VATNSFJÖRÐUR 2009

FRAMVINDUSKÝRSLUR / INTERIM REPORTS

Ritstjóri / edited by: Karen Milek

Höfundar efnis / with contributions by:
Céline Dupont-Hébert, Garðar Guðmundsson, Guðrún Alda Gísladóttir, Karen Milek, Leszek Gardeła, Łukasz Mikołajczyk, Oscar Aldred, and Véronique Forbes

FS449-03099
Reykjavík 2010

FORNLEIFASTOFNUN ÍSLANDS

© Fornleifastofnun Íslands
Bárugötu 3
101 Reykjavík

Sími / tel: 551 1033
Fax: 551 1047
Netfang / email: fsi@instarch.is
Heimasíða / website: www.instarch.is

EFNI / CONTENTS

SAMANTEKT

Garðar Guðmundsson
Fornleifastofnun Íslands

Árið 2009 var áttunda ár rannsókna í Vatnsfirði við Ísafjarðardjúp. Þær eru liður í samstarfi nokkurra aðila sem standa að félaginu Vestfirðir á miðöldum. Markmið félagsins er að stuðla að nýjum rannsóknum á sögu og menningu Vestfjarða á miðöldum. Félagið stendur m.a. fyrir ráðstefnuhaldi, útgáfu á fræðiritum og fræðsluefni og umfangsmiklum fornleifarannsóknum. Í þessu stutta yfirliti er gerð grein fyrir athugunum á fornleifum.

Að rannsóknunum standa Fornleifastofnun Íslands ses, Vestfirðir á miðöldum, Háskólasetur Vestfjarða á Ísafirði, Háskóli Íslands, Atvinnuþróunarfélag Vestfirðinga, Byggðasafn Vestfjarða, Súðavíkurhreppur, Oslóarháskóli, North Atlantic Biocultural Organization (NABO), International Polar Year Program, Northern Science and Education Centre, City University of New York (CUNY) og Háskólinn í Aberdeen. Sumarið 2005 barst verkefninu góður liðsauki því Fornleifaskólinn, sem Fornleifastofnun og NABO höfðu starfrækt í Mývatnssveit frá 1997–2004 flutti sig um set, kom sér upp bækistöð í Reykjanesi og varð þátttakandi í rannsóknunum við Ísafjarðardjúp. Verkefnið hefur hlotið styrki m.a. frá Alþingi, Fornleifasjóði og Rannís.

Presthjónin í Vatnsfirði, séra Baldur Vilhelmsson og Ólafía Salvarsdóttir hafa sýnt aðstandendum verkefnisins mikinn velvilja og veitt þeim liðveislu sína. Kann Fornleifastofnun þeim fyrir það bestu þakkir. Ennfremur er Guðbrandi Baldurssyni í Vatnsfirði, starfsmönnum Náttúrustofu Vestfjarða í Bolungarvík, Byggðasafni Vestfjarða á Ísafirði, Biskupsstofu, Súðavíkurhreppi, Háskólsetri Vestfjarða og eigendum og starfsmönnum Hótels Reykjaness þakkað gott samstarf.

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 minjaflokkum væri æskilegt að beina athyglinni að og hvaða staðir væru áhugaverðastir til að hefja rannsóknir á. Samantektin var birt í Ársriti Sögufélags Ísfirðinga[1]. 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. Var þá 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 væru vel varðveittar og ákjósanlegt rannsóknarefni. Í túninu fundust leifar skála með langeld í miðju.[4]

[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 and Torfi H. Tulinius. Reykjavík, Fornleifastofnun Íslands. FS213-03092: 10–14.
[3] Ragnar Edvardsson (2003). „Fornleifaskráning í Vatnsfirði við Ísafjarðardjúp sumarið 2003.“ *Vatnsfjörður við Ísafjarðardjúp. Rannsóknir sumarið 2003*.
[4] Ragnar Edvardsson (2003). „Fornleifarannsókn í Vatnsfirði 2003.“ *Vatnsfjörður við Ísafjarðardjúp. Rannsóknir sumarið 2003*.

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 sm. Minjarnar voru aðeins nokkra sm undir yfirborði. Skálinn er um 16 m langur og 6 m breiður að innanmáli og snýr norður og suður. Þó skálabyggingin hafi reynst vel varðveitt þá voru skilyrði til varðveislu beina ekki góð því jarðvegur var súr og því fundust fá dýrabein.

Árið 2005 var uppgraftarsvæðið stækkað verulega til austurs, eða um 310 fermetra. Suðaustast á svæðinu fundust leifar lítillar byggingar sem voru rannsakaðar að hluta. Karen Milek stjórnaði þessari rannsókn. Í ljós kom að húsið hefur líklega verið smiðja sem gæti hafa orðið eldi að bráð. Rannsóknir á fornum bæjum á Íslandi hafa hingað til yfirleitt 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 leyndist einnig soðhola og tvö lítil eldstæði. Líklega hefur því einhver eldamennska verið stunduð utandyra og má vera að þessi niðurstaða kalli á frekari athuganir en hingað til hafa verið gerðar á athöfnum fólks utandyra til forna..

Þetta ár, 2005, varð rannsóknarverkefnið viðameira. Fornleifaskólinn, sem áður hafði verið starfræktur í tengslum við fornleifarannsóknir við Mývatn, var fluttur 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 augnamiði 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 samhengi við byggðarþróun og landnýtingu og í staðfræðilegu samhengi. Einnig var byrjað á verkefni sem lýtur að því að rannsaka frjósemi jarðvegs og hvernig henni er við haldið með áburðargjöf. Vonir standa til að með slíkum rannsóknum verði hægt að 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 þar var hann allt fram á 20. öld. Í bæjarhólnum fundust vel varðveittar leifar seinasta torfbæjar Vatnsfjarðar. Auk þess voru grafnir könnunarskurðir til að kanna dýpt og umfang bæjarhólsins í því augnamiði að afmarka og staðsetja rannsóknarsvæði framtíðarinnar.

Fornleifaskólinn var starfræktur áfram og 17 nemendur og 2 sjálfboðaliðar frá ýmsum löndum sóttu hann. Rannsóknarhópurinn samanstóð af fólki frá Noregi, Danmörku, Englandi, Skotlandi, Írlandi, Frakklandi, Bandaríkjunum, Kanada, Ástralíu og Nýja-Sjálandi.

Sumarið 2007 kom enn ein rúst í ljós á víkingaaldarsvæðinu og var hafinn uppgröftur á henni auk þess sem lokið var við að grafa fram minjar sem fundust sumarið á undan. Á bæjarhólnum var opnað rúmlega 400 fermetra svæði og austari hluti yngsta torfbæjarins í Vatnsfirði afhjúpaður. Umtalsverðar breytingar höfðu orðið á þeim bæ frá því hann var byggður 1884 og þar til hlutverki hans lauk á 6. áratug síðustu aldar, en þá var hann notaður sem skemma og smiðja. Einnig voru gerðar viðnámsmælingar á hólnum með það að markmiði að kanna eðli, þykkt og umfang mannvistarlaganna. Landslagsrannsóknir héldu áfram, gengið var um Vatnsfjarðardal og minjar skráðar, en einnig var landslagið skoðað af sjó, siglingaleiðir farnar og mið könnuð. Þá voru athugaðar aðstæður til þess að gera rannsóknir á sjávarstöðubreytingum og tekin sýni úr seti í vötnum til að kanna jarðvegsþykknun, gjóskulög, gróðurfar og loftlagsbreytingar.

Sem fyrr voru nemendur víða að. Þeir voru 15 talsins auk fjögurra sjálfboðaliða en þeir eru meistara- og doktorsnemar sem vinna jafnframt að eigin athugunum með efnivið sem

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

meðal annars safnast við rannsóknina.

Sumarið 2008 var grafið í Vatnsfirði í 4 vikur frá 7. júlí til 1. ágúst. Rannsóknirnar hófust viku fyrr eða 28. júní en þá kannaði prófessor Ian A. Simpson, jarðvegsfræðingur við Stirling háskóla í Skotlandi, og nemendur hans snið í niðurgröfnum lækjarfarvegi vestan til í bæjarhólnum. Tóku þau sýni úr mismunandi mannvistarlögum til að fá hugmynd um eldsneytisnotkun í gegnum aldirnar. Einnig voru tekin sýni til aldursgreiningar og sýna þau að elstu minjar í bæjarhólnum eru frá því í kringum 1000 (sjá skýrslu Simon Parkin, Stuart Morison og Ian A. Simpson).

Sem fyrr stýrði Garðar Guðmundsson fornleifafræðingur verkefninu en fornleifafræðingarnir Guðrún Alda Gísladóttir og Uggi Ævarsson stjórnuðu uppgreftinum og önnuðust úrvinnslu ásamt Astrid Daxböck. Meistaranemi í fornvistfræði, Véronique Forbes frá háskólanum í Laval, Quebec, sá um að taka skordýrasýni í bæjarhólnum og vinna úr þeim (sjá skýrslu). Auk þeirra vann Gunnhildur Garðarsdóttir á bæjarhólnum en þetta var þriðja sumar hennar sem grafari. Markmiðið í þessari lotu verkefnisins var að afhjúpa síðasta torfhúsið á bæjarhólnum og hefja rannsókn á því og gekk það eftir. Hús þetta (kallað mannvirki 7500) var byggt árið 1884 og varð ljóst eftir sumarið 2008 að því hafði margoft verið breytt á þeim stutta tíma sem það var í notkun. Húsið var rifið að stórum hluta 1907 þegar timburhús með niðurgröfnum kjallara var byggt suðvestan við það, sennilega til að nýta grjót og viði úr því. Leifar hússins frá 1907 má nú sjá í suðvesturhorni uppgraftarsvæðisins. . Eftir stóð aðeins austasta húsið og var það áfram notað fram á miðja 20. öld sem smiðja og geymsla.

Margir gripir hafa fundist frá því rannsóknirnar í Vatnsfirði hófust, nálægt 5000 í allt. Gripirnir, ásamt dýrabeinum (matarleifar) og jurta- og skordýraleifum segja sína sögu og saman gefa rannsóknir sérfræðinga á þessum minjaflokkum okkur mynd af lífs- og búskaparháttum manna í Vatnsfirði og endurspegla líf á reisulegum bæ á Vestfjörðum í lok 19. aldar og í byrjun þeirrar 20.

Norðar í túninu, um 100 metra frá uppgreftinum á bæjarhólnum, héldu áfram rannsóknir á fyrstu búsetu í Vatnsfirði, minjum frá 10. öld. Á víkingaaldarsvæðinu stjórnaði Karen Milek uppgrefti auk þess sem hún gegndi starfi skólastjóri Fornleifaskólans sem nú var starfræktur í Vatnsfirði fjórða árið í röð. Með Karen unnu fornleifafræðingarnir Astrid Daxböck, sem einnig bar hitann og þungann af innslætti gagna frá Vatnsfirði, og Ramona Harrison, en hún sá einnig um rannsóknir á dýrabeinum á vettvangi og kenndi þau fræði í Fornleifaskólanum. Svæðið var stækkað umtalsvert og nú var áherslan lögð á „útisvæði“, þ.e. svæðið austan við aðal rústasvæðið. Í ljós komu vísbendingar um mikil umsvif m.a. tvær djúpar og umfangsmiklar eldaholur fullar af eldasteinum og kolum. Einnig kom í ljós ræfill af byggingu austast á svæðinu og þar í hruni fannst perla frá víkingaöld. Auk þess voru grafnir tveir könnunarskurðir í vænlegar þústir norðan skálans og í þeim fundust mannvistarleifar sem rannsakaðar voru sumarið 2009.

Sem fyrr fóru fram landsháttarannsóknir í Vatnsfirði, af sjó og landi og skráning á fornleifum í Vatnsfjarðardal og nágrenni.

Sumarið 2009 náðist gríðarmikill árangur á báðum uppgraftarsvæðum í Vatnsfirði. Eftir sumarlotuna stendur á víkingaaldarsvæðinu einungis eftir að ljúka rannsókn á einu húsi og kanna tvö svæði. Stefnt er að því að ljúka uppgreftri þar í sumar og hefja úrvinnslu af krafti sem miðar að heildarútgáfu á rannsóknarniðurstöðum svæðisins ásamt niðurstöðum landslags- og umhverfisrannsókna. Á bæjarhól hefur það markmið að kanna og grafa yngsta torfbæinn í Vatnsfirði náðst að mestu. Rannsóknin hefur leitt í ljós að bærinn sem var reistur árið 1884 var byggður utan í og á grunni eldri bæjarhúsa og hluti eldri húsa notaður áfram samtímis þeim yngri. Það hefur sýnt sig að byggingarsaga bæjarhóla er flókin og skil milli byggingarstiga oft ekki skörp. Sífellt var verið að endurbyggja, laga veggi, fylla upp í rými og hlutar af eldri byggingum nýttir í þau yngri t.d. öflugir inn- og útveggir. Auk þess hefur

gjarnan verið tekið hleðslugrjót úr eldri byggingum og endurnýtt annars staðar. Mikið safn dýrabeina fannst í herbergi sem hafði verið fyllt af ösku og úrgangi eftir að fyrra hlutverki þess lauk. Minna magn af gripum fannst miðað við fyrri ár enda var aðallega unnið í byggingarleifum en ekki yfirborðs- og ruslalögum.

Auk uppgraftarins var landslagsrannsóknum fram haldið og voru meðal annars tekin borkjarnasýni úr nærliggjandi vatni, Sveinshúsavatni, til að freista þess að fá hugmyndir um sögu sjávarstöðu í Vatnsfirði. Hún getur gefið vísbendingar um forsögulegt landslag og e.t.v. varpað ljósi á athafnir mannsins við sjávarsíðuna. Þá voru tekin viðtöl við Vatnsfirðinga og í heimsókn kom fólk af svæðinu sem gat miðlað þekkingu um sögu jarðarinnar og umhverfisins á 20. öld. Allt er þetta akkur fyrir þjóðháttafræðilega hlið rannsóknarinnar. Sem fyrr kom að rannsókninni fjöldi fólks (sjá yfirlit yfir starfsemi Fornleifaskólans í fylgiskjali), með sérþekkingu á ýmsum greinum fornleifafræðinnar, gripafræði, beinafræði, skordýrafræði, plöntufræði og örformgerðarfræði, svo eitthvað sé nefnt. Fjölmargir gestir komu í Vatnsfjörð, m.a. Allison Bain, skólastjóri vettvangs-fornleifaskóla Lavalháskóla í Quebec í Kanada og prófessor við háskólann þar. Hún vann við uppgröft í nokkra daga við hlið nemenda sinna. Þá vann dr. Peter Langdon frá háskólanum í Southampton með nemendum í viku. Aðrir gestir og fyrirlesarar eru tíundaðir í fylgiskjali um starfsemi fornleifaskólans.

Átak var gert í kynningarmálum á staðnum og fjölmörg skilti reist með upplýsingum um umhverfi, jarðfræði, náttúrufar og ekki síst sögu staðarins sem og helstu niðurstöðum uppgraftarins á íslensku og ensku. Sem fyrr var prentaður upplýsingabæklingur fyrir ferðamenn á íslensku, ensku, þýsku og dönsku og dreift í söluskála víða um land. Þá var að venju opinn dagur, svokallaður, einn laugardaginn. Samkomulag hefur verið um það milli kennara, starfsmanna og nemenda í Vatnsfirði að vinna einn laugardag vegna þessa. Til okkar lagði fjöldi fólks leið sína, hátt á sjötta tug, í blíðskaparveðri, gekk um svæðið og fékk leiðsögn og fræðslu.

Um verkefnið

Verkefni sem þetta er ekki einangrað fyrirbrigði, styrkur þess liggur í því að vera þverfaglegt rannsóknarverkefni. Stefnt er að því að rannsóknir á höfuðbólinu Vatnsfirði við Ísafjarðardjúp verði notaðar til að draga fram hinar afdrifaríku breytingar sem hafa orðið á félags- og hagkerfi Vestfjarðakjálkans sem og á menningu landsvæðisins í ljósi náttúru- og menningarlandslags sem hefur verið í sífelldri þróun. Með fornleifauppgreftri, landshátta- og umhverfisrannsóknum í samvinnu fornleifafræðinga, sagnfræðinga og umhverfisfræðinga er ekki einungis unnt að auka verulega þekkingu okkar á umhverfis- og menningararfi og gagnvirkni manns og náttúru á Vestfjörðum heldur einnig skapa grundvöll til samanburðar á sambærilegum ferlum í öðrum landshlutum og við norræna menningu annars staðar á Norður-Atlantshafssvæðinu.

Framundan 2010

- Framundan er að ljúka rannsóknum á víkingaraldarsvæðinu.
- Áframhaldandi rannsóknir á bæjarhól.
- Áframhald verður á rannsóknum á landslagi, umhverfi og samfélagi.

Verkáætlun

Árið 2012 er stefnt að útgáfu á niðurstöðum rannsókna á elstu og yngstu minjum Vatnsfjarðar: Minjum frá víkingaöld og frá 18.–19. öld.

Einnig verður gerð grein fyrir rannsóknum á landsháttum í Vatnsfirði og Vatnsfjarðardal: Áhrif landfræðilegra aðstæðna á þróun menningarlandslags, skráningar jarða, leiða, selja, verbúða, kumla og kirkna og samfélagi síðari alda. Unnið verður úr viðtölum við síðustu ábúendur jarða í Vatnsfjarðadal og nágrenni.

Umhverfisrannsóknir: Svæðisbundnar breytingar á hæð sjávar og áhrif þeirra á hafnir og lendingastaði, áhrif veðurfars, breytingar af mannavöldum á gróðri og jarðvegi og áhrif þeirra á jarðarauð og landbúnað.

Útgefnar skýrslur og greinar um Vatnsfjörð

Adolf Friðriksson og Torfi H. Tulinius (ritstj.) *Vatnsfjörður við Ísafjarðardjúp. Rannsóknir sumarið 2003* (FS213-03092). Höfundar efnis: Adolf Friðriksson, Andrea S. Harðardóttir, Ragnar Edvardsson og Torfi H. Tulinius. Fornleifastofnun Íslands, Reykjavík 2003.

Ragnar Edvardsson. *Fornleifarannsókn í Vatnsfirði við Ísafjarðardjúp sumarið 2003* (FS211-03091). Fornleifastofnun Íslands, Reykjavík 2003.

Ragnar Edvardsson. *Fornleifarannsókn í Vatnsfirði við Ísafjarðardjúp sumarið 2004* (FS249-03093). Fornleifastofnun Íslands, Reykjavík 2004

Adolf Friðriksson, Torfi H. Tulinius og Garðar Guðmundsson. *Vatnsfjörður 2005. Fornleifarannsóknir/Fieldwork at Vatnsfjörður, NW-Iceland* (FS301-03095). *Höfundar efnis:* Adolf Friðriksson, Oscar Aldred, Colleen Batey, Ramona Harrison, Aaron Kendall, Kate Krivogorskaya, Tom McGovern, Karen Milek, Seth Brewington, Torfi H. Tulinius, Ragnar Edvardsson, Ian Simpson. Fornleifastofnun Íslands, Reykjavík 2005.

Ragnar Edwardsson and Thomas H McGovern. „Archaeological Excavations at Vatnsfjörður 2003-04.“ *Archaeologia Islandica. Rit Fornleifastofnunar Íslands 4*. Fornleifastofnun Íslands, Reykjavík 2005.

Aldred, Oscar. *Landscape research in the Northwest* (FS298-03094). Fornleifastofnun Íslands, Reykjavík 2005.

Aldred, Oscar. *Landscape research at Vatnsfjörður 2006* (FS343-03096). Fornleifastofnun Íslands, Reykjavík 2006.

Milek, Karen (ritstj.). *Vatnsfjörður 2006. Framvinduskýrslur/Interim reports* (FS356-03096). Höfundar efnis / with contributions by Albína Pálsdóttir, Garðar Guðmundsson, Gavin Lucas, Guðrún Alda Gísladóttir, Karen Milek, Magnús Á. Sigurgeirsson, Oscar Aldred, Thomas McGovern, Uggi Ævarsson and Véroniques Forbes. Fornleifastofnun Íslands, Reykjavík 2007.

Milek, Karen (ritstj.). *Vatnsfjörður 2007. Framvinduskýrslur/Interim reports* (FS383-03097). Höfundar efnis / with contributions by Albína Pálsdóttir, Astrid Daxböck, Brian Damiata,

Christopher Caseldine, Dawn Elise Mooney, Douglas Bolander, Elín Ósk Hreiðarsdóttir, Garðar Guðmundsson, Gavin Lucas, Guðrún Alda Gísladóttir, Karen Milek, Konrad Smiarowski, Krissy Larkin, Marjorie Gorsline, Oscar Aldred, Peter Langdon, Ramona Harrison, Thomas McGovern, Todd Kristensen, Uggi Ævarsson and Véroniques Forbes. Fornleifastofnun Íslands, Reykjavík 2008.

Milek, Karen (ritstj.). *Vatnsfjörður 2008. Framvinduskýrslur/Interim reports* (FS426-03098). Höfundar efnis / with contributions by: Astrid Daxböck, Céline Dupont-Hébert, Dawn Elise Mooney, Elín Ósk Hreiðarsdóttir, Garðar Guðmundsson, Gavin Lucas, Guðrún Alda Gísladóttir, Ian A. Simpson, Karen Milek, Konrad Śmiarowski, Oscar Aldred, Poul Baltzer Heide, Ramona Harrison, Simon Parkin, Stuart Morison, Uggi Ævarsson, and Véronique Forbes. Fornleifastofnun Íslands, Reykjavík 2009.

Erindi

Milek, Karen. 2008. *Kynning Vatnsfjarðarverkefnis.* Erindi flutt á NABO ráðstefnu í Bradford, Englandi. Ágúst 2008.

Mooney, Dawn. 2008. Kynning meistararannsóknar frá Cambridge háskóla í Englandi *um eldsneyti fundið í fornleifarannsóknum í Vatnsfirði*. Flutt á NABO ráðstefnu í Bradford, Englandi í ágúst 2008.

Forbes, Véronique. 2008. Kynning meistararannsóknar frá Laval háskóla í Kanada *á skordýrum úr fornleifarannsóknum í Vatnsfirði*. Flutt á NABO ráðstefnu í Bradford, Englandi í ágúst 2008.

Aldred, Oscar. 2008. Theoretical Archaeology Group (TAG), Columbia University, New York, USA. An archaeology of the interview, in the session *Gossip, Rumor, Legend, and Lore: Informal, intimate, and important sites of knowledge.*

Guðrún Alda Gísladóttir. 2007. *Kynning Vatnsfjarðarverkefnis*. Erindi flutt hjá Félagi íslenskra fornleifafræðinga.

Aldred, Oscar. 2006. Université Laval, Quebec, Canada. Place to place: movement and the journey through Iceland's landscape at *The View from Here* NABO conference.

Annað

Svokallaður *opinn dagur* hefur verið haldinn í Vatnsfirði sumrin 2007–2009. Hefur þá verið tekið á móti gestum og gangandi, sagt frá rannsókninni og staðháttum.

Tekið hefur verið á móti nemendum vinnuskóla Reykhólasveitar og Súðavíkurhrepps og þeim kynnt starf fornleifafræðinga, svæðið og rannsóknin.

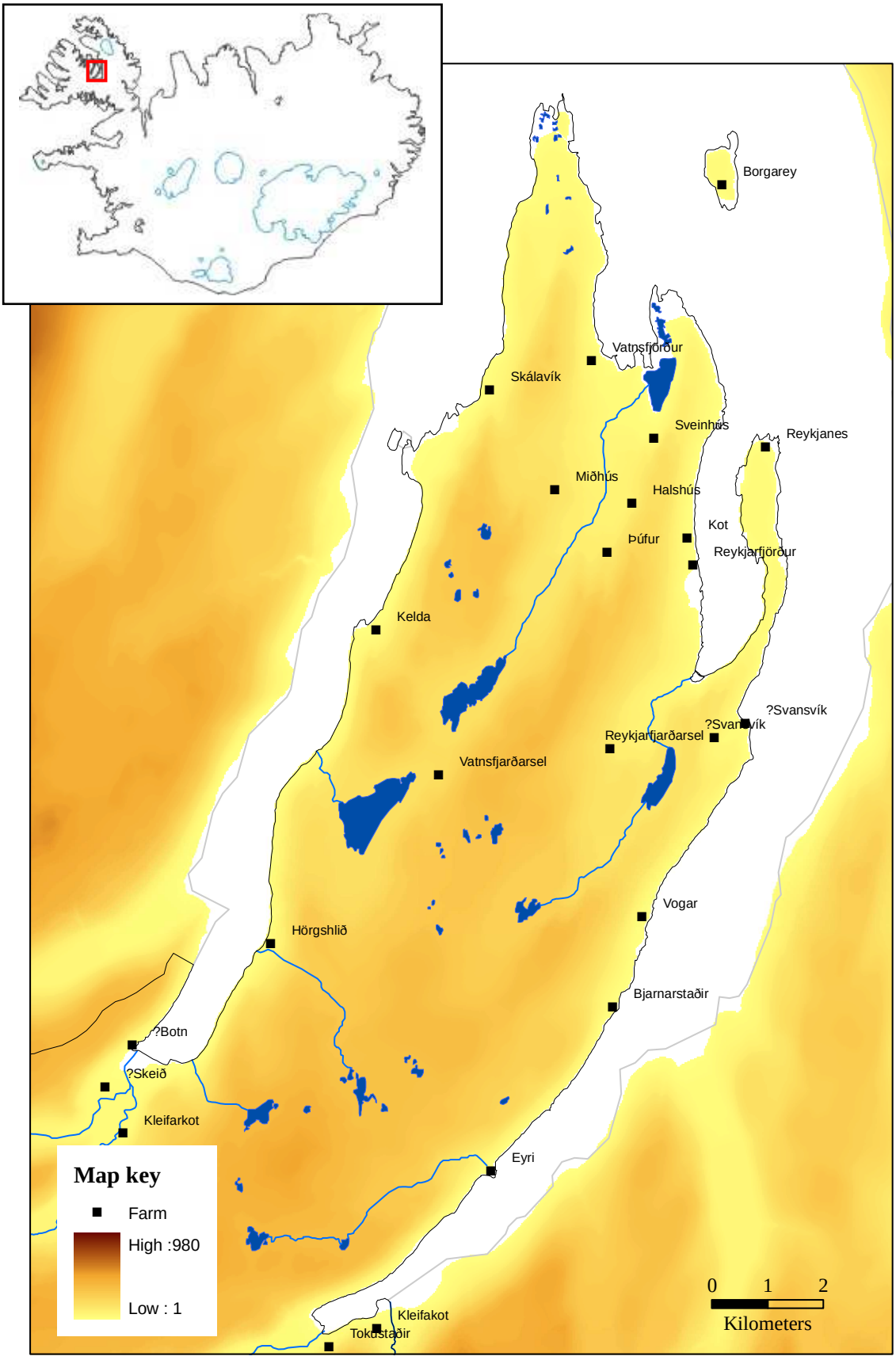


Figure 1. *The location of Vatnsfjörður and other farms within the study area (by Oscar Aldred).*

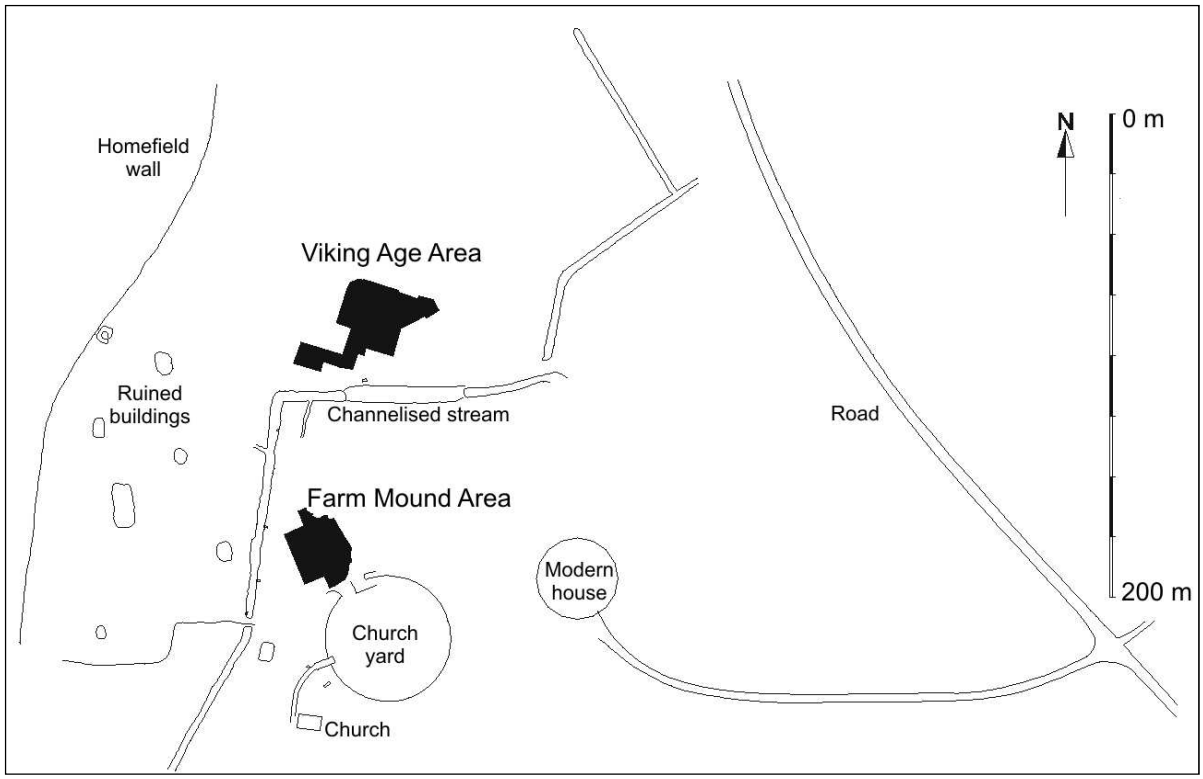


Figure 2. *Map of Vatnsfjörður in 2009, showing the full extent of the two excavation areas – the Viking Age Area and the Farm Mound Area.*

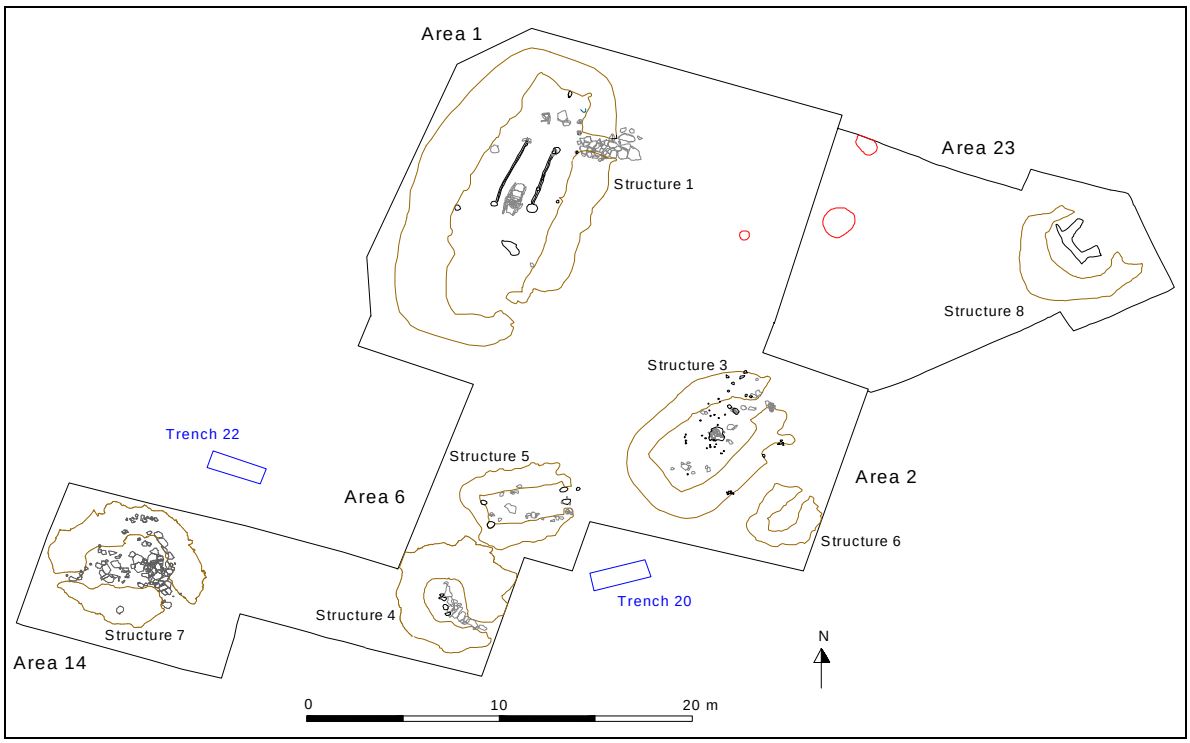


Figure 3. *Plan of the Viking Age area at Vatnsfjörður, showing the all of the buildings (brown) and pits (red) excavated prior to 2009. Structure 7 is shown in its later phase. Structure 2, a smaller, later phase of Structure 1, is not shown.*

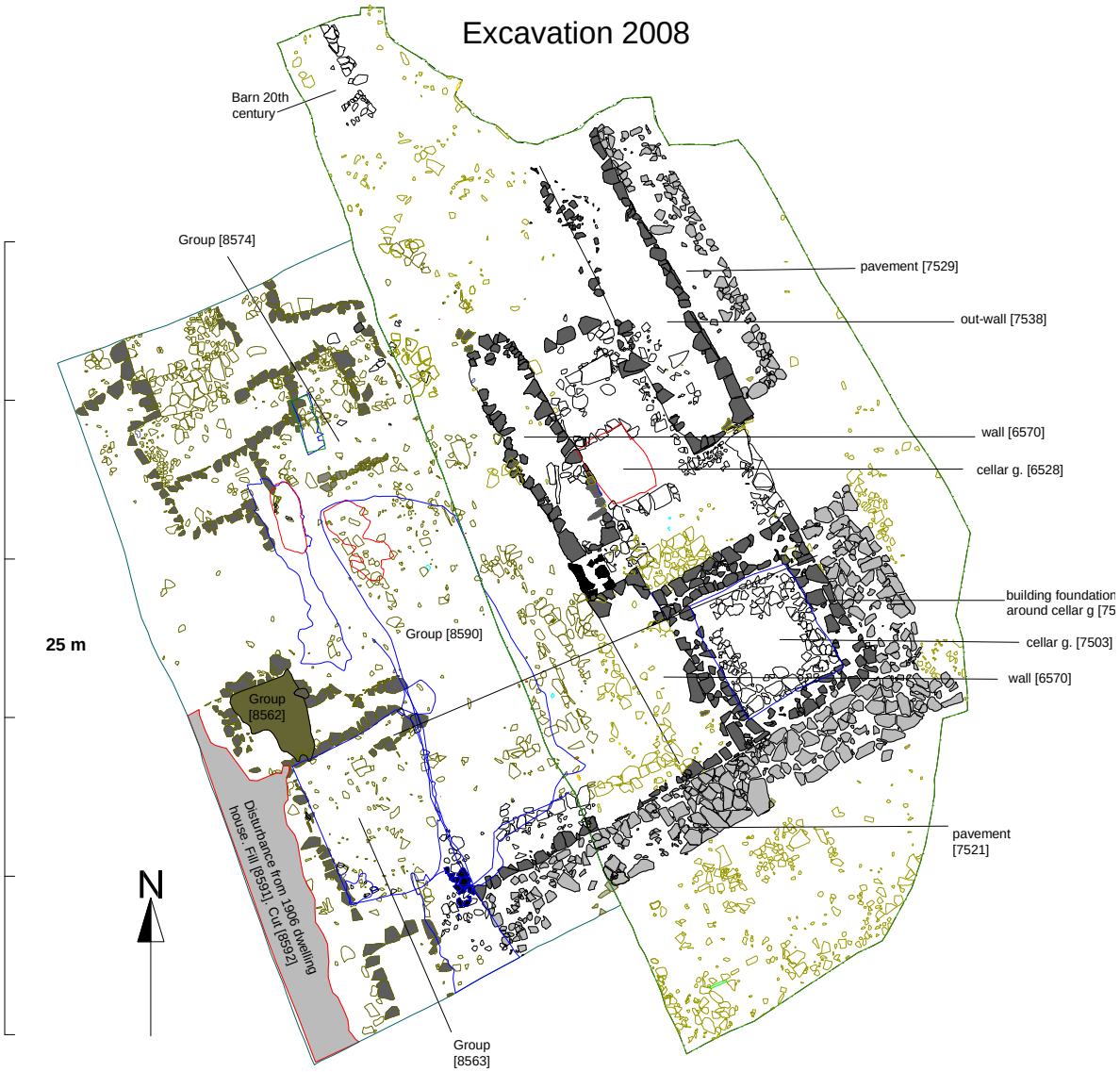


Figure 4. *Overview of the Farm Mound excavation area prior to 2009. Dark grey fill represent walls, light grey represents flat paving stones. Red lines represent cuts and blue lines deposits. Stones outlined with green have not yet been given unit numbers.*

OVERVIEW

Karen Milek
University of Aberdeen, UK

Introduction to the Project and Acknowledgement of Sponsors

From June 29-July 24, 2009, the farm and surrounding valley at Vatnsfjörður, in the eastern part of Ísafjarðardjúp, saw its seventh field season of archaeological excavation and landscape survey. Since 2003 an international, multidisciplinary team of archaeologists, historians, and natural scientists has been investigating the social, economic and environmental changes that occured at the farm of Vatnsfjörður between the tenth and twentieth centuries AD (Figures 1 and 2, above). The aim of the project is to explore the dynamism and interactiveness of the cultural landscape and the environment of the Westfjords over the past 1000 years in order to better understand where continued environmental and social changes might take the Westfjords in the future. By integrating textual, archaeological, and environmental evidence, the project aims to explain why the apparently infertile farm of Vatnsfjörður was chosen to be a chieftain's seat, what factors and social processes enabled Vatnsfjörður to flourish as a social, economic and cultural powerhouse between the thirteenth and seventeenth centuries, and why the importance of the farm declined after the seventeenth century.

