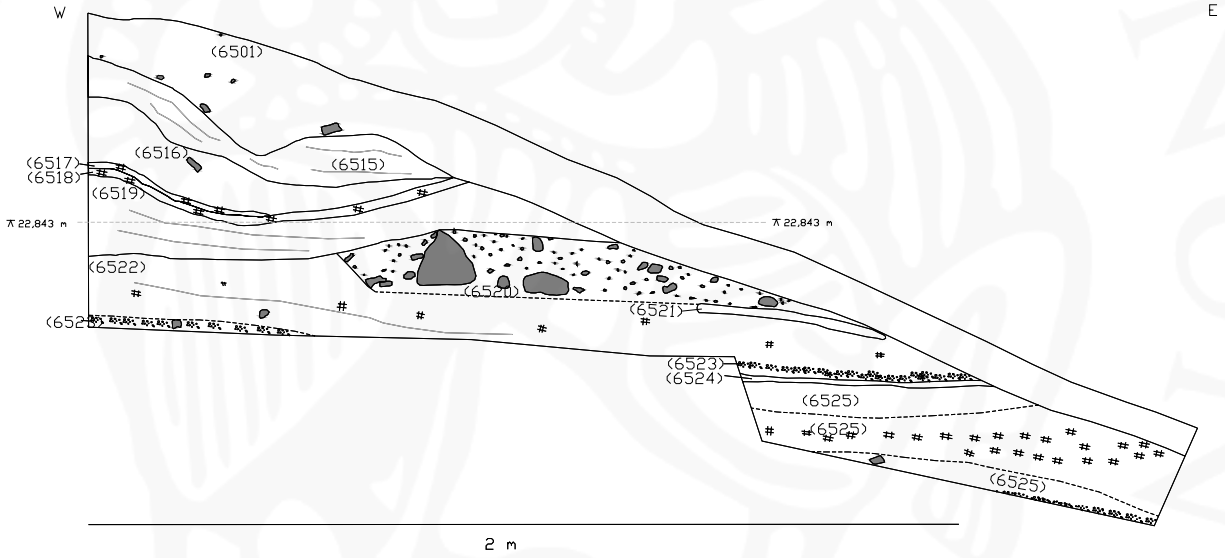

Figure 10. Trench 9, south-facing section (6526).

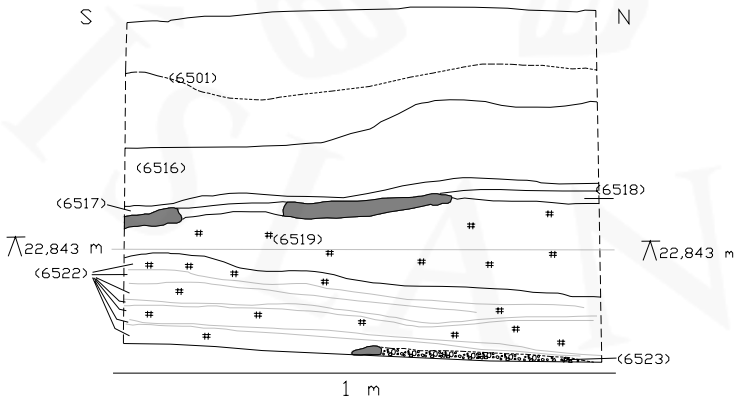

Figure 11. Trench 9, east-facing section (6526 A).

Evaluation Trench 10

Trench 10 was 3x1 m, and was orientated E-W. It was situated on an eastward-facing slope between the graveyard and the church. It was 30 m south of Trench 9 (see Fig. 5).

Figure 12. Trench 10, between the church and the graveyard, facing south.

Under the topsoil [6501], on the east side of the trench, there was a sheet of corrugated iron and fragments of machine-made window-glass. Other signs of cultural activity were not to be found in the trench. Apart from the top- and subsoil there were only different types of gravel in the trench. Directly east of the trench there was a flattened surface between the recent graveyard wall and the surface that slopes downhill towards east. The eastern, lower, part of the trench was filled with gravel and bigger stones, which may have been shifted during the graveyard developments around 1990 or even when some development work was done on the church. Whilst rebuilding the graveyard wall, it is possible that a horizontal platform was made just outside the wall so that it would be more accessible. It must be considered likely that in doing so – making space – the machine truncated the east-facing slope and then smeared the excess gravel upon the slope which today marks the farm mound. It is obvious that large parts of the eastern limits of the farm mound were made whilst constructing the new graveyard wall. Under this recently disturbed gravel (ca. 1990) is courser gravel, then a thin and grey, leached, clayey layer, and under that is the natural, reddish gravel.

There is no evidence from this evaluation trench that this area was part of the farm mound, but it is likely that it has been heavily truncated, not only by the graveyard development, but possibly also by church maintenance and by the laying down of a pathway between the graveyard and church.

Evaluation Section 11

Section 11 was on the bank on the west side of the stream, just north of a causeway over the stream. It was c. 40 m SW of area 7 (see Fig. 5).

The section was 1 m wide and 1,2 m high. The topsoil [6501] was very mixed with gravel and pebbles. Archaeology was found ca. 0,3 m below the ground surface. It included occupational deposits, peat ash dumps, and charcoal lenses [6531-6539] on top of a 30 cm thick turf wall [6540]. Under [6540] a trampled organic layer [6541] with hay remains, possibly an outhouse floor, was seen. There was also a mixed layer [6542], with decomposed bones and hay remains, and a layer [6543] that was similar to [6542], but which contained thin charcoal lenses. Under these layers a sterile clayey material [6544] was found on top of the water-worn stream gravel. These 70 cm thick occupation deposits indicate activity on the west side of the stream channel ca. 40 m SW of area 7. The deposits suggest an outhouse rather than a human dwelling.

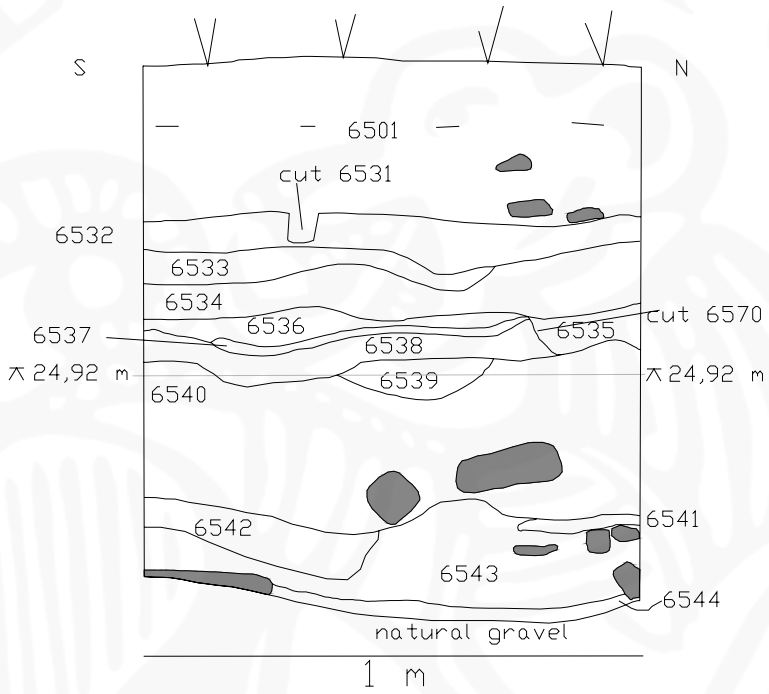

Figure 13. Evaluation section 11, west section.

Evaluation Trench 12

Trench 12 was 1x0,85 m and was orientated WSW-ENE. It was located west of the path between the church and the graveyard, ca. 45 m SSW from area 7 (see Fig. 5). Two sections were drawn, one facing southwest and one facing southeast. In the northern part of the trench a small sondage was dug onto the natural gravel to keep the intrusion to a minimum.

Cultural layers were found ca. 0,15-0,20 m under the ground surface, below a homogenous topsoil. On the northeast side of the trench there was a concentrated and isolated patch of charcoal [6559]. Under and around it was an extensive dark brown layer [6552] with a hint of grey that had turf and charcoal mixed in. Under [6552] was a thin layer [6553] of peat ash and burnt bones, and a ca. 0.10 m thick layer of massive charcoal [6554]. It was quite compact and floor-like but it could just as well be a sheet midden or dump. There were no finds in the excavated part that could be characteristic of floors or dumps. Beneath this

charcoal layer was a light-coloured peat ash layer [6555] and then a layer of mixed turf with a hint of green [6556]. Between this turf layer and the natural gravel was a massive grey, clayey layer [6557], which looked like it had been leached of organic matter.

Unlike Trench 10, there was a lot of activity in the area around Trench 12. It seems that this trench is actually sitting on the edge of the farm mound and marks the southeast limits of it, whereas Trench 10 was either outside the farm mound or it has been cut short by heavy truncation.

Figure 14. Section 6560, facing east.

Figure 15. Section 6560A, facing north

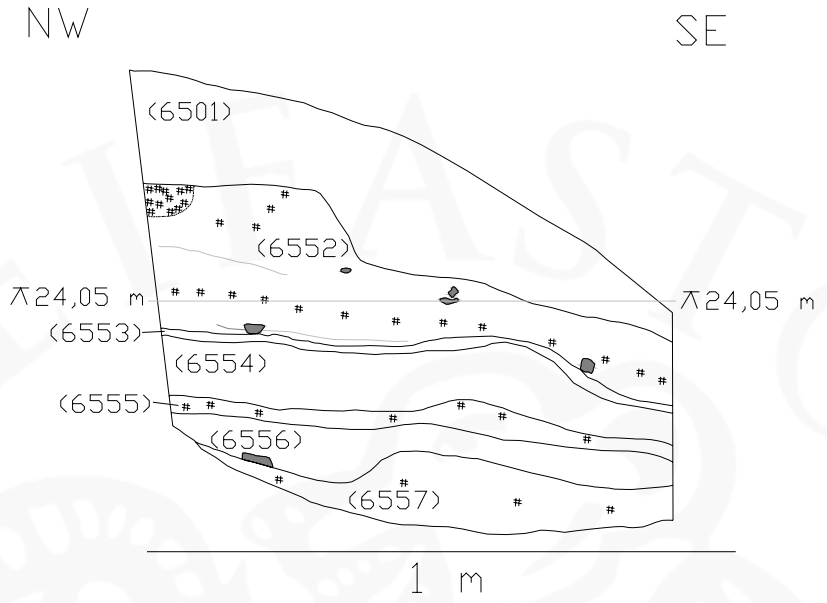

Figure 16. Evaluation trench 12, southwest-facing section 6560.

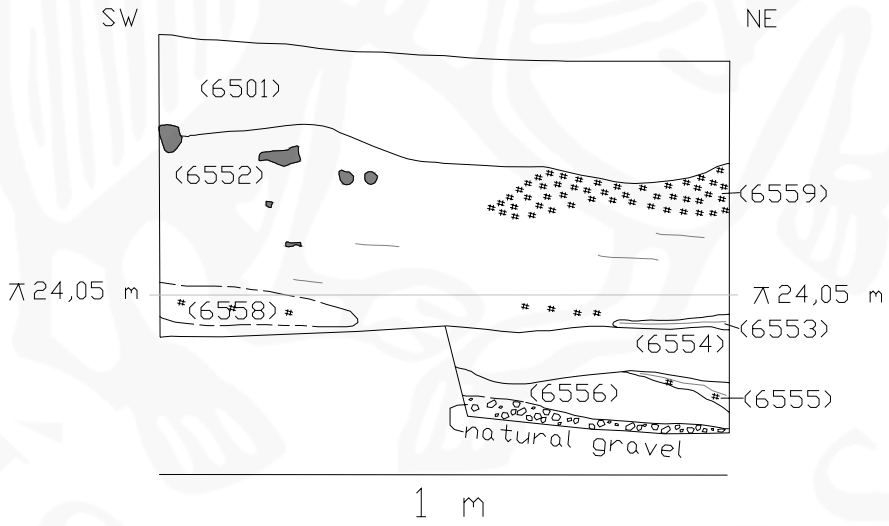

Figure 17. Evaluation trench 12, southeast-facing section 6560.

Evaluation Section 13

Section 13 was located on the east side of the stream channel, 45 m NNW of Area 7 (see Fig. 5). The section was 0,8 m wide and 1 m high.

The topsoil [6501] was a sterile sandy silt. Archaeology was found at ca. 0,35 m depth: a mixed peat ash layer [6547] on top of a deposit of turf collapse [6548]. Under the turf deposit was an organic layer [6549] with traces of peat, charcoal and small patches of decomposed bones. Layer [6550] was sterile, a dark-grey clayey material on top of natural, water-worn gravel. Overall, the archaeological deposits were ca. 0,4 cm thick.

The character of this section was very different from Section 17, which was ca. 0,4 m further south in the stream channel. The deposits at this side of the mound indicate less activity than further south, the archaeological deposits being much thinner and not as rich.

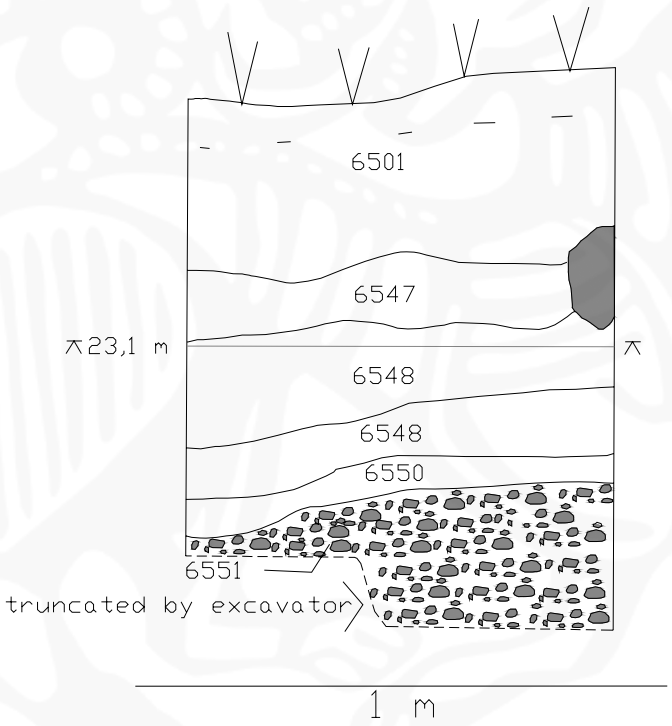

Figure 18. Section 13, west-facing section.

Evaluation Trench 14

Trench 14 was in the Viking Age area, west of Area 6. The trench was 1x4 m, and was orientated NE-SW (see Fig. 5).

The location of the test trench was decided by the unevenness on the ground surface in this area, and the aim was to find out if the bumps were natural or man-made. As had been found throughout the Viking Age area, archaeology was only 0,1-0,15 m under the surface – though earlier than the H-1693 tephra. After the removal of the topsoil [6501], tephra layer H-1693 and mixed layers of turf debris [6562-6563], a structure was revealed. The trench was dominated by 1,5 m wide turf wall [6564] with stone facings on both sides. In later fields seasons this area will be opened for further research.

Figure 19. Trench 14, facing NE. Possible turf wall with stone facings on both sides.

Evaluation Trench 15

Trench 15 was in the Viking Age area, south of Area 6. The trench was 1x2 m, and was orientated NE-SW (see Fig. 5).

No definite archaeological remains were found in this trench. Possible turf debris [6568] was on top of natural gravel [6569], which was at a depth of c. 0,2 m below the ground surface.

Figure 20. Evaluation trench 15, facing SW. Gravel layer [6569] is in the foreground.

Evaluation Section 16

Section 16 was situated 25 m SW of Area 7, on the banks of the artificially deepened stream (see Fig. 5). The section was 0,5 m wide and 1,5 m deep, and contained cultural deposits through most of its depth. A few modern finds and bones were retrieved when the section was cleaned.

Evaluation Section 17

Section 17 was situated 18 m W of Area 7, on the banks of the artificially deepened stream (see Fig. 5). The section was 0,6 m wide and 1,4 m deep, and contained cultural deposits through most of its depth. A few modern finds and 0,8 kg of bones were retrieved when the section was cleaned.

DISCUSSION

During the 2006 field season, eleven evaluation trenches and sections were excavated – nine on the farm mound (Trenches 7-13 and 16 and 17) and two north of the farm mound, in the Viking Age Area (Trenches 14 and 15). All trenches yielded occupation deposits except for Trench 15.

The evaluation trenches demonstrated that the levelling of the farm mound had not affected the archaeology to any substantial depth. An excellent degree of preservation of artefacts, bones, and structures was noted immediately below the ground surface. The artefacts retrieved were chiefly from the 19th-20th centuries, and the oldest artefacts so far date to the 17th century.[20]

It is clear, however, that the southern and eastern parts of the mound were affected greatly by the construction work on the graveyard in the 1990´s. Evaluation Trenches 8, 9, and 12 revealed that the circular ditch around the graveyard cuts through all of the occupation layers around the graveyard. The very modern remains and the lack of occupation layers in Evaluation Trench 10 indicate that the cultural layers from the farm mound did not reach so far south. They may have been destroyed by the construction work around the graveyard, or by construction work when the new church was built on a platform in 1912. No archaeology was visible in the stream bank in the vicinity of Trench 11 and the causeway across the stream. However, the sections in the stream north of the causeway revealed archaeology on at least an 80 m strip N-S, from Trenches 11 to 13 (see Fig. 5). In the stream and its banks, manuport building stones, bone fragments (burnt and unburnt), ceramic fragments, etc., could be seen in many places. The archaeological deposits were considerably thinner and not as rich in Trenches 11 and 13, but were ca. 1,2 m thick in Sections 16 and 17. It is possible that occupation layers could be considerably thicker where Area 7 is located, because the stream channel is west of the mound's highest ground. Evaluation Trench 5, which was excavated in 2005, revealed midden deposits ca. 30 m down the slope ENE of Area 7, but the condition of structural remains – if any – in this area is not known. Coring around Area 5 in 2005 revealed cultural layers at least 1,5 m thick.

The evaluation work carried out during the 2003, 2005, and 2006 field seasons suggests that the size of the farm mound at Vatnsfjörður is in the region of ca. 90 m N-S and 60 m E-W, although it is probably not as broad E-W at its northern and southern ends. It also revealed better than expected preservation immediately below

[20] See, Gavins Lucas's ceramics report, below.

the ground surface of the latest phases of activity on the site – especially in the region of Area 7.

During the 2007 field season a geophysical survey will be carried out, which will hopefully give a more accurate picture of the preservation and limits of the farm mound. This will contribute new information about the area and its development and help to target specific areas for further excavation. As a result of the evaluation, an open area excavation will start on the farm mound in 2007. Area 7 will be enlarged, with the goal of exposing the remains of the 1884 house. In the near future the ruins of the 20th-century concrete outhouses at the north end of the farm mound will be removed, and the sections exposed by this work will improve our understanding of this area.

Our understanding of farm mounds in general is under-developed, and the evaluation of the Vatnsfjörður farm mound has reinforced the idea that the site has excellent potential for research on farm mound formation processes. Future excavations of the farm mound will also make an essential contribution to our understanding of the changing economic and social fortunes of the Vatnsfjörður farm and the families that chose to live there.

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SPECIALIST REPORTS

The field lab at Vatnsfjörður, where field school students sorted and conducted preliminary analyses of artefacts, bones, charred botanical remains, and sediments.

THE FINDS FROM AREAS 2 AND 6

Guðrún Alda Gísladóttir

In total, 138 finds were registered in 2006 from Areas 2 (94 finds) and 6 (44 finds). 78 of these finds were registered in the field, but following the analysis of the heavy residue left after the flotation of bulk sediment samples, 60 new finds were added. Of the original registered finds, 11 were discarded in the field or during post-excavation analysis. 87 of the registered finds were iron slag, representing around 63 kg of metalworking waste.

