Fornleifarannsókn á lóðunum/Archaeological Excavations at Aðalstræti 14-18, 2001

A Preliminary Report/Framvinduskýrslur

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APPENDICES

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1.0 SUMMARY

A major archaeological excavation was carried out at Aðalstræti 14-16, Reykjavík between January and June 2001 in advance of proposed redevelopment. The work was undertaken by Fornleifastofnun Íslands on behalf of Árbærsafn, the Reyjavik City Museum. Previous archaeological work at and adjacent to the site between 1971-74[1], had revealed the remains of a number of structures, dating both to the settlement period and to the 18th-19th century. The new excavations revealed a complex sequence of remains from the latter period, and beneath these, the exceptionally well preserved remains of a Viking period skáli (or hall). Additionally, the skáli was found to overlay the fragmentary traces of an earlier phase of occupation, thought to represent the earliest known archeological remains in Iceland.

A large number of artefacts was recovered, although primarily from the more recent layers. An extensive program of environmental sampling was undertaken and included the complete recovery of probable floor layers associated with the skáli. Analysis of these artefacts and samples is ongoing, as is the detailed analysis of structural and stratigraphic evidence.

2.0 BACKGROUND

Aðalstræti 14-16 is located towards the southern end of Aðalstræti within the southwestern corner of Kvosin, the central historic district of the city of Reykjavík. Aðalstræti currently serves a mixed function including commercial and residential property along with public amenity areas. The site is bounded by Grjótagata to the north, and by Aðalstræti to the east. At the south and west of the site are vacant building plots extending south to Túngata and currently used for surface car-parking. The site is at the base of moderately steep slope rising to Garðastræti at the west.

[1] Nordahl 1988

Opposite the site to its east is the location of a church and churchyard, thought to be the original church of Reykjavík.

The site is subject to a proposed hotel development, with clear implications for the preservation of surviving archaeological remains. Plans for this development included the construction of foundations and sub-surface facilities across the greater part of the site. The building plot of Aðalstræti 18 at the southeastern corner of the area is however not scheduled for further ground disturbance, and was thus excluded from the current investigations.

The site comprises a total area of approximately 1450m², of which approximately 450 m² were subject to open area excavation. The current pavement level at Aðalstræti is at circa 3.8m above sea level, and excavations proceeded to their maximum depth at 1.95-2.15m above sea level. The remaining areas were subject to a program of trial trenching and observation[2]. When excavation commenced Aðalstræti 16 was still occupied by a standing timber frame building of historical value. This building was stabilised and relocated during the course of the excavation. Previous archaeological excavations had been conducted on the plots Aðalstræti 14 and 18 during the early 1970's. At the beginning of the current investigations it was unclear to what extent archaeological deposits survived in these areas.

[2] See Appendix 1

2.1 FYRRI RANNSÓKNIR Í MIÐBÆ REYKJAVÍKUR-(Mjöll Snæsdóttir)

Hinn gamli miðbær Reykjavíkur stendur í kvos eða dæld milli tveggja hæða. Annars vegar hækkar landið í vestur upp frá Aðalstræti og hins vegar í austur upp frá Lækjargötu. Byggðin í þessari kvos stendur á malarkambi eða malarrifi, sem lokar fyrir Tjörnina og hefur breytt henni úr sjávarvík í stöðuvatn. Slík rif eru víða til.[3] Malarlagið undir miðbænum hefur mælst allt að 14 m þykkt[4] og hækkar er nær dregur höfninni.[5] Ekki er vitað nákvæmlega hvenær rif þetta myndaðist og það kann að hafa gerst í tveimur áföngum, en það var ekki fullmyndað fyrr en fyrir um það bil 1200 árum[6].

Talið er að land hafi sigið á þessum slóðum síðustu 3 til 5 þúsund ár, líklega að meðaltali 10-15 sm á öld. Því má ætla að ströndin hafi verið ívið utar (norðar) á landnámsöld, en síðar varð.[7]

Elsta bæjarstæðið

Þó að kaupstaðurinn Reykjavík eigi sér ekki mjög gamla sögu, hófst snemma byggð í Reykjavík. Ekki eru til miklar heimildir frá elstu tímum um Seltjarnarneshrepp og byggð á einstökum bæjum þar,[8] en líklega hafa aðeins þrír bæir verið í byggð á nesinu framan af, Reykjavík, Laugarnes og Nes.[9]

Á 12. og 13. öld var talið að fyrsti landnámsmaður á Íslandi hefði heitið Ingólfur. "... hann byggði suðr í Reykjarvík" segir Ari fróði í Íslendingabók sem rituð var á árabilinu 1122 til 1133,[10] en í Sturlubók Landnámabókar frá síðari hluta 13. aldar er getið um öndvegissúlur sem Ingólfur á að hafa kastað fyrir borð og þrælar hans fundu "við Arnarhvál fyrir neðan heiði." Ingólfur "tók sér bústað þar sem ondvegissúlur hans hofðu á land komit; hann bjó í Reykjarvík; þar eru ondugissúlur þær enn í eldhúsi." Hauksbók, sem er yngra eftirrit Sturlubókar frá byrjun 14. aldar hefur sama texta, en í Þórðabók, sem byggir á Melabók sem um margt stendur nær Styrmisbók, elstu þekktu gerð Landnámabókar frá því á fyrri hluta 13. aldar, er sá munur að Ingólfur "byggði í

[3] Þorleifur Einarsson 1974, 44. Margrét Hallsdóttir 1992, 12.
[4] Þorkell Grímsson og Þorleifur Einarsson 1970, 90.
[5] Margrét Hallgrímsdóttir 1987, 50. Skia, 1993, 100.
[6] Margrét Hallsdóttir 1992, 12.
[7] Þorleifur Einarsson 1974, 42-44.
[8] Björn Teitsson 1974, 75.
[9] Björn Teitsson 1974, 89.
[10] *Íslenzk fornrit* I, 5.

Reykjarvík ok bjó þar alla ævi."[11] Um Ingólf í Vík er getið í Kjalnesinga sögu,[12] og samkvæmt Flóamanna sögu bjó sonarsonur hans Þorkell máni Þorsteinsson einnig í Reykjarvík.[13] Ekki er annað að sjá en að á 13. öld hafi verið vel mótaðar hefðir um þá langfeðga Ingólf, Þorstein og Þorkel mána og búsetu þeirra í Reykjavík og sögnin um öndvegissúlurnar í eldhúsi í Reykjavík sýnir að þar hefur þá staðið hús sem menn töldu ævafornt.

Aðrar heimildir eru ekki um elstu byggð í Reykjavík en af miðaldaheimildum má ráða að þar hefur snemma risið kirkja og virðist sem að byggð hafi verið samfelld í Reykjavík allt frá landnámi til þess að búskapur lagðist af við stofnun Innréttinganna 1752.

Í ferðabók Eggerts Ólafssonar og Bjarna Pálssonar er talað um tótt í Reykjavík sem talin var naust Ingólfs Arnarssonar. "Enn þá sjást þar tóttirnar af nausti hans, og heita þær Ingólfsnaust"[14] og Skúli Magnússon nefnir brunn í Reykjavík "Ingólfsbrunn" í Lýsingu Gullbringu- og Kjósarsýslu.[15] Þegar fornleifanefndin danska leitaði upplýsinga hjá prestum um fornleifar á Íslandi, svaraði Árni Helgason því hins vegar (1821) að engar fornleifar fyndust í sókninni, nema þrír gripir sem hann tiltók í Reykjavíkurkirkju.[16]

Um það var töluvert rætt og ritað á síðari hluta 19. aldar og framan af hinni 20. hvar Reykjavíkurbærinn hefði staðið.[17] Sigurður Guðmundsson málari, einn helsti hvatamaður að stofnun Þjóðminjasafnsins, safnaði um miðja 19. öld munnmælum um hið forna bæjarstæði.[18] Hann taldi líklegast að elsta bæjarstæði Reykjavíkur væri á lóðinni Grjótagötu 4.[19] Þar stóð áður torfhús er kallað var Skálinn og segir Sigurður að honum fylgi sú sögn, að hann hafi staðið þar frá gamalli tíð. Hlað átti að hafa verið austan við skálann og niður undir kirkjugarð. Bæði norðan og sunnan við skálann eiga að hafa legið grjóthlaðnir garðar niður brekkuna. Greinilega voru til ýmis munnmæli í Reykjavík um staðsetningu fyrsta bæjarins. Soffía Fischer þekkti sögn um að bæjarstæðið hefði verið á Arnarhóli. Þá er það haft eftir Guðbjörgu Jóhannsdóttur, að "bærinn gamli hefði verið

[11] *Íslenzk fornrit* I, 45.
[12] *Íslenzk fornrit* XIV, 3.
[13] *Íslenzk fornrit* XIII, 26.
[14] Eggert Ólafsson II 1943, 310.
[15] Skúli Magnússon 1944, 107.
[16] Frásögur um fonraldarleifar I, 252-257.
[17] Kr. Kålund 1877, Eiríkur Briem 1914, Ólafur Lárusson 1936, Helgi Hjörvar 1962.
[18] Eiríkur Briem 1914, 3; Þorkell Grímsson 1974, 54-60.
[19] Þorkell Grímsson 1974, 54

þar, sem gamli klúbbur stóð". Það þótti Sigurði ekki sennilegt.[20] Gamli klúbbur var við suðurenda Aðalstrætis, þar sem nú er hús Hjálpræðishersins.

Kristian Kålund ályktaði að hinn gamli Reykjavíkurbær hefði verið fyrir norðan eða sunnan kirkjugarðinn. Hann byggði m.a. á nafni Austurvallar, sem benti til þess að bæjarstæðið væri vestan við hann.[21]

Eiríkur Briem taldi að bærinn hefði verið "vestan við Aðalstræti sunnanvert milli Túngötu og Bröttugötu; norðar hefir hann eigi getað verið, því að þar ofantil var langt fram á 19. öld stórgrýtisurð, er Einar Hákonarson hattari lét sprengja og ryðja." Hann taldi einnig að bærinn hefði ekki getað verið sunnan við Túngötu og virðist byggja þá skoðun einkum á Reykjavíkurkorti frá 1801. Hann benti á það, eins og fleiri, að venjulegt væri að kirkjur og kirkjugarðar væru heima við bæi, en enginn merki hefðu fundist um að kirkjugarður hefði verið fyrrum neins staðar annars staðar í Reykjavík, þangað til hann var fluttur suður fyrir Hólavöll 1837. "Það eru heldur engar líkur til að bærinn hafi nokkurntíma staðið annarstaðar; stóra torfbæi með mörgum misgömlum húsum er erfitt að flytja úr stað, enda mun fágætt hafa verið, að gera slíkt hér á landi á fyrri tímum; þegar grafið hefir verið vestan við Aðalstræti sunnanvert hefir það komið í ljós, að þar eru miklar veggjamoldir;..." Eiríkur setti fram þá tilgátu að ástæðu þess að Aðalstræti og Suðurgata standast ekki á megi rekja til þess að sjávargatan frá gamla Reykjavíkurbænum hafi legið frá aðaldyrum bæjarins og þar hafi síðar orðið til Aðalstræti, en gata að vatnsbólinu (á lóðinni Suðurgötu 11) hafi legið frá bakdyrum eða eldhúsdyrum bæjarins og þar hafi síðar orðið Suðurgata.[22]

[20] Þorkell Grímsson 1974, 59-60.
[21] Kålund 1877, 11-14.
[22] Eiríkur Briem 1914, 3-4.

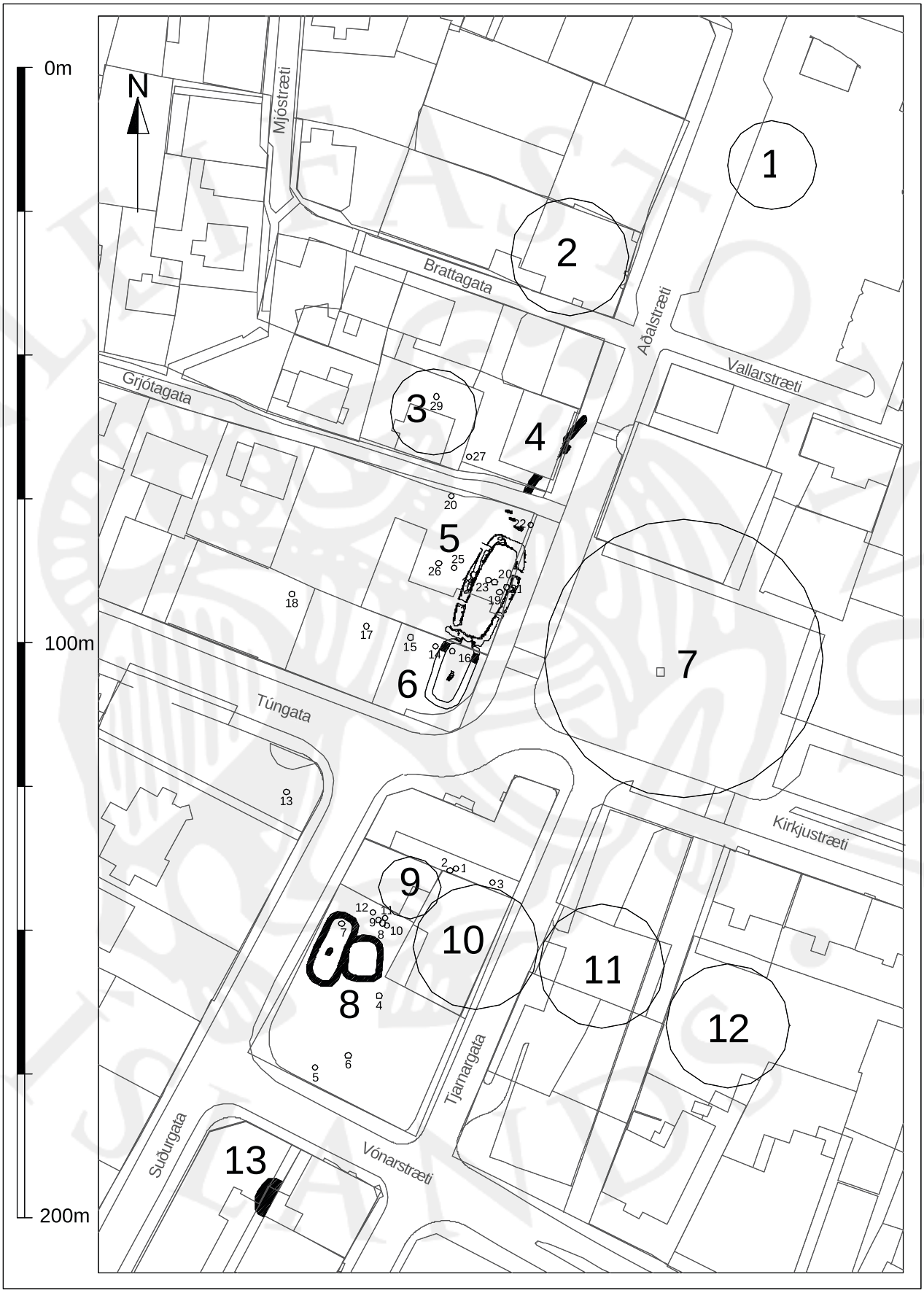

Figure 2.1 - Fornleifakort af miðbæ Reykjavíkur

Figure 2.1 *Fornleifakort af miðbæ Reykjavíkur*

1. Á horni Austurstrætis og Aðalstrætis (nú hluti af Ingólfstorgi). Hér fór fram uppgröftur árið 1993. Þær leifar sem fundust voru frá 19. öld.

2. Lóð Aðalstrætis 8. Fornleifarannsókn 1987, minjar frá 19. öld.

3. Lóð Grjótagötu 4. Hér stóð áður torfbygging er kölluð var Skálinn. Við könnun með jarðvegsbor 1962 kom í ljós að mannvistarleifar voru á lóðinni, amk niður á 1,1 metra dýpi undir yfirborði.

4. Lóð Aðalstrætis 12. Hér fór fram fornleifarannsókn 1993 og 1999. Leifar húss frá 10.-13. öld, annars frá miðöldum og hins þriðja frá 18. öld.

5. Aðalstræti 14-16. Uppgröftur 1971-5 og 2001. Leifar bygginga frá 9.,10., 17. og 18.-19. öld.

6. Aðalstræti 18. Uppgröftur 1971-5 og 2001. Leifar bygginga frá 10. og 19. öld.

7. Kirkjugarður. Hér hefur staðið kirkja um langan aldur, og er nokkurn veginn vitað hvar hún var. Þegar hreyft hefur verið við jarðvegi í garðinum hafa komið upp bein og legsteinar.

8. Suðurgata 3-5. Uppgröftur 1971-5. Leifar mannvirkja frá landnámsöld og miðöldum, allar eldri en 1500.

9. Suðurgata 3. Mannvistarminjar fundust við gröft fyrir kjallara 1943. Uppgröftur 1971-75 nær inn á lóðina.

10. Lóð Tjarnargötu 4. Hér fundust margvíslegar mannvistarminjar þegar grunnur hússins sem nú stendur var grafinn 1944.

11. Lóð Tjarnargötu 3A. Hér varð vart mannvistarminja þegar húsgrunnur var grafinn 1904.

12. Tjarnargata 3C. Hér var grafið í sambandi við gerð bílakjallara Alþingis sumarið 1999. Engar húsarústir, en mannvistarlög frá því eftir 1500.

13. Suðurgata 7. Uppgröftur 1983. Minjar frá 19. öld og húshluti frá 10. öld.

14. Litlu hringirnir númeraðir 1-29 sýna staði þar sem borað var við rannsóknina 1962.

Ólafur Lárusson taldi ólíklegt að sagnir þær er sögðu upphaflega bæinn á Arnarhóli fengju staðist. Elstu þekktu heimildir nefndu Reykja(r)vík sem landnámsbæinn, og einnig taldi hann nafn bæjarins, Reykjavík eða Vík vísbendingu um aldur, enda væri það algengt um elstu bæi að þeir drægju nafn af augljósum einkennum í landslagi. "Víkin er aðal sérkenni landslagsins, og því er líklegast, að sá bærinn, sem við hana er kenndur, sé elztur." [23]

Klemens Jónsson hefur einnig fjallað um það hvar líklegast sé að bæjarstæði Reykjavíkurbæjarins gamla hafi verið. Taldi hann líklegast að bærinn hefði frá upphafi staðið rétt fyrir sunnan Grjótagötu, "rjett vestan við Aðalstræti, þar sem nú eru húsin 14 og 16", og byggði þessa skoðun sína ekki hvað síst á afstöðu til kirkjugarðs, uppdrætti af Hólminum 1715 og vitneskjunni um "Skálann" á lóðinni Grjótagötu 4.[24]

Mannvistarleifar í Tjarnargötu 3A og nálægum lóðum

Þegar grafið var fyrir húsinu Tjarnargötu 3A 1904 var komið niður á mannvistarminjar, sem lýst er sem öskuhaug og rennu úr grjóti. Öskuhaugurinn náði yfir nærri hálfan grunninn, en undir var möl. Ræsið var úr torfi og grjóti og hellur yfir því. Það lá frá norðvestri til suðausturs og endaði í sorpgryfju, sem einnig var hlaðin úr torfi og grjóti. Innsigli úr tini fannst við þetta verk. Á innsiglinu er nafn sem lesið hefur verið sem Þorleikur Egilsson. Ekki kemur fram hvar í grunninum innsiglið fannst, og ekki er heldur vitað hver Þorleikur var. Þess hefur verið getið til að hann sé sami maður og Þorlákur nokkur, sem nefndur er í Vilkinsmáldaga frá 1397, og hefur búið í Reykjavík einhvern tíma fyrir þann tíma.[25]

Sérkennilegt er að talað er um sorpgryfju hlaðna úr torfi og grjóti. Slík mannvirki eru annars ekki þekkt frá fornleifarannsóknum hérlendis, og verður ekki varist þeirri grunsemd, að þetta kunni að hafa verið eitthvað annað, t.d. hús eða húshluti, þó að það hafi síðar fyllst af sorpi.

[23] Ólafur Lárusson 1936, 21- 22
[24] Klemens Jónsson 1929, 9.
[25] Þorkell Grímsson 1974, 66-67.

Þegar verið var að grafa fyrir hitaveitustokk vestanmegin í Tjarnargötu nyrst einhvern tíma milli 1940 og 1950 sáust einnig ummerki fornra mannaverka að því er virðist á um 1 m dýpi, hellustétt og svört moldarlög.[26]

Ekki eru handbærar upplýsingar um hvort menn veittu einhverjum fornum mannvistarleifum athygli þegar grafið var fyrir húsi Hjálpræðishersins í Kirkjustræti 2, sem reist var 1916, og ekki heldur þegar steinhúsið í Suðurgötu 3 var reist 1923.[27] Árið 1943 var gerður djúpur kjallari að húsabaki við Suðurgötu 3. Grafið var meira en 2 m niður og í botni var komið niður á ræsi hlaðið úr steinum, sem lá frá austri til vesturs. Þar fannst einnig rostungstönn, en hún hefur ekki verið varðveitt.[28]

Tjarnargata 4

Þegar grafið var fyrir húsi Steindórsprents, stóru steinhúsi á lóðinni Tjarnargötu 4, árið 1944 reyndust vera þar miklar leifar eftir eldri byggð. Náðu þær niður á meira en 2 m dýpi. Ekki fór fram regluleg fornleifarannsókn á þeim tíma, en þó eru til töluverðar upplýsingar um það sem sjá mátti í grunninum.[29] Bæði hefur Matthías Þórðarson þjóðminjavörður lýst því nokkuð sem þar mátti sjá, og eins eru til um það nokkrar lýsingar frá jarðfræðingunum Jóhannesi Áskelssyni og Guðmundi Kjartanssyni og einnig Finni Guðmundssyni fuglafræðingi.[30] Dýpst var gryfjan 2,75 m frá yfirborði, og náðu mannvistarminjar niður á um 2,5 m dýpi.[31]

Sunnarlega í grunninum segir Matthías hafi verið “allmikið af hleðslugrjóti djúpt í jörðu”, og virtist honum þar hafa verið hlaðinn veggur, nær því niðri við malarlagið. Þarna var líka ferhyrndur hellukassi, grafinn niður í malarlagið, gerður úr fjórum hellum og með hellur í botni. Matthías taldi þetta eldstó, og vísaði til þess að samskonar eldstæði hefðu áður fundist í fornum bæjarrústum, m.a. í Þjórsárdal. Norðan við eldstæðið mátti sjá gólfleifar, gólfskán og hellur. Matthías taldi að hús það er þetta voru leifar af hefði verið rifið, enda sáust ekki veggjarleifar “nema þá helst að sunnanverðu”, og það hefði getað verið úr timbri “að einhverju eða öllu leyti”. Ekki er greinilegt hvernig þetta hús hefur snúið. Við vesturhlið grunns lá neðst stór hella, og var undir henni þró ofan í mölina, og

[26] Þorkell Grímsson 1974, 68
[27] Kvosin, 206 og 259
[28] Þorkell Grímsson 1974, 67.
[29] Þorkell Grímsson og Þorleifur Einarsson 1970, 80-91. Matthías Þórðarson 1944.
[30] Þorkell Grímsson og Þorleifur Einarsson 1970, 81.
[31] Þorkell Grímsson og Þorleifur Einarsson 1970, 86

lá ræsi að henni "og virtist það kunna að vera úr húsinu."[32] Nokkuð fannst af gripum þarna í grunninum, m.a. steinkolur, nokkrir vaðsteinar, blað af páli eða grefi og stór snældusnúður úr steini.[33]

Ofan á malarlaginu var fyrst misþykkt "moldkennt leirlag", en yfir því var mjög dökkt lag, einskonar mólag, með miklu af birkilurkum, greinilega kurluðum af manna völdum, telgdum og brunnum spýtum, sums staðar blandað viðarösku og mikið var af dýrabeinum í laginu.[34] Þorkell og Þorleifur geta þess til að lag þetta hefði byrjað að myndast um svipað leyti eða nokkru áður en byggð hófst í Reykjavík. Birkikurl úr þessu lagi var greint með geislakolsmælingu 1967 og talið frá tímabilinu 670-850.[35]

Ekki er auðvelt að átta sig á því hvað á saman af minjum þeim er menn rákust á þegar grunnur Tjarnargötu 4 var grafinn. Þorkell og Þorleifur geta þess til að grjót í suðurhornum og veggleifar sunnan við eldstó kunni að vera eldri en "mólagið", en treysta sér ekki til að skera úr um hverni eldstóin tengist öðrum minjum.[36] Ofar í grunninum, á bilinu milli 1 og 2 m undir yfirborði, varð vart hleðslusteina, og hafa menn þess getið að þær hafi verið úr Brúnsbæ.[37]

Dýrabeinin sem upp komu voru greind af Degerböl prófessor á Zoologisk Museum í Kaupmannahöfn. Hann taldi sig finna þar leifar 12 dýrategunda. Það voru kýr, sauðkind, svín, hestur, rostungur, landselur, hvalur, geirfugl, langvía, lundi, mávur og þorskur.[38] Bandarískur dýrabeinafræðingur, Thomas Amorosi, skoðaði beinin aftur í sambandi við rannsóknir sínar í kringum 1990 og komst hann í meginatriðum að sömu niðurstöðum.[39]

Skipulagsmál og friðunarhugmyndir

Í kringum 1960 var verið var að vinna að aðalskipulagi fyrir Reykjavík og var þá mikið fjallað um skipulagsmál miðbæjarins. Um þetta sama leyti voru einnig uppi áform um ráðhúsbyggingu í norðausturhorni Tjarnarinnar. Blönduðust hugmyndir um ráðhús og

[32] Matthías þórðarson 1944, 28. Þorkell Grímsson og Þorleifur Einarsson 1970, 86.
[33] Þorkell Grímsson og Þorleifur Einarsson 1970, 86-7.
[34] Þorkell Grímsson og Þorleifur Einarsson 1970, 81-84.
[35] Þorkell Grímsson og Þorleifur Einarsson 1970, 89-90.
[36] Þorkell Grímsson og Þorleifur Einarsson 1970, 91.
[37] Matthías Þórðarsson 1944, 22. Þorkell Grimsson og Þorleifur Einarsson 1970, 86.
[38] Þorkell Grímsson og Þorleifur Einarsson 1970, 86.
[39] T. Amorosi 1996, 210-229.

nýbyggingu Alþingis við hugmyndir um friðun elsta bæjarstæðisins í blaðagreinum Helga Hjörvars sem hann birti í bókinni „Bæjartóftir Ingólfs“ (1962).

1959 var alþingi, forsætisráðherra f.h. ríkisstjórnar og borgarstjóra f.h. bæjarráðs og bæjarstjórnar afhent ávarp undirritað af fjórtán mönnum, m.a. þáverandi og fyrrverandi þjóðminjaverði, biskupi Íslands, háskólarektor og nokkrum háskólaprófessorum, þar sem hvatt var til þess að hið forna bæjarstæði væri friðað.[40]

Kirkja og kirkjugarður

Kirkja hefur lengi verið í Reykjavík, en elsta rituð heimild er nefnir hana er kirknatal Páls Jónssonar frá um 1200.[41] Elsti varðveitti máldagi hennar er talinn frá 1379.[42] Ekki er vitað til að kirkjan hafi nokkurn tíma verið annars staðar en þar sem nú er hellulagt opið svæði á horni Aðalstrætis og Kirkjustrætis. Þegar ákveðið hafði verið að flytja biskupsstólinn til Reykjavíkur var gerð skoðun á kirkjunni 1785 til að komast að því hvort ætti að stækka hana og gera við svo að hún yrði nothæf sem dómkirkja. Þess í stað var ákveðið að reisa nýja dómkirkju á öðrum stað, og var hún tekin í notkun 1796. Hin var rifin fljótlega eftir það, en áfram var grafið í gamla kirkjugarðinum, því að nýr garður suður á Melum var ekki tekinn í notkun fyrr en 1838.[43] Árið 1883 fékk Schierbeck landlæknir útmælda lóð í gamla kirkjugarðinum. Reisti hann íbúðarhús rétt norðan við kirkjugarð, en í garðinum ræktaði hann trjágarð, sem gekk lengi síðar undir nafninu Bæjarfógetagarðurinn, og dró nafn af því að bæjarfógeti átti húsið á eftir landlækni.[44] Þegar stytta Skúla Magnússonar var reist í garðinum (1954) komu menn niður á hleðslur úr kirkjunni.[45] Þegar grafið var fyrir kjallara vestast á lóðinni Thorvaldsensstræti 6 1915 var komið niður á bein í garðinum. Einnig hafa viðbyggingar og framkvæmdir við hús Landsímans við Austurvöll a.m.k. tvívegis raskað gamla kirkjugarðinum. [46]

[40] Helgi Hjörvar 1962, 3.
[41] Björn Teitsson 1974, 77-78.
[42] Íslenskt fornbréfasafn III, 340.
[43] Klemens Jónsson 1929, 150-153.
[44] *Kvosin*, 85.
[45] Árni Óla 1968, 238.
[46] Árni Óla 1968, 242-246. Þorkell Grímsson 1974, 68.

Rannsókn 1962

Vorið 1962 var Þorkeli Grímssyni og Þorleifi Einarssyni falið að kanna mannvistarleifar í miðbæ Reykjavíkur, á svæðinu milli Grjótagötu að norðan og Vonarstrætis að sunnan, nyrðri enda Tjarnargötu að austan og vestur fyrir horn Suðurgötu og Túngötu að vestan. Það var Kristján Eldjárn þjóðminjavörður og borgarstjórnin í Reykjavík sem fólu þeim verkið, sem unnið var í síðari hluta júní sama ár. Rannsóknin fór þannig fram að boraðar voru könnunarholur og teknir upp jarðvegskjarnar. Á nokkrum stöðum varð fyrir grjót í jörðu og því erfitt að beita þessum búnaði, og grófu þá rannsakendur litlar gryfjur með skóflu. Flestar borholurnar náðu niður á möl, en jarðvegur reyndist vera um 1 til 3 m að þykkt. Þykkastur var hann sunnan við Tjarnargötu 4 og í portinu hjá Suðurgötu 3. [47]

Þeir Þorleifur og Þorkell boruðu allvíða á lóðunum Aðalstræti 14-18. Eins og sjá má á korti er þeir birta í grein sinni um athugunina í Árbók fornleifafélagsins voru þrjár holur að húsabaki við Uppsali í Aðalstræti 18, eða milli húsanna Aðalstrætis 18 og 16, en sjö holur sem dreifast um þvera lóð norðan við Aðalstræti 16. Tvær holur voru svo nyrst á lóðinni Aðalstræti 14, norður undir Grjótagötu.[48].

Í þremur af könnunarholunum sem lýst er (20, 23 og 24) var komið niður á stétt úr steinum, sem lagðir voru í sand. Í tveimur þeirra voru ummerki um mannvist rétt yfir malarlaginu. Neðarlega í einni holunni varð vart við tvílitt gjóskulag, sem rannsakendur greindu sem „landnámslagið“, en athyglisvert er að það virðist hafa verið á hvolfi í borkjarnanum, dökki hlutinn sneri niður.

Ein prufuholan lenti á hlöðnum brunni. Hann var um 50 sm undir yfirborði, um 1 metri í þvermál. Grafið var niður á botn hans og reyndist brunnurinn um 2 m djúpur. „Svart, leðjukennt efni hafði setzt í brunninn, náði góðan spöl upp og skán var úr á veggjum. Í botni flæddi inn vatn og eftir að leðju var mokað upp til fullnustu, hækkaði vatnsborð töluvert.“[49]

Athuganir þeirra Þorleifs og Þorkels sýndu að hér um bil allsstaðar þar sem þeir báru niður voru einhverjar leifar eftir mannvist. Grjót fundu þeir víða, en þeir taka fram að

[47] Þorkell Grímsson og Þorleifur Einarsson 1970, 91, Matthías Þórðarson 1944, 22 og 28.
[48] Þorkell Grímsson og Þorleifur Einarsson 1970, 83.
[49] Þorkell Grímsson og Þorleifur Einarsson 1970, 94.

lítið sé um grjót á þessum slóðum af náttúrunnar völdum. Vart varð við grjót á nálægt 2 m dýpi undir yfirborði í portinu milli húss Hjálpræðishersins og Tjarnargötu 4, og einnig sunnan við Tjarnargötu 4. Þá varð vart við grjót á yfir tveggja metra dýpi milli Aðalstrætis 18 og 16 og einnig var það víða á auða svæðinu milli Aðalstrætis 16 og Grjótagötu, misdjúpt í jörðu allt frá 20 sm til allt að 2 m. M.a. varð greinilega vart við steinstétt sem þeir Þorleifur og Þorkell töldu frá tímum Innréttinganna. Bak við húsið Grjótagötu 4 mátti einnig finna grjót á meira en metra dýpi. Í fleiri en einni af prufuholunum varð vart við landnámslagið á töluverðu dýpi. Nokkru norðan við húsið Aðalstræti 16 varð í einni holunni vart við lag sem talið var gólfskán, og var það á u.þ.b. 2 m dýpi undir yfirborði.[50]

Uppgröftur 1971-1975

Árið 1971 var ráðist í viðamiklar fornleifarannsóknir í miðbæ Reykjavíkur. Þær voru kostaðar af Reykjavíkurborg, en Þjóðminjasafn lagði til einn fornleifafræðing. Uppgrefti þessum stjórnaði sænskur fornleifafræðingur, Else Nordahl Verkið stóð yfir sumurin 1971-1975. Grafið var á þremur auðum lóðum í miðbænum, Aðalstræti 14 og 18 og Suðurgötu 5, reyndar náði könnunin inn á lóðina Suðurgötu 3. Þessar rannsóknir leiddu í ljós að á öllum þessum lóðum voru rústir eldri bygginga, og voru þær frá ýmsum tímum.[51]

Á lóðinni Aðalstræti 18, þar sem rannsókn hófst sumarið 1971 hafði staðið bygging frá 1902, stórt timburhús þrílyft sem gekk undir nafninu Uppsalir. Undir því húsi var steyptur kjallari. Undir kjallara þessum voru grjótfylltir skurðir sem þungi innveggja hafði hvílt á og náðu þeir skurðir niður á malarlag það sem alls staðar er undir hinum gamla miðbæ Reykjavíkur. Þessar grjótundirstöður höfðu að nokkru skert grunn minni byggingar, sem hafði staðið áður á lóðinni (líklega svonefnt Davíðshús, timburhús frá fyrri hluta 19. aldar). Þar undir voru leifar byggingar úr torfi og lá hún nánast beint ofan á mölinni. Í þeirri byggingu var eldstæði í gólfi og var því talið að það væri íveruhús. Veggir hússins voru mikið sundurskornir af undirstöðuskurðunum frá Uppsalahúsinu, en norðurendi þess var ekki grafinn upp enda lá hann undir húsinu á Aðalstræti 16.[52]

[50] Þorkell Grímsson og Þorleifur Einarsson 1970, 94-5
[51] Else Nordahl 1988
[52] Else Nordahl 1988, 28-37 Þorkell Grímsson 1974, 69-71.

Vitað er að á þessari lóð hafði áður staðið eitt af húsum Innréttinganna, svonefnd Ullarstofa, torfhús, og sneri austur og vestur með gafl að Aðalstræti, rifið um 1830.[53] Ekki verður séð að neitt hafi sést af þessari byggingu við uppgröftinn 1971. Það hlýtur að stafa af því að timburhúsið frá 1902, Uppsalir, hafi eyðilagt leifar þess með öllu. Ekki verður heldur séð að uppgrafarar hafi séð nein ummerki brunans 1764 þegar grafið var á lóðinni Aðalstræti 18, - og er það röksemd fyrir því að húsið sem þar stóð hafi ekki brunnið í þeim eldsvoða. Nema síðari byggingar á lóðinni hafi afmáð öll ummerki.

Ekki var hægt að tímasetja nákvæmlega elsta húsið á lóðinni en það var greinilega reist eftir að hið svonefnda landnámslag hafði fallið, enda var það lag í torfi sem húsið var byggt úr. Um það leyti er uppgröfturinn fór fram lá ekki fyrir nákvæm tímasetning á gjóskulagi þessu, en talið að það hefði fallið nálægt 900, ef til vill 898. [54] Það gjóskulag hefur nú verið tímasett til 871 plús/mínus 2 ár.[55]

Á lóð Aðalstrætis 14 fundust leifar byggingar frá 19. öld sem stefndi eins og gatan, en þar undir minjar frá tímum Innréttinganna. Þar var grafinn upp grunnur byggingar sem lá í sömu stefnu og Grjótagata og sneri gafli að Aðalstræti, var grunnurinn u.þ.b. 18 x 7 m. Sunnan við hann var stétt úr flötum steinum næst Aðalstræti, en vestar voru aðrar byggingaleifar, sem ekki voru grafnar upp nema að mjög takmörkuðu leyti. Bæði var það að það varð að láta hluta lóðarinnnar næst húsinu 16 óhreyfðan, til að raska ekki þeirri byggingu né hindra starfsemi sem þar fór fram, og einnig var tími sá er ætlaður var til verksins á lóðinni takmarkaður. Steinlögn sú sem lá milli bygginganna og Aðalstrætis var ekki tekin upp, en jarðvegssnið virtust benda til þess að ekki væri að vænta frekari mannvirkja á þessari lóð.[56] Ekki var heldur hreyft við brunni þeim er athugunin 1962 hafði leitt í ljós.

Elstu mannvistarleifarnar sem vart varð á lóðinni Aðalstræti 14 þegar uppgröftur þessi fór fram var veggbútur sem sjá mátti í sniði við Grjótagötu. Þessi veggur var úr torfi sem ekki innihélt landnámslagið svonefnda. Aftur á móti sást landnámslagið liggja að

[53] *Kvosin*, 84.
[54] Else Nordahl 1988, 9.
[55] Karl Grönvold ofl 1995.
[56] Else Nordahl 1988, 21.

veggnum, og taldi Else Nordahl það benda til þess að veggur þessi væri eldri en landnámslagið og því eldri en allar aðrar minjar sem kannaðar voru við þessa rannsókn.[57]

Uppgröfturinn 1971-75 tók einnig til lóðanna Suðurgötu 5 og Suðurgötu 3. Árið 1972 var byrjað að grafa skák nyrst á lóðinni Suðurgötu 5, næst lóðamörkum við Suðurgötu 3. Þarna var upphaflega búist við sorphaugum frá byggðinni fremur en bæjarhúsum, enda höfðu athuganir á lóðinni Tjarnargötu 4, bent til að þarna mætti búast við rusllögum frá nálægri byggð. Það sýndi sig hins vegar fljótlega að á þessu svæði voru leifar af ýmsum byggingum.

Á lóð Suðurgötu 5 hafði staðið hús frá því um 1880. Alldjúpur kjallari var undir því og hafði hann verið grafinn gegnum eldri mannvistarlög, en undir honum voru þó varðveittar byggingarleifar. Þar var komið niður á skálabyggingu frá því á landnámsöld og sýndi það sig fljótlega að hún lá yfir á lóðina númer 3 við Suðurgötu. Því var könnunarsvæðið stækkað inn á þá lóð. Uppgraftarsvæðið á lóðunum Suðurgötu 3-5 var mest 14 m breitt frá suðri til norðurs og mest 15 m langt frá vestri til austurs.

Á uppgraftarsvæðinu voru leifar 6 eða 7 bygginga. Elstur var skáli með torfveggjum og var hið svonefnda landnámslag í veggjatorfinu. Ofan á skálann hafði síðar verið reist önnur bygging minni. Austan við skálabygginguna var minna hús sem túlkað var sem smiðja. Hafði tví- eða þrívegis verið byggt ofan á hana. Yngsta byggingin var lítillega norðar og austar. Þarna í austurenda uppgraftar var einnig hellulögn sem lá í áttina að Tjarnargötu, ca 1,70 m undir yfirborði. Allar þessar mannvistarleifar lágu undir gjóskulagi úr Kötlu, sem talið er fallið skömmu fyrir 1500.[58]

Í tengslum við uppgröftinn 1971-75 voru grafnar könnunarholur á nokkrum stöðum á nálægum lóðum. Ein hola var grafin á lóðinni Suðurgötu 4 og önnur í Suðurgötu 6, báðar í görðunum framan við húsin, um það bil mitt á milli húsanna og götunnar. Í þeim báðum var efst væri 0,75 m þykk uppfylling og þar undir um það bil 0,80 m þykkt lag, rauðbrún mold blönduð móösku, með beinum og viðarkolum. Þar undir tók við malarlag.[59]

[57] Else Nordahl 1988, 110.
[58] Else Nordahl 1988, 113.
[59] Else Nordahl 1988, 109.

Á lóðinni Suðurgötu 7 voru einnig grafnar tvær könnunarholur. Var önnur sunnarlega á lóðinni, og var í henni uppfylling niður á 1,75 m dýpi frá yfirborði, en þar tók við óhreyfð gjóska, landnámslagið sem svo er nefnt, malarlag var 5 sm undir því. Önnur prufuhola var gerð nálægt húsinu, í henni var efst um 40 sm þykkt lag úr sandi og möl en undir því var móöskulag. Þykkt viðarkolalag var á 1,2-1,4 m dýpi frá yfirborði og undir því smásteinalag, en 1,75 frá yfirborði var malarlag það sem alls staðar er undir mannvistarlögum í miðbæ Reykjavíkur. Virtist af þessu mega draga þá ályktun að elsta byggðin á staðnum hefði ekki náð upp í brekkuna vestan Suðurgötu, frekar en upp í brekkuna við Aðalstræti [60]

Suðurgata 7

Árið 1983 var gerð rannsókn á lóðinni Suðurgötu 7, á horni Suðurgötu og Vonarstrætis. Til þeirrar rannsóknar var stofnað vegna þess að mannvistarminjar höfðu sést í prufuholum sem grafnar voru á lóðinni þegar rannsóknin 1971-5 stóð yfir.[61] Timburhús frá 1833 var flutt af lóðinni í Árbæjarsafn og áformað var að reisa nýbyggingu á lóðinni.