An important aspect of the project is the sharing of knowledge about the cultural heritage of this part of the Westfjords with residents of the local community and with visitors, and to actively stimulate heritage tourism in the region. The project team has therefore developed a public archaeology programme that includes an annual Open Day, multi-lingual interpretation signs at the site, and a pamphlet about the site that is distributed at tourist information centres around the country as well as hotels in the Westfjord region. In addition to receiving several tens of visitors in 2009, the site was visited by a group of students from the University of Manitoba, Canada, who were attending a summer school in Icelandic history and culture coordinated by the University Centre of the Westfjords.

The Vatnsfjörður Project is made possible by the cooperation 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. The project also owes its existence and success to the Icelandic church and to Baldur Vilhelmsson, Ólöf Salvarsdóttir, and Guðbrandur Baldursson, who have kindly permitted us to excavate at Vatnsfjörður, and who have provided us with facilities and logistical support in the field. In 2009, the Vatnsfjörður excavation was funded by the Icelandic parliament (Alþingi), the University Centre of the Westfjords (Háskólasetrið Vestfjarða), the Medieval Westfjords Society (Vestfirðir á Miðöldum), and the Icelandic Archaeological Fund (Fornleifasjóður), and the author's involvement was supported financially by the Carnegie Trust for the Universities of Scotland.

The project received invaluable support in 2009 in the form of staff, facilities, equipment, and logistical help from the Institute of Archaeology, Iceland (Fornleifastofnun Íslands), the National Museum of Iceland (Þjóðminjasafn Íslands), the Centre for Research in the Humanities, University of Iceland (Hugvísindastofnun HÍ), the University of Aberdeen, the University of Oslo, the University of Durham, UK, the Northern Science and Education Centre at the City University of New York, the North Atlantic Biocultural Organisation (NABO), Hotel Reykjanes (Ferðaþjónustan Reykjanesi), Atvinnuþróunarfélag Vestfirðinga,

Súðavíkur-hreppur, the Natural History Museum in Bolungarvík (Náttúrustofu Vesfjarða í Bolungarvík), the Maritime Museum in Ísafjörður (Byggðasafnið á Ísafirði), Biskupsstofa, and the Education Centre of the Westfjords (Fræðslumiðstöð Vestfjarða). The project team is also grateful to Ragnar Edvardsson for his continued interest in and support for the project.

Summary of the Vatnsfjörður Research Project, 2003-2009

Viking Age Excavations 2003-2009

Research at Vatnsfjörður began in **2003**, when Ragnar Edvardsson identified low earthworks in the homefield – one of which appeared to be in the shape of a Viking Age *skáli*. That same year, a surface contour survey was conducted by Garðar Guðmundsson, three evaluation trenches were excavated by Ragnar Edvardsson, and a survey of relevant historical sources was conducted by Andrea Harðardóttir (Adolf Friðriksson and Torfi Tulinius 2003). The evaluation trench excavated on the farm mound found only disturbed deposits, but the two evaluation trenches in the area that has now come to be known as the Viking Age area revealed walls and preserved floor deposits of two buildings (later called Structures 1 and 3) (Ragnar Edvardsson 2003). In **2004**, the putative *skáli*, the larger of the two buildings evaluated in 2003, was excavated by Ragnar Edvardsson (Structure 1, Area 1) (Ragnar Edvardsson 2004). The ruin was confirmed to be the typical size and layout of a Viking Age house, and was subsequently dated to the tenth or early eleventh century on the basis of a radiocarbon date from a cattle bone found on the floor of the building (Milek 2007).

In **2005**, when the excavation of the house was completed, its tenth-century date was confirmed by the discovery of a number of tenth-century artefacts in the fill of a pit cut into the east wall of the building, including five glass beads and a gold foil pendant that had originally been mounted on an Irish brooch (Adolf Friðriksson et al. 2005) (Figure 5, right). 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 eastern long wall, a central hearth, three-aisles separated by the roof-supporting posts, and a stone box in the main entrance passageway (Ragnar Edvardsson and McGovern 2005) (Figure 3).

ndant found in originally mounted hich dates to AD m)

In **2005**, when the Field School in North Atlantic Archaeology was moved to Vatnsfjörður, the scale of the excavation doubled, and it has continued to expand every year since (Figure 3). In addition to the completion of the Viking Age house in Area 1, a new excavation area (Area 2) was opened up to the east and southeast of the house. 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 *skáli*, which was filled 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 suggests contemporaneity, the lack of diagnostic artefacts in the smithy means that it will not be

possible to be sure about its date until the project has obtained funding for more radiocarbon dates.

In **2006** the area around Structure 3 was reopened in order to continue the excavation of the smithy, and a new excavation area was opened up west and southwest of the smithy (Area 6), where a new building that had been identified in a test pit in 2005. This open area excavation brought to light three new outbuildings. The eastern long wall of the smithy was abutted by a very small oblong building (Structure 6) that had no diagnostic features or finds in it and was probably used for storage – perhaps the storage of fuel for the smithy (Figure 3, above, and Figure 6, right). To the south and west of the smithy there was a small rectangular outbuilding with an entrance in one of its gable walls, a central flag stone, and a very thin, dark brown floor lens containing small fragments of charred seaweed (Structure 5). The only significant find in the building was a small grinding wheel (Figure 7, right), and this, together with the lack of diagnostic features, the thin floor deposit, and the lack of synanthropic insects in the building, led this building to be interpreted as an unheated workroom and/or a storeroom. Surrounding the Viking Age buildings were widespread sheet middens and trampled deposits, which produced a Borre-style strap end and a multi-coloured Viking Age glass bead (Milek 2007).

Figure 6. *Viking Age area in 2006, facing northeast. Structure 5 is in the foreground, and Structure 3, the smithy, is in the background, with the small storage building, Structure 6, beside it.*

Figure 7. *Grinding wheel found in Structure 5 in 2006.*

South of Structure 5 was another small, slightly-sunken rectangular building with a paved entrance on its eastern gable end, a stone pavement on the northeastern half of its floor and a curious hole in its northeastern wall at knee level (Structure 4; see Figure 3). This building was first exposed in **2006** and its excavation was completed in **2007**, when a piece of whale bone was found under its north wall – probably representing a foundation deposit (Konrad Śmiarowski and Ramona Harrison in Milek 2008). The function of the building remains elusive, and it is tentatively interpreted as a fish drying or storage room.

In **2007**, a new excavation area opened up to the west of Structure 4 (Area 14) uncovered a small rectangular building with internal dimensions of about 3.1 x 4.4m, red and black turf walls about 1.6m thick, a stone pavement, and two entrances, one on its eastern side, and one on its southwestern gable end (Structure 7; see Figure 3). The excavation of Structure 7 was continued in **2008**, when the stone pavement and occupation deposits

belonging to the last phase of the stone-paved building were removed. Below this later phase of the building there was an earlier stone pavement, and and earlier phases of walls containing the greyish turf so common in the earlier Viking Age buildings at Vatnsfjörður. In the centre of the building where a linear section of the stone pavement was lightly sunken, there were distinctively organic-rich and worm-reworked soils that extending out below the walls, forming a curious linear, trench-like feature now interpreted as a drain. Soil samples from the organic-rich occupation deposits are still being analysed, but the building is currently interpreted as a sheephouse or small cattle byre (Milek in Milek 2009).

In **2008**, six evaluation trenches were also excavated in the Viking Age area, two of which prompted the excavation of a new area to the west and north of Area 2 and Structure 3 (the smithy). This new area, Area 23, contained thin but extensive sheet midden deposits, and two large pits filled with charcoal and fire-cracked rock, that could either be cooking pits or charcoal-burning pits (Astrid Daxböck et al. in Milek 2009) (see Figure 3, above, and Figure 8, left). In addition, in the northeastern corner of Area 23, a small, poorly preserved building constructed of the greyish turf typical of the other Viking Age structures on the site, including the *skáli* (Structure 8). Only three walls from this building survived, the northeastern wall presumably having eroded down the slope the building is situated on. With no directly associated artefacts or floor deposits, and the only internal feature being a shallow u-shaped trench, it is very difficult to know the function of this building, but the steepness of the slope it was on and the very lack of floor deposits suggests that the building might have had a raised wooden floor, with the u-shaped trench having been used as a wooden sill foundation. Three blue glass Viking Age beads found in collapse deposits associated with Structure 8, in combination with the greyish turf used to construct the building, provide a tentative Viking Age in date for the building

Figure 8. *Pit 2, located in the northwestern corner of Area 23, showing the thick charcoal deposit with* in situ *fire-cracked rocks that formed its basal fill.*

In **2009**, excavations continued in Area 14, and a new excavation area was opened up on the northern and western sides of Structure 1, the *skáli*, in order to determine if there were any middens or structural remains (Area 32). In Area 14, the two earliest phases of stone pavement and accompanying occupation deposits in Structure 7 were removed. The character of the building, with its organic occupation layers and stone pavements that sloped down towards a central, stone-lined drain, fits that of a cattle byre that could hold up to six animals. When the walls of Structure 7 were removed, an earlier building with a slightly different orientation and walls constructed of grey podsol turf was found (Structure 9). This building had stone slabs over part of the floor and an organic-rich floor layer, below which earlier structural features were found at the very end of the excavation, including a corner hearth and a large cut rimmed with upcast that might contain a sunken floor. These features below Structure 9 await further excavation in 2010.

In Area 32, only very thin sheet midden spreads were found, and these contained very

few artefacts – mainly undiagnostic iron objects. One small turf deposit was found containing the greyish podsol turf that had been used in the *skáli*, but otherwise the small turf spreads that were found west and northwest of the house were composed of a different, redder type of turf, and were unconnected to the building. No new buildings were found in Area 32. The the turf walls of probable medieval buildings, constructed with red turf cut from wet, boggy areas, were found in evaluation trenches north and south of the Viking Age area and it is of course possible that Viking Age building lie below these, but the location of other Viking Age buildings is currently not known for certain.

Historic Period Excavations 2006-2009

South of the Viking Age area, there is a farm mound, an artifical hill that developed as a result of turf building construction and refuse deposition over the course of several centries, until the last turf house was abndoned in 1906. With a view to assessing the size of the farm mound, the depth and age of its deposits, and the degree of archaeological preservation, nine evaluation trenches were excavated in the mound in **2006**. These 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 very top of the farm mound found the last turf dwelling house at Vatnsfjörður (1884-1906), and in 2006 the trench was extended to reveal very well-preserved wall foundations and a deep cellar infilled with early twentieth-century household rubbish (Figure 4, cellar 6528). Three radiocarbon dates from birch charcoal recovered from the bottom of a section cut into the western edge of the farm mound suggested that the occupation of this part of the site may have began as early as the tenth century (Milek 2007). Three additional radiocarbon assays done on birch charcoal from a new section excavated on the western edge of the farm mound in 2008 pushed the possible foundation of the farm mound to the mid-ninth century (Simon Parkin et al. in Milek 2009), although as always we should be cautious about early dates on charcoal due to the possibility that the earliest settlers used old dead wood for burning.

Figure 8. *Stitched aerial photograph of structure 7500 as it looked in 2007. For scale, cellar 7503, on the bottom right of the picture, has internal dimensions of 4 x 3.5 m. North is up.*

Starting in **2007**, the excavation area at the top of the farm mound expanded dramatically, and the historic period has been a major component of the Vatnsfjörður excavations ever since (Figure 4, above, and Figure 8, right). In a large open area of 400 m^2, thousands of artefacts and bones dating to the late nineteenth and early twentieth century were recovered, most coming from the

fill of a second, even deeper cellar (Figure 8, cellar 7503), and from layers post-dating the abandonment of the the large, late nineteenth-century turf house (structure 7500), which had sub-sequently been re-used for storage, smithying activities, and the dumping of refuse (Guðrún Alda Gísladóttir and Uggi Ævarsson in Milek 2008). The analysis of insect remains by Véronique Forbes as part of her MSc thesis at Laval University showed that animal products (e.g. sheepskins, bird carcasses) and grain had been stored in the cellar (Véronique Forbes in Milek 2009).

The excavation area on the farm mound was expanded further west in **2008** in order to expose the western part of house 7500, creating a total excavation area of 700 m^2. House 7500, which was built in 1884, was a conventional turf and stone house with south-facing timber-panelled front gables (see Figure 4, above). The house had been partially demolished (particularly on its northern end) after 1906, and most of the 2008 field season was spent removing post-abandonment and demolition layers in order to clarify the layout of the walls, doorways, and stone pavements of the building, recovering 1661 artefacts and 38 kg of animal bone in the process (Uggi Ævarsson and Guðrún Alda Gísladóttir in Milek 2009). In 2008, Simon Parkin, a student of Ian Simpson at the University of Stirling, also excavated a 1m x 1m x 1.5m deep column on the western edge of the farm mound, where there were rubbish deposits that had already partially been truncated by the channelised and artifically deepened stream. His geoarchaeological analysis of the stratigraphy in this area, supported by several radiocarbon dates, revealed that the residents of Vatnsfjörður used a variety of fuel types, including peat, turf, and wood, and were able to respond to different fuel resource availablity from the ninth century to the present (Parkin et al. in Milek 2009).

In **2009**, with most of the demolition debris finally cleared away, the excavation on the farm mound was able to focus on the final phases of the 1884-1906 dwelling, structure 7500. As detailed by Guðrún Alda Gísladóttir in her report in this volume, the excavation concentrated on the westernmost side of the building, where it was possible to define eight main groups of features – many of them distinct rooms. Many of of these areas/rooms have undergone a series of modifications, including the blocking of doors, the reduction in size of rooms by the building of new walls, and the truncation of walls by later pits and demolition events. The stratigraphic sequence is very complex, and much of the phasing still has to be clarified, but the building is clearly beginning to resolve. The rich preservation of organic remains and artefacts, including 1100 new finds from the 2009 field season alone, are shedding exciting new light on the way of life of the residents of Vatnsfjörður in the eighteenth and nineteenth centuries.

Landscape Research in the Vatnsfjörður Area 2003-2009

In addition to the excavations on the Vatnsfjörður farm, archaeological and environmental research on the homefield and the landscape around Vatnsfjörður have been ongoing since 2003. **Archaeological landscape surveys** directed by Oscar Aldred since 2005, assisted by Poul Baltzer Heide in 2007 and 2008, recorded 65 new sites in **2006**, 333 new sites in **2007**, and 224 new sites in **2008**, and 159 in **2009**, bringing the total number of cairns, structures, burials, pits, tracks, boat landing places, fox traps, walls, pots, peat cuttings, enclosures, crossings and bridges in the study area to 977 (Aldred 2005; Aldred 2006; Aldred in Milek 2007, 2008, 2009, and this volume). The most abundant sites in the region are stone-built cairns, which Oscar Aldred and Poul Baltzer Heide have been able to classify according to their shape and building style, though it has so far not been possible to devise a way to date them (Figure 9, left). The extensive network of cairns in the hills around Vatnsfjörður served as route markers, boundary markers, and navigation aids for sea-faring

boats, and the distribution of these cairns lends support to the idea that Vatnsfjörður was a central place in this landscape. In addition to finding new sites in the vicinity of Vatnsfjörður, the work of Oscar Aldred and Poul Heide has also been making an important contribution to our understanding of how people interacted with their environment in Vatnsfjarðardalur: how they moved through the landscape, how they experienced sights and sounds, and how they made decisions about where to situate their settlement sites and landscape markers (Oscar Aldred, this volume).

Figure 9. *Oscar Aldred recording a collapsed cairn next to Neðra-Selvatn in 2007.*

During the **2007** field season, a preliminary coring programme was conducted on three **lakes** in Vatnsfjarðardalur by Pete Langdon (an expert on the use of chironomids – non-biting midges – to infer temperature change, from Southampton University), Chris Caseldine (a palynologist from the University of Exeter) and Jerry Lloyd (an expert in sea-level reconstruction from Durham University), which demonstrated the potential of these lakes to provide high-resolution data on temperature, vegetation and sea-level changes in the immediate vicinity of Vatnsfjörður over the last 1100 years. While the temperature data is still being processed, Jerry Lloyd returned in **2009** in order to take longer cores from Sveinhúsavatn and to continue his work on the reconstruction of the ancient shoreline around Vatnsfjörður.

The character and fertlity of the soils of Vatnsfjörður's **homefield** have been under investigation by Ian Simpson (soil scientist and geoarchaeologist from the University of Stirling) since **2005**. In **2007** Ian was joined by Doug Bolender, who conducted a preliminary survey of soil depths and phosphorus levels in the homefield (Bolender in Milek 2008). So far there is little evidence of active improvement of the homefield at Vatnfjörður, but Ian Simpson had dated the start of peat development in the wet meadow downslope (east) of the Viking Age part of the site to the tenth century, and the hydrological change associated with this peat development is therefore likely to be associated with human-induced forest clearance at the farm. Because the fertility of the homefield would have had a direct and vital impact on the wealth of the farm, the investigation of the homefield soils was intensified in **2008**. From June 30-July 4 Ian Simpson and Eileen Tisdall (a palynologist from the University of Stirling), excavated and sampled a number of soil test pits for pollen and micromorphological analysis, concentrating particularly on the wet meadow area on the lower slopes of the homefield. Claire Cavaleri and the author also conducted a soil auger survey of the homefield in 2008 in order to map the depths and character of the soil across the entire farm. The results of this survey showed that the peat on the eastern (downslope) edge of the homefield developed up against, and is therefore later than, the eastern boundary wall of the homefield. It is possible that the turf wall acted as a sort of dam, impeding water drainage and promoting the development of the wet meadow area, thereby improving the fertility of the homefield.

Proposed Future Research

Future field seasons at Vatnsfjörður should aim to achieve the following:

• In the Viking Age part of the site, the excavation of the features below Structure 9 need to be completed.
• On the farm mound, excavations will continue on the 1884-1906 turf house, structure 7500, in order to futher investigate how the building had been organised and used, and to recover artefacts and ecofacts related to daily life on the farm in the historic period. Since the western edge of the building has not yet been found, the excavation will also be extended westwards in 2010 in order to ensure that the entire building is uncovered and can be taken down in phase.
• Two to three test pits will be excavated through the homefield boundary wall in order to (a) confirm the hypothesis that it pre-dates the development of the wet meadow on the eastern side of the homefield, and (b) to obtain a clear section through a well-preserved part of the wall, in order to search for datable material. This work had been planned for 2009, but had to be postponed because of lack of time.
• Evaluation trenches will be excavated at a number of sites in Vatnsfjarðardalur, including Halshús and Þúfur.
• Archaeological survey work will continue, this time focussing on the farms in Vatnsfjarðardalur, and recruiting the assistance of the farmers and land-owners.
• The public archaeology programme will be continue to be developed, with a well-advertised Open Day.

Excavation Team Credits: Staff and Students of the 2009 Field School in North Atlantic Archaeology

Since it was founded in 1997, the Field School in North Atlantic Archaeology has served as a focal point for interdisciplinary, cooperative teaching and research by archaeologists and natural scientists from Iceland, Europe, and North America. This tradition continued in 2009, with archaeologists and palaeoecologists from Canada, the United States, Iceland, the United Kingdom, and Norway contributing to the field school teaching curriculum while carrying out original research at Vatnsfjörður and the surrounding region.

Figure 10. *Field school students Kari Griffith and Nicholas Sepulveda recording a new excavation unit in Area 14, on the Viking Age part of the site.*

The field course provides students with four weeks of instruction and experience in Icelandic archaeology, landscape survey, and the archaeological sciences. It also aims to encourage students to develop research interests in North Atlantic history and archaeology, and to facilitate graduate research in Iceland. Eleven students from the USA,

Canada, Poland, the United Kingdom and Spain attended the field school in 2009. The field school is accredited by the University of Iceland (admissions coordinated by Dr. Orri Vésteinsson), the City University of New York (coordinated by Prof. Thomas McGovern), the University of Oslo (coordinated by Prof. Christian Keller), and the University of Aberdeen (coordinated by the author), and students attending universities worldwide can use the course towards their degrees through ERASMUS or another credit transfer programme.

Eleven university students attended the field school in 2009: Jamie Anderson (American PhD student from the University of Oxford, England), Lorena Bushel (Spanish BA student from the University of Aberdeen, Scotland), Leszek Gardela (Polish PhD student from the University of Aberdeen), Kari Griffith (Canadian BA student from the University of Calgary, Canada), Eric Heffter (American BA student from the University of Connecticut, USA), Alan Laycock (Canadian MA student from the University of Iceland), Lukasz Mikolajczyk (Polish MA student, Jagiellonian University, Poland), Kyle Munro (Scottish BA student from the University of Aberdeen), Franciszek Satalecki (Polish MA student from Jagiellonian University), Nicholas Sepulveda (American BA student from Juniata College, Pennsylvania, USA), and Anna Swierczynska (Polish MA student from the University of Lodz, Poland).

Figure 11. *The Vatnsfjörður 2009 team. Back row: Lorena Bushell, Nicholas Sepulveda, Jamie Anderson, Amanda Shreiner, Kyle Munro, Lukasz Mikolajczyk, Franciszek Satalecki, and (at the far right) Oddgeir Hansson and Adolf Friðriksson. Middle row: Leszek Gardela, Kari Griffith, Eric Heffter, Alan Laycock, Anna Swierczynska, Céline Dupont-Hébert, Þórhidlur Oddgeirsdóttir and friend, Uggi Ævarsson, and Karen Milek. Front row: Véronique Forbes, Dawn Elise Mooney, Garðar Guðmundsson, Guðrun Alda Gísladóttir, Oscar Aldred, and little Anna Uggadóttir.*

The 2009 field school was directed by the author, with all excavation and survey staff contributing to the teaching and supervision of field work and post-excavation work, including Garðar Guðmundsson, Guðrún Alda Gísladóttir, Gunnhildur Garðarsdóttir, Oscar Adred, Uggi Ævarsson, and Oddgeir Hansson. Four graduate student assistants, including those who are conducting their graduate research projects on material from Vatnsfjörður, also

contributed to the teaching, including Dawn Elise Mooney (PhD student from the University of Aberdeen, Scotland), Véronique Forbes (PhD student from the University of Aberdeen), Céline Dupont-Hébert (MSc student from Université Laval, Canada), and Amanda Schreiner (PhD student, City University of New York). Finally, a number of visiting scholars made important contributions to the teaching and research programme, including Adolf Friðriksson (Fornleifastofnun Íslands), Christian Keller (University of Oslo), Torfi Tulinius (University of Iceland), Jerry Lloyd (University of Durham), and Brian Damiata (UCLA, California). As in previous years, the field school greatly benefited from the support of Christian Keller of the University of Oslo, and Tom McGovern of the City University of New York, who managed student recruitment from the European Union and North America respectively.

Bibliography: Publications and Reports on the Vatnsfjörður Project

Adolf Friðriksson and Torfi H. Tulinius (eds) (2003) *Vatnsfjörður við Ísafjarðardjúp: Rannsóknir sumarið 2003* (FS213-03092). Contributing authors: Adolf Friðriksson, Andrea S. Harðardóttir, Ragnar Edvardsson and Torfi H. Tulinius. Reykjavík: Fornleifastofnun Íslands.

Adolf Friðriksson, Torfi H. Tulinius and Garðar Guðmundsson (eds) (2005) *Vatnsfjörður 2005: Fornleifarannsóknir/Fieldwork at Vatnsfjörður, NW-Iceland* (FS301-03095). Contributing authors: Adolf Friðriksson, Oscar Aldred, Colleen Batey, Ramona Harrison, Aaron Kendall, Kate Krivogorskaya, Tom McGovern, Karen Milek, Seth Brewington, Torfi H. Tulinius, Ragnar Edvardsson, Ian Simpson. Reykjavík: Fornleifastofnun Íslands.

Aldred, Oscar (2005) *Landscape research in the Northwest 2005* (FS298-03094). Reykjavík: Fornleifastofnun Íslands.

Aldred, Oscar (2006) *Landscape research at Vatnsfjörður 2006* (FS343-03096). Reykjavík: Fornleifastofnun Íslands.

Aldred, Oscar (2006) Place to Place: Movement and the Journey through Iceland's Landscape. Paper presented at *The View from Here* NABO conference, Université Laval, Quebec, Canada.

Aldred, Oscar (2008) *An archaeology of the interview*, in the session *Gossip, Rumor, Legend, and Lore: Informal, intimate, and important sites of knowledge.* Paper presented at the Theoretical Archaeology Group (TAG) conference, Columbia University, New York, USA.

Forbes, Veronique (2008) *The Relationship Between Humans and their Environment in NW-Iceland – Archaeoentomological study of the Vatnsfjörður's site.* Paper presented at Archaeological Futures: A Research Agenda for the North Atlantic, a conference of the North Atlantic Biocultural Organization, 29 August-1 September 2008, University of Bradford, UK.

Forbes, Veronique (2010) *Lifeways and living conditions of 19-20th century Icelandic farmers: Archaeoentomological reconstructions of daily life at Vatnsfjörður, NW-Iceland.* Paper presented to the Association for Environmental Archaeology

Conference, March 30-April 1, 2010, University of Aberdeen, Scotland.

Forbes, Veronique, Alison Bain, Guðrún Alda Gísladóttir, and Karen Milek (submitted 2010) Reconstructing aspects of daily life in late 19th and early 20th-century Iceland: Archaeoentomological analysis of the Vatnsfjörður farm, NW Iceland. *Archaeologia Islandica*.

Guðrún Alda Gísladóttir (2007) *Kynning Vatnsfjarðarverkefnis*. Paper presented to the Icelandic Archaeological Society.

Milek, Karen (ed.) (2007) *Vatnsfjörður 2006: Framvinduskýrslur/Interim report.* (FS356-003096). Contributing authors: Albína Pálsdóttir, Garðar Guðmundsson, Gavin Lucas, Guðrún Alda Gísladóttir, Karen Milek, Magnús Á. Sigurgeirsson, Oscar Aldred, Thomas McGovern, Uggi Ævarsson, and Véroniques Forbes. Reykjavík: Fornleifastofnun Íslands.

Milek, Karen (ed.) (2008) *Vatnsfjörður 2007: Framvinduskýrslur/Interim report.* (FS383-03097). Contributing authors: Albína Pálsdóttir, Astrid Daxböck, Brian Damiata, Christopher Caseldine, Dawn Elise Mooney, Douglas Bolender, Elín Ósk Hreiðarsdóttir, Garðar Guðmundsson, Gavin Lucas, Guðrún Alda Gísladóttir, Jeremy Lloyd, Karen Milek, Konrad Śmiarowski, Krissy Larkin, Marjorie Gorsline, Oscar Aldred, Peter Langdon, Ramona Harrison, Thomas McGovern, Todd Kristensen, Uggi Ævarsson, and Véronique Forbes. Reykjavík: Fornleifastofnun Íslands.

Milek, Karen (ed.) (2009) *Vatnsfjörður 2008: Framvinduskýrslur/Interim report.* (FS426-03098). Contributing authors: Astrid Daxböck, Céline Dupont-Hébert, Dawn Elise Mooney, Elín Ósk Hreiðarsdóttir, Garðar Guðmundsson, Gavin Lucas, Guðrún Alda Gísladóttir, Ian A. Simpson, Karen Milek, Konrad Śmiarowski, Oscar Aldred, Poul Baltzer Heide, Ramona Harrison, Simon Parkin, Stuart Morison, Uggi Ævarsson, and Véronique Forbes. Reykjavík: Fornleifastofnun Íslands.

Milek, Karen, Garðar Guðmundsson, Guðrún Alda Gísladóttir, Uggi Aevarsson and Oscar Aldred (2008) *Recent Research at Vatnsfjörður, Northwest Iceland.* Paper presented at Archaeological Futures: A Research Agenda for the North Atlantic, a conference of the North Atlantic Biocultural Organization, 29 August-1 September 2008, University of Bradford, UK.

Mooney, Dawn Elise (2010) An Archaeobotanical Perspective on Fuel Resources in North-West Iceland during the Viking Age. Poster presented to the Association for Environmental Archaeology Conference, March 30-April 1, 2010, University of Aberdeen, Scotland.

Ragnar Edvardsson (2003) *Fornleifarannsókn í Vatnsfirði við Ísafjarðardjúp sumarið 2003* (FS211-03091). Reykjavík: Fornleifastofnun Íslands.

Ragnar Edvardsson (2004) *Fornleifarannsókn í Vatnsfirði við Ísafjarðardjúp sumarið 2004* (FS249-03093). Reykjavík: Fornleifastofnun Íslands.

Ragnar Edvardsson and Thomas H McGovern (2005) Archaeological excavations at Vatnsfjörður 2003-04. *Archaeologia Islandica* 4: 16-30.

LANDSCAPE SURVEY 2009

Oscar Aldred
University of Iceland / Fornleifastofnun Íslands

Introduction

The survey conducted in 2009 was the fifth season associated with the Vatnsfjörður field school that involved landscape survey. Between 2005 and 2009, a total of 63 individual survey paths/days have been walked across the study area of c. 254 sq km. Much of the study area south and west of the main route that joins the two fjords to one another is upland. For the most part, the main survey area covers approximately 120 sq km, and most, if not all of this area has been walked over or observed. Along these paths, 977 sites have been surveyed.

A total survey can be seen from Figure 1, divided by year of survey. A simple visual analysis of the distribution of the sites indicates that the area around Vatnsfjörður, and within the valley of Vatnsfjarðardalur is clearly the area where there has been most material inscription in the past. This is also the area where there is a clustering of farm settlement within a valley area. While not unusual the most common form of settlement in the north-west tends to be dispersed farms lying in a linear pattern along the coastal-edge. It is also evident that there are linear clusters across the landscape, particularly noticeable in areas where there is a lack of other more widely dispersed sites. These linear clusters tend to be running from one farm area to the next, and have a specific direction quality about them. For the most part, the visible site clusters that are seen on the map are cairns, or stone-built markers, used for a variety of functions, but these linear clusters are primarily marking paths in the landscape. As can be seen these linear clusters produce probable paths which can be mapped (Figure 1).

The main objective of the survey since 2005 has been to understand the relationship that these sites and paths have to the landscape. What I mean by 'relationship' is assessing these sites both in terms of the natural and cultural features. This relationship is of fundamental importance for furthering both our existing knowledge of the landscape around Vatnsfjörður and in establishing approaches and methods concerning the landscape and Vatnsfjörður's role in it. The landscape survey that has been conducted from 2005 to 2009 has not only been about creating an archaeological record of the study area, but also developing avenues for interpretation. After a brief summary of what was surveyed in 2009, I offer in this report some interpretative text on what is beginning to emerge from fieldwork and post-survey work. Specifically, I want to look at the influence that landscape has had on the distribution of archaeology in a nested way, from farm-scape to cairn-scape.

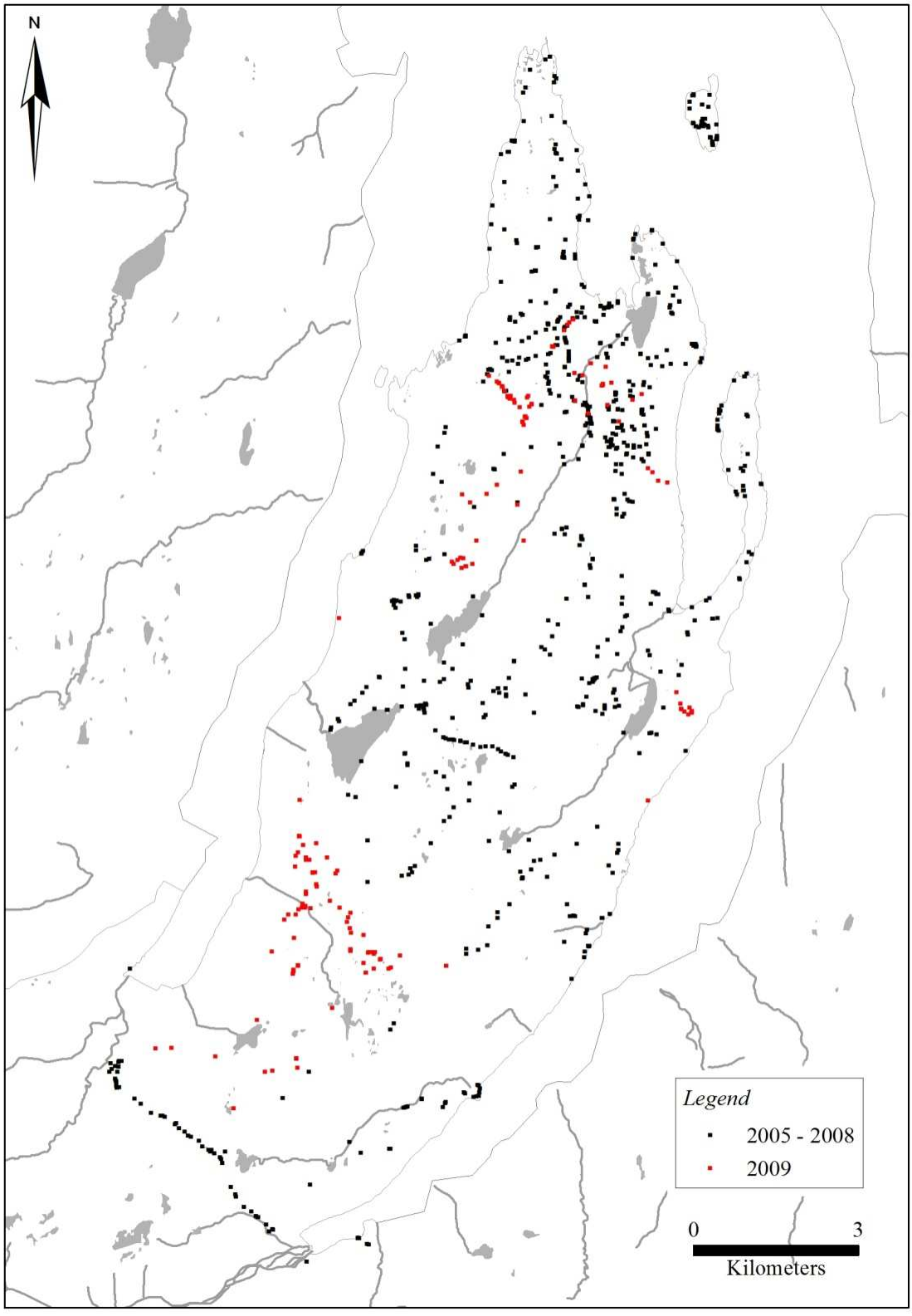


Figure 1. *Surveyed sites, 2005-2009.*

Survey in 2009

In 2009, 160 new sites were surveyed, located in the valley area of Vatnsfjarðardalur, and in the farm areas of Hörgshlíð, Kleifakot, Reykjafjörður and Svansvík (see Figure 1).

Additionally, the farm areas of Eyri and Bjarnarstaðir were surveyed but yielded no new sites. Table 1 gives a summary of the sites that were surveyed.

Type	*Count*
Burial	1
Cairn	125
Crossing	2
Enclosure	5
Natural marker	5
Peat cutting	1
Pit	1
Shelter	3
Structure	5
Track	11

Table 1. *Survey in 2009; count by site type.*

Rather than focussing on the relatively small assemblage of sites surveyed in 2009, which will in many ways repeat similar arguments and present similar patterns – small variations aside – to previous reports, I will examine the 2009 sites with the others, particularly differentiating site types such as cairns and enclosures from the survey and relating them to farms and landscape settings. This is contextualised by a description of the landscape topography, and suggesting some of the ways in which both the surface and depth of landscape have influenced social complexity. This is viewed from the perspective of settlement organisation with visual 'territories' and solar radiation. In this way, the paths that indicated by the linear clusters of cairns can be better understood.

The surface and depth of landscape

The underlying geology is comprised of basic and intermediate extrusive rocks with intercalated sediments and upper tertiary basalts, older than 3.3 million years. The effects of glaciation are evident in the fjords that lay either side of the study area, and in the main valleys of the area, Vatnsfjarðardalur and Reykfjarðardalur, and in hanging valley features between these areas and the fjord. The valleys rise gradually in height from the coastal area in the north towards the highland area to the south, following the main geological fault axis that runs south-west to north-east. Several distinctive environmental zones exist: the coastal fjord strip, the ridges that run north to south bisecting the area into several areas, the upland areas towards the south, and the valleys.

The soil cover is generally thin and only thick in sink holes on the ridges, in the valley areas and around the cultivated and improved areas immediately around the farms. The soil matrix in the valley is usually comprised of colluvium soils derived from the surrounding ridges and aeolian soils. Wetland areas are common in the areas close to springs and small rivers in the base of the valley and along flat upslope areas on the ridges. Vegetation is predominantly grasses, with birch shrub on the western slopes of the west fjord. The sea level today is c. 2 m lower than that in the ninth and tenth centuries. This would have had a profound effect on the use and positioning of various features in the landscape – such as farm location as well as landing spots and harbours.