Most of the material is metalworking slag and iron, followed by ceramics (chiefly modern ceramics, from the topsoil), and stone finds. Most of the stone finds are flake fragments and pebbles, but noteworthy is a complete grinding stone. A few modern glass fragments were retrieved, as well as a Viking Age glass bead and two copper alloy objects: a strap end and a small, unidentifiable fragment. All of these finds are discussed in more detail below. They have been grouped by material and object type, and if concentrations of finds were detected, these are also discussed.

Table 1. Finds from Areas 2 and 6, categorised by material.

Material	**Number**	**%**	**Find categories**
Wood	1	2	Indeterminate object (charcoal)
Copper alloy	2	4	Strap end, indeterminate object
Iron	19	38	Nails, rivet, tool, indeterminate objects
Metalworking waste	x	x	Slag (63,11 kg)
Stone	8	16	Grinding stone, jasper, whetstone?, pebble
Glass	4	8	Bead, window, vessel
Ceramic	16	31	Modern pottery vessels
Total	**50**	**100**	

The preservation conditions at Vatnsfjörður are average to poor [due to acidic soil conditions (pH 4.8-5.1), high rainfall, and free-draining substrait – *ed.*]. All of the iron objects were badly corroded, whilst copper alloy objects were very well preserved. Organic material seems to be almost absent from the assemblage and rather few bones (i.e. food waste) have come from these areas in general (see Albína Pálsdóttir and Tom McGovern, this report).

All finds were cleaned, dried, repacked and registered in the excavation database. Conservation work is being carried out by the National Museum.

Organic Material

Three very small fragments with rough undersides (with attached textile fibers?) and smooth upper surfaces with linear grooves (find *85*). The material is still unidentified, but it might be wood or bark [or the lining of an aquatic mollusc – *ed.*]. It was

retrieved from the heavy residue of sample 153, from context [6057], a slag dump in the eastern part of Structure 3. This material requires further analysis.

Copper Alloy (and Composite)

Two copper alloy objects were retrieved. An impressive find, a strap end (*14*), comes from find rich layer [6103]: a burnt turf layer around Structure 3, the smithy. It is a complete animal-headed strap end, split at the upper end for the leather attachment, and tapering towards the animal-headed terminal. The animal has a square snout, a groove for the mouth, and dots for nose, eyes, and ears. The top of the main field is decorated with incised geometric motifs between grooves along the edges. The back of the main field is undecorated. The object is made of four parts/sheets fastened together by three copper alloy rivets. Four parts form the animal head and through it is one of the three rivets. The main field is made of two sheets (which are also part of the head), with leather remains in between, all fastened together by two rivets: one just at the back of the head and the other at the end of the main field. The total length of the object is 35 mm, the breadth at the animal headed terminal is 4 mm, and at the end of the main field 9 mm. The head itself is 5 mm thick and 10 mm long.

At least eight other strap ends dating to the Viking Age have been found in Iceland. In *Kuml og haugfé*, six strap ends from as many pagan burials are registered: 1) Stafn in Bólstaðarhlíðarhreppur Vestur Húnavatnssýsla (Þjms.11495), 2) Þorljótsstaðir in Lýtingsstaðahreppur, Skagafjarðarsýsla (Þjms. 14013a-e), 3) Ytra-Hvarf in Svarfaðardalshreppur, Eyjafjarðarsýsla (Þjms. 14224b), 4) Kaldárhöfði in Grímsneshreppur, Árnessýsla (Þjms. 13540), 5) Eyrarteigur in Skriðdalshreppur, Suður-Múlasýsla (Þjms.1995:365), and 6) Granagil in Skaftártunguhreppur Vestur-Skaftafellssýsla (Þjms.6419).[21] From Viking Age settlements in Þjórsárdalur, two strap ends were found in farm ruins at Stöng (Þjms, 13869) and Hrossatungurrúst (Þjms. 14931).[22] The strap end from Vatnsfjörður is the smallest of the above mentioned strap ends, which have lengths varying from 40-65 mm,[23] and it is apparent that the strap end from Vatnfjörður was not attached to a very thick leather strap. The strap end from Vatnfjörður has a very similar pattern to the strap end from Þorljótsstaðir and is undoubtedly of Viking Age date. The other copper find, *15*, is an unidentifiable fragment.

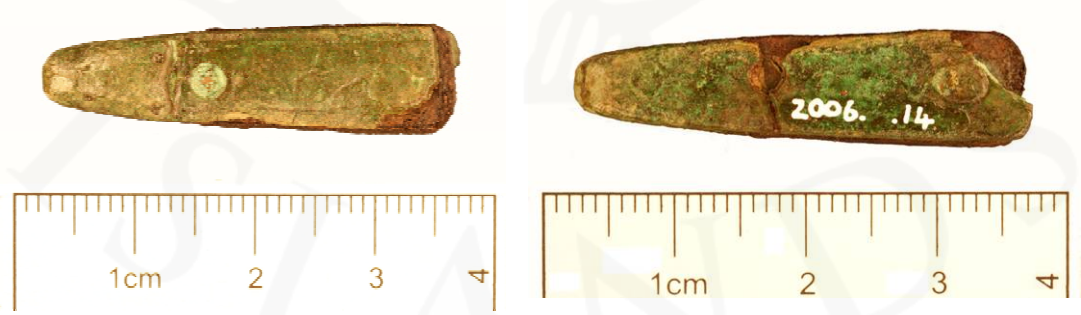

Figure 1. Find *14*, a copper-alloy strap end. Left: front; right: back.

[21] Kristján Eldjárn. *Kuml og haugfé úr heiðnum sið á Íslandi*, 130, 137, 151, 232, 393-395.
[22] Guðrún Alda Gísladóttir. *Gripir úr Þjórsárdal, gagnagrunnur*.
[23] Kristján Eldjárn. *Kuml og haugfé úr heiðnum sið á Íslandi*, 395.

Iron

The iron objects from Areas 2 and 6 were badly corroded and misshapen. The largest finds group is iron, totalling 19 registered finds under 18 finds numbers. Most of the finds are nails or probable nails, totaling 8 (find nos. *16, 23, 56, 60, 63, 68, 71, 136*) and rove/rivets, totalling 4 (find nos. *9, 24, 58, 68*). The nails are diverse in form and shape; some are complete, but others have broken shanks or the head broken/missing. Two nails shanks are bent, as though they had been pulled out of wood – possibly for reuse (nos. *63, 71*). They vary in size, but most of them are rather small and badly corroded. Definite one-piece nails are *16* and *23*, and a definite two-piece nail is no. *60*. Possible nail *136* was found in the hole of the grinding stone (*34*), along with a piece of slag (*137*) and find *135*, a corroded circular object with one concave end and one filled end – possibly a ring fastening. The object (nail?) *136* is very dense, tapering from the top, with a sub-rectangular section and a broken tip.

All of the rivets/roves are either rectangular or diamond shaped. Particularly interesting is find *38*, a tool 132 mm long with a hook at one end. This object was found broken in four conjoining pieces, and was fastened together in conservation – it is now complete except that the tip of the tang-end is missing. The tool is thickest in the middle and tapers towards both ends (rectangular in section); most likely it originally had a wooden handle around the tang. This tool is probably a punch with a rounded tip. A similar metalworking object was found in York (find no. 2239) and its probable date is 9th–11th century.[24] Find *57* is an unknown sub-rectangular object, made up of three strips fastened or corroded together. Two finds are small, unidentifiable fragments (finds *49* and *138*), and one corroded lump, find *70*, needs to be x-rayed.

Figure 2. Find 38, an iron punch.

Of the total count of 19 iron finds, 14 came from Area 2, where the smithy, Structure 3, was situated.[25] Of those 14 finds, 12 were from within the smithy or just outside it: *9, 24, 38, 49, 57, 58, 60, 63, 69, 70, 71, and 138*. The richest layer for finds was [6103], a burnt turf collapse (finds nos. *68-71, 138*) but the rest were divided between 6 different contexts. The possible punch was found in smithy floor [6020], but the high concentration of iron finds (and bent and broken nails for possible recycling),

[24] Ottaway, Patrick. *Anglo-Scandinavian Ironwork from Coppergate*, 518-519.
[25] Karen Milek. ´Vatnsfjörður 2005. Area 2 Report´, 54

and the large amount of slag, all confirm considerable metalworking. The rest of the iron finds, 5 in total from area 6, came from four different contexts. Finds *135* and *136* (found with the grinding stone, *34*) were from floor layer [6021] in Structure 5, and one find, *56*, came from turf collapse [6078] in Structure 4.

Industrial Debris – Slag

A large amount of metalworking waste was retrieved this year, totalling 63,1 kg. Some was recovered as bulk finds, some as unique finds, and some through heavy residue analysis following the flotation of bulk sediment samples. The slag was found in 36 different contexts, as detailed in Table 2.

Table 2. Slag found in Areas 2 and 6.

Slag find no.	Context	Slag find no.	Context
5	6000	81,84,134	6057
8, 12	6001	51	6063
18-20,25	6006	53,105	6069
22	6009	55,59	6073
33	6010	54	6074
27,35-36	6014	107,114	6075
28	6015	86,97-98,101,118	6076
37	6018	119	6080
75-77,93-96,99-100,102-103, 111-112,117,121-129,132-133	6020	131	6082
137	6021	104,108-110,120	6087
39	6026	87,90,106	6090
116	6031	82,88	6096
115	6034	91	6097
113	6036	89	6101
42-43	6037	65-67,72-73	6103
48	6049	79,130	6104
47	6052	74	6158
46	6055	50	n/a

Of the total weight, 62,2 kg (99 %) came from in and around the smithy in Area 2. The rest, 0,9 kg, was scattered around diverse contexts in Area 6. Most finds numbers came from context [6020], which is a floor layer in the smithy, Structure 3, but most of this material was retrieved from the heavy residue, totalling 1,5 kg. By far the largest volume of slag came from context [6057], which was a slag dump in the eastern part of the smithy (50,1 kg). The excavation of Structure 3 is not yet completed, but it will be informative to analyse the distribution of finds in order to shed light on activity areas within and around the building.

A considerable amount of slag was also retrieved from Area 2 during the 2005 field season: a total of 73,9 kg. [Most of this material came from a pit [329], which was dug into the east side of Structure 3. – *ed*.]

Stone

In total, 8 stones registered under 7 finds numbers were retrieved from Areas 2 and 6. Nearly half of these finds were very small reddish flakes that were found during heavy residue analysis: *78, 83, 92*. The type of stone has yet to be identified, but they are possibly jasper of local origin. Find *64*, a possible whetstone, is probably a locally-sourced, water-worn basalt stone, but it needs further analysis. *80* is an unworked, small, spherical, greyish-green pebble with brown flecks, which was found during the cleaning of the 2003 trench that sectioned Structure 3.

The most impressive stone find is a complete grinding wheel, no. *34*. It is 23 cm in diameter, 5,6 cm thick, and has square hole in the middle (4,5 x 4,5 cm). It was found in the charcoal-rich floor layer [6021] of Structure 5, and it could have either been reused as a post-pad or it could have been abandoned *in situ* when the building went out of use. There are not many grinding wheels of this form/shape – if any – from Iceland that can be dated to the Viking Period. The few noted in *Kuml og haugfé* are cylindrically shaped.[26] A total of 29 rotary grinding stones were retrieved at the Coppergate site in York in 9th–11th century phases.[27] The grinding stone from Vatnsfjörður could be categorised with the York Group no. 5,[28] but all the stones from York have a circular central hole. The stone needs geological analysis to find out its origins and material, and also more comparative analysis with similar stones in Iceland and neighbouring countries.

Figure 3. Find 37, a grinding stone, both sides.

[26] Kristján Eldjárn. *Kuml og haugfé úr heiðnum sið á Íslandi*, 352-353.
[27] Mainman, A.J and N.S.H. Rogers. Craft, Industry and Everyday Life: Finds from Anglo-Scandinavian York, 2484.
[28] Mainman, A.J and N.S.H. Rogers. Craft, Industry and Everyday Life: Finds from Anglo-Scandinavian York, 2482.

Ceramics
(modern fragments identified by Sigríður Þorgeirsdóttir)

All but one of the ceramic fragments from Areas 2 and 6 came from the topsoil layers, [6000] and [6001]. Finds *2, 3, 4,* and *11* were modern whiteware vessels or glazed fragments, too small to be identified further. Find *10* was a small rim fragment of brown glazed earthenware. One find, *61*, needs further analysis. It was a concave fragment, possibly a mould, which was found in unit [6073], a layer of burnt turf and slag at the bottom of the slag pit dug into the northeast corner of Structure 3.

Glass
(bead analysed by Elín Ósk Hreiðarsdóttir)

Four glass finds were retrieved from Areas 2 and 6, and were recorded under three finds numbers. Of these, finds *1* and *6* were modern vessel and window fragments from surface layer [6000]. Find *31* came from layer [6129], a diffuse sheet midden northeast of Structure 3, which overlay the natural subsoil. This find is a wounded, polychrome eyed glass bead. The body of the bead is black, and it is decorated with four green eyes. Around the eyes are white circles with red rays. At the side of one eye is a small green circle around a white eye with red lines. This bead belongs to Callmer's type B, and a rare subtype in Callmer´s typology, B082, but he does not discuss either the date or the origins of this type. Two other beads of this type have previously been found in Iceland. One was found at Hrísheimar in Mývatnssveit, S-Þingeyjarsýsla, a farm and ironworking site (find HRH06-032).[29] The other was found in a pagan burial in Mjóidalur, Norðurárdalshreppur, Borgarfjarðarsýsla (Þjms. 10913).[30] By context and associated artefacts, these two beads have been dated to the 10th century, 930/950-1000 AD.[31]

Figure 4. Find 31, a glass bead with opaque eyes. Left: side; right: top (before cleaning).

[29] Hrísheimar finds database 2006. Fornleifastofnun Íslands.
[30] Kristján Eldjárn. *Kuml og haugfé úr heiðnum sið á Íslandi*, 102-103.
[31] Elín Ósk Hreiðarsdóttir. *Íslenskar perlur frá víkingaöld*.

Discarded finds

Eleven finds numbers were discarded in the field or in post excavation as they turned out not to be artefacts: 17, 21, 26, 29, 30, 32, 40, 41, 44, 45 and 52.

Discussion

Other than the slag-rich layers, the richest layers in terms of the number of finds were the topsoil layers [6000] and [6001], which mostly contained modern artefacts. The second richest layer was [6103], a burnt turf collapse layer around Structure 3, the smithy. This layer included 5 iron finds, *68-71,* and *136.* The rest of the finds were divided between 13 different contexts that contained 1-4 finds each. Although not a large finds assemblage, it includes interesting artefacts, especially punch *38,* grinding stone *34*, bead *31*, and strap end *14*. The large amount of slag and scrap iron, and of course the metalworking tool, *38*, which were found in and around the smithy, reflect the intensity of the metalworking activity and most likely the reuse of iron materials at the site. The tool and the grinding stone are types of finds that must dated by their contexts due to their ´timeless´ appearance. The finds that can be dated on the basis of artefact typology, the bead and the strap end, both date to around the 10th century AD.

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THE FINDS FROM THE FARM MOUND AREA

Guðrún Alda Gísladóttir

Excavations in the farm mound area at Vatnsfjörður produced a total of 2081 objects, recorded under 98 finds units (see finds register, Appendix 2). This number excludes the unworked animal bones, slag, and coal, which were also registered as finds, and which brought the total number to 113. Gavin Lucas conducted an assessment of the ceramics and glass (see below, this report). The unworked animal bones have been subject to preliminary analysis by Albína Pálsdóttir and Thomas McGovern (this report). All finds were cleaned, dried, repacked and registered in the excavation database. Conservation work is being conducted by the National Museum.

Artefact preservation in the topsoil ranged from poor/average to excellent. Bones were very well preserved, and leather and textile were present, but iron objects were heavily corroded.

Nine evaluation trenches were excavated in the farm mound in 2006. 99% of the finds were recovered from Area 7, while only 11 artefacts came from other areas: 8 from evaluation trench 16, and 3 from evaluation trench 17). The artefact assemblage will be discussed as a group, not divided by excavation area. The vast majority of finds (78%) came from topsoil context [6501]. The next richest contexts were [6512], which produced 172 finds, and the modern cellar [6510], from which 171 artefacts were chosen for registration (see discussion below).

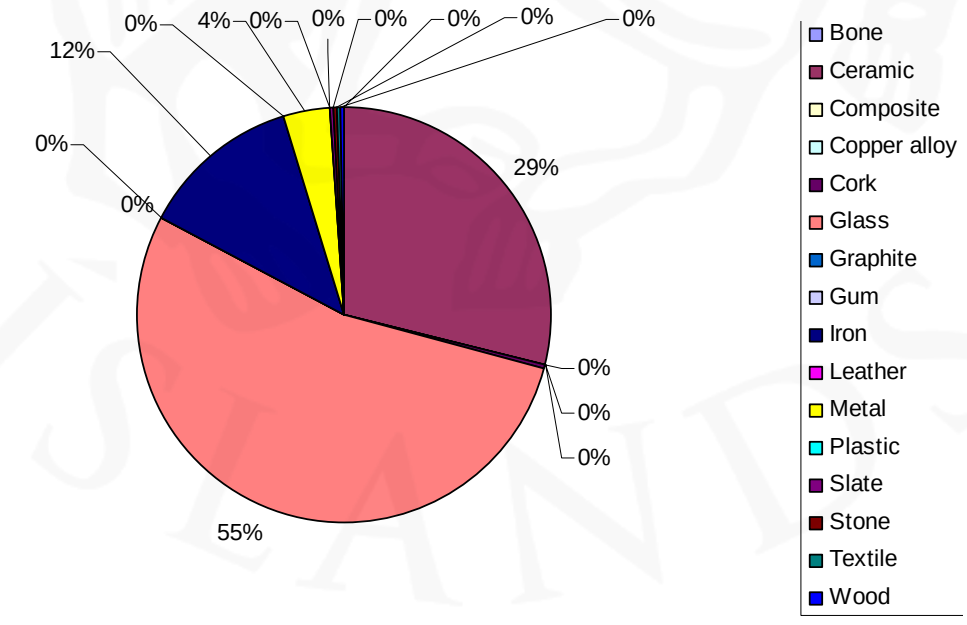

Figure 1. Finds from the farm mound area, grouped by material.

Organic material

Bone: Bone was very well preserved in the farm mound area. Only one worked bone was recovered: worked whalebone *560*, from context [6511]. This find was well preserved, but its function is unclear.

Leather: Find *512*, from context [6501], is a leather fragment, probably from a modern shoe. It has three holes at one edge for a string, and that edge is ´wavy´.

Cork: Three bottles stoppers made from cork were found in three different contexts: *510* [6501], *567* [6512], and *584* [6529].

Wood: Four wooden objects were found, all from cellar fill [6510]. One was a complete barrel stave with grooves at both ends (*613*), one had been reused as a post in the cellar (*612*), and one was a hole ´rope fastener´ (*551*) (*högld*).

Textile: Contexts [6512] and [6529] produced woven textiles: one was modern machine-made (*570*), and the other was a coarse tabby weave – possibly a hay bag (*585*).

Metal

Iron: 12% of the finds from the farm mound area were made of iron, a total of 256 objects and fragments, registered under 35 finds numbers. The objects are heavily corroded and many are misshapen. The majority of these finds (178 in total) came from topsoil [6501]. Most of these finds were nails, and of those that could be identified, both machine cut nails from the later half of the 19th century and wire nails post-dating 1890 were present. Another large category was fittings, of which there were many sizes and shapes, both pierced and unpierced. Many plates and bars were found as well. There were 13 fish hooks, mainly of the small variety, ca. 4-5 cm long and 1,8-2 cm wide across the hook. Of those that still had a point, all had a barbed point and one still had a head. One fish hook was larger, measuring 8,7x2,5 cm. Other finds included elements from a coal-burning stove (later than 1860 in Iceland), parts of a radiator, a needle, a vessel, a key, horse shoes, a knife, and hinges. From the rubbish fill [6510] in the cellar, 75 kg of radio batteries were found (find *556*). Two of these were taken as samples, but the rest were discarded.