Mest af því sem upp var grafið var frá 19. öld, leifar smiðju og tveggja geymsluhúsa, einnig girðinga og vatnsrennu. Á einum stað á þeirri lóð sást þó gólflag á töluverðu dýpi, eða um 1,50 m undir yfirborði. Aðeins var kannaður sá hluti hússins sem var á lóðinni Suðurgötu 7, og er ekki vitað hvort eitthvað kann að vera varðveitt af því á næstu lóð, Vonarstræti 10. Sá hluti er kannaður var mældist 7 x 3,30 m. Leifar voru af torfveggjum, en ekki var eldstæði í húsinu og er ekki hægt að segja til um notkun þess. Viðarkol úr gólfi hússins voru kolefnisgreind til 10. aldar. [62]

Aðalstræti 8

Fornleifarannsókn var gerð á lóðinni Aðalstræti 8 í júlí 1987, en þar hafði áður staðið stórt timburhús frá 19. öld, sem gekk undir nafninu Fjalakötturinn. Mestallar minjar sem fundust á þessari lóð reyndust frá 19. öld. Þar fundust ekki aðrar byggingaleifar en undirstöður af húsi, nálægt 6 m á hvorn veg. Voru þær túlkaðar sem undirstaða

[60] Else Nordahl 1988, 109.
[61] Kristín H. Sigurðardóttir 1987.
[62] Kristín H. Sigurðardóttir 1987, 143-164.

viðbyggingar við Fjalaköttinn frá 1880. Á lóðinni voru ekki minjar um byggingar frá fyrstu tíð. [63]

Könnunarholur 1992

Síðla árs 1992 voru grafnar allmargar könnunarholur víða í Kvosinni á vegum Árbæjarsafns, og var þetta verk unnið til að afla betri þekkingar um hvað leyndist undir yfirborði vegna ýmissa framkvæmda sem fyrirhugaðar voru.[64] Nokkrar af þessum holum voru nálægt því svæði sem rannsóknarskýrsla þessi tekur til. Tvær voru í gamla kirkjugarðinum á horni Aðalstrætis og Kirkjustrætis. Í báðum var nýleg uppfylling niður á um 40 sm dýpi undir yfirborði, en þar tók við brúnt moldarlag er virtist óraskað af nýlegum framkvæmdum.[65]

Þrjár könnunarholur voru gerðar sunnanvert á "Hallærisplaninu", svæðinu milli Aðalstrætis, Austurstrætis, Veltusunds og Vallarstrætis, ein nærri horni Austurstrætis og Aðalstrætis, en hinar tvær nálægt Veltusundi.[66] Á skákinni milli Austurstrætis, Aðalstrætis og Hafnarstrætis ("Steindórsplani") voru gerðar þrjár holur.[67] Í engri þeirra voru sýnileg lög er bentu til eldri mannvistarminja. Þá var ein könnunarhola grafin norðanvert í Aðalstræti, í götunni (akbrautinni) andspænis Aðalstræti 4, í henni var að sjá u.þ.b. 30 sm af rauðleitri mold með grjóti og fáeinum gripum, þar undir voru smásteinar í skeljasandi og stórgrýti (grágrýti) á um 1 m dýpi.[68] Þá voru gerðar holur í vesturenda Hafnarstrætis og nokkrar í Austurstræti og í Tjarnargötu.[69]

Vorið 1993 var grafið á svæðinu milli Hafnarstrætis, Aðalstrætis, Austurstrætis og Veltusunds. Ekki varð vart við minjar um mannvist þar eldri en frá 18. öld.[70]

Aðalstræti 12

Uppgröftur fór fram á lóðinni Aðalstræti 12 árið 1993. Á þeirri lóð hafði síðast staðið stórt timburhús frá 1891, sem skemmdist í eldsvoða og var rifið 1977. Lóðin hafði verið

[63] Margrét Hallgrímsdóttir 1988, 46-51.
[64] Skia 1993.
[65] Skia 1993, 4-11.
[66] Skia 1993, 12-74 .
[67] Skia 1993, 75-91.
[68] Skia 1993, 92-98.
[69] Skia 1993, 99-120.
[70] Bjarni F. Einarsson 1994.

auð eftir það. Könnun var gerð á lóðinni í tengslum við væntanlega nýbyggingu. Það sýndi sig að á þeim hluta lóðarinnar sem var vestan hússins, ofar í brekkunni, var mjög þunnur jarðvegur og fljótt komið niður á klöpp. Á suðausturhorni lóðarinnar, sunnan við grunn timburhússins voru hins vegar varðveittar mannvistarleifar. Skák þessi var lítil, rúmlega 7 x 2 m, og því allar byggingar óheilar. Á þessu svæði mátti sjá lítilsháttar leifar einnar af byggingum Innréttinganna. Nokkru dýpra mátti sjá vegg úr byggingu sem legið hafði í svipaða stefnu og gatan, og var talin frá miðöldum, en ekki var ljóst til hvaða nota hún hafði verið.[71] Þriðja mannvirkið sem vart varð á þessum stað var torfveggur með landnámsgjósku í torfi og gólflag sem honum tilheyrði.[72] Notkun hússins var ekki augljós en uppgrafari gat þess til að það kynni að hafa verið sjóbúð.[73] Gjóskulagið í torfi og kolefnisgreiningar úr gólfi og vegg benda til þess að húsið gæti verið frá 10.-12. öld. Uppgrafari taldi að veggur þessi tengdist veggbroti sem sést hafði í sniði við Grjótagötu við uppgröftinn 1971-75.[74] Þar sem húsið frá 1891 hafði staðið var engar fornleifar að finna.

Í febrúar 1999 voru gerðar nokkrar frekari athuganir á þessu svæði vegna flutnings byggingar úr Austurstræti og þótti rannsókn sú staðfesta að byggingin hefði verið um 13 m að lengd.[75]

Sumarið 1992 var unnið að gatnagerð í Aðalstræti og Túngötu og rákust menn þá á torfveggjarleifar djúpt í jörðu norðan við brunn þann í Aðalstræti sem oft er nefndur Ingólfsbrunnur. Þorleifur Einarsson jarðfræðingur og Guðmundur Ólafsson fornleifafræðingur komu á vettvang, og hefur dagblað eftir Þorleifi að landnámsgjóskan hafi lagst upp að þessum vegg og ætti hann því að vera reistur áður en sú gjóska féll. Ekki er staðurinn þar sem þessar leifar sáust nákvæmlega tiltekinn, en haft er eftir Þorleifi að þær hafi verið 15-20 m frá þeim stað er elstu veggjarleifarnar sáust á lóðinni Aðalstræti 14 þegar þar var grafið á árunum milli 1971 og 75.[76] Þetta er því nærri byggingarleifum undir húsinu númer 12 við Aðalstræti.

[71] Bjarni F. Einarsson 1995, 49-55.
[72] Bjarni F. Einarsson 1995, 64-65.
[73] Bjarni F. Einarsson 1995, 70.
[74] Bjarni F. Einarsson 1995, 75-78.
[75] Bjarni F. Einarsson 1999, 10.
[76] DV, 1.6.1992, 2.

Tjarnargata 3C

Sumarið 1998 voru gerðar athuganir á svæðinu vestan Alþingishússins, milli Tjarnargötu, Kirkjustrætis og Vonarstrætis. Það var Árbæjarsafn sem þær vann. Til rannsóknarinnar var stofnað vegna þess að vitað var að framkvæmdir við þjónustuhús og bílakjallara Alþingis myndu koma nálægt hinu forna bæjarstæði Reykjavíkur og kynnu að raska mannvistarminjum.

Grafnar voru 6 könnunarholur (1 x 1,5 m) á völdum stöðum til að kanna þykkt og afstöðu mannvistarlaga og jarðlaga. Árið eftir voru gerðar breytingar á byggingaráformum og gert ráð fyrir stærri bílakjallara en áður. Voru þá grafnar þrjár könnunarholur til viðbótar á því svæði. Í þeim mátti sjá þykk lög með mannvistarminjum og grjóti og var talin þörf að rannsaka minjastað þennan frekar.

Opnað var svæði er var um 12 m langt og 5 m breitt á milli vestustu könnunarholanna. Á 1,20-1,50 m dýpi undir yfirborði tóku við jarðlög sem ekki hafði verið raskað við jarðvegsskipti 1989, moldarlög blönduð móösku og torfi, sem innihéldu dýrabein og ýmsa smáhluti. Í neðsta mannvistarlaginu var sérlega mikið af vel varðveittum dýrabeinum og var safnað töluverðu af þeim, þó aðeins hluta af öllu magninu sem þarna var. Við fyrstu sýn var greinilegt að hátt hlutfall var af fiskbeinum, og að meðal þeirra voru mjög stór bein, einkum hausbein úr fiski. Einnig eru í safninu bein úr öðrum dýrum, sauðfé, nautgripum og fuglum. Unnið er að greiningu beinanna og er hún langt komin.[77] Undir mannvistarlögunum var 30-40 sm þykkt lag úr rótarflækjum og jarðvegi, líkast því að vera myndað í mýri. Ofarlega í þessu mýrarlagi er svart gjóskulag, en undir því möl.

Ekki sáust á þessum stað minjar frá elstu byggðinni, sú mannvist sem merki eru um er frá því eftir 1500. Mýrarlagið ofan á mölinni er til vitnis um votlendi á staðnum, annað hvort hefur tjörnin náð þetta norðarlega á fyrstu öldum byggðarinnar, eða þarna hefur verið mýrlendi í framhaldi af henni til norðurs. Gjóskulag sem er ofarlega í þessu mýrarlagi er greint sem Kötlulag frá því um 1500.[78]

[77] Briana J.Myers 2000.
[78] Magnús Á. Sigurgeirsson 1999.

Athugunin 1999 sýndi að þykk mannvistarlög voru á svæðinu, þrátt fyrir jarðvegsskipti 1989. Hún sýndi einnig að byggingar og elsta byggðin náðu ekki austur að svæðinu sem raskað var 1999.

Könnunarskurðir í nóvember 2000

Á síðari hluta árs 2000 hófst undirbúningur að byggingarframkvæmdum á svæðinu milli Túngötu, Aðalstrætis og Grjótagötu. Verið var að undirbúa nýbyggingar á lóðunum umhverfis timburhús það á lóðinni Aðalstræti 16 sem lengi hafði verið talið standa á grunni eins af húsum Innréttinganna. Vitað var vegna fyrri rannsókna í nágrenninu að vænta mátti fornminja á lóðunum við Aðalstræti, og var ljóst að fornleifarannsókn yrði að fara fram áður en hægt væri að byggja á lóðunum. Fyrsta athugunin fólst í því að kanna efri, vestari, hluta svæðisins.

Í nóvember 2000 var gerð forkönnun á lóðunum Túngötu 2-6 og Aðalstræti 14-18 í þeim tilgangi að fá mynd af því hvernig jarðlagaskipan væri þar og hvort sjá mætti merki um að mannvistarleifar, mannvirki eða sorplög frá byggð, væri að finna á þessum lóðum. Við uppgröft á árunum 1971-75 hafði komið í ljós að húsarústir og aðrar mannvistarleifar voru á lóðunum Aðalstræti 14 og 18, einkum frá tveimur tímabilum, frá tímum Innréttinganna á 18. öld, og frá fyrstu öldum byggðarinnar, frá 10. eða 11. öld. Sýnt þótti af fyrri athugunum að mannvistarleifar væru einkum á austari hluta umrædds svæðis, nær Aðalstræti, en minna væri þegar vestar drægi á svæðinu eða ofar í brekkuna. Vegna fyrirhugaðra nýbygginga á svæðinu, svo og viðgerðar á timburhúsinu Aðalstræti 16 var ljóst að kanna þyrfti fornleifar á þessum stað áður en hefjast mætti handa um byggingar.

Grafnir voru með lítilli gröfuskóflu 5 könnunarskurðir sem lágu í sömu stefnu og Túngata og Grjótagata, og voru um 7-8 metrar hafðir milli skurðanna. Skurðirnir tveir sem næstir voru Túngötu voru 27 og 29 m að lengd, en hinir þrír á bilinu 12 – 15 m langir. Teiknuð voru snið af norðurhlið í hverjum skurði.

Í vestari hluta skurðanna allra var ekki að sjá nein ummerki mannvistar. Efst í öllum sniðum var nýlegt malarlag, en svæðið hafði um töluvert skeið verið notað sem bílastæði. Mölin var töluvert misþykk, 0,3-1,30 m. Þar undir tóku yfirleitt við moldarlög, milli 0,2 og 1,0 m þykk. Þau lög voru sumsstaðar blönduð móösku, og var það helst í lengstu

skurðunum, þeim syðstu, austanverðum. Þar mátti sjá nokkuð af dýrabeinum, og einnig fáein leirkerabrot. Undir moldarlögunum var komið niður í gráan malarborinn leir, og var þá komið niður fyrir öll ummerki mannvistar.

Í syðstu skurðunum mátti sjá steinsteypta hluta úr grunni hússins Túngötu 2, sem reist var um aldamótin 1900. Önnur mannvirki sáust þar ekki. Í nyrstu skurðunum tveimur varð vart við leifar eldra mannvirkis. Rétt yfir gráa leirlaginu mátti sjá einfalda röð steina sem gætu verið leifar af grjótgarði eða girðingarundirstöðu. Ekki sást neitt í sniðunum sem gæti tímasett garðinn, en þó er líklegt að hann sé allgamall. Engin gjóskulög sáust í sniðunum.

Að auki voru teknir tveir smáskurðir norðan við húsið Aðalstræti 16, hvor um 4 m langur, annar sneri austur og vestur eins og fyrr töldu skurðirnir, en hinn sneri hornrétt á þá. Í öðrum þeirra hafði þegar verið grafið niður á óhreyft malarlag og ekkert að sjá nema nýlega fyllingu, en í hinum var 60-80 sm þykkt moldarlag undir mölinni sem efst var, móöskublandið að ofan en neðri helmingur óhreyfður. Þar fyrir neðan tók við grátt leirlag samskonar og sést hafði í hinum skurðunum.

Allir bentu því þessir skurðir eindregið til þess að lítil ummerki um mannvist væri að finna á efri eða vestari hluta svæðisins og ekki sáust merki um nein mannvirki önnur en eitt garðlag. Að þessari forkönnun lokinni mátti ætla að líkur væru hverfandi á að finna fornleifar á vestari hluta lóðanna, þó að rétt þætti að fylgst yrði með grefti fyrir byggingum á svæðinu, ekki síst til að staðsetja betur garðlagið á norðanverðri lóðinni. Könnun þessi virtist staðfesta vísbendingar frá uppgreftinum 1971-1975 um að mannvistarminjarnar væru aðallega neðst í brekkunni, næst Aðalstræti.[79]

Bæjarstæði Reykjavíkur og nálægir fornleifastaðir

Ljóst er að hið forna bæjarstæði Reykjavíkur hefur um aldir verið á svipuðum slóðum, við Aðalstræti sunnanvert og Suðurgötu norðanvert. Minjar um búsetu frá landnámsöld hafa syðst fundist á lóðinni Suðurgötu 7 og nyrst á lóðinni Aðalstræti 12, þær virðast enda þar sem brekkan vestanvið rís (Grjótabrekkan ofan Aðalstrætis, austurhlið Landakotshæðar) og ná austur fyrir Tjarnargötu. Það er þannig einkum

[79] sjá t.d. EN 1988, Fig. 28. Aðalstræti 18. Section G-H, bls.32-33.

suðvestantil í “Kvosinni” sem búast má við fornum mannvistarminjum. Næstu staðir þar sem vænta má ummerkja um forna mannabyggð eru þeir staðir þar sem hinar fornu hjáleigur Reykjavíkur stóðu, þ.e. Grjóti (Grjótagata 14 og nálægar lóðir), Skálholtskot (gatnamót Skálholtsstígs og Laufásvegar) og Stöðlakot (horn Bókhlöðustígs og Laufásvegar). Aðrir nálægir staðir þar sem vænta má fornleifa með nokkurri vissu eru bæjarstæði býlanna Hlíðarhúsa (Vesturgata 22-28) og Arnarhóls, en síðastnefndi bærinn stóð efst á hólnum.[80] Þó er aldrei hægt að útiloka að minjar kunni að vera á stöku stað fjær bæjarstæðum.

[80] Ragnar Edvardsson 1994 og 1995.

3.0 INTRODUCTION

Aðalstræti 14-16 was known to be located within an area of very high archaeological potential. Previous investigations, documentary and cartographic sources and the proximity of historic buildings all attest to the importance of this area for the foundation of Reykjavik as an industrial and urban centre. The southern portion of Aðalstræti was known to be the location of the factories (*Innréttingar*) established in 1752 by Skúli Magnússon. Previous archaeological work had also identified the remains of structures dated to the settlement period in the immediate proximity of the site.

Prior to the beginning of open area excavation a program of trial trenching had been undertaken in November 2000, upslope of Aðalstræti 14-16, to the south and to the west. Undisturbed natural deposits were encountered at a depth of 0.5-2.0m beneath the modern surface. These sterile horizons were overlain by a number of heterogenous layers of peat ash, debris and refuse dating to the early modern period, sealed beneath up to 1.3m of modern overburden[81]. This process defined the areas of highest archeological sensitivity, and permitted excavation to focus upon the area at the base of the slope, and adjacent to Aðalstræti. The northern part of this area had been subject to previous excavation.

Open area excavation at Aðalstæti 14-16 commenced on January 15th 2001 and was completed on June 18th 2001. The excavation and recording of archeological deposits required a core team of 6-12 archaeologists and assistants, supported by others engaged in the processing and recording of artefacts, processing of samples, conservation, photography, web page construction, administration, machine excavation, removal of spoil and other tasks. The season of excavation and the prevailing conditions also required the construction and maintenance of a weatherproof shelter and the provision of lighting and heating.

The recording, stabilisation and removal of Aðalstræti 16 during the course of the excavation required a shared working environment and a close co-operation with the

[81] See Appendix 1

staff of Gamlhús, who carried out this work. This was thankfully conducted with the minimum of disruption and the maximum of goodwill. Nonetheless, these unavoidable circumstances made it necessary to excavate the northern portion of the site prior to gaining access to the southern part, inevitably adding to the complexity of recording and thus also analysis.

The excavation produced an extensive archive of factual data along with the recovery of large quantities of artefactual and environmental evidence. This archive has a tremendous potential to expand our knowledge of both the earliest settlement of Iceland and the earliest urbanization of Reykjavik.

In addition to the formal excavation archive, an excavation diary was maintained, documentary video footage was taken, open days were held for the public, numerous interviews were given to the media, and a web page was constructed and updated as the excavation progressed.

The analysis of this evidence is currently ongoing. The results given below are therefore of a preliminary nature and are subject to revision.

Archive

Record Type	Quantity
Context description records	809
Plans and section drawings	549
Photographs (Digital and Conventional)	Circa 1200

Table 1 – Quantity of Records

Material	Quantity	Comments
Ceramic	3459	Bricks, pottery, clay pipes
Glass	915	Window glass, fragments of vessels
Metal	665	Nails, copper alloy fragments, buttons, unidentified objects
Stone	313	Building material, unworked stones
Wood	116	Wood, worked and unworked (87 wood, 30 samples of charcoal).
Textile	37	Cloth and threads
Others	21	Other materials and unknown materials/objects
Mortar	14	Samples
Composite	11	Knife, tools, dress ornaments
Leather	10	Shoe- and belt fragment, others
Bone	10	Worked bone artefacts (buttons, handles)
Total	*5571*	*Total artefact count for 1275 artefact records*

Table 2 – Quantity of Artefacts by Material

Sample Type	Quantity	Comments
Bulk	251	Comprising circa 2600 litres of soil
Pollen column	5	
Micromorphology	13	

Table 3 – Quantity of Environmental Samples

4.0 METHODOLOGY

The surviving archaeology at Aðalstræti 14-16 was likely to be of the complex nature characteristic of deeply stratified urban sites. To this end, the method adopted for excavation and recording was one specifically designed for this situation. The standard excavation methodology used by Fornleifastofnun Íslands is based upon the single context planning technique developed by the Dept. of Urban Archaeology of the Museum of London[82] and has been further developed and modified for Icelandic conditions by Fornleifastofnun Íslands[83].

Planning squares were established on a 5m grid, located within the co-ordinate system of the city of Reykjavík. These were maintained by using a total station theodolite, working from control points and other information provided by Mælingadeild Reykjavíkurborgar (the surveying department of the city of Reykjavík). Each archaeological deposit or feature was planned at a scale of 1:20 by 5m square, and descriptions of each deposit or feature were maintained by means of a unique contextual numbering system and pro-forma recording sheets. This record was augmented with conventional and digital photography as appropriate. Bulk artefacts (ceramic building materials, animal bones, modern glass and pottery) were recovered by contextual unit. Other artefacts were recovered by contextual unit and 3D location. All deposits exhibiting potential were bulk sampled for environmental analysis. The well preserved earthen floor of the Viking period skáli merited special attention. These floor deposits were recovered in total, by 1m grid squares, on a grid system aligned with the axis of the skáli, and specially established for this purpose. Excavation of these floor deposits proceeded by opposing sextants, thus facilitating better horizontal control and the recovery of aggregate samples for micromorphological study. Additional aggregate samples were also selectively taken for possible pollen analysis, and the study of site formation processes. All possible tephra horizons were examined in-situ by a tephrochronologist, and samples taken for chemical composition as approriate.

The initial processing of artefacts and environmental samples was carried out in tandem with the excavation itself. These initial stages of artefactual and

[82] M.o.L.A.S, 1994
[83] Lucas (ed) 2000

environmental work are now complete, and this material awaits further study. The potential of this material is considerable, and assessments of the suitability of this material for detailed specialist study are currently ongoing.

A number of specialist assessments/studies are also being undertaken.

Environmental

- Micro-refuse distribution
- Palaeobotany
- Palaeoentymology
- Palynology
- Radiometric dating
- Soil chemistry
- Soil physics
- Tephrochronology
- Thin section micromorphology
- Wood Anatomy
- Zooarcheology

Artefactual

- Bone artefacts
- Ceramics
- Ceramic building materials
- Clay pipes
- Numismatics
- Radiography of corroded iron objects
- Steatite
- Stone artefact petrology

Where applicable the preliminary results of these studies are included in this report, or appended.

4.1 GEOARCHAEOLOGICAL INTERIM REPORT *(Figure 4.1)*

Karen Milek
(Department of Archaeology, University of Cambridge)

4.1.1 Introduction

The excavation at Aðalstræti included an extensive soil and sediment sampling programme designed to provide information about the composition and origin of the archaeological sediments, the depositional and post-depositional processes affecting the site, and past environmental conditions. The occupation deposits within the *skáli* were sampled for micromorphological analysis and 100% bulk sampled for botanical, microrefuse, chemical and magnetic analyses, in order to enhance interpretations of the organisation and use of space, as well as the living conditions within the building. In addition, a number of undisturbed soil samples for micromorphological analysis were taken from the natural subsoils surrounding the *skáli* in locations adjacent to the column samples taken for soil pollen analysis (see Guðmundsson, this report). The analysis of these soil samples will permit the identification of the soil type and how it formed, hydrological conditions, and the geomorphological processes that affected the site, such as erosion and accumulation. The integration of this information with the results of pollen analysis will allow the reconstruction of the environment around the farmstead, and how it changed over time.

4.1.2 Sampling and Analytical Procedures

4.1.2.1 Micromorphological Analysis

The excavation of the *skáli* in alternate sextants exposed the internal occupation deposits in section along three lines – one long section running northeast-southwest through the central axis of the building and two shorter, northwest-southeast sections, one north of the long fire, and the other south of it. Seven undisturbed blocks for micromorphological analysis were taken from these exposed sections, two from the ashy deposits within the long fire, and four from the floor deposits (see Figure 4.1 and Table 4.1). In addition, three other micromorphology samples were taken from the *skáli* – one from the deposits within the south-western entrance (sample 94), one from the turf collapse (sample 67), and one from the turf wall in the north-western part of the building, which had been exposed in section by a later truncation (sample 92). Outside of the *skáli*, four micromorphology samples were taken from the natural soils, one south of the structure, one to the west of it, and two to the north, all of which were

closely associated with column samples taken for pollen analysis. All of the micromorphology samples were taken by inserting rectangular aluminium tins (*c*. 5 x 6 x 12 cm) vertically into the sections, and cutting the blocks free with a sharp trowel, following the method outlined in Courty et al. (1989). The undisturbed blocks of soil were then labelled and carefully wrapped in plastic and packaging tape for transport to the thin sectioning laboratory.

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

In thin section, it will be possible to identify and quantify the mineralogy, structure and texture of soils and sediments, as well as any bone, shell, artefacts, coprolites, phytoliths, diatoms, ash crystals, pollen, charcoal and plant remains that are present. In addition, it will be possible to observe the presence of iron, manganese, phosphorous and carbonates, the mobility of which can be linked to specific environmental conditions. The interpretation of thin sections will be aided by reference to the experimental and ethnoarchaeological materials collected by the author and other researchers, and by the accumulated experience of other soil scientists who have been applying micromorphological techniques to archaeological questions (e.g. Courty et al. 1989).

The goals of micromorphological analysis will be:

1) to confirm that the presumed floor deposits have indeed been trampled and that their formation can therefore be attributed to the activities that took place within the *skáli* during its use;

2) to determine the precise composition of the floor deposits and the degree to which their composition changed over time; this will contribute to an interpretation of how space within the building was organised and used;

3) to detect any physical or chemical alterations to the original floor sediments, which could provide information about environmental conditions and human activities within and around the building during and after its use;

4) to identify the ash residues within the hearth (dung, peat, turf or wood), in order to understand the dominant fuel resources used;

5) to identify the types of soils and hydrological conditions around the *skáli*, and to detect any geomorpholological changes that have taken place at the site, such as erosion, or changes in the rate of aeolian deposition.

Table 4.1. Undisturbed block samples for micromorphological analysis.

Sample	Context	Area	Description
67	747+	Section on N edge of MW sextant	Turf collapse within the *skáli*
68	868+	Section on S edge of SE sextant	Brown, black and grey floor deposit containing ash and charcoal on the eastern side of the *skáli*
71	858, 864+	Section on N edge of MW sextant	Orange-brown, orange and black silty floor deposits containing ash and charcoal just north of the long fire
74	793, 795+	Section on E edge of MW sextant	Ashy deposits within the long fire
75	793, 795+	Section on E edge of MW sextant	Ashy deposits within the long fire
79	851, 852, 853+	Section on S edge of MW sextant	Black, medium brown and pale grey silty floor deposits containing ash and charcoal on the western side of the *skáli*
80	844, 894+	Section of W edge of NE sextant	Dark grey to black, organic-rich floor deposit, and medium to dark brown silt layer in the northern end of the *skáli*
92		NE wall of skáli	Turf used for wall construction
93	n/a	S of skáli	Natural soils
94		SW entrance	Deposits within doorway
103	n/a	N of skáli	Natural soils
104	n/a	N of skáli	Natural soils
107	n/a	W of skáli, near cellar	Natural soils

4.1.2.2 Magnetic and Chemical Analyses

All of the occupation deposits within the *skáli* were 100% sampled on a 1 m grid (see Figure 4.1) in order to permit the controlled spatial analysis of the organic, faunal and artefactual remains, as well as the magnetic properties and chemical residues in the floor sediments. Small subsamples (*c*. 200 ml) were retained for chemical and magnetic analyses (see Table 4.2), while the remaining sediment was floated and wet

sieved for the retrieval of botanical remains and microrefuse (see Guðmundsson, this report).

The goals of the magnetic and chemical analyses will be:
1) to contribute to the understanding of the composition of the presumed floor deposits; 2) to detect spatial patterns in the magnetic properties, chemical and organic content that may give an indication of activity areas or internal partition walls that could not be detected in the field.

The preparation of the sediment samples, as well as most of the chemical and magnetic analyses, will be conducted at the Department of Geography at the University of Cambridge. The sediment samples will be air-dried for one week, after which they will be pulverised using a mortar and pestle, and sieved in order to remove constituents over 2 mm in size. The samples will then be split and analysed for a number of properties, including loss-on-ignition, magnetic susceptibility, electrical conductivity and pH. Multi-element analysis using inductively coupled plasma atomic emission spectroscopy will be carried out by ALS Chemex, a company based in Mississauga, Ontario, Canada. Information about each of these methods, and the information they provide, is briefly outlined below.

4.1.2.3 Loss-on-Ignition

Approximately 5 g of sediment will be measured into crucibles of known weight, and will then be heated for at least two hours to 105ºC to ensure that they are completely dry. They will then be ignited for at least six hours to 400ºC , 550ºC, and 900ºC consecutively. The weight loss recorded after these three periods of ignition, divided by the oven-dry weight of each sample, will give a close proxy measurement for the percentage of organic matter, microcharcoal, and the carbonate content respectively. These properties will then be plotted on the plan of the *skáli* in order study their spatial patterning.

Concentrations of organic matter in a floor deposit are likely to represent areas in which plant matter or animal excrement accumulated and decomposed *in situ*. It is extremely valuable to test this property using loss-on-ignition, because even partially decomposed organic matter cannot be recovered by flotation. Since Icelandic soils do not naturally contain calcium carbonate, any concentrations of carbonates in the sediments from Aðalstræti are likely to be derived from ash crystals or microscopic bone fragments. The properties tested by loss-on-ignition can therefore give some

indication of activity area patterning, and can be used as a framework for understanding the chemical properties of the floor deposits.

4.1.2.4 Magnetic Susceptibility

Dry sediment will be placed into 10 cm^3 plastic pots, weighed, and measured using a Bartington Instruments MS2 magnetic susceptibility meter in order to obtain the mass specific magnetic susceptibility of each sample. This property, which is a measure of the ability of the sediment to be magnetised when it is placed in a magnetic field, will then be plotted on the plan of the *skáli* in order to investigate its spatial distribution. Enhanced magnetic susceptibility on archaeological sites is usually due to burning, which can cause iron to be reduced to magnetite. The distribution of high magnetic susceptibility readings is therefore usually associated with hearths, and it is expected that high magnetic susceptibility will be concentrated around the long fire of the *skáli*. However, high magnetic susceptibility readings elsewhere in the structure could also represent *in situ* burning outside of the main hearth, or the movement of sediment away from the hearth to other locations within the building. For example, when the distribution of magnetic susceptibility readings on the floor of a Viking Period building in the Outer Hebrides was analysed, and found to sharply fall off along a straight line, the excavators interpreted this pattern as indicating the presence of an internal partition wall, which had prevented the spread of hearth debris through trampling or sweeping (Smith et al. 2001). Ethnoarchaeological research by the author has also shown that in more recent times, hearth debris was intentionally spread around turf buildings as a means of maintaining the floors when they become wet or worn, or when noxious odours needed to be absorbed (Milek 2000). The spatial patterning of magnetic susceptibility on the floor of the *skáli* therefore has the potential to provide information about the presence of small subsidiary hearths, internal partition walls, or methods of maintaining a salubrious environment within the house.

4.1.2.5 Electrical Conductivity and pH

10 ml of sediment will be placed in 50 ml plastic pots, and mixed with 25 ml de-ionised water. They will then be tested for electrical conductivity and pH using DiST WP3 and pHep 3 electronic meters. Electrical conductivity measures the ability of the soil solution to conduct electricity, and is used as a proxy for the quantity of soluble

nutrients, salts, or ions in the soil. These might include phosphate, magnesium, calcium, nitrogen, or sulphur, but it is not possible to identify which nutrients are present without conducting further chemical analyses (see below). By plotting electrical conductivity readings on the plan of the *skáli*, and studying its distribution pattern, it will be possible to detect any activity areas containing enhanced levels of nutrients.

pH is defined on the basis of the hydrogen ion activity in the soil solution, and is used as a measure of the acidity or alkalinity of the sediment. The spatial distribution of pH readings can provide information about the concentration of humic acids resulting from the decay of organic matter. In addition, if there are vast differences in the pH across a floor deposit, it can be used to explain any variations in the preservation of bone, shell and calcareous ash.

4.1.2.6 Multi-Element Analysis (ICP-AES)

5 g of sediment will be sent to AMS Chemex, Canada, for multi-element characterisation by inductively coupled plasma – atomic emission spectroscopy (ICP-AES). The elements in the sample will be dissolved using a nitric acid – aqua regia digestion system, and the resulting solution will be heated to a temperature of 8000ºC, which excites all of the elements in the sediment and causes them to emit light at their characteristic wavelengths. This light will then be collected by an atomic emission spectrometer, which diffracts the light, resolves it into a spectrum of its constituent wavelengths, measures the intensity of each wavelength, and converts it to an elemental concentration by comparing it to calibrated standards.

The 34 elements quantified by ICP-AES will be plotted on the plan of the *skáli* in order to determine their spatial distribution. Concentrations of elements in certain parts of the house will not only indicate the location of activity areas, but will also provide information about what those activities might have been. Concentrations of phosphorus, for instance, indicates the location of *in situ* decomposed organic matter, and very high concentrations of phosphorus can pinpoint the location of accumulated animal excrement, such as might occur in a byre or stabling area. Potassium is present in high concentrations in wood and plant ash, and high potassium readings can help to identify locations where this material had been deposited, even if it had subsequently been decalcified, and is somewhat difficult to identify in the field – a post-depositional process that may occur in acidic conditions. Since Icelandic soils

generally lack calcium carbonate, high concentrations of calcium in the floor may be taken to indicate the location of calcareous ash, bone or shell deposition and dissolution.

Table 4.2. Bulk samples from the ***skáli*** for geochemical and magnetic analyses.

Sample	Context	Area	Description
54	792	Long fire	Medium to dark brown silty fill of the long fire
60.1-4	793	Long fire	Black, ashy fill of the long fire
62.1-8	795	Long fire	Black and brown silty, charcoal-rich fill of the long fire
63	796	Skáli	Black, charcoal deposit under burnt stones, on the floor
66-3, 7a	802	Long fire	Mixed brown, white and grey ashy fill of the long fire
72	807	Skáli	Compact black, brown, clayey silt floor deposit
73	798	S skáli	Compact black and dark grey floor or midden layer in the entrance in the south wall of the skáli
77	814	Skáli	Firm, medium dark brown, clayey silt floor deposit
78	824	SW door	Friable brown silt layer containing patches of purple and red, flecks of wood ash and charcoal
81	752	S skáli	Soft, black, dark brown and orangey-brown silt deposit
82.1-3	793	Long fire	Soft, black, brownish black ashy fill of the long fire (eastern part)
83	824	S West	Friable brown silt layer containing patches of purple and red, flecks of wood ash and charcoal
84.1-8	795	Long fire	Black, brown, brownish-white ashy fill of the long fire
85	826	S skáli	Firm, medium dark greyish-brown clayey silt floor deposit abutting the south wall of the skáli
86.1-8	802	Long fire	Soft, brownish-white and grey ashy fill of the long fire
87	831	Long fire	Very dark greyish brown and black ashy fill of the long fire
88.1-12	844	NW sextant	Firm, dark greyish-black clayey silt floor deposit
89	846	S skáli	Pale grey ash and charcoal lens on the floor in the south end of the skáli
90.1-6	849	SW sextant	Soft, black, silty floor deposit
91	851	SW sextant	Soft, black, silty floor deposit
95.1-6	852	SW sextant	Soft, medium brown silty floor deposit
97.1-2	854	SW sextant	Pale grey and black ash deposit
101.1-3	859	SW sextant	Compact, medium brown clayey silt floor deposit
102.1-6	858	NW sextant	Orange and black silt deposit
109.1-2	866	SW sextant	Soft, light reddish-brown silt deposit overlying beach cobbles
110.1-17	864	ME/MW	Black and orange brown ashy floor deposit around the long fire
111	870	SW sextant	Pale brownish-grey ash and charcoal deposit
113.1-7	871	SE sextant	Black and dark brown charcoal-rich floor deposit
115.1-3	873	SE sextant	Black, silty, charcoal-rich floor deposit around the long fire
116.1-16	868	ME sextant	Brown, black and grey, mixed silt and ash floor deposit
124.1-4	901	ME sextant	Black, silty, charcoal-rich floor deposit around the long fire
127.1-3	904	NE sextant	Brown, grey and black silt and gravel floor deposit
128.1-3	907	NE sextant	Light brown friable silt floor deposit with abundant charcoal
131.1-5	861	SW sextant	Mottled medium brown and black clayey silt floor deposit with occasional charcoal flecks
132.1-3	862	SW sextant	Mixed light brown and grey silty floor deposit

4.1.3 Timeframe for Geoarchaeological Analyses

The thin sections will be manufactured by January 31. Micromorphological, chemical and magnetic analyses of the soil and sediment samples from Aðalstæti will be conducted in February and March, and the final geoarchaeological report will be submitted by April 30.

4.1.4 Conclusion

The samples taken from the occupation deposits within the *skáli* and the natural soils surrounding the site will make an important contribution to the interpretation of the organisation and use of space in the building, and the reconstruction of the environment around the site. The intensity of the sampling programme, the integration of micromorphology, and the range of chemical and magnetic tests that will applied to the archaeological floor deposits, are precedented only at the sites of Hofstaðir and Sveigakot, in NE Iceland. Since the *skáli* at Hofstaðir had been partially truncated and disturbed by excavations in the early twentieth century, the well-preserved Viking Period bow-sided house at Aðalstræti provides a unique opportunity to investigate the organisation of the interior domestic space of the Viking Age Norse. As such, the geoarchaeological analysis of the occupation deposits in the *skáli* at Aðalstræti represents an immensely important case study, not just for Iceland, but for the entire North Atlantic region.

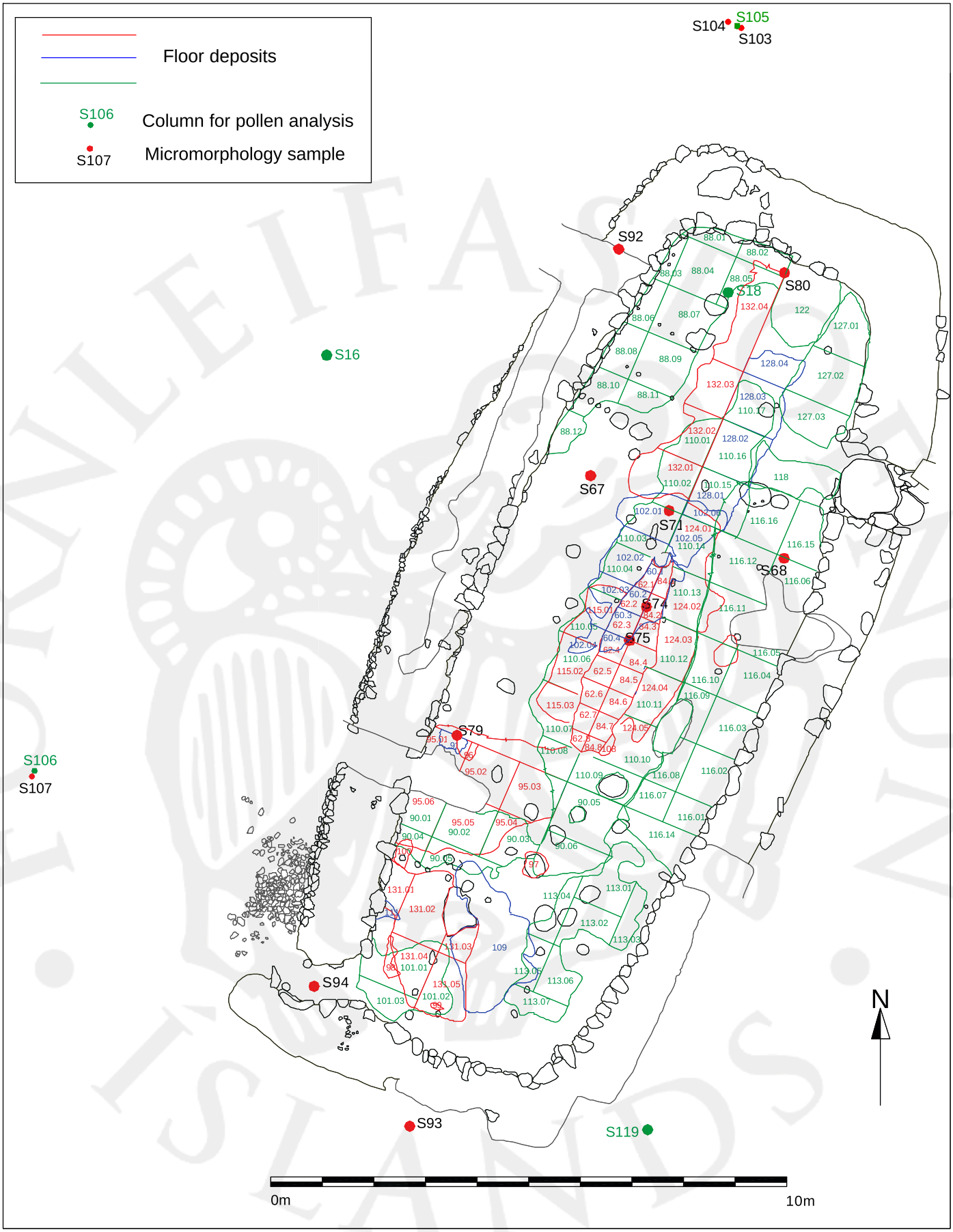

Figure 4.1 - Plan of the Viking Period structure, showing the location of bulk soil samples taken on a 1m grid, and the location of undisturbed columns for micromorphology and pollen analysis.

5.0 RESULTS

The excavation uncovered a lengthy and complex sequence of archaeological deposits spanning the entire period of human occupation in Reykjavík, and in Iceland. As such, the evidence gathered will shed new light on the origins and development of Reykjavík both as a Viking period settlement, and as an incipient modern urban centre. The excavation also provided clear evidence for the substantial abandonment of this particular site in the intervening period, and thus necessarily the relocation of the focus of settlement during that time.

The excavation uncovered evidence for a number of distinct phases of activity. The proposed phases are as follows;

Phase 1	Initial occupation – Pre AD 871
Phase 2	Viking Period – Post AD 871
-2a	Construction and occupation of the skáli – circa AD 950-1050
-2b	Construction and occupation of southern annexe – circa AD 975-1050
Phase 3	Disuse, soil deposition (hillwash), limited activity peripheral to occupation – circa AD 1050-1500. Possible home field use.
Phase 4	Post built structure and possible boundary – circa AD 1500-1600
Phase 5	Disuse, soil deposition (andesols, with limited anthropogenic input) – circa AD 1600 -1750. Possible home field use.
Phase 6	Earlier factory buildings 1752-1764. Destroyed by fire.
Phase 7	Later factory buildings and factory use 1764-circa 1800
Phase 8	Re-use and rebuilding 1800-1900
Phase 9	Modern use. 1902-1969 at 18, -2000 at16, -c.1930 at 14.
Phase 10	Archaeological excavation by Else Nordahl et al. 1971-74

The datings given at this time are provisional and based upon tephrochronological evidence, structural typology, stratigraphic superpositioning, preliminary spot dating of the artefacts, and historical documents. These datings will be informed by radiometric evidence and further artefactual analysis in due course.