Both the surface and depth of landscape had an influence on the patterns of sites that

reflect particular processes of behaviour. The structural properties of landscape have by and large influenced particular patterning. These are by no means consistent, but are rather variable across the landscape. For example, a particular feature such as a hillock does not always have a stone built cairn on it, and it is only when a natural feature such as a hillock offers something to the practices of movement in establishing paths between places that a cairn is built. The interplay between a natural feature and a cultural process is not simply about the presence of one or the other, but how they work together in the production of something new, in this case a cairn. The same can be said with respect to a farm. The areas around the farms, which are generally improved areas, are made up of different types of vegetation and land-uses, from grass/hay for animal fodder, wet meadows for grazing, and sandy and rocky shorelines, where sea-weed was used as fodder for sheep grazing. Some of these areas are improved while others are not. It is when the vegetation has something to offer a particular practice that activity is created, which may potentially lead to further improvement and connections with other kinds of practices. This allure of a seemingly ordinary resource can have profound effects on how we understand the landscape. For example, there should be significant relationship between seasonally used sites such as sheilings – summer grazing – and good vegetation for grazing. This seems to be visibly present at those sites that had a sheiling function and then became a farm (e.g. Vatnsfjarðarsel) but may also be apparent at other 'sites' without surface structures.

While one might be constantly trying to read the surface of a landscape, it might be just as well to examine and appreciate more of its depth – its geological and soil character – which have influenced the visual aesthetic and appearance of the surface of the landscape. Rocky outcrops and variation in topography have had an influence in the use of an area and the ways in which this has been visibly inscribed into the surface of the landscape in the construction of sites. We might also want to turn towards the more fluid environments which have an important influence on material practices. There have been some indications of coastal alteration observed during the surveys, such as the clearing of rocks for better harbouring, as well as deliberate marking of places, either for navigation, or perhaps for harbouring in relation to fishing booths. However, we must place these alterations, as well as the sites that lie close to the coast, within different sea levels, which were c. 2 m higher in the ninth and tenth century. By matching sea level with coastal edge and archaeological sites, we can potentially date some sites that were built in the transition zone between the high and the low levels at high-tide; indicating that they were built *after* the ninth and tenth century (see GPS coastal survey report by Łukasz Mikołajczyk and Leszek Gardeła, this volume). Similarly, drainage channels were cut in more recent times at several different sites in order to redirect the flow of water. There was therefore in the past an almost constant alteration and manipulation of the landscape, from the region, the farm to the smallest site.

Farm-scapes

The study area of the landscape survey contains a total of 23 farms, which have varying foundation dates; at least from what we can glean from documentary sources. Only one farm has been dated archaeologically. Vatnsfjörður is dated to the tenth century and the occupation of the farm (at least as far as we know) has been continuous until the present-day. There also appears to have been two shifts in farm place location in the eleventh century and in the 1960s: from tenth-century farm place – the Viking Period excavation area – to a site that formalised a relationship with the church – the Farm Mound excavation area – and then to the site of the present day farm house. There seem to have been two agendas that were important in these settlement shifts: one an environmental and functional factor, and another concerning religious and political motives. A shift in farm location, as well as the settlement

colonisation of a landscape, is a recursive process. New locations or new farms depend on a relationship between an assemblage of adaptation to an environment as well as social 'packages' that meet the requirements for an ideological settlement, whether this is concerned with domesticating a landscape, providing support and protection, or in creating a resource base for a politically dominant farm. These elements are present in all three different locations at Vatnsfjörður, and extend to other farms within the landscape survey study area. The elements that constitute these packages can be explored by comparing the archaeology and geography for the 23 farms in the study area in a number of ways: intervisibility, solar radiation, ownership and farm value.

Intervisibility

A way in which to relate environmental and social concerns in the shift and placement of farms can be found in a visual explanation, as suggested by Poul Heide (2008). The schematic is quite interesting as this transcends both the notion of seeking explanation from either natural or cultural forces. Poul Heide's focus on intervisibility unites both of these forces because vision is a universal form of human experience that involves the synaesthesis of nature and culture. Therefore explanations do not reside in the definition of a thing either as nature or culture, but in the combination; in a sense this expresses a dwelling perspective grounded in a visualisation force. If visual connection was as important, as Poul suggests, then the shift in the farm place at Vatnsfjörður from its first location to its second can be explained because of the need to have 'visual' control over the occupation of the landscape by other farms. This is not because of determinisms or factors relating simply to environmental changes or alterations in social structures, but is connected with different ways of expressing the relationship between Vatnsfjörður's relationship to both its environment/nature and society/culture.

It is clear that the farms in Vatnsfjarðardalur were visually related, but how important a requirement this was for settlement in general can be examined with respect to other farms. Following on from Poul's study, an important reason for intervisibility may not have been about the control of one farm over others. Viewshed analyses of multiple observation points derived from the farm locations in Vatnsfjarðardalur (Figure 2) suggests that the important characteristic of intervisibility was not so much about control over individual farms or groups of farms, but about controlling the space *inbetween* the farms. This is quite clear with respect to Vatnsfjarðardalur. No one farm can view the whole of the area. For example, Vatnsfjörður from the medieval farm location has a good visual relationship with Sveinshús, Hálshús and Þúfur. While Sveinshús has a visual connection to Vatnsfjörður and Miðhús.

In this way each individual farm contributes to a collective visual network in which the whole area of Vatnsfjarðardalur is entirely visible, but mediated by several farms – perhaps with close political ties to one another. While it is important not to over-stress the importance of distributed visual connectivity, this way of approaching landscape is important as it goes beyond entrenched thinking concerning explanations of single dominant powers in landscape and instead focuses on the importance of community and alliance. Interrogating landscape in this way suggests other possible ways to examine the underlying structure of the settlement process, in which decisions that were made with respect to settlement location related to both environmental and social factors. Furthermore, this type of connectivity can be quantified in terms of both the spatial area of visibility and the number of connections or visual indeces a farm has to others. As such, it is possible to tentatively characterise the farm-scape in a way that divides the landscape into four main settlement areas based on their visual connectivity and spatial distribution: Vatnsfjarðardalur, Reykjafjörður, Mjoifjörður, and Isafjörður (Table 2).

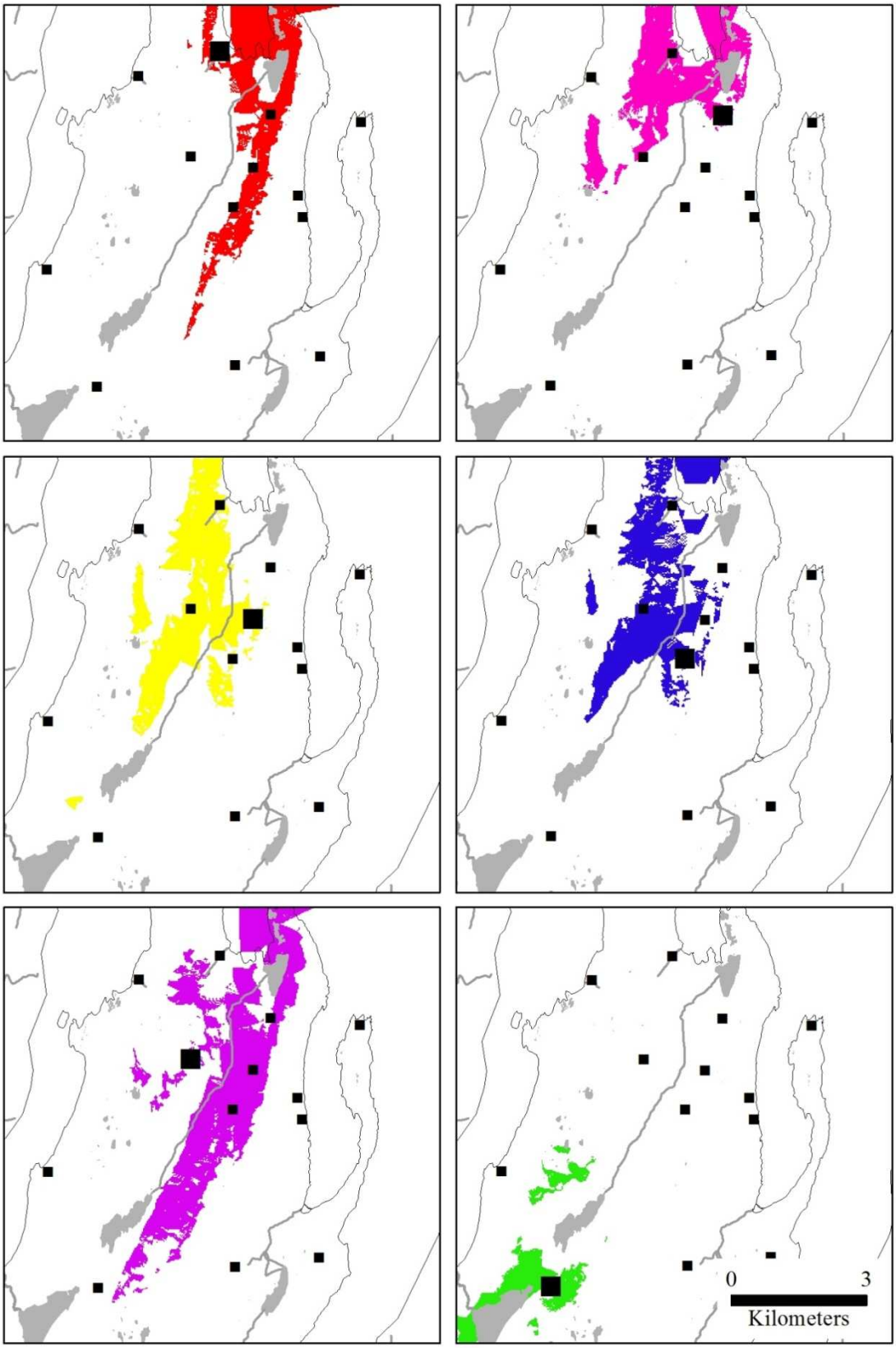


Figure 2. *Viewshed from individual farms: (top left clockwise) Vatnsfjörður; Sveinshús; Þúfur; Vatnsfjarðarsel; Miðhús; Hálshús.*

Farm-scape name	*Number of farms*	*Topographic character*	*Visual index (mean)*	*NNR (mean)*	*Cluster analysis (Z score)*
Vatnsfjarðardalur	6	Valley	2.4	4.63	16.99
Reykjafjörður	3	Valley	0	2.70	/
Mjoifjörður	6	Coastal	1	6.78	27.08
Isafjörður	6	Coastal	0.67	5.05	18.97
Borgary	1	Island	4	/	/

Table 2. *Main geographic zone in the study area compared.*

The process of colonising the landscape can be interrogated using a combination of documentary dates and patterns of intervisibility between farms. If the visibility of approaching boats on the sea and other (potential) farms on land were two important factors in choosing a location for a farm, then Vatnsfjörður, Borgarey and Þúfur seem to have occupied these three prime positions. The date of Vatnsfjörður (tenth century) is early in the settlement process, but excavations at Borgarey and Þúfur would be needed to assess if earlier foundations can be established. The valley area was most suitable for intervisibility, so obviously fits this land/sea model. If on the other hand neighbour visibility was not an important factor in locating a farm, but rather visibility seaward and to the other side of the fjord, then most of the other farms along the edges, rather than the base, of Isafjörður and Mjoifjörður fit this model. Clearly, due to the nature of the topography, there are a limited number of sites which meet the settlement ideal and there was little room for expansion once sites were occupied. The earliest documentary sources suggests that the landscape had reached its settlement capacity by the medieval period, if not during the early medieval period (see Table 2). Therefore, one of the tasks for any future archaeology in the area is to examine other settlement sites in order to ascertain a more precise colonisation process. Without excavation there is relatively little that can be interpreted. One way to look at this is from the visual network perspective over the land and sea. Another factor that might have been important in the settlement process is solar radiation, which suggests a possible colonisation order.

Solar radiation

Solar radiation is the measurement of the sun's energy, measured in Watts/m^2. In this instance, the measurement of solar radiation has been calculated for a specific part of the year: from April to September (Icelandic summer from *gaumánudr* (seed time) to *kornskurðarmánuðr* (harvest month). This is based on the sun trajectory at the average latitude of the sun and the topography – specifically the shade effect – of the area. The value represents an optimum, and does not consider prevailing weather patterns. Nonetheless, the analysis of the potential solar radiation on the landscape compared to the farm distribution may provide an indication of the suitability of the location for habitation. This is based on two assumptions: the need to maintain visual connection with neighbours and enough sun for hay and other crop production.

Farm name	*Solar radiation (W/m2)*	*Visual index*	*Date (documentary)*
Svansvík	616478.25	0	1405
Botn	592411	2	1458
Borgarey	585983.625	4	1367
Miðhús	574518.375	3	1382
Vogar	573476.375	0	1229
Eyri	570702.6875	2	1273
Bjarnarstaðir	569950.0625	0	1458
Vatnsfjarðarsel	565671.125	0	1901
Reykjarfjarðarsel	564914	0	0
Vatnsfjörður	564686.1875	4	1273
Kot	558572.1875	0	0
Kleifarkot	555277.3125	0	1710
Skálavík	553253.5625	0	1458
Reykjarfjörður	553102.4375	0	1200
Kelda	548906.75	0	1327
Hörgshlið	541001.625	2	1458
Skeið	536514.9375	2	0
Hálshús	534590.25	3	1327
Þúfur	534224.375	3	1222
Sveinhús	522100.3438	2	1495
Kleifakot	449446.8438	1	0
Tokustaðir	388263.1563	1	0

Table 3. *Farms in study area, ordered by solar radiation.*

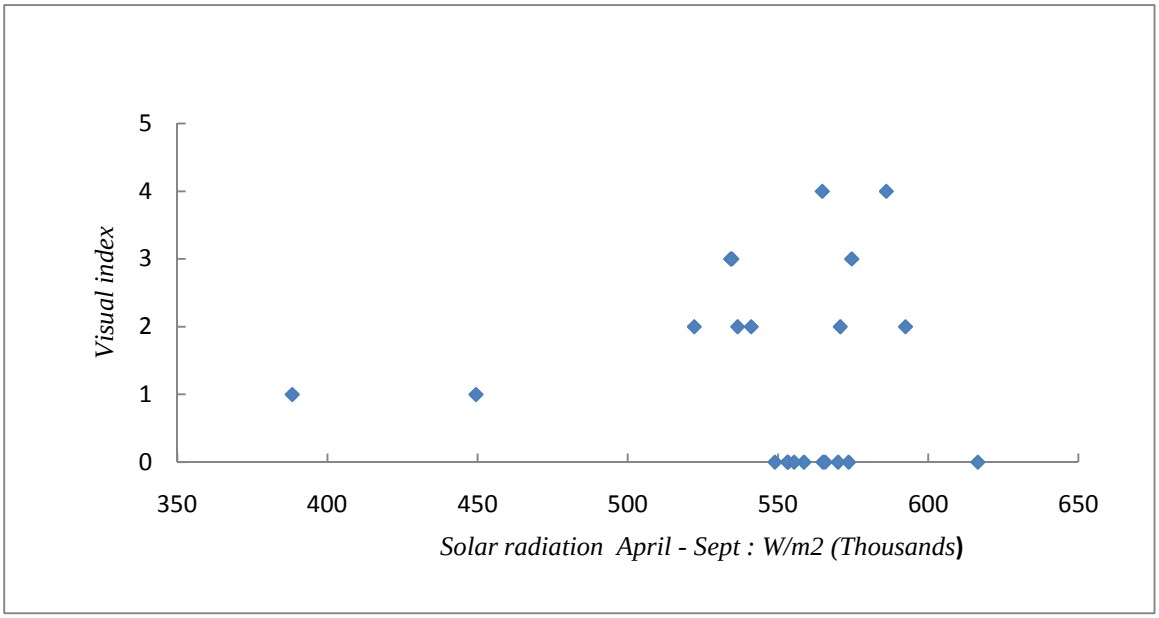


Figure 3. *Scatter graph of Solar radiation (x axis) and Visual index (y axis) of each farm in the study area.*

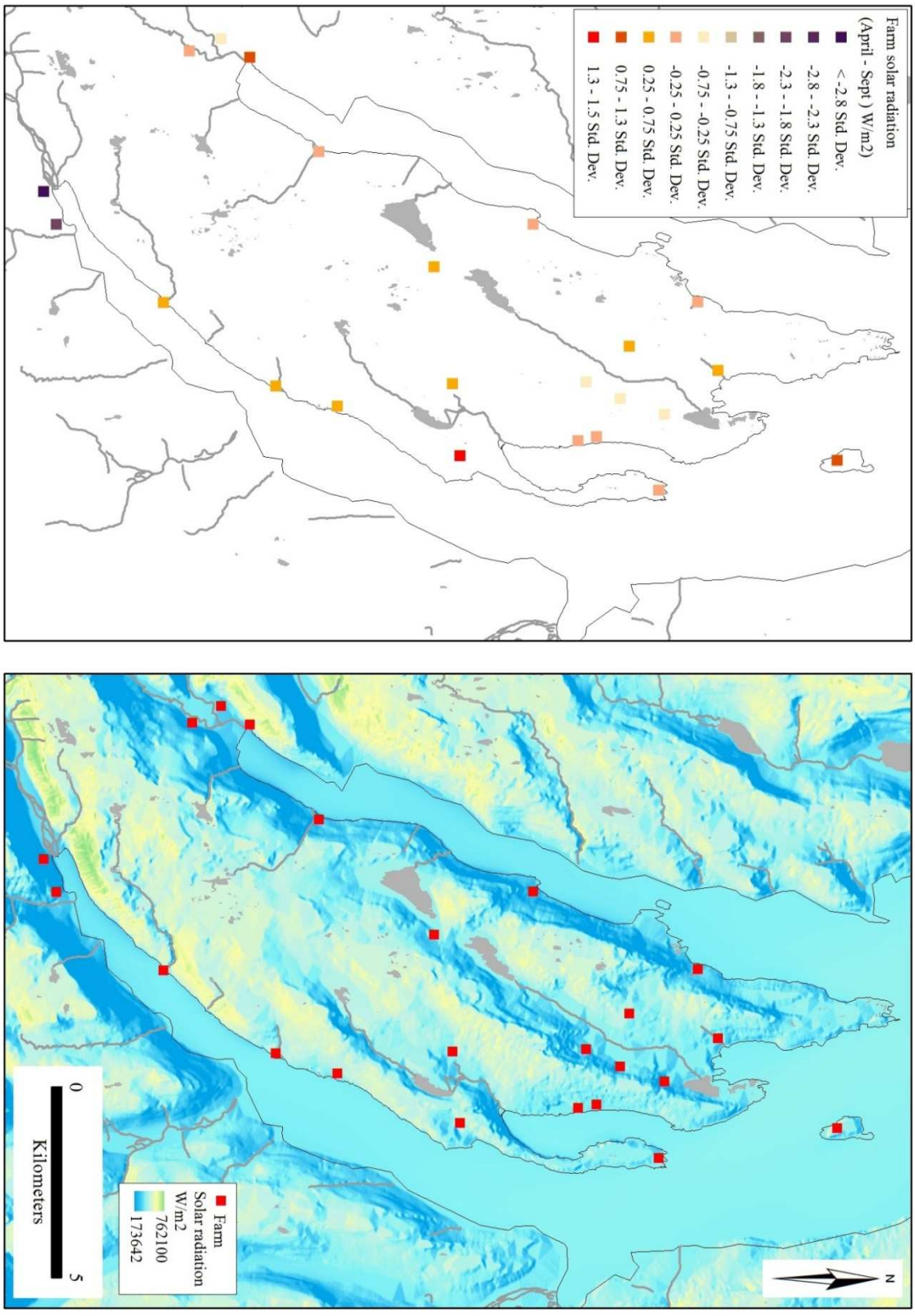


Figure 4. *Solar radiation by farm location by 1/2 standard deviation [St. Dev. = 46,000; mean = 550,000 W/m2] (top); and by landscape surface.*

Comparing both the visual index and solar radiation of each farm in an analysis of the farm locations demonstrates again the combined importance of both natural *and* cultural factors. While the set of parameters on which this analysis is based may fluctuate with small-scale shifts in locations of the farm place, such as at Vatnsfjörður, there is not a radical alteration. While Vatnsfjörður is for example not located on the most suitable land for hay production, given both the poor soil quality and a just above the mean level of solar radiation, it does have good visibility both towards sea as well as towards the land. And while Svansvík has extremely poor visibility landward and relatively limited seaward visibility, it is well sheltered and has the highest potential summer solar radiation value. There are two different settlement models being used in the study area: one maximising the visual connectivity to the sea, the land and other settlements, and another utilising solar radiation. The first relates to the valley area and second to the two fjord and coastal edge areas. While the first is less constrained by the topography in terms of placement, there was a decision to place Sveinshús, Hálshús and Þúfur farms against the ridge with low values of solar radiation. Perhaps in this instance, the first model expresses visual networks, with less of an emphasis on biomass productivity. The second model may have chosen some locations over others because of both greater solar radiation and the availability of suitable land that met the ideal settlement type. All of the farms in Isafjörður, except the two later farms of Kleifakot and Tokustaðir (presumably), have above mean radiation values. Thus, we should not be prescriptive about intervisibility as the only dominant factor in deciding location, but that there are equally other factors that need to be considered as well. How this kind of thinking can be applied to other types of archaeology is addressed in the next section on movement and the everyday.

Movement and the everyday

Movement is an essential part of examining the communities who have lived in the landscape. Through an understanding of how people moved, particularly with respect to the everyday activities relating to tending the animals or in gathering resources, such as peat, food, and building materials such as stone and turf, we get a closer approximation of what is was like to dwell. Movement is a universal quality, for most people, although it may have been differentiated at different periods in history depending on gender and status. Studying movement from an archaeological perceptive principally relies on the evidence for movement in material form, that is to say sites such as cairns, eroded paths, reinforced roads, and bridges that are left in the landscape. And as movement is an immaterial practice, the tensions between material inscription and immaterial incorporation become a critical form of analysis. But how is it possible to study an immaterial practice such as movement; we cannot ask the dead to walk again, can we!? However, we can relate our own embodied movements to develop a point of convergence between the material forms and immaterial practices that circulate around a site, such as a cairn. The cairn acts as a mediator between two practices of movement.

In a sense, this is like the digging of a pit in the past, whereby the excavation in the present is like the initial digging, not through natural soil but through accumulated anthropogenic (for the most part) deposits. The process of excavation is a digging, but in reverse. What becomes important in ascertaining the relationship between these two acts of digging is determining the intentionality of the pit. For example, the pit ‘does’ something to both diggers: the pit has a kind of intention, and though this is different between each actor, it is materially the same. In this way, the embodied movement of a farmer from one cairn to next in the past can be compared with the embodied movement of an archaeologist in the present. Although the two acts of movement have different cognitive intentions, they use and

mobilise a similar set of material conditions from the cairn itself, to the landscape. What both of these movements share is the intentions that coalesce in the material site itself – the cairn. In finding one's way from one farm to the next along a line of interconnected sites, and the observation and survey of this line as it is re-walked again, we arrive at an approximation of an immaterial practice in the past through our own movements in the present. Thus, in incorporating our own embodied movements during survey, rather than simply documenting site-based experiences, we are in effect reproducing movement in order to understand its important relationships between the mover, the sites relating to movement, and the landscape in which movement takes place. Archaeological approaches to movement and the everyday in this study are about documenting the residual material forms of movement, as well as experiencing the world around, from the visible of depth of landscape, to its varied surfaces. A particular challenge associated with the latter is determining the nature of the environment in different time periods. Consequently, an important point of convergence is related to the underlying geology and topography as well as the sites which are products of the materialisation of movement.

The relationality between movement in the past and movement in the present is focused not only on a phenomenology of landscape, as it is practiced by Chris Tilley and others as experience of landscape based on the senses, in which vision is dominant, but also on the material relationship from two others sources: phenomena derived from observational processes involving haptic and corporeal experiences, and phenomena derived from analytical processes of establishing connectivity between sites and landscape, both in the field and in the lab. The relationship between these two sites of knowledge production is a critical one in grounding the understanding of movement in a landscape context that connects people to their communities, but also in providing analytical rigour in repeatable and verifiable methods. As such, interpretation of movement is derived from the experiences of being in the field, and the work that is done to represent these through analytical processes. This has been more or less the methodology employed during the survey around Vatnsfjörður.

The landscape survey has recorded 563 cairns in the study area. These sites have been recorded in a variety of different ways: photographed, drawn, located with GPS, described in terms of their dimensions and construction techniques, and systematically interpretated in terms of their placement. What was immediately noticeable during the initial survey in 2005 was that there were different styles of cairns, which therefore lend themselves to a traditional archaeological survey and the development of typological indicators of variability between cairn sites. Variation in design and construction was a product of two different forces: the function and use of the site as a marker in the landscape, and the scope and range of materials for construction. Therefore, archaeologically, two problems have emerged in the analysis. The first problem is connected to function and use of the cairns, and the second to the relationality between location and materials. What emerges from these is also an issue related to the temporality of the landscape. Differences in design and construction add to an understanding of the relative chronology of cairns, particular in the context of different designs being employed in areas with similar types of stones. These issues though need some discussion.

The design and construction of the cairns alone have not been enough to establish interpretations of different uses, which, along with chronological changes in style, are often the traditional interpretations assigned to typologies. Furthermore, it is hard to assign single uses, because these sites probably had several functions, from waymarkers, to timemarkers, boundary markers, look-outs, and perhaps burial markers, as well as marking folklore or sites associated with stories. Consequently, while it is possible to assign interpretations to a particular site, there will always be an element of ambiguity in assigning them meaning. And,

furthermore, these meanings are not constant, as they may have often been renegotiated by different generations. For example, a cairn that may have started as a small, barely noticeable, stone pile used as a way marker, but over time becomes a large 10 m wide and 3 m tall circular because of a mythical event that connects the particular place with a folklore narrative. Consequently, while the initial meaning of a site may have been related to moving between one farm and another, this meaning is subsumed. And what is more, the original cairn and its meaning is *materially* subsumed as it grows in size as stones are deposited on top of it as each passer-by walks past it in order to have safe travel. The modification of sites such as these is partially a consequence of their resilience, and while a site may appear to be durable, it is prone to radical alteration in its meaning as it becomes transformed cognitively as well as materially. In this way, cairns are part of a productive context of landscape that connect and relate different elements and are constantly making new assemblages and connections.

Figure 5. *Two cairns (left UID 148, right UID 149) lying above and east of Sveinhús and Hálshús, looking west towards Vatnsfjörður in the distance - 148 is known as 'Poul's cairn' (10/07/2009).*

In the example given above, it would not have been possible, without great difficultly, for the cairn to materially expand had there not been a considerable number of loose stones scattered on the surface. In fact, the prolific number of cairns in this study area is due to the material presence of large quantities of stone. Furthermore, the design of a cairn is not just influenced by the particular use of a cairn, but is largely determined by the type of stone immediately available. This therefore makes simple correlations between design types and time problematic. Rounded and sub-angular stones tend to be to make architectural types such as 'pile' and 'conical' cairns, whereas flat, thin stones tend to make 'tower 1' and 'beehive' types, and there seems to be an 'observed' correlation in the distribution of cairns and the stone type available.

There is still considerable work to be done on this, however, altering the perspective of analysis away from analysing the typology:function relationship, and considering also material:landscape relationship may address several important issues. Furthermore, sites like cairns, as well as all other types, must not be understood in isolation from one another. For example, cairns must be assessed in relation with their immediate locales, as well as the network for which a single cairn forms one node in a line. The relative temporality of a cairn is then placed in a network of cairns which extend and form a path between one place and

another. Variation in design of cairns along a network indicates something about the use of the network; whether this is connected with temporal variation, or in the availability of materials for construction. Furthermore, smaller alterations, such as in the subtle change of location, with the deconstruction of one cairn and a new one placed close to it, indicate a temporal event in which the location and use-value of a cairn has been renegotiated. There are many examples of such events occurring in the study area. Like the decision-making behind farm location, the understanding of cairn chronology and use remains rather speculative, but by combining different types of analysis alongside traditional typological methods, some interesting patterns may be revealed.

The identity of these cairns will always, to some extent, remain elusive; this is partly connected to the fragmentary material remains that archaeologists have to work on. But it is also partly generated by the contemporary archaeological process itself. Archaeologists tend to de-contextualise the empirical evidence from its surroundings in order to develop analytical and objective methods, either scientifically, or within a particular problem-orientated question. However, these approaches often occur at a distance from the landscape itself. What I mean is that specifically in a landscape context, the site is removed from its environment and studied outside of it, only to be put back again but in a way that greatly reduces its 'real' qualities. This is perhaps not the place to discuss issues connected with archaeological representation and what is observed and recorded in reality, but what I want to do is suggest ways that we might intervene with sites in their landscape context in producing a more secure basis for interpretation that centres on the experiences and observations of being in the field. This also relates to the previous section on farms, in that while the visual connection becomes critical, particularly with respect to cairns and how they facilitate movement, it also involves other factors such as typology, available materials, and material changes in the meaning of sites. And, critically, archaeology in this way retains the relationship with the people who built and worked the land through a more embedded examination of material inscriptions, by bringing together several different scales of activity, from the decision on farm location, to the marking of paths through the landscape.

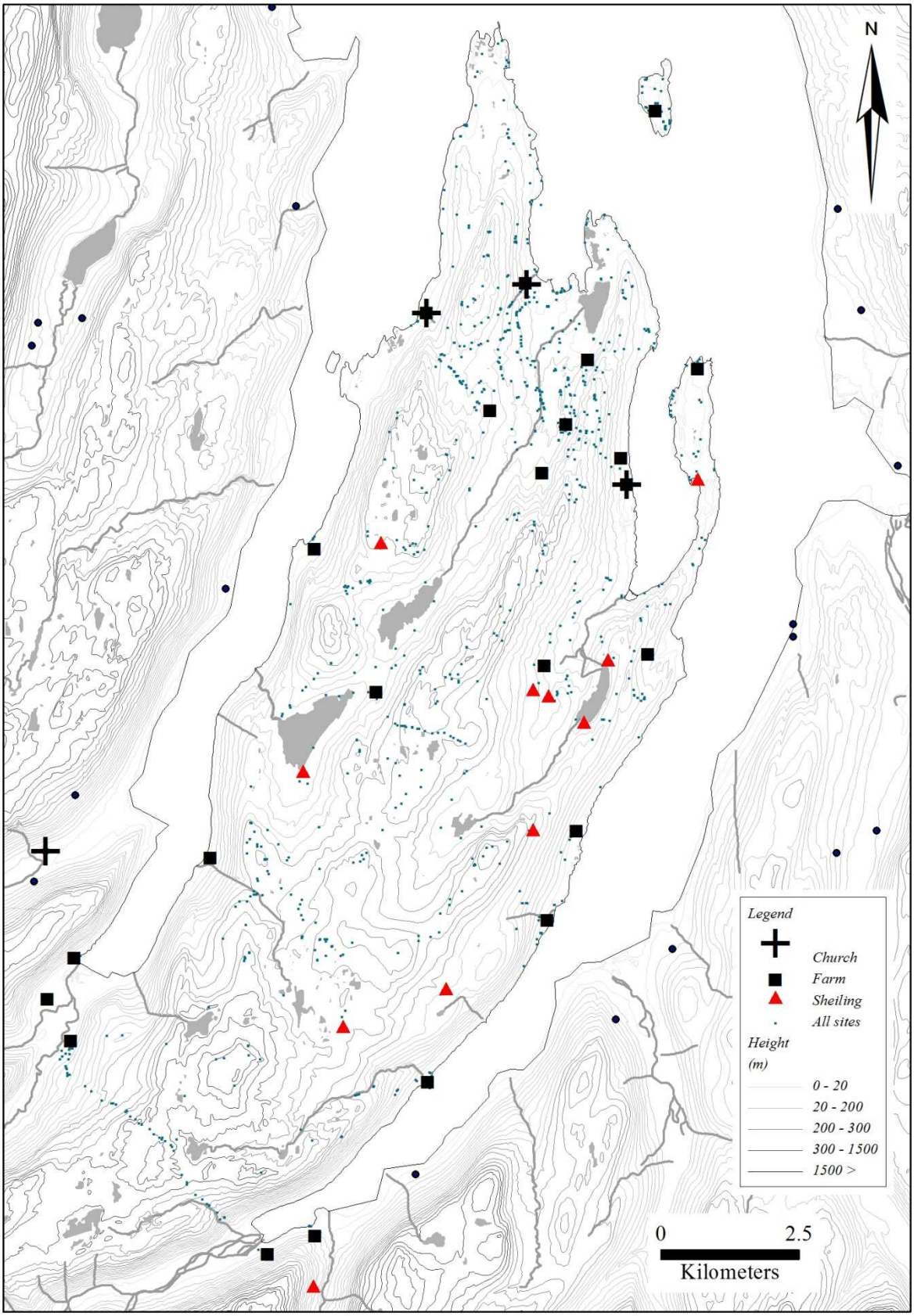


Figure 6. *Vatnsfjörður study area; churches, farms, sheilings and survey sites.*

Discussion: farms and movement

This report has focused on two different scales: the farm and sites such as cairns, relating to location and movement. It has employed both an analytical approach to empirical data, but also examined, in part, the empiricism associated with a practical approach to landscape. While the survey in 2009 was primarily about filling in the gaps in order to complete a more or less complete survey of the study area, it was also about reconciling a tension between these two different approaches to landscape, and examining the interdependence between farms and movement. Analytical approaches often take place away from the field, while practical approaches occur in the field. Both are producing different forms of knowledge that are vital for interpreting the landscape. And while the focus on movement was a deliberately chosen theme to study because it emerged during the earliest survey material, it is often not studied in-depth or systematically. On the other hand, the focus on settlement and the farms in the study area is a more traditional theme for landscape studies, and is one that has been a part of the study since its inception. So while there have been several different approaches used to study the landscape around Vatnsfjörður, as well as at least two dominant themes, the relationships between them have not been thoroughly explored by others. I do not want to discuss the relationship between the different approaches that have been used, but only to mention in passing one important theoretical/practical issue. The difference between the approaches is not so much of a problem if we focus on the fact that they are simply different ways to express quantitatively and qualitatively the same material. What I would like to do is conclude by examining the relationship between farms and movement by defining different types of movement. Movement in general cannot be understood without reference to the farms, this applies equally to the understanding of farms. Clearly Vatnsfjörður played a central role in the both the farm-scape as well as the movement. The survey in 2009 identified several distinctive types of movement.

Everyday or routine movements. These involve the movements related to tending of animals, collecting water, cutting peat, or gathering foods. They have a certain rhythm and mundane quality, which tend to be glossed over archaeology because of problems in identification. However, the landscape is littered with fragments of everyday practices which are established from iterative and often consecutive practices – sites such as structures and enclosures used for sheep, defined plots for growing vegetables, turf and peat cutting areas, water collection points, and harbouring spots. These practices also varied considerably between seasons. For the most part the range of movement from the farm is relatively small or at least within the boundaries of one farm, but multiplied over the number of farms in the area, we get a sense of the great mobility of the landscape, which until recently was fairly active. Often the distances involved in routine movements are between 500 m and 1.5 km. For example, south of Vatnsfjörður there is an enclosure complex approximately 1 km from the farm; at Miðhús has two enclosures located south of the farm, one 500 m and another c. 1.5 km.

Farm-to-farm movements. While not as regular as everyday movements, farm-to-farm nonetheless have a repetitive quality. These types of movements may have had a variety of different purposes, such as going to church, general visitations between farms, or community meetings. In many ways, the same issues apply as to everyday movements. And though these perhaps have a little further extension in longer distances travelled, the passage of time associated with them depends on the calculation of distance between the destination farm from the origin farm, and back again. Church going was perhaps an important reason for travel, and in the study area Vatnsfjörður is the parish church, but there were chapels at Skálavík and Reykjafjörður, as well as at Kirkjúból in Heydalur. While the church at Vatnsfjörður is first mentioned in 1171, the other chapels are not mentioned until 1710

(although they probably have earlier dates). Therefore, a family travelling from Bjarnarstaðir may have had to travel c. 9 km in one direction to get to the chapel at Reykjafjörður, and c. 12 km to get to Vatnsfjörður. This is based on the moving across the landscape, rather than by boat. For example, the occupants on Borgarey were excused church going when the wind direction across the straight between it and Vatnsfjörður made boat travel a particular hazard. There are also other movements, although not exclusively relating to farms, that have relevance to them.

Seasonal movement. These are movements that relate to specific seasonal activities such as moving sheep to the summer grazing areas, as well as the sorting of animals, or activities relating to the hunting and fishing, as well as cutting of the grass. However, there are no clearly identified areas used for upland grazing in the area of Vatnsfjörður, as much of the upland area has sparse vegetation. It was more likely that a sheiling system operated, although relatively little is known about the grazing regimes in north-west Iceland in general. The summer pastures located at sheilings were located in the lowlands relatively close to the home farm; in fact it was illegal for such places to be outside of a farm's boundaries. The namesake Vatnsfjarðarsel was permanently occupied in the late nineteenth century, but was probably Vatnsfjörður's (and others?) summer sheep grazing site. It lies c. 8 km south of Vatnsfjöður. Another sheiling site was Reykjafjarðarsel, which lies c. 4 km south of Reykjafjörður. There are several other sites, though most of their precise locations are uncertain, and appear not to have had any structures, or have ruins that today are extremely subtle. The distance between a farm and its sheiling seems never to have been more than c. 8 km. Other seasonal movements were associated with þingstaðir or assemblies (though not applicable to all members of the community). The closest assembly site to Vatnsfjörður is 50 km away to the south east by land, but would have involved going along tracks across upland heaths. Furthermore, Vatnsfjörður is several hundred kilometres from Þingvellir, the national assembly place. Other seasonal gatherings would have included the harvest festival dance, which is today located at Ögur, approximately 20 km from Vatsfjörður by boat.