Figure 1. Left: Find 537, an element of a coal-burning stove. Right: Find 515, an iron key.

Copper Alloy: Copper objects were found in excellent preservation. Two objects of this material were retrieved. Fastening *529*, from context [6501], is a circular fastening, which had its ends fastened together with an iron rivet. The other copper artefact is a wire (*555*) from context [6510].

Industrial Waste

Slag: Only 563 g of slag were recovered. It came from topsoil [6501] and from cellar fill [6510], which was sampled.

Stone

The stone artefacts found in the farm mound area were of both local and foreign origin, and they had diverse functions. The local porous basalt was used as material for a hammer (*571*), which was broken in half (context [6512]). Other finds are of imported stone, including six whetstones and a graphite writing implement (*509*), all from topsoil [6501]. A large complete grinding wheel (*589*) for sharpening blades was found in context [6512], as were three slate tile fragments – problably from a roof.

Figure 2. Left: Find 508, an assemblage of whetstones. Right: Find 589, a grinding stone.

The Cellar: Fill [6510]

The cellar (group [6528]) was filled with 3,57 m³ of modern rubbish. The ceramic assemblage dated the fill event to the mid-20th century. The material was very mixed and fragments of the same pottery objects were found in different places in the fill – possibly an indication of a single dump event. All of the artefacts recovered from this fill were registered under context [6510].

Figure 3. Finds from cellar fill [6510]. Left: Find 550. Middle: Find 556, an assemblage of batteries. Right: Find 587, rubber shoes.

Material from the cellar fill that was discarded after registration:

Iron

1. Pieces of iron drain pipes, ca 16 cm in diameter. One was ca. 0,2 m long and other ca. 0,6 m.
2. Modern wire nails >1890.
3. Iron wire, small piece, probably from a fence.
4. Iron net, ca 1 x 0,30 m with small piece of wood attached.
5. Iron pipe ca.10-12 cm in diameter (water pipe?).
6. Metal fastening from barrels, 7 fragments.
7. Two pieces of iron bars 1 ½ and 2 ½ cm in diameter.
8. Square plate of iron, ca. ca 30x30 cm.
9. 40-50 unidentifiable iron fragments very corroded and misshapen.
10. Iron tube, 2 cm wide and 3 cm in diameter.
11. Iron radiator fragments, ca 30 x 5 cm.
12. Two pieces from a coal-burning stove or oven? The larger was ca 30 cm long.

Leather

1. One piece of strap or belt, ca 70 x 3 cm.
2. Five small offcuts or fragments of ´ends´with split for fastening. Possibly riding gear.
3. Five unidentifiable leather pieces, the longest of which was ca 10 cm.

Wood

1. Lid of barrel, decomposed.
2. Piece of wood ca. 40 x 10 x 2 cm.

Other

1. Building materials. Material unknown.
2. Tooth brush.
3. Small lid, possibly of copper alloy. Possibly from a machine.
4. Decomposed coloured cotton textile cloth, ca 40 x 3 cm.
5. Two fragments of light coloured woven textile ca. ca 20 x 20 cm.
6. Rotten food waste, fish and eggs.

Discussion

All of the finds from the farm mound area were from surface layers and post-abandonment layers. The finds chiefly date to the late 19th–mid 20th century. The house exposed in Area 7 was built in 1884, and was used as a dwelling until 1907. It was then partly torn down, and continued to be used as a storage place and a smithy. The fill of the cellar of this building can date the demolition of the house to the mid 20th century. Most of the finds were structural fittings, but many domestic finds were also present (objects from coal burning stove i.e.).

PRELIMINARY ASSESSMENT OF THE CERAMICS AND GLASS FROM VATNSFJÖRÐUR 2006

Gavin Lucas

Over 80 kg of material was recovered and catalogued. This material was rapidly scanned for an evaluation of the finds in terms of dating and other basic information.

6.2 kg or 472 fragments of pottery were recorded and were mostly tablewares, many of which were large fragments in very good condition. Catalogued erroneously amongst these ceramics were also opaque pressed glass vessels. Items include: porcelain plates by Seltmann Weiden of Bavaria (est. 1910) and Villeroy & Boch (est. 1836), an airbrush decorated jug impressed with the mark Hamburg in Art Deco style <548>, and a stencil-decorated basin impressed with the mark Ostmark. The number of ceramics of German origin – in fact all the provenanced pieces – is intriguing and may suggest a personal connection rather than trade. The pressed glass tablewares consist of cups and saucers in both white and cream coloured opaque glass. All appear from the same manufacturer but only a few were marked with a makers symbol: an H within an anchor. The same mark appeared on the base of an engraved glass tumbler and is almost certainly the mark of the Anchor Hocking Glass Corporation (Ohio, USA, est. 1937).

Other ceramic items include a number of bricks of red and white fabrics, and some impressed with the mark BATHVILLE, which probably relates to the Scottish brickworks in Armadale, West Lothian. There were also some clay pipes, most notably a 17th century bowl <502> and a fragment from a porcelain bisque doll's head <503>.

Figure 1. Clay pipe fragments (find 502).

6.4kg or 1114 fragments of glass were identified. This included a large assemblage <581> of complete bottles, both pharmaceutical and beer/soda bottles which all appear to date to the earlier half of the 20th century. Other vessels include a pressed glass bowl <506> and an engraved tumbler <545>. The rest of the glass consisted of machine-rolled window glass and at least one glass chimney lamp was identified <593> as well as a complete light bulb <582>.

Figure 2. Assemblage of bottles (find 581).

As a whole, the collection is a small but significant assemblage of mid 20th century material culture and in particular, the condition of the pottery and glassware makes them a useful resource for comparison. A full study would be warranted.

DISCOVERY OF THE HEKLA-1693 TEPHRA AT VATNSFJÖRÐUR

Magnús Á. Sigurgeirsson

In northwest Iceland few visible tephra layers are present in soils. A few tephra layers dating to the early Holocene have been described (e.g. Andrews et al. 2002), and late Holocene tephra layers originating in the Snæfellsjökull volcanic system have been found in soils in the southern part of the northwest peninsula (MÁS, unpublished data). However, there is little information about tephra layers formed after the settlement of Iceland. In written sources at least three accounts may be found on tephra fallouts in northwest Iceland, including the Hekla eruptions of 1693 and 1766 and the Katla eruption of 1721 (Thorarinsson 1955, 1967). Based on contemporary descriptions, a considerable tephra fall occured in the Ísafjarðardjúp area during the 1693 Hekla eruption. A minor tephra fall also occured in Strandir in the 1970 Hekla eruption (Thorarinsson and Sigvaldason 1971).

In the summer of 2005 the author received a sample, suspected to be of tephra, and photos from the Vatnsfjörður excavation (Fig. 1). The sample was collected from a thin layer (<0.5 cm thick), 9-10 cm below the surface and c. 9 cm above cultural deposits. By the aid of microscopy it soon appeared that the sample was composed of volcanic ash, mostly brown-coloured vesicular glass particles. In order to reveal its chemical propertites, and thus its source volcano, a sample was sent for microprobe analysis at the University of Edinburgh, Scotland. In short, the results confirm that it originates from the Hekla volcanic system. The silica (SiO_2) content of the glass shards varies from 58.5 to 61.2 %, indicating intermediate composition. Other available analyses indicate a maximum SiO_2 content of > 60 % (Gudrún Larsen, pers. comm.), which agrees well with this study. The silica content of the initial volcanic products of each Hekla eruption is a function of the length of the preceding repose (Thorarinsson 1967).

Figure 1. The tephra layer observed in Areas 1, 2, and 6 (arrow).

According to written sources, this tephra must surely represent the Hekla 1693 eruption. In the 1766 eruption of Hekla some tephra fall occured in the eastern part of the northwest peninsula, but no accounts exist on tephra fall in the Ísafjarðardjúp region. Most probably a tephra layer was not formed in that area during the 1766 eruption.

The thickness distribution of the distal part of the H-1693 tephra sector has not been mapped so far. In the Ísafjarðardjúp area, Steingrímsfjörður, and Barðaströnd, the author has noticed a dark-coloured tephra layer in soils which might represent the H-1693 tephra, but this has not been confirmed yet. More detailed research is needed to clarify the distribution of this tephra layer.

The Hekla eruption in 1693 started on February 13th and ended in the autumn the same year. About 90 % of the tephra most probably formed in the first few hours of the eruption. Contemporary sources tell that at one particular farm in Vatnsfjörður so much ash fell within one hour (i.e. “in the time needed to write a short letter”) that traceable footprints were left on the ground. According to Thorarinsson’s (1955, 1967) studies, the thickness of the tephra layer must have been at least 0.3 mm.

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PRELIMINARY REPORT ON FAUNAL REMAINS FROM VATNSFJÖRÐUR 2003-2006

Albína Pálsdóttir and Thomas McGovern

This is an interim working report on the analysis of animal bones recovered from excavations in Viking Age and early modern (19th-early 20th century) contexts at the high status site of Vatnsfjörður, in the Westfjords (see Appendix below for list of analysed contexts). Excavations at the site continue, and more work can be done on nearly every aspect of the bone collections recovered thus far, so this report should be taken as a working update of ongoing research rather than any final statement.

Bone preservation at Vatnsfjörður is variable, ranging from excellent to poor, with most damage apparently caused by mechanical soil processes rather than soil acidity (upper layers were more exposed to freeze-thaw cycles). Deeper deposits will produce more consistent levels of bone preservation, and the site has the potential to produce significant collections, especially from the medieval-early modern farm mound, where preservation conditions appear to be particularly good.

For the purposes of this interim report, we will group the bone-bearing contexts broadly into Viking Age (10th-11th century) and early modern (mainly 19th-early 20th century from associated artefacts). Table 1 presents a breakdown of specimens by grouped context. In this table, NISP refers to the total number of identified bone fragments, and TNF refers to the total count of all bone fragments recovered.

Sheep and goats can only be distinguished on some skeletal elements, so the category of "caprines" includes those bone fragments that cannot be separated. Similarly, seals can only be identified to species level on a restricted range of bone elements, and the "seal species" category tends to hold most seal bones. The "large terrestrial mammal" category includes bones of the cattle/horse size, while the "medium terrestrial mammal" category includes bones of the sheep/goat/pig/large dog size. While no dog bones were identified, canine tooth marks were present on many bone fragments of other species.

The total number of identified specimens (NISP) from the Viking Age contexts are well below the normal 300 bone limit for effective quantification, but the NISP count for the completed early modern contexts is much higher, and should allow more effective quantification. Although the Viking Age NISP remains low, we will make use of these materials for broad comparison with the later materials; however, the sample size issues should be kept in mind throughout.

Table 1. Faunal specimens grouped into Viking Age and early modern contexts.

Taxon	All Viking Age	All early modern
DOMESTIC MAMMALS		
Cattle	21	54
Horse	1	
Pig	3	5
Goat	1	
Sheep	8	77
Caprine	49	274
SEA MAMMALS		
Seal sp	3	41
Harbor seal	3	1
Whale sp	2	
Large whale	2	
Small whale/porpoise		1
BIRDS		
Murre or Guillemot	4	13
Puffin	7	47
Black guillemot		1
White tailed sea eagle	1	1
Swan sp	2	
Goose sp (possibly domestic)	1	4
Bird sp	8	48
FISH		
Cod	3	
Haddock	1	
Gadid	2	
Fish sp.	12	543
SHELLFISH		
Clam sp	2	2
Scallop sp		13
Mollusca sp		18
NISP TOTAL	136	1143
Large Terrestrial Mammal	18	66
Medium Terrestrial Mammal	35	181
Unidentified fragments	92	376
TNF TOTAL	281	1730

Figure 1 presents a comparison of the major taxa from the two main phases at Vatnsfjörður. In both phases, domestic mammals are significantly supplemented by marine fish, birds, and seals. The apparent increase in fish in the later phases may accurately reflect the growing importance of marine fish in both subsistence and exchange in late

medieval-early modern Iceland, but taphonomic issues, such as poorer preservation in the Viking Age parts of the site, may also be affecting this trend.

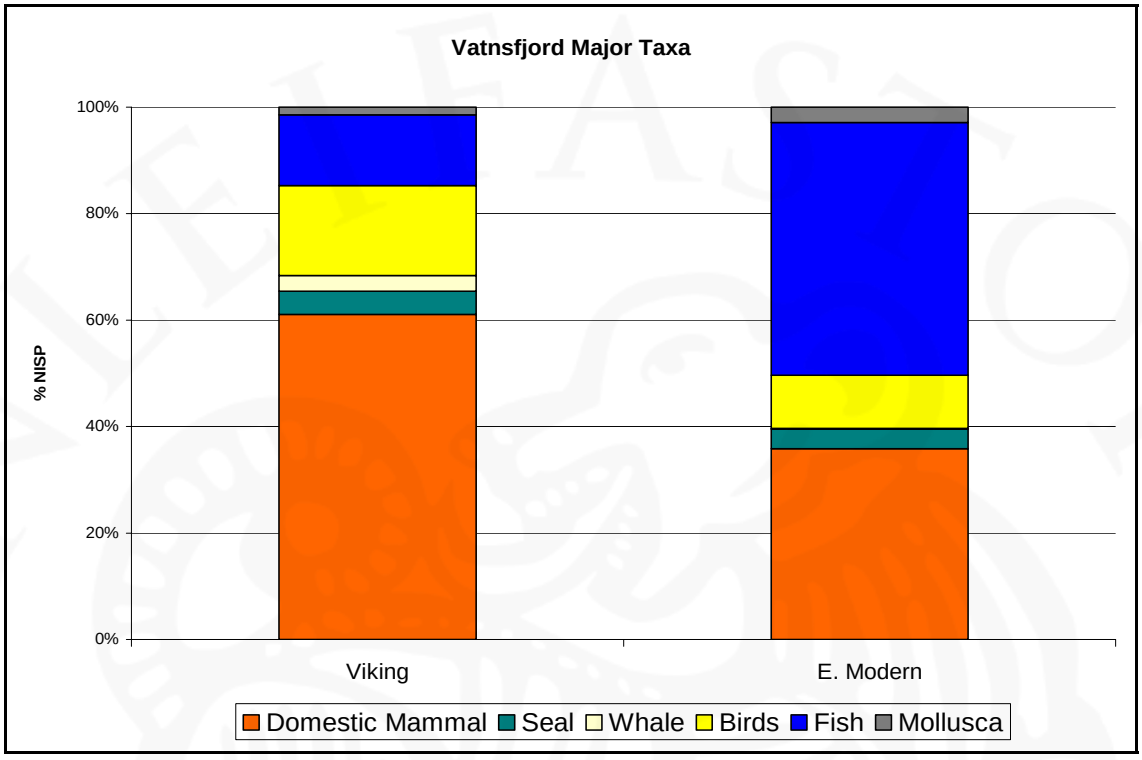

Figure 1. Comparison of the major taxa from the two main phases at Vatnsfjörður.

Domestic mammal bones are less subject to differential preservation, and their relative proportions are presented in Figure 2. Again, sample size issues for the Viking Age materials should be considered, but overall the change in domestic mammal percentages seen in the current sample parallels broad changes in the rest of Iceland. The decline of cattle and pig relative to caprines, and the dominance of the "caprine" category by sheep (there are no goat bones in the early modern contexts thus far) follow trends observed in other parts of the country. While a full analysis of stock management evidence will be presented in future reports, it may be noted that the current age structure of the sheep from 19th-20th century Vatnsfjörður suggests a wool-oriented strategy (many older animals). The current percentages of neonatal and foetal bone (Table 2) suggest that cattle were probably managed for dairy production throughout. The neonatal and later foetal (still born?) lamb bones recovered from the later phases may reflect stress on the flocks during the spring lambing season. This pattern was also observed in early modern phases at the site of Svalbarð, in northeast Iceland, where it was associated with increases in sea ice (Amorosi 1992).

The seal pup bones probably relate to predation upon pupping beaches in spring, though adult seal bones are also present, suggesting a broad-based hunt. Thus far all identified seals are the resident harbour seal (*Phoca vitulina*), though the presence of ice-riding harp seals (*P. groenlandicus*) is possible during heavy ice periods.

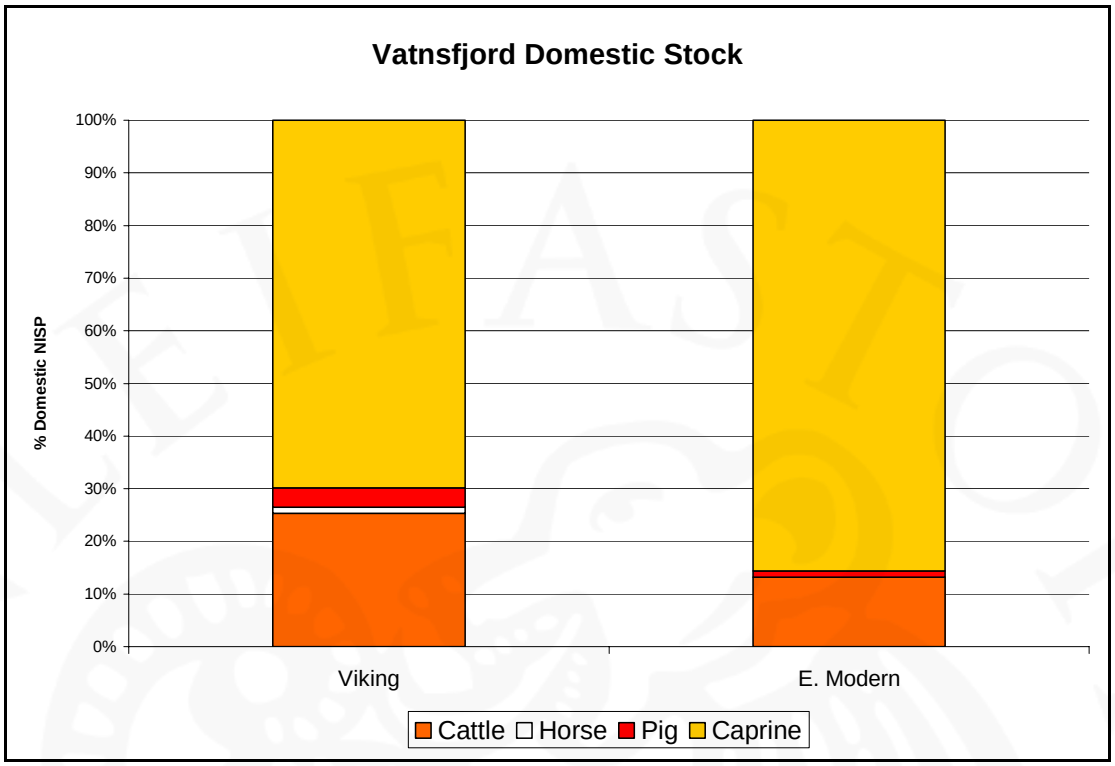

Figure 2. Proportions of domestic animal bones from the Viking Age and early modern phases at Vatnsfjörður.

Table 2. Percentages of neonates in the Vatnsfjörður faunal assemblage.

	% Viking	**% Early Modern**
Cattle	19.05	22.22
Caprine FT	0.00	0.85
Caprine NN	0.00	1.14
Seal NN	0.00	7.14

Birds make up a substantial but variable amount of the archaeofauna, and include some nearly complete puffin skulls (Fratercula arctica) from the early modern phase of the site. Figure 3 presents the relative abundance of the identified birds from the two major phases. Puffins, guillemots, and related alcid sea birds are the most common in both periods (most of the unidentifiable bird bones could be puffin). A few swan and goose bones probably reflect predation upon migrants, and the few sea eagle (*H. albicilla*) bones may indicate the protection of domestic birds and eider colonies.

Fish bone from the larger early modern collection is still under analysis, but it is clear that (as in the Viking Age collection) it is dominated by cod-family (Gadidae) fish, some of large size. Ongoing analysis will provide breakdown by species, body part, and reconstructed live length, and should provide a useful case study of early modern fisheries in this part of the Westfjords.

Overall, this is a very interesting and important faunal assemblage, and it will become more so as its size increases. The Vatnsfjörður collections (all phases) provide an important zooarchaeological case study from a thus-far little documented area.