5.1.1 **Phase 1** *(Figures 5.1 and 5.2)*

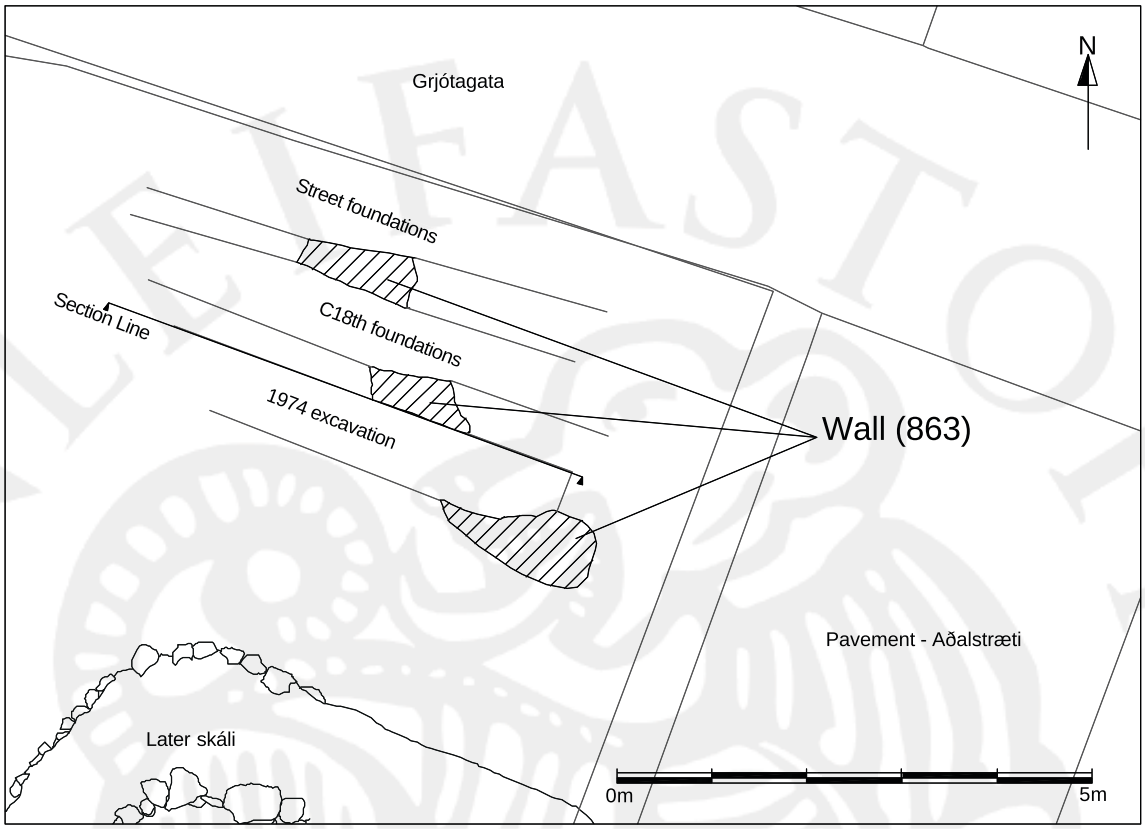

Figure 5.1 – Phase 1. Wall (863)

The earliest structural evidence recovered from the excavation was located towards the northern limit of the site at Grjótagata. Three small, truncated fragments of a turf wall were discovered extending from an exploratory trench dug by Nordahl et al. in 1974. This wall (context 863) had been truncated by the previous excavation, by the foundations of the later C18th factory period building (Phase 7), and by the renewal of services and the street surface of Grjótagata in 1989. The truncated nature of these fragments will unfortunately limit the scope of possible interpretation. Nordahl´s interpretation of these deposits, seen in section, was that the fragments (or "tufts") of turf predated the deposition of a tephra horizon (the "Landnám sequence"- hereafter LNL) dated (then) to circa 898 AD.[84] Re-examination of these deposits, and further excavation confirmed this hypothesis, although more recent studies of the dating of this tephra sequence give a date of 871+2 AD.[85] If this interpretation and dating is

[84] Nordahl 1988 pgs 9 & 24
[85] Grönvold et al, 1995

correct, then wall (863) must have been constructed prior to 871+2 AD. It is however unclear how much time had passed between the construction of wall (863) and the deposition of the LNL tephra horizon.

In total, the surviving pieces of wall (863) measured a maximum of 4.6m in length, up to 1.25m in width and were preserved to a maximum height of 0.35m. Wall (863) was formed from horizontal bands of alternating pale to dark yellow brown silt with some organic content. These are believed to represent *strengur*[86] turfs. Wall (863) was abutted to the west by a layer of mixed yellow brown silt (913), including small fragments of turf debris, occasional small angular gravel and very occasional, very small fragments of charcoal. Layer (913) and wall (863) were seen to overlay a sequence of deposits believed to be natural in origin. Aggregate samples <S103, S104, S105> were taken from the exposed section of these layers for pollen analysis. It is hoped the samples will also shed some light upon how these layers were formed, and what space of time they might represent. Layer (913) was clearly sealed by the LNL tephra, in a continuous layer extending up to 6m to the southwest. Additionally, the LNL tephra was seen to abut the the eastern face of wall (863). At no point could any traces of the LNL tephra be discerned either within or beneath wall (863). In turn, the LNL tephra was overlain by a thin (0.02-0.06m) deposit of clean orange brown silt, and subsequently the walls of the later Viking period skáli.

Beneath the floors of the skáli, and also sealed beneath the LNL tephra, a deposit of charcoal (912) measuring 0.8m x 0.4m was encountered. A sample <S121> was taken from layer (912) for radiometric dating and species identification.

[86] Strips of turf measuring up to circa 1.2m x 0.30m x 0.15m

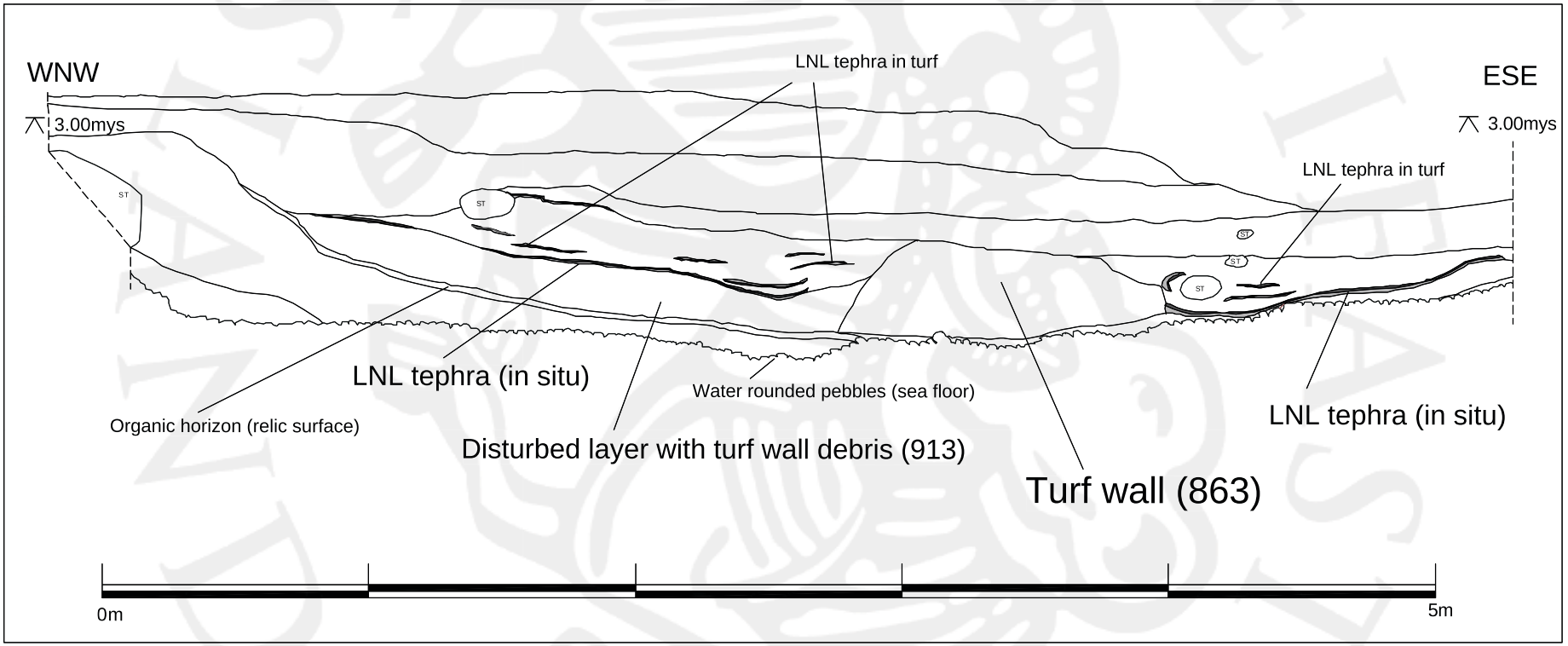

Figure 5.2 - South-southwest facing section at Grjótagata

5.1.2.1 Phase 2a *(Figures 5.3, 5.4, 5.5 and 5.6)*

Phase 2a comprises the main structural sequence of the Viking period skáli. This structure was found to be largely intact, but had suffered some truncation from later foundation trenches, particularly the northwestern and southeastern portions of the structures' main wall. Excavation in the 1970's was thought to have reached natural sterile deposits beneath Aðalstræti 14,[87] but this is not the case. Some of the northernmost elements of this structure had been previously exposed, and were seen to lie directly beneath plastic sheets at the base of the back-filling of the earlier excavation.

The remains of the Viking period skáli at Aðalstræti 14-16 are the most complete so far recovered in Reykjavík. This structure is preserved best at its western wall, becoming much less substantial towards the modern street frontage. The skáli measures (internally) 16.70m in length and 3.74 – 5.81m in width, being at its widest slightly to the north of centre. The long walls have a pronounced curvature and are 1.27-1.73m in width, surviving to a maximum height of 0.47m at the centre of the western wall. The walls are partially stone faced both internally and externally, although this feature does not survive uniformly. The greater part of the surviving walls are at the least reveted by a single course of larger (0.20-0.40m) rounded stones. Up to three courses of rounded stones survive internally, at the northwestern corner of the skáli. The western wall of the skáli is externally faced by up to five random courses of smaller angular stones, up to 0.35m in length but typically 0.10-0.15m. The core of the walls is made of strengur turf including the LNL tephra, of which up to seven courses could be discerned.

At the centre of the skáli is a large stonebuilt longfire of elongated oval shape. The longfire measures 4.20m (internal) /4.37m (external) in length and has a maximum width of 0.94m (internal) / 1.07m (external). The longfire was made of flat, rounded slabs set on edge, each measuring up to 0.64m in length and circa 0.10m in width.

[87] Nordahl, 1988 pg 23

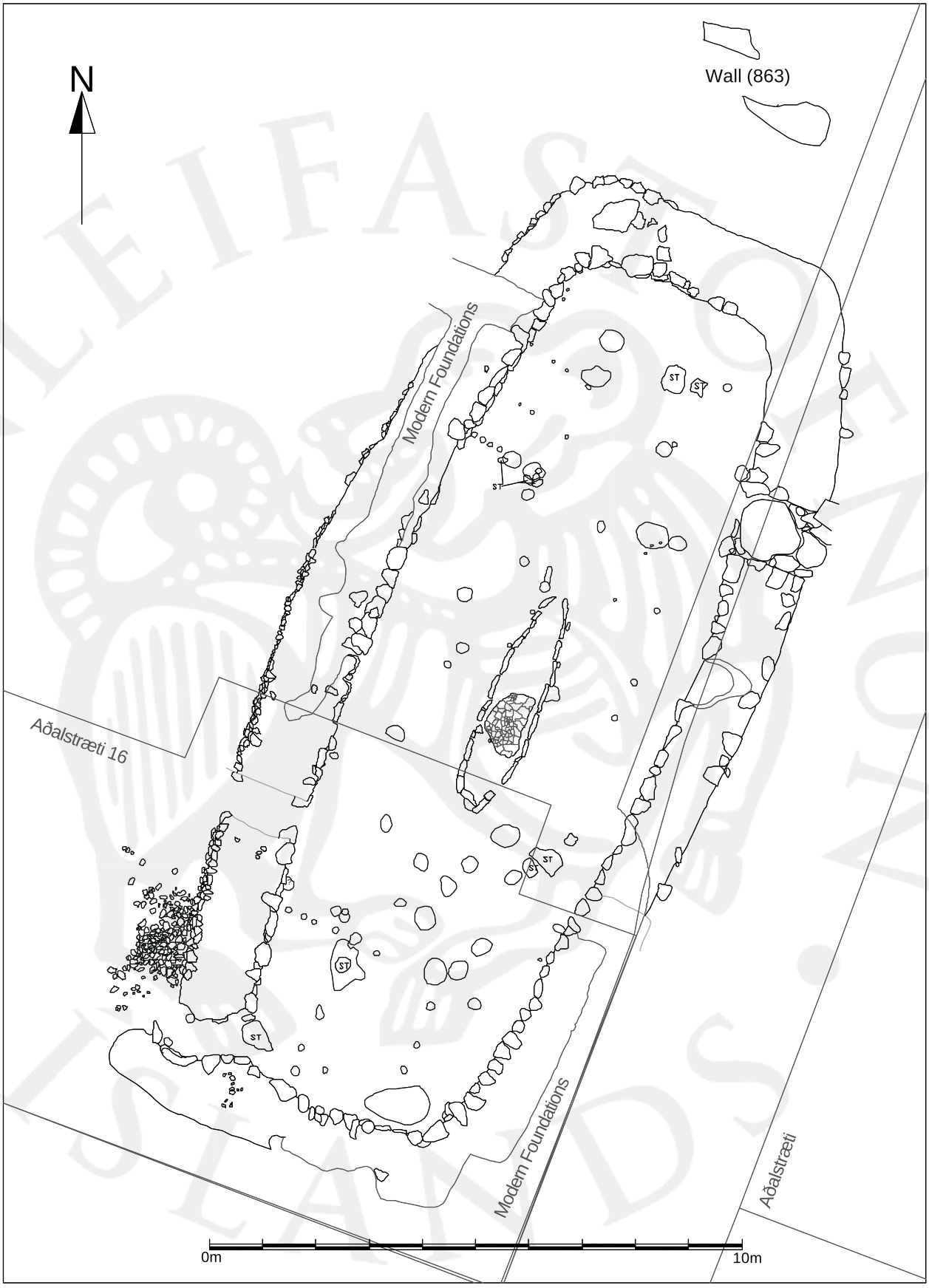

Figure 5.3 – Phase 2a. Viking period skáli

Slightly to the south of the centre of the longfire was a large horizontal slab, exhibiting clear signs of heating eg.blackening, reddening and intense cracking, being most pronounced at the centre of this slab.

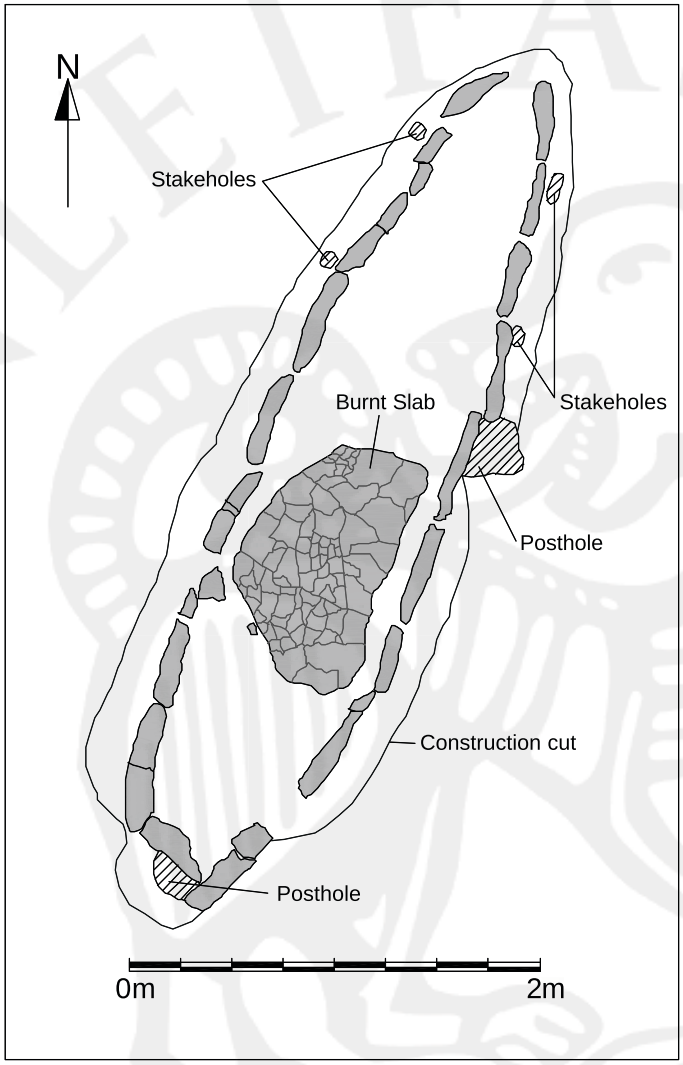

Figure 5.4 - Longfire

The internal area of the longfire was filled with a sequence of ash and charcoal rich deposits, (793, 795, 802) varying in colour from black to dark brown to pale pink and grey. Bulk samples and aggregate samples were taken from these deposits. The stones of the longfire were set into a shallow cut that truncated the natural sea floor pebbles. The fills of the fire contained many of these pebbles, shattered and discoloured from heating. A deposit of pebbles (layer 777) external to the southwestern entrance of the skáli also exhibited these characteristics. A number of small stakeholes and postholes clearly associated with the longfire also came to light. These are seen as evidence for a possible wooden superstructure.

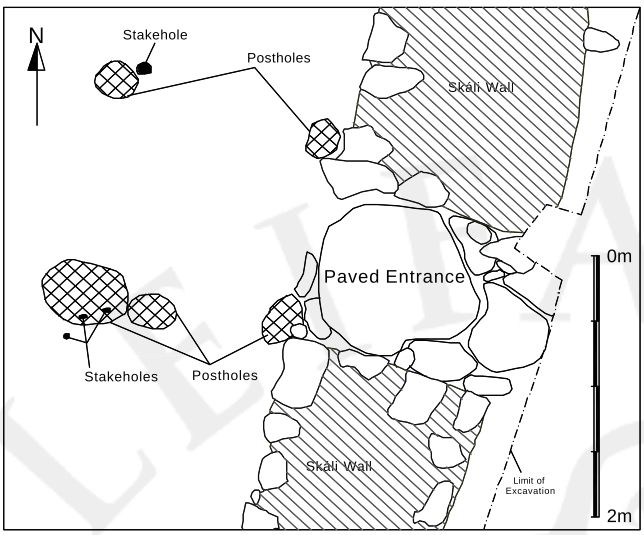

Figure 5.5 - Northeastern entrance

There are two apparently original entrances to the skáli, the larger located towards the northeast and the smaller at the southwest corner of the skáli. The northeastern entrance is paved with flat stones, and has a width of 1.19m. The largest of the stone slabs in the northeastern entrance measures 1.19m in width and 1.21m in length. Elements of this paving extend beneath modern services at the eastern limit of excavation, and will require further investigation if these services are altered or removed. Associated with this main entrance are five postholes, thought to represent elements of a timber built entrance way. The floor deposit encountered between these posts (layer 890, <S118>) was of a different character to those seen elsewhere, being more compact and paler in colour.

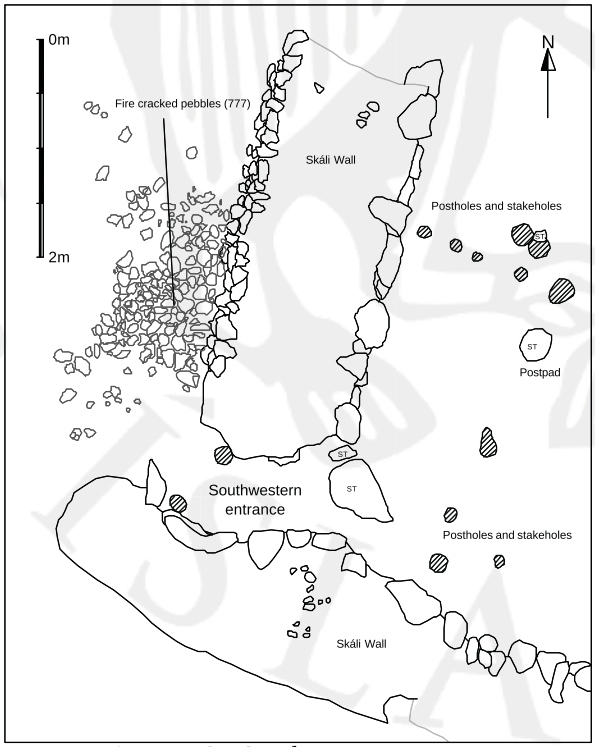

Figure 5.6 - Southwestern entrance

The smaller, subsidiary entrance at the southwestern corner of the skáli has a width of 0.72m at its narrowest point. The southwestern entrance retained a few possible stone slabs, but is not paved in the manner of the main north-eastern entrance. The southern gable wall of the skáli extends beyond the western long wall line at the southwestern corner by a distance of circa 1.2m. This feature is associated with the southwestern entrance and may have functioned as a windbreak.

Two small postholes were discovered within the southwestern entrance, and are thought to represent a door. Within this subsidiary entrance was an area apparently demarcated by postholes and stakeholes

measuring upto 1.52m in width and 2.96m in length. It is suggested that this area may have been an entrance compartment, which could be closed off from the main space of the skáli to preclude draughts.

Abutting the external face of the western wall of the skáli was a deposit of fire cracked stones (layer 777) overlying a patchy deposit of charcoal and ash (layer 796). A bulk sample was taken from layer 796, <S063>.

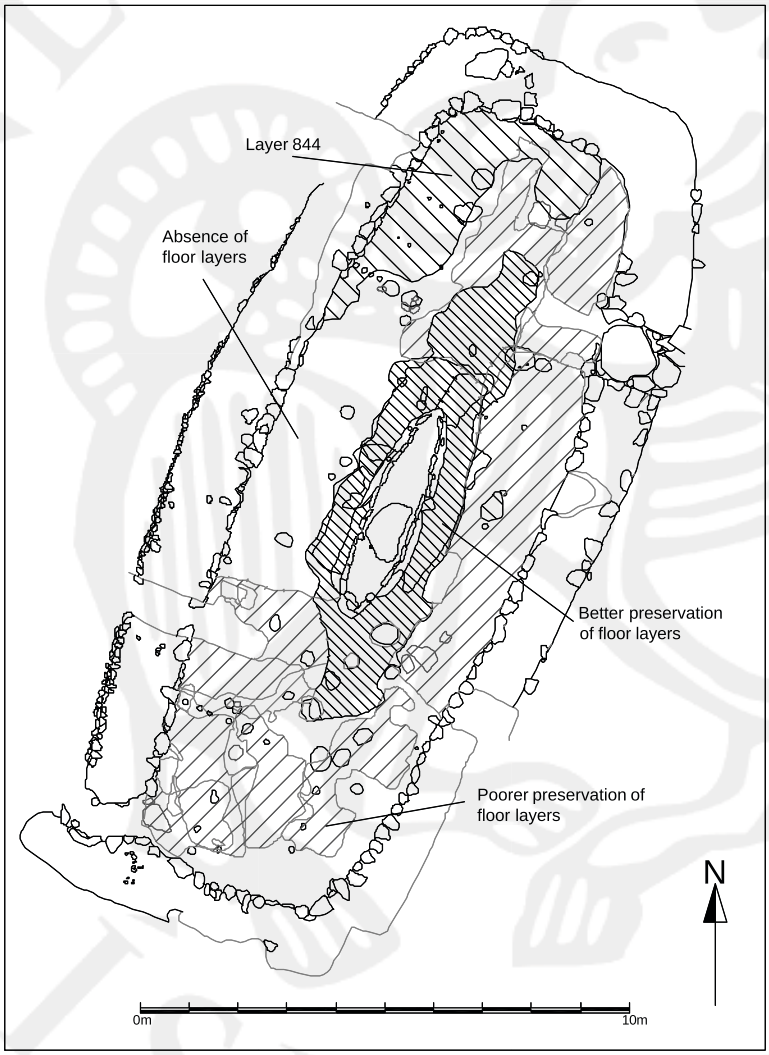

Figure 5.7 - Preservation of floor deposits

The main area of the skáli floor was typified by the survival of thick dark deposits containing charcoal and burnt bone fragments. Many individual deposits were recorded and sampled for environmental analysis (844, 849, 851, 852, 853, 854, 855, 856, 857, 858, 859, 861, 862, 864, 866, 868, 870, 871, 873, 890, 894, 901, 904, 907). These deposits are interpreted as floor layers or fragments of such. The survival of these layers was generally at its best in the area adjacent to the longfire. Another well preserved deposit was identified at the northwestern corner of the skáli (deposit 844), being softer and browner in character than other putative floor layers. The extent of deposit 844 is associated with several rows of postholes/stakeholes, and it is thought this area may have served some differentiated

function. It is hoped that ongoing environmental and soil chemistry studies may shed further light on this point.

In contrast, floor layers were considered to be absent from the central western portion of the skáli. This is not thought to be due to variable preservation, but to indicate a possible area of raised flooring, or an enclosed cabin. Other timber superstructures within the skáli are indicated by the number and location of postholes within the skáli. The size and distribution of postholes is irregular and uneven. This is thought to be due to the underlying ground surface of rounded pebbles forming a well drained and firm footing, and thus acting as an adequate support for many functions. Nonetheless, some observations can be made. Those postholes that are apparent are generally found to form two rows, parallel to the long walls of the skáli, thus giving a three aisled division of space. Additionally, a concentration of postholes is observed immediately to the south of the longfire. These form no clear pattern but are thought to be indicative of timber structures or furniture associated with the longfire. Areas apparently delimited by rows of postholes and/or stakeholes include both entrances to the skáli, and the extent of layer 844 in the skáli's northwestern corner.

Approximately 500 artefacts were recovered from deposits within the skáli. These are discussed in greater detail below. The artefacts are primarily of stone and iron, although walrus tusk also survives[88]. The artefacts include spindle whorls, beads, whetstone fragments, iron objects, and a large number of unworked small coloured stones. The distribution of artefacts as yet shows no obvious patterning, beyond a correlation with the deposition and preservation of floor deposits. Numerous artefacts were also recovered from disuse layers sealing the floors (eg. layer 747).

[88] See Appendix 3 "Walrus Tusks From Aðalstraeti, Reykjavik: zooarchaeological report"

5.1.2.2 Phase 2b *(Figure 5.7)*

Previous excavation in the 1970's had identified the highly truncated and partial remains of a Viking period structure at Aðalstræti 18, immediately to the south of the site excavated in 2001. Excavation in 2001 exposed some additional parts of this structure, in a narrow strip at the southern limit of excavation. These remains had been further truncated by the foundations of a later building. Comparison of these remains with the original records of the 1970´s excavation permits some re-interpretation of this structure. Section drawings from the 1970's were located according to the published plan,[89] and re-assessed with the assistance of Mjöll Snæsdóttir – who had herself made some of the original records. A distinction was made between areas thought to be turf wall in situ, and others thought to be turf collapse. These boundaries were then plotted, and a new outline for the southern building was interpreted from these points. There are inevitably areas where information is unavailable or ambiguous, and the resultant plan is therefore an interpretation.

As interpreted, this structure measures (internally) circa 11m in length and 4.7m in width, with walls up to 1.1m wide. At its centre is a fireplace measuring up to 1.8m in length, and 0.70m wide. Fragments of this structure were found to be built over the southern gable of the phase 2a Viking period skáli. Where they meet, the wall of the earlier northern structure had been truncated by the construction of the later building, and traces of compacted organic deposits were seen to lie over the turf wall of the earlier structure. This is thought to indicate that the structures were co-joined and that there was direct access between them. No other entrance to the southern structure has been identified, but this may be only an issue of survival.

Although the building of the southern structure is seen to be later than the northern, it is thought that they are broadly contemporary in use. The remains at Aðalstræti 18 are thus seen as an addition or annexe to those at Aðalstræti 14-16.

[89] Nordahl 1988, Fig.26, pg.30

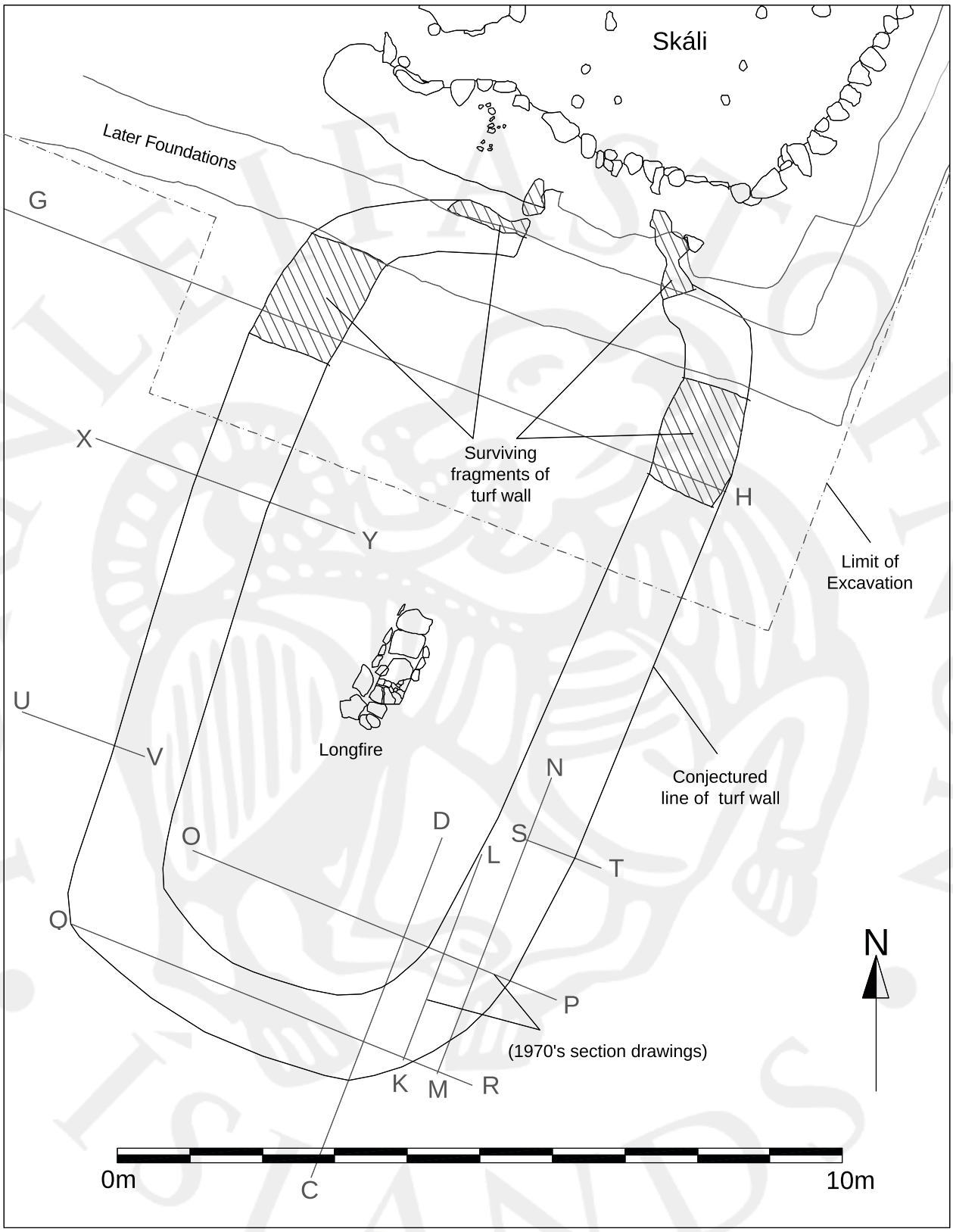

Figure 5.8 - Phase 2b. Southern Annexe

A thin deposit of possible floor (layer 752) was identified within the southern annexe. Layer 752 exhibited much poorer preservation than the floors of the skáli, but was found to contain circa 30 artefacts, primarily corroded iron objects (probably nails). This group represents by far the largest group of finds recovered from this structure.

The walls of this southern addition were very poorly preserved, surviving to a height of no more than 0.08m. Where surviving these walls were formed from one to three courses of turf, and seen to include the LNL tephra. No stone facing or revetting of these walls was observed. The remains of phases 2a and 2b were sealed beneath a sequence of largely sterile deposits, apparently natural in origin. The absence of any evidence for the repair of either structure suggests that neither was in use for any great period of time. It is suggested that both structures were abandoned not later than the middle of the eleventh century.

5.1.3 Phase 3

After the abandonment of the structures described above very little recognisable anthropogenic activity occurred on the site for some considerable period. Above the latter (phase 2) structures, the next clear evidence for human activity was encountered just beneath an horizon of fine dark grey to black volcanic tephra (layer 644), known to originate from the volcano Katla and dated to about 1500 AD (K~1500)[90]. Between the remains of the phase 2 structures and this latter horizon were a series of greenish grey deposits of silt with variable sand and grit content (281, 298, 312, 317, 319, 643, 654, 656, 658, 704 etc). Together, these layers form an accumulation of circa 0.4-0.7m of soil, with only a very few traces of highly fragmented and degraded bone, and very occasional small fragments of charcoal. These deposits are thought to indicate only minimal activity at the site itself, but do suggest continued occupation somewhere in the immediate area. Aggregate samples taken through this sequence will be analysed to shed light on site formation processes and possible land use (See Milek, above).

Layer 644 (K~1500) also sealed the fragmentary remains of a charcoal and stone deposit (layer 646), thought to represent a temporary hearth or bonfire. Two similar

[90]See Appendix 2, “Gjóskulagagreining”.

deposits were also noted, deposit 486 - a spread of charcoal rich soil, and deposit 286 – the charcoal rich lower fill of a shallow circular pit (feature 280). Pit 280 measured circa 1.4-1.5m in diameter and was up to 0.42m deep. Deposits 286 and 486 were both seen to be sealed by layers including patches of the K~1500 tephra, apparently in situ. Layer 644 (K~1500) was directly overlain by a thin pale yellowish / white deposit (layer 642). Layer 642 is thought to have been formed by the decay of vegetation caused by the tephra fall, and was sampled (<S039>) for possible phytolith analysis. The increase in activity evidenced by the above layers may represent the beginning of a change in land use towards the end of the 15th century. The impact of the K~1500 tephra fall may have been a further catalyst for change.

5.1.4 Phase 4 *(Figure 5.9)*

The K~1500 tephra horizon and associated layers were sealed by further deposits of greenish grey silt (layers 287, 461, 538). Layer 538 was in turn seen to be truncated by two highly irregular linear features (522 and 582), and by a large number of postholes. Many of these postholes could be seen to form a slightly irregular alignment, and are believed to be the only surviving evidence of a small timber structure, located directly above the southern end of the Viking period skáli. The maximum dimensions of the main part of this structure are 5.2m (length) and 4.5m (width). The structure is apparently rectangular in shape and is aligned broadly east-west. A number of other postholes and stakeholes may also be associated with this structure, possibly forming external enclosures or supports. The longer sides of the structure are apparently formed from double rows of posts, and there may be evidence of an internal partition at the eastern end. Unfortunately, no occupation deposits were noted in association with this structure, and no artefacts were recovered from this structure or from any associated features or layers. The function of this structure therefore remains enigmatic. Several of the postholes forming this postbuilt structure were found to truncate the fill of feature 522.

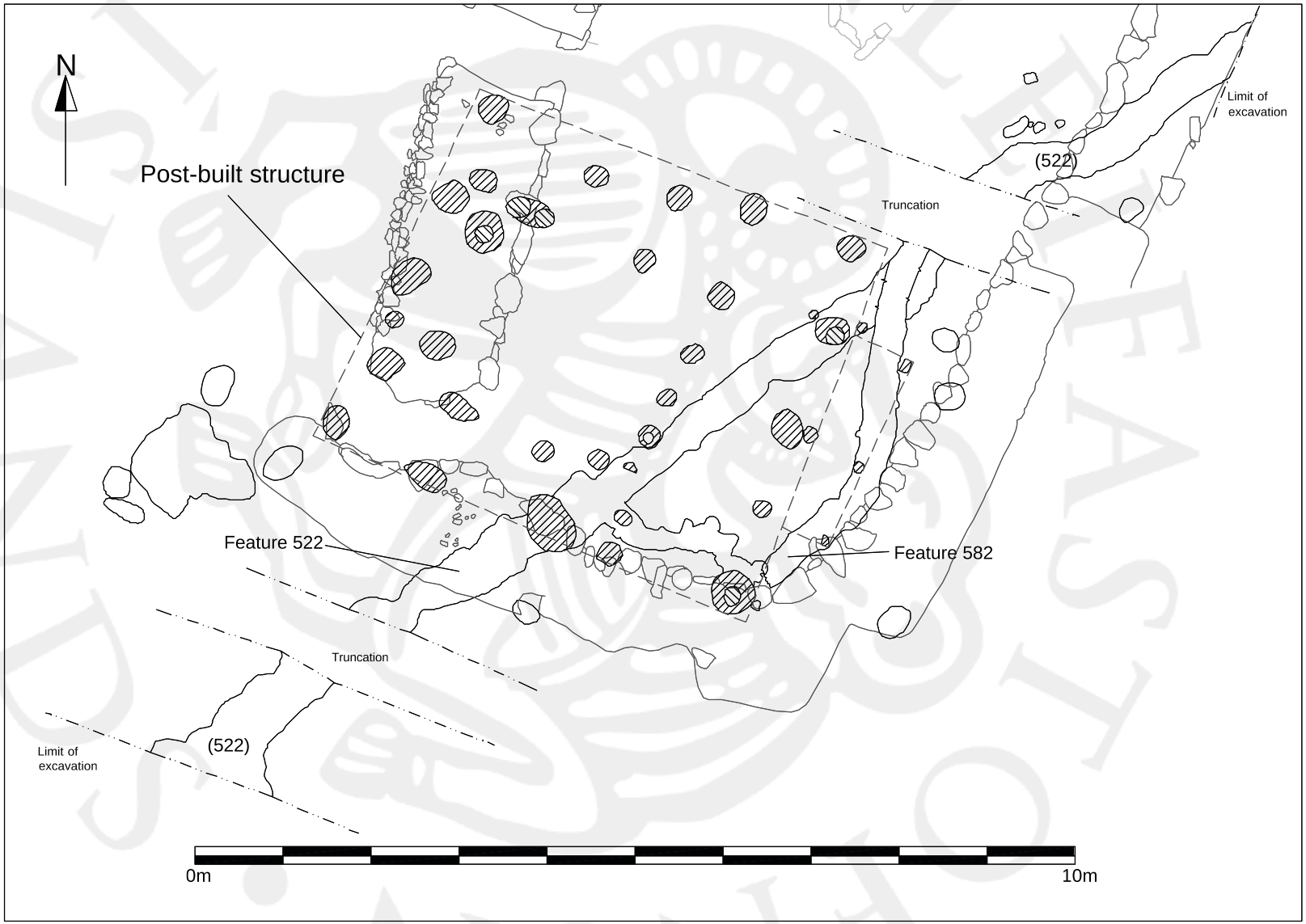

Figure 5.9 - Phase 4. Post built structure and possible boundary (feature 522)

Linear feature 522 extended 15.1m in length from the southern to the eastern limit of excavation, and was 0.4m -1.4m in width. The sides and base of feature 522 were shallow, concave and highly irregular, and its depth varied from 0.12 – 0.24m. The sides and base of feature 522 were typified by multiple intercutting small (c.0.1m) rounded depressions, and it is thought that these could have been formed by the removal of some possible structural element, possibly stones or small posts. An alternative hypothesis is that this feature was formed by the passage of livestock alongside a boundary line.

Either way, feature 522 is seen as a possible boundary or perimeter, and it is thought to be significant that the slightly later postbuilt structure is located at this perimeter. The smaller curvilinear feature 582, located south and east of feature 522 (see Figure 5.9), is thought to represent a modification in response to the construction of the postbuilt structure. Feature 582 is however also truncated by some postholes that may form elements of the latter structure. As such it is thought that the construction/formation of these features must be broadly contemporary.

5.1.5 Phase 5

Following the abandonment of the phase 4 remains, the whole site is then typified by the accumulation of fine orange brown silts, (layers 189, 205, 210, 212, 238, 250, 400, 451, 495, 510, 518, 523) containing only very limited indications of anthropogenic activity. These indicators take the form of occasional inclusions of small pinkish lenses of soil believed to be derived from peat ash. Taken together, the above layers amount to 0.45-0.60m of soil deposition. The interfaces between these layers were seen to be uneven and undulating, possibly as a result of the disuse of this area during this period and the effects of possible frost action. This process of site formation continues until the construction of new buildings in the 18th century.

It is noted that these deposits appear to document an acceleration in the rate of deposition for the period from circa 1500 AD onwards[91]. Such a change may be the result of many different factors. These may include changes in land use (the human

[91] See Appendix 2, “Gjóskulagagreining”.

impact upon the environment) as well as changes in the prevailing environmental conditions. It is hoped that further research can address these issues.

5.1.6 Phase 6 *(Figure 5.10)*

Sitting above the fine silt layers of phase 5 were the remains of a structure or structures that had apparently been destroyed by fire. The northern portion of these remains had been excavated or partially excavated during the 1970's. Another substantial part of these remains had been otherwise truncated by the construction of later buildings, cellars, chimneys and a well, and by the subsequent digging of trenches to lead cables and pipes to these later structures. Due to these later intrusions, the remains of phase 6 are highly fragmentary and incomplete.

Nonetheless, a number of structural elements survived - the footing of a wall, an external stone pavement, a paved entrance, 2 fireplaces, a possible oven, and the burnt traces of possible in situ beams. Also, evidence was noted for internal modifications to this structure prior to its destruction.

All of these features either exhibited burning or were beneath an extensive deposit of charcoal, burnt earth, brick etc. (layers 147, 300, 386, 388, 391, 420). The clearest and best preserved of these features was an extensive stone pavement (feature 167), that had been excavated in the 1970's. Further excavation to the south of the 1970's limit of excavation revealed an additional portion of this pavement (feature 401). Both elements of this pavement were bedded into a layer of coarse dark grey sand and grit (layers 179 and 425). Towards the western edge of this pavement was a row of large flat stones, a possible pathway leading to features that are interpreted as doorways/entrances at the north and south. At the western edge of the pavement were two rows of stones, arranged to show their fair face in opposite outward directions. These are thought to represent the footing of a turf wall, circa 1.5m in width and at least 9.18m in length.