Eventful movements. These movements are associated with special events that are not predictable in any way. They might involve the gathering of a community after the death of one of its members, or an event that is not part of the ordinary structure of daily life. It is a little hard to understand the distances travelled, or the paths which might be undertaken under such events, but a nearest neighbour spatial analysis of the distribution of farms gives an approximation of the possible distances to be travelled (see Table 2). Some areas are more connected than others, and also the paths allow a greater ease of movement between some farms than others. It is of course, also an issue of topography, whereby ridges and marshland prove to be obstacles, whereas coastal paths are often quite accessible. The character of landscape and the farms within it therefore establish the ease of movement, and the degree of communication between farm communities. While movement is clearly occurring by land, there was also considerable movement by sea. Out of 23 farms only 9 are more than 500 m from the coastal edge, and none more than 2.5 km. This suggests that sea was a fluid medium for travel.

There is a clear visual correlation between the spatial distributions of cairns in relation to the distribution of farms. Also, the numbers of sites in the Vatnsfjarðardalur area – the densest farm cluster in the study area – is considerably more than in other areas with more distributed farm locations. However, the density of sites, especially cairns, presents a challenge in trying to unravel the paths in relation to activity areas or simply in terms of the through-passage from one side of the valley to the other. The area between the farms is primarily meadow and bog, with a small stream running through it. While there are clearly several crossing points it is by far unclear what the precise paths are between different farms. There appears to have been considerable alteration and adaptation of the markings to

accommodate new paths. This is perhaps more than the stamping of a new generation's dwelling, but might be a response to changing environmental conditions, as the bottom of the valley became silted up and changed into a meadow. Currently, the environmental history of this area is not known, though coring through the Sveinhúsvatn suggests that soil wash from the surrounding slopes has been taking place. There are still many things to find out about the landscape of Vatnsfjörður, in particular adding to our knowledge of the temporality of the landscape through continued assessment of the surroundings outside of Vatnsfjörður and acquiring further understanding of the environmental changes that were taking place outside of the farms.

GPS SURVEY IN THE COASTAL AREA OF VATNSFJÖRÐUR

Łukasz Mikołajczyk
Jagiellonian University

Leszek Gardeła
University of Aberdeen

Introduction and project aims

Between the 18th and 20th of July, the authors of the present paper conducted a differential GPS survey which aimed at identifying archaeological structures within the coastal area of Vatnsfjörður. Our primary concern was to locate the potential Viking Age boat house which, as we assumed, must have been built and used by the inhabitants of the Viking farm. We were also hoping to understand the complex relations between the boathouse and the Viking Age part of the site and explain what drove the people of the past to build it in a particular place.

Hypotheses

Our preliminary hypothesis was that the alleged boathouse would be located somewhere on the current beach benches in an area that would be well visible from the Viking Age farm and *vice versa*. We supposed that it could have been significant for the inhabitants of the farm to see who is approaching the shore and also to always have a watchful eye upon their precious ship(s)/boat(s). An equally important factor for locating a boathouse is the very structure of the beach. We thus concluded that any large rocks on the shore would strongly suggest that the beach was not suitable for ship landing.

Prior to conducting the field-survey we consulted Dr Jeremy Lloyd about his hypotheses on the past sea-level height in this area. This information was very significant for us. We wanted to take into consideration the changes in the shape of the coastline overtime because this could help us to provide preliminary chronologies for the structures that we were hoping to find. We soon learned that the sea level of Ísafjarðardjúp in the Viking Age was about 2 meters higher than what it is today. This implies that buildings located too close to the current line of water could not be dated to the Viking Age and must be younger – possibly chronologically correlated with the Early Modern farm.

The survey

We started our survey by walking along the coastline, trying to identify and interpret all human made structures which we encountered on our way. We took photographs of all those structures both from the ground level (from different angles) and from the roof of a car, which helped us to obtain a better, aerial overview. The next day we started a proper survey of all the above mentioned structures. We documented the shoreline at the assumed high-tide mark and the structures with the use of differential GPS (Trimble) equipment, which allowed us to precisely map all the archaeological structures as well as the current road, which runs above the beach benches and the present shoreline. In addition to mapping all structures, we also filled in special survey sheets where we described the forms and shapes of the structures, the material from which they were built and their location within the landscape (see section 7). Furthermore, we attempted to analyze their visibility, both from the Viking Age farm and from the Early Modern farm mound.

The final results of the survey proved to be extremely fruitful. We were able to distinguish 6 different areas which contained archaeological features, from different periods of time. All areas and the details of the documented features are presented in the catalogue part of the present report (see section 6). Due to the preliminary nature of our current study and also the fact that we were unable to excavate any of the discussed structures, we can only provide more precise details and on one area – Area 2 (see section 4).

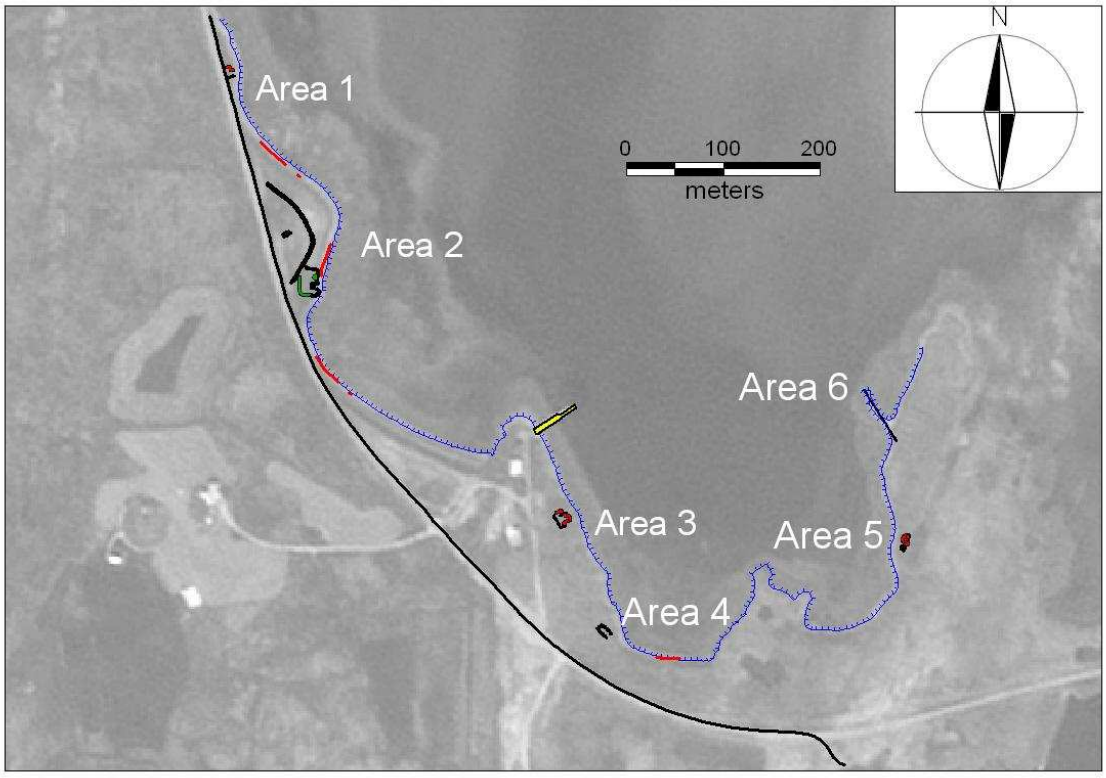


Figure 1. *Map showing all six areas that were identified during the survey.*

Area 2 – A detailed case study

The Area 2 encompasses two structures (here referred to as Structure 2 and Structure 3) and two walls (referred to as Wall 1 and Wall 2). The area is perfectly visible from both

the Viking Age farm and the Early Modern farm and *vice versa*. Our research on the nature of this area allows us to present the relative chronology of the site and its development. We are aware that without further archaeological investigation we are unable to determine with any certainty the function of described structures. Therefore all points presented here should be regarded as only hypotheses.

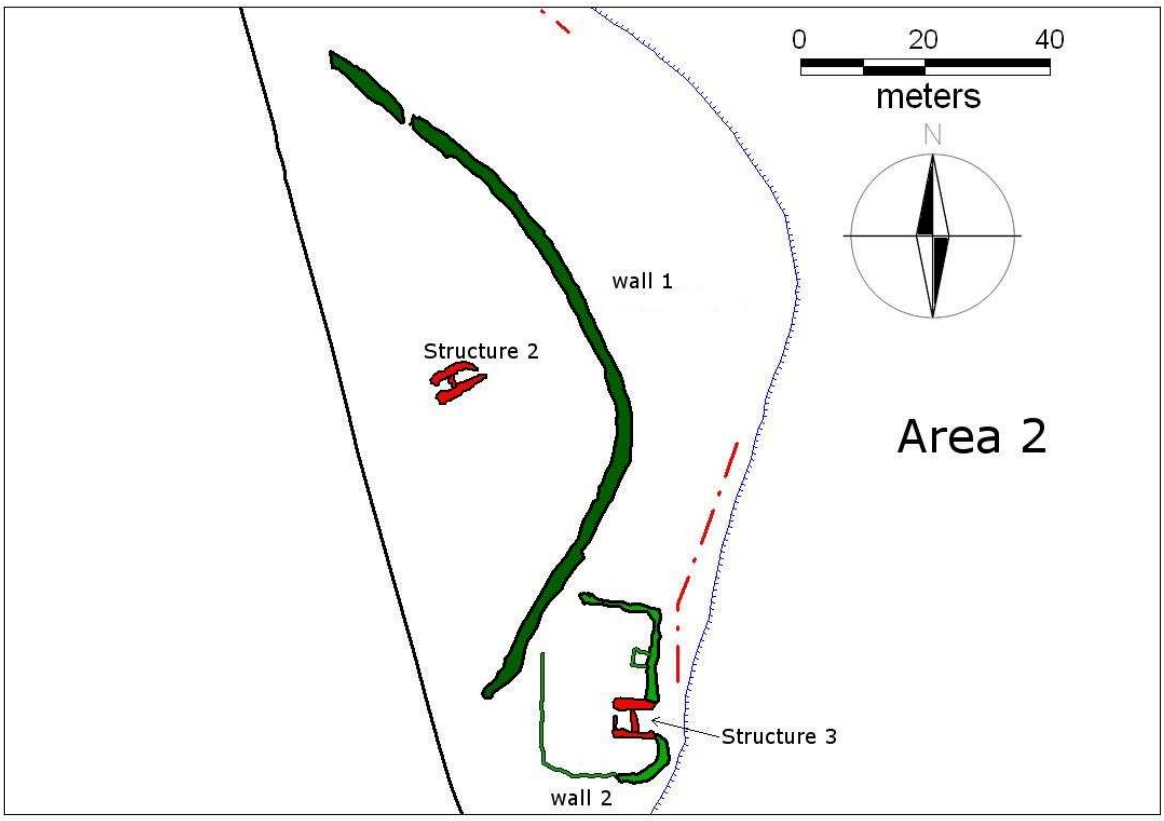


Figure 2. *A detailed map of human-made structures within Area 2.*

Relative chronology:

1. Structure 2 seems to be the first human made feature to be constructed in Area 2. Judging from its distance from the current sea-line and its bow shaped walls it might be a Viking Age boat house. In the Viking Age, when the sea level was supposedly higher by 2 meters, it would have been very close to the water. Furthermore, the lack of stones or obtrusive rocks in the area would make it a perfect spot for ship landing at low tide. However, it is also possible that this structure might have originally or at some later point in time served as a sheep house. This is suggested by the presence of the dividing wall which runs across it.
2. After some time the alleged boat house was abandoned probably due to the regressing sea level and the potential difficulty of dragging the ship on to the shore.
3. Perhaps several centuries later a sheep enclosure (Wall 2) was built. This late dating is inferred from the fact that the enclosure is very close to the current shoreline (it could not have been built in the Viking Age, because this spot was then covered with water). Unfortunately, there is no clear chronological relation between Structure 2 and Wall 2 and it cannot be established without conducting excavation work. Our interpretation of the early dating of Structure 2 is thus based on the hypothesis that

due to its close proximity to the sea – which is a prerequisite for all boat houses – it might have been used as such.

4. After the Wall 2 had been constructed, a decision was made to build a new structure (Structure 3) located to the southeast from it – possibly serving as a boathouse. It is significant to add that Structure 3 cuts into the eastern part of Wall 2, and consequently it must be chronologically later than the wall. Moreover, if Structure 3 was to really to serve as a boathouse, then perhaps it had to be built in that particular location (inside the enclosure) as it was the only area where there were no obtrusive stones in the way. Similarly to Structure 2, it might be argued that at some point in time Structure 3 was changed to a sheep-house, or building with another purpose, by adding a dividing wall that runs across it.
5. When the farm boundary (later referred to as Farm Wall) was built, parts of Wall 2 were dismantled to make space for this new structure (Wall 1). In the light of our latest research the location, shape and the eastern border of Wall 1 and the Farm Wall seem to suggest that both structures were originally joined together. There exists a conflicting hypothesis, however, according to which those two structures were separate and Wall 1 worked as a later addition to the Farm Wall. This hypothesis can now be put into question as the GPS landscape survey which we conducted and mapping of the Walls strongly suggests them being contemporaneous. The farm wall was tephra-chronologically dated before 1693 which gives a *terminus ante quem* for all features within Area 2

Discussion

We interpreted some of the presented structures (2, 3, 5) as boathouses (ON. *naust*) mainly on the basis of two of their features, first – proximity to the shoreline and second – shape. The described structures are now on the level between 1 and 2.86 m. over the present high tide shoreline which – considering descending sea level factor – made it possible to use them as boathouses during periods of time from the Viking Age until now. Their height over sea level is common and usual in comparison with other structures of this kind from Norway (Myhre 1985). In the case of shape our three structures are not similar. Structures 2 and 3 consisted of two parallel, slightly curved, side walls without the back wall that is commonly present in other structures of this type known from Norway. The back wall may be missing because of deliberate dismantling with the aim of adjusting the building to some other function. Structure 5 has the horseshoe shape typical for *nausts*, similar to many structures from Norway (Myhre 1985; Grimm 2002), Faeroe Islands (Stylegar, Grimm 2005) and Orkney (Hunter 1992). The Vatnsfjörður boathouses – if that was indeed their function – are rather small in comparison with their Norwegian counterparts. The biggest Norwegian boathouse is less than 16 m, which gives us reason to claim that they were used for storing rather small fishing boats. We abandoned our primary attempt to classify the boathouses using Rolfsen's (1974) method, because of the poor preservation of the features, unknown height over sea level, and the fact that this method was designed for far bigger boathouses than those on the coast of Vatnsfjörður. What is more, without the possibility to excavate, we were unable to measure the inner width and length of our structures necessary to calculate the ratio. The only thing we can say is that they are quite wide and short. This fact places them in the second "late" group (see: Rolfsen 1974; Myhre 1985).

Concerning the visibility of the boathouses from the Early Modern farm and the Viking Age farm, the only surprising conclusion is that Structure 5 remains invisible from both of them. We can only presume that this location was so comfortable for storing a boat

that visibility became a less important factor. Another strange feature of Structure 5 is the angle between its longitudal axis and the present shore line, which seems to be too sharp to allow easy introduction of a boat. Usually boathouses were built perpendicularly to the sore. Nonetheless, we have to be aware that the precise past course of the Vatnsfjörður shoreline is still undetermined.

In the literature concerning boathouses there appears a problem regarding their secondary function. There are conceptions suggesting that empty buildings were used as feasting halls (Hinsch 1960), storage space connected with trade (Rolfsen 1974) or workshops (Grimm 2001). It seems possible that also some shipbuilding/repairing activity took place there (nails and rivets were found inside the houses) (Stylegar, Grimm 2005). At present, however, it is impossible now to answer if the alleged Vatnsfjörður boathouses had any secondary function. These questions may be answered during future examinations – hopefully a detailed archaeological survey.

Concluding remarks and future research

The presented work shows the results of only a landscape survey. That is why all our chronological claims must not be considered as archaeological *sensu stricto*. The main aim of this project, which we think was fulfilled, was to map human-made structures and show the most striking relations between them and the settlement areas. The next step would be to conduct archaeological excavation of the structures.

Acknowledgements

The authors would like to express their warmest thanks to Oscar Aldred for supervising this project.

Bibliography

Bowman, A. (1990) Boat naust survey on Papa Westray, Orkney. *International Journal of Nautical Archaeology* 19(4): 317-325.

Grimm, O. (2001) Norwegian boathouses from the late Roman and Migration Period—an analysis of their military function. In Storgaard, B. (ed.), *Military aspects of the aristocracy in Barbaricum in the Roman and Early Migration Periods*, National Museum, Studies in Archaeology and History 5, København, 55–66.

Grimm, O. (2002) The military context of Norwegian boathouses (AD 1–1500). In Norgård Jørgensen, A. *et al.* (ed.), *Maritime Warfare in Northern Europe*. International Research Seminar, Danish National Museum, København, 105–25.

Hinsch, E. (1960) Naust og hall i jernalderen. *Bergens Museums Årbok* 1960, 5–24.

Hunter, J. R. (1992) The survey and excavation of boat nausts at Hurnip′s Point, Deerness, Orkney. *International Journal of Nautical Archaeology* 21: 125–33

Myhre, B. (1985) Boathouses as Indicators of Political Organisation, *Norwegian Archaeological Review* 18, 37–60

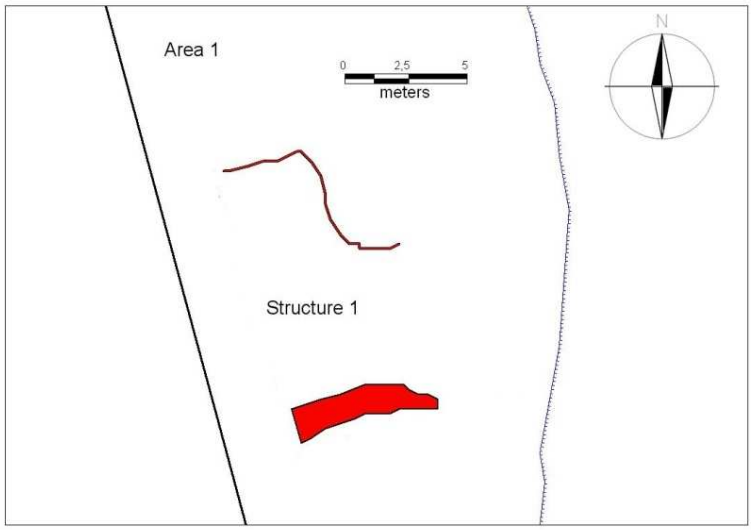
Rolfsen, P. (1974) *Båtnaust på Jærkysten*, Stavanger Museums Skrifter 8, Stavanger

Stylegar, F. A.; Grimm, O. (2005) Boathouses in Northern Europe and the North Atlantic, . *International Journal of Nautical Archaeology* 34(2): 253-268

Appendix 1: Catalogue of defined areas and archaeological structures

AREA 1

Structure 1 (S1)



Assumed function: Fishing booth(?)
Form: rectangular turf built structure
Dimensions: 11,45m x 5,86m
Materials: turf
Preservation: truncated by the road
Threats: rising sea level
Land use: grassy beach with gravel
Topographic location: shore line

Current height of walls: 40cm

Visibility from the Viking Age site: No / Visibility towards the Viking Age site: No
Visibility from the Farm Mound: No / Visibility towards the Farm Mound: No

AREA 2

Structure 2 (S2)

Assumed function: Boat house or sheep house
Form: Rectangular wall built structure, bow shaped
Dimensions: 8,80m x 4,76m
Materials: turf
Preservation: collapsed wall, but relatively well preserved
Threats: Practically none, buy maybe some road interference
Land use: grassy beach, located on an elevated mound
Topographic location: beach bench; within the home-home field enclosure

Current height of walls: 56cm

Visibility from the Viking Age site: Yes / Visibility towards the Viking Age site: Yes
Visibility from the Farm Mound: Yes / Visibility towards the Farm Mound: Yes

Remarks: The shorter walls of the structure are open. There is an internal turf and stone wall which divides the structure in two almost equal halves.

Hypothesis: The whole structure might have had several phases. Originally this could have been a (Viking Age?) boat house and after it had been abandoned, it was used as a sheep house.

Wall 1 (W1)

Assumed function: turf wall
Form: half-moon shaped
Dimensions: ca. 1,5m wide, 126,9m long
Materials: turf
Preservation: good, the structure is visible from the ground level and outstanding
Threats: none, only the (currently unlikely) rising sea level
Land use: grassy beach
Topographic location: stormy beach ridge

Visibility from the Viking Age site: Yes / Visibility towards the Viking Age site: Yes
Visibility from the Farm Mound: Yes / Visibility towards the Farm Mound: Yes

Wall 2 (W2)

Assumed function: stone wall - enclosure
Form: rectangular
Dimensions: 20,55m x 27,71m
Materials: stone
Threats: sea erosion
Land use: on a beach edge
Topographic location: old beach bench

Current wall height: 42cm

Visibility from the Viking Age site: Yes / Visibility towards the Viking Age site: Yes
Visibility from the Farm Mound: Yes / Visibility towards the Farm Mound: Yes

Hypothesis: The stone wall (Wall 2 – W2) is much lower than the walls of Structure 3 (S3). This allows for interpreting Wall 2 (W2) as being older than Structure 3 (S3). A similar situation can be observed in case of the chronological relations between Wall 1 and Wall 2. The possible sheep enclosure (Wall 1 – W1) cuts through Wall 2 (W2), which implies that part of Wall 2 (W2) was taken apart to make room for newly constructed Wall 1 (W2).

Structure 3 (S3)

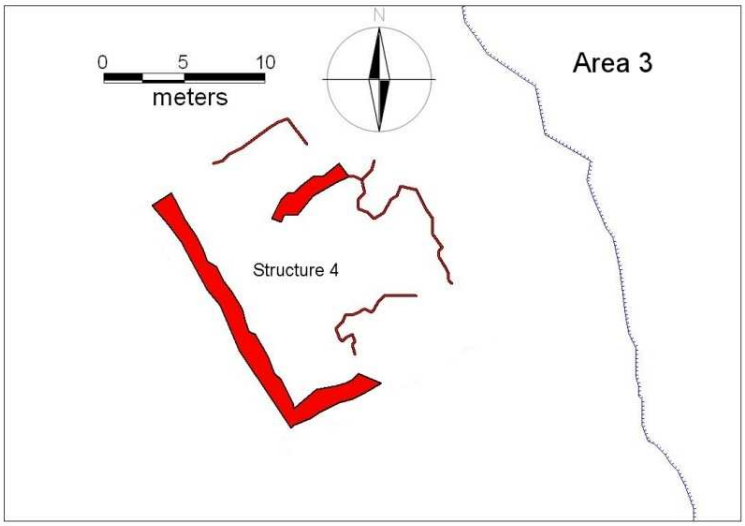
Assumed function: boat house or fisherman's hut
Form: rectangular
Shape:
Dimensions: 6,76m x 6,50m
Materials: turf and stone
Preservation: good, the walls are very high compared to other structures in this area
Threats: Rising sea level
Land use: Grassy beach
Topographic location: on the edge of a beach bench

Current wall height: 99cm

Remarks: The structure contains an internal wall. Potential entrances were located in the NE and NW walls of the structure. There seems to have been some potential reinforcement of this structure in the NE. This reinforcement could have been associated with the stone wall (Wall 2 – W2).

AREA 3

Structure 4 (S4)



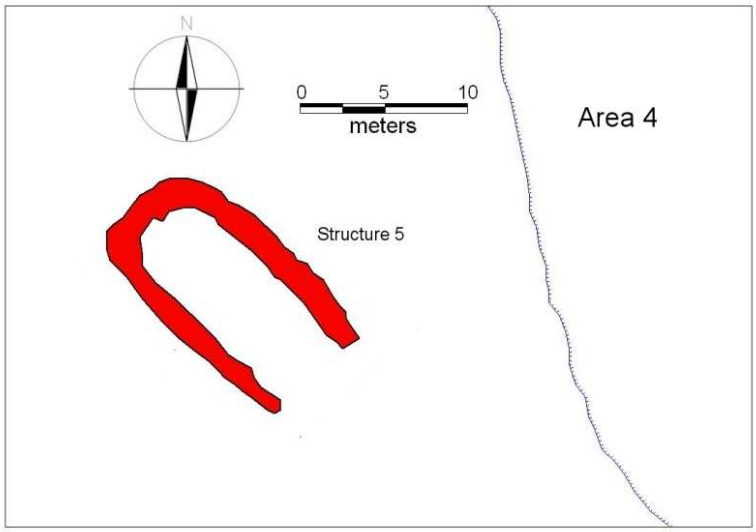
Assumed function: sheep enclosure
Form: Rectangular
Dimensions: 15,95m x 14,07m
Materials: Stone, well preserved but in some places collapse
Threats: sea erosion
Land use: on a beach ridge
Topographic location: close to the boat house (Structure 5), grassy area

Current height of walls: 130cm

Visibility from the Viking Age site: Yes / Visibility towards the Viking Age site: Yes
Visibility from the Farm Mound: Yes / Visibility towards the Farm Mound: Yes

AREA 4

Structure 5 (S5)



Assumed function: boat house
Form: Rectangular, open in the SE corner
Shape: Bow-shaped
Dimensions: 15,71m x 8,65m
Materials: Turf with occasional stones
Preservation: good, visible from ground level
Threats: rising sea level, sea erosion
Land use: grassy beach bench
Topographic location: beach bench

Current height of walls: 60cm

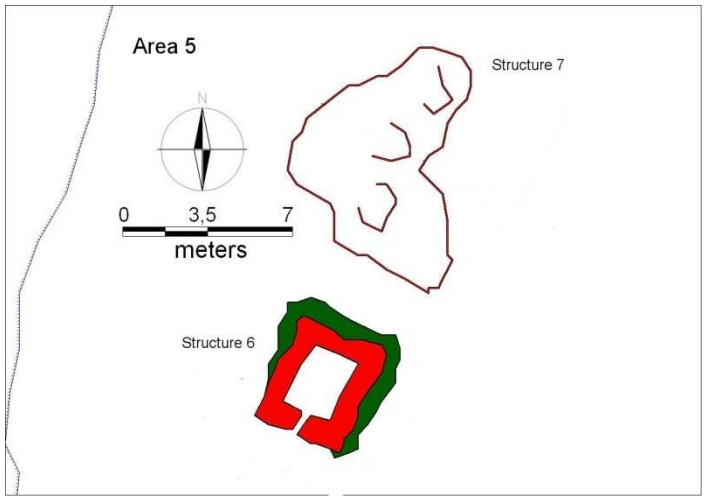
Visibility from the Viking Age site: No / Visibility towards the Viking Age site: No
Visibility from the Farm Mound: No / Visibility towards the Farm Mound: No

Remarks: The boat house is located parallel to the shore line. This implies that it might have been difficult to maneuver the ship into it.

AREA 5

Structure 6 (S6)

Assumed function and period: Recent, possibly 20th century, fishing booth
Form: Stone built
Shape: Square
Dimensions: 3,95m x 4,50m
Materials: Flat stones and occasional stripes of turf
Preservation: Good, not much collapse
Threats: None
Land use: grassy beach bench
Topographic location: on the edge of a bench, close to the shore



Visibility from the Viking Age site: No / Visibility towards the Viking Age site: No
Visibility from the Farm Mound: No / Visibility towards the Farm Mound: No

Remarks: The orientation of the entrance is towards the south. There seem to be two phases of this structure, which is inferred from the presence of turf foundations thicker than the stone walls that lie on top of them (approx. 5m x 5,30m)

Structure 7 (S7)

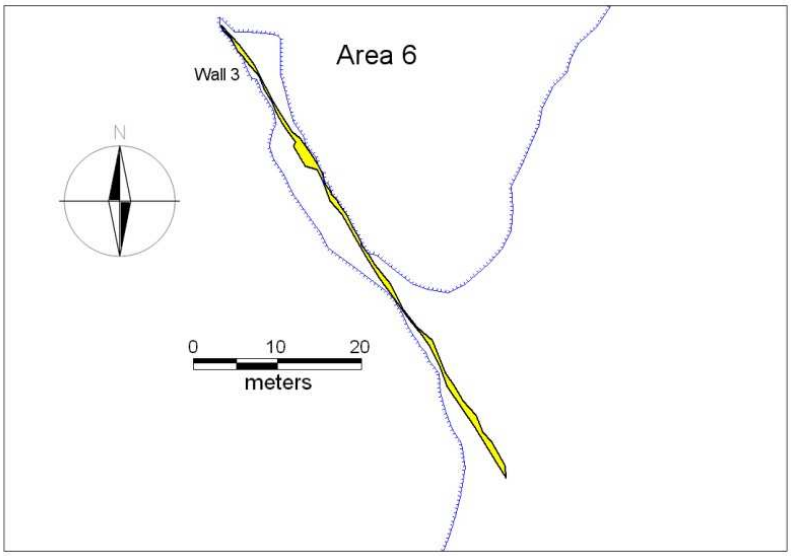
Assumed function and period: possibly 20th century, possibly related to Structure 8
Form: irregular, hard to define
Dimensions: 9,30m x 8,28m
Materials: stone and turf
Preservation: poor
Threats: none
Land use: grassy beach bench
Topographic location: on the edge of the bench, close to the shore

Visibility from the Viking Age site: Yes / Visibility towards the Viking Age site: Yes
Visibility from the Farm Mound: Yes / Visibility towards the Farm Mound: Yes

AREA 6

Wall 3 (W3)

Assumed function and period: beach border line
Form: a straight line made of stones
Dimensions: 64,25cm
Materials: stones
Preservation: good
Threats: sea erosion
Land use: on a stony beach
Topographic location: on the beach



Visibility from the Viking Age site: Yes / Visibility towards the Viking Age site: Yes
Visibility from the Farm Mound: Yes / Visibility towards the Farm Mound: Yes

Remarks: This structure would be invisible during high tides. It's function is hard to determine, but perhaps it served as some kind of beach boundary demarcating the territory belonging to Vatnsfjörður (to the west) and Sveinshús (to the east).

Appendix 2: Distances and visibility between Vatnsfjörður settlement areas and the coastal structures

Feature	Dimensions	Distance FM	Distance VA	Distance sea	Visibility FM	Visibility VA	Height sea
Structure 1	11,45m x 5,86m	450m	340m	3,30m	no	no	0,91m
Structure 2	8,80m x 4,76m	320m	230m	44m	yes	yes	2,86m
Structure 3	6,76m x 6,50m	290m	215m	4,70m	yes	yes	1,00m
Structure 4	15,95m x 14,07m	470m	460m	8,50m	no	no	3,40m
Structure 5	15,71m x 8,65m	530m	540m	11,60m	no	no	2,29m
Structure 6	3,95m x 4,50m	810m	810m	10m	yes	yes	3,42m
Structure 7	9,30m x 8,28m	810m	810m	8,30m	yes	yes	3,15m
Wall 1	1,5m x 126,9m	277-350m	200-250m	1,40m	yes	yes	1,94m
Wall 2	20,55m x 27,71m	285m	200m	18m	yes	yes	1,02m
Wall 3	64,25m	790m	750m	0m	yes	yes	0,15m

Table 1. *Distances from structures to Farm Mound (FM), Viking Age site (VA) and sea at its present range; visibility of the structures from Farm Mound and Viking Age site and height over present sea level. Shaded rows show structures situated over the assumed Viking Age sea level (it possible to consider them as dated to the Viking Age).*

EXCAVATIONS IN THE VIKING AGE AREA

Karen Milek
University of Aberdeen, UK

Introduction

Excavations in the Viking Age Area continued in 2009, the sixth major campaign in the area. After the excavation of two evaluation tranches in this area in 2003, Ragnar Edvardsson excavated 2004 a tenth-century house, or *skáli* (Structure 1). Six outbuildings were also excavated in this area between 2005 and 2008: a building with a large cooking pit (Structure 2, a later, smaller phase of Structure 1), a smithy (Structure 3), a small building with a stone pavement, which is thought to have been used for storage or for drying fish (Structure 4), a small building with had a single flat paving stone and a grinding stone in it, which might have been a workshop (Structure 5), a small room next to the smithy, which was probably used for storing fuel (Structure 6), a squarish building with several phases of stone pavements and organic floor deposits, which was probably an animal building (Structure 7), and a poorly preserved building on the slope east of the skáli (Structure 8) (Figure 1).

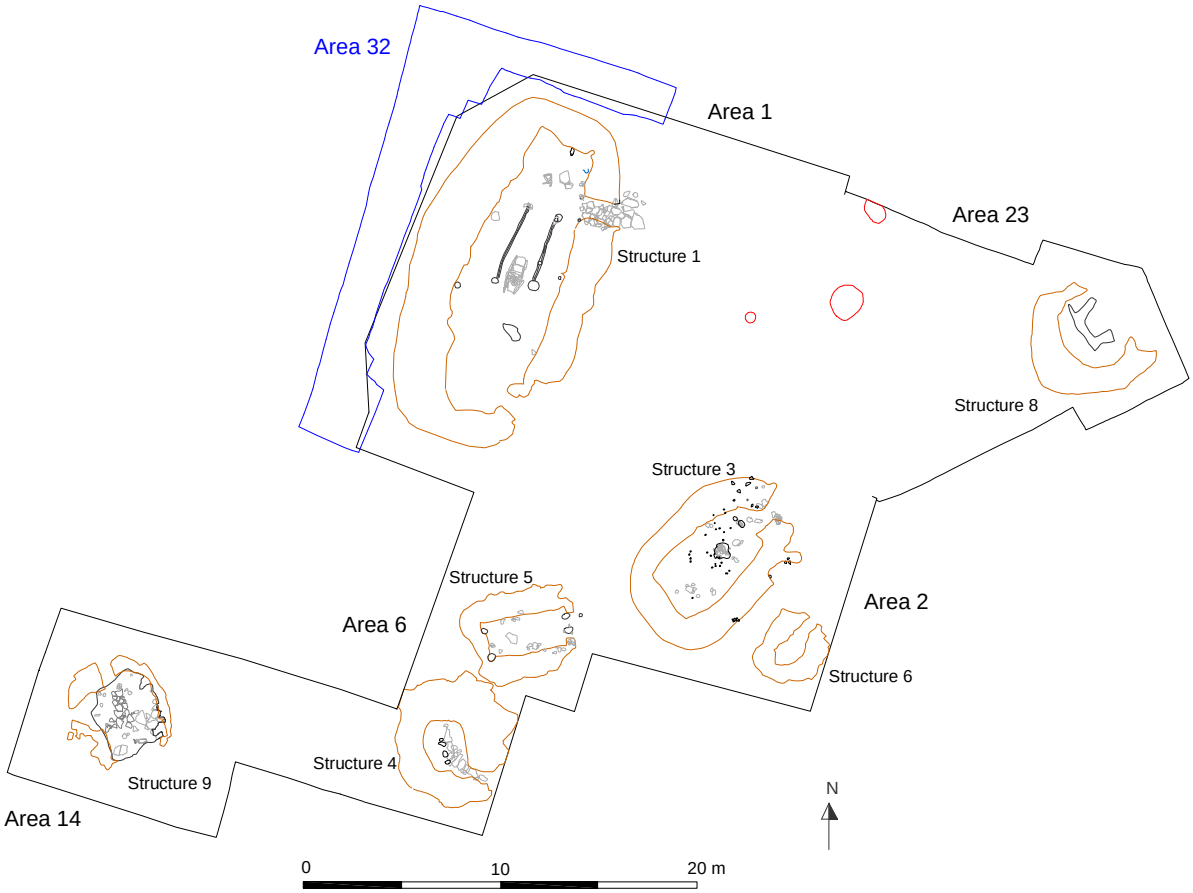


Figure 1. *Plan of the Viking Age area at Vatnsfjörður, showing the new excavation area (Area 32, in blue), as well as all of the buildings (brown), structural features such as stones (grey) and post holes (black), and pits (red). Structure 2, which overlay Structure 1, and Structure 7, a probable medieval building that overlay Structure 9, are not shown.*

Since the buildings in this area are relatively far apart and several are stratigraphically isolated from the others, it is not possible to know whether all of the outbuildings were contemporary with each other, or with the main house (Structure 1). For example, deposits associated with the occupation of Structures 1, 7 and 8 do not extend as far as any of the other buildings, and even those buildings situated close together, such as Structures 3, 4, 5, and 6, only have overlapping turf collapse layers. However, the close clusering of these buildings and their isolation from the Farm Mound settlement, the fact that they all underly the Helka-1693 tephra layer, and the lack of any datable objects that post-date the Viking Age (except for the light scatter of modern artefacts floating in the top soil), all lend support to the idea that the buildings were contemporary. Also of note is the common use of the grey (leached) podsol turf in the walls of the buildings, the same type of soil that ***underlies*** all the buildings on the site and was used to contruct the well-dated, 10th-century house. This soil contrasts sharply with the reddish-brown aeolian soil (Andisol) that ***overlies*** all the buildings on the site, and which may be an indicator of increased erosion and sediment circulation in the Medieval Period. The only building so far found on the Viking Age site that was not constructed of the grey podsol turf was built instead of red and black turf taken from a wet, boggy area. However, as will be explained below, this construction material was only used in the last phase of the building and the earlier Structure 9 was also constructed with the grey turf. Therefore, the working hypothesis is that with the exception of Structure 7 (the later phase of Structure 9) and Structure 2 (the later phase of Structure 1), all the buildings on this site could have been contemporary.