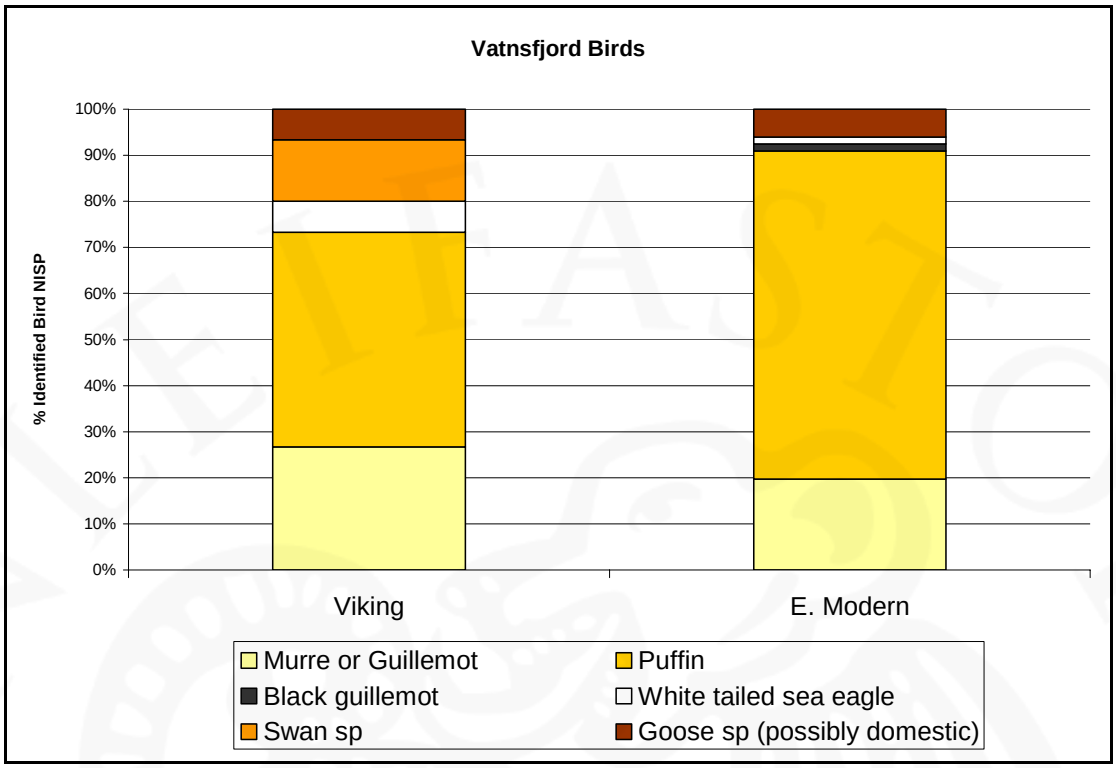

Figure 3. Proportions of birds from the Viking Age and early modern phases at Vatnsfjörður.

Appendix

List of bone contexts analysed for this report.

Date	Unit	Date	Unit
2003	5	2004	70
2003	6	2004	73
2003	15	2004	74
2003	19-20	2005	206
2004	39	2005	209
2004	42	2005	230
2004	48	2005	241
2004	56	2005	244
2004	59	2005	247
2004	63	2005	318
2004	64	2006	6501*
2004	65	2006	6510*

*The two large contexts from the 2006 season have not been finished.

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PRELIMINARY REPORT ON INSECT REMAINS FROM VATNSFJÖRÐUR 2005-2006

Véronique Forbes

INTRODUCTION

The Vestfirðir peninsula, located in northwest Iceland, differs from the rest of the country in many ways. Its landscape is characterized by the presence of numerous fjords and bays, from which the inhabitants of the peninsula obtained most of their subsistence resources (Tulinius 2005: 10). Historical sources depict the Westfjords area as an important economic and political center during the Medieval Period, and this is undoubtedly due to its important role in the national and international trade of marine products (Edvardsson & McGovern 2005: 19-20). Contrary to most parts of Iceland, where livestock herding was the main economic activity during the Viking Age and the Medieval Period (Dugmore *et al.* 2005; Vésteinsson 2000), it is likely that marine resources such as fish, whales, oil and driftwood formed the basis of the economic strategy of the occupants of this area (Edvardsson & McGovern 2005: 19; Tulinius 2005: 10).

However, it has long been thought that the northwest peninsula was colonized later than other parts of the country, due to the poor potential of its environment for agricultural activities (Edvardsson & McGovern 2005: 18). This view was challenged by recent archaeological research, since the discovery of Viking Age structures at Vatnsfjörður in 2003 indicated that the settlement of the area began by the Landnám period (A.D. 850 – 1000) (Edvardsson & McGovern 2005).

According to Edvardsson and McGovern, people who settled the Vestfirðir peninsula probably came from regions whose landscapes were similar to those of northwest Iceland. Already having some knowledge of these types of landscapes, they likely settled the Westfjords with the goal of exploiting the locally available resources (Edvardsson & McGovern 2005: 18-19). The relationship between human and its environment in the Westfjords thus resulted in the development of a distinct culture, and an economy that was strongly based upon the exploitation of marine resources.

In order to understand culture and landscape change in northwest Iceland, *Nature-Culture Dynamics in the Westfjords: Vatnsfjörður and its Landscapes from the 10th–20th Century*, an interdisciplinary project involving different organisations working in North Atlantic archaeology, was recently created. Many researchers from diverse fields of study – including history, archaeology, ethnography and geography – are working together within this project. Thus, the use and integration of several methodologies and data sets will allow a better understanding of social, cultural and environmental developments in the Westfjords since its colonization.

The present report represents a contribution to the *Nature-Culture Dynamics in the Westfjords* project, as it presents the results of the preliminary analysis of insect remains recovered from sediment samples collected from Viking Age contexts at Vatnsfjörður during the 2005 and 2006 excavations.

Insects are recognized as valuable sources of environmental proxy data (Elias 1994: 107), potentially providing detailed information about the environment, climate, and landscape on or around archaeological sites. In Iceland, the analysis of insect assemblages from archaeological sites has proved particularly useful for intra-site reconstructions, detailing sanitation and hygiene conditions inside buildings, and allowing the identification of activities such as animal husbandry, wool processing, grain storage and commercial trade (Amorosi *et al.* 1994; Buckland 2000; Buckland *et al.* 1991, 1992). Hopefully, the analysis of fossil insects from Vatnsfjörður will yield interesting information on the daily lives of Vatnsfjörður's past inhabitants and on the environments associated with the site.

METHODOLOGY

During the summers of 2005 and 2006, sediment samples were taken from different archaeological contexts at Vatnsfjörður, with the primary purpose of undertaking archaeobotanical analysis. Samples were taken from deposits inside excavated structures (Structures 3, 5 and 6), as well as from the midden associated with the Viking Age house, Structure 1, and slag dumps. In order to isolate and collect the organic material contained in the archaeological sediments, each sample gathered at Vatnsfjörður was floated. This part of the work was done on-site using the bucket-flotation method, and the flots were dried before being stored in sealed plastic bags.

Once the excavation and the sampling activities were underway, it was decided to also analyse these sediments for invertebrate remains, with the goal of evaluating the potential for archaeoentomological analyses at Vatnsfjörður. The flots were then sent to the Laboratoire d'archéologie environnementale of Université Laval, Quebec City, Quebec, Canada.

It was decided to begin the analysis by sorting the insect fragments and seeds from at least one flot per archaeological context, to assess the potential of conserved biological remains from each context. Thus, the preliminary analysis would reveal which contexts had the greater potential for archaeoentomological and archaeobotanical analyses, and would then indicate on which types of context it would be better to concentrate further efforts.

Each of the 24 flots chosen was examined under a low power binocular microscope, and all seeds and identifiable insect parts were picked out and stored in glass vials. The identifiable coleopterous fragments were glued to micro-paleontology cards to facilitate their observation.

Heads, pronota and elytra were used for the identification of Coleoptera specimens because these parts often possess characters which allow their identification to the genus and/or species level. Identifications were undertaken using taxonomic keys and anatomical comparisons with modern specimens from two entomological collections located in Quebec City: the Collection of Insects of Quebec located at the Provincial Ministry of Natural Resources, and the collection at the Insectarium René-Martineau of the Canadian

Forest Service of Natural Resources Canada. The taxonomic order of beetles used in this analysis follows Ólafsson's *Íslenskt skordýratal* (*A Cheklist of Icelandic Insects*) (1991).

RESULTS

A total of 253 identifiable fossil insect fragments were found in 19 of the 24 flot samples analysed (5 samples were sterile). Each of the sorted flots also contained small broken fragments which were impossible to identify. The minimum number of individuals of each taxa per sample was calculated using the number of heads, pronota and elytra (see Table 1).

Table 1. Identified insects from Vatnsfjörður.

	AREA 1	AREA 2												AREA6						Total
	Midden	Structure 3									Str. 6	Outside		Structure 5						
	11	153	163	182	183	185	198	200	211	213	224	259	260	60	136	137	140	186	302	
COLEOPTERA																				
Carabidae																				
Patrobus septentrionis (Dejean)	11							2			2		11		2	1			4	33
Carabidae indet.										1								1		2
Curculionidae																				
Otiorhynchus nodosus (O. F. Müller)	14			1	1	3		1		3	19	7	13	2	9	2	1	2	34	112
Otiorhynchus sp.									1											1
Curculionidae indet.	1						1													2
Staphylinidae																				
Omalium sp.	1										1									2
Oxypoda sp.	1										1									2
Geostiba circellaris (Gravenhorst)		1	1																	2
Atheta sp.									2											2
DIPTERA																				
Unidentified puparia	3								1											4
TOTAL	31	1	1	1	1	3	1	3	4	4	23	7	24	2	11	3	1	3	38	162

In all, 158 individual beetles were identified from 3 families, along with the remains of four fly puparia. The habits and habitats of each identified taxa will be discussed, followed by a general discussion of the results of this analysis.

Ground beetles

Ground beetles (Carabidae) were found in the archaeoentomological assemblage. This beetle family comprises generalist species, some of which are predators or scavengers who feed on other arthropods, while other feed on plants (Arnett Jr. & Thomas 2001: 35-36). Carabids are usually good indicators of the local environment associated with archaeological sites.

Thirty-three individuals from the species *Patrobus septentrionis* (Dejean) were identified. Most species from the genus *Patrobus* live in wet environments, at the margin of bogs and meadows (Arnett Jr. & Thomas 2001: 84). It is also the case with *P. septentrionis*, which is characteristic of meadow environments in Iceland, where it is very abundant. Though this species is not truly synanthropic, it is often found in or near cultivated fields

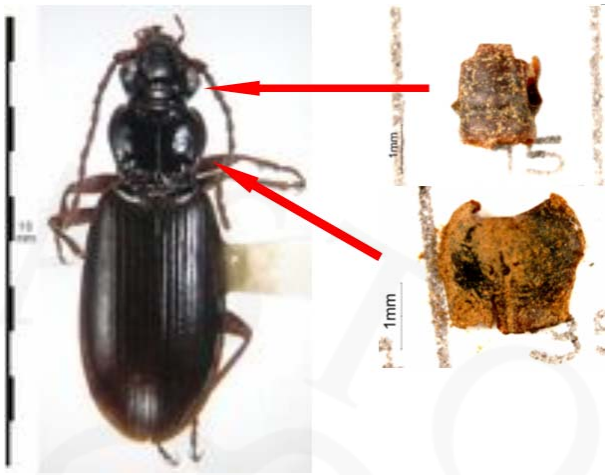


Figure 1. Head and pronotum of *Patrobus septentrionis* found in sample 302. (Image on left from the E. H. Strickland Entomological Museum database)

Snout beetles

At least one and likely two members of the family Curculionidae (weevils) were identified. They are easily recognizable by their elongated snouts. All species from this family are associated with plants, and some of them are serious pests (Arnett Jr. et al. 2002: 722-723). The majority of the weevils found in Vatnsfjörður assemblage are from the genus Otiorhynchus, whom are flightless broad-nosed weevils who live on the ground (Buckland & Buckland 2006; Arnett Jr. et al. 2002: 778).

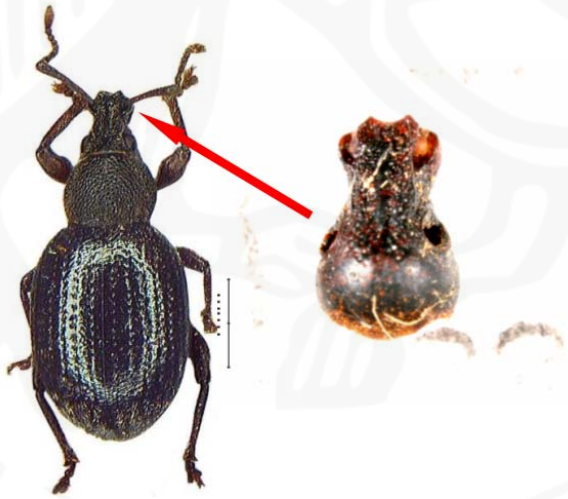


Figure 2. Head of *Otiorhynchus nodosus* found in sample 11. (Image on left from Schott C., *Entomologie en Alsace*)

A total of 112 *Otiorhynchus nodosus* (O. F. Müller) were identified in this assemblage. These are very common beetles, which occur in grasslands almost everywhere in Iceland (Larsson & Gígja 1959: 191). The adults of this species are polyphagous and feed on the green parts of herbaceous plants (Buckland & Buckland 2006; Warner & Negley 1976: 251).

Rove beetles

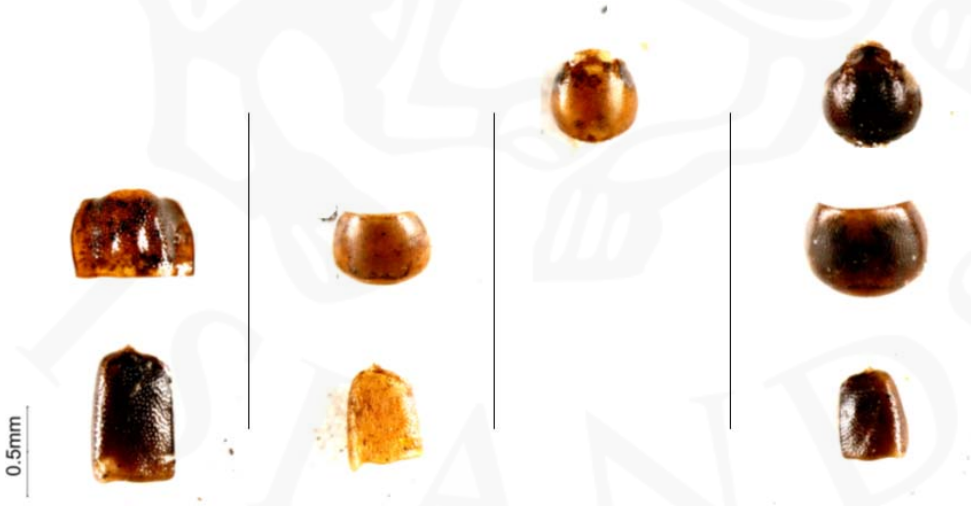
The Staphylinidae family, commonly known as rove beetles, is one of the largest coleopteran families. The main characteristics which allow the identification of this family is that staphylinids have short, truncated elytra, so that a substantial part of their abdomen is exposed (Arnett Jr. & Thomas 2001: 272). Beetles of this family are predators or feed on decomposing matter and fungi, and they are found in almost all types of habitats (Arnett Jr. & Thomas 2001: 276).

Two staphylinids specimens from the genus *Omalium* have been found in flots from the midden and Structure 6. *Omalium* species feed on other insects and are associated with decaying material (rotting hay, seaweed, compost, manure, and animal waste). They can be found either on seashores, inside birds nest or in hayfields near human habitations (Arnett Jr. & Thomas 2001: 337; Gudleifsson 2004; Larsson & Gígja 1959: 58-64).

The *Oxypoda* occurring in Iceland prefer rather dry ground. They are often associated with anthropic environments, including grasslands and stables, where they have been found in compost and old hay. However, most species are not really synanthropic and can be found in natural grasslands, and under moss and stones (Larsson & Gígja 1959: 116-119).

Two heads of *Geostiba circellaris* (Gravenhorst) were found in two different samples from inside Structure 3. This species is common in grassfields in Iceland, and it occurs very often in cultivated fields (Larrson & Gígja 1959: 100).

The genus *Atheta* is represented by twelve species in Iceland (Ólafsson 1991). The species belonging to this genus are very difficult to distinguish, because of the great similarity between species and their small size (Arnett Jr. & Thomas 2001: 368, White 1983: 116), and it was therefore impossible to do so with the specimens from Vatnsfjörður. Most *Atheta* species are associated with vegetal debris and fungi (White 1986: 116).



Omalium sp. - *Oxypoda sp.* - *Geostiba circellaris* - *Atheta sp.*

Figure 3. Heads, pronota and elytra of Staphylinids found in samples 11, 153, 163, 211 and 224.

Flies

Fossil Diptera also have been found in some flots, in the form of puparia (the final larval stage of flies). Unfortunately, the author has not yet been trained at identifying fossil Diptera, so it was not possible to identify those specimens.

DISCUSSION

Many non-synanthropic coleopteran species were found in the Vatnsfjörður samples and this fauna details the local environment which surrounded the site at the time of its occupation. The presence of the phytophagous *Otiorhynchus nodosus* (O. F. Müller), and of the predacious *Patrobus septentrionis* (Dejean) and *Geostiba circellaris* (Gravenhorst), suggest that Vatnsfjörður's immediate landscape was composed of wet meadows and grasslands (Larsson & Gígja 1959). These environments may have been used as hayfields and pastures to feed domestic animals. *O. nodosus* is the only plant-feeder which has been identified, and it feeds mainly on herbaceous plants (Buckland & Buckland 2006), but because it is not a specialist species, it does not allow the identification of the floral composition of meadows and grasslands. Moreover, though it was not possible to identify specimens belonging to the *Omalium* genus, it is noteworthy that 2 of the 4 *Omalium* species occurring in Iceland are littoral species (Larsson & Gígja: 58-64, Sadler & Dugmore 1995: 147). Thus, the presence of two individual of this genus could be related to the close proximity of water.

Species indicative of outdoor environments were found in greater quantity than those likely to have lived in close association with humans. Some non-synanthropic species would have flown or crawled into the Norse buildings, or entered on the shoes and clothes of the inhabitants. However, since the outdoor species *O. nodosus* and *P. septentrionis* are abundant inside Structures 5 and 6, their presence may be the results of the intentional transport of outdoor materials, perhaps for use as litter. Hay and peat were commonly used as litter inside Norse buildings to provide a more comfortable surface to walk on and to mask unwanted odours (Buckland *et al.* 1992: 163). [It is also likely that the outdoor species associated with meadow and grassland environments were derived from the turf used to construct the walls and roofs of the buildings. – *ed.*]

Nevertheless, due to the reduced size of the assemblage, it would be too speculative to make comparisons between contexts since it is not clear if the low occurrence of synanthropic species in Structure 3 is due to taphonomic processes.

Rove beetles (Staphylinidae family) are associated with decomposing material and may indicate details about intra-site environments. *Omalium* and *Oxypoda* specimens were found in flots from the Viking Age midden and a turf deposit inside Structure 6. Species from these genera live in compost, rotting hay and animal and plant waste (Arnett Jr. & Thomas 2001, Larsson & Gígja 1959), so the midden provided them with an ideal living environment. Their occurrence inside Structure 6 suggests the presence of decaying material, at least in the corner where the sample was taken.

Samples from Structure 3 also yielded some staphylinid specimens. Species from the genus *Atheta* are associated with decaying plant material and fungi (White 1986: 116), so there may also have been an accumulation of decomposing matter inside this building. It is

difficult to say whether the presence of beetles associated with decaying material inside Structures 3 and 6 is indicative of the presence of animals, stored hay, or hay and peat litter, because of the low incidence of these taxa. However, *Omalium rivulare* and *O. excavatum* are common in farms and barns in Iceland (Dugmore *et al.* 2005: 32; Sadler & Dugmore 1995: 146), so their occurrence in Structure 6 could indicate that this building was used for some activity relating to animal husbandry.