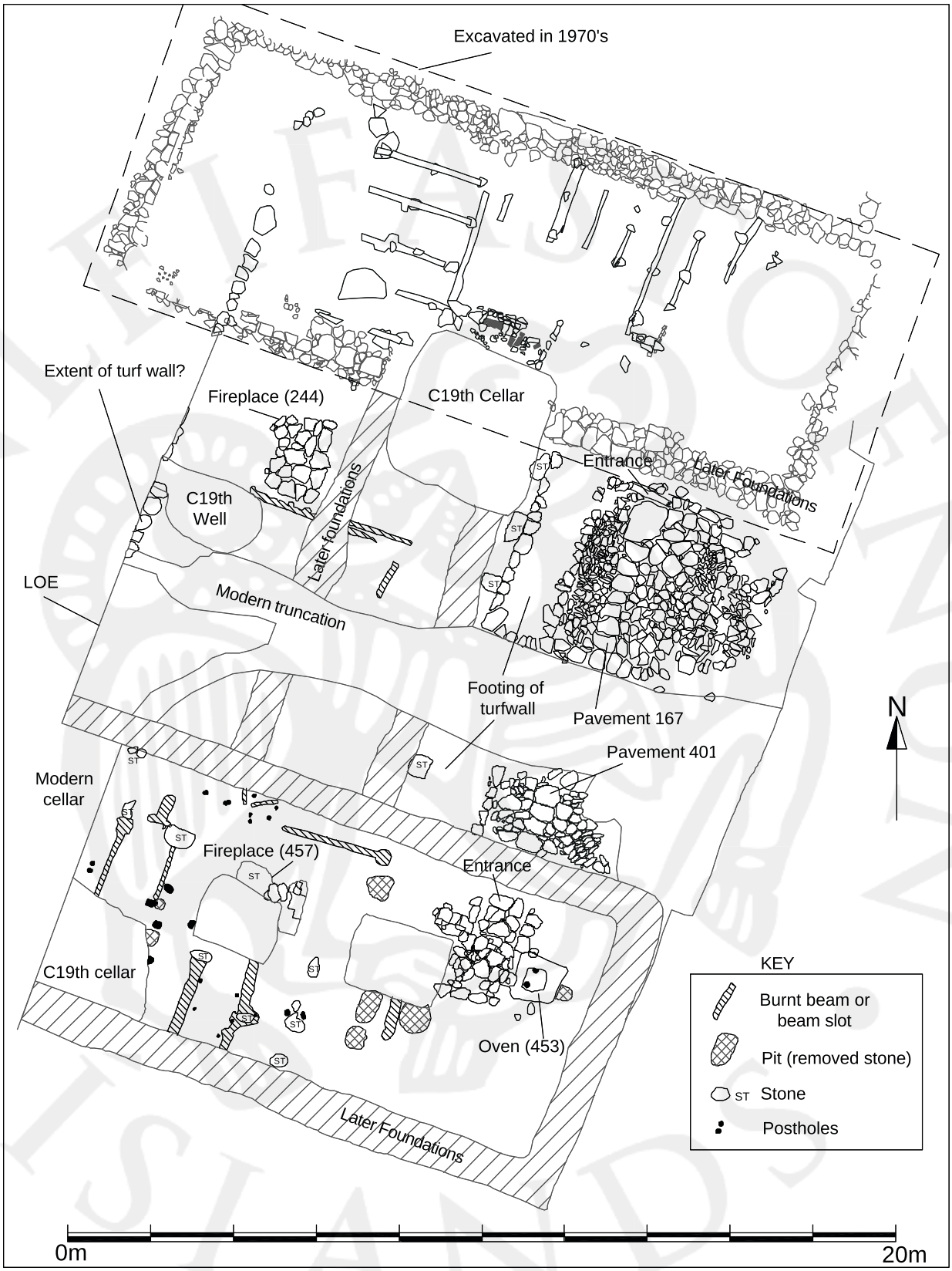

Figure 5.10 - Phase 6. Early factory period

At the western edge of this wall, four large flat stones were noted. These are thought to be postpads indicating the location of timber uprights, and are thus internal features. To the west and south of these features several narrow linear slots filled with burnt wood were noted. These are thought to represent floor joists that burnt in situ, or the bases of internal partitions. These features are aligned either parallel or perpendicular to the turf wall footing. Additionally, alignments of postpads and pits may indicate the position of further floor joists and/or structural divisions.

Within the southern part of the excavation two small features built of stone and brick were recorded (features 453 and 457). Feature 453 was located towards the eastern limit of excavation, and was formed by a shallow subsquare depression measuring 1.1m by 1.2m and filled with charcoal and brick fragments. This feature is interpreted as the base of a brazier or oven.

Adjacent to feature 453 was a slightly sunken area of stone paving (feature 445), measuring 2.7m in length and 1.2m in width. Feature 445 meets the possible pathway seen to traverse the stone pavement (167/401), and is interpreted as an entrance way. Feature 457 was located to the northwest of feature 453. This feature had been severely truncated by later activity, but is also thought to be a fireplace or oven.

A third possible fireplace (244) was located towards the northwestern limit of excavation. This feature was initially formed from a single course of flat rounded stones and measured 1.95m in length and up to 1.45m in width. These stones were later replaced by bricks (layer 237), and at a later stage a timber structure was built over these (feature 207). All three stages of this feature were seen to be beneath the widespread destruction horizon noted above (layers 147, 300 etc). Samples were taken from these layers for further analysis.

Large quantities of ceramic building material were recovered from this phase, along with glass, pottery, claypipes and a number of iron and other metal objects (see Mehler, below). Some quantities of well preserved animal bone were also recovered from this period (see Tinsley, below). Additionally, some fragments of cloth, and a piece of bone worked for button manufacture were recovered from layers sealed beneath the destruction horizon.

The interpretation of these remains is informed by the previous excavation and by historical data. The destruction of these structures by fire is believed to date to 1764. The additional data gathered by further excavation allows a modification of the sequence proposed by Nordahl. This is discussed below (See Discussion, 6.1.6).

5.1.7 **Phase 7** *(Figure 5.11)*

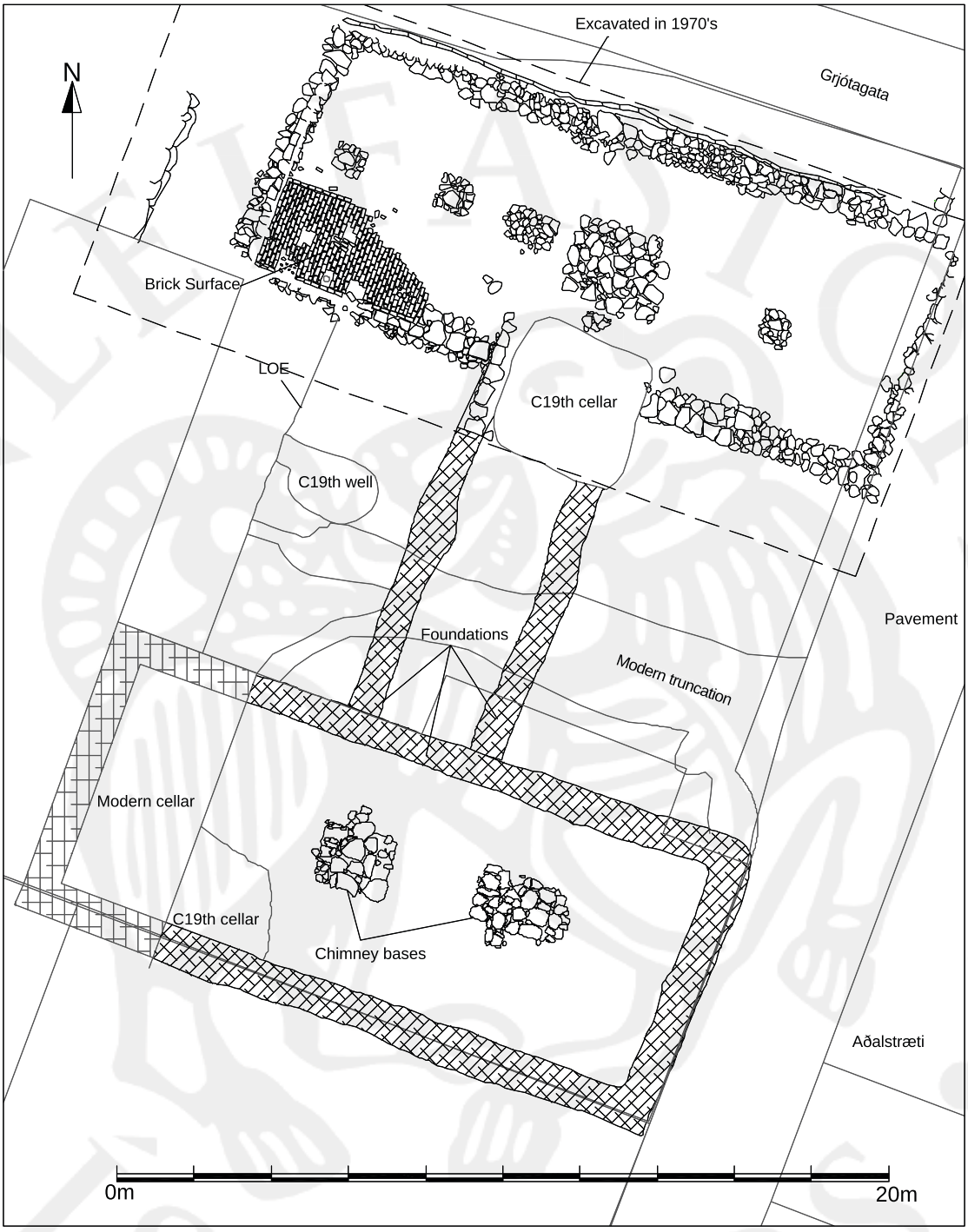

Figure 5.11 - Phase 7 - Later factory period

The major features assigned to phase 7 are the massive stone foundations of two rectangular buildings and a linking structure, and two subsquare stone filled pits, believed to be chimney bases. These features were seen to truncate an extensive destruction horizon (see above) along with a sequence of deposits including turf debris and burnt material. It is thought that before and/or during the construction of

these foundations, the remains of the Phase 6 structures were demolished and the debris was used to level the site. Prior to the commencement of excavation, the foundations of the southern wing were still occupied by a timber framed house at Aðalstræti 16. As such, these foundations continued in use, and both they and features associated with them had been modified on many occasions. It is thus debatable to what extent such features can be placed within a single period.

The upper, above surface portion of the southern foundations had clearly been altered in modern times, along with the continuation of those foundations into the walls of a modern cellar. The underlying courses of the foundations nonetheless filled rectilinear trenches measuring up to 0.95m in width and 1.35m in depth. These trenches were randomly filled with unworked, dense, dark grey stone, in pieces up to 1.10m x 0.80m x 0.80m, in a matrix of mixed soil. It was observed that foundation trenches adjoining the southern building at its northern edge had been constructed later than the foundations of the southern building, although possibly very little later. The southern foundations measured up to 17.6m x 8.0m, and the northern foundations 17.8m x 7.6m. Joining these two buildings were a linking structure measuring 9.6m in length and 4.5m in width(max). No above ground features could be connected with this cross foundation, and it remains questionable what this might represent, other than a passageway or corridor between the structures at Aðalstræti 14 and 16.

A large quantity of bricks, glass, iron objects and modern pottery was recovered from deposits assigned to phase 7 (See Mehler, below).

5.1.8 Phase 8 *(Figures 5.12 and 5.13)*

A number of deposits and features were noted that must postdate the construction of the the Phase 7 buildings. As these buildings continue in use for some time it is difficult to offer clear dates for these later features, but as a preliminary assigment these features are thought to belong to the 19th century, and may represent a change of use. Later foundations dated to the 19th century were identified by earlier excavations at Aðalstræti 14 and Aðalstræti 18. Aðalstræti 16 continued to occupy the same position, although the building was modified on a number of occasions.[92] Features assigned to this phase include the cellar of a building at Aðalstræti 14, the cellar of Aðalstræti 16, and a well within possible structural remains between the two buildings. Additionally, the upper courses of the foundations of Aðalstræti 16 had clearly been modified, with the addition of dressed stone blocks bonded by concrete.

The cellar of Aðalstæti 14 was formed from a large square pit measuring 3.1m-3.4m in both length and width, and up to 0.80m deep. The walls of the cellar were formed from large dense sub rounded dark grey stones, chosen but unworked. The base of the cellar was formed from irregular cut slabs of lightweight and highly porous lava circa 10cm thick. The northern part of the cellar base was missing, as the cellar had been partially excavated previously. Remnants of the original fill included coal, glass and brick fragments and modern ceramics. The cellar of Aðalstræti 16 was formed by an irregular rounded pit dug at the southwestern corner of the structure. This feature may have originally been substantially larger, but was heavily truncated by a later cellar – that later cellar still being functional when excavation began but possibly also dating to the 19th century. The earlier cellar of Aðalstræti 16 had been backfilled with various layers of debris, including a thick peat ash fill (deposit 330/336, sample<S27>). Beneath the backfill of the cellar were well made stone and brick steps, set in mortar. Three layers of steps survived, with a maximum width of circa 1.7m.

[92]Hjörleifur Stefánsson (ed) 1987, pgs 79-84

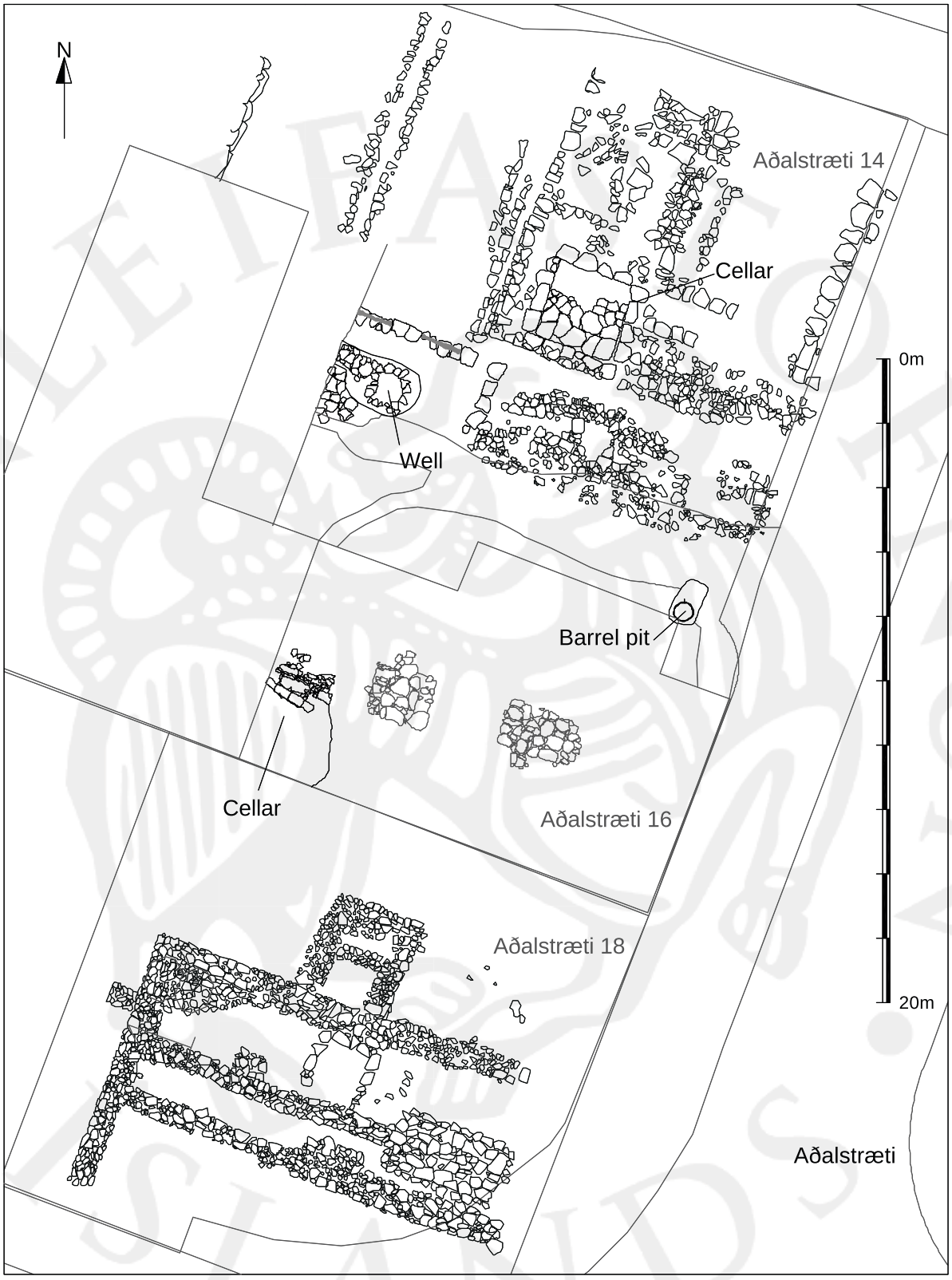

Figure 5.12 - Phase 8 - 19th Century

Between Aðalstræti 14 and 16, towards the western limit of excavation, the remains of a stone built well were uncovered (feature 130). The well had been excavated before in 1962 and backfilled with sand. It measured circa 0.95m in diameter, and survived

to a height of 1.70m above the natural sea floor bed. The sides of the well were formed from roughly shaped dark grey sub-angular stones measuring up to 0.40m in length, with up to 9 random courses. Upon excavation, a stone capped drain (feature 320) was discovered towards the base of the well. This drain lead into the well from the northwest, and continued beyond the limit of excavation. This feature is apparently contemporary with the well itself. Surrounding the upper courses of the well were the fragmentary remains of a stone and timber structure (feature 152).

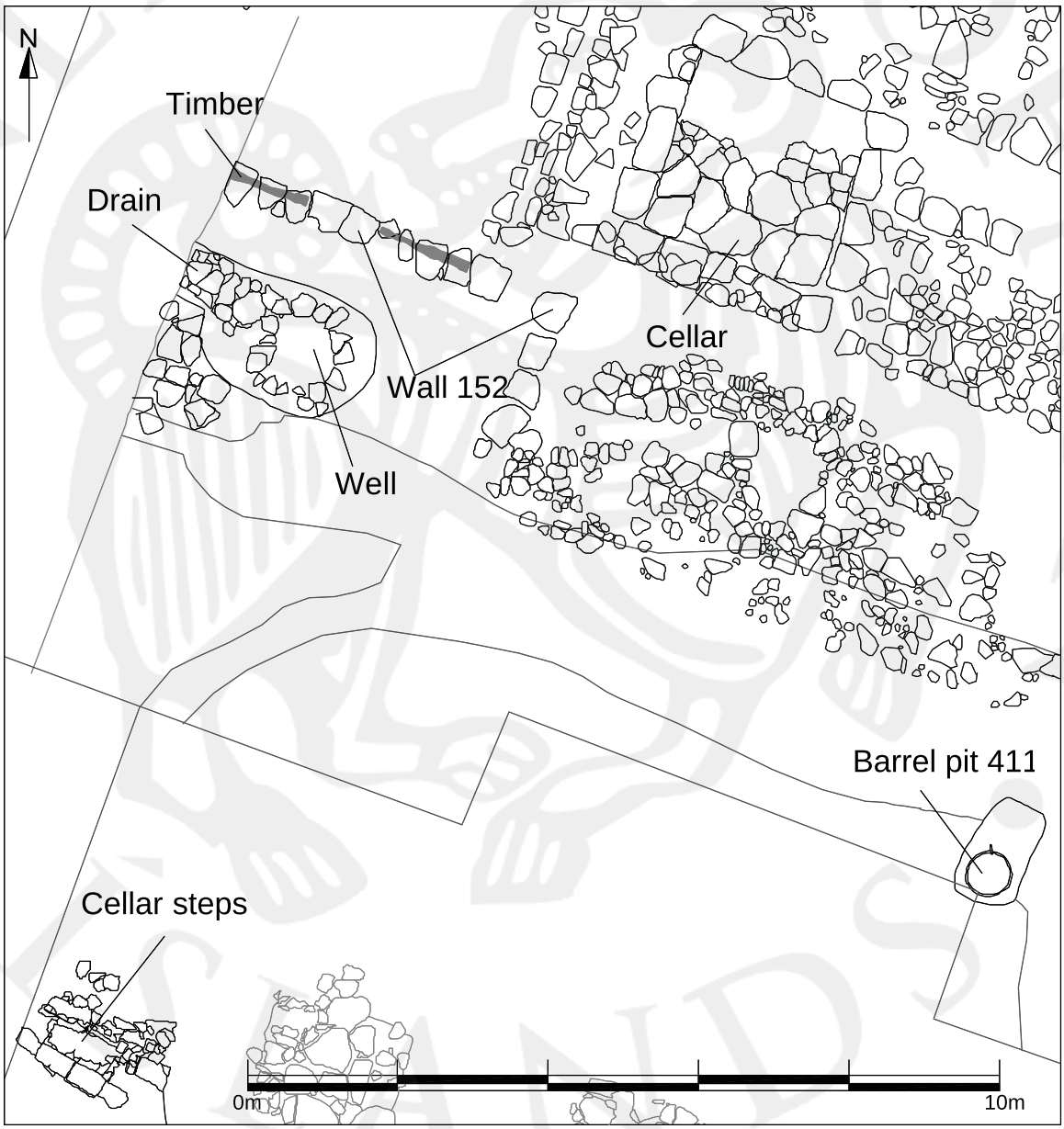

Figure 5.13 - Phase 8 - Detail of C19th features

Unfortunately, the previous excavation of the well had destroyed the stratigraphic relationship between these features. Feature 152 comprises an "L-shaped" row of

large flat stone blocks, and fragments of decayed timber lying across these. They are interpreted as the bases of two walls of a structure enclosing the well.

Immediately north of the eastern end of Aðalstræti 16, an oval pit (feature 411) was discovered to contain a well preserved barrel (context 409). The cut of this feature was seen to lie beneath a set of curving concrete steps, thought to date to the late 19th century. The fills of this feature (deposits 409 and 410) were found to contain modern objects, indicating the re-use of this feature in recent times.

A trench dug at Aðalstræti 18, from the western limit of excavations in 1971-75, revealed a substantial midden-like deposit. This included frequent animal bone, brick fragments, iron objects and some pottery and clay pipes. It is thought to represent a midden formed in the late 18th -19th centuries when the plot was occupied by a turf house belonging to the factories (circa 1752-1830) and later a dwelling (c.1830-1902). It predates the building of "Uppsalir" on the plot in 1902 as well as the building occupying the adjacent plot to the west, Túngata 2, built in 1899. This midden deposit had not extended far up-slope from the buildings at Aðalstræti 18 and seems to represent back-yard dumping and possibly cultivation on the plot.

Extensive remains of 19th century structures at Aðalstæti 14 and 18 were recorded during excavation in the 1970´s. This material is thoroughly discussed by Nordahl,[93] and will not be re-iterated here.

[93] Nordahl 1988

5.1.9 Phase 9

The 20th century building history of Aðalstræti 14, 16 and 18 is covered more adequately by an architectural study. Such exists,[94] and will not be re-iterated here.

5.1.10 Phase 10

The archaeology of the archaeology of Aðalstræti is illustrative of the developments in technique and methodology over the last 30 years, and may yet inform us of possible new approaches. Such a study is however premature at this stage.

[94] Hjörleifur Stefánsson (ed) 1987

6.0 DISCUSSION

Caveat.

The results of this excavation provide no evidence whatsoever pertaining to the identity of the previous occupants of this site. Such questions are beyond the remit of this investigation and are not thought to be susceptible to any archaeological proof.

6.1 Structures

6.1.1 Phase 1 – Pre 871

The earliest noted human activity at this site occurred sometime prior to 871±2AD. As such, this also represents the earliest known human settlement in Iceland. This activity is represented by the construction of a wall and the deposition of a charcoal layer. The wall (863) was overlain on both sides by the LNL tephra and is thus thought to be that of a boundary or a roofless structure. It is not thought to be the wall of a dwelling. These remains are poorly preserved, but imply similarly early human habitation elsewhere in the immediate area. The alignment of wall 863 (see Figure 5.1), and its relationship to the local topography, may suggest a focus of settlement to the northeast of Aðalstræti 14.

6.1.2 Phase 2 – Viking Period

The construction of the Viking Period skáli at Aðalstræti 14-16 took place at sometime after 871±2AD. This structure was found to lie over the LNL tephra, and to contain that tephra within the turf of its wall. The skáli is thought to date from the 10th century. Prior to the completion of further analyses (for example radiometric dating), a construction date of 925-950AD is suggested. As such, the skáli at Aðalstræti 14-16 cannot represent the earliest dwelling of the settlement of Reykjavík. The shape and layout of this structure - with bowed stone revetted turf walls, two original entrances, an oval central longfire and an internal post built superstructure - correlates well other structures known from this period. The dimensions of the skáli (16.7m x 5.8m internally) are not large, they are rather towards the smaller end of a range of sizes known for structures of this type and period. The longfire is however unusally large (4.37m x 1.07m). A detailed comparison of this structure with others of its type is ongoing.

The fragmentary remains of an additional Viking period structure were discovered at the the southern gable of the skáli. This addition was constructed after the skáli, but is believed to be contemporary in use. A new doorway in the southern gable of the main skáli was made as part of this construction, linking the two buildings. The southern addition is smaller than the northern skáli (circa 11m x 4.7m internally), and is also thought to be a dwelling.

Other than this addition, no evidence for repair or modification of these structures was noted. It is not thought that they can have been occupied or in use at anytime after circa 1050AD, and were not replaced by other buildings at this site. A possible line of evidence that may support an eleventh century abandonment is the location of the early church of Reykjavík. The positioning of the church, opposite these structures, may imply that the structures were in use when the site of the church was chosen.

Other Viking period buildings are known from this area of central Reykjavík (see Snæsdóttir above). Prior to further excavation in the intervening building plots little can be said about the precise relationship between these structures, neither in terms of exact relative function nor exact contemporaneity. The positioning of these remains nonetheless requires some comment (See Figure 2.1, above). It is apparent that what we know so far of Viking period Reykjavík respects a linear alignment, and not a nuclear cluster of structures. This is thought to be due to local topography, requiring the placement of the settlement at the foot of a slope, but may be indicative other special conditions, not least the absence of a previously established settlement topography.

6.1.3 – Phase 3 –Circa 1050-1500AD

Following the abandonment of the Viking Period structures at Aðalstræti, only minimal activity is noted at the site prior to the deposition of the K~1500 tephra horizon. The focus of the settlement of Reykjavík must have been relocated during this period. Evidence from previous excavation suggests a location to the south, in the area of Suðurgata/Tjarnagata (See Snæsdóttir above). It is suggested that the Aðalstræti area was at this time utilised for grazing and/or hay production.

6.1.4 –Phase 4 - Post built structure and possible boundary – circa 1500-1600AD

The function of this rectilinear structure and the associated possible boundary remains unclear. These features/structures apparently fell out of use without any accumulation of organic/occupation deposits, and without the deposition of any artefacts. They are thought to have been in use for only a short period of time, and to be indicative of some agricultural/subsistence activity at the periphery of a settlement. One possible interpretation is that the rectilinear structure may have been a drying rack *(Hjallur)*, but no clear evidence can be offered to support this.

6.1.5 – Phase 5 – Circa 1600 -1750AD

Following the abandonment of the Phase 4 structures, the site reverts to a period of only minimal use. Together with Phase 4, the period from 1500 to 1750AD is notable for the rapid deposition of sediment. Once again it is suggested that the Aðalstræti area was at this time utilised for grazing and/or hay production.

6.1.6 Phase 6 – The Early Factories

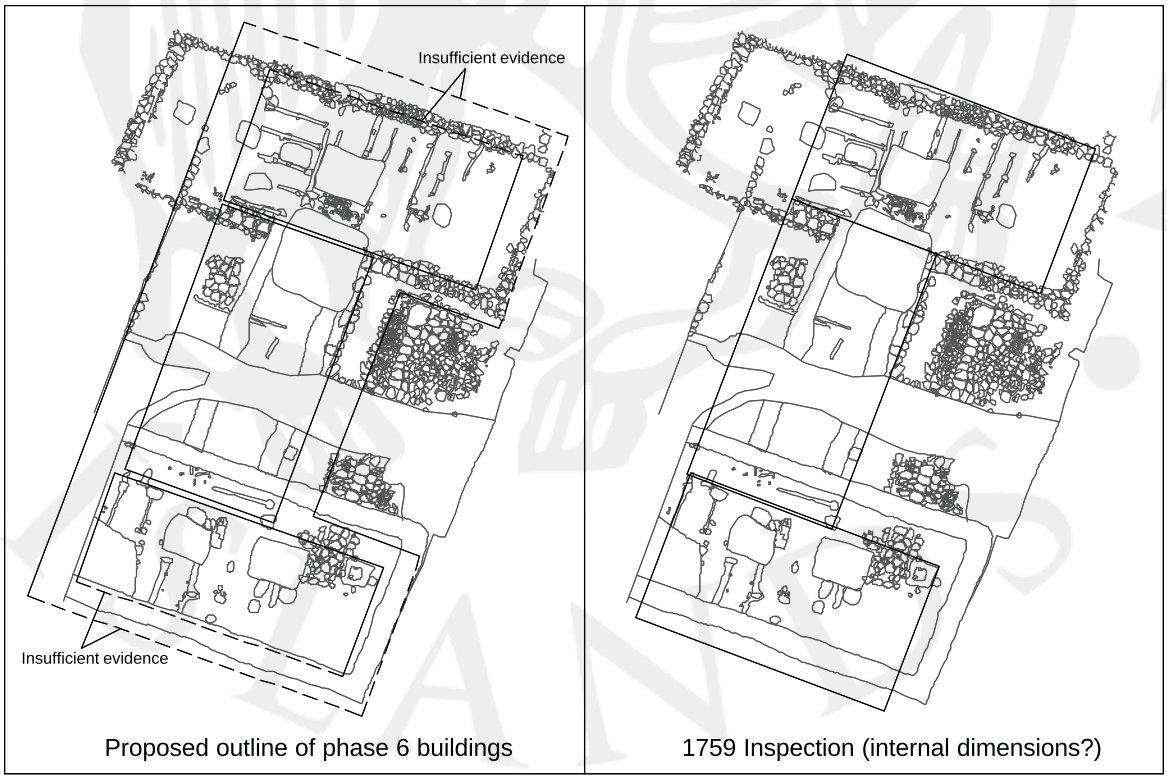

Figure 6.1 - Early factory period

These fragmentary remains are interpreted as the earlier phase of the Inréttingar buildings, in agreement with Nordahl.[95] They are identified as the "Zieumager Fabriqve" described in an inspection report of 1759, and known to have been destroyed by fire in 1764. The interpreted layout and size of these buildings is in good accordance with the dimensions given for the 1759 inspection, although, as noted by Nordahl one must assume that these are the internal dimensions and accept that there are some minor discrepancies. These buildings are known to have been used for the manufacture and processing of textiles. This is supported by the recovery of textile fragments and buttons from these deposits (See Mehler, this report).

It is unclear precisely when these buildings were constructed, although a date of 1752-1754 is suggested.[96] It is noted that this evidence suggests a very short period of use for this structure, whereas one fireplace (feature 244) gives evidence for the successive re-modelling of some features of this building. It remains possible that the central early factory building incorporates some elements of a pre-existing structure. This point will be clarified by the ongoing study of the excavation archive.

6.1.7 The Later Factories, the 19th century and modern use.

Following a major fire in 1764 the buildings at Aðalstræti 14-16 were comprehensively redesigned and reconstructed. The massive stone foundations and chimney bases used for this purpose indicate a considerable commitment of resources, and a new type of building. They do nonetheless appear somewhat excessive for the structures that occupied them. As noted by Nordahl[97] (for Aðalstræti 14) these buildings match well the dimensions given for them by taxation inventories. After the closure of the factories, these structures remained in use but underwent several modifications. A detailed comparison of the archaeological record with known historical data remains to be undertaken. Whether or not it is possible to archaeologically confirm the building history proposed by Hjörleifur Stefánsson et al.[98] is not yet clear and requires further study.

[95] Nordahl, 1988, pgs 24-27
[96] Hjörleifur Stefánsson (ed) 1987, pg 29
[97] Nordahl 1988 pg 26
[98] Op cit. pgs 79-83

7.0 THE FINDS – (Natascha Mehler)

The excavation at Aðalstræti 14-16 recovered a total of 5571 objects, recorded under 1275 numbers (see Table 7.1 and Appendix 7). All finds were cleaned, dried and registered in the excavation database. In case needed, objects were stabilized by conservator Jannie Ebsen. To date further detailed investigations have been carried out on the stones and stone artefacts (stone types were identified by Prof. Sigurður Steinþórsson, Háskóla Íslands, and Sveinn Jakobsson, Náttúrufræðistofnun Íslands), the pumice (Dr. Anthony Newton, University of Edinburgh), the coins (Anton Holt, Myntsafn Seðlabanka Íslands og Þjóðminjasafns Íslands) and the clay pipes (Natascha Mehler, Fornleifastofnun Íslands). On completion of the post-excavation study, all finds will be deposited at Árbæjarsafn.

Material	Sum	Find categories
Ceramic	3459	Bricks (2741), pottery (492), clay pipes (186), others (40)
Glass	915	Fragments of window glass, vessels (911) and beads (4)
Metal	665	Iron nails (87), copper alloy fragments, buttons, tools, coins (3), unidentified objects.
Stone	313	Building material, unworked stones, mineral coal (7), stone objects: worked or unworked (313)
Wood	116	Wood, worked and unworked (86), samples of charcoal (30)
Textile	37	Cloth, threads, felt and wadmal (*vaðmál*) (37)
Others	21	Other materials (11) and unknown materials/objects (10)
Mortar	14	Samples (14)
Composite	11	Knife, nails, tools, dress ornaments (11)
Leather	10	Shoe- and belt fragment, others (10)
Bone	10	Worked bone artefacts : buttons, handles, comb, walrus (10)

Table 7.1: Find categories from all Phases, sorted by material and sum.

The finds can broadly be divided into three main groups. The majority of objects belong to the 19th and 20th century, Phases 8 and 9. A second large group was found in contexts of the Factories. These can be dated to the 18th century – both by typological criteria and by stratigraphic evidence. The third group of artefacts belongs to the Viking period. Artefacts from the later medieval phases 3 and 4 are almost completely absent, as is any substantial evidence of occupation from this period.

Finds from the Viking period (Phase 2)

A total of 543 objects (9.75 %) were recovered from contexts of Phase 2, dating to the Viking period. Although there are a some earlier contexts, no artefacts were found below the longhouse or the LNL tehpra horizon (Phase 1). The finds are of stone, metal, bone and glass.

Most of the Viking age finds are of stone, 202 in total. The stones were identified by Sigurður Steinþórsson (Háskóli Íslands) and Sveinn Jakobsson (Náttúrufræðistofnun Íslands). The types include amigdale, basalt, jasper, chalcedony, limonite, onyx, opal, pumice, quartz, rhyolite or liparite, sandstone, schist, steatite and zeolite or desmin (see Figure 7.1). The majority of stones are unworked. Almost all of them do not occur naturally in the area of Reykjavík, where only basalt and pumice can be found. Red jasper could come from the area of Borgarfjörður, Amigdale maybe from the Esja area. The objects made of Schist and Steatite are imported, all other stones are native to Iceland. The purpose of the stones discovered at Aðalstræti is unknown. They might have to do with folk believe or could have been used as gaming pieces or toys.
Only few of the stones are worked. AST 01-1165 is a loom weight made of basalt with a drilled whole and a weight of 83 g. Two other pieces of basalt could have been used for the same purpose, although it is unclear if the holes are natural or if they are man-made (AST 01-1155 and AST 01-1174). Both are rather heavy, the first weighing 252 g, the latter 224 g. The four recovered spindle whorls represent two different stone types: three are made of rhyolite, one is made of steatite. AST 01-739 and AST 01-740 are very similar: both are made of blueish grey rhyolite, the first with a weight of 39 g, the latter 38 g. AST 01-743 is also made of greyish rhyolite, but slightly smaller with a weight of 25 g. AST 01-737 is a spindle whorl made of steatite, most likely a reused vessel fragment (see Appendix 8). Other stone artefacts are made of both light and dark coloured Pumice. At least six of the pumice finds are worked. AST 01-765 is a ring made of pumice, possibly an ornament. The others were probably used as smoothing tools (see Appendix 9).

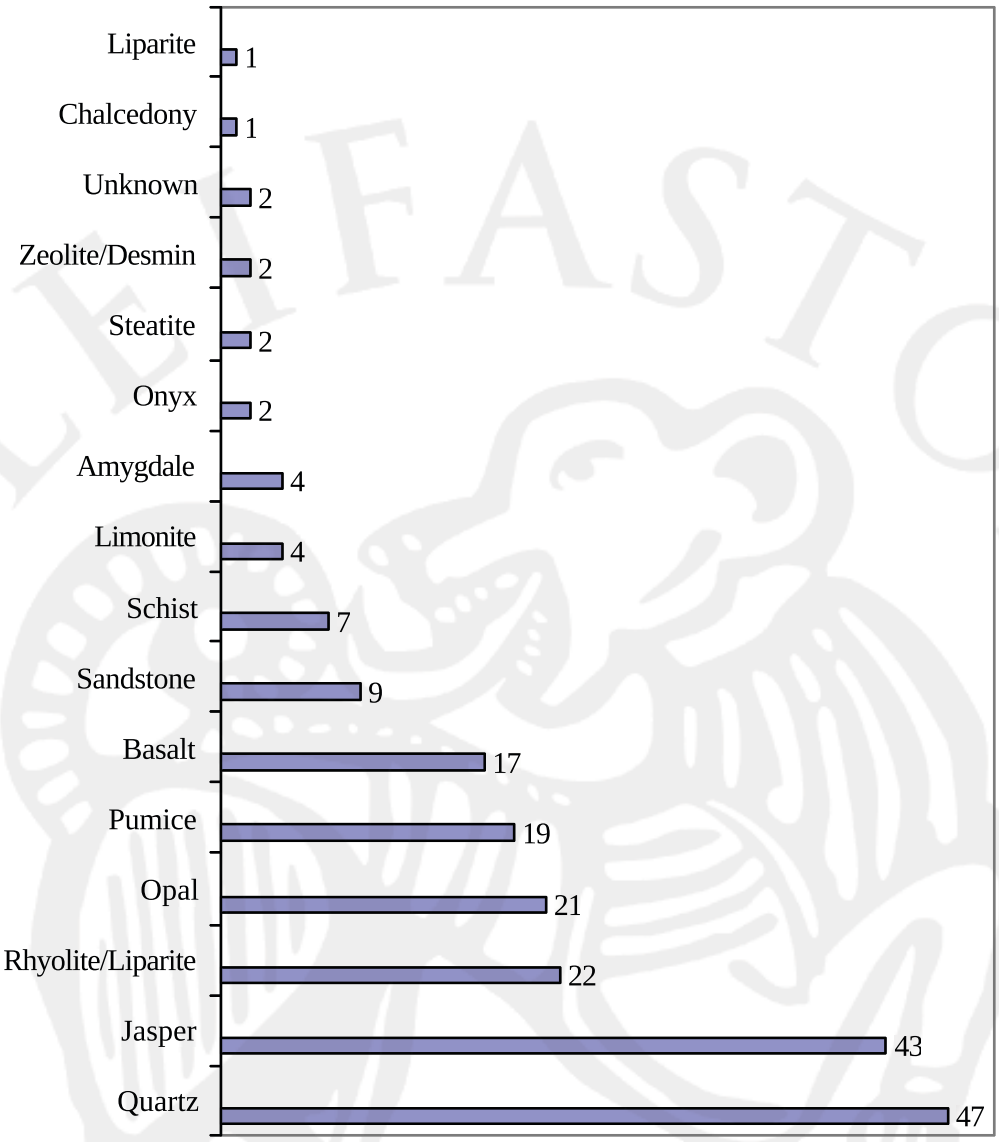

Figure 7.1: Stone types of artefacts from the Viking period (Phase 2) (N=202)

At least 308 objects from the Viking age (Phase 2) are made of iron. Most of them are rather corroded and many are not identifiable. Nails are the most numerous type of iron aretfact. Their length ranges from 1, 8 cm (AST 01-1231) to 4, 9 cm (AST 01-1206), some of them are double headed and may be rivets (for example AST 01-1198 and AST 01-1212). Sometimes several nails were found either close together or in the same layer (for example 15 nails were found in context 747). In such cases they could have been part of the same construction or even a piece of furniture. Two knifes were also recovered: AST 01-1187 is part of a knife blade with part of the wooden handle

still preserved, with a surviving length of 11, 7 cm. AST 01-977 could be the fragment of another knife. AST 01-1221 is a small and complete iron hook.

Several slag pieces (for example AST 01-985, AST 01-990 and AST 01-1008) suggest that iron smithing was going on at Aðalstræti 14-16. The slag fragment AST 01-985 contains macroscopically visible pieces of burnt bone, suggesting that bone was used as flux to lower the melting point. Similar slag has also been found at the Viking age trading site at Kaupang, Norway[99]. A metallurgical analysis of the slag from Aðalstræti is suggested. Another find may be associated with iron manufacture: AST 01-1205 is an iron bar, 12.0 cm long and with a surviving weight of 55 g.

Three objects of other metal were found: two tiny copper alloy fragments of unknown purpose and one complete but damaged weight. The weight (AST 01-1266) is rectangular, with a slightly trapezoidal cross section. The core is made of lead, surrounded by copper alloy. Its present weight is 27.7 grammes. The upper side is decorated with a square shaped incision. Viking age weights with similar forms are known from Scotland, but these are decorated with enamel.[100] No similar weight has yet been found in Iceland.

Three almost complete walrus tusks were found inside the longhouse (AST 01-1273; AST 01-1274; AST 01-1275). They were professionally extracted from the animals skulls and are most likely unused craft material, representing some of the largest pieces of walrus ivory ever found in Iceland (see Appendix 3).