During the 2009 field season, the excavation in the Viking Age area concentrated on Area 14, where the earlier phases of Structure 7 were excavated, and on a new area, Area 32, which extended in a 2 m wide strip along the west and north sides of Structure 1 (Area 1). When Structures 1 and 2 were excavated in 2004-5, the edge of Area 1 was placed right up against the outer edges of the turf walls, and was even stepped in order to hug the curved long walls more closely. It was therefore considered important to open up the area around the *skáli* in order to determine whether there were midden deposits and to check for attached outbuildings (e.g. such as at Granastaðir; Bjarni Einarsson 1995). This brief report summarises the findings from Areas 14 and 32, and from three evaluation trenches that were excavated towards the end of the field season. In addition to excavation work, large areas of grass on the north and west sides of Structure 1 were mowed surveyed using Ground Penetrating Radar by Dr. Brian Damiata (July 13-14). The results were unfortunatly not ready in time for this report, but they will be available by the start of the 2010 excavation season.

Excavation Methods

The excavation of the Viking Age area was directed by the author with the assistance of Dawn Elise Mooney and a team composed of students attending 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, pit fills and floors were 100% sieved. Floor layers were also sampled for geochemical, micromorphological and

entomological analysis.

Area 14

Excavations in Area 14 began in 2007, when aeolian soils, a thick deposit of turf wall collapse from a post-1693 building located south of the excavation area, and substantial deposits of turf roof and wall collapse from an *in situ* building were removed, exposing a small squarish/slightly rectangular structure made of red and black turf with a substantial stone pavement (Structure 7) (Milek 2008). In 2008, excavations continued in this area. The final remains of turf wall collapse on the inside and outside of Structure 7 were removed, the later phase of the stone pavement was excavated along with associated organic-rich occupation deposits, a series of occupation deposits below the later stone pavement were excavated (mostly organic, but there was also a small charcoal spread), and an earlier stone pavement was revealed (Milek 2009). Both phases of stone pavement had most stones concentrated in and within the southwest entrance to the building, and the earlier phase had what appeared to be a narrow central drain with very flat, well-laid paving stones, and outlets through the middle of the northeast and southwest long walls (Figure 1). Southeast of this putative drain, the stone pavement sloped upwards towards a paved entrance in the southeast gable end (Milek 2009). By the end of the 2008 field season, it was clear that there was another structure below Structure 7, for the red and black turf walls of this building had charcoal layers running underneath them (e.g. unit 7163, Figure 2), and earlier walls built of light grey turf could be seen below the walls of Structure 7. The 2009 field season focussed on the excavation of Structure 7 and the archaeological deposits underlying it, including this earlier building, Structure 9.

Figure 2. *The earlier phase of Structure 7, as seen at the end of the 2008 excavation season, facing E. A deposit of charcoal and fire cracked rock can be seen running under the walls to the left (unit 7163).*

Structure 7 (Group 9048)

The basalt paving stones and associated occupation deposits in the earlier phases of Structure 7 proceeded in a series of stages in order to allow us to record the multiple phases of stone slabs, and to keep separate any artefacts and datable material such as bones and charcoal that were recovered between them. The substantial pavement on the eastern side of the building, which tongued out through the doorway in the southeast corner of the building, continued to have the most complicated sequence of overlapping slabs, as it had in its later phases, which were excavated in 2008 (Milek 2009). The pavement that had been labelled unit 8039 was split into separate units of upper stones (unit 9008), and lower stones (unit 9020; Figure 3). Both pavements sloped down towards the west – towards pavement 9011 in the middle of the building (see Figure 2 and discussion below). Amongst the stones, and sandwiched between them, there was a reddish brown and dark brown organic soil layer, which contained some fragments of turf and a few bones and teeth (9019; see report by Céline Dupont-Hébert, this volume). It is not possible to know for certain whether these multiple paving layers on the east side of Structure 7 were laid down in one go – with turf and soil layers placed between the stones as part of the pavement construction – or whether the turf and soil layers between the paving stones were occupation deposits associated with the use of the building. It is possible that the turf fragments were intentionally laid between paving stones in order to prevent the stones from rocking against one another.

Figure 3. *The earlier phase of Structure 7, showing the earliest stone pavements, including the reused pavement from Structure 9 in the centre of the building, which was slightly sunken and may have lined a drain (unit 9011). The walls of Structure 7 are shown in brown, and the stones floating on the walls, presumably to reinforce them, are shown in black.*

The bones and teeth deposited in floor 9019 need to be explained. They were not present in high enough concentrations to suggest a midden dump, and the lack of ash or any other artefacts makes it unlikely that the bones were deposited as part of a normal domestic rubbish dump. The identified species were limited to immature cattle and adult ovicaprine (in contrast to the bones in floor 9038, Structure 9; see below), and one cannot help wondering whether their deposition was intentional and meaningful, and related to the function of the building as an animal building – an interpretation that will be discussed further below.

In the doorway in the middle of the western gable end, there were also separate phases of paving stones. The large slab 8063 was removed, followed by the small deposit of red and black turf mixed with pale brown soil that was underneath and to the east of this stone (8062). This fully exposed the westernmost stone of a small group of flat stones that tongued out through the western entrance (unit 9015; Figure 3). Once again, it appeared that a strip of turf had been used intentionally to help lay the flat stones on top of each other, so that the upper layer did not rock on the lower. Accumulated between two of the stones in pavement 9015 was a dark brown, organic floor deposit (9016), which was up to 4 cm thick where it lipped up against the stones.

In the centre of the building, in a line running appriximately north to south, there was a distinctive group of flat, well-laid stones, which were sunk lower down than the pavements on either side (unit 9011, formerly 8043; Figure 3). At the end of the field season it was discovered that this section of pavement had in fact been reused from a still earlier structure (Structure 9; see below). In the western half of Structure 7, there was a distinctive group of flat stones that sloped downwards towards pavement 9011 at a 20° angle (unit 9017; Figures 1-2). The fact that the pavements on the east and west sides of the building were constructed to be higher than the central pavement, and the fact that they sloped down towards it, strongly suggests that the central pavement (9011) had functioned as the lining of a drain. This idea is further supported by the character of soil that had been found above this central pavement, which was very organic and had been bioturbated so extensively that it consisted almost entirely of earthworm excrement (see discussion in Milek 2009).

The two narrow gaps in the middle of the north and south long walls, which had also been filled with earthworm excrement, and which had so puzzled us in 2007, can now be understood as outlets for the central drain. The whole character of the building, with its stone pavements, central drain, and organic occupation deposits, supports the hypothesis that it was used as a cattle byre – an interpretation that will be revisited again following the results of archaeoentomological and soil micromorphological analyses. Even though this building was only 4 m long along its east-west axis and 3 m wide along its north-south axis, this would have been large enough to hold six cows, three on either side of the central drain.

The last elements of Structure 7 to be excavated were its walls. The distinctive red and white turf walls with gravel cores had been referred to as unit 7157 since they were first recorded in 2007 (Milek 2008). In 2009 they were split into their four constituent sections (units 9023, 9026, 9030 and 9031) in order to increase the precision of the site matrix, re-recorded in order to take into consideration the slimming effect of the removal of additional layers of turf collapse, and given the overall group number 9024. The bright red colour of the turf, created by the oxidation of iron, suggests that the turf was taken from a wet, boggy area. The turfs also had another interesting characteristic: a black tephra layer and a thin white lens of shell sand (calcium carbonate). The closest source for this sand would seem to be the white sandy beach across the bay, on the peninsula north of Sveinhusavatn. Behind these sandy beaches are low-lying basins in which peat has accumulated, and a storm surge could have left a thin layer of white sand within the peat. It is possible that this is the source of the peaty turf used to construct the walls of Structure 7.

As the walls were excavated, stones were found on or in them, presumably to help reinforce them. Of particular note was a cluster of flat stones floating within the southern wall, 9031 (units 9012 and 9014), which lined up with the putative drain lining, 9011, and may have helped to reinforce the southern exit of the drain through the walls (e.g. to help support a timber framework for the exit slot; see Figure 2, above). The other important group of stones was the line that had been placed along the inner (western) edge of the eastern wall, 9026 (unit 9013; Figure 3).

Abandonment Phase

The removal of the walls of Structure 7 (group 9024) exposed an extensive, homogenous dark yellowish brown soil with 2-5% charcoal flecking, which was clearly an A horizon that had developed on top of the ruined walls of the underlying Structure 9. This soil layer, unit 7159, had been observed on the outside of the southern and western walls of Structure 7 in 2007 and 2008, and been seen disappearing under those walls, but repeated cleaning of Area 14 had gradually scrubbed this layer away in most areas around the building, where it had been indistinguishable from the A horizon that had developed on the natural, gravelly soils. Figure 4 shows the extent of the layer, which was best preserved between the two phases of walls of Structures 7 and 9, and which still remained on the northeast side of the building when it was finally excavated in 2009. Unit 7159 lipped down into the ruined Structure 9 only in its southern corner, but everywhere else it was absent on the inside of the building. This is not surprising, since the inside of the building had been cleaned out and the stone pavements put back into use when Structure 7 was eventually built.

Figure 4. *Soil 7159, facing NW, showing how it was best preserved between the walls of Structures 9 and 7, but had also lipped down into the building at its southern corner, and had originally been part of the A horizon of the soil surrounding the building.*

Some deposition of domestic refuse took place on the ruined walls of the building, including the small charcoal dumps 9034 and 9037. Although not a large assemblage of bone was found in unit 7159, it is notable that a well preserved cow mandible was found in 7159 where it lipped down in to the structure at its southern corner. Since bone preservation is generally poor in Area 14, it is possible that this well preserved mandible was rapidly sealed when the wall of Structure 7 was built on top of it (wall section 9031, group 9024), and that it is not from a casual domestic dump but was actually a meaningful foundation deposit. Once

again, it may not be a coincidence that it is a cattle jaw that had been placed in this corner and that the building constructed above was probably a cattle byre. Since the inside of the building was cleared of unit 7159 when the structure was rebuilt and the interior pavements reused, it is not possible to know if the inside of the ruin had been used for refuse disposal as well.

Structure 9 (Group 9049)

Below the soil layer 7159 were the low, ruined walls of Structure 9, which were constructed of a distinctive light grey turf that contained lenses of dark brown and reddish brown, and that had clearly been cut from a podsol (unit 9045). This wall survived to a maximum height of three courses, and had been truncated on its outer edges – perhaps partly due to the later building activity on the structure, but at also due to excavators accidentally removing parts of the wall that contained mixed turf debris and soil but no clearly defined horizontal turves. For example, upon the removal of unit 9036, the mixed layer of turf and brown soil originally thought to be a turf collapse layer, the eastern wall of Structure 9 was slimmed down to its inner lining of turf, and it is clear that most of 9036 had in fact been part the foundation of the eastern wall. Within 9036, and covered by 7159 soil, we found the most important artefacts of this field season: a group of ten iron cakes that had been very deliberately placed under the eastern wall of Structure 9, probably as a foundation deposit, though it is also possible that it was a cache to be retrieved later (find 28; Figure 5). A preliminary study of the round, concave iron lumps, each of which was 3-5 kg, suggests that they were partially refined iron blooms, and that the 35 kg find represents a significant quantity of iron that would not normally have been left unused (Tom Birch, pers. comm.). The cakes were stacked in an orderly fashion, with five cakes on top of five more.

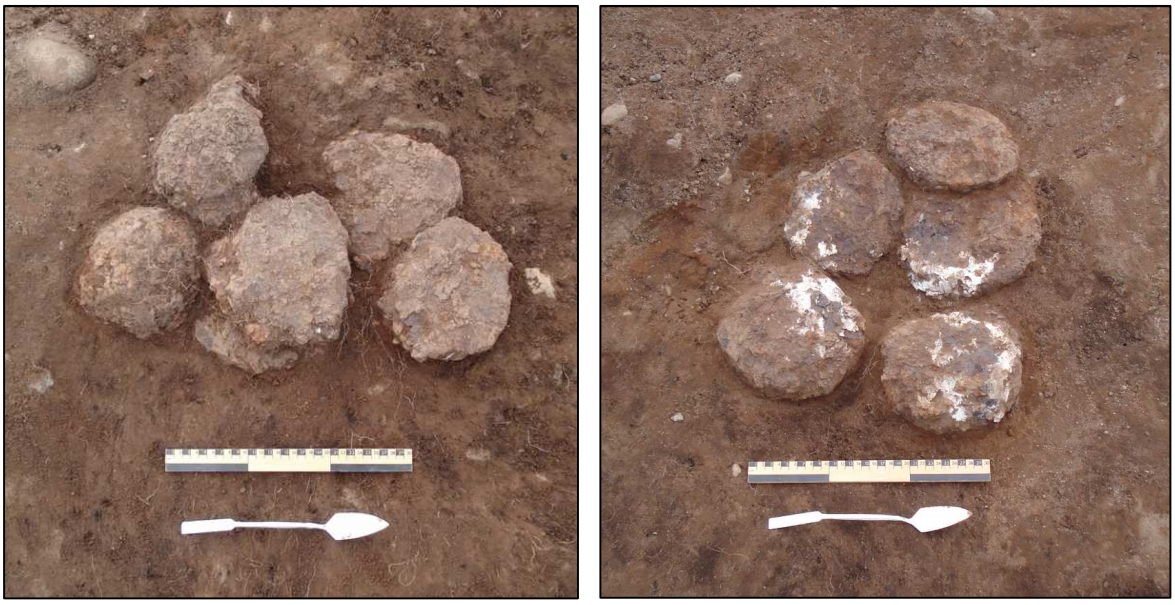


Figure 5. *The iron cakes (find 28) found within unit s 7159 and 9036, facing W. The upper layer of five iron cakes is shown on the left, and the lower layer of five iron cakes is shown on the right.*

Surprisingly little turf collapse associated with wall 9045 was found. On the inside edges of the building, there were three small slumps of the grey turf (units 9006, 9039, and 9021) that had slipped from the walls and capped interior floor deposits. Upon the removal of

these small slumps of wall turf, the full interior of the structure was revealed (Figures 6 and 7). On the inside, Structure 9 was 4 m long on its long axis, which was oriented from the northwest to the southeast, and 2.7 m wide. It contained an extensive dark brown, organic floor deposit, unit 9038, a small charcoal spread on the southern edge of the building (unit 9035), and two small, organic occupation deposits in the southwest and southeast corners (units 9007 and 9022 respectively). Unit 9038 had the richest faunal assemblage of any deposit in Area 14, including arctic fox, pig, cattle, ovicaprines, fish species and small phocids (Céline Dupont-Hébert, this report). Embedded in the floor deposits were numerous flat paving stones, including the central line of stones, unit 9011, that had been reused as the drain in Structure 7, and underlying this another small group of flat stones, unit 9041. As can be seen in Figure 7, the flat stones in the southern corner of the buiding were sloping upwards towards the south. The reason for this was discovered upon the removal of 9038 and the paving stones, when a mound of stones was found in this corner, belonging to what appears to be a collapsed oven or hearth belonging to another, earlier phase of the building (Figures 8 and 9).

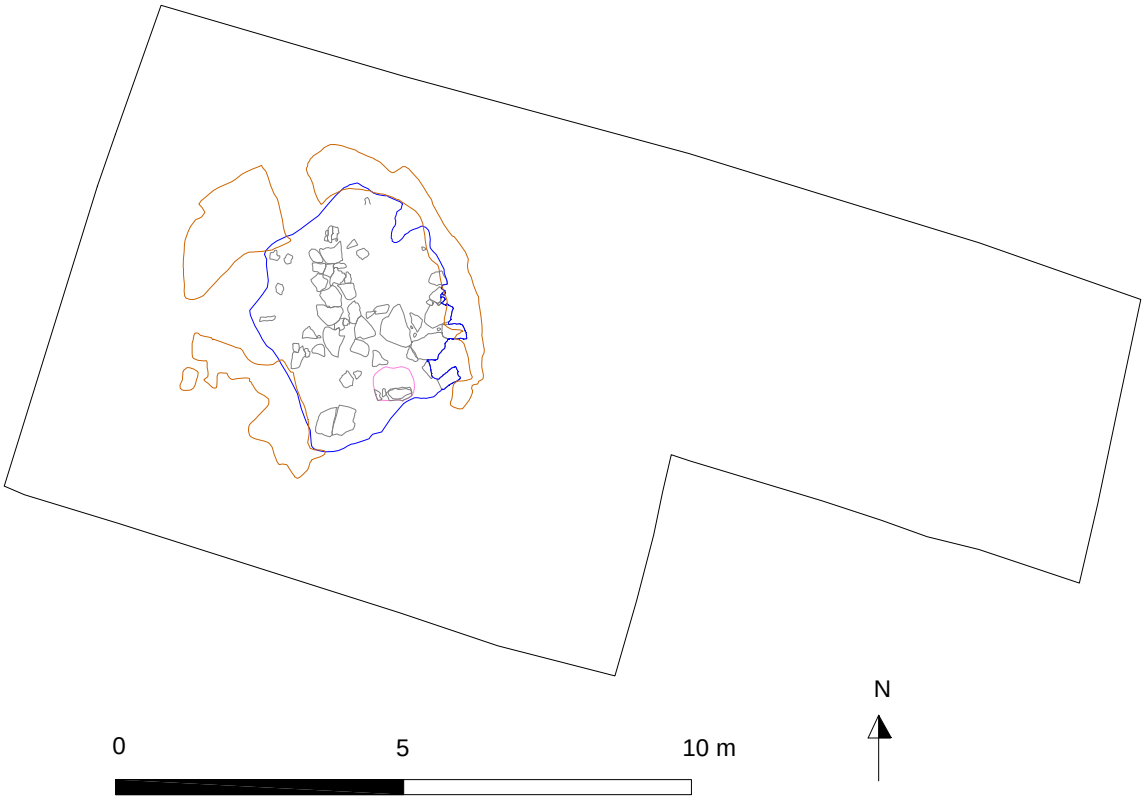


Figure 6. *Structure 9, in Area 14, showing the extent of the preserved grey turf walls (brown), the interior paving stones (grey), the organic occupation deposit 9038 (blue), and and small charcoal spread 9035 (pink).*

Figure 7. *Structure 9, facing south, showing the extensive floor deposit 9038 and the flat paving stones embedded in it.*

Figure 8. *The earlier phase of Structure 9, facing SW, showing the large cut through the natural podsols (which appear white, like the turf), which is filled with a dark brown gravelly deposit and has a collapsed hearth in the far southwest corner.*

Figure 9. *A detail of the the earlier phase of Structure 9 at the end of the excavation, showing what may be a disturbed oven or hearth in the south corner of the building, within the cut. Facing south.*

Upon the removal of the internal floor deposits and paving stones of Structure 9 at the end of the excavation, it was clear that there was yet another earlier phase to this building. Below these floors there was a large, oval-shaped cut through the natural grey podsol that underlies the whole of the Viking Age site. This cut was within the walls of Structure 9, so if it was a cut for the sunken floor of a building, this building was of smaller dimensions than the interior of Structure 9 (Figure 8). What appears to be upcast from the digging of the pit was around its edges, and the remains of what appears to be a collapsed oven or hearth could be seen in the southwest corner of the cut (Figure 9). These features, which are similar to many pit houses found on other Viking Age sites, were left to be excavated in 2010.

Area 32

Excavations in Area 32, which hugged the northern and western edges of Structure 1 (Figure 1) were directed by Dawn Elise Mooney. The surface turf (9000) and the aeolian soil (9001) contained a light scattering of 19th- and 20th-century artefacts, such as have been found throughout the topsoil in the Viking Age part of the site, mainly modern wire nails, modern ceramics, and window and vessel glass (see finds report by Guðrún Alda Gísladóttir, this volume). The dark grey Hekla 1693 tephra layer was within 9001 through this area, and overlay all of the archaeological deposits here, as elsewhere in the Viking Age area.

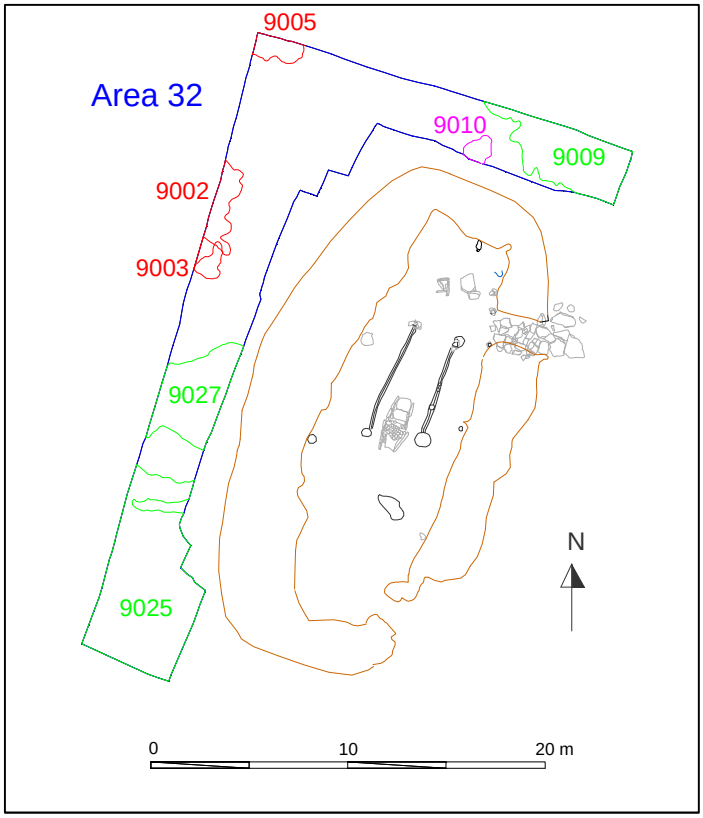


Figure 10. *Plan of Area 32, showing the contexts underlying the aeolian soil and their relation to Structure 1 (sheet middens in green, grey turf collapse in purple and red turf collapse in red).*

Upon the removal of the aeolian soil 9001, a number of thin archaeological deposits became visible (Figure 10). These were all very thin, and the recovery of artefacts and bones was very poor. Surprisingly, very little grey turf collapse that could be associated with the walls of the *skáli* was found – only a small, 3-7 cm thick patch of turf debris just north of the north gable end of the house (unit 9010), which contained the characteristic reddish brown and greyish colours of the tenth-century podsols. The only find in this unit was a small flat iron fragment (find 18). Three other small patches of orangey turf debris lay on the northern and western edges of Area 32, and were completely unconnected with the *skáli* – either stratigraphically or by the appearance of the turf (9002, 9003, 9005). These could either be discrete turf dumps or the eastern edges of turf collapse layers associated with another building further west of Area 32. These turf layers did not contain any artefacts.

Three thin sheet midden layers were also found on the north and west sides of Structure 1. On the north side of the house, on the eastern edge of Area 32, there was a very thin, grey, charcoal-rich sheet midden that was probably the continuation of units 241 and 288, which were excavated in 2005 (unit 9009; Figure x). These units fanned out from the northeastern door of Structure 1, and were though to be sheet middens associated with traffic coming in and out of the doorway. Besides containing frequent charcoal fragments, 9009 contained an iron strip (find 19) and a couple of small iron rod fragments (find 20), but nothing datable. A similar, charcoal-rich sheet midden deposit on the west side of Structure 1 (unit 9027) did not contain any artefacts at all.

At the southern edge of Area 32, southwest of Structure 1, there was another 1-2 cm thick sheet midden, but this one was different in colour from the others, being dominated by dark reddish brown and orange colours, possibly due to the inclusion of turf or peat ash (unit 9025). This layer produced the most finds in this very find-poor area, including a clench bolt (find 23), a nail (find 22) and a small fragment of wire made from a coppery alloy (find 17).

All of these thin turf debris layers and sheet midden layers lay directly on top of the natural gravelly soils, and no other features were found in this area.

Figure 11. *Area 32 facing NE, showing the sheet midden, unit 9025, in the foreground.*

Evaluation Trenches

In order to determine the possible location of other structures, three 1 x 2 m evaluation trenches were excavated by Dawn Elise Mooney – one just south of the stream that runs on the southern edge of the Viking Age area (Trench 33), one north of Area 32 (Trench 34), and one west of Area 32 (Trench 35). In each trench, the surface turf and aeolian soils were removed in order to expose the upper surface of any underlying archaeological layers. All cultural deposits were then photographed, drawn, and described, but they were not excavated.

Trench 33

Figure 12. *Evaluation trench 33, facing south, showing the turf and stones that appear to be part of a wall.*

About 3 m south of the stream, next to the site hut, where the excavation crew had been taking their lunch for the last couple of years, a low mound had been visible on the ground surface. In order to determine if this mound was created by an underlying ruin, a 1 x 2 m evaluation trench was excavated at the top of it. Below the aeolian soil and the Helka 1693 tephra layer, there appeared to be the remains of a collapsed turf and stone wall extending across the whole of the evaluation trench (unit 9028). The turf was red and black in colour, firm, and contained moderately frequent charcoal flecks and occasional fragments of calcined bone. There were two stones embedded in this turf, set next to each other in a row with their long axes end to end (Figure 12). Unit 9028 appears to be the collapsed remains of a pre-1693 turf and stone building that may be interesting to investigate in the future. Elsewhere on the site, red and black turf has been associated with medieval and post-medieval

buildings, while Viking Age buildings have been constructed of a light grey and reddish brown turf derived from the natural podsols that had dominated the site until the 10th century. If this rule of thumb holds here, the ruin located in test trench 33 is likely to be medieval or post-medieval in date.

Trench 34

About 3 m north of the northeastern corner of Area 32, a 1 x 2 m evaluation trench was excavated where a small bump could be felt on the ground surface after the grass was mowed in preparation for Brian Damiata's GPR survey. After the removal of the surface turf and the aeolian soil, which contained the Hekla 1693 tephra layer, a layer of turf debris was found across the whole of the evaluation trench, which could be the remains of a collapsed turf wall (unit 9032). This turf was dark reddish brown and firm, and contained occasional inclusions of charcoal, pebbles and calcined bone. The turf was mounded up slightly in a linear-shaped feature on the south side of the evaluation trench, and it was this low mound that had created the bump visible on the round surface (Figure 13). It is possible that it represents the collapsed wall of a building, and, judging from the reddish (rather than light grey) colour of the turf, it is likely that this building was medieval or post-medieval (though earlier than 1693) in date.

Figure 13. *Evaluation trench 34, facing S, showing the turf collapse or dump, unit 9032.*

Trench 35

Following the excavation of Area 32, where reddish-orange turf spreads had been identified on the western edges of the excavation area (units 9002, 9003, 9005) it was decided to open an evaluation trench a few metres west of Area 32 in order to try to find the structure associated with this turf. Surprisingly, no archaeological deposits were found in this evaluation trench, and upon the removal of the surface turf and the aeolian soil containing the Hekla 1693 tephra, the trench bottomed on the natural gravelly soils that underly the site. If there is a building associated with the reddish turf spreads observed on the western edge of Area 32, it must be to the northwest of the excavation area, but there was not enough time in 2009 to excavate another evaluation trench.

Conclusion: Further Work to be done in the Viking Age Area

With such ephemeral archaeological remains north and west of Structure 1, and no

remains at all found in the evaluation trenches excavated west of Structure 1 in 2008 (Daxböck and Milek 2009) and 2009, there seems to be little potential in extending the Viking Age area further west. Reddish turf deposits thought to be associated with medieval or post-medieval buildings were identified in evaluation trenches north, northeast, and south of the area in 2008 and 2009, and these could merit further investigation in the future. However, there is so far no sign of more buildings or midden deposits that could be associated with the 10th century settlement. The lack of any substantial midden deposits from this period has been mysterious and frustrating, and in 2010, an intensive auger survey will be conducted in one last attempt to find a midden.

Other work which needs to be completed in order to fully understand the character of the Viking Age farm is to fully map the eastern parts of the farm's boundary wall, and to excavate a few evaluation trenches in the wall in order to assertain whether its current circuit dates as far back as the Viking Age. It would also be desirable to investigate some of the ruins close to the shore, particularly the putative boat house surveyed by Leszek Gardeła and Łukasz Mikołajczyk (see above, this report), which appears to be high enough above sea level to date to the Viking Age.

Acknowledgements

The author is very grateful for the able assistance of Dawn Elise Mooney during the 2009 excavation season, and to the students of the 2009 field school for their hard work, dedication, and good spirits.

References

Bjarni Einarsson (1995) *The Settlement of Iceland; A Critical Approach. Granastaðir and the Ecological Heritage.* Reykjavík: Hið íslenska bókmenntafélag.

Daxböck, Astrid, and Milek, Karen (2009) Evaluation trenches in the Viking Age area. In Karen Milek (ed.), *Vatnsfjörður 2008: Framvinduskýrslur / Interim Report*. Reykjavík: Fornleifastofnun Íslands. Pp. 58-61.

Lucas, Gavin (ed.) (2003) *Archaeological Field Manual, 3rd edition*. Reykjavik: Fornleifastofnun Íslands.

Milek, Karen (2008) Excavations in Area 14: Structure 7. In Karen Milek (ed.), *Vatnsfjörður 2007: Framvinduskýrslur / Interim Report*. Reykjavík: Fornleifastofnun Íslands. Pp. 65-68.

Milek, Karen (2009) Excavations in Area 14. In Karen Milek (ed.), *Vatnsfjörður 2008: Framvinduskýrslur / Interim Report*. Reykjavík: Fornleifastofnun Íslands. Pp. 62-67.

EXCAVATIONS IN THE FARM MOUND AREA

Guðrún Alda Gísladóttir
Fornleifastofnun Íslands

Introduction

2009 was the fifth field season on the farm mound at Vatnsfjörður. In previous field seasons the farm mound was defined by test-trenching[6] and part of the last dwelling house, made of turf and stones, was located. As stated in previous reports the house was built in 1884 (documentary sources), and was lived in until 1906, when a new dwelling house was built near the SW corner of it. It was believed that the 1884 house was fully exposed except for the northernmost element where the 20th-century outhouse complex is located and has partially damaged the ruin. During the 2009 field season it became clear that the western edge of the house is also missing so that will be targeted in 2010.

The 2009 field season started on the 29th of June and ended on the 24th of July. The weather was sunny but windy for the most of the time except for a couple of rainy and windy days. More rain would have been appreciated as the earth was very dry during the later part of the field season.

As before the project manager was Garðar Guðmundsson, who supervised the archaeologists Guðrún Alda Gísladóttir, Uggi Ævarsson and Oddgeir Hansson. Other staff members who worked on the Farm Mound were Véronique Forbes, an archaeoentomologist, and Céline Dupont-Hébert, a zooarchaeologist, both from University of Laval, Quebec. The post-excavation work was carried out by Oddgeir, Guðrún, Garðar and Astrid Daxböck and specialist reports on the zooarchaeology and archaeoentomology were written by Véronique and Céline (this volume).

The 2009 field season

In 2009 the emphasis was on excavation of the western part of the remnants of the 1884 dwelling, structure 7500. After the 2008 field season it was decided not to excavate further the easternmost part of the building, the part of the house that was in use for the longest time or until mid 20th century, whilst the rest of the house was torn down in c. 1907. The eastern part has not only a strong connection to historical sources, but there is also a stone built cellar, a proud representative of late 19th-century workmanship.

The 2007 and 2008 field seasons were mostly occupied with cleaning of demolition deposits created during the levelling of the home field and with exposing *in situ* archaeology. The 2009 field season was mainly dedicated to post-abandonment deposits that filled rooms and corridors and by the end floors were reached in at least three rooms. The exact phasing will be complicated as the excavated remains show a lot of activities on the farm mound: rebuilding of walls and rooms, rooms that have fallen out of use, blocking of corridors, rooms that have been reduced in size etc. In addition relationships between areas have been cut when the 1884 house was torn down and the 1906 house built. It is therefore not entirely sure

[6] See preliminary reports in Milek (2007; 2008)

at this stage whether the westernmost remains are part of the 1884-1906 phase or earlier. And it can not be said with certainty that even though the house was rebuilt in 1884 that houses from earlier phases did not continue to be used. In the 2010 field season it is therefore important to enlarge the area to the west to register what is on the other side of the wall that is lining up against the western limits of the excavation.

More than 1100 finds were registered in the finds database during the last field season. The finds are diverse and can be dated to 18th -19th century. 60% of finds are ceramic and glass and 23% are metal objects (see discussion on finds below).

Excavation methods

The excavation method followed the FSÍ protocol, using ´single context planning' – the method by which each deposit is identified, recorded, photographed, planned and its extend and thickness measured. Each deposit is described individually and systematically and thereafter removed. A Harris matrix was established on site, and refined during the post-excavation phase. Finds were categorized and labelled on site, washed, dried, packed and registered in the excavation database. Finds were given basic conservation attention if necessary. All bones were collected, bagged and sent to the University of Laval for identification and analysis. Bulk soil samples were taken on an *ad hoc* basis, with most of the samples taken for archaeoentomological or botanical analyses. As stated before Véronique Forbes was in charge of the archeoentmology (see report below) but Garðar Guðmundsson and Dawn Elise Mooney piloted the archaeobotany sampling programme and Dawn did the bulk of the processing work.

Excavation Results

As stated above the first aim of the work was to expose the last turf and stone dwelling house on the Vatnfjörður farm mound. It became clear that some part of the western side is missing in addition to the northern side which is partly underneath a 20th-century outhouse complex. The emphasis was mainly on 8 main groups/areas within the excavation area: 8562, 8563, 8590, 9502, 9530, 9560, 9650 and 9653 (Figure 1).

Figure 1. *Stitched aerial photograph of the excavations on the Farm Mound at the end of the 2009 field season, showing the major context groups.*

Group 8562: 'Midden room'
With Céline Dupont-Hébert

Room 8562 is located close to the SW limit of the excavation and is disturbed by cut 8592 for the 1906 house. Group 8562 is a room that has been filled with rubbish: charcoal, ash (wood and peat), turf debris and turf collapse are all present. The midden deposits are mixed with a large amount of animal bones (fish and mammal, see Dupont-Hébert report below). The excavation of the room started in 2008 and was finished during the 2009 field season, and excavation stopped on floor 9632, which spreads under two walls of the room.

Excavated midden deposits or mixture of midden deposit and turf debris deposit are: 9500, 9504, 9511, 9515, 9521, 9537, 9543, 9546, 9564 and 9595. Between deposits 9521 and 9543 was a turf collapse layer (9525) from the SE wall. Turf collapse 9574, 9580 and 9593

Figure 2. *Prior to excavation of context 9602 in room 8562. Camera facing NE.*

are also all from the SE wall. Turf collapse 9582, 9583, 9588, 9591, 9596 and 9602 are all clean turf deposits low in the stratigraphic order of the room and are probably all related to the collapse of the roof and walls. Turf collapse 9602 was partly lying directly on top of organic floor deposit 9632 and therefore quite wet (see Figure 2). Under turf collapse 9588 and 9596 was a low stone alignment (9597) up against the NW wall – possibly a manger foundation where a wooden structure can have been situated or even a foundation for the storing of wooden vessels. The stone alignment was evenly made of flat basalt slabs facing inside the room. This stone structure was sitting on top of a mixed turf layer 9598 with scattered stones and clean silt. 9598 was also concentrated in the north part of the room and covering the same area as the stone alignment, not unlikely a base for the stone foundation. Beneath 9598 was (partly) the above mentioned wet turf deposit 9602 and under there was the organic floor deposit 9632. There ended the excavation of the midden room, as 9632 spread under the NW wall – towards room group 9502. The floor was sampled for insects (see group 9627, which includes deposits 9632, 9636, 9641 and 9643).

Summary of 8562

The excavation of the ´midden room´ has produced large amounts of archaeological fauna – the most substantial collection from the farm mound excavations. All deposits excavated in the room were within the walls. The excavations stopped on deposit 9632 which is going underneath the wall between rooms 8562 and 9502 and also spreading towards room 8563 on the SE side (which is suggested being a kitchen). No secure floors were excavated before 9632 was exposed but a real possibility is that 9602 is in fact a floor deposit with scattered flat basalt stones and is contemporary with the stone foundation 9597 up against the NW wall. It can be suggested that the room was not used for that activity (animal house or a storage?) for a long period and as it started to collapse it was used as to throw in rubbish. Archaeoentomological analysis suggests that the room was still under a roof whilst that activity took place (see Forbes in Milek 2009). No door opening was found so it must have been on the SW wall that had been disturbed by the building of the 1906 house. All deposits in the room were disturbed by that event so this room was in use before 1906 but it is not possible to say at this stage if its contents are contemporary with the dwelling of structure 7500 or earlier phases.