METHODOLOGICAL IMPLICATIONS AND RECOMMENDATIONS

Unfortunately, most samples analyzed from Vatnsfjörður were relatively poor in insect remains. This does not necessarily mean that insects were not there and are not susceptible to be found in appreciable numbers in other archaeological contexts at Vatnsfjörður. It should be noted that 9 of the 24 sorted samples yield rich archaeoentomological assemblages, with at least one identifiable insect remain per 10 ml flot. Different taphonomic processes affect archaeological data, and these are effective from the time of initial deposition to laboratory analysis (Reitz & Wing 1999: 110). It is then reasonable to suggest that the poor preservation of insect remains in many of Vatnsfjörður samples are due not only to the nature and the conditions of the sampled deposits, but also to the sampling strategies and recovery methods used. The following paragraphs discuss some recommendations relating to the data collection in the eventuality of a new sampling campaign for insect remains at Vatnsfjörður.

Since it is only after the beginning of the excavation that it was decided to undertake an archaeoentomological analysis at Vatnsfjörður, the sampling strategy was orientated to maximize the recovery of plant remains. Most samples from the Viking Age site were taken from floor levels and deposits where the charred content was high, in contexts were it was very probable to find charred seeds, as seeds and other plant macrofossils are often preserved by charring, waterlogging and mineralisation (Jones 2002: 12). It differs for insects, as their chitinous exoskeletons are preserved in waterlogged or dry conditions (Buckland P. I. 2000: 11; Elias 1994: 107-108; Jones 2002: 10). Many of the flot samples with a considerable charcoal component yielded a certain quantity of carbonized seeds, and almost no identifiable insect parts. Conversely, the 9 flot samples with the greatest density of insect remains contained less charred material. It appears then, that deposits composed mainly of charred material were not the best contexts to be sampled for insect remains. The samples that produced the greatest quantity of identifiable insect fossils were from contexts identified as posthole fills (contexts 6031, 6034, 6036 and 6080), sediments around a stone (context 6121), and on the floor (context 6021) inside Structure 5, a turf deposit in the northwest corner of Structure 6, and a mottled brownish deposit with ash and charcoal lenses in area 2. It is therefore recommended that samples are analysed from turf, peat, and silty deposits.

It is impossible to know precisely the volume of sediments that must be taken to obtain a reasonable number of insect remains before undertaking laboratory analysis (Elias 1994: 110). The number and state of preservation of insect fossils vary, depending on the nature of the archaeological deposit (Kenward 1978: 12; Perry *et al.* 1985: 337). Nevertheless, it has been demonstrated that there is often a relation between the diversity of insect species present in an assemblage and the volume of sediments taken; the diversity of species tend to become higher when the volume is greater (Keeley 1978: 180; Plog & Hegmon 1993: 489). According to Kenward, the desirable quantity of insect remains to allow valuable

archaeological interpretations would be at least 100 (Kenward 1978: 12). To obtain such a number of individuals, it seems that experienced archaeoentomologists favour the collection of samples of 5 to 10 L (Amorosi *et al.* 1994: 74,; Buckland *et al.* 1992: 154; Keeley 1978: 180; Kenward 1978: 12). It may be correct to argue that one of the reasons why the diversity of insect species in Vatnsfjörður assemblages is relatively poor is due to the small sample volume. In the future, it would be preferable, when possible, to take samples of an adequate volume from archaeological contexts which suggest good preservation conditions for insects.

It has been mentioned that the processing of the samples taken during summer 2006 excavation occurred on-site. Obviously, doing the pre-treatment on-site has the advantage of reducing the volume of the samples and the space required for their storage, as well shipping costs. However, doing so increases considerably the risk of contamination by live and fossil insects present on-site (Buckland P. I. 2000: 19-20). Sixteen of the twenty-four analysed samples were contaminated by modern flies, beetles and/or beetle larvae. Fortunately, it was rather easy to distinguish modern insects because their preservation was clearly better than that of the fossil insects: they were still articulated and characteristics such as hairs and scales were still visible on the exoskeletons. Nevertheless, it would have been more difficult to do so if the preservation of the fossil insects was very good. To avoid risks of contamination by modern insects, it is preferable to undertake the entire processing of the samples in the controlled environment of a laboratory.

Moreover, the flotation technique that was used to process samples may not be suited for archaeoentomological analysis. The common way to do the flotation in archaeoentomology consists of mixing the sample with water and pouring the floating material repeatedly over a 250 micron sieve. This operation has to be repeated many times to completely wash-out the clay-silt component of samples, so that there is less risk that sediment will fill insects parts and prevent them from floating (Buckland P. I. 2000 : 18, Elias 1994 : 32). Samples from Vatnsfjörður were only submitted to the operation three times, so silt and clay were not completely washed-out from the flot. There is an important bias relating to body parts that were retrieved during the sorting; only 6 of the 253 identifiable coleopteran fragments found were elytra, the other being heads and pronota. This could be explained by the fact that most elytra were filled with sediments and did not float. Also, many insect parts were very dirty, and this prevented the examination of specific features useful for identification on the surface of the exoskeletons such as punctures, stria and microsculpture. These inconveniences could be avoided by thoroughly removing the clay-silt component.

The sorting of the insect fragments from flots is a very time-consuming activity. Kerosene flotation constitutes a means to reduce the bulk of the material to be sorted and the time necessary to complete it. This part of the processing occurs after the pre-treatment of the samples. It consists of mixing the organic matter with its equal volume of kerosene and adding water to the mixture to make the kerosene float, carrying along the insect parts as it bonds to their surface (Buckland P. I. 2000: 18; Elias 1994: 32-33). Kerosene flotation is part of the standard procedure used by archaeoentomologists, and it has been proved efficient in separating insect material from the rest of the organic fraction (Phipps 1986: 66). The flots used for this analysis were not submitted to kerosene flotation, because the samples were already treated to recover material for botanical analyses.

The best way to preserve the organic material contained in a sample is to maintain it in conditions the most similar to those in the ground (Jones 2002: 22). It is recommended to

store insect fractions in ethanol, in a dark and cool environment (inside a refrigerator). The drying of flots can be used to slow down the decomposition of botanical remains, but experience has shown that this may distort and break the insect fragments. Most of the analysed samples contained many small unidentifiable insect fragments, and this fragmentation was at least partly due to the drying of the flots. Storing the insect fractions in ethanol would have reduced the breaking of fossil insects, and maybe a greater number of specimens would have been identifiable.

It has been demonstrated that the common sample collection and treatment procedure used in archaeoentomology differs from that used in archaeobotany. The best way to assure that these two types of analyses will yield substantial results would be to collect samples for botanical and insects analyses separately. Thus, the best treatment procedures for the retrieving of both entomological and botanical remains could be applied.

It must be noted that the relatively poor quantity of insects and diversity of species found in the Vatnsfjörður archaeoentomological assemblage is also partly due to the site's substrate. Due to the proximity of Vatnsfjörður to the shoreline and the gravely nature of the soil (Friðriksson *et al.* 2005: 64), the sediments forming the archaeological deposits were rather well drained. On the other hand, the large amount of insect fragments found in some archaeological samples demonstrates that good conditions for insect preservation occur in some of the Viking Age deposits. Equally, there are chances of finding some deposits with favourable conditions for preservation in the farm mound, corresponding to the post-Viking Age occupation of Vatnsfjörður. This farm mound is situated southeast of the Viking Age site, and the great depth of some of the deposits may have prevented the drainage of the sediments (Friðriksson *et al.* 2005: 64). If insect remains are preserved in these deposits, it will offer the possibility of studying past economic and sanitation conditions and the changing landscape in medieval and modern Vatnsfjörður.

CONCLUSIONS

The analysis of fossil beetles from Viking Age Vatnsfjörður yields some information about the local environment of this site. At the time of early settlement, the landscape of the area was mainly characterized by wet meadows and hayfields. The occurrence of beetles associated with rotting material inside some of the structures suggests that decaying matter had accumulated in these buildings. Unfortunately, the low abundance and diversity of the taxa found in sampled contexts prevented the elaboration of detailed interpretations. This can be explained by methodological biases and by the poor preservation of insect fossils due to the gravely substrate of the site. More archaeoentomological data could be obtained by the analysis of contexts susceptible to have better conditions for fossil insect preservation, such as deposits from the medieval farm mound. It is recommended that samples be taken from some of the Viking Age deposits and from the farm mound, to allow detailed analysis of the Vatnsfjörður fossil insects. Thus, the archaeoentomological analysis would complement the data from the ongoing archaeobotanical and geoarchaeological analyses, allowing a better understanding of the way of life of the past inhabitants of Vatnsfjörður.

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APPENDIX 1. EXCAVATED UNITS

Units Excavated in the Viking Age Area: Areas 2 and 6

Unit No	Group	Area	Unit Type	Description
6000		6/2	Deposit	Surface turf layer
6001		6/2	Deposit	Windblown soil and root mat
6002		6	Deposit	Reddish-brown turf spread
6003		6	Deposit	Reddish-brown turf spread
6004		6	Deposit	Reddish-brown turf spread
6005		6	Deposit	Reddish-brown turf spread
6006		2	Deposit	Reddish-brown turf spread
6007		6	Deposit	Greyish-brown turf collapse
6008		6	Deposit	SW-end of longhouse wall
6009		6	Deposit	Reddish-brown turf collapse inside Structure 4
6010		2	Deposit	Black and brown floor of Structure 3
6011		6	Deposit	Brown gravel (collapse)
6012		6	Deposit	Small turf lump (collapse)
6013		6	Deposit	Reddish turf collapsed material
6014		2	Deposit	Dark reddish brown silt spread
6015		6	Deposit	Dark brown red turf deposit inside Structure 4
6016		2	Deposit	Dark reddish brown silt spread
6017		2	Deposit	Dark blackish deposit (spread)
6018		6	Deposit	Remains of turf collapse
6019		2	Deposit	Round shaped charcoal spot
6020		2	Deposit	Charcoal floor layer in Structure 3
6021		6	Deposit	Black floor layer in Structure 5
6022		2	Deposit	Small circular gravel deposit (30 cm diameter)
6023		6	Deposit	Gravel and turf collapse on west wall of Structure 4
6024		6	Deposit	Gravel and turf collapse along west side of south west corner of Structure 3
6025		6	Deposit	Gravel in the west wall of Structure 4
6026		2	Deposit	Very dark brown gravel spread
6027		6	Deposit	Turf and pebble mix/possible fill in entrance of Structure 4
6028		2	Deposit	Gravel layer
6029		6	Deposit	Dark orange/brown turf collapse mixed with gravel
6030		2	Deposit	Gravel deposit with turf and peat ash
6031		6	Deposit	Fill in posthole 6032 (west side)
6032		6	Cut	Posthole in Structure 5 (west side)
6033		6	Cut	Posthole in Structure 5 (east side)
6034		6	Deposit	Fill in posthole 6033 (east side)
6035		6	Cut	Posthole in Structure 5 (east side)
6036		6	Deposit	Fill in posthole 6035 (east side)
6037		2	Deposit	Turf collapse in Structure 3
6038		6	Deposit	Ash layer in SE part of structure 4 - under 6027
6039		6	Cut	Possible posthole in Structure 5
6040		6	Deposit	Dark reddish-brown turf spread in SE corner of Area 6
6041		2	Deposit	Dark reddish-brown gravel spread
6042		6	Deposit	Dark reddish-brown gravel deposit under 6003
6043		6	Deposit	Dark reddish-brown turf and gravel spread
6044		2	Deposit	Reddish-brown spread

Unit No	Group	Area	Unit Type	Description
6045		6	Deposit	Light-colored turf floor layer in Structure 5
6046		2	Deposit	Roof collapse -- Structure 6
6047		6	Deposit	Grey piece of turf (collapse)
6048		6	Deposit	Grey gravel patch east of Structure 5 wall
6049		6	Deposit	Mottled turf wall collapse of Structure 4
6050		2	Deposit	Thin reddish-brown organic patches
6051		2	Deposit	Dark reddish-brown turf spread mixed with gravel
6052		6	Deposit	Red-brown turf mixed with large pebbles and fire cracked rocks
6053		6	Cut	Fill of possible posthole 6056 under 6048
6054		2	Deposit	Gravel spill from west wall of Structure 6
6055		2	Deposit	Orange-brown turf collapse layer (Structure 3)
6056		6	Cut	Possible posthole
6057		2	Deposit	Slag dump in eastern part of Structure 3
6058		6	Deposit	Black spotted deposit NW of Structure 6
6059		2	Deposit	Charcoal/gravel spread (Structure 6)
6060		6	Deposit	Turf block in entrance to Structure 4 under 6052
6061				Cancelled
6062		6	Deposit	Turf block in entrance to Structure 4 under 6060
6063		6	Deposit	Mottled turf collapse inside Structure 4
6064		6	Deposit	Dark red-brown turf collapse in entrance to Structure 4
6065		6	Deposit	Patch of turf collapse
6066		2	Deposit	Gravel fill inside Structure 6
6067		2	Deposit	Brown silt with gravel along wall of Structure 6
6068		2	Deposit	Dark brown silt patch on Structure 3
6069		2	Deposit	Turf or peat ash deposit in Structure 3
6070		6	Deposit	Greyish layer north and west of Structure 5
6071		6	Deposit	Yellow-red turf collapse patch on wall inside Structure 4
6072		6	Deposit	Turf and gravel collapse inside west wall of Structure 4
6073		2	Deposit	Burnt turf with slag at NE corner of Structure 3 - bottom of slag pit
6074		6	Deposit	Turf and gravel collapse east of Structure 4
6075		2	Deposit	Mottled turf and ash deposit on Structure 3 floor
6076		2	Deposit	Charcoal and peat ash spread on Structure 3 floor
6077		6	Deposit	Patch of reddish turf collapse, north wall of Structure 5
6078		6	Deposit	Turf and gravel collapse against SW part of Structure 4, possibly same as 6072
6079		6	Cut	Posthole
6080		6	Deposit	Fill of posthole 6079
6081		2	Deposit	Gravel layer overlaying wall of Structure 6 (collapse)
6082		2	Deposit	Charred wood/timber on west wall of Structure 3
6083				Cancelled
6084		6	Deposit	Black turf collapse on east wall inside Structure 4 (dark brown/red)
6085		2	Deposit	Greyish-white ash layer in pit of southeast corner of Structure 3
6086		2	Deposit	Stone spread in eastern part of Structure 3
6087		2	Deposit	Shallow charcoal spread near center of west wall of Structure 3
6088		6	Deposit	Brown silt deposit
6089		2	Deposit	Mid-brown turf collapse on southeast side of Structure 3
6090		2	Deposit	Charcoal floor layer in Structure 3 by northeast wall
6091		6	Deposit	Turf wall collapse on east wall inside Structure 4
6092		6	Deposit	Aeolian material under 6091, around Structure 4
6093		6	Deposit	Reddish brown silt with gravel, turf collapse
6094		2	Deposit	Wall collapse, turf with gravel, at east wall of Structure 6
6095		6	Deposit	Turf and gravel collapse infilling the opening in the east wall of

Unit No	Group	Area	Unit Type	Description
				Structure 4; same as 6074
6096		2	Deposit	Slag dump at northern side of Structure 3
6097		2	Deposit	Dark charcoal layer on eastern side of floor of Structure 3
6098		2	Deposit	Grey-brown patch on NE-wall of Structure 3
6099		2	Deposit	Small turf collapse near stone cluster in Structure 3
6100		2	Cut	Round cut (burnt barrel?) on north wall of Structure 3
6101		2	Deposit	Charcoal/turf deposit in the northwest corner of Structure 6
6102		2	Deposit	Grey turf patch (collapse) on southeast wall of Structure 3
6103		2	Deposit	Burnt turf collapse around Structure 3
6104		2	Deposit	Mottled brown layer with ash and charcoal lenses
6105		6	Deposit	Turf wall collapse north of Structure 4, under 6049
6106		6	Deposit	Aeolian fill inside Structure 4 mixed with pebbles and gravel. Dark brown like 6042, directly under 609
6107		6	Deposit	Aeolian fill inside Structure 4 mixed with pebbles and gravel. Medium brown, under 6106
6108		6	Deposit	Patch of turf collapse outside north wall of Structure 4, under 6105
6109		6	Deposit	Turf collapse outside northern wall of Structure 4, under 6105 and 6108
6110		6	Deposit	Ash dump on the northern wall of Structure 4, under 6105
6111		2	Deposit	Grey turf, possible wall collapse
6112		6	Deposit	Grey turf under floor in Structure 5 (natural)
6113		6	Deposit	Wall of Structure 5, under 6043
6114		6	Deposit	Group of stones, SE corner of Structure 5
6115		6	Deposit	Group of stones inside S wall of Structure 5
6116		6	Deposit	Group of stones inside N wall of Structure 5
6117		6	Deposit	Possible postpad, SW wall of Structure 5
6118		6	Deposit	Possible postpad, N wall of Structure 5
6119		6	Deposit	Group of stones inside N wall of Structure 5
6120		6	Deposit	Stone of N wall of Structure 5
6121		6	Deposit	Flat stone near centre of Structure 5
6122		6	Deposit	Stone on S wall, Structure 5
6123		6	Deposit	Turf wall, Structure 6
6124		6	Deposit	Gravel patch abutting Structure 6
6125		6	Deposit	Sheet midden north of Structure 5
6126		2	Deposit	Hearth stones and charcoal in centre of Structure 3
6127		2	Deposit	Charcoal patch at entrance of Structure 3
6128		2	Deposit	Dark grey brown sheet midden
6129		2	Deposit	Diffuse sheet midden on natural
6130		6	Deposit	Gravel deposit, north of Structure 4, under 6131
6131		6	Deposit	Dark, mottled turf collapse north of Structure 4, under 6109
6132		6	Deposit	Gravel/turf collapse north of Structure 4, under 6049, mottled (reddish-brown, clay)
6133		6	Deposit	Patch of reddish turf collapse NW of structure 4, under 6110
6134		6	Deposit	Compact white turf collapse, north of Structure 4, under 6110, 6109 and 6133
6135				Cancelled
6136			Deposit	Grey floor layer in Structure 3
6137		2	Deposit	Mottled grey layer in Structure 3
6138		6	Deposit	Charcoal spread, Area 6
6139		2	Deposit	Charcoal patch
6140				Cancelled
6141		2	Deposit	Grey mottled turf patch (collapse)
6142		6	Deposit	Possible north wall of Structure 4, compact white turf with pebbles