Three complete and rather well preserved glass beads were found: one of red colour (AST 01-1035), one small yellow bead (AST 01-1036) and one light blue with wavy purple decoration (AST 01-1037). The two plain beads are of a rather common type. To date no comparative material for the decorated bead is known from Iceland. The beads were probably not made on site, since no glass slag has been found around the longhouse. Further analysis of the beads will be undertaken by Elín Hreiðarsdóttir (FSÍ). A more detailed analysis of the Viking age finds will follow. Further analyses are suggested for the slag and composition of the iron.

[99] Pers com Unn Pedersen
[100] Crawford 1987, 127.

Finds from the Middle Ages (Phase 3)

The number of objects dating to the medieval period is very small. In total only 11 artefacts were found below the tephra layer of Katla ~1500. A piece of grey basalt with a hole in it was found (AST 01-707). It was registered as a loom weight, but according to Sigurður Steinþórsson, the hole is natural and not man made (although this does not preclude its use as such). Another piece of stone, of limonite, could be worked since the edge is slightly wavy (AST 01-726). In both cases the purpose of those stones is unknown. AST 01-1268 is a worked fragment of whale bone. It is flat and rectangular but the surfaces are neither polished nor decorated. The purpose of the object is unknown. Eight fragments of burnt wood were found in context 286 (AST 01-1151). The wood seems to be worked and could be building material.

Finds from Phase 4

Only one object was recovered from Phase 4 (the 16th century). AST 01-1225 is a complete but corroded iron nail found in context 635.

Finds from Phase 5

Only a few artefacts were recovered in contexts belonging to Phase 5. Their composition is rather similar to those found in Factory layers, and it is very likely that these finds are intrusive. Amongst the objects are few pieces of bricks, types I and II (for example AST 01-933), window glass, pottery made of redware, few clay pipe fragments and sherds of glass vessels. AST 01-1236 could be the head of an iron key, AST 01-304 is a bullet or a weight made of lead. Four fragments of a whetstone were found (AST 01-377) and AST 01-735 is the body sherd of a rather large and thick walled soap stone vessel, most likely imported from Norway (see Appendix 8). This piece is possibly re-deposited.

Finds from the Factories (Phase 6 and 7)

The finds from the Factories (*Innréttingar*) form an interesting collection of artefacts from the 18th century. As expected, little of the material is of a domestic character. Only a few fragments of ceramic and glass vessels and personal belongings have been found, indicating that Aðalstræti 14-16 was not a domestic residence. On the other hand, fragments of equipment and tools one would expect to find in a wool factory were also rare. This may be explained both by the fire in 1764 and extensive

truncation in the 19th and 20th century. Looms and wool-working items would mostly have been of wood, which has not survived the fire. The only finds related to wool working are a few fragments of malachite, which was probably used for dying cloth. Furthermore, the rim sherd of a vessel made of graphite clay (AST 01-540) could belong to a variety of technical ceramic, such as a stove tile, a crucible or another vessel type used in a process where much heat is required.

Building material

Bricks or brick fragments from the *Innréttingar* are the largest group of finds from Aðalstræti. 2185 fragments have been found in contexts belonging to the Factories, 79.7% of all brick finds in total. Seven different fabric types from Phases 6 to 9 could be distinguished (see Table 7.2). All types except IV had been used in the Factory buildings. Types I, II and III were found in many layers and a great number seem to have been re-deposited. Brick types VI and VII only occur in contexts 430 and 431 – demolition deposits of the Factory chimney from Phase 6. As such, the chimney of the older factory building was made of a brick type different from the rest of the building.

Type	Size	Description	Phase
I	Fine: 21,0 × 10,6 × 3,9 Coarse: 24,0 × 12,2 × 5,8	Yellow fabric, occurs both coarse as fine; coarse fabric with red clay and large white quartz inclusions, poor quality, breaks in layers; finer fabric rather sandy, less coarse.	6, 7, 8 and 9
II	21,1 × 11,0 × 4,1	Light red to light brown fabric, medium coarse to fine, medium sandy.	6, 7, 8 and 9
III	22,0 × 10,9 × 4,5	Red fine homogenous fabric, sandy.	6, 7, 8 and 9
IV	? × 10,7 × 7,9	Purple to red fine fabric, shell inclusions, breaks in small rectangular pieces; only 1 fragment, found in context 128.	9
V	? × 11,1 × 5,3	Dark red fabric, hard fired, some yellow clay inclusions, rough surface. Only few fragments found.	7, 8 and 9
VI	25,3 × 12,2 × 5,0	Red hard fabric, medium fine, different from type III. Only found in contexts 430 and 431.	6
VII	? × 9,7 × 3,8	Greenish to yellowish fabric, medium coarse, few large inclusions of chalk and black minerals. Only found in contexts 430 and 431.	6

Table 7.2: Typology of bricks found at Aðalstræti.

It is most likely that all the bricks were made in Denmark. It is known from written sources that Skúli Magnússon, the founder of the Factories at Aðalstræti, imported building material from Denmark.[101] Brick type I exists in two variations: coarse and fine. The coarser version is of rather poor quality, maybe a product Skúli could obtain for a better price. The production site of the bricks is not known.

Written sources indicate that experiments were undertaken in firing clay for domestic purposes in historic times.[102] So far no evidence of Icelandic clay products has been found. When the bricks at Aðalstræti were excavated, the fragments of type VII (Phase 6) seemed to be rather different from the other types. A sample was therefore taken to Prof. Sigurður Steinþórsson at the Geological Department of Háskóli Íslands. After macroscopic examination, there appeared to be black lava-like inclusions in the bricks. Thin section analysis has shown that the clay used for those bricks is not Icelandic. Both the composition and the quartz minerals in the clay are different from Icelandic clay.

Most of the window glass excavated at Aðalstræti belongs to Phases 6 and 7. Both the old and the new buildings were provided with clear and light green window glass, leaving 273 fragments behind. The majority is of light green colour, containing few air inclusions. A few other fragments are of clear glass. None of the sherds shows any signs of paint or other decoration, but some bear scratch marks.

There are 25 wooden finds belonging to Phases 6 and 7, mostly burnt building material such as planks or boards. None of them bears construction marks. It seems that slate was not used in extensively in the structures of the Factories: only a few fragments have been found in Phases 6 and 7.

Cloth-working items

A few finds from the 18th century can be associated with processes carried out in the wool Factories at Aðalstræti. Three fragments of coal (*steinkol*) have been found in contexts from Phase 6. Coal has been imported to Iceland at least since 1732.[103] The

[101] Jón Jónsson 1911, 104 f.
[102] See for example Ólafur Olavius 1965, 197 f and 288.
[103] Páll Víðalín & Jón Eiríksson 1985, 190 f.

appearance of these fragments at Aðalstræti indicates that the houses were in part heated with foreign coal of unknown origin. Several geological objects with small greenish copper-like inclusions were found (22 in total). They were analysed by Prof. Sigurður Steinþórsson, who suggested that these formations are malachite (*Malakít*), or maybe brochantite (*Brochantít*). Malachite is a copper containing hydroxy-carbonate and can be found in Iceland.[104] Malachite has been used in the process of dying cloth, giving a turquoise colour. All but two of these objects were recovered in contexts dating to the 18th century, clearly associated with the structures of the Factory. Of these, 14 were found in the burning horizon of 1764. The Malachite is the only group of finds that can be related to the process of manufacturing cloth.

Textiles, buttons and dress adornment

Most of the textile and dress ornament fragments discovered belong to contexts dating to the Factory periods. The finds include woollen threads and cordages, woven cloth, various buttons of copper alloy, bone, lead, composite material like copper alloy and glass, the fragment of a leather belt and a leather shoe. No felt or wadmal (*vaðmal*) was found in the 18th century contexts (only in modern layers). Fragments of cloth, threads and hair represent several states in the process of textile and wool manufacturing: from hair to spun wool and finally to woven cloth. The preservation of these objects is rather poor, but surprisingly, some pieces have survived in the fire layers. No colours are visible and microscopic analysis of fleece type and colour has not yet been undertaken. To date all threads seem to be S-spun. Two fragments of woven woolen yarn are plain woven: AST 01-075 is probably of 2-ply cord, S-twisted and plain woven; AST 01-1085 is very similar, but the threads are finer and the fragment is burnt. Several cords are represented: 1-ply cords (AST 01-342, 2 fragments, burnt; AST 01-1252); 2-ply cords, S-twisted (AST 01-358; AST 01-1252), 3-ply cords, S-twisted (AST 01-358; AST 01-342, 3 fragments (burnt); AST 01-1252); 4-ply cords, S-twisted (AST 01-358). A few tiny pieces of fine S-spun threads are recorded as AST 01-272. Further analyses of the textile material is suggested to examine the process of weaving and dyeing. The Icelandic National Archives

[104] Kristján Sæmundson & Einar Gunnlaugsson 1999, 187 and 214.

(*Þjóðskjalasafn Íslands*) has several original textile samples from the Factories. These were sent to Copenhagen in order to convince the king of their quality.[105]

Nine buttons have been found, all of different types. Six are made of copper alloy, two are made of lead and one is made of iron. Three buttons were found in context 452, the fill of a fire place. It is unknown whether the buttons were intended for clothing made in the Factories, or if they belonged to the employees. It is not known if the copper alloy buttons were made in Iceland. The production of bone-buttons has on the other hand taken place at Aðalstræti. AST 01-402 is a fragment of a worked mammal long-bone. It includes two half finished buttons of round shape with a diameter of 1,5 cm and a central eye and the outlines of two further buttons. AST 01-1170 includes two different eyes of copper alloy, probably belonging to buttons or dress hooks. AST 01-825 is a glass bead of clear colour in poor condition. The form is facetted (pentagonal) and similar to beads produced in The Netherlands.[106] Two leather objects were found. AST 01-352 is likely to be a fragment of a folded belt made of fine thin leather (species unknown), found below the fire layer of 1764. The belt is without ornamentation. AST 01-404 is the front part of an 18th century flat and heel-less man's shoe (leather species unknown). The cut shape of the vamp (the upper) is that of a slipper.[107] The slipper is welt-sewn, its tip and sole are rather rounded. The upper part is connected with the insole, mid-sole and outsole by a separate welt. No remains of packing in between sole layers survived. One complete belt buckle made of copper alloy was found in context 470 (Phase 6, AST 01-918). It is of rectangular shape and bears no ornamentation.

A number of other small finds represent the material culture of the 18th century. Domestic utensils such as pottery, glass vessels, whetstones and fragments of fish-hammers (*fiskisleggja*) made of basalt were found as well as personal belongings such as a writing tool, a gaming piece, a fragment of a fine glass goblet and numerous clay pipes (see Appendix 6).[108]

[105] Hrefna Róbertsdóttir 2001, table e – k.
[106] Similar Dutch glass beads have been found for example in Hope Colony, Greenland. See Gulløv & Kapel 1979, 67.
[107] Similar shoe fragments have been found for example in Hope Colony in Greenland. See Gulløv & Kapel 1979, 168-171.
[108] The clay pipes are to be published in Mehler (forthcoming).

Ceramics

The excavated pottery fragments from the Factory periods are products of redware, porcelain, faience, creamware and stoneware. No medieval or Viking age pottery was found. The oldest identified piece, a body sherd of a german stoneware jug, can be dated to the late 16th or early 17th century (AST 01-394). Most common in the Factory contexts are redware vessels, which were every-day ceramics in those times and mainly used for heating food and serving meals. Jugs and bottles were made of stoneware. Creamware sherds are rather few, as is the case with pieces of faience and porcelain which can be considered as more luxurious vessels made for the purpose of serving food.

Of a total of 15 fragments of porcelain, 6 were found in contexts belonging to Phases 6 and 7. Two sherds which are probably from the same vessel have been found in contexts 437 and 448, both belonging to Phase 6 (AST 01-551 and AST 01-832). They belong to an 18th century coffee cup, which are very often brown glazed externally. Another coffee cup is represented by fragments AST 01-636 and AST 01-124. To date it is unknown whether the porcelain was made in Europe or China. Chinese porcelain was readily available in north-west Europe from the last quarter of the 16th century and in that time mainly distributed via Dutch markets. During the 17th and 18th century the market for such wares steadily increased. In 1732 the Danish-Asian Company was established which lead to the import of Chinese porcelain to Denmark.[109] It is therefore quite concievable that Chinese porcelain was also brought to Iceland. 18th century porcelain has also been found at Viðey, Hvaleyri and Arnarhólstraðir.[110]

In total 17 fragments of faience were found, all of them dating to the Factory period. Their fabric is buff in colour and rather fine, the surfaces are covered with a white tin glaze and decorated with blue painting. Two sherds are re-deposited: AST 01-530 and AST 01-337 were found in contexts of Phase 9, but belong to a faience plate of the 17th century. AST 01-343, AST 01-465, AST 01-466 and AST 01-467 are 10 fragments of (mininimum) two small plates from the same manufacturer, dating to the

[109] Fjellheim 1981, 127; Hurst et al. 1986, 9.
[110] Guðrun Sveinbjarnardóttir 1996, 121.

18th century. They are most likely of Dutch origin, although faience was also produced in England and Scandinavia.

Creamware, very common in the 18th century and produced mainly in England, is represented by 9 fragments in the Factory contexts (18 in total). The sherds are rather small and their vessel form is therefore unknown. All were found in contexts of Phase 6 or in the fire layer of 1764.

8 stoneware sherds were found in layers of Phases 6 and 7. They belong to a minimum of 7 different vessels like bottles or jugs. All but two sherds are secondarily burnt, and their origin is unknown. Body sherd AST 01-394 has been found in a context of Phase 9, but can be dated to the late 16th – 17th century. From its fabric and external speckled brown salt glaze it can be identified as belonging to a so-called "Bartmann" jug, made in Frechen close to the city of Cologne. Examples of these jugs, decorated with a bearded manshead close to the rim, have also been found in Skriðuklaustur, Kópavogur, Reykholt, Belgsholt, Skálholt and Viðey.[111]

Redware is represented by 181 fragments in total. At least 76 (42 %) of them were found in contexts belonging to Phases 6 and 7, several others definitely originating in the 18th century were found in later layers. Vessel forms include plates, bowls, pans and tripods. The fabric is usually bright red to red and rather fine (the fabric of the secondarily burnt sherds is unknown). Internal and external lead glazes are mostly brownish to orange in color, a few others are covered with a greenish lead glaze. Several fragments are slip-decorated with so-called "Malhorn" decoration that was rather common for the 16th, 17th and 18th century. Plates and tripods with these whitish, yellow or green paintings were mainly made in Northern Germany, the Netherlands and Scandinavia as far north as Trondheim. Due to the rather similar fabric and decoration, the origin of those vessels is often hard to discern. Several fragments of a large 18th century tripod pan originating most likely in the Netherlands or northern Germany were found in different contexts, all belonging to the fire layer of 1764 and Phases 7, 8 and 9. The pan has a diameter of ca. 27 cm and is sooty on the outside. The orange glazed vessel is rather well preserved and could - if it

[111] Guðrun Sveinbjarnardóttir 1996, 100 f.

reconstructed be presented in an exhibition. The best preserved redware fragments were found in contexts 336 and 337 of Phase 9. They are clearly older and belong to the 18th century. The sherds derive from at least two slip-decorated dishes and a slip-decorated pot. A large amount of both undecorated redwares and slip-decorated redwares have been found all over Iceland, for example at Viðey, Bessastaðir and Reykjavík.[112] It is worth mentioning, that no fragment of the well known and wide spread northern German Weser and Werra slipwares of the late 16th and 17th century could be identified. A more detailed study of the redwares found at Aðalstræti is ongoing.

AST 01-540 is a fragment of rather unusual technical ceramic of unknown origin. It is a rim sherd of a square shaped vessel, maybe a stove tile or even a crucible. The dark grey fabric contains a high amount of graphite. Graphite clay was used for stove tiles or vessels required in chemical processes, since graphite is a good isolator of heat. It is unknown, whether this fragment belongs to a stove tile or some other sort of ceramics used in connection with heating. The sherd was found in a floor layer of Phase 6. It is the only fragment of this type found at Aðalstræti 14-16.

Glass vessels

Only a few of the total 502 fragments of glass vessels were found in Phases 6 and 7. Most of the 18th century glass vessels seem to be bottles, followed by a smaller amount of medicine flasks and very few drinking glasses. All the glass vessels are blown. Several sherds of vessels with painted decoration were found in the factory layers, all similar and seemingly from the same as yet unknown place of origin. There are a minimum of two different vessels made of blue glass with painted red, green and yellow floral decoration, most likely a rectangular shaped small bottle (AST 01-265, AST 01-450, AST 01-492, AST 01-480, AST 01-600) and possibly a drinking glass of the same type forming a set (AST 01-600). Very similar sherds of clear glass (AST 01-476) seem to be part of a round drinking glass with a painted white, yellow, blue, red and green floral pattern (a similar vessel can be seen in the present exhibition at Skógarsafn). Two small medicine flasks were found in context 418 (Phase 7): a complete one of brown glass (AST 01-494), one fragmented and of light green glass (AST 01-495). A piece of a rather elegant goblet was found in Phase 6 (AST 01-478).

[112] Guðrun Sveinbjarnardóttir 1996, 110 ff.

The foot (diameter 6, 0 cm) is of clear glass and the stem is partly preserved. Inside the stem are two thin pinkish melted glass threads. It is definitely a luxury article and must have been in private possession. The origin of all the glass vessels is unknown. Medieval fragments are completely absent.

Metal objects

A great number of metal objects was found in contexts from the Factories, mostly iron and a few others of copper alloy and lead. The material is rather corroded and is all somewhat fragmented. The purpose of the objects is very often unknown. A few copper alloy fragments were found. They include the earlier mentioned buttons, two coins (see Appendix 4) and a belt buckle (see below), but in most cases their purpose is unknown. Three copper alloy threads were found in Phase 6 (AST 01-1040). Two small nails of copper alloy were found also (AST 01-1049 and AST 01-1050). Of a total of 14, 13 lead objects belong to the time of the Factories, for example the earlier mentioned button (AST 01-426). AST 01-1253 includes several fragments of braided lead wires, the purpose of the other lead objects is unknown. Amongst the number of iron fragments are nails of various sizes, for example AST 01-1238 and AST 01-1188. AST 01-1181 is a rather large iron bolt. AST 01-274 is a complete key, found in the fire layer of 1764 (context 162).

Other objects

AST 01-323 is the only real worked wooden artefact from the Factories. It is a broken and sooty turned gaming piece of round and rather flat shape (diameter 4, 3 cm), with two deep grooves and a circular hollow in the middle. It belongs to a group of gaming pieces widely used in the middle ages and rather common in the whole of Europe.[113] A very similar gaming piece was found at the excavations at Alþingi. Two pieces of schist whetstones were found (AST 01-730 and AST 01-890), their origin is unknown. AST 01-379 is a fragment of a writing tool, a stylus made of grey slate. The pointy tip is undamaged, the handle end is broken. The slate stylus is 6 cm long, slightly rounded in cross section. It was found in the fire horizon of 1764 (context 300). Two pieces of light grey flint (*tinna*, *eldtinna*) were discovered (AST 01-761). Flint is not native in Iceland, the origin of the fragments found at Aðalstræti is yet

[113] See for example Müller 1996, 158 ff and tables 29 and 30.

unknown. They seem to have been worked, but at present it is not clear if these pieces were used for making fire or as gun flint. AST 01-266 is the fragment of a bone handle of a knife or fork with incised decoration.

Modern finds (Phase 8 and 9)

Most of the finds from Phases 9 and 8 represent building material such as bricks, window glass, slate and mortar. Bricks clearly dominate the group: 2741 fragments or whole bricks were recovered. Of these, 20.3 % (556 fragments) come from modern layers (Phases 8 and 9). Seven different fabric types could be distinguished (see Table 7.2), occuring in Phases 6 to 9. Five types are represented in the modern Phases 8 and 9. Types I, II and III clearly dominate both in the modern and Factory periods. The appearance of these bricks types from Phases 9 to 6 may suggest that they originate in the 18th century and were re-used after the closure of the Factories. Types IV and V are represented by only four fragments. Types VI and VII only occur in Phases 6 and 7. Most of the bricks from the modern contexts were found in debris layers, only a few of them remaining in use within structures like the chimney (context 333, 339 and 337) (find nr. AST 01-880) or the stairs (context 337, 338, 356, 369 and 370) (find nr. AST 01-393, AST 01-657, AST 01-792). Since the fabric types are the same as in the Factory periods, it is quite likely that those fragments found in the mentioned structures originally belonged to the *Innréttingar* and were re-used later. On several bricks mortar was preserved. Two samples of modern mortar have been taken (AST 01-793 and AST 01-794). Its composition has not yet been analyzed.

Amongst the building material of Phases 8 and 9 there are a number of window glass fragments. In total, 109 sherds of light green and clear glass were found in modern layers. One fragment is formed by a mould (AST 01-040), all others are plain. They were mostly found in debris layers, and are not associated with surviving structural features. A total of 49 fragments of greyish purple slate were found, most of them very similar in look and probably from the same non-Icelandic origin (as yet unknown). The slate appears in thin and flat sheets and is likely to have been used for roofing.

Several pieces of other stones like obsidian, schist, basalt and coal have been found, most of them unworked. Some are of non-icelandic origin, others are not found in the

Reykjavík area but in other country parts. Their discovery at Aðalstræti is therefore unusual, and they are likely to have been brought to the site for a specific reason. Four fragments of black obsidian (*hrafntinna*) have been found (for example AST 01-012). They are of Icelandic origin and do not seem to be worked. The purpose of those items is not known. One fragment of a whetstone (AST 01-286) was found in a 19th century context. It is made of grey fine schist, flat and rectangular in shape, with one end and all surfaces intact (4, 8 cm long, 2, 0 cm wide and 0, 3 – 0, 4 cm thick). It is very likely that this tool has been re-deposited. Half of a weight-stone (*sigsteinn*) of grey basalt (AST 01-373) was recovered from a cleaning horizon. AST 01-382 is a sample of dark grey porous lava used as paving of the 19th century cellar of Aðalstræti 14.

Several small finds represent modern material culture. Pottery, sherds of glass vessels, corroded iron, textile, bone and leather fragments are remains of every day life in Phases 8 and 9. Glass sherds derive from common bottles, flask, drinking glasses and small medicine flasks. Most of the pottery sherds belong to whiteware vessels (241 fragments), others to dishes, plates, bottles and pots made of redware, stoneware, porcelain and faience. The modern metal objects are of two metal types: iron and copper alloy. Lead artefacts were only discovered in contexts belonging to the Factories. The iron objects are generally not well preserved, being rather corroded. Most of the identified fragments belong to nails, parts of knives, tools and metal fittings. Seven textile fragments have been found in modern contexts: pieces of woven wool (AST 01-289), wadmal (*vaðmál*) (AST 01-289), possibly felt (AST 01-658) and several cords (AST 01-290). The cords are both 1-plied, 2-plied and 3-plied, all of them S-spun. Three objects made of bone were found in contexts of Phases 8 and 9: the fragment of a comb (AST 01-017), one complete button (AST 01-956) and a rectangular shaped piece of whalebone (AST 01-1267). All worked bone artefacts have been examined by a zoo-archaeologist. Of a small number of leather artefacts most are cut raw material or production waste of rather thick and coarse leather. Two fragments are parts of modern shoes. Other modern finds include fragments of recent plastic, concrete and unknown material.

8.0 THE ENVIRONMENTAL EVIDENCE – (Garðar Guðmundsson)

Interim Report on Sampling and Analysis

Introduction

During the excavations in 2001 at Aðalstræti 14-18, Reykjavík, an intensive and wide-ranging sampling programme was carried out to obtain material for a range of specialist analyses and to acquire material for radiocarbon dating. The results of these studies will make a fundamental contribution to the interpretation of the site.

Bulk soil samples were collected primarily for the study of insect and macro plant remains as well as microrefuse analysis. The bulk samples were, prior to processing, sub-sampled for various studies such as magnetic susceptibility, loss-on-ignition, electrical conductivity, pH, chemical, magnetic and multielement analysis. Samples taken also include intact blocks of soils intended for micromorphological thin section analysis and pollen analysis. All bulk samples were also sub-sampled for possible later reference and further analysis. Samples were taken from cultural and natural deposits from all phases and periods of the excavation. The vast majority of samples came, however, from the floor of the Viking period skáli, where all floor-contexts were 100% bulk-sampled on a 1 m^2 grid (see Figure 4.1 above).

A total of 251 samples was obtained (sub-sample numbers included), from more than 130 contexts (see Appendix 5). The majority of these are bulk soil samples with a total volume of more than 2600 litres. Six samples are “material” samples (two wood samples and four samples of a substance believed to be remains of sponges, verification pending), five samples are intact soil columns for the extraction of material for pollen analysis and thirteen samples are intact soil columns for thin section micromorphology analysis. In addition to these there are sub-samples from the soil bulk samples mentioned above. These samples are at various stages of processing and analysis, a brief overview of which is given below and elsewhere in this report.

Bulk samples for retrieval of plant and insect remains

The primary reason for collecting soil bulk samples at Aðalstræti was to retrieve, identify and interpret plant macro and insect remains. Selected bulk samples were also sub-sampled for a range of geoarchaeological analyses and a small sub sample from every bulk sample was also taken for later reference and analysis. As mentioned above, contexts from all phases of the excavation were sampled, the main focus however being on the skáli floor. It was recommended that the largest sample possible was taken, as experience shows that Icelandic sites yield only a small number of charred seeds. The volumes rarely exceeded 30 litres due to the small sizes of the contexts excavated. All floor contexts of the skáli were sampled on a 1 m^2 grid and each square collected in its entirety. This was done to facillitate the analysis of distribution of material classes, in order to better understand divisions of activity areas and the use of space within the building.

The samples were processed by flotation in an "Ankara" type machine. The heavy fraction (heavier than water), or residue, was caught in a 1 mm mesh size net in the machines barrel. The light fraction (material lighter than water), or flot, was retrieved at the spout of the barrel, in 1 mm and 0,3 mm mesh size sieves respectively. The fractions were air dried at room temperature, packed and labelled. All residues were, prior to packing, scanned for possible finds and bones / bone fragments were recovered for zoo-archaeological analysis (See Tinsley, below). From this bone assemblage and bones retrieved during excavation, specimens will be selected for radiocarbon dating.

In order to assess the preservation and general potential of the material at hand, 18 samples were selected from different phases of the excavation (Table 8.1). The flots from these samples were sorted under a low-powered stereo microscope and all seeds and potentially identifiable plant parts picked out. Only the larger charcoal fragments were collected from the flot. This charcoal will be sent to a specialist for analysis, and additional material for ^{14}C dating will be selected from this assemblage. The charred seeds were only provisionally identified during the sorting process and further analysis is needed prior to a final report. These identifications should therefore be regarded as preliminary. The frequency of seeds in the samples is rather low, even by Icelandic standards. Most of the samples contained cereal grains and many of them

also contained charred seaweed in various quantities (Table 8.1). Only a few samples yielded fragments of insect remains and only in low frequencies. In view of this no further analysis of insect remains is recommended at this time. The cereal grains are generally small and are poorly developed. This could point to a short growing season and/or unfavourable climatic conditions. The almost total absence of seeds from weed species is rather perplexing and requires further investigation and explanation. The question of whether the cereal is locally grown or imported is not possible to answer. Cereala pollen grains (Hordeum sculpture type) have been discovered in samples dating to the 9th–10th century taken in the bog Vatnsmýri, 1.5 km south of Aðalstræti (Margrét Hallsdóttir 1987). Presence of Cereala pollen strongly suggests cultivation in the vicinity of the site, but a direct correlation to the cereals discovered at Aðalstræti cannot be made.

In view of the significance of the Viking period skáli in Aðalstæti it is recommended that the samples already assessed, and additional selected samples from within the skáli, will be fully analysed. Further investigation will add to our understanding of aspects of the economy of the first settlers and enhance the interpretation of the function of different areas within the skáli. The studies of plant remains from Aðalstræti are furthermore important for comparison to finds from other contemporary sites in the southwest of Iceland and elsewhere in the country.

Table 8.1 summarises the results of the assessment of selected samples from the Aðalstræti excavation.

Sample	Context	Brief description of context	Sample volume in litres	Float volume in ml	Comments Cere(als), seeds, inse(cts), Seaw(eed), char(coal)
002	124	C19th sheet midden	17	75	Cere, seeds, inse, seaw, char
010	300	AD.1764? destruction horizon	15	160	No seeds, char
032	442	C18th ?floor	34	130	cf. seeds, inse, char
041	646	Fill of temporary hearth, beneath AD.1500~ tephra horizon	12	250	Cere, seeds, seaw, char
060.03	793	Upper fill of longfire	10	270	Cere, weeds, inse, seaw, char
063	796	Longhall, external midden with fire-cracked pebbles	23	310	Seaw, char
088.04	844	Floor deposit, longhall NW	44	250	Cere, seaw, char
101.03	859	Floor deposit, at SW entrance	10	140	Seaw, char
131.02	861	Floor deposit, longhall SW	28	360	Seaw, char
110.06	864	Upper floor deposit, W of longfire	30	320	Cere, seaw, char
110.12	864	Upper floor deposit, E of longfire	24	680	Cere, seaw, char
116.03	868	Floor(?) deposit at eastern wall of longhall	20	340	cf. seed, seaw, , char
113.03	871	Floor deposit, longhall SE	2	95	Seaw, char
115.02	873	Lower floor deposit, W of longfire	9	270	Cere, cf. seed
118	890	Floor deposit, at NE entrance longhall	25	820	Cere, seeds, inse, seaw, char
124.03	901	Lower floor deposit, E of longfire	15	570	Cere, cf. seed, seaw, char
121	912	Charcoal spread, beneath AD.871~ tephra horizon			For wood species ident.
084.04	795	Lower fill of longfire	12	475	Cere, weeds, seaw, char

Table 8.1 - Results of assessment of selected samples.

Pollen analysis

Five columns of intact soil for pollen analysis were taken during the excavation at Aðalstræti. Soils are not however ideal for the preservation of pollen. For traditional pollen analysis where reconstruction of past regional vegetation cover is the primary aim, pollen samples are taken from peat or lake sediments where preservation conditions for pollen grains are usually good. Soils can nonetheless preserve pollen quite well and soil samples from archaeological contexts can give valuable information on environmental conditions as well as plant use in and around a site.

At Aðalstræti the pollen analysis is focused on two main aspects:

Firstly, the period around the fall of the landnam tephra, - that is, what the environmental conditions were immediately before the arrival of the first settlers, and what immediate influence human occupation had on this environment. Samples taken for this purpose (samples 105 and 106) include soils both under and above the landnám tephra in situ.

Secondly, the long apparently quiet period from the abandonment of the skáli until 1752, when wool factories were erected on the site, a period represented by an accumulation of ca. 1m of sediments (samples 16, 18 and 119). It is hoped that pollen analysis will offer information on the environment and on activities at and in the vicinity of the site during this period.

Alex Chepstow-Lusty, a pollen specialist at the Department of Geography, University of Cambridge, England, will carry out the pollen analysis and samples have been sent to him for processing and study. A report on the results of his investigation is expected in April.

Charcoal Analysis

Charcoal fragments were picked out during scanning of the assessed samples for wood species identification and analysis. Charcoal of secure identification and specific quality will be selected from this assemblage for radiocarbon dating. The main aim of the charcoal study is to provide information on fuel strategy. It will also give other valuable information such as availability of fuel in the vicinity of the site and thus provide environmental information. Further, it has the potential to detect the presence of driftwood and imported wood.

Rowena Gale, wood anatomy specialist at the Royal Botanic Gardens Kew in London, has agreed to carry out a pilot study on charcoal from Aðalstræti. The material will be sent to her as soon as possible. A report on her findings is expected next spring.

Radiocarbon Dating

It has been argued that radiocarbon dates from archaeological contexts in Iceland often show dates that seem to be higher than expected. ^{14}C dates from earlier excavations in Aðalstræti and elsewhere in Reykjavík have contributed to the debate around this phenomenon. Incorporated into the Aðalstræti research design is an intensive radiocarbon dating programme, which aims to try and resolve or explain this anomaly.

Classes of material for ^{14}C dating have been carefully chosen to exclude factors that might bias the results. These classes are seeds of annual plant species, charcoal of twigs of birch or willow, bones from grass eating domestic animals and seaweed (to assess the age of marine carbon). Samples of these different material classes from four different contexts will initially be submitted for radiocarbon dating. A series of dates from each context will thus be obtained facilitating comparison and evaluation of dates from different materials.

The radiocarbon dating will be carried out by the AMS laboratory in Arhus, Denmark, in collaboration with Árný Erla Sveinbjörnsdóttir at the Geophysics Division of the Science Institute of the University of Iceland.

Geoarchaeological analysis

A range of geoarchaeological investigations are being undertaken by Karen Milek and her interim report elsewhere in this report (4.1) covers this aspect of the project.

8.1 INITIAL FAUNAL ASSESSMENT – (Clayton M. Tinsley)

The Aðalstræti (AST) faunal sample includes zooarchaeological material from the Viking to early modern periods and overall preservation is highly variable. However, more than enough identifiable material exists to merit a full investigation of faunal resource utilization through time, especially in light of the growing amount of comparable data being recovered from the downtown Reykjavik area.

Notes:

Material from the post 1760 contexts is in a good state of preservation overall. Domesticate mammals are represented by sheep, cattle, horse and pig. Domesticate fowl (chicken) is also present in the early modern period. Interesting butchery patterns such as bi-perforated (sheep) metapodials are also noted in the early modern material. Fish remains constitute the majority of the early modern period faunal remains. Gadids such as cod and haddock dominate the fish assemblage and are represented by both cranial and post cranial elements.

Material from the pre 1760/ post Viking contexts is in good to fair preservation. Domesticates such as sheep and cow are noted and are represented by elements from all parts of the skeleton - unlike the later contexts (post 1760). Gadids are again the most numerous faunal remain and are represented by both cranial and post cranial elements. A selection of various sea birds are also represented.

Although in a very bad state of preservation, the material from the Viking period contexts is informative and merits further investigation. Initial assessment reveals the presence of pig and sheep as well as unidentified large mammals. Walrus ivory fragments and various shell species are also present in small numbers in the early contexts. Overall, the Viking period contexts consist primarily of calcined bone and tooth fragments due to severe post-depositional conditions.

Discussion:

The Aðalstræti faunal material merits further investigation and will be particularly useful in adding our knowledge of medieval and post- medieval fishing stocks in Iceland. A significant amount of quantitative, size reconstruction data can be gained via detailed examination of the Aðalstræti fish material. Extremely large cranial elements were noted for certain gadids (haddock) and their further study would add to our understanding of fish utilization (and size changes) through time. Additionally, given its location (in an early urban center), Aðalstræti´s faunal material will give researchers an opportunity to look at early domesticate provisioning from both local farms and abroad.

9.0 CONCLUSIONS

A major urban excavation in Reykjavík has offered a rare opportunity for increasing our understanding of the archaeology of Iceland. We are confident that this will be achieved, but this work is not yet complete. A complete and integrated discussion of the significance of these findings must await further results. Numerous specialist studies are in hand, as discussed above, as well as a study of the results in their broader context.

These include:

1 The study of the Viking period remains, and their relationship to other known remains of this period, both within Iceland and the broader north atlantic sphere.

2 A more detailed study of the Factory period remains, and the integration of this material with historical sources.

3 Ongoing artefactual studies by appropriate specialists (eg. Pottery–redware, porcelain, faience, stoneware)

4 Ongoing study of charred plant remains following on from the positive results of the assessment discussed above. (See 8.0).

5 Faunal analysis (See 8.1)

6 Geoarchaeological studies (See 4.1)

7 Wood anatomy (See 8.0)

8 Radiometric dating (See 8.0)

9 Palynology (Pollen analysis, See 8.0)

Only when the results of these studies are known will the full significance of the discoveries at Aðalstræti become apparent.

A number of points of interest have already come to light. It has long been thought that the original settlement of Reykjavík, and its medieval farm were to be found at Aðalstræti 14-18. The excavation results require that this view is modified. The Viking period skáli uncovered during excavation in 2001 cannot be the first dwelling constructed in the area. The discovery of wall fragments dating to before 871±2AD must indicate an earlier dwelling at another location as yet unknown.

The Viking period skáli exhibits a number of unusual features. The central longfire is exceptionally large, although not unique – an even larger longfire exists for example at Kvívik in the Faeroe Islands. The dimensions of the skáli itself however are not remarkable, but the construction techniques are unusual. The skáli at Aðalstræti has a considerable amount of stone in its walls. The external stone facing of the western wall is especially noteworthy.

An overview of currently known Viking period remains in Reykjavík suggests that further Viking period remains await discovery. The importance of the skáli at Aðalstræti can only be fully understood within the context of a broader settlement study, broader both in terms of area and time. That archaeological context is held to be under substantial threat from modern activity, and too much of the archaeology of Reykjavík has been destroyed in the recent past.

It is now clear that the later medieval settlement of Reykjavík must also lie elsewhere. Whether or not these putative structures overlie further remains of the Viking period cannot be known. It is clear nonetheless that a large area of southwestern central Reykjavík has great archaeological potential.

The remains of the Factory period buildings will shed considerable new light on the origins of Reykjavík as an urban centre. Comparison of the archaeological material with known historical data may yet illustrate the limitations of both areas of research in isolation. It is the function of post medieval and industrial archaeology to both inform and be informed by history. Although this work is at an early stage, it remains possible that at least some elements of the early factory buildings predate the establishment of the factory industries themselves.

Further study is required to confirm these preliminary results, and to place the findings within their broader national and international context.

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The site was excavated by;
Bruno Berson, Guðmunda Björnsdóttir, Richard Cherrington, Jannie Ebsen, Ragnar Edvardsson, Guðrún Alda Gísladóttir, Andrew Hammon, Rebecca Hardy, Oddgeir Hansson, Sólveig Heiðberg, Birna Lárusdóttir, Guðmundur Páll Líndal, Gróa Másdóttir, Natascha Mehler, Petra Mößlein, Þóra Pétursdóttir, Karin Roug, Duncan Stirk, James Taylor, Orri Vésteinsson, and Sirrí Þorgeirsdóttir.
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Mjöll Snæsdóttir 2000 ***(APPENDED).*** *Forkönnun á fornleifum og jarðlögum á lóðunum Túngötu 2-6 og Aðalstræti 14-18 í Reykjavík. Bráðabirgðaskýrsla.* Fornleifastofnun Íslands, Reykjavík.

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Appendix 1

Forkönnun á fornleifum og jarðlögum á lóðunum Túngötu 2-6 og Aðalstræti 14-18 í Reykjavík. Bráðabirgðaskýrsla

Mjöll Snæsdóttir

Dagana 22.-27. nóvember 2000 var gerð forkönnun á lóðunum Túngötu 2-6 og Aðalstræti 14-18, í þeim tilgangi að fá mynd af því hvernig jarðlagaskipan væri á þessum stöðum og hvort sjá mætti merki um að mannvistarleifar, mannvirki eða sorplög frá byggð, væri að finna á þessum lóðum. Við uppgröft á árunum 1971-75 hafði komið í ljós að húsarústir og aðrar mannvistarleifar voru á lóðunum Aðalstræti 14 og 18, einkum frá tveimur tímabilum, frá tímum Innréttinganna á 18. öld, og frá fyrstu öldum byggðarinnar, frá 10. eða 11. öld. Sýnt þótti af fyrri athugunum að mannvistarleifar væru einkum á austari hluta umrædds svæðis, nær Aðalstræti, en minna væri þegar vestar drægi á svæðinu eða ofar í brekkuna. Vegna fyrirhugaðra nýbygginga á svæðinu, svo og viðgerðar á timburhúsinu Aðalstræti 16 var ljóst að kanna þyrfti fornleifar á þessum stað áður en hefjast mætti handa um byggingar.

Leyfi fornleifanefndar til forkönnunarinnar var dagsett 21.11.2000. Verkið unnu Mjöll Snæsdóttir, Orri Vésteinsson og Sólveig M. Heiðberg.

Grafnir voru með lítilli gröfuskóflu 5 sniðskurðir sem lágu í sömu stefnu og Túngata og Grjótagata. Sniðin voru teiknuð af norðurhlið í hverjum skurði. Skurðirnir (og sniðin) voru auðkennd með rómverskum tölum, I-V.

I. Syðst og næst Túngötu, 29 m langur skurður.
II. Um sjö metrum norðar, 27 m langur skurður.
III. Um sjö metrum norðar en II. Skurðurinn var um 15 m að lengd
IV. Um sjö metrum norðar en III. Skurðurinn var um 13 m að lengd.
V. Nyrsti skurðurinn, næst Grjótagötu, var um 12 metra langur.
VI. Skurður norður og suður, norðan við norðurgafl viðbyggingar við Aðalstræti 16.

Hér hafði áður verið grafið niður á ísaldamölina og var ekkert að sjá nema nýlega malarfyllingu.
VII. Skurður austur og vestur, um 3,5 m norðar en norðurgafl viðbyggingar Aðalstrætis 16, um 4 m langur

Mánudaginn 27.11. voru grafnir tveir litlir skurðir með gröfu við norðurendann á viðbyggingunni við húsið Aðalstræti 16 til að kanna hvernig jarðlagaskipan væri þar. Annar skurðurinn lá austur og vestur, var um 4 m langur (skurður VII). Hann var tekinn ca 3,5 metrum norðar en norðurgafl viðbyggingarinnar og var vesturendi skurðarins um 2,5 m austar en NV-hornið á viðbyggingunni. Það sýndi sig að á þessum stað hafði áður verið grafið niður á fast og var ekkert að sjá nema malarfyllingu. Frá yfirborði og niður á klöpp var dýptin 1,5 m. Annar skurður, um 4 m að lengd (skurður VI), var gerður í stefnuna norður-suður u.þ.b. einum metra vestar en VII. Í honum mátti sjá undir 0,4 m þykku malarlagi 0,3 m þykkt móöskublandað moldarlag og þar undir 0,3-0,5 m þykkt óhreyft moldarlag. Þar fyrir neðan tók við grár ísaldarleir samskonar og sést hafði í hinum sniðskurðunum. Ekki var grafið niður á fast á þessum stað.

Í vestari hluta skurðanna allra var ekki að sjá nein ummerki mannvistar. Austast í skurðunum I og II, næst Aðalstræti, voru hvað þykkust lög af móöskublandaðri mold, og mátti í henni sjá nokkuð af dýrabeinum, og einnig fáein leirkerabrot.