Figure 3. *Picture taken early in the excavation. Groups 9502, 8562 and 8563 in front. Area 8590 in the back. Camera facing east.*

Group 9502

After cleaning of top soil, overburden and demolition deposits in 2007 and 2008 this room had been detected, but the excavation of it started in the 2009 field season. Firstly a considerable number of clean turf collapse deposits that were concentrated within the walls of the room (probably both roof and wall collapse) were removed: 9503, 9505, 9508, 9512, 9513, 9516, 9517, 9527, 9532, 9534, 9535, 9538, 9541, 9547 and 9549. Then a mixed deposit (9554) was reached, which included turf, soil and charcoal. Under 9554 was another mixed deposit, 9558, with turf and charcoal pieces. Again a few clean turf collapse layers were removed: 9573, 9579 and 9592, which had structural wood remains within them. These above mentioned deposits led to a blocking of the opening into the room (context 9599), which had been in the NE wall. The blocking was made of turf and stone. It seems that the opening had been cut into a substantial wall that all rooms/contexts that are associated with it respect This old wall forms the SW wall of 9530/9650, SW borders of 8590, NE wall of 9502 and 8562.

Other turf collapse deposits were removed: 9606 at the NW side of the room and yet another turf and stone collapse 9609 underneath. After removal of those the post abandonment deposits had all been excavated and the floor of the house was exposed. Deposits in connection with the occupation were given the group number 9602 and include 9613 and 9614. 9613 is a small deposit of wood ash and turf debris up against the SW corner of the room. 9614 is a scatter of flat stones on floor 9619. The floor 9619 goes under the wall between room 9502 and ‘midden room’ 8562 so excavation was stopped upon reaching that

surface. For sampling of the floor (for insects) the 1x1m large sampling trench was given group number 9624 and includes context numbers: 9619, 9622, 9625 and 9626. A similar stone foundation is up against the NW wall of the room as is in room 8562. The foundation is not yet numbered or excavated.

Figure 4. *Room 9502 in the end of the field season 2009. Camera facing NE.*

Summary of 9502

It is suspected at this stage that rooms 8562 and 9502 are connected and were primary the same room. The rooms have the same alignments and their breadth is the same. The as yet unexcavated floor deposits in both rooms are going under the wall between them. It is suspected now that the original room was reduced in size, a new wall built ca. in the middle of the room, and the earlier opening blocked (9599 in 9502). Both rooms have similar features, including a stone foundation by the NW wall. After 9502 fell out of use it probably both collapsed and was partly filled with turf debris. The role of the room is yet unknown but the foundations do suggest either an animal house (the stone being manger foundations) or a storage room (see also discussion of 8562, above).

Group 8563: 'Kitchen'?

Room 8563 is in the SW corner of the excavation area (see Figure 1). This area was disturbed by the building of the 1906 house and the SW wall was distorted. In 2008 many post-abandonment deposits were removed and at the end of that field season *in situ* deposits had started to emerge.

The first deposit to be removed in 2009 was an extensive, gravel-rich levelling deposit, 9507, which covered more or less the whole area. Under this was rather clean turf deposit, 9509, interpreted also as a levelling deposit. Then an extensive gravel deposit was exposed that was spreading under a stone wall at SE side. It was clear the room associated with the stone wall was next in the stratigraphic order to be excavated. This room SE of 8563 got the group number 9523 (see Figure 5). The first deposit excavated there was a clean turf collapse layer, 9519, under which was a supposed floor deposit, 9524, a mixed deposit of gravel and charcoal. The next context to be excavated were single rows of stone, 1944, all facing inside 9523. The room was 2,2, SW-NE and 1,5m SE-NW. Outside of room 9524 a small peat ash dump was excavated before removing of the walls.

Figure 5. *Room 8563 and 9523. Camera facing NW.*

After the excavation of room 9523 the area was one large space again. Next to be removed was 9548, a cleaning or levelling deposit, a beach gravel dump up against the stone wall. After removal of the dump a deposit of scattered stones was excavated (9565) between what seemed to be *in situ* stones. After removal of the scatter a wood ash deposit 9570 and hearth structure 9608 – probably remnants of open fire stone made stove in a kitchen – came to light. The hearth structure and the cut for the this hearth got the group number 9610 and includes wood ash 9570, structure 9608, peat ash 9612 and cut 9616. Before removing the extensive grey beach gravel deposit 9617 a small turf collapse layer on top of the gravel from NE wall was removed (9569). 9617 was interpreted as a levelling deposit, composed of clean beach gravel, cut by 9616. It covered the whole area and had clear boundaries except for the NW and SW borders. Where the boundaries were unclear in the SW area another grey beach gravel deposit, 9634, was planned as much more stone was in that deposit than in 9617. Still at this end of the room brown gravel deposit 9635 with a lots of stones was excavated.

The so-called kitchen room is still under investigation. Floor deposits from 8562 are leading towards this room, and hopefully the research of 2010 will untangle the archaeology NW of its location.

Group 8590: 'Middle area'

8590 is a large area in the middle of the excavation area. In 2008 several levelling deposits were removed (turf debris, silt, sand, rubble) and by the end of that field season a more substantial surface had been reached, though it remained rather unclear. This area most

likely originates from the time when structure 7500 was reduced in size after 1906. The houses/rooms that were located in this area must have been completely removed, probably in order to reuse the wood and stones, and to make space in front of the new dwelling house. After the demolition the area seems to have been filled in and levelled and the area used as a vegetable garden (as can been seen on a home-field map from ca. 1920. The boundaries of the area are clear on the NE side by wall 6570 and on the SE side by stone wall 9578, and the outer wall of structure 7500 and the outdoor pavement, but other boundaries are unclear due to how crudely the house was torn down.

The work of clarifying this area continued in 2009. Firstly turf deposits 9501 and the extensive 9606 at the SW side of the area were removed, followed by turf deposit 9510, which is located in both groups 9530 and 8590. On the SE border of 9510 a crude stone wall was removed (9514), and a few more turf deposits were removed from the area: 9518, 9528, 9533 and 9539. These were followed by the remnants of turf wall 9545, which was cut by 8589. Other turf deposits were excavated more or less at the NW side of the area: 9550, 9556, which is a block in a wall at NE borders of the area, 9600, 9605 and 9615, which included a substantial stone scatter. On the SE edge of this group a remnant of a stone wall, 9578, was excavated (see Figure 6). This wall had a slightly different alignment than the outer wall of structure 7500 – which is located just half a metre SE of the other wall. The role of the wall is not known, but possibly it could be part of the boundaries around the vegetable garden that was located in this area. The wall is 6,5m long.

Figure 6. *Area 8590 with wall 9578 before its removal.*

Group 9618 includes remains of a stone wall with orientation NW-SE in the NW corner of this area, as well as deposits contemporary with the wall. This area had been badly disturbed by cut 8589, which was full of stones and modern rubbish (excavated in 2008, see Ævarsson and Gísladóttir in Milek 2009). Excavated contexts within the group are 9581 the stone wall, 9620 a coarse turf deposit, 9651 a floor underneath the wall (not excavated in 2009) and remains of a turf wall 9630=9631 (this wall was cut in half by 8589).

9621 was an extensive mixed demolition deposit on the SE side of the area and 9639 was a small collapsed wall part made of turf and stone near NE borders of this area. 9640, 9645 and 9646 are vague remnants of a possible stone wall at the NW borders of the area.

By the end of the field season structural remains had started to come to light and further research will be undertaken in 2010.

Groups 9530 and 9650

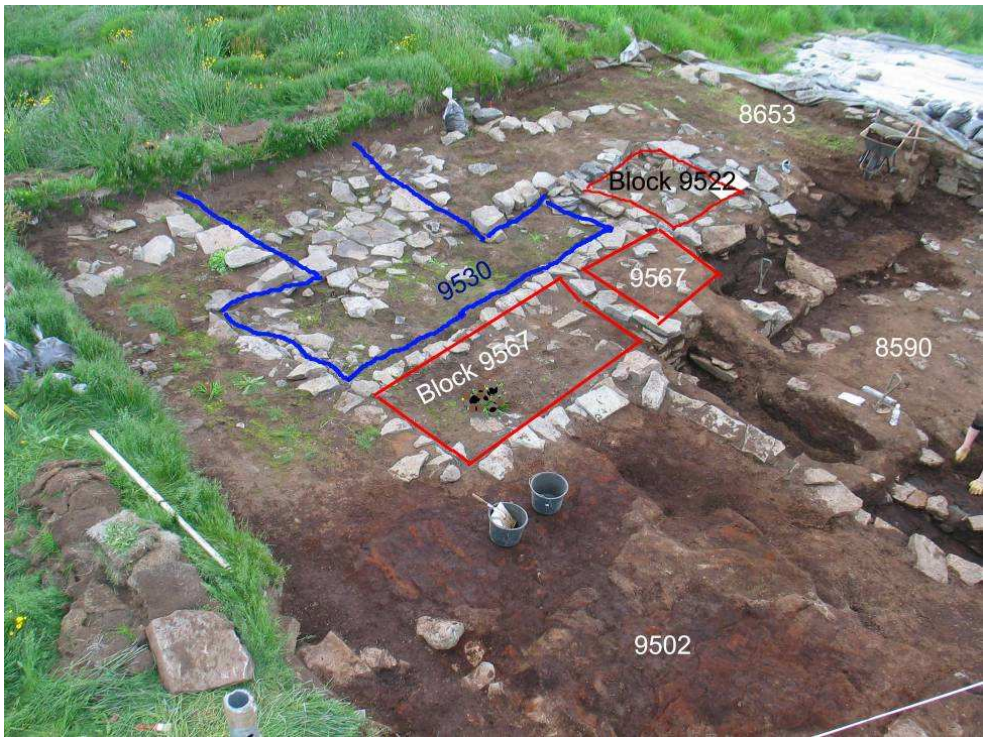


Figure 7. *Room 9530 before excavation. Camera facing NE.*

Group 9530

At the end of the 2008 field season in the area now called 9530, features had started to emerge after overburden, turf debris and collapse had been excavated. Area 9530 became a complex area of walls and blockings in the original structure that had been made smaller (see Figure 7).

Firstly very disturbed surface/floor deposit 9536 was removed. 9536 had a concentration of stones at one end, which was very disturbed, but could possibly have been a foundation for a wooden structure such as a manger. Then many deposits of rubble, rubbish, charcoal, wet organic matter, turf debris, turf collapse with wood remains, turf walls/blockings, and stones were excavated: deposits 9551, 9553, 9555, 9572, 9576, 9586.

The NE side of wall/fill group 9522 included stone rubble deposits, turf debris and a row of stones for the wall (9520, 9526, 9529). This block feature is 2,2m NW-SE and ca. 1,6m NE-SW. The stone wall for the blocking had collapsed into the room. At its SW side group 9567 included two separate stone walls with fills inside, which were side by side. The SW wall 9568 included a stone row with a filling behind it (3-4 rows with no turf between) and NE wall 9571 was a similar feature. The size of those later added wall blocks on the SE side are ca. 1,5-1,7m NW-SE and the total length of the features are 4,6m SW-NE. Underneath wall and fill 9568 was another stone wall with fills, group 9604. That group included stone wall 9601 and turf wall fills 9603 and 9623. Near the SW end of the room is an opening to another room which is still unclear, but which had been blocked off at some stage by turf wall/fill 9576 and 9586. The only deposit that came near to being a surface within structure 9530 after the extra wall had been built was 9536, which had disturbed stone

rubble at its SW end, again a possible manger foundation.

Group 9650

Figure 8. *Room 9650 in the end of the 2009 field season.*

After removing all stone and turf blocks the original structure was exposed and was given the group number 9650. Its dimensions were ca. 6,6m SW-NE and ca. 2,8m NW-SE. The last excavated deposit in this area was an extensive 5-15 cm thick organic deposit, probably the surface of an animal house. The sediment was wet, contained a lot of dung and hay, and was find rich, with good preservation of organic remains. The floor was sampled for insects (see Véroniques Forbes report below) and the results will hopefully shed a light on the activity within the building.

It is clear that the spacious room 9650 had been reduced in size by half with the building of extra walls/fills at both its SW side and NE side. The role of the room is still uncertain but it probably a dwelling for animals.

Group 9560

Room 9560 is at the SE borders of the excavation area and is cut by the limits of the excavation (see Figure 1). After removal of rubbish deposits in 2008 from the levelling of the home field, a concentrated fine gravel spread was seen within structural features between the outside pavement 7521 on the NE side, wall remains within group 8563 on the SW side, the stone lining on the north side and the limits of excavation on the south side. The fine gravel spread 9559 was 2-5 cm thick. After removal of the gravel, hard turf debris and scattered flat stones 9577 were excavated. Deposit 9577 is interpreted as a surface deposit, a stone pavement with turf between. Under 9577 is another pavement, 9584, a narrow, very nicely and evenly built pavement of flat basalt slabs (see Figure 9). The pavement is well defined on the NE side of this area and is apparently a part of an earlier phase than structure 7500, as the slabs go under the outdoor pavement 7521, which is contemporary with the 1884 house.

Figure 9. *Pavement 9584. Camera facing NE.*

It can be suggested that gravel 9559 is a levelling deposit and 9577 is a paving contemporary with structure 7500, probably made to adjust/level the area, as earlier pavement 9584 was lower than the outdoor pavement, and the large slabs of 9584 were used as a foundation for the big end stones of the outdoor pavement. 9577 could be an inside structure, perhaps a corridor into the house. It is notable that the outdoor pavement and the SE outer wall of 7500 clearly respect some feature in this area.

Group 9653

Area 9653 is a large area, stretching from group 8590 at its SW side to the limits of the excavation on its NW side, and from a wall on its NE side (a wall that is NW of wall 6570) to another wall on its SW side (a wall in group 9530) (see Figure 1). In field season 2008 the area was covered with uniform turf debris and a stone spread created by the levelling of the home field, but by the end of that season the wall on the west side had started to emerge. In 2009 an extensive turf spread (9531) that covered more or less this whole area was excavated. The deposit had unclear SW borders where it met group 8590, but clear limits at its NE and SW sides, where there were stone-lined walls, as well as on its NW side, at the limit of excavation. Beneath 9531 was a small ash deposit, 9542, then another extensive turf spread, 9557, which was wetter and slightly darker than 9531, was excavated mainly on the NW side of this area. Soon it became clear that on the NE side of 9557 there was a rounded cut, 9585, which contained organic fill 9562 (Figure 10). The fill and cut got the group number 9561. The cut was made up against and partly into the wall that forms the NE side of

Figure 10. *Group 9653 after excavation. The round cut 9585, with the remains of the wall in its base, can be seen in the top left.*

the cut´s edge (a wall that is NW of wall 6570). Stones were removed from the wall when the cut was made but at the hole´s base which is 74 cm deep, the lower part of the wall´s stone lining can still be seen so cut does not quite reach the base of the wall.

No further excavations took place in this area after removal of 9557 and the excavation of the pit, as the walls on the SW side (part of group 9530) where out of phase (floating) and apparently part of a later building phase than the remains of the turf spread and organic material that are now exposed in this area. The exposed remains lie under the SW wall but up against the NE wall. No particular surface was detected in the excavations of these above mentioned deposits.

Group 9638

Room 9638 is at the NW corner of the excavation area. It is very small area, only 1,2m NE-SW and 1,4m NW-SE. After removal of the turf debris, collapse material and stone spread 9611, which filled the room, it became clear that the NE wall (9637) was built up against the SE wall. The wall was given a number during the excavation but further investigation within the small room will continue in 2010.

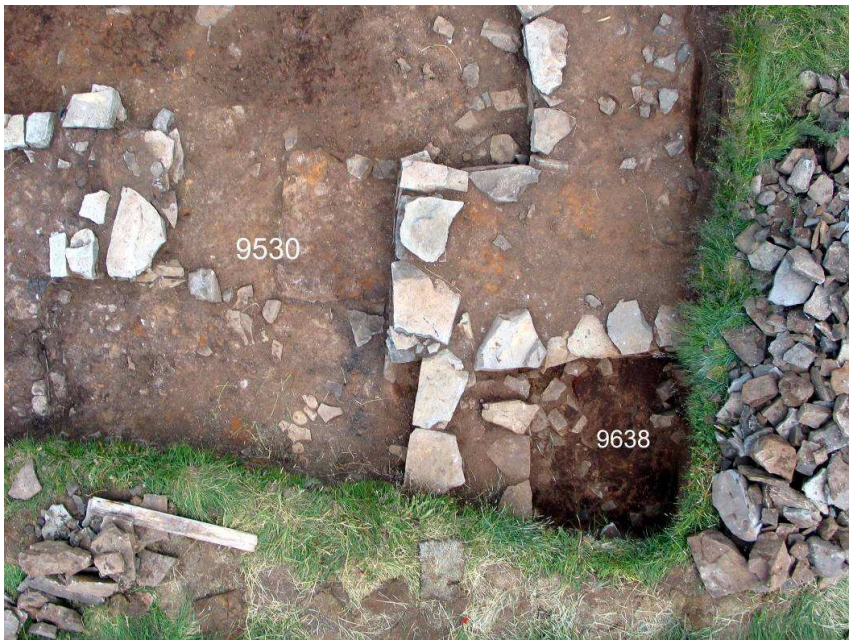


Figure 11. *Room 9638 in the end of excavation in 2009. SE is up.*

.

ASSESSMENT OF THE ARTEFACTS FROM VATNSFJÖRÐUR 2009

Guðrún Alda Gísladóttir
Fornleifastofnun Íslands

Artefacts from the Viking Age Area

From Areas 14 and 32 at Vatnsfjörður, 42 finds were registered under 29 numbers. The material retrieved during the 2009 field season was sparse, mostly iron but also some ceramic and glass fragments, a copper alloy fragment, plastic and stones. Most of the finds, 19 in total, were from the topsoil and aeolian soil units 9000 and 9001, all from Area 32. All datable finds from this area are late 19th or 20th century, including modern wire nails, window and vessel glass, modern ceramic and cat´s eye plastic (Table 1). Artefacts of similar date have been found distributed throughout the top soils and aeolian soils of the whole Viking Age area, and can be considered to be a casual, low-density spread of objects caused by the movement of people and animals around the homefield of the working 19th- and 20th-century farm.

Table 1. *Modern artefacts found in the homefield soils above the Viking Age part of the site.*

Find no	Unit no	Area	Type	Material	Description
1	9001	32	Rove	Metal	Complete circular rove with circular perforation in the middle, modern.
2	9001	32	Nail	Metal	Modern wire nail, complete but distorted
3	9001	32	Vessel	Glass	Clear rim fragment
4	9001	32	Slag	Slag	
5	9001	32	Window	Glass	Clear glass
6	9001	32	Vessel	Glass	Green, thin fragment
7	9001	32	Pottery	Ceramic	Glazed fragment
8	9000	32	Nail	Metal	Modern wire nail, complete but distorted
9	9000	32	Nail?	Metal	Probably bent nail shank, head and point broken off.
10	9000	32	Vessel	Glass	Clear fragments
11	9000	32	Vessel	Ceramic	
12	9000	32	Pottery?	Ceramic	Very small fragment, indet
13	9000	32	Cat's-eye	Plastic	Fragment of a red cat´s-eye from a vehicle
14	9000	32	Window	Glass	
15	9001	32	Manuport	Stone	Awaits analysis
16	9001	32	Fragment	Metal	Small fragments, indet.

Viking Age finds

From Area 32 the majority of the finds were made of iron. The iron finds were mostly unidentifiable fragments, but from midden deposit 9025 a broken nail (find 22; Figure 1) and a broken clench bolt (find 23) were retrieved. From the midden deposit 9025, little piece of copper wire (find 17) was found.

The most intriguing finds from field season 2009 came from Area 14. A stone weight, find 25, was retrieved from context 7159, a homogenous brown soil that developed between the collapsed structure 9 and the later structure 7. This object is flat and irregularly rectangular in shape, with a crude perforation made through what was originally a natural hole in one corner. It was possibly a loom weight (Figure 2). Ten iron cakes (find 28) were found in an organised pile, stacked five on top of five in unit 9036, below the walls of structure 9 (Figure 3; see also Karen Milek's report, this volume). These have a rounded, concave shape and weigh 3-5 kg each, making a total of 35 kg of iron (Figure 4). Preliminary analysis suggests these iron cakes are partially refined iron blooms (Thomas Birch, pers. comm.). This represents a higly significant find of unused iron, either representing a hoard/cache, or a foundation deposit for structure 7.

Figure 1. *Find no. 22, a broken nail, from midden deposit 9025 in Area 32.*

Figure 2. *Find no.25, a stone weight that might have been used as a loom weight.*

Figure 3. *The lower layer of iron cakes in unit 9036 (find 28).*

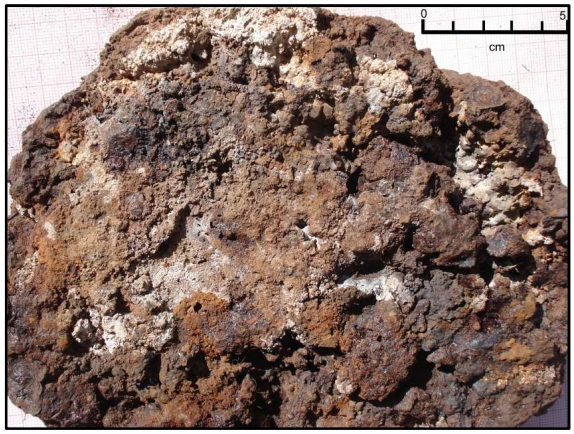


Figure 4. *Close up of one of the iron cakes (find 28), showing numerous inclusions, possibly incluidng calcined bone.*

Artefacts from the Farm Mound Area

The finds database from the 2009 field season on the Farm Mound comprises 1119 artefacts registered under 415 finds numbers. Included in the database are animal bones that are discussed in a separte report by Céline Dupont-Hébert (this volume, below). For this short discussion there are 1029 finds.

All finds were processed and given basic conservation care on site but further conservation work was carried out during post excavation work by Jannie Amsgaard Ebsen. The majority of the finds are stored with the Westfjords Heritage Museum (Byggðasafn Vestfjarða) in Ísafjörður and the finds processing was completed there and at Institute of Archaeology in Reykjavík.

The finds from 2009 are chiefly from post-abandonment deposits but not (as in previous years) from disturbed deposit created by the levelling of the home field. Preservation conditions are diverse from excellent to poor. Iron is generally heavily corroded but organic material from wet organic deposits is in good condition.

As can be seen in Table 2 and pie chart (Figure 5) below, most of the finds (60%) are ceramic and glass. Then second largest finds group (23%) is metal, which can be divided into a few subgroups:

Metal	Copper alloy	30
	Iron	207
	Lead	1
	Lead?	3

The objects type are of diverse nature: clay pipes and tobacco containers, glass vessels and window fragments, buttons of metal, nails, bone and wood, spades made of whalebone, keys, scissors, horse shoes, knives, textiles both knitted and woven, leather remains of diverse kinds, fittings of all sorts, stone hammers, fish hooks, etc. The finds material awaits further, more detailed analysis.

Table 2. *Artefacts from the 2009 excavations on the farm mound, divided by material.*

Material Keyword	**Total**	**Material Keyoword**	**Total**
Bone	7	Metal	241
Bone?	1	Slag	6
Ceramic	406	Stone	51
Composite	8	Stone?	1
Cork	5	Textile	37
Glass	216	Wax	1
Horn	1	Wood	30
Leather	16	Wood?	1
Leather?	1		
		Grand Total	**1029**

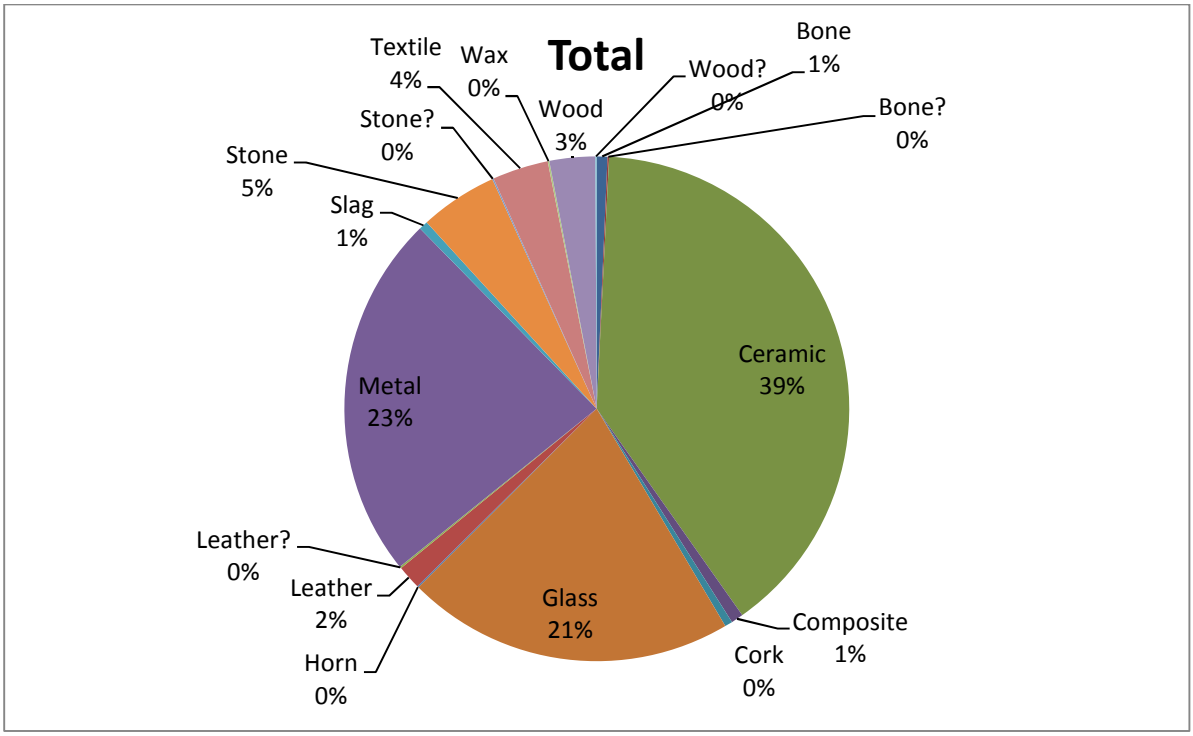


Figure 5. *Pie chart showing the relative quantities of different types of artefacts.*

***Figure 6**. Top left: button 723. Top right: spindle whorl 903. Middle left: nails 790. Middle right: stone hammer 677. Bottom: tobacco container 901.*

VATNSFJÖRÐUR 2009 ZOOARCHAEOLOGICAL ANALYSIS

Céline Dupont-Hébert
Université Laval, Canada

The 2009 excavation campaign in Vatnsfjörður was, as previous years, focussed on two main areas of the site: the modern farm mound and the Viking Age area. This season, archaeological contexts were exposed throughout the entire excavation for the former while new features were found in the latter, making zooarchaeological analyses more than ever pertinent and interesting. A large amount of fauna was collected this year: one of the most productive seasons in the history of the site since its inauguration.

Field and Laboratory Methods

Following well established field protocols, excavations were conducted in both areas using single context methodology. All bone-rich deposits were dry-sieved through a 4 mm mesh with random 1 mm sub-samples, and all Viking Age contexts were processed in the same fashion with samples taken for flotation. Post-excavation treatment in the field included drying of the faunal remains as best as possible, keeping all contexts separated and then careful packaging in preparation for shipment to Canada for zooarchaeological analyses. Some worked bones were kept at the Institute of Archaeology in Iceland (*Fornleifastofnun Íslands*) for material culture analyses and Viking Age mandibles for radiocarbon dating were sent to the University of Aberdeen.

All laboratory processing was done at the bioarchaeology laboratory of the Université Laval, in Québec, Canada, under the supervision of Dr. James Woollett, laboratory director. Analyses were undertaken by the author and using the *NABONE* recording package templates (Nabone zooarchaeological recording package 8th edition) for data recording, and Microsoft Excel or Microsoft Access as the main program for the digital database. Identifications of bone specimens were made using the laboratory's osteological reference collection and published manuals (Gilbert et al. 1996; Hillson 1995; Reitz and Wing 1995; Gilbert 1990; Cannon 1997).

An important thing which must not to be forgotten is that this analysis is not only a matter of statistic compilation and description, but also the results of combined professional archaeologists and motivated students who work together for the understanding of the North Atlantic past, ancient and recent. The integration of students in the analysis process, both on the field and in the lab, is the aim of this experience. They have contributed to all phases with a meticulous spirit and great curiosity which make all seasons of the field school so different but always a success.

The Viking Age Area

In 2009, the Viking Age area was extended to the north and west of the *skáli* in Area 1 (Area 32) and further investigations were undertaken around structure 7 where another structure (structure 9) was revealed (Area 14) (Karen Milek, this report). An interesting point about this summer's Viking Age faunal material is that preservation conditions around the structures were much superior to those observed in previous years, providing a well preserved faunal collection. In fact, the identification rate (to species or family level) and taxonomic

diversity of the 2009 collection are higher than was expected for that part of the site even for the deepest layers encountered.

Table 1. *Summary of taxonomic abundance of Viking Age Area 14 and 32 in terms of numbers of identified specimens.*

Species common name	Scientific Name	Area 14	Area 32
Domesticate fauna		**NISP**	**NISP**
Pig	*Sus scrofa domesticus*	3	
Cattle	*Bos Taurus*	9	1
Ovicaprines (sheep/goat)	(*Ovis aries/Capra hircus*)	12	
Wild fauna			
Arctic fox	*Alopex lagopus*	1	
Mollusc species ind.	----------	9	1
Fish species	----------	10	
Small seal species	----------	1	
Indeterminate mammal			
Large terrestrial mammal	----------	11	
Medium terrestrial mammal	----------	2	
Indeterminate mammal	----------	233	24
Unidentified vertebrate			
Unidentified fragment	----------		107
Total		**291**	**133**
Grand total:	***426***		

Table 1 demonstrates the difference in the identification rate between both areas. Very little faunal material (2%) recovered in Area 32 could be identified to species level; furthermore, only 18% of the collection could be associated with confidence to the mammalian order and 80% could only be identified as indeterminate vertebrate. A total of 94% of all 133 bone fragments are calcined (burnt grey-white) and 84% are equal or smaller than 1 cm, indicating that the assemblge has been extremely ravaged by taphonomic processes (e.g. burning, trampling) and that the small mammals, fish, birds, and the less dense portions of vertebrate skeletons are most certainly eliminated from this collection.

On the other hand, bones from around structures 7 and 9 in Area 14 are well represented, with a total of 291 fragments collected. Approximately 20% of this material could be identified to species level (*NISP*). This is quite an impressive preservation rate for this part of the site (Dupont-Hébert 2009). In fact, Area 14 seems to have largely escaped the taphonomic processes such as agricultural work and erosion, for example, that are usually a signature of the Viking Age area at Vatnsfjörður. While remains of both areas are relatively highly fragmented, Area 14 shows different breaking and burning patterns than Area 32

(Figure 1).

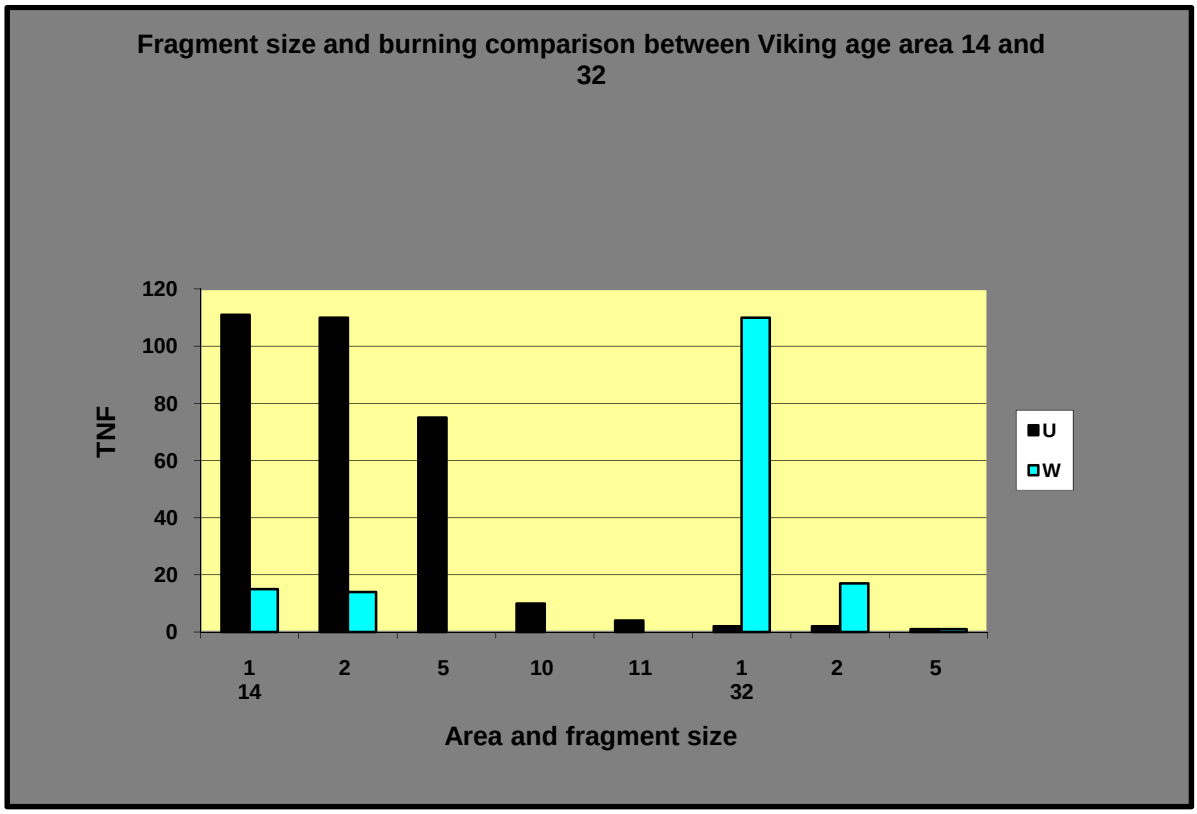


Figure 1. *Degree of fragmentation rate for each excavation area considering the burning criteria (Black columns show the unburned material and the blue columns show the grey-white burnt material).*

Area 14

The pattern of fragmentation illustrated in Table 1 and Figure 1 for Area 14 resembles patterns frequently seen in Icelandic Viking Age archeofaunas. All fragment size (0-1 cm, 2-5 cm, etc.) categories are represented. Most burned bones are 2 cm or less in size. The bulk of the fauna from Area 14 are derived from only two contexts (units 9026 and 9038), which contributed 85% of the fauna. The former is interpreted as a wall and the latter is a scatter in structure 9. Only one of the floors associated with structure 7 (unit 9019) had a bone assemblage, of which two immature cattle and one adult ovicaprine were identified.

As previously mentioned, unit 9038 in structure 9 is a layer of dark brown organic soil mixed with bones. Figure 2 illustrates the abundance of taxonomic groups observed in this context. Even though the indeterminate mammal category dominates the assemblage, a range of species were positively identified, namely: arctic fox, pig, cattle, ovicaprines, fish species and small phocids. Due to its stratigraphic position (under structure 7), the presence of fish bones and the small proportion of burnt fragments, it seems likely that the deposit was capped by the house and overlying non-acidic charcoal deposits that protected the assemblagre from weathering and erosion.

The diversity of species identified in unit 9038 reflects that which is frequently associated with other Viking Age structures in Iceland. The collection shows similar patterns of burning, fragmentation and species diversity as the assemblage recovered from the Aðalstraeti 14-16 site in downtown Reykjavik (McGovern and Tinsley 2001). Due to the

small size of the total bone sample, high fragmentation and low identification rates, it is impossible to undertake a valid study of subsistence strategies through the relative importance of species or mortality profiles.

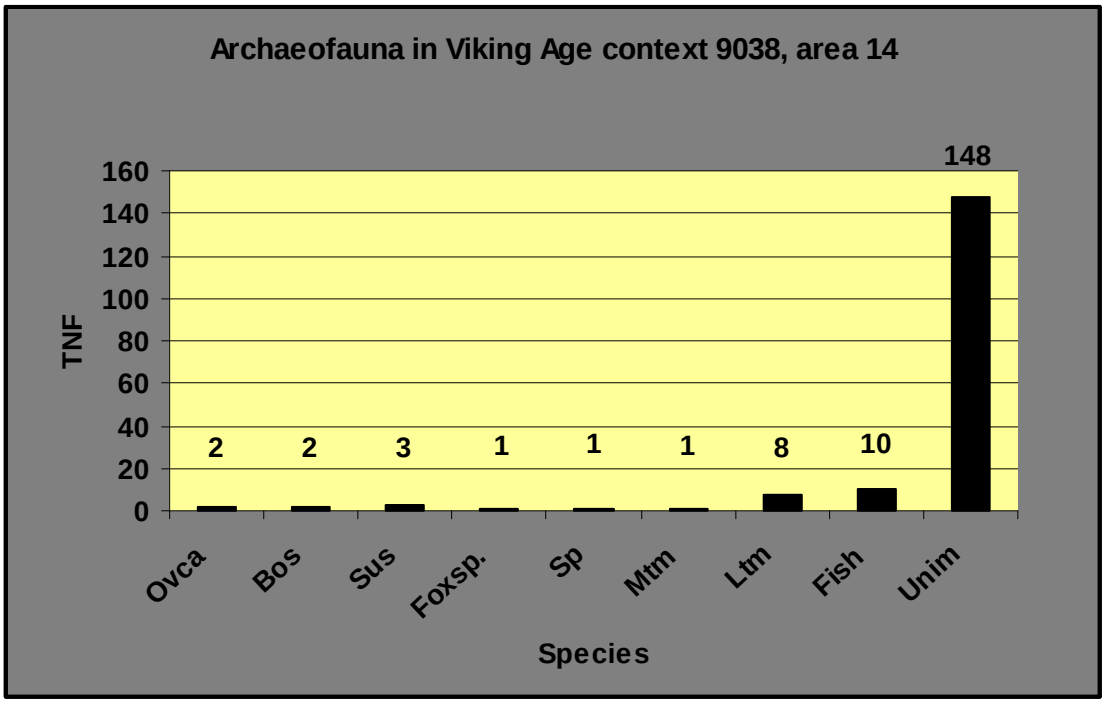


Figure 2. *Total number of fragments in context 9038, Area 14, at Vatnsfjörður in 2009.*

Area 32

Not much can be said about bones found in Area 32. Too few bones could be identified in the assemblage to make general interpretations of species diversity or taxonomic richness. The material recovered from Area 32 in 2009 is very similar to that collected in 2008 from Area 23 (see Figure 3). Putting aside the obvious difference in sample sizes, both areas show the same pattern of fragmentation and burning. It would be logical to assume that the same activities were undertaken and/or the same taphonomic processes were operating in those areas and that interpretations drawn from last year's analysis might be reapplied here (Dupont-Hébert 2009). This means that it is possible that Area 32 suffered the same taphonomic events and preservation conditions and also that it was not necessarily damaged by more recent activities that could have changed the course of the decomposition processes. Similarly high proportions of burnt and fragmented bones are frequently observed in Viking Age deposits in areas around structures. While calcined bone tends to shatter easily and is thus very vulnerable to mechanical weathering, its mineralized, inorganic structure may render it less subject to chemical weathering processes than unburnt bone (Lyman, R.L. & O'Bryan 1987). While their presence on site is certainly due to human activities, few calcined bones can be identified to species with certainty, for there is a high probability that bone structure and morphology suffered from the elevated temperatures of the burning process. Their presence in sheet middens north and west of structure 1/3 suggests that they were spread along with charcoal and other hearth debris when the buildings were in use.