Unit No	Group	Area	Unit Type	Description
6143		6	Deposit	Reddish turf wall collapse on top of N wall of Structure 4
6144		6	Deposit	White turf deposit with gravel, NW wall of Structure 4 under 6042 and 6045
6145		6	Deposit	Compact reddish turf, NW wall of Structure 4, under 6146
6146		6	Deposit	Possible west turf wall, white turf with pebbles
6147		6	Deposit	Gravel/turf collapse, south and west of Area 6, possible new structure?
6148		6	Deposit	Reddish brown turf collapse inside Structure 4, under 6154
6149		6	Deposit	Dark brown turf gravel collapse inside Structure 4, under 6148
6150		6	Deposit	Compact grey turf deposit inside Structure 4, under 6149
6151		6	Deposit	Large stone slabs leading into Structure 4 from SE entrance
6152		6	Deposit	Gravel layer inside N wall of Structure 4, under 6142
6153		6	Deposit	Possible eastern wall of Structure 4, compact white turf with pebbles
6154		6	Deposit	reddish brown and white mottled turf deposit between north and eastern wall of Structure 4
6155		2	Deposit	Stick/Post holes on floor of Structure 3
6156		2	Deposit	Silty dark grey floor layer of Structure 3
6157		6	Deposit	Reddish brown and white mottled turf/gravel collapse, east of Structure 4
6158		2	Deposit	Orange turf east of Structure 3, part of the turf wall?
6159		6	Deposit	Dark turf collapse north of Structure 4
6160		6	Deposit	Reddish brown and white compact, mottled turf collapse, NE of Structure 4, under 6149 and 6159
6161		6	Deposit	Mottled turf/gravel collapse, NE of Structure 4, under 6160 and 6157
6162		6	Deposit	Natural gravel, S of Structure 5 under 6161
6163		2	Deposit	Pit depression, charcoal layer, Structure 3
6164		2	Deposit	White fill of square posthole in floor of Structure 3
6165		2	Deposit	Orange turf collapse, east and inside of Structure 3
6166				Cancelled
6167		2	Deposit	Walls of Structure 3
6168		2	Deposit	Gully in natural gravel around Structure 3
6169				Cancelled
6170		2	Deposit	Black charcoal/turf mix, the same as 6139?, under 6171
6171		2	Deposit	Mottled turf collapse, NE end of Structure 3, under 6165
6172				Cancelled
6173		2	Deposit	Small grey turf collapse NE corner inside of Structure 3, under 6175
6174		2	Deposit	Light brown ash layer, east side (inside) of Structure 3, under 6173
6175		2	Deposit	Charcoal deposit in NE corner inside of Structure 3, on top of 6136 and 6173
6176		2	Deposit	Turf and charcoal deposit along N wall of Structure 3, on top of 6136
6177		2	Deposit	Pit feature, Structure 3, near W wall
6178		2	Deposit	Small depression, possible posthole
6179		2	Deposit	Mottled black and brown silt, probably infilling stake holes
6180		2	Deposit	Compact grey silt, possible turf spread
6181		2	Deposit	Mottled grey, white, and red soft silt spread

Units Excavated in the Farm Mound Area: Areas 7-17

Unit No	Group	Area	Unit Type	Description
6501		7	Deposit	Top soil
6502		7	Deposit	Coal layer
6503		7	Deposit	Mixed turf debris
6504		7	Deposit	Rooted mixed layer
6505		7	Deposit	Collapsed stones
6506		7	Deposit	Collapsed stones
6507		7	Deposit	Stone collapse in peat ash dump
6508		7	Deposit	Collapsed stones in south end
6509		7	Deposit	Wall (W-E), made of fairly big stones
6510	6528	7	Deposit	Peat ash dump - Fill in cellar
6511	6511	8	Deposit	Test trench
6512		7	Deposit	Stone collapse in grey brown deposit
6513		7	Deposit	Stone collapse and debris (mixed)
6514		7	Deposit	Timber structure(?) inside building
6515	6526	9	Deposit	Subsoil with possible charcoal (<1%)
6516	6526	9	Deposit	Dark brown homogenous silky
6517	6526	9	Deposit	Blackish/sandy deposit
6518	6526	9	Deposit	Peat ash
6519	6526	9	Deposit	Peat ash mix
6520	6526	9	Deposit	Coarse gravel
6521	6526	9	Deposit	Charcoal lense
6522	6526	9	Deposit	Mixed peatash and charcoal
6523	6526	9	Deposit	White/yellowish fine gravel with burnt bones
6524	6526	9	Deposit	Charcoal lense
6525	6526	9	Deposit	Mixed peatash with charcoal and turf
6526	6526	9	Section	S and E-facing sections of test trench 9
6527		7	void	void
6528		7	Group	Group for "cellar"
6529		7	Deposit	Layer in cellar
6530		11	Fill	Fill in small cut
6531		11	Cut	Cut for small hole
6532		11	Deposit	Charcoal and peat ash layer
6533		11	Deposit	Mixed lose layer with decayed bone
6534		11	Deposit	Dull brown layer with peat ash and charcoal
6535		11	Deposit	Lensed peat ash
6536		11	Deposit	Peat ash dumps?
6537		11	Deposit	Charcoal lense
6538		11	Deposit	Smiliar to 6534
6539		11	Deposit	Charred wood, peat ash and bone fragments dump
6540		11	Deposit	Turf wall - collapse
6541		11	Deposit	Floor? Outhouse? Compact hay remains
6542		11	Deposit	Decomposed layer, very organic
6543		11	Deposit	Charcoal lense
6544		10	Deposit	Test trench, NNE of church
6545		7	Deposit	Stones in/on cellar floor
6546		7	Deposit	Stones in cellar floor
6547		13	Deposit	Clayish silt and peat ash lenses
6548		13	Deposit	Turf
6549		13	Deposit	Organic layer with peat ash and charcoal

Unit No	Group	Area	Unit Type	Description
6550		13	Deposit	Grey clay mix with silt
6551		13	Deposit	Gravel natural
6552	6560	12	Deposit	Turf debris with charcoal
6553	6560	12	Deposit	Light brown peat ash with burnt bones
6554	6560	12	Deposit	Massive charcoal layer
6555	6560	12	Deposit	Peat ash, beige colour
6556	6560	12	Deposit	Brown/orange mix with greenish hint
6557	6560	12	Deposit	Grey and massive deposit, homogenous and clayish
6558	6560	12	Deposit	Grey deposit with brownish hint
6559	6560	12	Deposit	Charcoal lense
6560	6560	12	Section	Small test trench SE on farm mound. SE and SW-facing sections
6561		14	Deposit	Tephra ~1700? Blackish brown
6562		14	Deposit	Mixed turf debris with charcoal
6563		14	Deposit	Mixed turf debris with charcoal, similar to 6562
6564		14	Deposit	Turf wall?
6565		14	Deposit	Darkish layer with iron leaching
6566		14	Deposit	Turf collapse
6567		14	Deposit	Mixed turf debris with charcoal
6568		15	Deposit	Compact turf ?debris
6569		15	Deposit	Gravel natural
6570		7	Deposit	The NE-SW turf outwall
6571	6528	7	Deposit	N-E section: Reddish turf. 19th century phase
6572	6528	7	Deposit	N-E section: Dark brown silt with charcoal inclusions (dump)
6573	6528	7	Deposit	N-Esection: Floor? Lensed
6574	6528	7	Deposit	N-E section: Turf, light brown with iron lenses
6575	6528	7	Deposit	N-E section: Darkbrown clayish layer with peat ash lenses and burnt bone
6576	6528	7	Deposit	N-E section: Midgrey brown turf incl.charcoal
6577	6528	7	Deposit	S-section: Similar to 6575 and 6576, organic layer
6578	6528	7	Deposit	N-E section: Dark brown clay with lenses of peat ash and inclusions of burnt bone and charcoal. Friable. Rubbish heap?
6579		7	Deposit	Wall of stone and turf (traverse wall to 6570)
6580		11	Cut	Cut, filled with peat ash dump [6535]
6581	6511	8	Deposit	A thin layer of peat-ash which is going under cluster of stones [6582]
6582	6511	8	Deposit	S cluster of stones

APPENDIX 2. FINDS

Finds from the Viking Age Area: Areas 2 and 6

Find No	Unit No	Area	Object Type	Material	Dimensions	Weight (g)	Quantity
1	6000	2	Vessel	Glass	2,3 x 1,2 cm	1	1
2	6000	6	Pottery	Ceramic	max: 1,2 x 1,1 cm	1	2
3	6000	6	Pottery	Ceramic		3	2
4	6000	6	Pottery	Ceramic		1	7
5	6000	6	Metalworking waste	Slag		14	0
6	6000	6	Window	Glass	Max.: 2,6x1,1 cm	3	2
8	6001	6	Metalworking waste	Slag		0,21	0
9	6001	2	Rivet/Rove	Iron	L: 2,2cm	7	1
10	6001	6	Pottery	Ceramic	1,8 x 1,3cm.	1	1
11	6001	6	Pottery	Ceramic		0,46	3
12	6001	6	Metalworking waste	Slag		0,19	0
13	6001	6	Charcoal	Wood		0	1
14	6103	2	Strap end	Composite	L: 3,6cm	3	1
15	6001	6	Indeterminate	Copper alloy	0,8 x 0,9 cm	0,43	1
16	6001	6	Nail	Iron	L: 2,7 cm	5	1
17			Discarded	Discarded	Discarded	0	0
18	6006	2	Metalworking waste	Slag		71	0
19	6006	2	Metalworking waste	Slag		256	0
20	6006	2	Metalworking waste	Slag		53	0
21	6009	6	Discarded	Discarded	Discarded	0	0
22	6009	6	Metalworking waste	Slag		4	0
23	6005	6	Nail	Iron	L: 2,3cm	2	1
24	6006	2	Rivet/Rove	Iron	2,3x1,5cm	2	1
25	6006	2	Metalworking waste	Slag		195	0
26			Discarded	Discarded	Discarded	0	0
27	6014	2	Metalworking waste	Slag		130	0
28	6015	6	Metalworking waste	Slag		8	0
29	6015	6	Discarded	Discarded	Discarded	0	0
30	6012	6	Discarded	Discarded	Discarded	0	0
31	6129	6	Bead	Glass	Diameter:1,6cm	5	1
32			Discarded	Discarded	Discarded	0	0
33	6010	2	Metalworking waste	Slag		225	0
34	6021	6	Grinding stone	Stone	Diameter: 23 cm, square hole: 4,5 x 4,5 cm	800	1
35	6014	2	Metalworking waste	Slag		36	0
36	6014	2	Metalworking waste	Slag		30	0
37	6018	6	Metalworking waste	Slag		37	0
38	6020	2	Punch	Iron	L:13,2 cm	12	1
39	6026	2	Metalworking waste	Slag		3	0
40	6024		Discarded	Discarded	Discarded	0	0
41	0		Discarded	Discarded	Discarded	0	0
42	6037	2	Metalworking waste	Slag		3	0
43	6037	2	Metalworking waste	Slag		1274	0
44	6041		Discarded	Discarded	Discarded	0	0
45	6044		Discarded	Discarded	Discarded	0	0
46	6055	2	Metalworking waste	Slag		86	0
47	6052	6	Metalworking waste	Slag		0,65	0
48	6049	6	Metalworking waste	Slag		116	0
49	6050	2	Indeterminate	Iron	1,4 x 0,8 cm	0,38	2

Find No	Unit No	Area	Object Type	Material	Dimensions	Weight (g)	Quantity
50	0		Metalworking waste	Slag		8	0
51	6063	6	Metalworking waste	Slag		3	0
52	0		Discarded	Discarded	Discarded	0	0
53	6069	2	Metalworking waste	Slag		341	0
54	6074	6	Metalworking waste	Slag		571	0
55	6073	2	Metalworking waste	Slag		2100	0
56	6078	6	Nail	Iron	L: 3,9cm	5	1
57	6075	2	Object	Iron	L6xB2,8xT1,1cm	29	1
58	6090	2	Rivet/Rove	Iron	Max: 2,4 x 1,4 cm	4	1
59	6073	2	Metalworking waste	Slag		0,21	0
60	6073	2	Nail	Iron	L: 2cm	2	1
61	6073	2	Mould?	Ceramic?	2,2 x 1,9cm.	3	1
62	6087	2	Manuport?	Stone	Max.diameter: 0,9cm	0,49	1
63	6104	2	Nail	Iron	L: 3 cm.	2	1
64	6074	6	Whetstone?	Stone	7,6 x 2,4cm.	49	1
65	6103	2	Metalworking waste	Slag		28	0
66	6103	2	Metalworking waste	Slag		234	0
67	6103	2	Metalworking waste	Slag		2	0
68	6103	2	Nail?	Iron	L: 2,6cm	6	1
69	6103	2	Rivet/Rove?	Iron	L: 1,2cm	1	1
70	6103	2	Lump	Iron	L:3,1cm	5	1
71	6103	2	Nail	Iron		2,3	1
72	6103	2	Metalworking waste	Slag		111	0
73	6103	2	Metalworking waste	Slag		134	0
74	6158	2	Metalworking waste	Slag		108	0
75	6020	2	Metalworking waste	Slag		2	0
76	6020	2	Metalworking waste	Slag		46	0
77	6020	2	Metalworking waste	Slag		5	0
78	6020	2	Flake	Stone	Max.length: 0,6 cm	1	2
79	6104	2	Metalworking waste	Slag		2	0
80	0	2	Pebble	Stone	Diameter:1,2cm	1	1
81	6057	2	Metalworking waste	Slag		43000	0
82	6096	2	Metalworking waste	Slag		3500	0
83	6057	2	Flake	Stone	Length: 1,2 cm	1	1
84	6057	2	Metalworking waste	Slag		6	0
85	6057	2	Indeterminate	Wood?	Max.length:0,9cm.	0,21	1
86	6076	2	Metalworking waste	Slag		58	0
87	6090	2	Metalworking waste	Slag		533	0
88	6096	2	Metalworking waste	Slag		0,58	0
89	6101	2	Metalworking waste	Slag		16	0
90	6090	2	Metalworking waste	Slag		35	0
91	6097	2	Metalworking waste	Slag		240	0
92	6020	2	Flake	Stone	Length: 1,2 cm	2	1
93	6020	2	Metalworking waste	Slag		408	0
94	6020	2	Metalworking waste	Slag		16	0
95	6020	2	Metalworking waste	Slag		495	0
96	6020	2	Metalworking waste	Slag		23	0
97	6076	2	Metalworking waste	Slag		81	0
98	6076	2	Metalworking waste	Slag		145	0
99	6020	2	Metalworking waste	Slag		252	0
100	6020	2	Metalworking waste	Slag		49	0
101	6076	2	Metalworking waste	Slag		31	0
102	6020	2	Metalworking waste	Slag		21	0
103	6020	2	Metalworking waste	Slag		22	0
104	6087	2	Metalworking waste	Slag		6	0
105	6069	2	Metalworking waste	Slag		255	0
106	6090	2	Metalworking waste	Slag		20	0

Find No	Unit No	Area	Object Type	Material	Dimensions	Weight (g)	Quantity
107	6075	2	Metalworking waste	Slag		13	0
108	6087	2	Metalworking waste	Slag		9	0
109	6087	2	Metalworking waste	Slag		10	0
110	6087	2	Metalworking waste	Slag		11	0
111	6020	2	Metalworking waste	Slag		17	0
112	6020	2	Metalworking waste	Slag		41	0
113	6036	2	Metalworking waste	Slag		35	0
114	6075	2	Metalworking waste	Slag		172	0
115	6034	6	Metalworking waste	Slag		34	0
116	6031	6	Metalworking waste	Slag		28	0
117	6020	2	Metalworking waste	Slag		18	0
118	6076	2	Metalworking waste	Slag		41	0
119	6080	6	Metalworking waste	Slag		28	0
120	6087	2	Metalworking waste	Slag		16	0
121	6020	2	Metalworking waste	Slag		2	0
122	6020	2	Metalworking waste	Slag		1	0
123	6020	2	Metalworking waste	Slag		1	0
124	6020	2	Metalworking waste	Slag		5	0
125	6020	2	Metalworking waste	Slag		1	0
126	6020	2	Metalworking waste	Slag		1	0
127	6020	2	Metalworking waste	Slag		1	0
128	6020	2	Metalworking waste	Slag		3	0
129	6020	2	Metalworking waste	Slag		10	0
130	6104	2	Metalworking waste	Slag		5	0
131	6082	2	Metalworking waste	Slag		24	0
132	6020	2	Metalworking waste	Slag		5	0
133	6020	2	Metalworking waste	Slag		9	0
134	6057	2	Metalworking waste	Slag		7100	0
135	6021	6	Object	Iron	Diameter: 1,7 cm, height:1,5cm	3	1
136	6021	6	Nail?	Iron	L:3,2 cm.	35	1
137	6021	6	Metalworking waste	Slag		35	0
138	6103	2	Indeterminate	Iron		1,2	1

Finds from the Farm Mound Area: Areas 7-17

Find No	Unit No	Area	Object Type	Material	Weight (g)	Count	Former find no
501	6501	7	Pottery	Ceramic	1113	344	
502	6501	7	Tobacco pipe	Ceramic	54	15	
503	6501	7	Doll	Ceramic	7	3	
504	6501	7	Pottery	Ceramic	18	23	
505	6501	7	Window	Glass	168	352	
506	6501	7	Vessel	Glass	421	28	
507	6501	7	Bottle	Glass	2084	604	
508	6501	7	Whetstone	Stone	261	6	
509	6501	7	Writing implement	Graphite	2	1	
510	6501	7	Stopper	Cork	1	1	
511	6501	7	Roof tile	Slate	17	3	
512	6501	7	Object	Leather	38	1	
513	6501	7	Brick	Ceramic	7000	61	
514	6501	7	Metalworking waste	Slag	299		
515	6501	7	Key	Iron	10	1	
516	6501	7	Handle	Iron	191	1	

Find No	Unit No	Area	Object Type	Material	Weight (g)	Count	Former find no
517	6501	7	Needle	Iron	1	2	
518	6501	7	Fish hook	Iron	7	2	
519	6501	7	Plate	Iron	1100	1	
520	6501	7	Nail	Iron	358	108	
521	6501	7	Radiator	Iron	3400	13	
522	6501	7	Object	Iron	54	1	
523	6501	7	Fitting	Iron	711	8	
524	6501	7	Handle	Iron	55,5	1	
525	6501	7	Vessel	Iron	255	2	
526	6501	7	Rivet	Iron	74	2	
527	6501	7	Bar	Iron	785	33	
528	6501	7	Hinge	Iron	126,5	3	
529	6501	7	Fitting	Copper alloy	37	1	
530	6502	7	Pottery	Ceramic	15	1	
531	6503	7	Bottle	Glass	21	4	
532	6503	7	Pottery	Ceramic	2	1	
533	6503	7	Nail	Iron	8	2	
534	6503	7	Fish hook	Iron	7	8	
535	6503	7	Indet	Iron	6	2	
536	6504	7	Vessel	Glass	7	1	
537	6504	7	Stove	Iron	669	1	
538	6504	7	Fitting	Iron	84	7	
539	6505	7	Window	Glass	18	5	
540	6505	7	Brick	Ceramic	240	8	
541	6507	7	Nail?	Iron	4	3	
542	6508	7	Pottery	Ceramic	2	1	
543	6508	7	Brick	Ceramic	158	6	
544	6508	7	Nail	Iron	12	1	
545	6510	7	Vessel	Glass	73	1	
546	6510	7	Pottery	Ceramic	540	18	
547	6510	7	Pottery	Ceramic	1962	32	
548	6510	7	Pottery	Ceramic	2356	34	
549	6510	7	Reel	Wood	5	1	
550	6510	7	Object	Composite	85	1	
551	6510	7	Rope fastener	Wood	125	1	
552	6510	7	Metalworking waste	Slag	264		
553	6510	7	Fish hook	Iron	2	2	
554	6510	7	Fitting	Metal	58	1	
555	6510	7	Wire	Copper alloy	4	1	
556	6510	7	Battery	Metal	2300	75	
557	6511	7	Bottle	Glass	4	2	
558	6511	7	Window	Glass	0.30	1	
559	6511	7	Tobacco pipe	Ceramic	4	2	
560	6511	7	Worked bone	Bone	144	1	
561	6511	7	Nail	Iron	29	6	
562	6511	7	Fitting	Iron	39	1	
563	6512	7	Pottery	Ceramic	220	38	
564	6512	7	Pottery	Ceramic	2	1	
565	6512	7	Window	Glass	237	54	
566	6512	7	Bottle	Glass	431	35	
567	6512	7	Stopper	Cork	2	1	
568	6512	7	Knife	Composite	94	1	