Efst í öllum sniðum mátti sjá malarlag, greinilega nýlegan ofaníburð, en svæðið hefur um töluvert skeið verið notað sem bílastæði. Malarlag þetta reyndist töluvert misþykkt, 0,3-1,30 m
Þar undir tóku yfirleitt við moldarlög, milli 0,2 og 1,0 m þykk. Þau lög voru sumsstaðar blönduð móösku, og var það helst í skurðunum austanverðum.

Undir moldarlögunum var komið niður í gráan ísaldarleir, og var í honum nokkur möl. Yfirleitt voru skurðirnir ekki teknir mikið dýpra, enda var þá augljóst að komið var niður fyrir það dýpi þar sem vænta mátti ummerkja um mannvist.

Í syðsta skurðinum, næst Túngötu, mátti sjá steinsteypta plötu úr kjallara hússins Túngötu 2, og leifar steyptra veggja úr sama kjallara. Þá var þar stakur steinveggur, 3

metrum vestar en steypti grunnurinn, og tilheyrir ljóslega sama tímaskeiði og húsið. Líklega er þetta undirstaða girðingar, eða skúrbyggingar við húsið. Eftir að búið var að teikna sniðið í þessum skurði var austasti hluti plötu brotinn til að betur sæist, hvort móöskublandað moldarlag austan grunnsins næði að ráði undir grunninn, en svo reyndist ekki vera.

Skurður II, sá næstsyðsti, lá einnig yfir steyptan byggingarhluta, sem tilheyrt hefur húsinu Túngötu 2, lítinn kjallara, eða e.t.v. rotþró. Skurðurinn var grafinn að mannvirki þessu beggja vegna, en því ekki hreyft.

Í nyrstu skurðunum tveimur varð vart við leifar mannvirkis. Rétt yfir ísaldarleirnum mátti finna fáeina steina líkt og þar væru leifar af grjótgarði eða girðingarundirstöðu. Í miðskurðinum sáust garðsins engin merki eins og hann annað hvort hætti eða beygi norðan þess skurðar. Í nyrsta skurðinum voru leifar af timbri, etv stoð, við garðleifarnar.

Ekki sást neitt í sniðunum sem gæti tímasett garð þann er þar sáust ummerki um. Með því að hann liggur rétt yfir leirlaginu og yfir honum töluvert moldarlag er þó líklegt að hann sé allgamall, og hann gæti jafnvel verið frá fyrstu byggðinni.

Engin gjóskulög sáust í sniðunum. Á þessum slóðum hefur þó orðið vart við þrjú slík, þ.e.
1. Svonefnt landnámslag, tímasett til 871±2
2. Svonefnt miðaldalag, talið frá fyrri hluta 13. aldar.
3. Lag komið frá Kötlu, frá því um 1500.

Eftir að lokið var að teikna sniðin ÞV var grafið með gröfu dýpra niður á nokkrum stöðum til að komast að því hve langt væri niður á fast, og var það samkvæmt ósk húsbyggjenda.

Samkvæmt þeim athugunum var komið niður á fast í 3,51 m dýpi undir yfirborði í austurenda syðsta skurðarins, og 3,55m undir yfirborði í austurenda þess næstsyðsta. Miðað við hæðarmælingar á yfirborði er starfsmenn mælingadeildar borgarverkfræðings gerðu 24.11. ætti því klöppin að vera í hæðinni 1,50 og 1,36

metrar yfir sjó á þessum stöðum. Í vesturenda þessara skurða mældist með sama hætti að klöppin væri í hæðinni 3,46 m yfir sjó í syðsta skurðinum og 4,6 í þeim næstsyðsta.
Í vesturenda skurðar III reyndist klöppin í hæðinni 4,43 m yfir sjó og í vesturenda skurðar V 4,52. Austast í skurði III, næst húsinu Aðalstræti 16, reyndist klöppin í hæðinni 3,39 metrar yfir sjó, og austast í skurði V í hæðinni 4,17 metrar yfir sjó. (Ekki var grafið niður á klöpp í skurðinum IV).

Allir bentu því þessir skurðir eindregið til þess að lítil ummerki um mannvist væri að finna á efri eða vestari hluta könnunarsvæðisins og ekki sáust merki um nein mannvirki önnur en eitt garðlag. Að þessari forkönnun lokinni mátti ætla að líkur væru hverfandi á að finna fornleifar að ráði á efri eða vestari hluta lóðanna, þó að rétt þætti að fylgst yrði með grefti fyrir byggingum á svæðinu, ekki síst til að skoða og skrá garðlagið á norðanverðri lóðinni.

Appendix 2

Gjóskulagagreining

Magnús Á. Sigurgeirsson, Fjallalind 123, 200 Kópavogur. Netfang masig@mmedia.is

Farið var alls fjórum sinnum á vettvang, dagana 14. febrúar, 10. mars, 15. mars og 28. apríl. Mæld voru þrjú snið á uppgraftarsvæðinu og sex sýni tekin til smásjárskoðunar (mynd 1). Við greiningu gjóskulaga var stuðst við fyrri rannsóknir á höfuðborgarsvæðinu (sjá Magnús Á. Sigurgeirsson 1993, 1995, Margrét Hallsdóttir 1992, Nordahl 1988).

Smásjárskoðun

Staðsetning sniða á uppgraftarsvæðinu er tilgreind á mynd 1.

Sýni-1: Mikið er af litlausum núnum kristöllum í sýninu, meira en 50 %. Mjög lítið er af gjóskukornum, minna en 1 %. Nokkuð er um svört gljáandi korn sem líklega eru kol. Einnig virðist vera nokkuð af öðru ógreinanlegu lífrænu efni. Ljóst er að hér er ekki um góskulag að ræða heldur fokefni.

Sýni-2: Sýnið var tekið úr suðurvegg vefstofu frá tíð Innréttingana. Kristallar og bergbrot eru áberandi. Um er að ræða fokefni.

Sýni-3: Sýni tekið í norðvesturenda skála, úr fleti sem er 0,4x0,4 m að stærð. Mjög blandað sýni. Í því eru korn af kristöllum (bæði brotum og núnum kornum), núnum bergbrotum, súrum gjóskukornum, basískum gjóskukornum (bæði mógræn og móbrún). Stærstu glerkornin eru móbrún og lítið blöðrótt. Ekki er hægt að sjá að um gjóskulag sé að ræða, heldur er hér að öllum líkindum um fokefni að ræða.

Sýni-4: Gjóska úr móbrúnu-svörtu (ógegnsæu) gleri. Svörtu kornin eru gjallkennd og lítið blöðrótt en hin ljósari eru með skarpari útlínur og blöðróttari. Gjóskan ber öll einkenni Kötlugjósku og má út frá stöðu í sniðinu segja með nokkurri vissu að um sé að ræða gjóskulagið Kötlu-1500.

Sýni-5: Samanstendur af núnum kristöllum, glerkornum og bergbrotum. Um er að ræða sandlag.

Sýni-6: Samanstendur af núnum kristöllum og bergbrotum. Um er að ræða sandlag.

Niðurstöður

Landnámslagið (LNL) svonefnda, frá því um 870 e.Kr., er víða sjáanlegt undir mannvistarlögum. Þetta lag er fremur auðþekkt þar sem það er tvílitt. Miðaldalagið, frá fyrri hluta 13. aldar, fannst ekki þrátt fyrir nokkra leit. Þetta lag greindist við uppgröft í miðbæ Reyjavíkur á árunum 1971-1975 (Nordahl 1988). Einnig hefur það fundist í botnsseti Tjarnarinnar (Margrét Hallsdóttir 1992). Gjóskulagið K-1500, eitt mikilvægasta leiðarlag á höfuðborgarsvæðinu, kom í ljós í sniði 2.

Nokkra athygli vekur hversu hröð jarðvegsþykknunin hefur verið á rannsóknarsvæðinu frá því eftir að Landnámslagið féll. Út frá jarðvegsþykktum í sniði 2 kemur í ljós að á milli LNL og K-1500 er þykknunin um 1 mm/ári en frá Kötlulaginu upp að brunalaginu frá 1764 er hún um 1,9 mm/ári. Telja verður líklegt að þykknunarhraðinn aukist jafnt og þétt upp á við en ekki í stórum stökkum. Algengt er að sjá á höfuðborgarsvæðinu litaskil um 2-3 cm ofan LNL, þar sem jarðvegurinn ofan þeirra er ljósari og grófari en neðan þeirra. Hefur þetta verið tekin sem skýr vísbending um að mikil jarðvegseyðing hafi farið af stað skömmu eftir landnám. Ekki er óalgengt að þykknunin á milli LNL og K-1500 mælist 1-1,5 mm/ári í sniðum í Reykjavík og nágrenni. Moldin ofan LNL í Aðalstræti ber þess skýr merki að hún sé af fokrænum uppruna. Í henni er mikið af fínkorna sandlögum og linsum. Ennig er í henni talsvert af móöskufoki sem gefur henni sinn rauðleita blæ.

Heimildir

Else Nordahl 1988: Reykjavík from the archaeological point of view. Aun 12, 150 bls.

Magnús Á. Sigurgeirsson og Markús A. Leosson 1993: Gjóskulög í Sogamýri. Tvö gjóskulög frá upphafi nútíma. Náttúrufræðingurinn 62, bls.129-137.

Magnús Á. Sigurgeirsson 1995: Miðaldalagið. Í: Eyjar í eldhafi. Afmælisrit tileinkað Jóni Jónssyni jarðfræðingi. Gott mál hf., bls. 189-198.

Margrét Hallsdóttir 1992: Í: Tjörnin, saga og lífríki. Reykjavíkurborg, bls. 11-17.

Maggi's Figure in Illustrator format – on a separate sheet

Appendix 3

Walrus Tusks From Aðalstraeti, Reykjavik: zooarchaeological report

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Three tusks from large mature walrus (Odobenus rosmarus L.) were recovered from excavations by FSÍ within the settlement age hall at Adalstraeti in downtown Reykjavik. These were kindly made available for study and photography at the FSÍ research center on July 13th 2001 and this short report presents the findings of this inspection. For convenience the tusks are referred to as specimen numbers 1, 2, & 3, their full context information is:

Specimen 1) AST 01 - SF 355 - Context 747 (NW) - 4/6/01 (best preserved)
Specimen 2) AST 01 - SF 337 - Context 747 - 30.05.01
Specimen 3) AST 01 - SF 388 - Context 778

Description: All three tusks showed the effects of locally acid soil conditions, and all are in fair to poor condition, with significant exfoliation and fragmentation especially evident in specimens 2 and 3. These two tusks were left incompletely cleaned to prevent disintegration in handling, but the third (specimen 1) was solid enough to allow complete cleaning and full inspection of the surface for markings. All three tusks are upper left canines, thus representing at least three separate walrus. Specimens 1 and 2 have most of the hollow root section preserved and are missing portions of the tusk tip, while specimen 3 (worst preserved) has most of the root missing but preserves most of the tip. After photography and measurement all three tusks were bedded in compressed aluminum foil and refrigerated to await full conservation. Complete cleaning of specimens 2 and 3 may reveal additional marking not seen in this inspection, but we felt that possible damage to these specimens counter-indicated further cleaning at this time.

Specimen 1) This best preserved tusk is a left, from a large probably male individual (figure 1: note strong curvature typical of males). It has a nearly complete tooth root and the gumline is well marked. The original tusk was probably ca 7-10 cm longer than the surviving section, for a total length of approximately 42- 50 cm. On both the lingual (inner) and buccal (outer) surfaces of the tusk root are tool marks left by the extraction of the tusk from the walrus maxillary bone (figure 2) . These tool marks are similar to those observed on fragments of walrus ivory from Greenland.

Measurements: total surviving length 35.5 cm
Maximum diameter 6.5-7.0 cm

Specimen 2) This poorly preserved specimen is also a left, and also probably comes from a large mature male walrus (figures 3 & 4) . Most of the root is intact, but much of the tusk tip has been lost (ca 5-8 cm). Some tool marks observed just above the gum line as in specimen 1, but less clearly due to less complete cleaning.

Measurements: total surviving length 38 cm
Maximum diameter 6.5-7.25 cm

Specimen 3) Very badly preserved tusk tip, again from a large mature animal, sex indeterminate. While much of the tusk root has disintegrated, the gum line is still evident. Any tool marks are impossible to detect given the condition of the enamel surface (figure 5).

Measurements: total surviving length 29.5 cm
Maximum diameter 6 – 6.5 cm

Discussion: These once-complete walrus tusks were very competently extracted from large fully mature walrus skulls and may well represent unused craft material. The extraction method is well documented from extensive finds of walrus skull fragments from Greenland (McGovern 1985, McGovern et al 1996). Immediate post mortem extraction or sawing at the gum line tends to break the tusk or at least lose a major portion of the roots. The more effective approach involved the careful breaking out of the deeply rooted tusk from the dense maxillary bone surrounding it. This is best accomplished a few weeks after the walrus has been killed to allow for partial decomposition. Then the extraction was carried out with narrow bladed cutting tools

(probably chisels) carefully breaking apart the root cavity to allow full extraction of the undamaged tusk root. The tool marks observed above the gum line of Specimen 1 clearly reflect this careful approach, which in this case was completely successful in preserving the large (and potentially valuable) tusk root intact. This competent extraction suggests that the first settlers included craftsfolk experienced in handling walrus ivory and walrus butchery. Interestingly, these three tusks represent some of the largest pieces of walrus ivory (rather than bone) in Iceland or Greenland, as in later time periods the material was too valuable as a trade or tribute item to remain in the western North Atlantic and most was sent to continental Europe. In combination with the walrus bone elements recovered from older excavations in Tjarnargata nearby, these finds strongly suggest that walrus were present in SW Iceland during the initial settlement period (McGovern, Perdikaris & Tinsley 2001).

References:

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McGovern T.H., Amorosi T., Perdikaris S. & Woollett J.W. (1996) Zooarchaeology of Sandnes V51: Economic Change at a Chieftain's Farm in West Greenland, *Arctic Anthropology* 33(2)94-122.

McGovern T.H., Sophia Perdikaris, Clayton Tinsley (2001) Economy of Landnám: the Evidence of Zooarchaeology, in U. Bragason et al. (ed) *Westward to Vinland*, Nordahl Inst. Reykjavik. In press

Figure 1, Specimen 1, note clear gum line and long well-preserved root.

Figure 2. Specimen 1 close up of tool marks on buccal (outer) surface of tooth root (note position above gum line.

Figure 3. Specimen 2

Figure 4.
Specimen 3

Appendix 4

Greining mynta úr Aðalstrætisuppgreftinum

Anton Holt

Hinn 14.10.2001 skoðaði ég og greindi fjóra hluti sem fundist höfðu við uppgröftinn í Aðalstræti 14-16 á fyrri hluta árs 2001, og voru taldir myntir.

AST01-015. Þetta er 1 penny frá Bresku Vestur-Afríku (British West-Africa), af gerð sem slegin var á tímabilinu 1907-1958. Á peningnum má lesa ártalið 1928, því sleginn í tíð Georgs V. Peningurinn er með gat í miðju og á honum er stjarna með sex oddum, Davíðsstjarna mynduð úr tveim jafnarma þríhyrningum. Þessi peningur er sleginn úr kopar-nikkel blöndu á Englandi.
[KM # 9]

AST01-403 Mestar líkur eru á að þetta sé dönsk mynt, svokallaður "hvid". Þeir peningar voru svo nefndir vegna þess að í þeim var sæmilega gott silfur og því ljós að sjá. Peningurinn er mjög máður, en á einum stað má greina stafina ...ANV... sem er trúlega hluti úr nafni konungs, CHRISTI**ANV**S. Mestar líkur eru á að þetta sé peningur sleginn fyrir Kristján fjórða Danakonung, og þá einhvern tíma á tímabilinu 1588-1648. Mynt eins og þessi vegur yfirleitt 0,71 gr, en þessi peningur er mun léttari eða 0,50 gr. Líklega er það af því hve slitinn og tærður hann er.

Peningurinn er brotinn í tvennt, en ekki vantar upp á hann. Greiningin er gerð með þeim fyrirvara að myntin hefur ekki verið hreinsuð, verið getur að sjá megi meira af áletrun, sem öðrum smáatriðum, þegar það hefur verið gert.
[H # 85]

AST01-340 Þessi mynt er með gat eða skarð í brún líkt og peningurinn hafi verið borinn í festi, en brotið eða rifið hafi verið út úr gatinu. Peningurinn er mikið máður og erfitt að sjá hvaða letur og merki hafa verið á honum. Miðað við stærð og það sem greint verður af áletrun er líklegast er að þetta sé silfur túskildingur (eða

einskildingur), sennilega frá tímabilinu 1648-70, frá Friðriki 3, hann er 0,50 gr að þyngd.

Greiningin er gerð með þeim fyrirvara að myntin hefur ekki verið hreinsuð, og er hugsanlegt að sjá mætti meira af áletrun eftir hreinsun.
[H # 133 – 134]

AST01-341
þetta er væntanlega ekki mynt, heldur hnappur. Hann er úr blýi, og önnur hliðin er kúpt. Þyngd 2,05 gr.

HEIMILDIR
H= Hede, Holger. Danmarks og Norges Mønter, 1541-1814-1963, Kaupmannahöfn 1964, Munksgaard

KM= Krause, Chester L. & Mishler, Clifford, 2001 Standard Catalog of World Coins, Iola, Wisconsin, 2000, Krause Publications.

Appendix 5

Sample Register

Sample Number	Sub Sample Number	Context	Sample Type	Volume l	Sub Sample taken
1	---	116	Bulk	28	Y
2	---	124	Bulk	17	Y
3	---	141	Bulk	10	Y
4	---	145	Bulk	10	Y
5	---	160	Bulk	9	Y
6	---	162	Bulk	27	Y
7	---	163	Bulk	8	Y
8	---	165	Bulk	10	Y
9	---	170	Bulk	18	Y
10	---	300	Bulk	15	Y
11	---	300c	Bulk	20	Y
12	---	300c	Wood	---	---
13	---	300c	Wood	---	---
14	---	211	Bulk	400ml	
15	---	208	Bulk	10	Y
16	---	Multi	Pollen column		---
17	---	206	Bulk	9	Y
18	---	Multi	Pollen column		---
19	---	277	Bulk	9	Y
20	---	278	Bulk	14	Y
21	---	274	?Sponge		---
22	---	286	Bulk	18	Y
23	---	299	Bulk	17	Y
24	---	315	Bulk	7	Y
25	---	316	Bulk	16	Y
26	---	321	Bulk	7	Y
27	---	350	Bulk	17	Y
28	---	433	Bulk	26	Y
29	---	437	Bulk	19	Y
30	---	439	Bulk	35	Y
31	---	440	Bulk	20	Y
32	---	442	Bulk	34	Y
33	---	443	Bulk	20	Y
34	---	444	Bulk	20	Y
35	---	447	Bulk	29	Y
36	---	448	Bulk	6	Y
37	---	484	Bulk		
38	---	494	Bulk	8	Y
39	---	642	Bulk	12	
40	---	644	Bulk	10	
41	---	646	Bulk	12	Y
42	---	707	Bulk	10	Y
43	---	750	Bulk	29	Y
44	---	730	Bulk	34	Y
45	---	753	Bulk		
46	---	754	Bulk		
47	---	755	Bulk		
48	---	756	Bulk	Na	Y

49	---	758	Bulk		
50	---	766	Bulk		
51	---	768	Bulk		
52	---	747	Bulk		
53	---	747	Bulk		
54	---	792	Bulk	31	Y
55	---	782	Bulk	2	Y
56	---	786	Bulk		
57	---	790	Bulk		
58	---	764	Bulk	3	Y
59	---	780	Bulk	2	Y
60	01	793	Bulk	4	Y
	02	793	Bulk	8	Y
	03	793	Bulk	10	Y
	04	793	Bulk	4	Y
61	---	784	Bulk		
62	01	795	Bulk	6	Y
	02	795	Bulk	2	Y
	03	795	Bulk	2	Y
	04	795	Bulk	9	Y
	05	795	Bulk	11	Y
	06	795	Bulk	9	Y
	07	795	Bulk	7	Y
	08	795	Bulk	2	Y
63	---	796	Bulk	23	Y
64	---	774	Bulk	2	Y
65	---	795	Bulk		
66	01	802	Bulk	5	N
	02	802	Bulk	9	N
	03	802	Bulk	10	Y
	04	802	Bulk	10	N
	05	802	Bulk	4	N
	06a	802	Bulk	12	N
	06b	802	Bulk	5	N
	07a	802	Bulk	9	Y
	07b	802	Bulk	7	N
	08	802	Bulk	11	N
67	---	747	Micromorphology	---	---
68	---	Multi	Micromorphology	---	---
69	---	747	?Sponge	---	
70	---	812	Bulk	9	N
71	---	Multi	Micromorphology	---	---
72	---	807	Bulk	19	Y
73	---	798	Bulk	21	Y
74	---	Multi	Micromorphology	---	---
75	---	Multi	Micromorphology	---	---
76	---	819	Bulk	2	Y
77	---	814	Bulk	17	Y
78	---	824	Bulk	33	Y
79	---	Multi	Micromorphology	---	---
80	---	Multi	Micromorphology	---	---
81	---	752	Bulk	34	Y
82	01	793	Bulk	6	Y
	02	793	Bulk	9	Y
	03	793	Bulk	3	Y
83	---	824	Bulk	31	Y
84	01	795	Bulk	3	Y
	02	795	Bulk	2	Y
	03	795	Bulk	6	Y

	04	795	Bulk	12	Y
	05	795	Bulk	10	Y
	06	795	Bulk	11	Y
	07	795	Bulk	10	Y
	08	795	Bulk	8	Y
85	---	826	Bulk	27	Y
86	01	802	Bulk	5	Y
	02	802	Bulk	2	Y
	03	802	Bulk	10	Y
	04	802	Bulk	10	Y
	05	802	Bulk	11	Y
	06	802	Bulk	9	Y
	07a	802	Bulk	10	Y
	07b	802	Bulk	8	Y
	08	802	Bulk	5	Y
87	---	831	Bulk	19	Y
88	01	844	Bulk	24	Y
	02	844	Bulk	14	Y
	03	844	Bulk	12	Y
	04	844	Bulk	44	Y
	05	844	Bulk	11	Y
	06	844	Bulk	12	Y
	07	844	Bulk	23	Y
	08	844	Bulk	37	Y
	09	844	Bulk	31	Y
	10	844	Bulk	15	Y
	11	844	Bulk	5	Y
	12	844	Bulk	4	Y
89	---	846	Bulk	5	Y
90	01	849	Bulk	8	Y
	02	849	Bulk	15	Y
	03	849	Bulk	6	Y
	04	849	Bulk	4	Y
	05	849	Bulk	27	Y
	06	849	Bulk	18	Y
91	---	851	Bulk	3	Y
92	---	Multi	Micromorphology	---	---
93	---	Multi	Micromorphology	---	---
94	---	Multi	Micromorphology	---	---
95	01	852	Bulk	5	Y
	02	852	Bulk	9	Y
	03	852	Bulk	10	Y
	04	852	Bulk	3	Y
	05	852	Bulk	10	Y
	06	852	Bulk	12	Y
96	---	853	Bulk	3	Y
97	01	854	Bulk	2	Y
	02	854	Bulk	5	Y
98	---	855	Bulk	4	Y
99	---	856	Bulk	1	Y
100	---	857	Bulk	3	Y
101	01	859	Bulk	6	Y
	02	859	Bulk	9	Y
	03	859	Bulk	10	Y
102	01	858	Bulk	10	Y
	02	858	Bulk	12	Y
	03	858	Bulk	12	Y
	04	858	Bulk	12	Y
	05	858	Bulk	21	Y

	06	858	Bulk	13	Y
103	---	Multi	Micromorphology	---	---
104	---	Multi	Micromorphology	---	---
105	---	Multi	Pollen column	---	---
106	---	Multi	Pollen column	---	---
107	---	Multi	Micromorphology	---	---
108	---	865	Bulk	Na	Y
109	01	866	Bulk	26	Y
	02	866	Bulk	31	Y
110	01	864	Bulk	7	Y
	02	864	Bulk	18	Y
	03	864	Bulk	30	Y
	04	864	Bulk	22	Y
	05	864	Bulk	18	Y
	06	864	Bulk	30	Y
	07	864	Bulk	20	Y
	08	864	Bulk	20	Y
	09	864	Bulk	23	Y
	10	864	Bulk	25	Y
	11	864	Bulk	17	Y
	12	864	Bulk	24	Y
	13	864	Bulk	26	Y
	14	864	Bulk	18	Y
	15	864	Bulk	31	Y
	16	864	Bulk	22	Y
	17	864	Bulk	8	Y
111	---	876	Bulk	2	Y
112	---	869	Bulk	12	Y
113	01	871	Bulk	6	Y
	02	871	Bulk	6	Y
	03	871	Bulk	2	Y
	04	871	Bulk	11	Y
	05	871	Bulk	7	Y
	06	871	Bulk	8	Y
	07	871	Bulk	1	Y
114	---	864	?Sponge	---	---
115	01	873	Bulk	12	Y
	02	873	Bulk	9	Y
	03	873	Bulk	3	Y
116	01	868	Bulk	7	Y
	02	868	Bulk	20	Y
	03	868	Bulk	20	Y
	04	868	Bulk	30	Y
	05	868	Bulk	9	Y
	06	868	Bulk	8	Y
	07	868	Bulk	9	Y
	08	868	Bulk	15	Y
	09	868	Bulk	16	Y
	10	868	Bulk	24	Y
	11	868	Bulk	7	Y
	12	868	Bulk	8	Y
	13	868	Bulk		
	14	868	Bulk	20	Y
	15	868	Bulk	29	Y
	16	868	Bulk	8	Y
117	---	889	Bulk	4	Y
118	---	890	Bulk	25	Y
119	---	Multi	Pollen column	---	---
120	---	892	Bulk	10	Y

121	---	892	Bulk		
122	---	894	Bulk	44	Y
123	---	897	Bulk	4	Y
124	01	901	Bulk	24	Y
	02	901	Bulk	24	Y
	03	901	Bulk	15	Y
	04	901	Bulk	12	Y
125	---	902	Bulk	5	Y
126	---	905	Bulk	5	Y
127	01	904	Bulk	10	Y
	02	904	Bulk	11	Y
	03	904	Bulk	23	Y
128	01	907	Bulk	20	Y
	02	907	Bulk	23	Y
	03	907	Bulk	15	Y
129	---	909	Bulk		
130	---	909	?Sponge	---	---
131	01	861	Bulk	12	Y
	02	861	Bulk	28	Y
	03	861	Bulk	5	Y
	04	861	Bulk	25	Y
	05	861	Bulk	11	Y
132	01	862	Bulk	10	Y
	02	862	Bulk	11	
	03	862	Bulk	9	
	04	862	Bulk	6	

Appendix 6

The Clay Pipes

Natascha Mehler

Written sources mention the import of tobacco for the workers of the *Innréttingarnar*. Skúli Magnússon, the financial governor (*landfógeti*) of Iceland and one of the founders of the Factory at Aðalstræti, more than once imported items to Iceland on ships boats belonging to the New Industries. Amongst goods like building material was also tobacco. In the year 1756 Skúli got the king's permission to bring 1000 pounds of tobacco to Iceland. According to the documents, the tobacco was bought for his employees at the Factories.[114] The import of clay pipes is not mentioned, but it is very likely that Skúli acquired also a great number of pipes when he bought the tobacco in Copenhagen, where Dutch pipes were cheaper and easier to buy than Danish products. As far as is known, no documents mention the import of clay pipes to Iceland in general, but archaeological finds from other sites also show clearly that the smoking utensils were mainly imported from The Netherlands and England and a few others from southern Scandinavia. Unlike the Scandinavian countries, the manufacture of clay pipes has never taken place in Iceland.

186 fragments of clay tobacco pipes were found during the excavations at Aðalstræti.[115] 35 (18.8 %) of them are decorated, marked or bear inscriptions. All but one decoration is stamped, AST 01-1104 is the only one moulded. 17 fragments (9.1 %) show identifiable remains of marks or inscriptions. 12 pipe stems, heel marks and bowls have been identified (6.5 %). Nine fragments are Dutch, and all can be assigned to the city of Gouda. Two pipe stems are signed by Danish pipe makers, and at least one pipe was certainly made in Bristol, England. In some cases, the accurate dating of building phase 6 (1752 to 1764) according to written sources and archaeological results permits a closer dating of the pipes.

Gouda pipes

The quality of both type and inscription suggests that the Gouda pipes are original products rather than imitations. The place name appears in three spelling variations: N·GOUDA (AST 01-397), NGOUDA· (AST 01-819) and INGOUDA**:** (AST 01-1106). Four different heel or bowl marks from Gouda are represented. The so-called "maiden with the gooses" (*juffrouw met de kippersen*) was used in the years 1726 to 1768 (AST 01-1108, see fig. 2).[116] The sign with the arms of Gouda, introduced in the year 1739, is applied on both sides of the heel. In addition, the letter S standing for *slegte* is written on the heels right side. This sign was first used in 1740 and had to be applied on all pipes that did not fulfill the requirements of the first quality so-called porcelain pipes.[117] Both marks and stratigraphical context therefore suggest a dating for this fragment of 1740 to 1764 (see list: first the date of the marks using period is given in brackets, followed by the date according to the combination of marks and context).

[114] Jón Jónsson, 104 f.
[115] The previous investigations of the years 1971 to 1975 revealed 82 fragments of clay pipes. They are to be published in Mehler 2002.
[116] Duco 1982, 56 Nr. 102.
[117] Duco 1987, 77.

The heel of AST 01-411 is marked with a snake (*slang*), a symbol that was in use from 1733 to 1808.[118] The mark on the upper part of the bowl of AST 01-583 can most likely be identified as the so-called "Lion in the dutch garden" (*leeuw in de hollandse tuin*), applied in a rather long time span from 1682 to 1940.[119] The arms of Gouda on the heel's left side and the context allow a closer dating to ca. 1739 to 1764. AST 01-1102 bears the letters H H. The initials can be completed to H H H, a Gouda sign that was utilized from 1690/1710 until 1816.[120] With the help of its find context, the date of this fragment can also be narrowed down to before 1764. The names of two pipe makers from Gouda are mentioned in inscriptions. Stem fragment AST 01-338 shows the letters F.VERSLU, referring to Franz Verzyl, one of the most important pipe makers in Gouda who became master in 1729 and carried out his work until 1786. Another rather well-known pipe maker was Lucas De Jonge, who was carrying out his work from 1730 to 1782 and marked his products with LUCAS DEIONGE as can be seen on AST 01-1098. This stem was found in the fire layer of 1764.

Scandinavian pipes

During the 1740s, an Englishman tried to set up a pipe factory in Copenhagen. This closed down in 1753 and Alexander Ross, the Inspector General of the Danish Army took over the works. From 1758 onwards he seems to have cooperated with Severin Ferslew until the manufactory closed down in 1764. During this time, both used several different stem marks, often with the name A ROSS at the top and S Ferslew at the bottom[121]. Two examples of those pipe makers were found at Aðalstræti. The letters of the stem marks are carried out in a wavy style. AST 01-1101 bears the letters A·ROSS and can thus be dated to 1753 – 1764, AST 01-579 shows remains of the name S·Fe and can be dated to 1758 – 1764 (see fig. 2). Fitting well with these dates, both stem fragments were found in contexts of Phase 6. Another Scandinavian pipe found at Aðalstræti was already excavated in the 1970´s: a stem with the inscription KIØBI?, thus made in Stubbekøbing on the Danish island Falster in the years 1727 to 1798.[122] Stem AST 01-1110 is partly covered with green lead glaze, which is common in the 17th century, but seldom in younger times. Green glazed pipes were produced for example in Örebro in Sweden[123], but the origin of the Aðalstræti fragment is as yet unknown.

English pipes

At least one pipe fragment found at Aðalstræti was produced in England. Fragment AST 01-1104 has a moulded cartouche on the right side of the bowl showing the letters R TIP PET. This pipe was made by Robert Tippet of Bristol. Three generations of pipe makers existed in this family, all with the same name. Robert Tippet I. started the business around 1660 and the last Robert Tippet III died in 1720.[124] The Tippet pipe found at Aðalstræti belongs to a type specifically made for export to North America (for example New Foundland, where several pipes of this type have been excavated) and is rarely found in England.[125] Another fragment

[118] Duco 1982, 52 Nr. 47.
[119] Duco 1982, 57 Nr. 114.
[120] Duco 1982, 89 Nr. 516.
[121] Ahlefeldt-Laurvig 1980, 222, 230.
[122] Mehler 2002.
[123] Åkerhagen, 17 and 41.
[124] Oswald, 86 f. and 158.
[125] Personal comment by Dr. David Higgins.

belongs to a pipe most likely made in England. AST 01-1103 bears the initials I (or T) on the heel's left side and A on the right side. The pipe's style has clear similarities to English examples. Especially in the area around London several pipe makers with the initials IA are known, but the fragment found in a context of Phase 6 cannot be absolutely identified[126].

Unknown pipes

Several pipe fragments remain unidentified. Stem AST 01-1099 shows the name WVVELSEN (see fig. 2). The pipe maker is not known, but the name could be Scandinavian. Bowl number AST 01-1100 is marked with the number 27 on the heel (see fig. 2). Date and origin are yet unknown, but the pipe's style seems to be Scandinavian as well. Due to the fragmentation of AST 01-1107 only three letters of the inscription are readable. The stem shows BEK, the name can not be completed. Date and origin are unknown.

Discussion

The datable pipe fragments are in agreement with the stratigraphical dating of the phases and contexts. Most of the pipes were found in contexts of the earlier Factory period and even quite a number in contexts clearly datable to the year 1764 (see figure 1). Although the later period lasted much longer (from 1764 to ca. 1800), only a few fragments were deposited after the fire of 1764. Most of the pipes found in phases 8 and 9 seem to be re-deposited. In several cases style and marks clearly show that the pipes are much older than the contexts they have been found in.

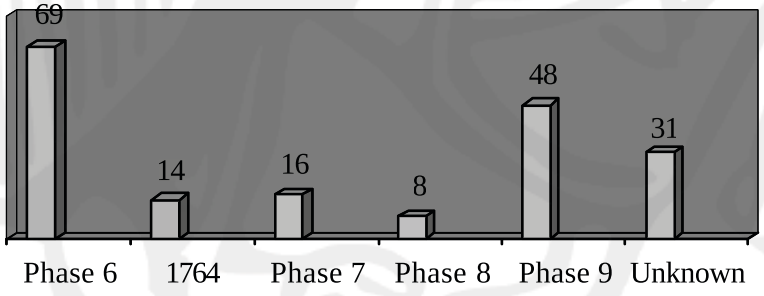

Fig. 1: Distribution of clay pipe fragments by building phases.

The composition of the clay pipe material excavated at Aðalstræti (both in the 1970´s and in 2001) is similar to the pipe material excavated at Viðey, where products from the Netherlands also clearly dominate. Pipes with the same inscriptions were found: two stems of VERZYL, one stem with WVVELS, two mentioning the Danish manufactures of STUBBEKØBING, and one product of the above mentioned Alexander ROSS.[127] Since Viðey was the seat of Skúli Magnússon, the correspondence of the pipe material is not surprising.

[126] Personal comment by Dr. David Higgins.

[127] Margét Hallgrímsdóttir 1989, 57. The ROSS fragment in the Viðey report is unidentified.

Nr.	C	Sum.	Description	Date/Origin	Phasing
14	101	9	Fragments of pipe stems, all without decoration; two secondarily burnt.		Phase 9
39	104	1	Fragment of a pipe stem; no decoration.		Phase 9
41	103	4	Fragments of pipe stems, all without decoration.		Phase 9
52	106	3	Fragments of pipes: 2 stems, 1 bowl; all without decoration.		Phase 9
63	111	2	Fragments of pipe stems: one with circular incisions and slightly sooty.		Phase 7
78	114	1	Fragment of a sooty pipe stem; no decoration.		Phase 7
110	126	1	Fragment of an undecorated pipe stem.		Phase 8
122	129	1	Fragment of a pipe stem with three incised rills.		Phase 7
155	137	1	Fragment of an undecorated pipe stem.		Phase 7/8
178	145	6	Fragments of pipes: 1 bowl and 5 stems; line of incised dots at the rim of the bowl; some of them sooty.		Phase 7/8
179	146	1	Fragment of an undecorated pipe stem.		Phase 7/8
244	153	3	Fragments of undecorated pipe stems.		Phase 7/8
263	171	3	Fragments of undecorated pipe stems.		Post 1764
281	150	2	Fragments of undecorated pipe stems.		Phase 8
293	165	3	Fragments of pipes: 2 undecorated stems and 1 bowl with remains of an oval-circular stamp (unreadable).		Phase 7
338	182	2	Fragments of pipe stems; one with inscription: F.VERSLU.	1729 – 1786 Franz Verzyl Gouda, NL	Phase 8
350	181	1	Fragment of an undecorated pipe bowl; shortened for separate mouthpiece.		Prae 1764
397	184	2	Fragments of pipe stems: 1 with circular decoration, 1 with inscription: N·GOUDA	18th cent. Gouda, NL	Phase 6
398	300	4	Fragments of undecorated pipe stems, one secondarily burnt.		1764
405	500	4	Fragments of pipe stems, one sooty and decorated with incised circles.		Phase 9
Nr.	**C**	**Sum.**	**Description**	**Date/Origin**	**Phasing**
406	235	2	Fragments of undecorated pipe stems.		Phase 6
407	448	3	Fragments of undecorated pipe stems.		Phase 6
408	444	2	Fragments of undecorated pipe stems.		Phase 6
409	351	1	Fragment of a pipe stem, decorated with a row of circles and a row of dots.		Phase 7/8/9
410	426	7	Fragments of pipe stems, one decorated with 4 rows of little incised squares.		Phase 6/7
411	337	7	Fragments of pipes, 6 stems and 1 bowl; all stems undecorated; bowl with marked heel: *slang* (without arms of Gouda).	1733 - 1808 Gouda, NL	Phase 9

412	343	2	Fragments of undecorated pipe stems.		Phase 8/9
413	416	4	Fragments of pipe stems; one slightly sooty, one decorated with 2 coarse incised lines.		Phase 7
414	373	2	Fragments of undecorated pipe stems.		Phase 9
415	336	10	Fragments of pipes: 2 bowls, 8 undecorated stems; one bowl with incised dots at the rim.		Phase 9
416	216	1	Fragment of an undecorated pipe stem.		Phase 6
571	431	1	Fragment of an undecorated pipe stem, secondarily burnt.		Phase 6/7
572	410	1	Fragment of an undecorated pipe stem.		Phase 9
573	447	1	Fragment of an undecorated pipe stem.		Phase 6
574	381	1	Fragment of an undecorated pipe stem.		Post 1764
575	286	1	Fragment of an undecorated pipe stem.		Phase 3
576	445	1	Fragment of an undecorated pipe stem.		Phase 6
577	495	1	Fragment of an undecorated pipe stem.		Phase 6
578	470	7	Fragments of undecorated pipe stems.		Phase 6
579	464	1	Fragment of a pipe stem with 2 rows of circles, in between 2 rows of incised squares and inscription S·Fe	1758 – 1764 Severin Ferslew Kopenhagen, DK	Phase 6
580	433	2	Fragments of undecorated pipe stems.		Phase 6
581	382	1	Fragment of an undecorated pipe stem.		Phase 9
582	386	2	Fragments of undecorated pipe stems.		1764
583	462	1	Fragment of a marked pipe bowl with heel; on the heels left side arms of Gouda; on the upper side of the bowl small mark: probably *leeuw in de hollandse tuin.*	(1682-1940 mark) 1739 – 1764 Gouda, NL	Phase 6
584	386	1	Fragment of an undecorated pipe bowl.		1764
585	452	8	Fragments of pipes: 1 bowl with incised squares at the rim. 7 stems: 6 undecorated, one stem with rows of circles rows of incised squares.		Phase 6
586	300	3	Fragments of undecorated pipe stems.		1764
587	369	1	Fragment of an undecorated pipe stem.		Phase 9
Nr.	**C**	**Sum.**	**Description**	**Date/Origin**	**Phasing**
588	430	1	Fragment of a pipe stem with a row of incised circles.		Phase 6/7
589	220	1	Fragment of an undecorated pipe stem.		Phase 6
610	500	3	Fragments of undecorated pipe stems.		Phase 9
622	333	1	Fragment of an undecorated pipe stem.		Phase 9
623	186	1	Fragment of an undecorated pipe stem.		Phase 6
632	185	2	Fragments of undecorated pipe stems, one of them a mouthpiece.		Phase 6
643	405	1	Fragment of a pipe bowl with incised dots at the rim.		Phase 7/8
801	300	2	Fragments of undecorated pipe stems.		1764
802	170	2	Fragments of undecorated pipe stems.		1764
806	442	6	Fragments of undecorated pipe stems.		Phase 6

819	444	5	Fragments of pipes: 1 bowl fragment, 4 stems: 1 stem with inscription NGOUDA·	18th century Gouda, NL	Phase 6
824	439	3	Fragments of pipes: 2 undecorated stems, 1 fragment of a bowl with parts of a mark at the bowl: fragments of a crown.	Unidentified	Phase 6
833	437	2	Fragments of undecorated pipe stems.		Phase 6
899	447	6	Fragments of undecorated pipe stems.		Phase 6
904	162	2	Fragments of undecorated pipe stems.		1764
932	418	1	Fragment of an undecorated pipe stem.		Phase 7
1030	747	1	Fragment of an undecorated pipe stem.		Phase 2
1098	300	1	Fragment of a pipe stem with inscription LUCAS DEIONGE.	(1730-1782) 1730 - 1764 Lucas De Jonge Gouda, NL	1764
1099	150	1	Fragment of a pipe stem with inscription: WVVELSEN.	Scandinavian?	Phase 8
1100	150	1	Fragment of a pipe bowl with mark on the heel “27”.	Scandinavia style 18th century	Phase 8
1101	437	1	Fragment of a pipe stem with inscription A·ROSS.	1753 – 1764 Alexander Ross Kopenhagen, DK	Phase 6
1102	437	1	Fragment of a pipe bowl with part of a marked heel: H H. Mark originally HHH. No remains of the arms of Gouda.	(1690/1710-1816) 1690/1710 – 1764 H H H Gouda, NL	Phase 6
1103	235	1	Fragment of a pipe: stem and parts of bowl with marked heel: left side "I" or “T”, right side "A".	England (London)? Style 18th century	Phase 6
Nr.	**C**	**Sum.**	**Description**	**Date/Origin**	**Phasing**
1104	235	1	Fragment of a pipe, stem with broken bowl; no heel; moulded round cartouche on the right side: R TIP PET.	1660 – 1720 Robert Tippet Bristol, GB	Phase 6
1105	495	1	Fragment of a pipe stem with decoration: two lines of circles, and in between 6 rows of incised squares.	Style 18th century	Phase 6
1106	452	1	Fragment of a pipe stem with decoration: inscription "INGOUDA:" and three rows of incised squares.	Style 18th century Gouda, NL	Phase 6
1107	343	1	Fragment of a pipe stem with decoration: inscription maybe BEK , 2 rows of incised squares and alongside line of diagonal lines.	Unidentified	Phase 8
1108	184	1	Fragment of a pipe: marked heel with stem: bottom of heel: *juffrouw met de kipperson;* on both sides of the heel the Arms of Gouda, right side “S” in addition.	(1726-1768 mark) 1740-1764 Gouda, NL	Phase 6

1109	452	1	Fragment of a pipe bowl with short heel, no marks.	Style 17th to early 18th century	Phase 6
1110	101	1	Fragment of a pipe stem with patches of green glaze.		Phase 9
1111	452	1	Fragment of pipe stem with decoration: two rows of incised circles and in between several rows of incised squares.		Phase 6
1112	448	1	Fragment of a pipe stem with decoration: two rows of incised circles and in between several rows of dots.		Phase 6
1256	388	1	Fragment of a pipe stem with circular decoration.		1764

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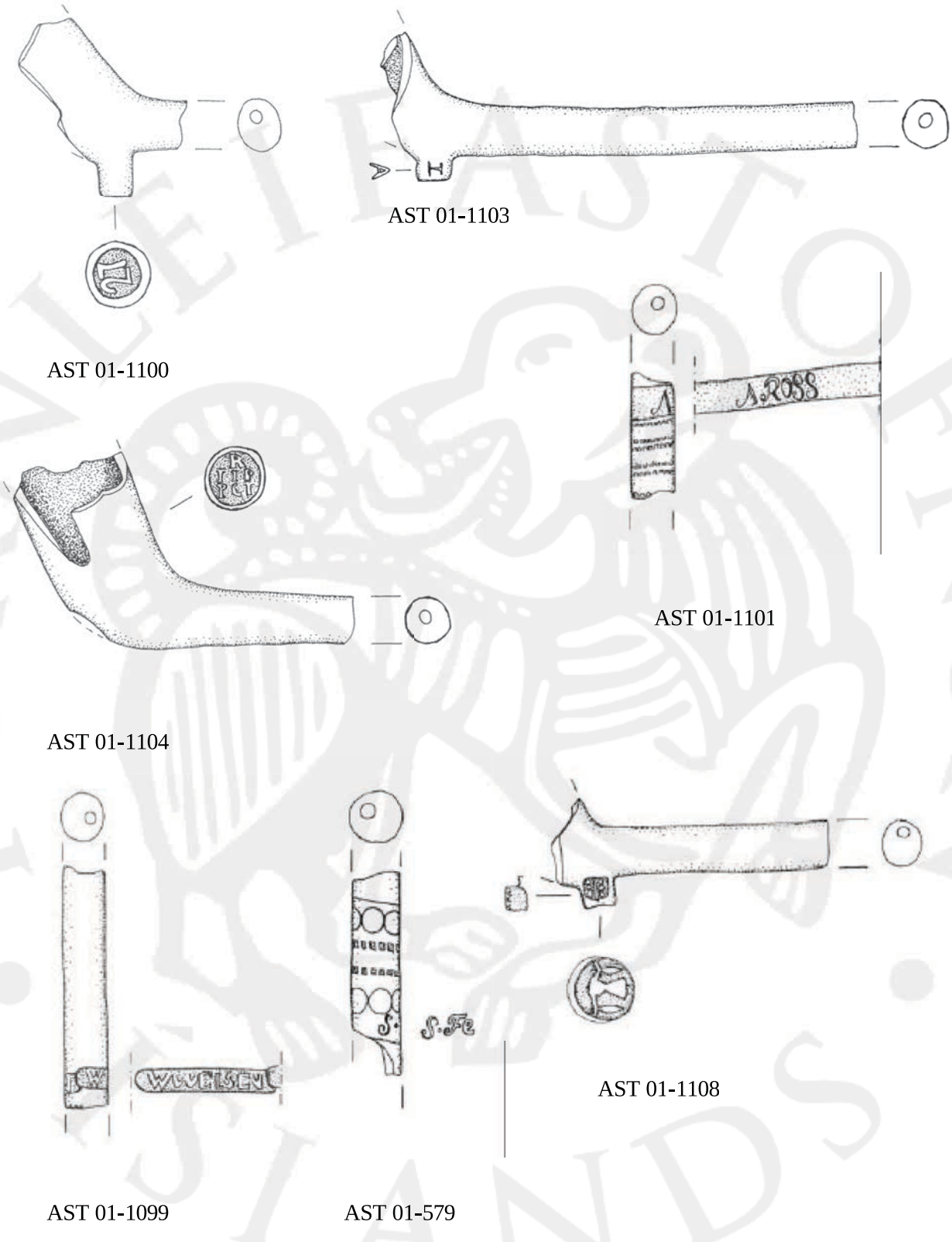

Fig. 2: Clay pipes found at Aðalstræti M 1:1 (details on AST 01-1100 and AST 01-1108 M 2:1).