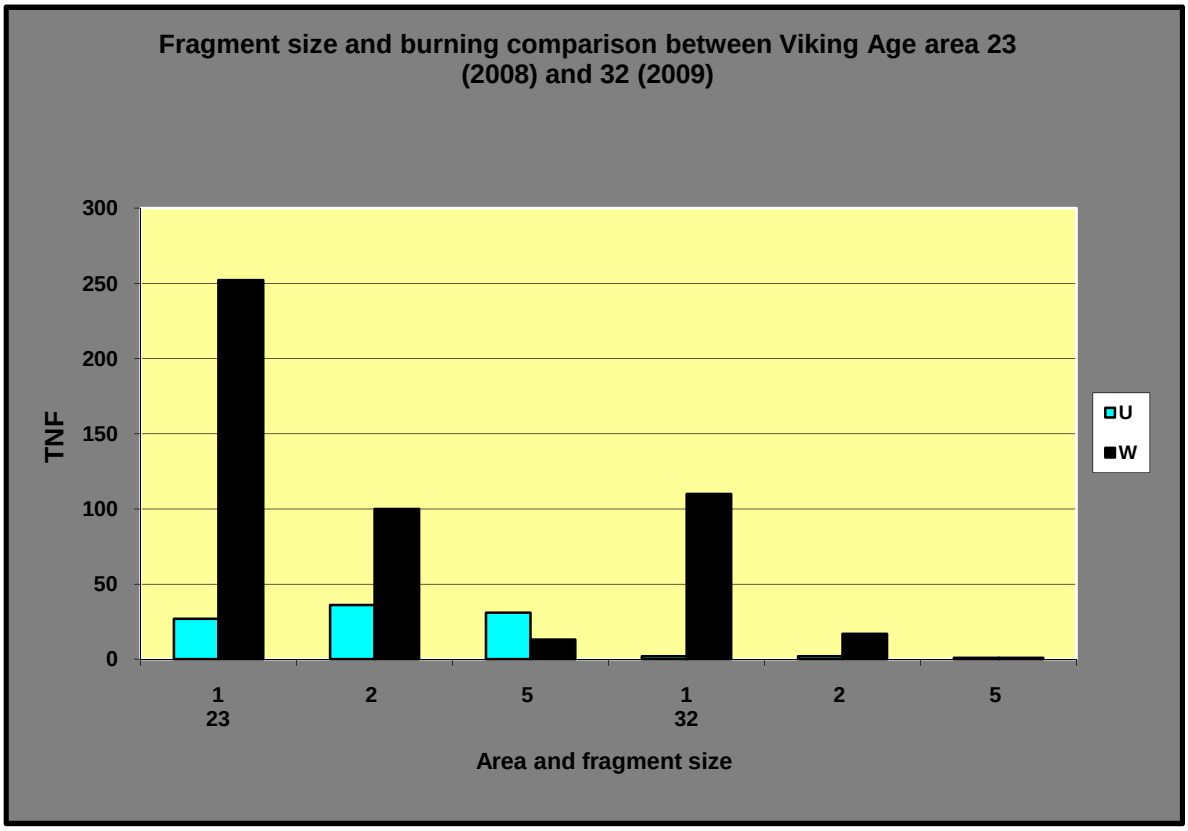


Figure 3. *Graph showing similarity between bone fragmentation and burning patterns in Area 23 (2008) and Area 32 (2009) in the Viking Age area at Vatnsfjörður.*

The Early Modern Farm Mound

The 2009 excavations on the early modern farm mound permitted access to archaeological deposits from the last occupation of that area (see Guðrún Alda Gísladóttir, this report). A large number of faunal remains were recovered in every context, with a large percentage concentrated in a room which was infilled with a midden deposit – group 8562. Table 2 shows the distribution and diversity of remains analysed to this point.

Room 8562: the so-called 'midden room'

Excavations continued in room 8562, where a significant number of faunal remains were recovered in 2008 (Figure 4). As clearly demonstrated in Table 2, this small midden shows considerable diversity of species, as it had in the upper layers excavated in 2008. The midden showed relatively good preservation conditions, excluding the bones at the surface, which were affected by the sun and moss growth. Fish remains were extremely common and fishes will probably make up 70% of the assemblage when analysed. The fish are not yet

completely analysed and so are not discussed here. However, the species noted in Table 2 were all observed in initial sorting of the collection and the list will most certainly be extended to include other species.

Table 2. *Abundance of faunal remains recovered from the Farm mound in 2009.*

Species name (English)	Scientific name	Room [8562]	Other contexts
Domesticates		NISP	NISP
Ovis-Caprine	(*Capra hircus/Ovis aries*)	131	28
Cattle	*Bos Taurus*	31	3
Dog	*Canis familiaris*	1	-
Sea mammals			
Small seal species	*Small phocidae*	5	1
Common seal	*Phoca Vitulina*	-	-
Cetacean sp.		5	-
Large cetacean sp.		1	-
Birds			
Puffin	*Fratercula arctica*	9	30
Common Eider	*Sommateria mollissima*	1	-
Small avian sp.		7	10
Avian species		-	7
Fishes			
Cod	*Gadus morhua*	n.d	25
Ling	*Molva molva*	n.d	9
Haddock	*Melanogranus aeglefinus*	n.d	1
Wolf fish	*Anarchichas lupus*	n.d	3
Cod fish family	*Gadidae*	n.d	21
Indeterminate fish species		n.d	286
Molluscs			
Common mussel	*Mytilus edulis*	47+	59
Clam		1	9
Periwinkle	*Littorina nest. L.*	-	5
Indeterminate mammal			
Small terrestrial mammal		1	1
Medium terrestrial mammal		151	37
Large terrestrial mammal		24	1
Indeterminate mammal species indet.		469	73
Unidentified vertebrate			
Unidentified vertebrate		19	1
Sub total		903	610
Grand total			*1513*

A combination of ovi-caprine (sheep-goat) bones from the 2008 and 2009 excavations has been used to examine modes of carcass exploitation. As illustrated in Figure 5, all elements are represented, indicating that the whole animal was processed on site. This mixture of meat rich and meat poor elements suggests a conventional Icelandic pattern of home butchery of livestock and the deposition of both primary butchery waste and the remains of meal consumption in the same midden deposit (Ragnar Edvardsson et al. 2004). This graph also shows that the most commonly represented elements were those which are most rich in meat and marrow: femora, metacarpals, metatarsals and tibia for example. Also of note is that the first and second cervical vertebrae were particularly common. This pattern will presumably change once final data for the midden-filled room are compiled, but it seems that the site's inhabitants were selecting for elements that would provide more than meat, except for the first and the second vertebra. When looking at the butchery patterns, perforation of proximal ends and distal shafts of metapodials was observed on only 20% of specimens and in a similar percentage for the phalanx. Most of the time, marrow seems to have been extracted by splitting the bone shaft, as demonstrated by the presence of numerous spiral fractures. The typical *svíð*, or split cranium, was also observed in the collection in 2008, but not in the 2009 assemblage analysed to date.

Figure 4. *Room 8562 during the 2009 excavations.*

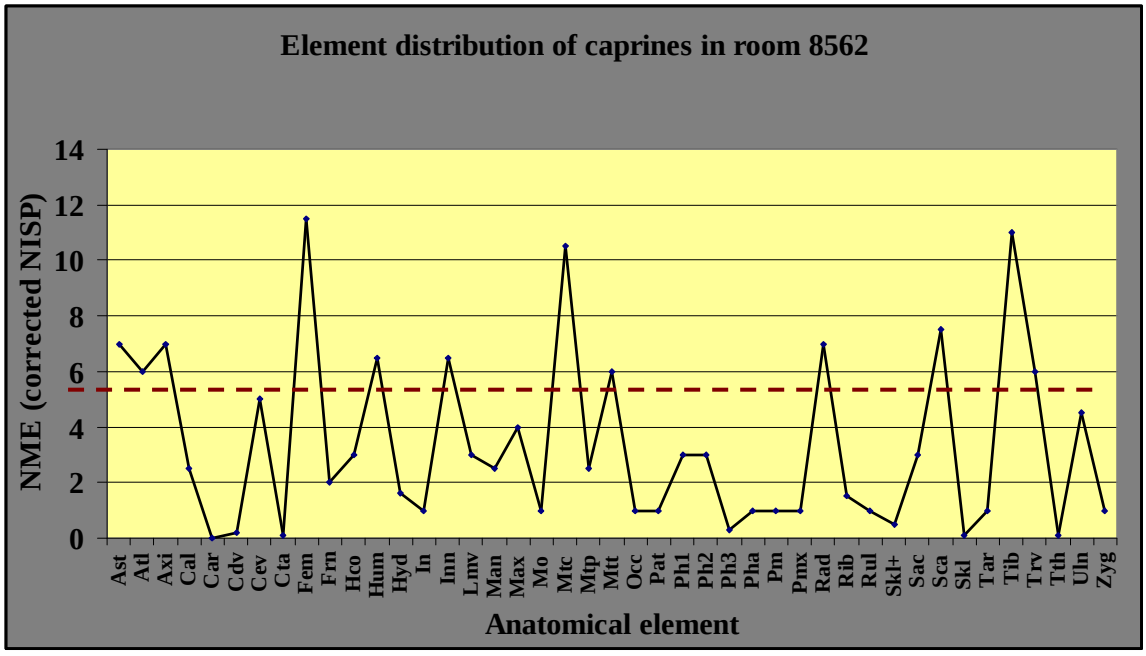


Figure 5. *Element distribution for ovi-caprines in room 8562 in the early modern farm mound.*

Ovi-Caprine long bone fusion can be a useful means to reconstruct mortality profiles and herding srategies when a statistically significant population is available. The exercise was done with data gathered to this point following Elisabeth Schmid's (1972) bone fusion study and Thomas Amorosi's guide for the ageing of neonatal and juveniles domesticate mammals (Amorosi 1989). Elements having approximately similar ages of fusion were grouped in four general age classes to create a more robust age profile to compensate for preservation effects (which seem relatively minor nevertheless) and sample size limitations. Figure 6 and Table 3 illustrate the ratio between fused and unfused elements for each age class; both of them indicate an unexpected exploitation pattern. At this point of the analysis, it seems that few or no animals were culled during their first months of existence and that 60% of the animals lived after their second year of life. This age profile does not reflect a typical milking herd strategy or a mixed strategy involving meat and milk production, a popular subsistence mode of production in Iceland of the 19th and 20th centuries (J. H. Ingimundarson 1995). Exploitation for meat consumption would have been represented by the relatively large number of specimens aged under 24 months, and about the same for milk production. In the present case, none of those strategies can apparently apply.

Table 3. *NISP for each age classes and percentage for caprines in room 8562.*

Fusion age	Element	Unfused	%	Fused	%	Total (*NISP*)
36-42 months	Humerus proximal Tibia proximal Radius distal Ulna distal Femur distal Femur proximal	0 2 4 0 1 6	**40%**	4 3 1 0 5 6	**60%**	4 5 5 0 6 12
20-24 mths	Metatarsal distal Metacarpal distal	2 1	**12%**	4 17	**88%**	6 18
15-20 mths	Tibia distal	1	**7%**	13	**93%**	14
0-10 mths	Humerus distal Scapula proximal Metacarpal proximal Metatarsal proximal Innominate (acetabulum) Radius proximal	0 0 0 0 0 0	**0%**	8 9 20 12 12 7	**100%**	8 9 20 12 12 7

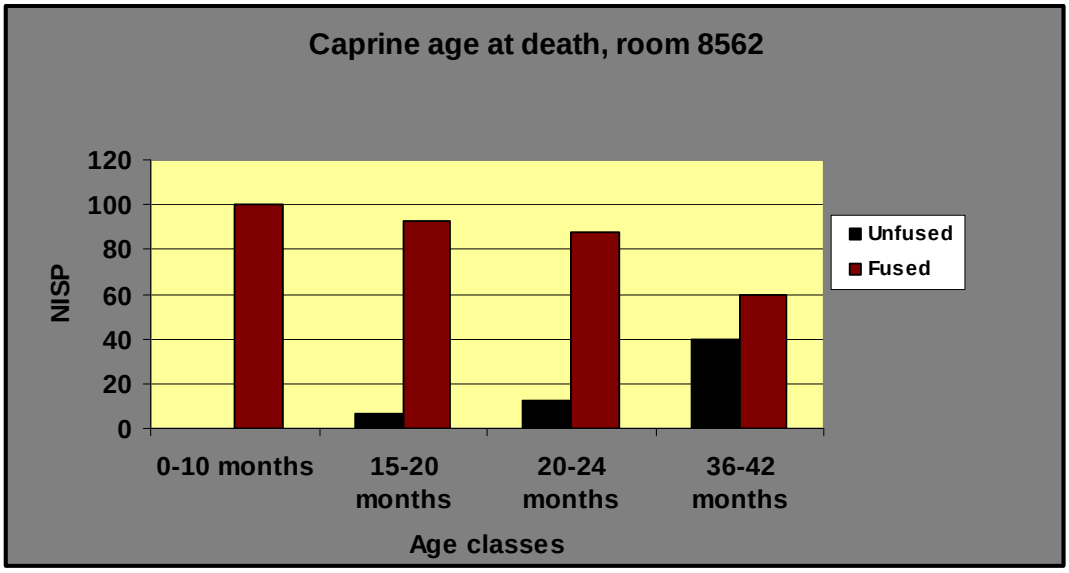


Figure 6. *Age at death for ovi-caprines identified in room 8562, in the early modern farm mound area.*

Ingimundarson (1995) also reports that the optimum balance between meat and milk would be obtained by culling only some of the lambs at birth and then by restricting the remaining lambs' access to milk. This would mean that a small amount of neonatal lambs should appear in the assemblage and there would be another slaughtering sequence at 12-18 months – a situation that does not apply in this specific case, at least for the 2008-2009 assemblage. The following may be offered as possible explanations for this pattern:

1) The author was not able to identify with certainty neonatal caprine bones and therefore, those were put in a larger category (e.g. medium terrestrial mammal). To this point, no neonatal bones except unfused vertebral bodies and arches were identified as neonatal bones in that category;
2) Preservation conditions were not good enough to permit the survival of neonatal bones (which seems improbable because neonatal cattle and seal bones were identified);
3) Lambs (probably the males) were sold to the international or local markets (e.g. England) and owners were keeping the milking ewes.
4) Sheep were bought mature or given as payment or none were raised on the farm;
5) There is a possibility that lamb bones were differentially deposited; i.e. were not deposited in the midden.

Even if the strategy was to maintain the herd for wool exploitation, neonatal bones should be present in the assemblage if the inhabitants were raising the sheep and not selling them to the market. Mortality curves like this one, with 60% of sheep seeming to reach their 4th year of life, have not seen in any other assemblage in Iceland. This apparent mortality pattern may change with the analysis of use wear patterns on teeth or with the application of other high resolution ageing methods.

Cattle bones are mostly represented by mature animals and few neonatal animals, which is a usual feature in Icelandic fauna from the early modern assemblages and earlier. The percentage of neonatal bones found in 2009 is illustrated in Table 4, along with those in Finnbogastaðir used as a comparative (for discussion about Finnbogastaðir fauna see Ragnar

Edvardsson et al. 2004). Percentages of neonatal cattle are similar in both sites, both showing the culling of some calves shortly after birth as a part of a dairying economy (Halstead 1998). The ratio of cattle over caprine bones in the 2009 assemblage is 1:4, which is relatively high in comparison to the low-ranking farm Finnbogastaðir, which had a ratio of 1:10. The Vatnsfjörður ratio is closer to that of the Hofstaðir and Sveigakot medieval farms pattern (Hambrecht et al. 2005).

Table 4. *Percentages of neonatal domesticates for both Vatnsfjörður (2008-2009 room 8562) and Finnbogastaðir early modern archaefauna.*

	Vatnsfjörður	Finnbogastaðir
% neonatal cattle	**26%**	**21,74%**
% neonatal caprine	**0%**	**1,2%**

Concerning other domesticate species, no horse or pig bones were identified in the 2009 faunal collection. One dog ulna was identified, which could be a mature small-to-medium sized individual with a well developed muscular attachment that could indicate that the animal was a worker and not a household pet. The presence of dogs on site is also attested by the percentage of gnawing on bones. Figure 7 presents those percentages along with unidentified gnawing sources. No rodent elements were observed to this point as well as no rodent gnawing on bones.

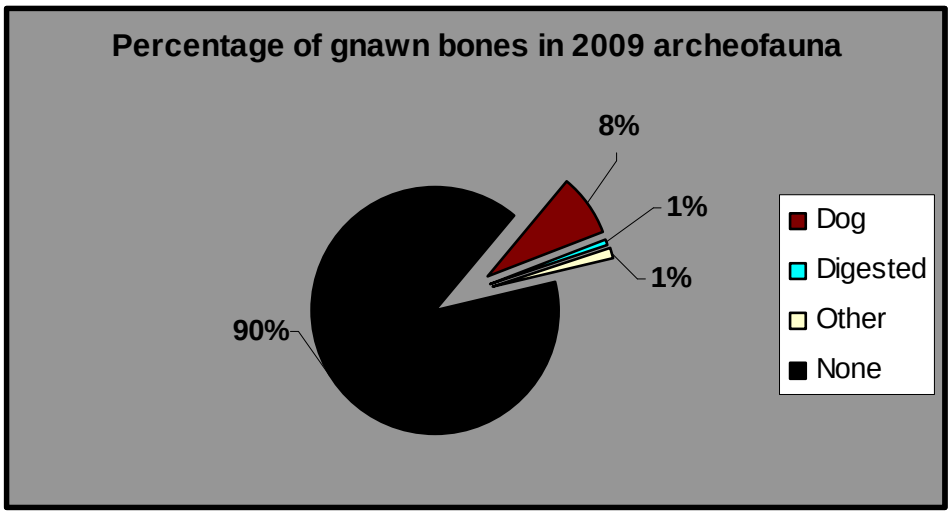


Figure 7. *Percentage of gnawing by dog and other sources for the 2009 fauna recovered in the early modern farm mound.*

Wild fauna is mostly represented by fish species, even if not already registered. As noted in last year report, the wolf fish (*Anarchichas lupus*) will probably stand along with the cod at the top *NISP* score, closely followed by the ling (*Molva molva*) and haddock (*Melanogranus aeglefinus*) and finally other fish species like ray fishes. Bird species identified include the puffin and the common eider, which are species accessible around the site. An interesting element to mention is the presence, in the 2009 bird assemblage, of

neonatal individuals, which are easily recognisable by the porosity of bones and the underdevelopment of the proximal and distal ends, characteristic traits that make the identification to species impossible. Those were classified in subclasses such as small avian species (puffin size), medium avian species (gull size) and large avian species (swan size) when possible. But due to the identification difficulties, most of the neonatal bird bones were simply registered as avian species. Literature about birds' bone development and fusion stages is still severely lacking in zooarchaeology and it is therefore difficult to attempt some kind of interpretation of these specimens.

Sea mammals were, as expected, a part of the diet of the farm inhabitants in early modern times, as they always were. Seal bones and whale bone fragments were recovered and comprise about 1% of the collection. All seal bones were registered as small phocid species, which is probably the common or harbour seal (*Phoca vitulina*). No identifiable part (mandible, humerus, auditory bulla) was observed and all elements present belong to neonatal or immature individuals. Cetacean species fragments are well represented in the assemblage and not only as craft or butchery refuse but also as artefacts. Two of them could have been used as butchery plate and one was clearly identified as a shovel. Figure 8 shows one of these artefacts.

Figure 8. *Worked whalebone shovel found in room 8562, unit 9515 in the Farm Mound Area.*

Other Contexts

Almost all the contexts excavated on the farm mound in 2009 have delivered bones, but not all of them could be processed at the time of writing the report. Table 5 illustrates the species diversity for analysed contexts.

Table 5. *Species diversity for analysed contexts other than room 8562 from the farm mound area.*

	Context number						
Species	**[9520]**	**[9548]**	**[9565]**	**[9591]**	**[9623]**	**[9636]**	**[9651]**
Cattle	1			1		1	
Caprine	6	1	4	3		13	1
Small seal sp.				1			
Cod			1			17	
Haddock		1					
Ling						7	
Gadids sp.					5	12	2
Wolf fish				2		1	
Fish sp.	2	33	12	1	28	194	16
Mussel		1				58	
Clam sp.		4	1			4	
Periwinkle		5					
Puffin		20	5			4	1
Small avian sp.		6				3	1
Avian sp.						7	
Small terrestrial mammal						1	
Medium terrestrial mammal	2	4	3			23	5
Large terrestrial mammal						1	
Indeterminate mammal	7	12	2	14	1	37	
Indeterminate vertebrate				1			
Subtotal	**18**	**87**	**30**	**23**	**34**	**383**	**35**
Total	**610**						

As table 5 demonstrates, the assemblage is dominated by context 9636, which represents 63% of all the faunal remains. The other interesting aspect of this assemblage is the concentration of bird bones (30% compared to 39% for fish fragments) in context 9548, which is associated with what appears to be a cooking area (see Guðrún Alda Gísladóttir, this report). This special deposit will be looked at in detail after all fauna from the midden-filled room is processed. Nevertheless, the presence of bird bones in the context might contribute to the understanding of this room, which is directly south of the midden, and may also support its interpretation as a kitchen.

Conclusions

The analysis of faunal remains has become a major element of archaeological studies and has taken up a key role in current research practice in Iceland and worldwide. The results presented in this report are preliminary and might change in the near future, in particular as final data from the early modern assemblage become available. The Viking Age remains recovered from VSF in 2009 have proven to be well preserved and resemble what is seen elsewhere in Iceland for this period.

The initial analysis of the early modern collection already shows considerable potential for examining this period of great pressure, both economic and environmental. Results to date seem to indicate that these pressures shaped the diet and subsistence strategies

of the residents of Vatnsfjörður in a different way than that observed at Finnbogastaðir, a farm of comparable status, region and period. The investigation of questions of this nature will be aided with a rigorous analysis of indicators of stress in the archaeological record: not only through faunal analysis, but in a broader perspective including all archaeological fields and tools.

Acknowledgements

Many thanks to the partners of this field school. Special thanks to the *FSI* team of generous teachers: to Karen Milek (U Aberdeen), Guðrún Alda Gisladottir (*FSI*), Gardar Gudmunsson (*FSI*) and my advisor Jim Woollett (U Laval) for their support and passion for their work. Thanks to Amanda Schreiner (CUNY) for her contribution during the field school, to Pierre-Olivier Dionne (U Laval) for the help in the lab and to Véronique Forbes (U Aberdeen). Finally, thanks to all students of the 2009 field school that made this experience colourful.

References

Amorosi, T. (1989) A postcranial guide to domestic neonatal and juvenile mammals, in *The identification and ageing of Old World species*, BAR International Series, 533.

Cannon, D.L. (1987) *Marine Fish Osteology.* Archaeology Press, Simon Fraser University, Canada.

Dupont-Hébert, C. (2009) Preliminary zooarchaeological report. In K. Milek (ed), *Vatnsfjordur 2008: interim reports (FS426-03098)*, Reykjavik, Fornleifastofnun Islands, Iceland.

Gilbert, B.M. (1990) *Mammalian Osteology*. Columbia, Missouri Archaeological Society, Inc.

Gilbert, B.M., Martin, L.D. and H.G. Savage (1996) *Avian Osteology*. Columbia, Missouri Archaeological Society, Inc.

Halstead, P. (1998) Mortality models and milking: problems of uniformitariarism, optimality and equifinality reconsidered. *Anthropozoologica* 27: 3-20.

Hambrecht, G. (2009) Zooarchaeology and the archaeology of early modern Iceland, Archaeologies of the early modern North Atlantic. *Journal of the North Atlantic* 1: 1-20.

Hillson, S. (1995) *Mammal bones and teeth: an introductory guide to methods of identification. London.* Institute of Archaeology, University College London.

Ingimundarson, J.H. (1995) *Of Sagas and Sheep: Toward a Historical Anthropology of Aocial Change and Production for Market, Subsistence and Tribute in early Iceland (10th to 13th centuries).* Doctoral dissertation submitted to the department of Anthropology, University of Arizona, 355p.

Lyman, R.L. & O'Bryan (1987) Plow-zone zooarchaeology: fragmentation and identifiability. *Journal of Field Archaeology* 14, Pp. 493-498.

Mc Govern, T.H. & C.M. Tinsley (2001) Zooarchaeology of Aðalstraeti 14-16, 2001: report of the Viking period animal bones, NORSEC Laboratories report No.2, NY, 9p.

North Atlantic Biocultural Organization Zooarchaeology Working Group (2006) Nabone zooarchaeological recording package 8th edition, CUNY, NY.

Ragnar Edvardsson, Perdikaris, S., McGovern, T.H., Zagor, N. & M. Waxman (2004) Coping with hard times in NW Iceland: Zooarchaeology, history and landscape archaeology at Finnbogastaðir in the 18th century, NORSEC Zooarchaeology laboratories report No.12, NY, 35p.

Schmid, E.F. (1972) *Atlas of Animal Bones for Prehistorians, Archaeologists, and Quaternary Geologists*. Amsterdam: Elsevier Science Publishers.

SAMPLING PROTOCOL FOR ARCHAEOENTOMOLOGY AT VATNSFJÖRÐUR 2009

Véronique Forbes
University of Aberdeen, UK

Archaeoentomological analyses have been undertaken on sediment samples from Vatnsfjörður since 2006. Both the Viking Age deposits and the post-medieval deposits from the farm mound have been assessed. The results proved to be much more substantial for archaeological deposits dating of the Early Modern Period, due to better preservation conditions, while for most deposits dating to the Viking Age the insect remains were rather poorly preserved. Thus, the analysis focused mainly on the reconstruction of human activities and environmental conditions on the 19th and early 20th century turf house of Vatnsfjörður. The results so far allowed the identification of activities such as storage and trade, and the reconstruction of elements of the local environment. The functions of some rooms of the house were also identified, as well as hygienic conditions within some of the excavated rooms and of the inhabitants of the site (see Forbes 2007, 2008 & 2009).

Archaeoentomological samples were also collected during the 2009 season. As these samples have not been analyzed yet, this short report only presents the sampling strategy that has been adopted.

Table 1 shows a list of the samples which have been collected. They come from different rooms, and most of them have been taken from floor deposits. Samples not coming from floor layers were taken from organic deposits assumed as having a good potential for archaeoentomological interpretations, such as a possible fill from a barrel pit. Most samples have been taken from the post-medieval farm mound, but two samples have been collected from floor layers inside structure 9 in the Viking Age area.

The volume of all samples varies between 4 and 6 litres. Most samples from floor deposits have been collected as bulk samples to be representative of the whole context. The only exception is for some floor deposits coming from rooms 8562 and 9502 of the early modern turf house, for which a special sampling strategy has been employed.

The first floor layer (9632) that was exposed in the room 8562 turned out to be going underneath the northern wall of the room. As this floor layer was discovered towards the end of the season, there was not enough time to remove the wall and then excavate the floor layer. There was a risk of loosing archaeoentomological information if the samples were left to be taken the following summer, as the effects of root growth and seasonal temperature change can not be completely avoided even if newly exposed deposits are carefully protected with a layer of terra-mat and turf blocks. Therefore, a 1 x 1 metre sampling trench was excavated within room 8562 (Figure 1), allowing the collection of 4 to 6 L of sediments necessary for archaeoentomological analyses, while leaving the rest of the deposits intact. It was thus possible to sample 5 different possible floor layers (9632, 9636, 9641, 9642 & 9643), which have been recorded but only excavated in the sampling trench.

Table 1. *Sediment samples collected for archaeoentomological analysis during the 2009 season at Vatnsfjörður.*

Area	Sample #	Context	Group	Interpretation
Farm Mound	S-518	9632	'midden room' 8562	floor layer
	S-519	9636		floor layer
	S-520	9641		floor layer with stone paving
	S-521	9642		floor layer
	S-522	9643		organic deposits on top of a floor layer
	S-514	9619	room 9502	floor layer
	S-515	9622		floor layer
	S-517	9625		floor layer
	S-505	9554		floor layer
	S-506	9558		possible floor layer
	S-513	9609		turf collapse
	S-501	9524	room 9523	floor layer
	S-509	9524		floor layer
	S-510	9562	pit 9561	fill of a pit
	S-508	9555	room 9587	turf collapse / possible floor layer
	S-512	9586		fill in possible doorway
	S-516	9620	wall 9618	organic material beneath a stone wall
	S-523	9647	room 9650	floor layer
	S-524	9648		floor layer
	S-525	9649		floor layer
14 (Viking Age)	S-12	9038	Structure 9	floor layer
	S-14	9038	Structure 9	floor layer

Figure 1. *Sampling trench in the so-called 'midden room', 8562.*

A similar situation occurred in the room next to 8562, room 9502, where a floor deposit also seemed to be going underneath the same wall and another stone structure. Thus, a 1 x 1 metre sampling trench was also excavated there, allowing the collection of samples from three different floor layers on top of one another (9619, 9622 & 9625).

All sediments samples are now waiting to be processed and analyzed in the laboratory of the Department of Archaeology at the University of Aberdeen, Scotland. The results should provide further insights into the daily activities and living conditions of Vatnsfjörður's past occupants.

References

Forbes, V. (2008) Assessment of insect remains from the farm mound area. In Milek, K. B. (ed.), *Vatnsfjörður 2008 Framvinduskýrslur/Interim Report.* Reykjavík: Fornleifastofnun Íslands. Pp 105-116.

Forbes, V. (2008) Assessment of insect remains from Vatnsfjörður. In Milek, K. B. (ed.), *Vatnsfjörður 2007 Framvinduskýrslur/Interim Report.* Reykjavík: Fornleifastofnun Íslands. Pp 117-145.

Forbes, V. (2007) Preliminary report on insect remains from Vatnsfjörður 2005-2006. In Milek, K. B. (ed.), *Vatnsfjörður 2006 Framvinduskýrslur/Interim Report.* Reykjavík: Fornleifastofnun Íslands. Pp 85-97.

APPENDIX 1: REGISTER OF EXCAVATED UNITS

Units excavated in the Viking Age Area

Unit No	Area	Unit Type	Description
8047	14	D	Rich dark brown organic with small stones (fill)
9000	32	D	Surface turf layer
9001	32	D	Aelion silt below [9000]
9002	32	D	Turf collapse or dump layer
9003	32	D	Turf collapse/dump with cobbles
9004	14	D	Black, brown, red turf slump on inside of south wall of Structure 7
9005	32	D	Orangey-red turf collapse/dump
9006	14	D	Grayish turf collapse, Structure 7
9007	14	D	Mixed turf layer, directly over stone floor
9008	14	D	Uppermost stones in pavement [8039]
9009	32	D	Grey charcoal sheet midden
9010	32	D	Turf collapse from wall of Structure 1
9011	14	D	Stone pavement inside walls of Structure 7
9012	14	D	Floating stone pavement on south wall of Structure 7
9013	14	D	Floating stones lining inside of eastern wall of Structure 7
9014	14	D	Floating flat stone in wall [7157], Structure 7
9015	14	D	Stone pavement - SW entrance, Structure 7
9016	14	D	Dark brown floor layer soil between [9015] stones
9017	14	D	Stone pavement on west side of Structure 7
9018	14	D	Stone pavement on west side of Structure 7
9019	14	D	Mixed soil (organic) and turf layer in the eastern part of Structure 7
9020	14	D	Stone pavement in the NE quarter of Structure 7
9021	14	D	White turf collapse next to wall in SE corner of Structure 7
9022	14	D	Thin decomposed grass layer (possible natural) in SE corner of Structure 7, under [9021]
9023	14	D	Part of black and red wall [7157] by SE entrance
9024	14	D	Black and red turf wall of Structure 7
9025	32	D	Dark reddish brown midden, west of Structure 1
9026	14	D	North-east and east walls of Structure 7
9027	32	D	Dark, charcoaly sheet midden west of Structure 7
9028	33	D	Evaluation trench, possible wall
9029	33	D	Evaluation trench, turf collapse
9030	14	D	Turf wall, SE wall of Structure 7
9031	14	D	South eastern wall of Structure 7
9032	34	D	Turf collapse in Area 34
9033	14	D	Stones above [7159] on SW wall of Structure 7, 870/305
9034	14	D	Charcoal deposit above wall of Structure 7

Unit No	Area	Unit Type	Description
9035	14	D	Charcoal deposit in SE part of Structure 7
9036	14	D	Turf collapse on NE walls of Structure 7; probably foundation of wall 9045
9037	14	D	Charcoal deposit and cobbles, Structure 9
9038	14	D	Dark brown organic layer, Structure 9
9039	14	D	Wall collapse at SE side of Structure 9
9040	14	D	Light pinkish brown organic layer (floor?) at NE corner of Structure 9
9041	14	D	Flat stones under [9011] in Structure 9
9042	14	D	Small deposit of brown organic soil/floor under [9041]
9043		VOID	VOID
9044		VOID	VOID
9045	14	D	Walls of Structure 9
9046	14	D	Greyish possible floor deposit in NE corner of Structure 9

Units Excavated in the Farm Mound Area

Unit No	Unit Type	Group	Description
9500	D	8562	Midden deposit: Dark brown, bone rich and with charcaol
9501	D	8590	Turf collapse: Orange and redish brown. Cut by 8589
9502	G	9502	Group number for a house/room at West side.
9503	D	9502	Turf collapse: In south part of the room. Dark brown
9504	D	8562	Midden deposit: Medium brown, bone rich, charcoal, wood
9505	D	9502	Turf collapse: Redish brown and light grey
9506	D	8590	Turf debris, uniform. Cut by 8589
9507	D	8563	Levelling layer? A gravel rich deposit covering the room
9508	D	9502	Turf collapse: Mixed and disturbed turf deposit
9509	D	8563	Turf debris. Part of levelling layers? Dark brown and red brown
9510	D	8590	Turf debris. Part of levelling layers? Dark brown with dark red and orange pathces
9511	D	8562	Midden deposit: Peat ash deposit. Bone rich
9512	D	9502	Turf collapse: In the east part of the room. Brown orange
9513	D	9502	Mixed material lying up against east wall. Dark brown, mottled.
9514	D	8590	Stone wall/a block. Crude cluster
9515	D	8562	Midden deposit: Peat and wood ash deposit, pink and grey. Charcol. Bone rich
9516	D	9502	Turf collapse: Middle of the room. Dark, grey and brown.
9517	D	9502	Turf collapse: At south side. Dark grey brown.
9518	D	8590	Turf bulk. Between stones, not under.
9519	D	9523	Turf collapse covering a room. Orange, red and brown.
9520	D	9522	Stone rubble layer. Dark brown with red and black patches.
9521	D	8562	Turf debris/collapse. Bone rich also shells and charcoal
9522	G	9522	A room? A blockage? Within group 9530