Find No	Unit No	Area	Object Type	Material	Weight (g)	Count	Former find no
569	6512	7	Button	Plastic?	0.50	1	
570	6512	7	Textile	Textile	8	1	
571	6512	7	Hammer	Stone	2300	1	
572	6512	7	Brick	Ceramic	10600	5	
573	6512	7	Stove	Iron	646	1	
574	6512	7	Hook	Iron	218	1	
575	6512	7	Nail	Iron	22	3	
576	6512	7	Horse shoe	Iron	210	3	
577	6512	7	Fitting	Iron	834	17	
578	6512	7	Fitting	Iron	250	4	
579	6512	7	Plate	Iron	121	4	
580	6513	7	Nail	Iron	47,8	7	
581	6529	7	Bottle	Glass	2652	12	
582	6529	7	Bulb	Composite	29	1	
583	6529	7	Vessel	Glass	99	1	
584	6529	7	Stopper	Cork	0.36	1	
585	6529	7	Textile	Textile	24	7	
586	6529	7	Coal	Coal	198		
587	6510	7	Shoe	Gum	366	2	
588	6505	7	Object	Iron	275	1	
589	6512	7	Grinding stone	Stone	32000	1	
590	6501	7	Button	Glass	125	8	
591	0	17	Window	Glass	3	1	
592	0	17	Pottery	Ceramic	13	1	
593	0	17	Lamp glass	Glass	16	1	
594	0	16	Pottery	Ceramic	13	3	
595	0	16	Pottery	Ceramic	5	1	
596	0	16	Bottle	Glass	56	3	
597	0	16	Vessel	Glass	37	1	
598	6501	7	Unworked bone	Bone			Bone no. 1
599	6501	7	Unworked bone	Bone			Bone no. 2
600	6507	7	Unworked bone	Bone			Bone no. 3
601	6510	7	Unworked bone	Bone			Bone no. 5
602	6511	8	Unworked bone	Bone			Bone no. 6
603	6513	7	Unworked bone	Bone			Bone no. 7
604	0	17	Unworked bone	Bone			Bone no. 8
605	0	16	Unworked bone	Bone			Bone no. 9
606	6505	7	Unworked bone	Bone			Bone no. 10
607	0	17	Unworked bone	Bone			Bone no. 11
608	0	16	Unworked bone	Bone			Bone no. 12
609	6508	7	Unworked bone	Bone			Bone no. 4
610	6513	7	Fish hook	Iron	1,7	1	
611	6513	7	Fitting	Iron	12	3	
612	6510	7	Post	Wood	500	1	
613	6510	7	Barrel	Wood	200	1	

APPENDIX 3. BONES

Bones from the Viking Age Area: Areas 2 and 6

Bone No	Area No	Unit No	Quantity of Bags	Description
1	6	6000	1	Burnt bone fragments
2	2	6001	1	Burnt bone fragments
3	6	6001	1	Burnt bone fragments
4	6	6001	1	Burnt bone fragments
5	6	6001	1	Burnt bone fragments
6	6	6001	1	Burnt bone fragments
7	6	6001	1	Burnt bone fragments
8	6	6001	1	Burnt bone fragments
9	6	6001	1	Burnt bone fragments
10	6	6001	1	Burnt bone fragments
11	6	6001	1	Burnt bone fragments
12	6	6001	1	Burnt bone fragments
13	2	6001	1	Burnt bone fragments
14	6	6001	1	Burnt bone fragments
15	2	6001	1	Burnt bone fragments
16	6	6001	1	Burnt bone fragments
17	6	6003	1	Burnt bone fragments
18	6	6004	1	Burnt bone fragments
19	2	6006	1	Burnt bone fragments
20	2	6006	1	Burnt bone fragments
21	6	6009	1	Burnt bone fragments
22	6	6005	1	Burnt bone fragments
23	2	6006	1	Burnt bone fragments
24	6	6009	1	Burnt bone fragments
25	6	6005	1	Burnt bone fragments
26	2	6014	1	Burnt bone fragment
27	6	6015	1	4 Burnt bone fragments
28	2	6019	1	Tooth fragments
29	6	6018	1	Burnt bone fragments
30	2	6014	1	Burnt bone fragments
31	2	6026	1	Burnt bone fragments
32	2	6024	1	Burnt bone fragments
33	2	6030	1	Burnt bone fragments
34	2	6028	1	Burnt bone fragments
35	6	6038	1	Burnt bone fragments
36	6	6029	1	Burnt bone fragments
37	2	6041	1	Burnt bone fragments
38	6	6043	1	Burnt bone fragments
39	2	6044	1	Small brown bone
40	2	6046	1	Teeth bone fragments

Bone No	Area No	Unit No	Quantity of Bags	Description
41	6	6049	1	Bones from north wall collapse of structure 4
42	6	6070	1	Tooth, 2 pieces
43	6	6063	1	Bone from turf collapse in structure 4
44	6	6072	1	Bone
45	2	6073	1	Burnt bone fragments
46	2	6085	1	Burnt bone fragments
47	2	6099	1	One fragment burnt bone
48	6	6092	1	One fragment burnt bone
49	6	6105	1	Burnt bone fragment
50				DELETED
51				DELETED
52				DELETED
53	2	6103	1	Bone fragments
54	2	6103	1	Burnt bone fragments
55	2	6103	1	Burnt bone fragments
56	2	6103	1	Burnt bone fragments
57	2	6103	1	Burnt bone fragments
58	6	6110	1	Burnt bone fragments
59	2	6103	1	Burnt bone fragments
60	2	6129	1	Burnt bone fragments and toothfragments
61	6	6125	1	1 bone fragment
62	2	6020	1	Bone fragments in heavy residue, S-115
63	6	6120	1	Bone fragments in heavy residue, S-302
64	2	6020	1	Bone fragments in heavy residue, S-131
65	6	6138	1	Bone fragments in heavy residue, S-303
66	2	6104	1	Bone fragments in heavy residue, S-244
67	2	6104	1	Bone fragments in heavy residue, S-246
68	2	6057	1	Bone fragments in heavy residue, S-153
69	2	6076	1	Bone fragments in heavy residue, S-179
70	2	6090	1	Bone fragments in heavy residue, S-199
71	2	6096	1	Bone fragments in heavy residue, S-211
72	2	6101	1	Bone fragments in heavy residue, S-215
73	2	6020	1	Bone fragments in heavy residue, S-119
74	2	6044	1	1 tooth
75	2	6020	1	Bone fragments from heavy residue, S-117
76	2	6020	1	Bone fragments from heavy residue, S-167
77	2	6075	1	Bone fragments from heavy residue, S-172
78	6	6034	1	Bone fragments from heavy residue, S-140
79	2	6076	1	Bone fragments from heavy residue, S-183
80	2	6020	1	Bone fragments from heavy residue, S-114
81	2	6020	1	Bone fragments from heavy residue, S-178
82	2	6020	1	Bone fragments from heavy residue, S-165
83	2	6020	1	Bone fragments from heavy residue, S-123
84	2	6076	1	Bone fragments from heavy residue, S-180
85	2	6020	1	Bone fragments from heavy residue, S-159

Bone No	Area No	Unit No	Quantity of Bags	Description
86	2	6020	1	Bone fragments from heavy residue, S-116
87	2	6020	1	Bone fragments from heavy residue, S-121
88	2	6076	1	Bone fragments from heavy residue, S-180
89	2	6020	1	Bone fragments from heavy residue, S-158
90	2	6019	1	Bone fragments from heavy residue, S-048
91	2	6057	1	Bone fragments from heavy residue, S-153
92	2	6020	1	Bone fragments from heavy residue, S-128
93	2	6020	1	Bone fragments from heavy residue, S-160
94	2	6020	1	Bone fragments from heavy residue, S-157
95	2	6076	1	Bone fragments from heavy residue, S-182
96	2	6090	1	Bone fragments from heavy residue, S-198
97	2	6087	1	Bone fragments from heavy residue, S-207
98	2	6087	1	Bone fragments from heavy residue, S-203
99	2	6087	1	Bone fragments from heavy residue, S-202
100	2	6087	1	Bone fragments from heavy residue, S-210
101	2	6087	1	Bone fragments from heavy residue, S-200
102	2	6020	1	Bone fragments from heavy residue, S-168
103	2	6020	1	Bone fragments from heavy residue, S-126

Bones from the Farm Mound Area: Areas 7-17

Bone No	Area No	Unit No	Quantity of Bags	Description	New find no
1	7	6501	4	Bones from topsoil in Area 7	594
2	7	6501	1	Bones from cleaning under [6501]	595
3	7	6507	1	Burned bone fragments	596
4	7	6508	1	Bone fragments	597
5	7	6510	2	Bones from 20th century fill of cellar	598
6	8	6511	1	Bone fragments from test trench	599
7	7	6513	1	Bones	600
8	17	0	1	Assorted bones from section 17	601
9	16	0	1	Assorted bones from section 16	602
10	7	6505	1	Bone fragments	603
11	17	0	1	Unstratified bones from section 17	604
12	17	0	1	Unstratified bones from section 17	605

APPENDIX 4. SAMPLES

Samples from the Viking Age Area: Areas 2 and 6

Sample No	Area No	Unit No	Grid	Sample Type	Quantity of bags/ buckets	Description
1	6	6004	879/1045	Chemical	1	Reddish brown turf with silt and clay
2	6	6002	874/1050	Chemical	1	Reddish brown turf with silt and clay
3	6	6003		Chemical	1	Chemical sample of turf
4	6	6005	879/1035	Identification	1	Burnt seaweed
5	6	6007	879/1050	Chemical	1	Turf collapse material
6	6	6009	874/1040	Identification	1	6 small pieces of charcoal
7	2	6010	889.25/1045.25	Chemical	1	Structure 3 floor
8	2	6010	888.25/1045.20	Chemical	1	Structure 3 floor
9	2	6010	888.25/1045.06	Chemical	1	Structure 3 floor
10	6	6010	874/1040	Chemical	1	Chemical sample
11	2	6010	888.75/1044.75	Chemical	1	Structure 3 floor
12	2	6010	888.25/1044.75	Chemical	1	Structure 3 floor
13	2	6010	887.75/1044.75	Chemical	1	Structure 3 floor
14	2	6010	888.75/1044.25	Chemical	1	Structure 3 floor
15	2	6010	888.25/1044.25	Chemical	1	Structure 3 floor
16	2	6010	887.75/1044.25	Chemical	1	Structure 3 floor
17	2	6010	887.25/1044.25	Chemical	1	Structure 3 floor
18	2	6010	888.75/1043.75	Chemical	1	Structure 3 floor
19	2	6010	888.25/1043.75	Chemical	1	Structure 3 floor
20	2	6010	887.75/1043.75	Chemical	1	Structure 3 floor
21	2	6010	887.25/1043.75	Chemical	1	Structure 3 floor
22	2	6010	885.75/1043.75	Chemical	1	Structure 3 floor
23	2	6010	888.75/1043.25	Chemical	1	Structure 3 floor
24	2	6010	888.25/1043.25	Chemical	1	Structure 3 floor
25	2	6010	887.75/1043.25	Chemical	1	Structure 3 floor
26	2	6010	887.25/1043.25	Chemical	1	Structure 3 floor
27	2	6010	886.75/1043.25	Chemical	1	Structure 3 floor
28	2	6010	886.25/1043.25	Chemical	1	Structure 3 floor
29	2	6010	885.75/1043.25	Chemical	1	Structure 3 floor
30	2	6010	888.75/1042.75	Chemical	1	Structure 3 floor
31	2	6010	889.25/1044.25	Chemical	1	Structure 3 floor
32	2	6010	889.25/1043.75	Chemical	1	Structure 3 floor
33	2	6010	889.25/1043.25	Chemical	1	Structure 3 floor
34	2	6010	889.75/1043.25	Chemical	1	Structure 3 floor
35	2	6010	889.25/1042.75	Chemical	1	Structure 3 floor
36	2	6010	889.75/1042.75	Chemical	1	Structure 3 floor
37	2	6010	890.25/1042.75	Chemical	1	Structure 3 floor
38	2	6010	887.75/1044.08	Chemical	1	Structure 3 floor
39	2	6010	887.75/1043.75	Chemical	1	Structure 3 floor
40	2	6010	887.25/1043.75	Chemical	1	Structure 3 floor
41	2	6010	886.75/1041.25	Chemical	1	Structure 3 floor
42	2	6010	887.25/1041.25	Chemical	1	Structure 3 floor
43	2	6010	888.75/1041.80	Chemical	1	Structure 3 floor

Sample No	Area No	Unit No	Grid	Sample Type	Quantity of bags/ buckets	Description
44	6	6012	874/1040	Chemical	1	Small turf concentration (lump)
45	6	6009		Identification	1	Charcoal fragments
46	6	6015	874/1035	Identification	1	Charcoal fragments
47	2	6010	886.5/1041.2	Identification	1	Seaweed patch on structure 3 floor
48	2	6019	894/1040	Chemical	1	Charcoal patch
49	2	6014	889/1040	Identification	1	Unknown charred material
50	2	6014	894/1040	Chemical	1	Chemical sample
51	6	6018	879/1040	Identification	1	Charcoal
52	2	6019	894/1040	Chemical	1	Chemical sample (charcoal)
53	2	6019	894/1040	Identification	1	Wood
54	6	6018	879/1040	Chemical	1	Structure 5 floor
55						Cancelled
56	6	6021	877.4/1042.8	Chemical	1	Black floor structure 5
57	6	6021	877.3/1042.3	Chemical	1	Black floor structure 5
58	6	6021	877.3/1041.7	Chemical	1	Black floor structure 5
59	6	6021	877.7/1041.4	Chemical	1	Black floor structure 5
60	6	6021	877.7/1041.8	Chemical	1	Black floor structure 5
61	6	6021	877.7/1042.2	Chemical	1	Black floor structure 5
62	6	6021	877.7/1042.8	Chemical	1	Black floor structure 5
63	6	6021	878.3/1042.4	Chemical	1	Black floor structure 5
64	6	6021	878.3/1041.7	Chemical	1	Black floor structure 5
65	6	6021	879.1/1041.4	Chemical	1	Black floor structure 5
66	6	6021	878.8/1042.1	Chemical	1	Black floor structure 5
67	6	6021	878.7/1041.7	Chemical	1	Black floor structure 5
68	6	6021	879.1/1042.3	Chemical	1	Black floor structure 5
69	6	6021	879.7/1042.3	Chemical	1	Black floor structure 5
70	6	6021	880.3/1042.3	Chemical	1	Black floor structure 5
71	6	6021	880.7/1042.1	Chemical	1	Black floor structure 5
72	6	6021	880.1/1041.7	Chemical	1	Black floor structure 5
73	6	6021	880.7/1041.9	Chemical	1	Black floor structure 5
74	2	6022	894/1040	Identification	1	Slag deposit
75	2	6020	888.35/1045.25	Chemical	1	Structure 3 floor (charcoal)
76	2	6020	888.40/1045.20	Chemical	1	Structure 3 floor (charcoal)
77	2	6020	888.70/1044.80	Chemical	1	Structure 3 floor (charcoal)
78	2	6020	888.30/1044.70	Chemical	1	Structure 3 floor (charcoal)
79	2	6020	888.75/1044.25	Chemical	1	Structure 3 floor (charcoal)
80	2	6020	888.25/1044.25	Chemical	1	Structure 3 floor (charcoal)
81	2	6020	887.80/1044.70	Chemical	1	Structure 3 floor (charcoal)
82	2	6020	887.80/1044.20	Chemical	1	Structure 3 floor (charcoal)
83	2	6020	888.65/1043.85	Chemical	1	Structure 3 floor (charcoal)
84	2	6020	888.25/1043.75	Chemical	1	Structure 3 floor (charcoal)
85	2	6020	887.75/1043.75	Chemical	1	Structure 3 floor (charcoal)
86	2	6020	887.30/1043.70	Chemical	1	Structure 3 floor (charcoal)
87	2	6020	886.75/1043.75	Chemical	1	Structure 3 floor (charcoal)
88	2	6020	885.25/1043.25	Chemical	1	Structure 3 floor (charcoal)
89	2	6020	887.75/1043.30	Chemical	1	Structure 3 floor (charcoal)
90	2	6020	887.75/1043.40	Chemical	1	Structure 3 floor (charcoal)
91	2	6020	886.75/1043.40	Chemical	1	Structure 3 floor (charcoal)

Sample No	Area No	Unit No	Grid	Sample Type	Quantity of bags/ buckets	Description
92	2	6020	887.20/1044.10	Chemical	1	Structure 3 floor (charcoal)
93	2	6020	886.25/1043.75	Chemical	1	Structure 3 floor (charcoal)
94	2	6020	886.25/1043.30	Chemical	1	Structure 3 floor (charcoal)
95	2	6020	885.70/1043.45	Chemical	1	Structure 3 floor (charcoal)
96	2	6020	888.90/1042.75	Chemical	1	Structure 3 floor (charcoal)
97	2	6020	888.90/1042.25	Chemical	1	Structure 3 floor (charcoal)
98	2	6020	889.25/1044.75	Chemical	1	Structure 3 floor (charcoal)
99	2	6020	889.75/1044.75	Chemical	1	Structure 3 floor (charcoal)
100	2	6020	890.10/1044.80	Chemical	1	Structure 3 floor (charcoal)
101	2	6020	889.75/1044.25	Chemical	1	Structure 3 floor (charcoal)
102	2	6020	889.10/1044.25	Chemical	1	Structure 3 floor (charcoal)
103	2	6020	889.35/1043.20	Chemical	1	Structure 3 floor (charcoal)
104	2	6020	889.60/1043.15	Chemical	1	Structure 3 floor (charcoal)
105	2	6020	889.25/1042.75	Chemical	1	Structure 3 floor (charcoal)
106	2	6020	889.75/1042.75	Chemical	1	Structure 3 floor (charcoal)
107	2	6020	890.25/1042.75	Chemical	1	Structure 3 floor (charcoal)
108	2	6020	889.25/1042.25	Chemical	1	Structure 3 floor (charcoal)
109	2	6020	889.25/1042.40	Chemical	1	Structure 3 floor (charcoal)
110	2	6020	889.25/1045.25	Chemical	1	Structure 3 floor (charcoal)
111	2	6020	889.75/1040.25	Chemical	1	Structure 3 floor (charcoal)
112	2	6020	889.70/1045.60	Chemical	1	Structure 3 floor (charcoal)
113	2	6020	890.10/1045.40	Chemical	1	Structure 3 floor (charcoal)
114	2	6020	884.25/1044.75	Floatation	1	Structure 3 floor (charcoal)
115	2	6020	889.25/104475	Floatation	1	Structure 3 floor (charcoal)
116	2	6020	890.12/1044.75	Floatation	1	Structure 3 floor (charcoal)
117	2	6020	889.10/1044.25	Floatation	1	Structure 3 floor (charcoal)
118	2	6024	884/1040	Chemical	1	Gravel turf collapse around structure 3
119	2	6020	889.30/1043.20	Floatation	1	Structure 3 floor (charcoal)
120	2	6020	889.24/1024.75	Floatation	1	Structure 3 floor (charcoal)
121	2	6020	889.60/1043.15	Floatation	1	Structure 3 floor (charcoal)
122	2	6026	889/1045	Identification	1	Charred material
123	2	6020	888.25/1045.25	Floatation	1	Structure 3 floor (charcoal)
124	2	6020	885.70/1043.45	Floatation	1	Structure 3 floor (charcoal)
125	2	6020	886.75/1043.75	Floatation	1	Structure 3 floor (charcoal)
126	2	6020	886.25/1043.75	Floatation	1	Structure 3 floor (charcoal)
127	2	6020	886.25/1043.40	Floatation	1	Structure 3 floor (charcoal)
128	2	6020	886.75/1043.40	Floatation	1	Structure 3 floor (charcoal)
129	6	6021		Micromorph	1	Floor of structure 5
130	2	6020	889.75/1045,25	Micromorph	1	Floor of structure 5
131	2	6020	888.25/1043.75	Floatation	1	Structure 3 floor (charcoal)
132	2	6020	889.25/1045.25	Floatation	1	Structure 3 floor (charcoal)
133	2	6020	889,78/1045,60	Floatation	1	Structure 3 floor (charcoal)
134	2	6020	889,10/1045,35	Floatation	1	Structure 3 floor (charcoal)
135	2	6020	889,75/1043,75	Floatation	1	Structure 3 floor (charcoal)
136	6	6031	874/1046	Chemical	1	Sample from post hole
137	6	6036	879/1040	Floatation	2	
138	6	6038	874/1035	Chemical	1	Southeast part of structure 4
139	2	6037		Identification	1	Charcoal from floor layer structure 3