Appendix 7

List of Finds

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No	Context	Material	Description
001	101	Ceramic	Bricks, type I, 54 fragments, 5157 g
002	101	Ceramic	Bricks, type II, 23 fragments, 2415 g
003	101	Ceramic	Bricks, type III, 11 fragments, 1555 g
004	101	Glass	Window glass, clear, 14 fragments, 60 g
005	101	Glass	Vessels, clear, green, brown, 65 fragments, 2151 g
006	101	Glass	Lump of melted clear glass, 28 g
009	101	Stone	Slate, 15 fragments, 1039 g
010	101	Unknown	Unknown object, stone or concrete
011	101	Concrete	Piece of concrete?
012	101	Stone	Obsidian, propably worked, 1 piece, 34 g
013	101	Stone	Piece of mineral coal, 23 g
014	101	Ceramic	Clay pipe, 9 stems, 17 g
015	101	Metal	Coin with inscription ”British West America 1928”, 1 penny
016	101	Plastic	Button, 2 g
017	101	Bone	Fragment of comb, 4 g
018	101	Wood	Piece of wood, unworked, 8 g
019	101	Leather	Shoe fragments and unknown fragments
020	101	Metal	22 iron objects: 16 nails, 1 knife, 3 pipe frgm., 1 pin, 1 unknown, 1264 g
021	101	Metal	3 copper alloy objects, 68 g
022	101	Ceramic	Whiteware, modern, 1127 g
023	101	Ceramic	Stoneware, 5 fragments from 5 vessels, 50 g
024	101	Ceramic	Redware, recent, 8 fragments from 3 vessels, 238 g
025	101	Ceramic	Redware, 10 fragments, 87 g
026	101	Ceramic	Creamware, 7 fragments, 109 g
027	101	Ceramic	Redware, 1 fragment of a roof tile, 19 g
028	103	Ceramic	Bricks, type I, 34 fragments, with mortar, 20 677 g
029	103	Ceramic	Bricks, type II, 20 fragments, 4934 g
030	103	Ceramic	Bricks, type III, 3 fragments, 461 g
031	103	Ceramic	Brick, unknown type, 5 fragments, 420 g
032	103	Ceramic	Redware, 1 fragment of a roof-tile? 25 g
033	103	Mortar	Sample of mortar, 113 g
034	103	Leather	2 leather fragments, 4 g
035	103	Metal	7 iron nails, 101 g
036	103	Stone	Slate, 25 fragments, 440 g
037	104	Ceramic	Redware, 2 fragments, 1 fragm. of Whiteware, total 59 g

No	Context	Material	Description
038	104	Ceramic	Bricks, 2 small fragments, 7 g
039	104	Ceramic	Clay pipe, 1 stem, 3 g
040	103	Glass	Vessels, modern, 19 fragments
041	103	Ceramic	Clay pipes, 4 stems, 24 g
042	103	Glass	1 fragment of secondarily burnt/melted glass, 2 g
043	103	Metal	1 copper alloy object, lid of a vessel, 6 g
044	103	Ceramic	Redware, 5 fragments, 37 g
045	103	Ceramic	Whitewares, modern, 6 fragments, 23 g
046	103	Ceramic	Redware, 2 fragments, 13 g
047	106	Glass	Fragments of window glass and glass vessels, 7 fragments, 82 g
048	106	Glass	Special glass sherd, pink and white color, 1 g
049	106	Metal	4 iron nails, 1 unknown iron object, 358 g
050	106	Plastic	Plastic wrapping for drops, 1 g
051	106	Other	“Tjorupappi”, 1 fragment, 3 g
052	106	Ceramic	Clay pipes, 3 fragments (2 stems, 1 bowl), 3 g
053	106	Ceramic	Redware, 3 fragments, 34 g
054	106	Ceramic	Stoneware, 2 fragments, 207 g
055	106	Ceramic	Whiteware, modern, 41 fragments, 275 g
056	106	Ceramic	Stoneware, 2 fragments, 11 g
057	111	Ceramic	Bricks, type III, 2 fragments, 1173 g
058	111	Ceramic	Bricks, type I, 58 fragments, 9635 g
059	111	Ceramic	Bricks, type II, 28 fragments, 1123 g
060	111	Mortar	4 pieces of mortar, 318 g
061	111	Glass	Window glass, clear, 1 fragment, 4 g
062	111	Glass	Glass vessels, 4 fragm., 1 brown, 3 green, from 2 bottles, 212 g
063	111	Ceramic	Clay pipes, 2 stems, 4 g
064	111	Ceramic	Redware, 4 fragments from 4 vessels, 103 g
065	111	Metal	1 iron nail, fragmented, 10 g
066	111	Ceramic	Whiteware, modern, 1 fragment, 3 g
067	113	Ceramic	Bricks, type II, 2 fragments, 9 g
068	113	Ceramic	Bricks, type I, 2 fragments, 50 g
069	113	Metal	3 iron nails with timber attached, 51 g
070	113	Glass	Glass vessel, 1 fragment of a green bottle, 30 g
071	113	Wood	4 wood fragments, unworked, 20 g
072	113	Ceramic	Whiteware, modern, 1 handle, 8 g
073	113	Ceramic	Redware, 2 fragments of roof tiles? 11 g
074	113	Metal	1 iron nail with wood attached, 12 g
075	114	Textile	1 fragment of textile, 1 g
076	114	Ceramic	Bricks, type I, 12 fragments, 80 g
077	114	Ceramic	Bricks, type II, 3 fragments, 7 g
078	114	Ceramic	Clay pipe,1 stem, 2 g
079	114	Ceramic	Whiteware, modern, 1 fragment, 9 g

No	Context	Material	Description
080	114	Ceramic	Redware, 1 fragment, 2 g
081	114	Stone	1 piece of slate, 14 g
082	114	Glass	Window glass, 3 fragments, clear and green, 7 g
083	114	Glass	Vessel, 1 fragment, green, 4 g
084	116	Ceramic	Bricks, type II, 7 fragments, 709 g
085	116	Ceramic	Bricks, type III, 2 fragments, 966 g
086	116	Ceramic	Brick, type I, 11 fragments, 759 g
087	116	Metal	2 iron fragments, 82 g
088	116	Glass	Window glass, 2 fragments, 1 green and 1 clear, 14 g
089	116	Glass	Vessels, 8 fragments, green, from 2 bottles, 275 g
090	116	Ceramic	Whiteware, modern, 8 fragments, 211 g
091	120	Ceramic	Redware, modern, 4 fragments, 38 g
092	120	Ceramic	Whiteware, modern, 2 fragments, 17 g
093	121	Ceramic	Whiteware, modern, 4 fragments, 12 g
094	121	Glass	Vessel, 1 fragment, green, from a bottle, 7 g
095	123	Ceramic	Bricks, type I, 2 fragments, 101 g
096	123	Ceramic	Bricks, type II, 2 fragments, 49 g
097	123	Metal	1 fragment of an iron nail, 8 g
098	123	Glass	Window glass, 1 fragment, clear, 2 g
099	123	Glass	Glass vessels, 4 fragments, 83 g
100	123	Wood	2 fragments of burnt wood, 2 g
101	123	Stone	1 fragment of mineral coal, 4 g
102	124	Ceramic	Bricks, type I, 3 fragments, 104 g
103	124	Ceramic	Creamware, 1 fragment, 3 g
104	124	Ceramic	Whiteware, modern, 2 fragments, 6 g
105	124	Glass	Vessel, 4 fragments of a green bottle, 3 g
106	124	Unknown	1 unknown object, maybe leather?
107	124	Metal	2 iron fragments, 44 g
108	126	Ceramic	Bricks, type I, 1 fragment, 62 g
109	126	Glass	Vessel, 1 fragment of a blue bottle, 4 g
110	126	Ceramic	Clay pipe, 1 stem, 5 g
111	126	Ceramic	Redware, 9 fragments, 30 g
112	128	Ceramic	Bricks, type I, 3 fragments, 163 g
113	128	Ceramic	Bricks, type II, 13 fragments, 269 g
114	128	Ceramic	Bricks, type IV, 1 fragment, 551 g
115	128	Composite	1 tool of iron and wood, maybe screwdriver, 7 g
116	128	Glass	Window glass, 1 fragment, clear, 4 g
117	128	Glass	Vessels, 3 fragments, 2 g
118	128	Ceramic	Stoneware, 1 fragment, 62 g
119	128	Ceramic	Whiteware, modern, 32 fragments, 146 g
120	129	Ceramic	Bricks, type I, 7 fragments, 303 g
121	129	Ceramic	Bricks, type II, 9 fragments, 319 g

No	Context	Material	Description
122	129	Ceramic	Clay pipe stem, 1 fragment, 2 g
123	129	Ceramic	Redware, 1 fragment, 2 g
124	129	Ceramic	Porcelain, 1 fragment, 1 g
125	119	Ceramic	Bricks, type I, 1 fragment, 8 g
126	119	Glass	Glass vessel, 1 fragment, brown, 3 g
127	119	Ceramic	Stoneware, 1 fragment, 13 g
128	119	Ceramic	Redware, 1 fragment, 32 g
129	119	Ceramic	Whiteware, modern, 5 fragments, 47 g
130	132	Ceramic	Brick, type III, 1 fragment, 406 g
131	132	Metal	1 fragment of an iron nail, 5 g
132	132	Glass	Window glass, 1 fragment, 7 g
133	132	Glass	Vessels, 8 fragments, 46 g
134	132	Ceramic	Stoneware, 1 fragment, 10 g
135	132	Glass	11 fragments of a green bottle, 164 g
136	132	Ceramic	Redware, 1 fragment, 3 g
137	132	Ceramic	Porcelain, 1 fragment, 2 g
138	132	Ceramic	Whiteware, modern, 9 fragments, 157 g
139	134	Ceramic	Bricks, type II, 4 fragments, 140 g
140	134	Ceramic	Bricks, type III, 2 fragments, 740 g
141	134	Glass	Vessels, 3 fragments, 43 g
142	134	Ceramic	Redware, 1 fragment, 14 g
143	134	Ceramic	Stoneware, 1 fragment, 4 g
144	135	Ceramic	Bricks, type I, 9 fragments, 296 g
145	135	Ceramic	Bricks, type II, 13 fragments, 596 g
146	135	Ceramic	Bricks, type III, 1 fragment, 140 g
147	135	Glass	Vessel, 1 fragment of a bottle, 42 g
148	135	Ceramic	Redware, 1 fragment, 28 g
149	136	Ceramic	Brick, type I, 1 fragment, 651 g
150	136	Ceramic	Bricks, type II, 3 fragments, 43 g
151	136	Glass	Window glass, 1 fragment, light green, 1 g
152	137	Ceramic	Brick, type I, 1 fragment, 5 g
153	137	Ceramic	Brick, type II, 2 fragments, 9 g
154	137	Metal	Iron plate, 17 g
155	137	Ceramic	Clay pipe, 1 stem, 4 g
156	137	Glass	Vessels, 8 fragments, 38 g
157	137	Ceramic	Redware, 2 fragments, 5 g
158	137	Ceramic	Whiteware, modern, 9 fragments, 59 g
159	137	Glass	2 fragments of a clear, small medicine bottle, 10 g
160	138	Stone	1 piece of slate, 14 g
161	138	Ceramic	Bricks, type I, 16 fragments, 4580 g
162	138	Ceramic	Bricks, type II, 20 fragments, 2812 g
163	138	Ceramic	Bricks, type III, 2 fragments, 386 g

No	Context	Material	Description
164	140	Textile	1 piece of textile, maybe “Vadmal”? 1 g
165	141	Ceramic	Bricks, type I, 4 fragments, 935 g
166	141	Ceramic	Whiteware, modern, 2 fragments, 22 g
167	141	Glass	Vessels, 2 fragments, 33 g
168	142	Metal	5 iron objects; 4 nails and 1 fragment,, 95 g
169	142	Glass	Vessel, 1 fragment of a green bottle, 27 g
170	144	Metal	1 iron nail, 13 g
171	145	Ceramic	Bricks, type II, 4 fragments, 61 g
172	145	Stone	1 piece of slate, 19 g
173	145	Metal	1 iron nail, 21 g
174	145	Glass	Window glass, 2 fragments, 2 g
175	145	Glass	Glass vessels, 2 fragments, 15 g
176	145	Ceramic	Redware, 1 fragment, 6 g
177	145	Ceramic	Whiteware, modern, 1 fragment, 4 g
178	145	Ceramic	Clay pipes, 6 stems, 9 g
179	146	Ceramic	Clay pipe, 1 stem, 4 g
180	146	Ceramic	Creamware, 1 fragment, 11 g
181	111	Ceramic	Redware, 1 fragment, 5 g
182	150	Ceramic	Bricks, type II, 23 fragments, 1293 g
183	150	Ceramic	Bricks, type I, 53 fragments, 4031 g
184	153	Ceramic	Bricks, type I, 14 fragments, 713 g
185	153	Ceramic	Bricks, type II, 10 fragments, 247 g
186	156	Ceramic	Bricks, type I, 6 fragments, 73 g
187	159	Ceramic	Bricks, type II, 1 fragment, 7 g
188	164	Ceramic	Bricks, type II, 3 fragments, 15 g
189	160	Ceramic	Bricks, type I, 2 fragments, 11 g
190	161	Ceramic	Bricks, type I, 3 fragments, 11 g
191	165	Ceramic	Bricks, type I, 5 fragments, 819 g
192	165	Ceramic	Bricks, type II, 5 fragments, 404 g
193	162	Ceramic	Bricks, type II, 7 fragments, 1003 g
194	155	Ceramic	Bricks, type V, 1 fragment, 1032 g
195	155	Ceramic	Bricks, type I, 9 fragments, 2496 g
196	171	Ceramic	Brick, type I, 1 fragment, 50 g
197	171	Ceramic	Bricks, type II, 3 fragments, 513 g
198	177	Ceramic	Bricks, type I, 7 fragments, 317 g
199	177	Ceramic	Brick, type II, 1 fragment, 8 g
200	177	Ceramic	Brick, type V, 1 fragment, 93 g
201	237	Ceramic	Bricks, type I, 54 fragments, 53 kg 302 g
202	237	Ceramic	Bricks, type II, 30 fragments, 29 kg 150 g
203	237	Ceramic	Bricks, type III, 28 fragments, 16 kg 332 g
204	242	Ceramic	Bricks, type I, 2 whole examples, 3414 g
205	242	Ceramic	Brick, type II, 1 whole example, 2105 g

No	Context	Material	Description
206	242	Ceramic	Bricks, type III, 8 fragments, 8229 g
207	245	Ceramic	Bricks, type I, 12 fragments, 1324 g
208	245	Ceramic	Bricks, type II, 11 fragments, 5629 g
209	245	Ceramic	Bricks, type III, 36 fragments, 3115 g
210	245	Mortar	Mortar, 2 pieces, 157 g
211	172	Ceramic	Bricks, type II, 2 fragments, 24 g
212	181	Ceramic	Bricks, type I, 1 fragment, 90 g
213	181	Ceramic	Bricks, type II, 7 fragments, 1961 g
214	193	Ceramic	Brick, type I, 1 fragment, 693 g
215	193	Ceramic	Brick, type II, 1 fragment, 647 g
216	300	Ceramic	Bricks, type I, 21 fragments, 3571 g
217	300	Ceramic	Bricks, type II, 25 fragments, 1903 g
218	300	Ceramic	Bricks, type III, 5 fragments, 888 g
219	300	Ceramic	Bricks, secondarily burnt, 18 fragments, 2843 g
220	220	Ceramic	Bricks, type I, 23 fragments, 1706 g
221	220	Ceramic	Bricks, type II, 63 fragments, 5479 g
222	220	Ceramic	Bricks, type III, 12 fragments, 464 g
223	208	Ceramic	Bricks, type I, 9 fragments, 852 g
224	208	Ceramic	Bricks, type II, 6 fragments, 307 g
225	208	Ceramic	Bricks, type III, 46 fragments, 2589 g
226	173	Ceramic	Bricks, type I, 29 fragments, 1988 g
227	173	Ceramic	Bricks, type II, 22 fragments, 1963 g
228	173	Ceramic	Brick, type III, 1 fragment, 168 g
229	176	Ceramic	Bricks, type I, 41 fragments, 2583 g
230	176	Ceramic	Bricks, type II, 3 fragments, 466 g
231	186	Ceramic	Bricks, type I, 5 fragments, 1046 g
232	186	Ceramic	Bricks, type II, 6 fragments, 796 g
233	235	Ceramic	Bricks, type II, 16 fragments, 1231 g
234	235	Ceramic	Bricks, type III, 114 fragments, 8993 g
235	178	Cerramic	Bricks, type I, 41 fragments, 13 kg 481 g
236	178	Ceramic	Brick, type III, 1 fragment, 324 g
237	178	Ceramic	Bricks, type II, 17 fragments, 4311 g
238	178	Ceramic	Bricks, secondarily burnt, 3 fragments, 1193 g
239	182	Ceramic	Bricks, type I, 3 fragments, 1733 g
240	182	Ceramic	Bricks, type II, 4 fragments, 2426 g
241	342	Ceramic	Bricks, type I, 3 fragments, 5365 g
242	342	Ceramic	Bricks, type II, 2 fragments, 3654 g
243	342	Ceramic	Brick, type III, 1 fragment, 1040 g
244	153	Ceramic	Clay pipe stems, 3 fragments, 5 g
245	153	Ceramic	Redware, modern, 1 fragment, 1 g
246	153	Ceramic	Whiteware, modern, 1 fragment, 1 g
247	153	Glass	Window glass, 4 fragments, light green, 9 g

No	Context	Material	Description
248	153	Glass	Vessels, 4 fragments of a green bottle, 49 g
249	153	Metal	2 iron nails, 31 g
250	153	Unknown	1 unknown object, maybe a lump of chalk? 40 g
251	153	Ceramic	Stoneware, modern, 1 fragment, 6 g
252	156	Glass	Vessels, 5 fragments, green, secondarily burnt, 11 g
253	156	Wood	1 fragment of burnt wood, worked, 4 g
254	159	Ceramic	Porcelain, 1 fragment, 1 g
255	155	Ceramic	Redware, 8 fragments from 6 vessels, 38 g
256	155	Ceramic	Whiteware, modern, 4 fragments from 4 vessels, 57 g
257	155	Ceramic	Stoneware, 1 fragment, 4 g
258	155	Metal	3 iron objects: 1 nail, 2 fragments, 30 g
259	155	Glass	Window glass, 17 fragments, light green, 95 g
260	155	Glass	Glass vessels, 7 fragments, brown and green, 348 g
261	157	Glass	Glass vessel, 1 small fragment, clear, 0,3 g
262	157	Metal	1 tiny fragment of metal foil, silver or aluminum?
263	171	Ceramic	Clay pipe stems, 3 fragments, 4 g
264	171	Glass	Window glass, 1 fragment, clear, 2 g
265	171	Glass	Glass vessel, 1 blue fragment, decorated, 5 g
266	177	Bone	Bone handle, broken, decorated, 9 g
267	177	Glass	Window glass, 4 fragments, clear and green glass, 8 g
268	177	Ceramic	Whiteware, modern, 1 fragment, 1 g
269	177	Ceramic	Redware, 2 fragments, 1 g
270	161	Glass	Window glass, 5 fragments, 8 g
271	161	Glass	Vessels, 2 fragments, green, 3 g
272	162	Textile	Fragment of a wool thread, brown
273	162	Metal	1 iron object, maybe nail fragment, 4 g
274	162	Metal	1 whole iron key?
275	162	Wood	1 fragment of wood, worked? 1 g
276	162	Glass	5 fragments of a green bottle, 60 g
277	162	Ceramic	Redware, 1 fragment, 84 g
278	163	Glass	Window glass, 1 fragment, clear, 2 g
279	163	Glass	Vessels, 3 fragments from 2 vessels, green, 7 g
280	163	Ceramic	Whiteware, modern, 1 fragment, 16 g
281	150	Ceramic	Clay pipe, 2 fragments, stems, 6 g
282	150	Ceramic	Stoneware, 1 fragment, 5 g
283	150	Ceramic	Porcelaine, 1 fragment, 11 g
284	150	Ceramic	Whiteware, modern, 1 fragment, 2 g
285	150	Ceramic	Redware, 2 fragments, 153 g
286	150	Stone	Whetstone, schist, 1 fragment, 12 g
287	150	Metal	1 iron nail, complete, 15 g
288	150	Glass	Vessels, 7 fragments, brown and green, 145 g
289	150	Textile	4 pieces of woven wool or vaðmál, 6 g

No	Context	Material	Description
290	150	Textile	1 small lump of unspunn wool thread, 1 g
291	164	Glass	Vessel, 1 fragment, green, 2 g
292	193	Glass	Vessel, 1 fragment, green, 3 g
293	165	Ceramic	Clay pipe, 3 fragments (2 stems, 1 bowl, marked), 4 g
294	165	Metal	1 iron object, 59 g
295	165	Ceramic	Stoneware, modern, 1 fragment, 8 g
296	165	Ceramic	Redware, 3 fragments from 1 tripod, 138 g
297	165	Glass	Glass vessel, 4 fragments, green, 16 g
298	173	Metal	2 small fragments of bronze, unknown object, 1 g
299	174	Wood	1 fragment of wood, worked, 2 g
300	174	Glass	Window glass, 4 fragments, green and clear, 4 g
301	300	Wood	1 fragment of a wooden plank, 101 g
302	185	Metal	1 iron bar, 543 g
303	300	Metal	1 fragment of lead, 1 g
304	210	Metal	1 lead bullet, 6 g
305	176	Ceramic	1 fragment of whiteware, modern, 4 g
306	176	Ceramic	Redware, 2 fragments, 118 g
307	176	Wood	1 fragment of wood, 3 g
308	176	Glass	Glass vessels, 2 fragments, green, 10 g
309	176	Glass	4 fragments of light green window glass, 6 g
310	176	Glass	4 fragments of secondarily burnt window glass, 16 g
311	168	Ceramic	Bricks, secondarily burnt, 2 fragments, 19 g
312	168	Ceramic	Redware, 1 fragment, secondarily burnt, 2 g
313	168	Wood	3 fragments of wood, worked? 2 g
314	168	Metal	1 iron nail, 12 g
315	206	Metal	1 fragment of copper alloy, rim of a vessel? 5 g
316		Metal	1 fragment of copper alloy, button? 1 g
317	394	Metal	2 fragments of copper alloy, 4 g
318		Metal	1 fragment of copper alloy, 12 g
319	386	Metal	1 fragment of copper alloy, 1 g
320	386	Metal	1 lump of copper alloy, 20 g
321	300	Metal	1 fragment of copper alloy, 1 g
322	186	Metal	2 iron objects, 22 g
323	405	Wood	1 gaming piece, round, burnt, 3 g
324	179	Ceramic	Brick, type I, 1 fragment, 1 g
325	179	Ceramic	Brick, type II, 3 fragments, 21 g
326	179	Ceramic	Redware, 1 fragment, 1 g
327	179	Metal	1 iron nail, 17 g
328	179	Glass	Window glass, 1 fragment, green, 1 g
329	179	Glass	Glass vessels, 2 base sherds, clear and green, 34 g
330	179	Glass	Glass vessel, 1 fragment, clear, painted decoration, 1 g
331	182	Glass	Glass vessels, 10 fragments, green, brown, blue, 570 g

No	Context	Material	Description
332	182	Glass	Window glass, 6 fragments, green, 16 g
333	182	Ceramic	Brick, type II, 1 fragment, 56 g
334	182	Ceramic	Whiteware, modern, 9 fragments, 124 g
335	182	Ceramic	Redware, 2 fragments, 125 g
336	182	Ceramic	Stoneware, 2 fragments, 35 g
337	182	Ceramic	Faience, 1 fragment, 45 g
338	182	Ceramic	Clay pipes, 2 fragments, 7 g
339	182	Composite	1 knife of Metal and wood, 4 fragments, 124 g
340	416	Metal	1 coin, 2 g
341	167	Metal	1 object of copper alloy, button? 2 g
342	412	Textile	4 fragments of woolen threads, burnt, 1 g
343	173	Ceramic	Faience, 1 fragment, 2 g
344	173	Metal	1 iron fragment, 7 g
345	173	Wood	2 wood fragments, 1 worked, 15 g
346	173	Glass	Glass vessels, 2 fragments, 7 g
347	173	Glass	Window glass, green, 3 fragments, 15 g
348	179	Glass	Glass vessel, green, 1 fragment, 6 g
349	181	Glass	Glass vessels, 2 fragments, light green, 9 g
350	181	Ceramic	Bowl of a clay pipe, 1 fragment, 3 g
351	181	Wood	1 fragment of wood, 3 g
352	181	Leather	1 fragment of leather, belt? 3 g
353	182	Ceramic	Whiteware, modern, 3 fragments, 55 g
354	182	Ceramic	Redware, 1 fragment, 4 g
355	182	Glass	Glass vessel, 1 fragment, green, 14 g
356	182	Glass	Window glass, 1 fragment, light green, 2 g
357	182	Metal	1 iron object, handle? 121 g
358	300	Textile	4 fragments of woolen threads, 1 g
359	407	Ceramic	Redware, 1 fragment, 2 g
360	407	Glass	1 fragment of melted glass, 9 g
361	407	Ceramic	Bricks, type II, 3 fragments, 1172 g
362	381	Ceramic	Bricks, type I, 4 fragments, 84 g
363	381	Ceramic	Bricks, type II, 10 fragments, 248 g
364	381	Ceramic	Redware, modern, 1 fragment, 5 g
365	328	Ceramic	Whiteware, modern, 4 fragments from one vessel, 9 g
366	328	Glass	Window glass, 4 fragments, light green, 10 g
367	328	Glass	Glass vessels, 3 fragments, green, 11 g
368	328	Ceramic	Bricks, type I, 2 fragments, 306 g
369	328	Ceramic	Bricks, type II, 6 fragments, 805 g
370	328	Ceramic	Bricks, type III, 1 fragment, 418 g
371	328	Ceramic	Brick, type V, 1 fragment, 164 g
372	336	Metal	1 iron object, maybe head of a nail, 11 g
373	500	Stone	1 half of a „sigsteinn“, grey basalt, 5250 g

No	Context	Material	Description
374	332	Stone	Slate, 3 fragments, 64 g
375	405	Stone?	1 piece of stone or natural chalk, 159 g
376	337	Stone	Slate, 2 pieces, 18 g
377	238	Stone	4 small fragments of whetstone, schist, 6 g
378	418	Stone	Slate, 1 piece, 22 g
379	300	Stone	1 broken style of slate; 5 g
380	199	Stone	Slate, 2 pieces, 40 g
381	342	Stone	Slate, 1 small piece, 1 g
382	102	Stone	Lava stone, sample from the 19th cent. Cellar floor, 2520 g
383	431	Ceramic	Bricks, type VI, 170 fragments, 53 kg 869 g
384	431	Ceramic	Brick, type I, 1 fragment, 1031 g
385	431	Ceramic	Bricks, type VII, 15 fragments, 1484 g
386	430	Ceramic	Bricks, type VI, 878 fragments, 133 kg 333 g
387	430	Ceramic	Bricks, type III, 2 fragments, 1074 g
388	430	Ceramic	Bricks, type I, 36 fragments, 8618 g
389	430	Ceramic	Bricks, type VII, 12 fragments, 2414 g
390	430	Stone	1 fragment of a fish-hammer, sandstone, 919 g
391	430	Mortar	Mortar sample, 3 fragments, 371 g
392	381	Ceramic	Brick, type I, 1 fragment, 1079 g
393	337	Ceramic	Brick, type I, 1 fragment, 1519 g
394	358	Ceramic	Stoneware, Frechen type, 1 body sherd, 5 g
395	358	Ceramic	Whiteware, modern, 1 body sherd, 4 g
396	358	Glass	Window glass, 1 fragment, light green, 3 g
397	184	Ceramic	Clay pipes, 2 fragments, marked, 8 g
398	300	Ceramic	Clay pipes, 4 fragments, 7 g
399	326	Unknown	3 fragments of unknown material, geological, 1 g
400	500	Ceramic	1 tea-pot, modern whiteware, base missing
401	452	Metal	1 button of copper alloy, 2 g
402	442	Bone	1 piece of bone with half carved buttons, 3 g
403	447	Metal	1 coin, copper alloy, 1 g
404	426	Leather	Half of a leather shoe, 93 g
405	500	Ceramic	Clay pipes, 4 fragments, 10 g
406	235	Ceramic	Clay pipes, 4 fragments, 2 bowls, marked, 17 g
407	448	Ceramic	Clay pipes, 3 fragments, stems, 12 g
408	444	Ceramic	Clay pipes, 2 fragments, stems, 4 g
409	351	Ceramic	Clay pipe, 1 fragment, stem, decorated, 4 g
410	426	Ceramic	Clay pipes, 7 fragments, stems, one decorated, 12 g
411	337	Ceramic	Clay pipes, 7 fragments, 1 bowl, 6 stems, 23 g
412	343	Ceramic	Clay pipes, 2 fragments, stems, SF 215, 4 g
413	416	Ceramic	Clay pipes, 4 fragments, stems, one decorated, 7 g
414	373	Ceramic	Clay pipes, 2 fragments, stems, 4 g
415	336	Ceramic	Clay pipes, 10 fragments, one bowl, 29 g

No	Context	Material	Description
416	216	Ceramic	Clay pipe, 1 fragment, stem, 2 g
417	371	Glass	Glass vessel, 1 body sherd, light green, 1 g
418	442	Ceramic	Redware, 1 fragment, handle, slip and glaze, 7 g
419	424	Ceramic	Redware, body sherd, glazed, 6 g
420	433	Ceramic	Redware, body sherd, glazed, 4 g
421	343	Ceramic	Redware, rim with handle, glazed, 14 g
422	403	Glass	Window glass, 1 fragment, light green, 9 g
423	415	Glass	Vessel, 1 body sherd, light green, 4 g
424	410	Glass	Vessel, 1 fragment, body sherd, green, 19 g
425	441	Glass	Window glass, 2 fragments, light green, 5 g
426	400	Glass	Vessel, 1 body sherd, green, 2 g
427	438	Glass	Bottle, 1 body sherd, green, 15 g
428	371	Ceramic	Redware, rim sherd, 17 g
429	426	Ceramic	Redware, 1 body sherd, 8 g
430	485	Ceramic	Stoneware, 1 body sherd, 5 g
431	258	Glass	Vessel, 2 body sherd, light green, 4 g
432	351	Glass	Drinking glass, 1 rim sherd, clear glass, 1 g
433	418	Ceramic	Whiteware, 6 fragments, 9 g
434	518	Ceramic	Redware, 1 body sherd, 3 g
435	375	Ceramic	Stoneware, 1 body sherd, 5 g
436	375	Glass	Glass, 3 fragments, secondarily burnt and melted, 6 g
437	433	Glass	Glass vessels, 1 base sherd, 1 body sherd, light green, 26 g
438	448	Glass	Window glass, 5 fragments, light green, 6 g
439	448	Glass	Glass vessels, 2 body sherds, green, 5 g
440	214	Glass	Glass vessels, 4 fragments, green, 8 g
441	214	Glass	Window glass, 2 fragments, light green, 3 g
442	386	Ceramic	Redware, 5 fragments
443	392	Ceramic	Redware, 1 fragment, 25 g
444	500	Glass	Melted glass, 3 fragments, 12 g
445	500	Glass	Window glass, 1 fragment, 7 g
446	500	Glass	Light ball, 1 fragment, 4 g
447	185	Glass	Window glass, 2 fragments, light green, 4 g
448	185	Glass	Window glass, 7 fragments, 10 g
449	394	Glass	Melted, glass, 2 fragments, 6 g
450	394	Glass	Vessel, 1 fragments, blue, red painted, 2 g
451	394	Glass	Window glass, 1 fragment, light green, 2 g
452	382	Ceramic	Redware, 1 fragment, secondarily burnt, 8 g
453	382	Ceramic	Whiteware, 1 fragment, 1 g
454	420	Glass	Melted glass, 3 fragments, 9 g
455	267	Glass	Bottle, 1 fragment, green, 3 g
456	216	Glass	Vessel, 2 fragments, green, 10 g
457	216	Glass	Window glass, 1 fragment, clear, 1 g

No	Context	Material	Description
458	220	Glass	Vessels, 2 fragments, green, 3 g
459	220	Glass	Window glass, 1 fragment, light green, 1 g
460	199	Glass	Vessels, 6 fragments, 28 g
461	464	Ceramic	Redware, 2 fragments, 6 g
462	464	Ceramic	Whiteware, 1 fragment, 1 g
463	405	Ceramic	Redware, 5 fragments, 85 g
464	405	Ceramic	Stoneware, 1 fragment, 6 g
465	300	Ceramic	Faience, 3 fragments, 7 g
466	220	Ceramic	Faience, 1 fragment, 7 g
467	206	Ceramic	Faience, 1 fragment, 65 g
468	336	Ceramic	Redware, 3 fragments, 33 g
469	336	Ceramic	Redware dish, 5 fragments, 125 g
470	336	Ceramic	Redware dish, 4 fragments, 84 g
471	336	Ceramic	Redware Pot, 1 fragment, 40 g
472	336	Ceramic	Redware dish, 2 fragments, 118 g
473	235	Glass	Window glass, 4 fragments, light green, 6 g
474	235	Glass	Vessel, 1 fragment, green, 3 g
475	235	Glass	Medicine flask, base, 1 fragment, light green, 8 g
476	235	Glass	Vessel, 2 fragments, clear, painted decoration, 5 g
477	235	Glass	Vessel, 6 fragments, clear glass, 29 g
478	452	Glass	Vessel, 1 fragment, footring, clear glass, 23 g
479	452	Glass	Melted glass, 3 fragments, 6 g
480	452	Glass	Vessel, 1 fragment, blue, 3 g
481	452	Glass	Window glass, 23 fragments, light green, 49 g
482	452	Glass	Vessels, 4 fragments, green, 34 g
483	452	Glass	Small bottle, 3 fragments, light green, 19 g
484	495	Ceramic	Redware, 1 fragment, 5 g
485	237	Glass	Window glass, 1 fragment, light green, 5 g
486	447	Glass	Window glass, 1 fragment, light green, 4 g
487	447	Glass	Vessel, 1 fragment, green, 3 g
488	386	Ceramic	Redware, 4 fragment of a bowl
489	386	Ceramic	Whiteware, 1 fragment, 1 g
490	286	Glass	Window glass, melted, 3 fragments
491	444	Glass	Window glass, 8 fragments, light green
492	444	Glass	Vessel, 1 fragments, blue, 2 g
493	444	Glass	Vessels, 3 fragments, green
494	418	Glass	Medicine flask, complete, brown
495	418	Glass	Medicine flask, broken, clear glass
496	430	Ceramic	Faience, 1 body sherd, 2 g
497	430	Ceramic	Stoneware, 1 body sherd, 7 g
498	430	Ceramic	Redware, secondarily burnt, 2 fragments, 9 g
499	430	Stone	Stone, unknown type, 1 piece, 5 g

No	Context	Material	Description
500	392	Glass	Window glass, 1 fragment, light green, 3 g
501	392	Glass	Melted glass, 2 fragments, 4 g
502	452	Ceramic	Creamware, 2 fragments, 2 g
503	452	Ceramic	Redware, 4 fragments, 13 g
504	235	Ceramic	Redware, 11 fragments, 172 g
505	500	Ceramic	Redware, 5 fragments, 46 g
506	500	Ceramic	Stoneware, 1 fragment, 22 g
507	216	Ceramic	Redware, 8 fragments, 10 g
508	216	Ceramic	Whiteware, 1 fragment, 1 g
509	216	Stone	Slate, 1 fragment, 2 g
510	216	Ceramic	Brick, type I, 2 fragments, 4 g
511	216	Ceramic	Brick, type II, 1 fragment, 2 g
512	391	Glass	Bottle, 2 fragments, 6 g
513	391	Glass	Melted glass, 2 fragments, 5 g
514	208	Glass	Melted glass, 2 fragments, 3 g
515	208	Glass	Window glass, 4 fragments, light green, 6 g
516	208	Glass	Vessels, 3 fragments, 22 g
517	470	Glass	Vessels, 5 fragments, green, 30 g
518	470	Glass	Vessel, 1 handle, green, 5 g
519	470	Glass	Window glass, 10 fragments, 27 g
520	470	Glass	Melted glass, 11 fragments, 23 g
521	178	Glass	Melted glass, 14 fragments, 37 g
522	178	Glass	Window glass, 6 fragments, light green, 16 g
523	178	Glass	Vessels, 2 fragments, light green, 10 g
524	470	Charcoal	1 fragment of charcoal, 2 g
525	470	Redware	Redware, 3 fragments, 14 g
526	470	Ceramic	Stoneware, 2 fragments, secondarily burnt, 8 g
527	470	Ceramic	Redware, secondarily burnt, 2 fragments, 17 g
528	470	Ceramic	Porcelain, 1 fragment, 3 g
529	470	Ceramic	Creamware, 2 fragments, 4 g
530	337	Ceramic	Faience, 1 fragment, 36 g
531	337	Ceramic	Redware, 2 fragments, 6 g
532	337	Ceramic	Redware, 1 fragment, 7 g
533	337	Ceramic	Redware, 2 fragments, 37 g
534	337	Ceramic	Redware, 2 fragments, 13 g
535	337	Ceramic	Whiteware, modern, 4 fragments, 14 g
536	462	Ceramic	Faience, 1 fragment, 2 g
537	462	Ceramic	Redware, 1 fragment, 19 g
538	462	Ceramic	Redware, 2 fragments, 6 g
539	462	Ceramic	Redware, secondarily burnt, 2 fragments, 11 g
540	462	Ceramic	Technical Ceramic, made of graphite clay, rim sherd, 18 g
541	410	Ceramic	Whiteware, modern, 1 fragment, 2 g