Unit No	Unit Type	Group	Description
9523	G	8563	Subgroup of 8563: South part of 8563. Divided by stone structure, wall base?
9524	D	9523	Floor deposit: Black coloured, brown and grey. Charcoal rich in places.
9525	D	8562	Turf collapse: Red brown deposit against south wall
9526	D	9522	Dark brown turfish deposit
9527	D	9502	Turf collapse: In the middle of the room. Redbrown and white/grey and multicolour patches
9528	D	8590	Turf collapse and/or turf debris. Multi coloured, dark, redish, brown, flecks of orange and grey
9529	D	9522	Row of stone in a blocking
9530	G	9530	For room E-W in the northern part of the excavation area
9531	D	9653	Turf collapse spread: Medium brown with orange patches
9532	D	9502	Turf collapse and silt: Lying up against east wall. Brown with orange patches
9533	D	8590	Turf debris: Mixed, redish brown with brown and orange flecks
9534	D	9502	Turf collapse: Probably in connection with north wall collapse. Dark brown with patches of redish brown
9535	D	9502	Turf collapse: On south and north wall. Probably roof collapse
9536	D	9530	Turf and stone collapse
9537	D	8562	Midden deposit: Wood ash, medium grayish brown. Shell and bone fragments
9538	D	9502	Turf collapse: Lying up against south wall. Probably wall collapse.
9539	D	8590	Turf collapse: Mixed, very dark coloured mottled with orange and black pathces
9540	D	9523	Peat ash dump. Mottled pink orange and grey brown with charcoal patches.
9541	D	9502	Turf collapse: On top of east wall. Mixed brown and multicoloured turf.
9542	D	9653	Ash deposit
9543	D	8562	Midden deposit: Medium brown with orange spots. Bones, burnt and unburnt
9544	D	9523	Wall: Base of stone and turf wall
9545	D	8590	Remnants of turf wall. Cut by 8589
9546	D	8562	Turf debris and silt. Very bone rich; burnt and unburnt and charcoal. Dark to medium brown.
9547	D	9502	Turf collapse: In SW courner, probably west-wall collapse
9548	D	8563	Fill/levelling deposit. Sea gravel dump up against stone and turf wall
9549	D	9502	Turf collapse: Propably from west or east wall
9550	D	8590	Collapse? Mixed turf; redish brown, grey and orange
9551	D	9530	Charcoal deposit, dump
9552			Deleted
9553	D	9530	Mixed turf deposit, rich of wood and charcoal.
9554	D	9502	Mixed turf collapse and soil with charcoal. Floor?
9555	D	9530	Turf collapse with lot of wood fragments
9556	D	8590	Blocking in a wall
9557	D	9653	Turf collapse/spread covering large are. Borders arbitrary

Unit No	Unit Type	Group	Description
9558	D	9502	Dark deposit mixed with turf and charcoal. Floor?
9559	D	9560	Fine gravel deposit
9560	G	9560	Room by south limits on the excavation
9561	G	9653	Group for barrel pit? Within area 8653
9562	D	9561	A fill in barrel pit
9563	D	8562	Midden deposit: Burnt bones and shells. Consentrated at south side. The first dump in the room?
9564			Deleted
9565	D	8563	Stone structure in kitchen
9566			Deleted
9567	G	9567	Two walls. Within Group 9530
9568	D	9567	Stone wall, with filling behind. 3-4 rows and no turf between
9569	D	8563	Turf collapse: On east side
9570	D	9610	Ash deposit
9571	D	9567	Wall: East of 9568
9572	D	9530	Two stones, wall collapse
9573	D	9502	Turf collapse: Against south wall
9574	D	8562	Turf collapse: Medium brown with orange patches
9575	D	9563	Stone spread, fill
9576	D	9530	Collapse or dump? Mixed turf dark brown with orange spots
9577	D	9560	Turf and soil levelling deposit beneath a pavement
9578	D	8590	Stone wall at the end of middle area/room
9579	D	9502	Roof collapse: Redish turf with black spots
9580	D	8562	Turf collapse east of middle area/room
9581	D	9618	Stone wall
9582	D	8562	Turf deposit, collapse? Multicoloured, green and red
9583	D	8562	Turf collapse up agianst eastern wall
9584	D	9560	Stone paving. Flat basalt stones of various size and shape
9585	C	9561	Cut for barrel pit
9586	D	9530	Fill? Organic deposit, turf debris and soil mix.
9587			Deleted
9588	D	8562	Turf debris with charred bones
9589	D	8590	Stone wall, south side of the middle area
9590	D	8590	Turf collapse: Soft turf with silt, redish brown, greyish and orange
9591	D	8562	Turf collapse: Medium brown with red green spots
9592	D	9502	Turf collapse: Mixed, multicoloured orange, grey and brown
9593	D	8562	Wall structure of stone. Disturbed.
9594	D		Dull brown uniform deposit on top of a wall, probably remains of topsoil
9595	D	8562	Small wood ash dump
9596	D	8562	Turf deposit: Medium to dark brown with orange patches
9597	D	8562	Low stone alignment in North part of the room. Possibly a base for structure, manger?
9598	D	8562	Mix of stones, turf and silt under 9597, possibly levelling deposit

Unit No	Unit Type	Group	Description
9599	D	9502	Blocking of a doorway, turf and stones
9600	D	8590	Turf collapse
9601	D	9604	Stone wall
9602	D	8562	Wet turf deposit with flat stones, paving?
9603	D	9604	Turf wall fill
9604	G	9530	Subgroup of 9530. Layers making up turf and stone wall
9605	D	8590	Mixed turf deposit, collapse and debris
9606	D	9502	Turf collapse, wall at north side
9607	D		Turf collapse
9608	D	9610	Hearth in possibe kitchen
9609	D	9502	Turf and stone collapse, north side of the room
9610	G	8563	Subgroup of 8563. Hearth structure
9611	D	9638	Turf debris, stones and collapse. Fills up room that is partly under LOE
9612	D	9610	Peat ash deposit
9613	D	9602	Midden deposit, woodash, turf debris and silt
9614	D	9602	Stone collapse
9615	D	8590	Mixed demolition deposit, mostly turf debris and stone spread. Redish brown with flecks of orange and grey
9616	C	9610	Cut for hearth
9617	D	8563	Levelling layer. Sea gravel spread
9618	G	8590	Subgroup of 8590. Stone wall
9619	D	9624	Floor deposit. Organic mid brown, silt with bones, shells and birch/hay
9620	D	9618	Coarse turf deposit. Dark/blackish coloured beneath stone wall
9621	D	8590	Mixed demolition deposit, mostly grayish brown with flecks of gray and yellow.
9622	D	9624	Floor deposit. Dark purple-ish brown/black and grey deposit. Wet and compact with pathces of charcoal
9623	D	9604	Turfwall fill
9624	G	9502	Subgroup for sampling trench inside room 9502
9625	D	9624	Floor deposit. Dark floor deposit iwth medium size and cmal charcoal chunks. Fire cracked stones and unburnt birch.
9626	D	9624	Levelling deposit made of turf
9627	G	8562	Subgroup for sampling in room 8562
9628			Deleted
9629			Deleted
9630=9631	C	9618	Turf deposit cut by 8589.
9631=9630	D	9618	Turf deposit cut by 8589.
9632	D	9627	Floor deposit. Dark brown with wood ash lenses. Lots of bones and shell fragments, glass and ceramic sherds.
9633	D	9650	Large organic deposit in a room, build up of various material, dung, hay etc. Wet deposits
9634	D	8563	Sea gravel deposit and stones at south side of the room
9635	D	8563	Brown gravel (from the farm mound) in the room
9636	D	9627	Floor deposit with stone paving. Compaction is soft. Littlebit of

Unit No	Unit Type	Group	Description
			bones present.
9637	D	9638	Blocking in a wall
9638	G	9638	Room in NW corner
9639	D	8590	Collapse, wall made of turf and stone
9640	D	8590	Collapsed stone wall
9641	D	9627	Floor deposit with stone paving. Compaction rather soft, loose patches and wood ash lenses and plant inclustions.
9642	D	9627	Floor deposit. Dark purple-ish floor, soft - compact. Peat ash patches and wood remains
9643	D	9627	Very wet and organic loose material with bits of wood and bones.
9644	D	8563	Stone dump in a room
9645	D	8590	Base of a stone wall?
9646	D	8590	Stone wall, possible blocking
9647	D	9633	Bone rich floor
9648	D	9633	Compact black floor
9649	D	9633	Organic deposit, dung inclusions?
9650	G	9650	Group number for house in group 9530 before changes
9651	D	9618	Floor under wall. Not excavated in 2009
9652			Deleted
9653	G	9653	Group for room or corridor on mid north side

APPENDIX 2: REGISTER OF FINDS

Finds from the Viking Age Area

Find No	Unit	Area	Object Keyword	Material Keyword	Sub-material	Description	Qty Wt (g)	Qty Cnt
1	9001	32	Rove	Metal	Iron	Complete circular rove with circular perforation in the middle, modern.	39,42	1
2	9001	32	Nail	Metal	Iron	Modern wire nail, complete but distorted	8,41	1
3	9001	32	Vessel	Glass		Clear rim fragment	2,08	1
4	9001	32	Slag	Slag			1,85	2
5	9001	32	Window pane	Glass		Clear glass	2,81	3
6	9001	32	Vessel	Glass		Green, thin fragment	0,42	1
7	9001	32	Pottery	Ceramic		Glazed fragment	0,29	1
8	9000	32	Nail	Metal	Iron	Modern wire nail, complete but distorted	8,16	1
9	9000	32	Nail?	Metal	Iron	Probably bent nail shank, head and point broken off.	1,2	1
10	9000	32	Vessel	Glass		Clear fragments	2,27	2
11	9000	32	Vessel	Ceramic			x	x
12	9000	32	Pottery?	Ceramic		Very small fragment, indet	0,32	1
13	9000	32	Cat's-eye	Plastic		Fragment of a red cat´s-eye from a vehicle	4,22	1
14	9000	32	Window pane	Glass			x	x
15	9001	32	Manuport	Stone		Awaits analysis	0,59	1
16	9001	32	Fragment	Metal	Iron	Small fragments, indet.	0,59	2
17	9025	32	Wire	Metal	Copper alloy	Short wire fragment, indet	0,04	1
18	9010	32	Fragment	Metal	Iron	Small iron fragment, flat, indet	0,9	2
19	9009	32	Strip	Metal	Iron	Short iron strip, irregularly oval cross section. One end broken away. The strip is now broken in two conjoining pieces	2,5	1
20	9009	32	Indeter-minate	Metal	Iron	Two pieces of iron rod, not conjoining. Indeterminate	11,79	2
21	9021	14	Indeter-minate	Metal	Iron	Small flat iron piece, segmental, indet.	1,86	1
22	9025	32	Nail	Metal	Iron	Nail with circular domed head. Broken by mid shank, round cross section.	2,77	1
23	9025	32	Clench bolt	Metal	Iron	Broken clench bolt. Rectangular rove with the end of the nail hammered	4,98	1

						flat. Broken by mid shank, shank has oval shaped cross section. L: 22 mm		
24	Void	Void	Void	Void	Void	Void, small natural basalt stones		
25	7159	14	Weight	Stone	Basalt	Flat, irregularly rectangular weight. Crude perforation probably partly through natural hole. The perforation is not on most obvious place, near one ´courner´ of the stone. Loom weight?	312,18	1
26	9025	32	Fragment	Metal	Iron	Small iron fragment, indet	0,32	1
27	9026	14	Fragment	Metal?	Iron?	Small iron fragment, irregularly flat. Indet	0,74	1
28	9036	14	Lumps	Metal	Iron	Ten iron cakes. Iron flakes from the large spherical and concave shaped iron lumps (plus flakes very fragmentary), 3-5 kg each.	35000	10
29	9040	14	Slag	Slag			23,57	1

Finds from the Farm Mound Area

Find No	Unit	Object type	Material	Submaterial	Qty Weight (g)	Qty Count
501	9521	Food waste	Bone			14
502	9500	Food waste	Bone			1
503	9563	Food waste	Bone			6
504	9543	Food waste	Bone			3
505	9508	Food waste	Bone			1
506	9509	Food waste	Bone			1
507	9536	Food waste	Bone			1
508	9545	Food waste	Bone			1
509	9548	Food waste	Bone			1
510	9559	Food waste	Bone			1
511	9562	Food waste	Bone			1
512	9568	Food waste	Bone			1
513	9570	Food waste	Bone			1
514	9577	Food waste	Bone			1
515	9581	Food waste	Bone			1
516	9588	Food waste	Bone			1
517	9589	Food waste	Bone			1
518	9590	Food waste	Bone			1
519	9591	Food waste	Bone			1
520	9593	Food waste	Bone			1

Find No	Unit	Object type	Material	Submaterial	Qty Weight (g)	Qty Count
521	9595	Food waste	Bone			1
522	9565	Food waste	Bone			1
523	9546	Food waste	Bone			7
524	9504	Food waste	Bone			4
525	9515	Food waste	Bone			4
526	9511	Food waste	Bone			2
527	9602	Food waste	Bone			2
528	9635	Food waste	Bone			2
529	9632	Food waste	Bone			2
530	9537	Food waste	Bone			2
531	8562	Food waste	Bone			2
532	9613	Food waste	Bone			1
533	8590	Food waste	Bone			1
534	9520	Food waste	Bone			1
535	9651	Food waste	Bone			1
536	9623	Food waste	Bone			1
537	9596	Food waste	Bone			1
538	9585	Food waste	Bone			1
539	9523	Food waste	Bone			2
540	9620	Food waste	Bone			1
541	9568	Food waste	Bone			2
542	9611	Food waste	Bone			1
543	9540	Food waste	Bone			1
544	9530	Food waste	Bone			1
545	9598	Food waste	Bone			1
546	9515	Food waste	Bone			1
547	9581	Food waste	Bone			1
548	9612	Food waste	Bone			1
549	9615	Food waste	Bone			1
550	9621	Food waste	Bone			1
551	9510	Clay pipe	Ceramic		2,56	1
552	9515	Clay pipe	Ceramic		7,02	4
553	9520	Clay pipe	Ceramic		32.04	6
554	9521	Clay pipe	Ceramic		1,29	1
555	9522	Clay pipe	Ceramic		10,16	6
556	9526	Clay pipe	Ceramic		6,03	2
557	9528	Clay pipe	Ceramic		7,33	2
558	9536	Clay pipe	Ceramic		2,91	1
559	9553	Clay pipe	Ceramic		17,88	6
560	9568	Clay pipe	Ceramic		23,86	11
561	9577	Clay pipe	Ceramic		15,13	2
562	9581	Clay pipe	Ceramic		8,18	2
563	9586	Clay pipe	Ceramic		3,54	2

Find No	Unit	Object type	Material	Submaterial	Qty Weight (g)	Qty Count
564	9587	Clay pipe	Ceramic		7,39	1
565	9598	Clay pipe	Ceramic		1,57	1
566	9611	Clay pipe	Ceramic		2,91	1
567	9615	Clay pipe	Ceramic		6,04	2
568	9621	Clay pipe	Ceramic		0,43	1
569	9633	Clay pipe	Ceramic		24,41	4
570	8590	Clay pipe	Ceramic		8,03	3
571	8591	Clay pipe	Ceramic		10,86	1
572	9530	Clay pipe	Ceramic		5,47	2
573	0	Clay pipe	Ceramic		2,12	1
574	9540	Clay pipe	Ceramic		3,22	1
575	9508	Pottery	Ceramic		15,02	1
576	9510	Pottery	Ceramic		32,05	5
577	9513	Pottery	Ceramic		5,93	1
578	9518	Pottery	Ceramic		16,15	1
579	9520	Pottery	Ceramic		36,09	7
580	9521	Pottery	Ceramic		41,67	4
581	9526	Pottery	Ceramic		155,67	16
582	9533	Pottery	Ceramic		11,54	8
583	9536	Pottery	Ceramic		70,58	10
584	9550	Pottery	Ceramic		13,39	2
585	9553	Pottery	Ceramic		18,59	5
586	9559	Pottery	Ceramic		113,28	69
587	9568	Pottery	Ceramic		136,67	24
588	9577	Pottery	Ceramic		70,49	37
589	9581	Pottery	Ceramic		30,24	17
590	9582	Pottery	Ceramic		0,52	1
591	9586	Pottery	Ceramic		3,82	1
592	9587	Pottery	Ceramic		2,68	1
593	9591	Pottery	Ceramic		3,35	1
594	9593	Pottery	Ceramic		6,23	2
595	9632	Pottery	Ceramic		1,61	1
596	9611	Pottery	Ceramic		0,65	1
597	9623	Pottery	Ceramic		18,31	1
598	9645	Pottery	Ceramic		6,12	3
599	9605	Pottery	Ceramic		15,55	3
600	9615	Pottery	Ceramic		139,42	40
601	9633	Pottery	Ceramic		161,99	9
602	9639	Pottery	Ceramic		211,56	9
603	9642	Pottery	Ceramic		1,43	1
604	9668	Pottery	Ceramic		41,22	8
605	9590	Pipe	Ceramic		487,27	2
606	8590	Pipe	Ceramic		189,36	2

Find No	Unit	Object type	Material	Submaterial	Qty Weight (g)	Qty Count
607	8590	Pottery	Ceramic		192,22	44
608	0	Pottery	Ceramic		22,44	4
609	9504	Vessel	Glass		1,24	1
610	9509	Window	Glass		7,45	1
611	9510	Vessel	Glass		9,14	2
612	9518	Bottle	Glass		37	1
613	9518	Vessel	Glass		2,76	1
614	9520	Vessel	Glass		77,56	3
615	9521	Vessel	Glass		6,21	4
616	9521	Window	Glass		7,9	6
617	9522	Vessel	Glass		24,34	5
618	9522	Window	Glass		13,62	5
619	0	Vessel	Glass		17,7	5
620	9526	Vessel	Glass		20,58	1
621	9526	Window	Glass		8,16	1
622	9525	Vessel	Glass		8,98	1
623	9528	Window	Glass		67,76	11
624	9528	Vessel	Glass		5,66	1
625	9531	Window	Glass		23,09	1
626	9533	Window	Glass		74,27	22
627	9533	Vessel	Glass		12,56	5
628	9533	Button	Glass		0,5	1
629	9536	Window	Glass		3,32	2
630	9536	Vessel	Glass		13,69	5
631	9539	Window	Glass		9,17	4
632	9539	Vessel	Glass		6,05	2
633	9539	Pottery	Ceramic		1,08	1
634	9540	Vessel	Glass		5,24	1
635	9543	Vessel	Glass		33,9	6
636	9548	Vessel	Glass		2,3	3
637	9550	Vessel	Glass		19,89	1
638	9550	Window	Glass		23,16	7
639	9553	Window	Glass		1,39	2
640	9553	Window	Glass		3,96	3
641	9553	Vessel	Glass		21,74	4
642	9559	Vessel	Glass		30,24	14
643	9559	Window	Glass		8,46	4
644	9562	Window	Glass		16,59	5
645	9563	Vessel	Glass		6,53	1
646	9568	Vessel	Glass		160,96	13
647	9568	Window	Glass		35,07	7
648	9571	Vessel	Glass		71,17	16
649	9577	Vessel	Glass		2	2

Find No	Unit	Object type	Material	Submaterial	Qty Weight (g)	Qty Count
650	9580	Window	Glass		4	2
651	9581	Vessel	Glass		136,39	27
652	9582	Vessel	Glass		16,26	1
653	9587	Window	Glass		1,26	1
654	9589	Window	Glass		6,07	1
655	9590	Window	Glass		6,17	2
656	9593	Window	Glass		8,87	1
657	9593	Vessel	Glass		3,97	1
658	9503	Manuport	Stone	Jaspis	1,95	1
659	9510	Manuport	Stone	Jaspis	0,9	2
660	9510	Hammer	Stone	Basalt	131,61	1
661	9520	Weight	Stone	Basalt	469,91	1
662	9520	Hammer	Stone	Basalt	895	1
663	9528	Object	Stone	Slate	30,98	1
664	9531	Manuport	Stone	Jaspis	15,17	1
665	9536	Bead	Stone		32,81	1
666	9536	Hammer	Stone	Basalt	1258	1
667	9536	Hammer	Stone	Basalt	1831	1
668	9536	Hammer	Stone	Basalt	849	1
670	9639	Object	Stone	Slate	17,96	1
671	9568	Hammer	Stone	Basalt	1105	1
672	9590	Writing implement	Stone	Slate	2,2	1
673	9605	Weight	Stone	Basalt	902	1
674	9633	Hammer	Stone	Basalt	2720	1
675	9633	Hammer	Stone	Basalt	1682	1
676	9633	Weight	Stone	Basalt	764	1
677	9633	Hammer	Stone	Basalt	571	1
678	9633	Hammer	Stone	Basalt	789	1
679	9633	Hammer	Stone	Basalt	829	1
680	9633	Hammer	Stone	Basalt	827	1
681	9633	Hammer	Stone	Basalt	1779	1
682	9633	Indeterminate	Stone	Red sandstone?	758	1
683	9634	Hammer	Stone	Basalt	1351	1
684	9636	Hammer	Stone	Basalt	642	1
685	8590	Weight	Stone	Basalt	1220	1
686	Stray find	Weight	Stone	Basalt	2400	1
687	9602	Object	Stone	Basalt	9550	1
688	9530	Manuport	Stone	Jasper	1,37	1
689	8591	Tile	Stone		347,75	1
690	9510	Whetstone	Stone		17,36	1
691	9520	Whetstone	Stone		29,33	1

Find No	Unit	Object type	Material	Submaterial	Qty Weight (g)	Qty Count
692	9520	Whetstone	Stone		18,88	1
693	9526	Whetstone	Stone		14,09	1
694	9536	Whetstone	Stone		27,11	1
695	9536	Whetstone	Stone		16	1
696	9543	Whetstone	Stone		27,98	1
697	9586	Whetstone	Stone		8,33	1
698	9598	Whetstone	Stone		14,01	1
699	9536	Hammer	Stone	Basalt	2414	1
699	9613	Whetstone	Stone		20,69	1
700	9615	Whetstone	Stone		53,65	1
701	9615	Whetstone	Stone		18,86	1
702	9615	Whetstone	Stone		34,81	1
703	9615	Whetstone	Stone		33,04	1
704	9623	Whetstone	Stone		1,64	1
705	9633	Whetstone	Stone		26,52	1
706	9588	Cut board	Bone	Whalebone	1063	1
707	9515	Spade	Bone	Whalebone	232	1
708	9621	Worked bone	Bone		70,61	1
709	9602	Spade?	Bone	Whalebone	207,43	1
710	9577	Worked bone?	Bone	Whalebone	106,28	1
711	9577	Manuport	Stone		1,36	1
712	9621	Pin	Wood		1,25	1
713	9632	Worked wood	Wood		1,7	1
714	9510	Stopper	Cork		1,16	1
715	9518	Stopper?	Cork		1,34	1
716	9639	Stopper	Cork		0,65	1
717	9589	Seal wax?	Wax		5,41	1
718	9520	Button	Wood		0,44	1
719	9605	Tool	Composite	Wood, iron	43,5	1
720	9586	Button	Bone		1,33	1
721	9586	Tool	Composite	Wood, iron	6,34	1
722	8590	Button	Wood		0,51	1
723	9617	Button	Metal	Copper alloy	10,83	1
724	9553	Button?	Metal	Copper alloy	0,41	1
725	9530	Button	Metal	Copper alloy	14,77	2
726	9568	Button	Metal	Copper alloy	4,91	1
727	9615	Button	Metal	Copper alloy	2,53	3
728	9623	Thimble	Metal	Copper alloy	x	1
729	9511	Pin	Metal	Copper alloy	0,19	1
730	9577	Object	Composite	Copper alloy, wood	1,09	1
731	8590	Button	Metal	Copper alloy	0,49	1
732	9500	Button	Metal	Copper alloy	0,43	1

Find No	Unit	Object type	Material	Submaterial	Qty Weight (g)	Qty Count
733	9615	Fitting	Metal	Copper alloy	1,58	1
734	9632	Button	Metal	Lead?	3,74	1
735	9568	Fitting?	Metal	Copper alloy	3,53	1
736	9633	Button	Metal	Copper alloy	1,25	1
737	9533	Coin	Metal	Copper alloy	2,45	1
738	9615	Token?	Metal	Copper alloy	0,35	1
739	9639	Coin	Metal	Copper alloy	1,21	1
740	8590	Coin	Metal	Copper alloy	3,12	1
741	9581	Manuport	Stone	Jasper	3,5	1
742	8590	Textile	Textile		x	1
743	9506	Textile	Textile		x	1
744	9509	Textile	Textile		x	1
745	9510	Textile	Textile		x	3
746	9513	Textile	Textile		x	1
747	9517		Textile		x	1
748	9525	Textile	Textile		x	1
749	9520	Textile	Textile		x	1
750	9526	Textile	Textile		x	1
751	9536	Textile	Textile		x	1
752	9536	Textile	Textile		x	1
753	9536	Textile	Textile		x	1
754	9536	Textile	Textile		x	1
755	9543	Textile	Textile		x	1
756	9553	Textile	Textile		x	1
757	9568	Textile	Textile		x	1
758	9568	Textile	Textile		x	1
759	9581	Textile	Textile		x	1
760	9581	Textile	Textile		x	1
761	9581	Textile	Composite	Textile, iron	x	1
762	9599	Textile	Textile		x	1
763	9581	Textile	Textile		x	1
764	9609	Textile	Textile		x	1
765	9615	Textile	Textile		x	1
766	9623	Textile	Textile		x	1
767	9623	Textile	Textile		x	1
768	9633	Textile	Textile		x	1
769	9633	Textile	Textile		x	3
770	9633	Textile	Textile		x	1
771	9635	Textile	Textile		x	1
772	9639	Textile	Textile		x	1
773	9648	Textile	Textile		x	1
774	0	Textile	Textile		x	1
775	9602	Worked wood	Wood		x	1

Find No	Unit	Object type	Material	Submaterial	Qty Weight (g)	Qty Count
776	9504	Rivet	Metal	Copper alloy	5,9	1
777	9510	Ring	Metal	Lead?	7,02	1
778	9520	Nail?	Metal	Copper alloy	2,39	1
779	9521	Rivet	Metal	Copper alloy	2,67	1
780	9521	Thimble	Metal	Copper alloy	6,39	1
781	9521	Fitting	Metal	Copper alloy	5,05	1
782	9540	Fitting	Composite	Copper alloy, bone?Wood?	7,2	1
783	9546	Rivet	Metal	Copper alloy	12,21	1
784	9548	Strip	Metal	Copper alloy	0,76	1
785	9589	Fitting	Metal	Copper alloy	6,63	1
786	9598	Sheet	Metal	Copper alloy	1,06	1
787	9623	Ring	Metal	Lead?	5,43	1
788	8590	Rivet	Metal	Copper alloy	5,03	1
789	9638	Textile	Textile		x	1
790	9504	Nail	Metal	Iron	226,47	28
791	9504	Rivet	Metal	Copper alloy	6,67	1
792	9508	Sheet	Metal	Iron	32,78	1
793	9506	Rivet	Metal	Iron	18,94	1
794	9509	Strip	Metal	Iron	6,52	1
795	9510	Nail	Metal	Iron	54,26	2
796	9510	Tool	Composite	Iron, wood	25,92	1
797	9513	Nail	Metal	Iron	21,76	1
798	9515	Nail	Metal	Iron	53,53	5
799	9520	Nail	Metal	Iron	13,53	2
800	9523	Indeterminate	Metal	Iron	121,44	3
801	9526	Nail	Metal	Iron	25,14	2
802	9531	Slag	Slag		22,91	1
803	9523	Slag	Slag		12,55	1
804	9536	Nail	Metal	Iron	27,57	3
805	9536	Hook	Metal	Iron	37,87	1
806	9540	Slag	Slag		3,51	2
807	9537	Nail	Metal	Iron	9,09	1
808	9543	Indeterminate	Metal	Iron	26,09	2
809	9543	Plate	Metal	Iron	17,46	1
810	9543	Nail	Metal	Iron	7,4	1
811	9543	Fish hook	Metal	Iron	8,41	2
812	9545	Horse shoe	Metal	Iron	25,51	1
813	9546	Nail	Metal	Iron	69,95	7
814	9546	Indeterminate	Metal	Iron	65,74	1
815	9546	Fish hook	Metal	Iron	8,77	2
816	9548	Fish hook	Metal	Iron	3,98	1

Find No	Unit	Object type	Material	Submaterial	Qty Weight (g)	Qty Count
817	9548	Nail	Metal	Iron	11,97	1
818	9549	Nail	Metal	Iron	9,6	1
819	9553	Fragments	Metal	Iron	10,46	3
820	9553	Nail	Metal	Iron	14,44	1
821	9559	Strip	Metal	Iron	11,48	1
822	9559	Object	Metal	Iron	18,15	1
823	9559	Nail	Metal	Iron	17,49	3
824	9562	Corregated iron	Metal	Iron	117,8	2
825	9563	Fish hook	Metal	Iron	3,05	1
826	9563	Nail	Metal	Iron	122,87	11
827	9563	Rivet	Metal	Iron	22,9	2
828	9568	Indeterminate	Metal	Iron	14,47	1
829	9568	Nail	Metal	Iron	20,57	1
830	9568	Fish hook	Metal	Iron	7,2	2
831	9577	Horse shoe	Metal	Iron	216,02	2
832	9577	Nail	Metal	Iron	58,9	7
833	9577	Rivet	Metal	Iron	13,63	1
834	9577	Indeterminate	Metal	Lead	8,48	1
835	9581	Rove	Metal	Iron	6,94	1
836	9581	Indeterminate	Metal	Iron	34,01	1
837	9581	Nail	Metal	Iron	9,45	1
838	9581	Fish hook	Metal	Iron	3,98	1
839	9587	Nail	Metal	Iron	3,62	1
840	9587	Object	Metal	Iron	14,08	1
841	9587	Indeterminate	Stone?		11,09	1
842	9589	Nail?	Metal	Iron	5,68	1
843	9589	Sheet	Metal	Iron	7,67	1
844	9589	Spade	Metal	Iron	192	1
845	9590	Nail	Metal	Iron	29,63	3
846	9590	Rod	Metal	Iron	119,99	1
847	9595	Nail	Metal	Iron	5,79	1
848	9596	Nail?	Metal	Iron	8,06	1
849	9598	Indeterminate	Metal	Iron	5,2	1
850	9602	Nail	Metal	Iron	11,36	1
851	9605	Nail?	Metal	Iron	7,65	1
852	9611	Nail?	Metal	Iron	11,71	1
853	9615	Nail	Metal	Iron	19,93	4
854	9615	Staple	Metal	Iron	61,73	1
855	9615	Fish hook	Metal	Iron	2,46	1
856	9615	Fitting	Metal	Iron	92,24	1
857	9615	Stopper?	Composite	Lead wood? Bone?	15,79	1
858	9615	Stopper	Cork		1,15	2

Find No	Unit	Object type	Material	Submaterial	Qty Weight (g)	Qty Count
859	9621	Nail	Metal	Iron	47,71	3
860	9632	Fish hook	Metal	Iron	3,45	1
861	9633	Fish hook	Metal	Iron	4,93	1
862	9633	Indeterminate	Metal	Iron	7,01	1
863	9633		Bone?		2,7	1
864	9633	Key	Metal	Iron	33,48	1
865	9635	Slag	Slag		153,62	2
866	9639	Sheet	Metal	Iron	13,26	1
867	9639	Nail	Metal	Iron	8,2	1
868	9521	Scissors	Metal	Iron	8,53	1
869	8590	Nail	Metal	Iron	144,92	27
870	8590	Indeterminate	Metal	Iron	25,16	3
871	8590	Scythe	Metal	Iron	70,4	1
872	8590	Knife	Metal	Iron	40,66	1
873	8590	Rivet	Metal	Iron	15,03	1
874	8590	Indeterminate	Bone		24,14	1
875	8590	Knife	Metal	Iron	31,19	1
876	8590	Ring	Metal	Iron	201,67	1
877	9586	Nail	Metal	Iron	18,51	2
878	9586	Rivet	Metal	Iron	27,36	3
879	9521	Nail	Metal	Iron	78,03	9
880	9521	Indeterminate	Metal	Iron	44,13	2
881	9544	Fish hook	Metal	Iron	6,12	1
882	9536	Scissors	Metal	Iron	18,34	1
883	9568	Knife	Composite	Iron, wood	66,61	1
884	9568	Indeterminate	Metal	Iron	99,65	1
885	0	Nail	Metal	Iron	56,37	6
886	0	Rivet	Metal	Iron	27,04	1
887	9526	Structural wood	Wood		464	4
888	9568	Structural wood	Wood		156	3
889	9633	Structural wood	Wood		365	1
890	9509	Indeterminate	Wood		0,64	1
891	9510	Worked wood	Wood		8,62	1
892	9520	Worked wood	Wood		42,98	1
893	9522	Worked	Wood?		5,25	1
894	9522	Worked wood	Wood		57,76	2
895	9536	Worked wood	Wood		10,2	1
896	9615	Button	Wood		0,11	1
897	9633	Worked wood	Wood		18,59	4
898	9633	Worked wood	Wood		114,78	1
899	9633	Worked wood	Wood		103,69	1

Find No	Unit	Object type	Material	Submaterial	Qty Weight (g)	Qty Count
900	8590	Worked wood	Wood		5,81	1
901	9615	Tobacco container	Horn		35,08	1
902	9610	Spoon	Wood		5,83	1
903	9536	Spindle whorl	Wood		17,78	1
904	9586	Comb	Wood		1,87	1
905	9536		Leather?		27,59	1
906	9571		Leather		12,18	1
907	9592	Shoe?	Leather		5,73	1
908	9605	Belt	Leather		20,99	1
909	9615		Leather		4,67	1
910	9645		Leather		7,03	1
911	9632	Offcut	Leather		2,71	5
912	9639	Belt	Leather		10,14	1
913	9639		Leather		2,36	1
914	8590		Leather		36,16	2
915	0		Leather		90,45	2

APPENDIX 3: REGISTER OF BONES

Bones from the Viking Age Area

No	Area	Unit	Object Type	Material	Quantity of Bags	Description
1	32	9001	Food waste	Bone	1	Calcined/burnt bone
2	32	9001	Food waste	Bone	1	Calcined/burnt bone
3	32	9001	Food waste	Bone	1	Calcined/burnt bone
4	32	9000	Food waste	Bone	1	Calcined/burnt bone
5	32	9001	Food waste	Bone	1	Calcined/burnt bone
6	32	9001	Food waste	Bone	1	Calcined/burnt bone
7	14	9004	Food waste	Bone	1	Unburnt animal bone
8	14	9006	Food waste	Bone	1	Fragment
9	14	9007	Food waste	Bone	1	Badly preserved fragments
10	14	9009	Food waste	Bone	1	Calcined/burnt bone
11	14	9019	Food waste	Bone	1	Poor preservation
12	14	9021	Food waste	Bone	1	Poor preservation
13	14	9026	Food waste	Bone	1	Fragmented
14	14	9031	Food waste	Bone	1	Teeth
15	14	7159	Food waste	Bone	1	Fairly good preservation
16	14	7163	Food waste	Bone	1	Fairly good preservation
17	14	9038	Food waste	Bone	1	Poor preservation

NB. Bones from the Farm Mound Area have been registered as finds, and can be found in Appendix 2.

APPENDIX 4: REGISTER OF SAMPLES

Samples from the Viking Age Area

Sample	Area	Unit	Sample Type	Process Type	Volume (L)	No of bags/buckets
1	32	9009	Bulk	Flotation	70	7 buckets
2	32	9025	Bulk	Flotation	20	2 buckets
3	32	9027	Bulk	Flotation	40	4 buckets
4	14	9026	Bulk	ID of sand	0.005	1 bag
5	14	7159	Bulk	Flotation	5	1 bucket
6	14	7159	Bulk	ID of corrosion product	0.05	1 bag
7	14	7159	Bulk	Flotation	20	2 buckets
8	14	7163	Bulk	Flotation	10	1 bucket
9	14	9035	Bulk	Flotation	3	1 bag
10	14	9019	Bulk	Chemical	0.005	1 bag
11	14	7157	Bulk	ID of tephra	0.01	1 bag
12	14	9038	Bulk	Insects	5	1bag
13	14	9038	Block	Micromorph	0	1 box
14	14	9038	Bulk	Insects	5	1 bag
15	32	9001	Bulk	ID of tephra	0.05	1 bag
16	32	9001	Bulk	ID of tephra	0.005	1 bag

Samples from the Farm Mound Area

Sample	Area	Unit	Sample Type	Process Type	Volume (L)	No of bags/buckets
501	FM	9524	Bulk	Insects	5	1 bag
502	FM	9527	Bulk	Flotation	5	1 bag
503	FM	9532	Bulk	ID of charcoal		1 bag
504	FM	9542	Bulk	Geochemistry	0.01	1 bag
505	FM	9554	Bulk	Insects	5	1 bag
506	FM	9558	Bulk	Insects	5	1 bag
507	FM	9558	Bulk	Flotation	5	1 bag
508	FM	9555	Bulk	Insects	5	1 bag
509	FM	9524	Bulk	Insects	5	1 bag
510	FM	9562	Bulk	Insects	5	1 bag
511	FM	9564	Bulk	Flotation	5	1 bag
512	FM	9586	Bulk	Insects	5	1 bag
513	FM	9609	Bulk	Insects	5	1 bag
514	FM	9619	Bulk	Insects	5	1 bag
515	FM	9622	Bulk	Insects	5	1 bag

Sample	Area	Unit	Sample Type	Process Type	Volume (L)	No of bags/buckets
516	FM	9620	Bulk	Insects	5	1 bag
517	FM	9625	Bulk	Insects	5	1 bag
518	FM	9632	Bulk	Insects	5	1 bag
519	FM	9636	Bulk	Insects	5	1 bag
520	FM	9641	Bulk	Insects	5	1 bag
521	FM	9642	Bulk	Insects	5	1 bag
522	FM	9643	Bulk	Insects	5	1 bag
523	FM	9647	Bulk	Insects	5	1 bag
524	FM	9648	Bulk	Insects	5	1 bag
525	FM	9649	Bulk	Insects	5	1 bag
526	FM	9624	Block	Micromorphology		1 box
527	FM	9624	Block	Micromorphology		1 box
528	FM	9633	Bulk	Flotation	10	1 bucket
529	FM	9627	Bulk	Flotation	10	1 bucket