Sample No	Area No	Unit No	Grid	Sample Type	Quantity of bags/ buckets	Description
140	6	6034	879/1040	Floatation	1	Posthole fill
141	6	6040	879/1035	Chemical	1	Red-brown turf spread
142	6	6043	879/1040	Identification	1	Charcoal ID
143	6	6048	879/1040	Identification	1	Charcoal ID
144	6	6048	879/1040	Chemical	1	Chemical sample
145	6	6053	879/1040	Chemical	1	Chemical sample
146	6	6049		Chemical	1	Chemical sample
147	2	6057	889/1045	Identification	1	Slag ID
148	2	6057	889/1045	Identification	1	Slag ID
149	2	6057	889/1045	Identification	1	Slag ID
150	2	6057	889/1045	Identification	1	Slag ID
151						Cancelled
152						Cancelled
153	2	6057	889/1045	Floatation	9	Structure 3 floor (charcoal)
154	2	6020		Floatation	1	Structure 3 floor (charcoal)
155	2	6059		Identification	1	?Organic (Bark?)
156	2	6068	889/1040	Chemical	1	Dark Brown Silt
157	2	6020	888.25/1043.25	Floatation	1	Structure 3 floor
158	2	6020	887.75/1043.30	Floatation	1	Structure 3 floor
159	2	6020	887.25/1043.40	Floatation	1	Structure 3 floor
160	2	6020	889.75/1042.75	Floatation	1	Structure 3 floor
161	2	6020	889.25/1042.25	Floatation	1	Structure 3 floor
162	2	6020	890.25/1042.75	Floatation	1	Structure 3 floor
163	2	6069	889/1040	Slag	1	In burnt turf or peat ash
164	2	6057	889/1045	Botanical	1	Small wood fragment for ID
165	2	6020	887.25/1040.75	Floatation	1	Structure 3 floor
166	6	6070	874/1040	Chemical	1	Chemical sample
167	2	6020	888.75/1044.75	Floatation	1	Structure 3 floor
168	2	6020	888.25/1044.25	Floatation	1	Structure 3 floor
169	6	6070	874/1040	Identification	1	Charcoal ID
170	2	6073	889/1040	Chemical	1	Burnt turf
171	2	6075	884/1040	Chemical	1	Structure 3 floor
172	2	6075	884/1040	Chemical	1	Structure 3 floor
173	2	6075	889.4/1044.2	Chemical	1	Structure 3 floor
174	2	6075	889.75/1044.25	Chemical	1	Structure 3 floor
175	2	6075	889.75/1043.75	Chemical	1	Structure 3 floor
176	2	6075	890.75/1044.35	Chemical	1	Structure 3 floor
177	2	6075	890.25/1043.7	Chemical	1	Structure 3 floor
178	2	6020	889.25/1044.75	Floatation	1	Charcoal, Structure 3 floor
179	2	6075	889.4/1044.2	Floatation	1	Structure 3 floor
180	2	6075	889.75/1044.25	Floatation	1	Structure 3 floor
181	2	6075	889.75/1043.75	Floatation	1	Structure 3 floor
182	2	6075	890.75/1044.35	Floatation	1	Structure 3 floor
183	2	6075	890.25/1043.70	Floatation	1	Structure 3 floor
184	2	6082	888/1044	Chemical	1	Charocal layer on west wall of Structure 3
185	2	6082	888/1044	Floatation	1	Charocal layer on west wall of Structure 3
186	6	6080	879/1040	Floatation	1	Posthole fill
187	2	6085	889/1040	Chemical	1	Ash layer

Sample No	Area No	Unit No	Grid	Sample Type	Quantity of bags/ buckets	Description
188	2	6087	888/1044	Chemical	1	Charcoal layer Structure 3
189	2	6081		Identification	1	Wood/charcoal for ID
190	2	6087	888.5/1040.8	Chemical	1	Ash layer
191	2	6087	888.2/1043.8	Chemical	1	Ash layer
192	2	6087	888.6/1042	Chemical	1	Ash layer
193	2	6087	888.3/1042.9	Chemical	1	Ash layer
194	2	6090	890.8/1044.5	Chemical	1	Structure 3 floor
195	2	6090	890.5/1042.25	Chemical	1	Structure 3 floor
196	2	6090	890.2/1044.5	Chemical	1	Structure 3 floor
197	2	6090	890.5/1043.25	Floatation	1	Structure 3 floor
198	2	6090	890.8/1044	Floatation	1	Structure 3 floor
199	2	6090	890.2/1044.5	Floatation	1	Structure 3 floor
200	2	6087	888.2/1043.8	Floatation	1	Structure 3 floor
201	2	6087	888.5/1043.8	Floatation	1	Structure 3 floor
202	2	6087	887.4/1042.9	Floatation	1	Structure 3 floor
203	2	6087	887.8/1043.3	Floatation	1	Structure 3 floor
204	2	6087	887.3/1043.3	Floatation	1	Structure 3 floor
205	2	6087	886.7/1043.4	Floatation	1	Structure 3 floor
206	2	6087	887.3/1043.9	Floatation	1	Structure 3 floor
207	2	6087	886.8/1043.8	Floatation	1	Structure 3 floor
208	2	6087	887/1044.8	Floatation	1	Structure 3 floor
209	2	6087	887.7/1043.8	Floatation	1	Structure 3 floor
210	2	6087	888/1044.1	Floatation	1	Structure 3 floor
211	2	6096	889/1045	Floatation	2	Slag dump/charcoal
212	2	6097		Chemical	1	Structure 3 floor
213	2	6097		Chemical	1	Structure 3 floor
214	2	6099	888/1044	Chemical	1	Turf patch
215	2	6101	889/1040	Floatation	0	Charcoal and turf patch
216	6	6106	869/1055	Chemical	1	Structure 4
217	2	6103	884/1040	Identification	1	Charcoal ID
218	6	6107	869/1035	Chemical	1	Chem. Sample, Structure 4
219	6	6107	869/1035	Identification	1	Charcoal Sample
220	6	6103	883/1044	Identification	1	Charcoal ID - bark?
221	2	6104	889/1043	Chemical	1	Grey ash, Structure 3
222	2	6104	888.9/1042.7	Chemical	1	Brown floor, Structure 3
223	2	6104	888.9/1044.7	Chemical	1	Brown floor, Structure 3
224	2	6104	888.9/1042.2	Floatation	1	Brown floor, Structure 3
225	2	6104	888.8/1042.7	Chemical	1	Brown floor, Structure 3
226	2	6103	883/1045	Identification	1	Charcoal ID - twig
227	2	6104	888.4/1043.7	Chemical	1	Brown floor, Structure 3
228	2	6104	887.8/1044.8	Chemical	1	Brown floor, Structure 3
229	2	6104		Chemical	1	Brown floor, Structure 3
230	2	6104	887.9/1043.9	Chemical	1	Brown floor, Structure 3
231	2	6104	888.8/1043.3	Chemical	1	Brown floor, Structure 3
232	2	6103		Identification	1	Uncharred wood, interface [6103] and wall
233	2	6104		Chemical	1	Brown floor, Structure 3
234	2	6104	888.8/1043.7	Chemical	1	Brown floor, Structure 3
235	2	6103		Identification	1	Bark sample for ID
236	2	6104	887.1/1043.7	Chemical	1	Brown floor, Structure 3

Sample No	Area No	Unit No	Grid	Sample Type	Quantity of bags/ buckets	Description
237	2	6104	888/1044.2	Chemical	1	Brown floor, Structure 3
238	2	6104	888.8/1044.2	Chemical	1	Brown floor, Structure 3
239	2	6104	888.3/1044.8	Chemical	1	Brown floor, Structure 3
240	6	6110	869/1040	Chemical	1	Charcoal
241	6	6110	869/1040	Identification	1	Charcoal
242	2	6104	888.5/1044.5	Floatation	1	Brown floor, Structure 3
243	2	6104	886.5/1044.5	Chemical	1	Brown floor, Structure 3
244	2	6104	886.5/1044.9	Floatation	1	Brown floor, Structure 3
245	2	6104	888.3/1044.8	Floatation	1	Brown floor, Structure 3
246	2	6104	887.25/1044.75	Floatation	1	Brown floor, Structure 3
247	2	6104	888.2/1043.2	Chemical	1	Brown floor, Structure 3
248	2	6104	887.9/1044.2	Chemical	1	Brown floor, Structure 3
249	2	6104	887.5/10043.1	Chemical	1	Brown floor, Structure 3
250	2	6104	887.8/1043.8	Chemical	1	Brown floor, Structure 3
251					0	Cancelled
252	2	6104	888.1/1043.8	Chemical	1	Brown floor, Structure 3
253	2	6104	887.5/1043	Chemical	1	Brown floor, Structure 3
254	2	6104	888.3/1045.1	Chemical	1	Brown floor, Structure 3
255	2	6104	887.25/1044.75	Chemical	1	Brown floor, Structure 3
256	2	6104	888.8/1045.2	Chemical	1	Brown floor, Structure 3
257	2	6104	888.3/1045.1	Chemical	1	Brown floor, Structure 3
258	2	6104	889.8/1044.7	Floatation	1	Brown floor, Structure 3
259	2	6104	889.5/1044.7	Floatation	1	Brown floor, Structure 3
260	2	6104	887/1044	Chemical	1	Brown floor, Structure 3
261	2	6104	888.75/1044.75	Chemical	1	Brown floor, Structure 3
262	2	6104	888.3/1044.3	Chemical	1	Brown floor, Structure 3
263	2	6103	884/1045	Pollen	1	Charred seaweed
264	6	6112	880.8/1043.1	Chemical	1	Turf floor, Structure 5
265	6	6112	880.8/1042.2	Chemical	1	Turf floor, Structure 5
266	6	6112	880.8/1042.3	Chemical	1	Turf floor, Structure 5
267	6	6112	880.8/1041.6	Chemical	1	Turf floor, Structure 5
268	6	6112	880.7/1041.4	Chemical	1	Turf floor, Structure 5
269	6	6112	880.25/1043.1	Chemical	1	Turf floor, Structure 5
270	6	6112	880.25/1048.75	Chemical	1	Turf floor, Structure 5
271	6	6112	880.25/1042.25	Chemical	1	Turf floor, Structure 5
272	6	6112	880.25/1041.75	Chemical	1	Turf floor, Structure 5
273	6	6112	880.25/1041.4	Chemical	1	Turf floor, Structure 5
274	6	6112	879.75/1043.1	Chemical	1	Turf floor, Structure 5
275	6	6112	879.25/1042.75	Chemical	1	Turf floor, Structure 5
276	6	6112	879.75/1042.25	Chemical	1	Turf floor, Structure 5
277	6	6112	879.75/1041.75	Chemical	1	Turf floor, Structure 5
278	6	6112	879.75/1041.4	Chemical	1	Turf floor, Structure 5
279	6	6112	879.25/1043.1	Chemical	1	Turf floor, Structure 5
280	6	6112	879.25/1042.25	Chemical	1	Turf floor, Structure 5
281	6	6112	879.25/1042.25	Chemical	1	Turf floor, Structure 5
282	6	6112	879.25/1041.75	Chemical	1	Turf floor, Structure 5
283	6	6112	879.25/1041.4	Chemical	1	Turf floor, Structure 5
284	6	6112	878.75/1043.1	Chemical	1	Turf floor, Structure 5
285	6	6112	878.75/1042.75	Chemical	1	Turf floor, Structure 5
286	6	6112	878.75/1042.25	Chemical	1	Turf floor, Structure 5

Sample No	Area No	Unit No	Grid	Sample Type	Quantity of bags/ buckets	Description
287	6	6112	878.75/1041.75	Chemical	1	Turf floor, Structure 5
288	6	6112	878.75/1041.3	Chemical	1	Turf floor, Structure 5
289	6	6112	878.25/1045.1	Chemical	1	Turf floor, Structure 5
290	6	6112	878.25/1042.75	Chemical	1	Turf floor, Structure 5
291	6	6112	878.25/1042.25	Chemical	1	Turf floor, Structure 5
292	6	6112	878.25/1041.75	Chemical	1	Turf floor, Structure 5
293	6	6112	878.25/1041.3	Chemical	1	Turf floor, Structure 5
294	6	6112	877.75/1042.75	Chemical	1	Turf floor, Structure 5
295	6	6112	877.75/1042.25	Chemical	1	Turf floor, Structure 5
296	6	6112	877.75/1041.75	Chemical	1	Turf floor, Structure 5
297	6	6112	877.75/1041.3	Chemical	1	Turf floor, Structure 5
298	6	6112	877.25/1042.75	Chemical	1	Turf floor, Structure 5
299	6	6112	877.25/1042.25	Chemical	1	Turf floor, Structure 5
300	6	6112	877.25/1041.75	Chemical	1	Turf floor, Structure 5
301	6	6112	877.25/1041.3	Chemical	1	Turf floor, Structure 5
302	6	6112	878/1042	Floatation	1	Under large flat stone
303	6	6138	874/1045	Floatation	1	Charcoal spread
304	6	6125	884/1045	Identification	1	Charcoal pieces
305	2	6020	889.75/1044.75	Identification	1	Charred material, heavy residue from S-115
306	2	6020	889.75/1044.75	Insects	1	Insects, heavy residue S-115
307	2	6020	888.25/1043.75	Identification	1	Charred material, heavy residue from S-131
308	6	6120	878/1042	Identification	1	Charred plant, heavy residue from S-302
309	2	6104	888.9/1042.2	Identification	1	Charred plant, heavy residue from S-224
310	2	6104	887.25/1044.75	Identification	1	Charred plant, heavy residue from S-246
311	2	6104	884.5/1044.9	Identification	1	Charred plant, heavy residue from S-244
312	2	6057	889/1045	Insects	1	Insect, heavy residue from S-153
313	2	6057	889/1045	Identification	1	Charred plant, heavy residue from S- 153
314	2	6076	889.4/1044.2	Identification	1	Charred plant, heavy residue from S-179
315	2	6090	890.2/1044.5	Identification	1	Charred plant, heavy residue from S-199
316	2	6096	889/1045	Identification	1	Charred plant, heavy residue from S-211
317	2	6101	889/1040	Identification	1	Charred plant, heavy residue from S-215
318	2	6090	890.5/1043.25	Identification	1	Charred plant heavy residue from S-197
319	2	6097		Identification	1	Charred plant, heavy residue from S-213
320	2	6020	889.3/1043.2	Identification	1	Charred plant heavy residue from S-119
321	6	6092		Identification	1	Charcoal for ID
322	2	6069	889/1040	Identification	1	Charred plant, heavy residue from S-163
323	2	6020	889.25/1045.25	Identification	1	Charred plant, heavy residue from S-132

Sample No	Area No	Unit No	Grid	Sample Type	Quantity of bags/ buckets	Description
324	2	6057	884/1040	Identification	1	Charred plant heavy residue from S-172
325	6	6034	879/1040	Identification	1	Charred plant, heavy residue from S-140
326	2	6076	890.25/1043.70	Identification	1	Charred plant, heavy residue from S-183
327	2	6020	889.25/1044.75	Identification	1	Charred plant, heavy residue from S-114
328	2	6020	889.25/1042.25	Identification	1	Charred plant, heavy residue from S-161
329	2	6104	888.3/1044.3	Identification	1	Charred plant, heavy residue from S-245
330	6	6031	874/1040	Identification	1	Charred plant, heavy residue from S-136
331	2	6020	889.25/1044.75	Identification	1	Charred plant, heavy residue from S-178
332	2	6020	889.24/1042.35	Identification	1	Charred plant, heavy residue from S-120
333	2	6020	888.75/1044.75	Identification	1	Charred plant, heavy residue from S-167
334	2	6036	879/1040	Identification	1	Charred plant, heavy residue from S-137
335	2	6020	889.10/1044.25	Identification	1	Charred plant, heavy residue from S-117
336	2	6057		Identification	1	Charred plant, heavy residue from S-153
337	2	6082	888/1044	Identification	1	Charred plant, heavy residue from S-185
338	2	6020	887.25/1040.75	Identification	1	Charred plant, heavy residue from S-165
339	2	6020	888.75/1045.25	Identification	1	Charred plant, heavy residue from S-123
340	2	6076	889.75/1044.25	Identification	1	Charred plant, heavy residue from S-180
341	2	6020	887.25/1043.40	Identification	1	Charred plant, heavy residue from S-159
342	2	6020	890.12/1044.15	Identification	1	Charred plant, heavy residue from S-116
343	2	6020	889.60/1043.15	Identification	1	Charred plant, heavy residue from S-121
344	2	6020	887.75/1043.30	Identification	1	Charred plant, heavy residue from S-158
345	2	6020	889.75/1045.25	Identification	1	Charred plant, heavy residue from S-130
346	2	6020	889.75/1042.75	Identification	1	Charred plant, heavy residue from S-160
347	2	6020	888.25/1043.25	Identification	1	Charred plant, heavy residue from S-157
348	2	6076	890.75/1044.35	Identification	1	Charred plant from heavy residue, S-182
349	2	6090	890.8/1044	Identification	1	Charred plant, heavy residue from S-198
350	2	6075	889.75/1043.75	Identification	1	Charred plant, heavy residue from S-181
351	2	6087	887.7/1043.8	Identification	1	Charred plant, heavy residue from S-209
352	2	6087	887.8/1043.7	Identification	1	Charred plant, heavy residue

Sample No	Area No	Unit No	Grid	Sample Type	Quantity of bags/ buckets	Description
						from S-203
353	2	6087	886.8/1043.8	Identification	1	Charred plant, heavy residue from S-207
354	2	6020		Identification	1	Charred plant, heavy residue from S-154
355	6	6021	877.7/1041.8	Identification	1	Charred plant, heavy residue from S-60
356	2	6020	890.25/1042.75	Identification	1	Charred plant, heavy residue from S-162
357	2	6020	886.25/1043.4	Identification	1	Charred plant, heavy residue from S-127
358	2	6020	886.25/1043.75	Identification	1	Charred plant, heavy residue from S-126
359	2	6020	885.70/1043.45	Identification	1	Charred plant, heavy residue from S-124
360	2	6020	888.25/1044.25	Identification	1	Charred plant, heavy residue from S-168
361	2	6087	887.3/1043.9	Identification	1	Charred plant, heavy residue from S-200
362	2	6087	888/1044.1	Identification	1	Charred plant, heavy residue from S-210
363	2	6087	887.4/1042.9	Identification	1	Charred plant, heavy residue from S-202
364	2	6087	887/1044.1	Identification	1	Charred plant, heavy residue from S-208
365	2	6020	886.75/1043.40	Identification	1	Charred plant, heavy residue from S-128
366	2	6057		Identification	1	Piece of bark(?), heavy residue from S-153
367	2	6057		Identification	1	Charred plant, heavy residue from S-153
368	2	6019	894/1040	Identification	1	Charred plant, heavy residue from S-048
369	2	6020	889.25/1044.75	Insects	1	Insect, heavy residue from S-114
370	2	6001	869/1035	Identification	1	Charcoal for ID
371	6	6024	884/1040	Identification	1	Seed (?) for ID

Samples from the Farm Mound Area: Areas 7-17

Sample No	Area No	Unit No	Quantity of bags/buckets	Description
501	7	6501	1 bag	Chemical sample of top soil
502	13	6564	1 small bag	For further analysis, tephra?
503	7	6572	1	Micromorphology
504	7	6573	1	Micromorphology
505	7	6573	1	Micromorphology
506	7	6573/6574	2 boxes	Micromorphology
507	7	6574	1	Micromorphology
508	7	6574/6576	1	Micromorphology
509	7	6576	1	Micromorphology
510	7	6577	2 boxes	Micromorphology
511	7	6572	1 small bag	Chemical sample

Sample No	Area No	Unit No	Quantity of bags/buckets	Description
512	7	6573	1 small bag	Chemical sample
513	7	6574	1 small bag	Chemical sample
514	7	6575	1 small bag	Chemical sample
515	7	6576	1 small bag	Chemical sample
515	7	6577	1 small bag	Chemical sample