No	Context	Material	Description
542	410	Ceramic	Redware, 1 fragment, 4 g
543	444	Ceramic	Redware, 3 fragments, 9 g
544	444	Ceramic	Creamware, 1 fragment, 3 g
545	110	Ceramic	Redware, 1 fragment, 38 g
546	245	Glass	Window glass, 3 fragments, 5 g
547	245	Glass	Vessel, 1 fragment, green, 2 g
548	462	Glass	Vessels, 4 fragments, 9 g
549	462	Glass	Window glass, 2 fragments, green, 3 g
550	448	Ceramic	Faience, 2 fragments, 5 g
551	448	Ceramic	Porcelain, 1 fragment, 2 g
552	448	Ceramic	Creamware, 1 fragment, 1 g
553	373	Ceramic	Redware, 1 fragment, 4 g
554	394	Ceramic	Redware, 1 fragment, 1 g
555	394	Ceramic	Faience, 1 fragment, 2 g
556	373	Glass	Melted glass, 1 fragment, 15 g
557	373	Glass	Window glass, 2 fragments, light green, 9 g
558	300	Glass	Window glass, 2 fragments, light green, 10 g
559	300	Glass	Vessels, 2 fragments, green, 8 g
560	300	Glass	Vessel, foot, clear glass, 7 g
561	464	Glass	Vessel, 1 fragment, clear glass, 7 g
562	464	Glass	Window glass, 4 fragments, light green, 17 g
563	495	Glass	Vessel, 2 fragments, 20 g
564	495	Glass	Melted glass, 1 fragment, 2 g
565	426	Ceramic	Redware, 3 fragments, 9 g
566	336	Glass	Vessels, 4 fragments, 17 g
567	336	Glass	Window glass, 2 fragments, 8 g
568	355	Glass	Vessels, 2 fragments, 22 g
569	386	Glass	Window glass, 3 fragments, light green, 7 g
570	386	Glass	Melted glass, 4 fragments, 14 g
571	431	Ceramic	Clay pipe, 1 stem, 4 g
572	410	Ceramic	Clay pipe, 1 stem, 3 g
573	447	Ceramic	Clay pipe, 1 stem, 2 g
574	381	Ceramic	Clay pipe, 1 stem, 5 g
575	286	Ceramic	Clay pipe, 1 stem, 2 g
576	445	Ceramic	Clay pipe, 1 stem, 4 g
577	495	Ceramic	Clay pipe, 1 stem, 2 g
578	470	Ceramic	Clay pipes, 7 stems, 14 g
579	464	Ceramic	Clay pipe, 1 stem, 4 g
580	433	Ceramic	Clay pipes, 2 stems, 5 g
581	382	Ceramic	Clay pipe, 1 stem, 3 g
582	386	Ceramic	Clay pipes, 2 stems, 3 g
583	462	Ceramic	Clay pipes, 1 bowl, 5 g

No	Context	Material	Description
584	386	Ceramic	Clay pipe, 1 bowl, 2 g
585	452	Ceramic	Clay pipes, 10 fragments, bowls and stems, 22 g
586	300	Ceramic	Clay pipes, 3 stems, 7 g
587	369	Ceramic	Clay pipe, 1 stem, 4 g
588	430	Ceramic	Clay pipe, 1 stem, 3 g
589	220	Ceramic	Clay pipe, 1 stem, 4 g
590	431	Ceramic	Brick, secondarily burnt, 12 g
591	430	Glass	Vessel, 4 fragments, light green, 9 g
592	386	Glass	Vessels, 2 fragments, 6 g
593	386	Glass	Window glass, 2 fragments, light green, 3 g
594	405	Glass	Window glass, 5 fragments, light green, 19 g
595	405	Glass	Vessels, 2 fragments, 3 g
596	405	Glass	Melted glass, 22 fragments, 99 g
597	382	Glass	Melted glass, 10 fragments, 23 g
598	382	Glass	Vessels, 2 fragments, 31 g
599	382	Glass	Window glass, 4 fragments, 5 g
600	426	Glass	Vessel, 2 fragments, blue, painted decoration, 4 g
601	426	Glass	Melted glass, 4 fragments, 7 g
602	426	Glass	Vessels, 10 fragments, 20 g
603	426	Glass	Window glass, 26 fragments, 35 g
604	416	Glass	Melted glass, 4 fragments, 12 g
605	416	Glass	Vessels, 5 fragments, green, 30 g
606	416	Glass	Window glass, 17 fragments, green, 30 g
607	518	Metal	Object of iron, corroded, or natural; 5 g
608	LF	Ceramic	Stoneware, 1 fragment, 5 g
609	LF	Ceramic	Whiteware, 1 fragment, 4 g
610	500	Ceramic	Clay pipes, 3 stems, 3 g
611	206	Metal	Iron, 4 fragments, 51 g
612	386	Metal	Iron, 3 fragments, nails, 28 g
613	245	Metal	Iron, 4 nails, 26 g
614	300	Metal	Iron, 6 fragments, 109 g
615	381	Ceramic	Porcelain or glass, 1 fragment, 3 g
616	337	Glass	Window glass, 6 fragments, clear and green, 16 g
617	206	Glass	Window glass, 5 fragments, 7 g
618	206	Glass	Vessels, 3 fragments, 8 g
619	381	Glass	Vessel, 1 fragment, green, 7 g
620	381	Glass	Melted glass, 14 fragments, 37 g
621	381	Glass	Window glass, 8 fragments, green, 7 g
622	333	Ceramic	Clay pipe, 1 stem, 3 g
623	186	Ceramic	Clay pipe, 1 stem, 2 g
624	186	Wood	Wood, 1 object, worked, 2 g
625	186	Glass	Vessels, 4 fragments, green, 11 g

No	Context	Material	Description
626	186	Glass	Window glass, 1 fragment, light green, 2 g
627	298	Wood	Wood, 2 fragments, worked, 2 g
628	298	Ceramic	Brick, type I, 1 fragment, 2 g
629	414	Ceramic	Redware, 1 fragment, 3 g
630	414	Charcoal	Charcoal, 1 fragment, 1 g
631	414	Metal	Iron, 1 nail, 21 g
632	185	Ceramic	Clay pipes, 2 stems, 4 g
633	336	Ceramic	Porcelain, 2 fragments, 3 g
634	336	Ceramic	Porcelain, 2 fragments, 35 g
635	336	Ceramic	Whiteware, 3 fragments, 24 g
636	215	Ceramic	Porcelain, 1 fragment, 6 g
637	215	Glass	Window glass, 1 fragment, light green, 3 g
638	215	Ceramic	Bricks, type I, 6 g
639	215	Metal	Iron, 1 fragment, 18 g
640	405	Metal	Iron, 1 nail, 6 g
641	405	Metal	Copper alloy, 1 object, 7 g
642	405	Metal?	Slag? 2 fragments, 27 g
643	405	Ceramic	Clay pipe, 1 bowl, 4 g
644	373	Metal	Iron objects, 5 fragments, 6 g
645	464	Metal	Iron, nail, 3 g
646	386	Metal	Iron, 8 fragments, 224 g
647	350	Metal	Iron, nail, 6 g
648	350	Glass	Melted glass, 1 fragment, 17 g
649	412	Metal	Iron, 1 nail, broken, 22 g
650	412	Glass	Window glass, light green, 2 g
651	412	Glass	Melted glass, 3 fragments, 11 g
652	412	Ceramic	Brick, type II, 1 fragment, 75 g
653	300	Wood	Wood, 3 fragments, 8 g
654	386	Wood	Wooden plank, 1 fragment, 81 g
655	382	Wood	Wood, 4 fragments, 29 g
656	337	Wood	Wood, 1 fragment, 1 g
657	337	Ceramic	Bricks, unknown type, 2 fragments, 264 g
658	337	Textile	Textile, probably felt, 1 fragment, 1 g
659	337	Metal	Copper alloy, 2 fragments, 7 g
660	178	Wood	Burnt wood, 3 fragments, 37 g
661	101	Ceramic	Redware, 1 fragment, 5 g
662	205	Ceramic	Brick, type I, 2 g
663	188	Ceramic	Bricks, type III, 2 fragments, 6 g
664	188	Ceramic	Brick, type II, 1 fragment, 6 g
665	188	Ceramic	Brick, type I, 1 fragment, 12 g
666	188	Glass	Vessel, 1 fragment, 3 g
667	431	Metal	Iron, 2 nails, 46 g

No	Context	Material	Description
668	388	Ceramic	Creamware, 2 fragments, 2 g
669	388	Glass	Melted glass, 2 fragments, 4 g
670	388	Stone	Malachitee, 6 fragments, 62 g
671	409	Ceramic	Porcelain, electricity isolation, 1 fragment, 251 g
672	409	Ceramic	Whiteware, 3 fragments, 20 g
673	409	Rubber	Rubber, 2 fragments, 3 g
674	409	Composite	Handle of a tool, wood and copper alloy, 28 g
675	409	Glass	Vessels, 3 fragments, modern, 324 g
676	409	Glass	Window glass, 1 fragment, 36 g
677	381	Glass	Melted glass, 4 fragments, 11 g
678	381	Ceramic	Whiteware, 1 fragment, 2 g
679	381	Stone	Malachitee, 2 fragments, 17 g
680	381	Ceramic	Brick, secondarily burnt, 5 g
681	747	Stone	White Pumice, SF 353, 1 piece, 36 g
682	747	Stone	White Pumice, SF 272, 1 piece, 13 g
683	747	Stone	White Pumice, SF 351, 1 piece, 83 g
684	868	Stone	White Pumice, SF 461, 1 piece, worked, 6 g
685	747	Stone	White Pumice, SF 295, 1 piece, 1 g
686	747	Stone	Black Pumice, SF 357, 1 piece, worked, 55 g
687	747	Stone	Black Pumice, 2 pieces, 139 g
688	747	Stone	Black Pumice, 2 pieces, 82 g
689	747	Stone	Zeolith and Quartz, SF 385, 2 pieces, 8 g
690	747	Stone	Jaspis, SF 316, 1 piece, 2 g
691	747	Stone	Jaspis, SF 262, 1 piece, 4 g
692	816	Stone	Jaspis, SF 406, 1 piece, 10 g
693	795	Stone	Jaspis, 1 piece, 24 g
694	747	Stone	Jaspis, SF 342, 1 piece, 17 g
695	808	Stone	Jaspis, 1 piece, 58 g
696	747	Stone	Jaspis, SF 314, 1 piece, 29 g
697	747	Stone	Jaspis, SF 364, 1 piece, 14 g
698	747	Stone	Jaspis, SF 319, 1 piece, 1 g
699	816	Stone	Jaspis, SF 408, 1 piece, 9 g
700	747	Stone	Jaspis, SF 317, 1 piece, 55 g
701	747	Stone	Jaspis, 3 pieces, 31 g
702	747	Stone	Jaspis, 3 pieces, 34 g
703	747	Stone	Jaspis, 1 piece, 9 g
704	868	Stone	Jaspis, 1 piece, 4 g
705	747	Stone	Basalt, SF 356, 1 piece, 18 g
706	730	Stone	Basalt, SF 260, 1 piece, 332 g
707	646	Stone	Basalt, SF 255, 159 g
708	747	Stone	Basalt, SF 340, 1 piece, 6 g
709	747	Stone	Basalt, 1 piece, 22 g

No	Context	Material	Description
710	747	Stone	Pumice, 3 pieces, 3 g
711	747	Stone	Opal, SF 317, 1 piece, 26 g
712	747	Stone	Opal, 1 piece, 21 g
713	747	Stone	Opal, SF 383, 8 pieces, 48 g
714	747	Stone	Opal, 1 piece, 3 g
715	868	Stone	Opal, 1 piece, 13 g
716	747	Stone	Opal, SF 391, 1 piece, 14 g
717	747	Stone	Quartz, SF 349, 1 piece, 9 g
718	747	Stone	Quartz, SF 378, 1 piece, 2 g
719	778	Stone	Quartz, SF 299, 1 piece, 39 g
720	778	Stone	Quartz, SF 293, 1 piece, 4 g
721	747	Stone	Quartz, 15 pieces, 24 g
722	747	Stone	Quartz, SF 333, 1 piece, 7 g
723	747	Stone	Quartz, SF 320, 1 piece, 28 g
724	747	Stone	Onyx, SF 362, 2 pieces, 15 g
725	814	Stone	Limonith, SF 381, 1 piece, 27 g
726	656	Stone	Limonith, SF 257, 1 piece, 8 g
727	750	Stone	Limonith, SF 276, 1 piece, worked, 4 g
728	747	Stone	Limonith, 1 piece, 4 g
729	747	Stone	Basalt, SF 367, 1 piece, 10 g
730	470	Stone	Schist, 1 piece, 40 g
731	747	Stone	Schist, SF 264, 1 piece, 255 g
732	747	Stone	Schist, SF 323, 1 piece, 21 g
733	747	Stone	Schist, SF 335, 2 pieces, 13 g
734	747	Stone	Schist, 1 piece, 10 g
735	523	Stone	Soapstone, body sherd of a vessel, SF 254, 79 g
736	750	Stone	Soapstone, 1 fragment, worked, SF 291, 41 g
737	723	Stone	Soapstone (?), spindle whorl, complete, SF 258, 63 g
738	747	Stone	Rhyolith, 1 piece, 1 g
739	778	Stone	Rhyolith, spindle whorl, complete, SF 409, 38 g
740	868	Stone	Rhyolith, spindle whorl, complete, 39 g
741	747	Stone	Rhyolith, 3 pieces, 122 g
742	750	Stone	Rhyolith, SF 284, 1 piece, 53 g
743	747	Stone	Rhyolith, spindle whorl, complete, SF 277, 25 g
744	747	Stone	Rhyolith, broken object, SF 338, 45 g
745	747	Stone	Sandstones, 6 pieces, SF 363, 8 g
746	747	Stone	Stone, maybe Rhyolith, 1 piece, 4 g
747	747	Stone	Stones, maybe Rhyolith, 3 pieces, 63 g
748	747	Stone	Amygdale, 1 piece, SF 369, 451 g
749	747	Stone	Kalzedon, 1 piece, 20 g
750	747	Stone	Quartz, 1 piece, SF 368, 66 g
751	816	Stone	Liparith, 1 piece, SF 407, 13 g

No	Context	Material	Description
752	747	Stone	Basalt with Amygdale, 3 pieces, 38 g
753	747	Stone	Amygdale, 3 pieces, 3 g
754	747	Stone	Quartz and Biotith, SF 394, 1 piece, 6 g
755	814	Composite	Basalt with iron, unknown purpose, SF 382, 14 g
756	747	Unknown	Rhyolith, 2 fragments, 2 g
757	LF	Stone	Basalt, SF 374, 1 piece, 125 g
758	LF	Stone	Basalt, SF 375, 1 piece, 215 g
759	452	Stone	Mineral coal, 2 pieces, 55 g
760	470	Stone	Mineral coal, 1 piece, 40 g
761	452	Stone	Flint, 2 pieces, 18 g
762	214	Ceramic	Bricks, type II, 4 fragments, 318 g
763	LF	Stone	Opal, 1 piece, 22 g
764	747	Stone	Jaspis, 1 big piece, 346 g
765	747	Stone	Ring made of Pumice, 4 fragments, SF 298, 4 g
766	861	Stone	Opal, 1 piece, 2 g
767	849	Stone	Opal, 1 piece, 9 g
768	864	Stone	Jaspis (?), 1 piece, 18 g
769	130	Ceramic	Brick, type I, 2 fragments, 1214 g
770	130	Ceramic	Brick, type III, 1 fragment, 543 g
771	218	Ceramic	Brick, type III, 1 fragment, 9 g
772	218	Ceramic	Bricks, type I, 2 fragments, 343 g
773	381	Ceramic	Brick, type I, 1 fragment, 58 g
774	381	Ceramic	Brick, type II, 16 fragments, 1350 g
775	381	Ceramic	Brick, unknown type, 1 fragment, 46 g
776	382	Ceramic	Brick, type III, 1 fragment, 634 g
777	470	Ceramic	Bricks, type III, 2 fragments, 1126 g
778	470	Ceramic	Brick, type I, 1 fragment, 624 g
779	320	Ceramic	Bricks, type III, 4 fragments, 1739 g
780	452	Ceramic	Brick, type unknown, 1 fragment, 449 g
781	452	Ceramic	Bricks, type I, 2 fragments, 1406 g
782	375	Ceramic	Bricks, type II, 12 fragments, 1530 g
783	452	Ceramic	Brick, type III, 1 fragment, 659 g
784	464	Ceramic	Brick, type I, 3 fragments, 1578 g
785	464	Ceramic	Brick, unknown type, 4 fragments, 1460 g
786	464	Ceramic	Bricks, type III, 5 fragments, 2325 g
787	343	Ceramic	Brick, type V, 1 fragment, 616 g
788	343	Ceramic	Bricks, type II, 13 fragments, 1640 g
789	343	Ceramic	Bricks, type I, 10 fragments, 2395 g
790	386	Ceramic	Bricks, type II, 11 fragments, 1564 g
791	386	Ceramic	Bricks, secondarily burnt, 11 fragments, 1808 g
792	356	Ceramic	Bricks, type I, 4 whole bricks, 7569 g
793	356	Mortar	Mortar sample, 462 g

No	Context	Material	Description
794	405	Mortar	Mortar sample, 43 g
795	405	Ceramic	Bricks, type II, 22 fragments, 5157 g
796	343	Metal	Iron object, 1 fragment, 21 g
797	206	Glass	Window glass, 1 fragment, light green, 3 g
798	206	Ceramic	Whiteware, 1 fragment, 5 g
799	300	Glass	Window glass, 1 fragment, light green, 4 g
800	300	Glass	Melted glass, 3 fragments, 7 g
801	300	Ceramic	Clay pipes, 2 stems, 4 g
802	170	Ceramic	Clay pipes, 2 stems, 7 g
803	440	Glass	Glass fragments, 6 pieces, 2 g
804	440	Glass	Vessel, 1 small fragment, light blue color, 1 g
805	440	Ceramic	Redware, 1 fragment, 2 g
806	442	Ceramic	Clay pipes, 6 stems, 14 g
807	442	Glass	Window glass, 11 fragments, 13 g
808	442	Glass	Vessels, 9 fragments, 20 g
809	116	Glass	Vessel, 2 fragments, clear color, 38 g
810	116	Glass	Window glass, light green color, 5 fragments, 4 g
811	116	Ceramic	Redware, 2 fragments, 9 g
812	116	Ceramic	Whiteware, 3 fragments, 3 g
813	116	Ceramic	Porcelain, 1 fragment, 2 g
814	116	Ceramic	Stoneware, 1 fragment, 5 g
815	116	Ceramic	Blackware, 1 fragment, 6 g
816	444	Charcoal	Charcoal, 7 fragments, 4 g
817	444	Glass	Window glass, 7 fragments, light green color, 9 g
818	444	Glass	Vessels, 5 fragments, 6 g
819	444	Ceramic	Clay pipes, 5 fragments, 8 g
820	444	Metal	Button, complete, copper alloy, 4 g
821	321	Ceramic	Whiteware, 2 fragments, 9 g
822	321	Ceramic	Stoneware, 1 fragment, 18 g
823	439	Ceramic	Redware, 1 fragment, 1 g
824	439	Ceramic	Clay pipes, 2 stems, 1 bowl fragment, 3 g
825	439	Glass	Bead, pentagonal form, clear glass, 1 g
826	439	Glass	Window glass, 18 fragments, light green color, 8 g
827	439	Glass	Vessels, 15 fragments, 38 g
828	849	Glass	Vessel, 1 fragment, 4 g
829	849	Glass	Window glass, 6 fragments, 4 g
830	849	Ceramic	Whiteware, 1 fragment, 3 g
831	437	Ceramic	Redware, 2 fragments, 8 g
832	437	Ceramic	Porcelain, 1 tiny fragment, 1 g
833	437	Ceramic	Clay pipes, 2 stems, 3 g
834	437	Glass	Window glass, 23 fragments, light green color, 12 g
835	437	Glass	Vessels, 9 fragments, green color, 6 g

No	Context	Material	Description
836	858	Stone	Jaspis, 1 piece, 3 g
837	907	Stone	Jaspis, 1 piece, 1 g
838	844	Stone	Jaspis, 1 piece, 8 g
839	844	Stone	Opal, 2 pieces, 22 g
840	868	Stone	Jaspis, 7 small pieces, 1 g
841	868	Stone	Opal (?), 2 pieces, 1 g
842	868	Stone	Pumice, white, 1 piece, 1 g
843	868	Metal	Iron, 1 tiny fragment, 1 g
844	320	Ceramic	Whiteware, 2 fragments, 3 g
845	130	Ceramic	Whiteware, 4 fragments, 6 g
846	320	Ceramic	Redware, 2 fragments, 3g
847	218	Glass	Vessel, 1 fragment, green, 2 g
848	350	Ceramic	Bricks, type II, 2 fragments, 158 g
849	332	Mortar	Mortar sample, 55 g
850	332	Ceramic	Redware, 1 fragment, 3 g
851	332	Ceramic	Bricks, type I, 3 fragments, 13 g
852	332	Ceramic	Bricks, type II, 3 fragments, 44 g
853	336	Ceramic	Brick, type III, 1 fragment, 184 g
854	336	Ceramic	Bricks, type I, 5 fragments, 298 g
855	206	Ceramic	Brick, type I, 6 fragments, 219 g
856	283	Ceramic	Brick, type III, 1 fragment, 407 g
857	166	Ceramic	Bricks, type I, 4 fragments, 255 g
858	202	Ceramic	Brick, type I, 1 fragment, 25 g
859	202	Ceramic	Bricks, type II, 2 fragments, 147 g
860	245	Ceramic	Bricks, type I, 6 fragments, 71 g
861	245	Ceramic	Bricks, type II, 4 fragments, 55 g
862	245	Ceramic	Bricks, type III, 2 fragments, 29 g
863	426	Ceramic	Bricks, type I, 2 fragments, 144 g
864	426	Ceramic	Bricks, type II, 2 fragments, 113 g
865	410	Ceramic	Bricks, type I, 2 fragments, 60 g
866	410	Ceramic	Brick, type II, 1 fragment, 14 g
867	410	Ceramic	Bricks, type III, 3 fragments, 201 g
868	442	Ceramic	Bricks, type I, 2 fragments, 1013 g
869	442	Ceramic	Brick, type II, 1 fragment, 306 g
870	438	Ceramic	Bricks, type II, 2 fragments, 54 g
871	416	Ceramic	Bricks, type I, 2 fragments, 40 g
872	416	Ceramic	Brick, unknown type, sec. burnt, 1 fragment, 118 g
873	416	Ceramic	Bricks, type II, 5 fragments, 315 g
874	452	Ceramic	Bricks, type II, 9 fragments, 604 g
875	429	Ceramic	Bricks, type I, 2 fragments, 110 g
876	429	Ceramic	Bricks, type II, 11 fragments, 1014 g
877	429	Ceramic	Bricks, unknown type, sec. burnt, 3 fragments, 202 g

No	Context	Material	Description
878	429	Ceramic	Bricks, unknown type, 4 fragments, 129 g
879	429	Ceramic	Brick, unknown type, 1 fragment, 415 g
880	373	Ceramic	Bricks, type II, 16 fragments, 2100 g
881	386	Ceramic	Bricks, type II, 5 fragments, 238 g
882	382	Ceramic	Bricks, type II, 5 fragments, 709 g
883	449	Ceramic	Brick, type II, 1 fragment, 561 g
884	444	Ceramic	Bricks, type I, 2 fragments, 1864 g
885	373	Glass	Vessel, 1 fragment, brown, 12 g
886	429	Glass	Vessels, 3 fragments, green, 49 g
887	868	Glass	Vessel, 1 tiny fragment, 1 g
888	373	Glass	Window glass, 1 fragment, light green, 3 g
889	426	Charcoal	Charcoal, 2 fragments, 1 g
890	426	Stone	Whetstone, 1 fragment, Schist, 5 g
891	245	Ceramic	Creamware, 1 fragment, 2 g
892	166	Ceramic	Redware, 2 fragments, 155 g
893	330	Ceramic	Redware, 1 fragment, 6 g
894	330	Glass	Window glass, 2 fragments, light green, 2 g
895	208	Glass	Bottle, 1 fragment, green, 4 g
896	442	Metal	Lead, 1 fragment, 6 g
897	442	Metal	Iron, 4 objects (2 nails), 28 g
898	447	Metal	Iron, 5 objects, 98 g
899	447	Ceramic	Clay pipes, 6 stem fragments, 6 g
900	447	Glass	Window glass, 2 fragments, light green, 2 g
901	447	Glass	Vessels, 2 fragments, 4 g
902	162	Glass	Bottle, 3 fragments, green, 31 g
903	162	Stone	Obsidian, 3 pieces, black, 25 g
904	162	Ceramic	Clay pipes, 2 stems, 2 g
905	162	Metal	Iron, 1 nail, complete, 23 g
906	162	Charcoal	Charcoal, 10 pieces, 2 g
907	124	Glass	Bottle, 1 fragment, green, 2 g
908	124	Metal	Iron, 4 objects, key, nail, belt buckle, 10 g
909	116	Metal	Iron, 1 object, maybe fragment of a sporn, 6 g
910	444	Metal	Iron, 5 fragments, 25 g
911	433	Glass	Bottle, 1 fragment, 4 g
912	439	Metal	Iron, 10 fragments, 64 g
913	868	Stone	Stone, 1 piece, unknown, 44 g
914	849	Metal	Iron, 4 fragments, 14 g
915	437	Metal	Iron, 4 fragments, 75 g
916	426	Metal	Copper alloy, 2 tiny fragments, SF 223, 1 g
917	444	Metal	Button, copper alloy, complete, SF 235, 2 g
918	470	Metal	Belt buckle, complete, broken, copper alloy, SF 247, 6 g
919	452	Metal	Copper alloy, 1 fragment, SF 242, 2 g

No	Context	Material	Description
920	452	Composite	Dress ornament, copper alloy and glass, broken, SF 243, 2 g
921	452	Metal	Object of copper alloy, SF 244, 1 g
922	447	Metal	Copper alloy, 1 fragment, SF 236, 1 g
923	452	Metal	Button, copper alloy, complete, SF 239, 3 g
924	384	Metal	Iron, 1 nail, complete, 11 g
925	210	Metal	Iron, 3 objects, 28 g
926	210	Ceramic	Redware, 1 fragment, 1 g
927	210	Glass	Vessels, 3 fragments, clear and brown, 4 g
928	210	Glass	Window glass, 1 fragment, light green, 1 g
929	511	Stone	Half of a Fish hammer, Basalt, 728 g
930	418	Wood	Wood, 2 fragments, worked, burnt, 19 g
931	418	Ceramic	Redware, 1 fragment, 1 g
932	418	Ceramic	Clay pipe, 1 stem, 2 g
933	189	Ceramic	Bricks, type II, 2 fragments, 310 g
934	189	Wood	Wood, 3 fragments, 4 g
935	300	Wood	Wood, 9 fragments, burnt, 210 g
936	300	Metal	Iron, 2 nails, broken, 26 g
937	300	Glass	Window glass, 11 fragments, light green, 36 g
938	300	Glass	Melted glass, 7 fragments, 22 g
939	300	Glass	Vessels, 6 fragments, green, 43 g
940	300	Glass	Vessel fragment?, white/clear, 1 fragment, 1 g
941	300	Ceramic	Redware, 1 fragment, 1 g
942	300	Ceramic	Faience, 4 fragments, 3 g
943	747	Charcoal	Charcoal, 2 fragments, 12 g
944	184	Wood	Wood, burnt, 7 fragments, 32 g
945	184	Ceramic	Bricks, type II, 2 fragments, 152 g
946	430	Metal	Iron, 3 objects, 38 g
947	405	Wood	Wood, burnt, 2 fragments, 87 g
948	298	Metal	Copper alloy, 1 tiny fragment, 1 g
949	375	Metal	Copper alloy, 1 fragment, 1 g
950	375	Ceramic	Redware, 1 fragment, 1 g
951	185	Wood	Wood, 1 fragment, 4 g
952	185	Metal	Iron, 8 fragments, 72 g
953	185	Ceramic	Bricks, type II, 2 fragments, 55 g
954	500	Metal	Iron, 8 fragments, 177 g
955	500	Metal	Copper alloy, 4 objects: 2 buttons, 1 nail, 1 unknown, 11 g
956	500	Bone	Button of bone, complete, 2 g
957	445	Ceramic	Bricks, type I, 7 fragments, 5290 g
958	445	Ceramic	Bricks, type II, 7 fragments, 1888 g
959	445	Ceramic	Brick, type III, 1 fragment, 509 g
960	454	Ceramic	Bricks, type I, 3 fragments, 2486 g
961	454	Ceramic	Bricks, type II, 6 fragments, 7719 g

No	Context	Material	Description
962	418	Ceramic	Bricks, unknown type, 3 fragments, 1453 g
963	130	Ceramic	Brick, unknown type, 1 fragment, with mortar, 1859 g
964	130	Ceramic	Brick, type II, 1 fragment, 753 g
965	462	Ceramic	Brick, type I, 1 fragment, 726 g
966	462	Ceramic	Bricks, type II, 15 fragments, 3757 g
967	864	Metal	Iron, 1 small piece, SF 454, 1 g
968	752	Composite	Object of iron and wood, SF 428, 8 g
969	864	Stone	1 small piece of stone, unknown, SF 451, 1 g
970	844	Composite	1 nail with wood, SF 459, 12 g
971	844	Composite	1 nail with wood, SF 458, 12 g
972	433	Metal	6 iron objects, 13 g
973	868	Metal	Iron (?), 1 small piece, 1 g
974	868	Metal	Iron, 1 fragment, 1 g
975	864	Metal	Iron, 1 nail, 8 g
976	864	Metal	Iron, 1 complete nail and 2 other fragments, 16 g
977	868	Metal	Iron, 2 fragments of a knife blade? 12 g
978	868	Metal	Iron, 2 fragments of a broken object, 8 g
979	868	Metal	Iron, 3 fragments, 6 g
980	868	Metal	Iron, 1fragment of a broken object, possibly knife blade, 3 g
981	862	Metal	Iron, 1 object, 5 g
982	852	Metal	Iron, 2 fragments, 4 g
983	208	Metal	Iron, 2 objects, 16 g
984	864	Metal	Iron, 6 fragments, 11 g
985	864	Metal	Slag, 1 fragment, with bones, 15 g
986	864	Metal	Iron, 2 small nails, 2 g
987	864	Metal	Iron, 1 object, 8 g
988	849	Metal	Iron, 1 object, 4 g
989	901	Metal	Iron, 4 fragments, 5 g
990	889	Metal	Slag, 4 fragments, 12 g
991	889	Metal	Iron, 4 fragments, 6 g
992	889	Metal	Iron, 3 fragments (1 nail), 8 g
993	897	Metal	Slag, 3 fragments, 13 g
994	897	Metal	Iron, 2 fragments, 3 g
995	901	Metal	Iron, 12 tiny fragments, 5 g
996	901	Stone	Jaspis, 1 small fragment, 1 g
997	890	Stone	Jaspis, 2 small fragments, 1 g
998	890	Metal	Iron, 4 tiny fragments, 2 g
999	864	Metal	Iron, 1 object, 17 g
1000	864	Metal	Iron, 1 object, 8 g
1001	864	Metal	Iron, 9 fragments, 5 g
1002	868	Metal	Iron, 2 objects (1 nail), 10 g
1003	868	Metal	Iron, 1 fragment, 2 g

No	Context	Material	Description
1004	868	Stone	Jaspis, 1 tiny fragment, 1 g
1005	907	Stone	Jaspis, 3 small fragments, 1 g
1006	907	Metal	Iron, 4 fragments, 4 g
1007	907	Metal	Copper alloy, 1 fragment, 1 g
1008	907	Metal	Slag, possibly, 1 fragment, 3 g
1009	795	Metal	Iron, 1 fragment, 7 g
1010	868	Metal	Iron, 2 small fragments, 2 g
1011	868	Stone	Iron ore? 4 fragments, 5 g
1012	858	Metal	Iron, 1 nail, 5 g
1013	858	Metal	Iron, 2 fragments of one object, 4 g
1014	858	Metal	Iron, 1 half-round object, 2 g
1015	846	Metal	Natural iron pan? 6 fragments, 4 g
1016	868	Metal	Iron or iron ore, 5 fragments, 4 g
1017	802	Metal	Iron, 4 fragments, 4 g
1018	873	Metal	Iron, 3 small fragments, 1 g
1019	868	Metal	Iron, 1 object, 2 g
1020	904	Metal	Iron, 3 tiny fragments, 2 g
1021	904	Stone	Stone, 1 piece, unknown type, 2 g
1022	873	Stone	Jaspis, 1 piece, 1 g
1023	873	Metal	Iron, 4 fragments, 1 g
1024	901	Metal	Iron, 3 fragments, 4 g
1025	901	Stone	Quartz, 1 piece, 5 g
1026	901	Stone	Jaspis, 1 piece, 1 g
1027	901	Metal	Iron, 6 fragments, 4 g
1028	868	Metal	Iron, 11 fragments, 3 g
1029	868	Stone	Sandstone, 2 fragments, 2 g
1030	747	Ceramic	Clay pipe, 1 stem, SF 398, 2 g
1031	300	Ceramic	Stoneware, 1 fragment of a storage jar, 36 g
1032	101	Ceramic	Stoneware? 1 body sherd, 6 g
1033	799	Stone	Basalt, 1 piece, 47 g
1034	101	Ceramic	Redware, 2 fragments, 6 g
1035	747	Glass	Bead, complete, red, barrel-shaped, SF 263, 1 g
1036	747	Glass	Bead, complete, yellow, SF 334, 1 g
1037	864	Glass	Bead, complete, light blue with dark purple wavy decoration, 1 g
1038	443	Metal	Copper alloy, 1 broken object, maybe button, SF 234, 1 g
1039	470	Metal	Copper alloy, 1 broken object, SF 248, 4 g
1040	433	Metal	Copper alloy, 3 fragments of thread, SF 245, 1 g
1041	747	Metal	Iron, 1 fragment, maybe arrow head, SF 398, 6 g
1042	453	Textile	Textile, 4 fragments, 1 g
1043	747	Charcoal	Charcoal, 6 fragments, 2 g
1044	765	Metal	Iron, 1 fragment, SF 308, 1 g
1045	747	Metal	Iron, 1 fragment, 1 g

No	Context	Material	Description
1046	747	Metal	Co-alloy, 1 tiny fragment, SF 370, 1 g
1047	426	Metal	Button, broken, copper alloy, SF 222, 1 g
1048	452	Metal	Button, broken, iron (?), SF 241, 2 g
1049	430	Metal	Nail, complete, co-alloy, SF 226, 2 g
1050	470	Metal	Nail, complete, co-alloy, SF 250, 2 g
1051	426	Metal	Button head, tin or lead? SF 225, 2 g
1052	868	Metal	Iron, 1 object, SF 462, 5 g
1053	907	Metal	Iron, 3 fragments, 21 g
1054	868	Metal	Iron, 3 fragments, 6 g
1055	864	Metal	Iron, 1 object, SF 445, 5 g
1056	815	Metal	Nail?, iron, SF 423, 8 g
1057	747	Metal	Iron, 1 object, SF 371, 5 g
1058	747	Metal	Slag? 1 piece, 30 g
1059	451	Metal	Iron, 2 objects, 24 g
1060	747	Unknown	Unknown object, SF 366, 1 g
1061	864	Metal	Iron, 2 small objects, SF 437, 2 g
1062	864	Metal	Iron, 2 objects, SF 449, 9 g
1063	464	Metal	Copper alloy, 4 tiny fragments, SF 246, 2 g
1064	864	Metal	Nail, iron, SF 438, 9 g
1065	386	Metal	Copper alloy, 1 fragment, SF 232, 13 g
1066	778	Metal	Iron, 2 small fragments, SF 392, 3 g
1067	752	Metal	Slag? 1 lump, SF 425, 34 g
1068	747	Metal	Iron, 1 object, SF 330, 1 g
1069	752	Metal	Iron, 1 fragment, SF 426, 3 g
1070	433	Metal	Copper alloy, 1 object, SF 228, 2 g
1071	372	Metal	Slag? 1 lump, 7 g
1072	752	Metal	Iron, 1 object, SF 415, 37 g
1073	752	Metal	Iron, 1 object, SF 414, 14 g
1074	747	Metal	Iron, 1 small fragment, SF 377, 1 g
1075	441	Metal	Iron, 1 nail, 3 g
1076	508	Metal	Iron, 1 object, SF 252, 45 g
1077	815	Metal	Slag? 5 pieces, 13 g
1078	394	Metal?	Slag? Or Basalt? 3 pieces, 5 g
1079	747	Metal	Iron or slag, 2 pieces, SF 325, 20 g
1080	752	Metal	Iron, 2 fragments, SF 287, 23 g
1081	382	Metal?	Slag? Or Basalt? 1 piece, 9 g
1082	452	Metal	Iron, 6 fragments, 126 g
1083	386	Stone?	Malachite? 1 lump, SF 229, 15 g
1084	382	Stone?	Malachite? 2 lumps, 55 g
1085	441	Textile	Woven wool, 6 fragments, burnt, 1 g
1086	752	Metal	Iron, 1 object, SF 289, 20 g
1087	377	Stone	Stone, 1 small fragment, Quartz, burnt, 1 g

No	Context	Material	Description
1088	377	Stone	Malachite? 1 lump, burnt, 4 g
1089	448	Metal?	Slag? 1 lump, 14 g
1090	448	Metal	Iron, 2 fragments, 37 g
1091	448	Ceramic	Stoneware, 1 fragment, burnt, 9 g
1092	375	Metal	Copper alloy, 3 small fragments, 1 g
1093	386	Stone	Malachite? 6 fragments, burnt, SF 230, 163 g
1094	386	Metal?	Slag? 2 lumps, 27 g
1095	386	Stone	Malachite? 7 lumps, burnt, 222 g
1096	353	Stone	Malachite? 2 fragments, burnt, 6 g
1097	353	Metal	Iron? 2 fragments, 17 g
1098	300	Ceramic	Clay pipe, 1 stem fragment, decorated, 3 g
1099	150	Ceramic	Clay pipe, 1 stem, decorated, 4 g
1100	150	Ceramic	Clay pipe, 1 fragment of bowl, marked, 5 g
1101	437	Ceramic	Clay pipe, 1 stem fragment, decorated, 2 g
1102	437	Ceramic	Clay pipe, 1 heel fragment, decorated, 1 g
1103	235	Ceramic	Clay pipe, 1 fragment, stem and heel, marked, 8 g
1104	235	Ceramic	Clay pipe, 1 fragment, stem and bowl, marked, 10 g
1105	495	Ceramic	Clay pipe, 1 stem fragment, decorated, 5 g
1106	452	Ceramic	Clay pipe, 1 stem fragment, decorated, 3 g
1107	343	Ceramic	Clay pipe, 1 stem fragment, decorated, SF 215, 2 g
1108	184	Ceramic	Clay pipe, 1 fragment of heel and stem, decorated, 3 g
1109	452	Ceramic	Clay pipe, 1 fragment of bowl, 3 g
1110	101	Ceramic	Clay pipe, 1 stem fragment, glazed, 2 g
1111	452	Ceramic	Clay pipe, 1 stem fragment, decorated, 4 g
1112	448	Ceramic	Clay pipe, 1 stem fragment, decorated, 4 g
1113	426	Wood	Bark (?), 10 fragments, 1 g
1114	430	Metal	Copper alloy, 1 fragment, SF 227, 1 g
1115	765	Metal	Iron, 1 fragment, SF 307, 6 g
1116	747	Metal	Iron, 1 fragment, SF 329, 2 g
1117	750	Metal	Iron, 2 fragments, SF 280, 56 g
1118	752	Metal	Iron, 1 nail, complete, SF 286, 12 g
1119	424	Metal	Iron, 2 fragments, 6 g
1120	747	Metal	Iron, 1 fragment, SF 315, 3 g
1121	765	Metal	Iron, 1 fragment, SF 306, 4 g
1122	747	Metal	Iron, 1 fragment, SF 270, 5 g
1123	747	Metal	Iron, 1 fragment, SF 344, 1 g
1124	747	Metal	Iron, 2 fragments, SF 318, 5 g
1125	747	Metal	Iron, 1 complete nail, SF 283, 6 g
1126	765	Metal	Iron, 1 object, SF 294, 8 g
1127	765	Metal	Iron, 1 object, SF 302, 10 g
1128	864	Metal	Iron, 1 fragment, SF 455, 2 g
1129	747	Metal	Iron, 2 fragments, SF 324, 3 g

No	Context	Material	Description
1130	820	Metal	Iron, 2 fragments, SF 403, 15 g
1131	747	Charcoal	Charcoal, 3 fragments, 4 g
1132	747	Stone	Rhyolith, 4 fragments, 1 g
1133	747	Stone	Pumice, 1 fragment with cuts, 1 g
1134	470	Metal	Copper alloy, 1 object, SF 249, 5 g
1135	765	Metal	Iron, 1 fragment, SF 304, 6 g
1136	765	Metal	Iron, 1 fragment, SF 309, 3 g
1137	747	Metal	Iron, 1 fragment, SF 321, 7 g
1138	765	Metal	Iron, 1 fragment, SF 300, 4 g
1139	747	Metal	Iron, 1 fragment, SF 328, 4 g
1140	765	Metal	Iron, 1 fragment, SF 312, 2 g
1141	765	Metal	Iron, 1 fragment, SF 346, 6 g
1142	765	Metal	Iron, 1 fragment, SF 301, 4 g
1143	747	Metal	Iron, 3 fragments, SF 285, 12 g
1144	765	Metal	Iron, 1 fragment, SF 310, 5 g
1145	470	Metal	Iron, 7 fragments, 102 g
1146	746	Metal	Iron, 1 fragment, SF 259, 1 g
1147	380	Metal	Iron, 1 round disc with a hole, 321 g
1148	433	Metal	Iron, 4 fragments, 153 g
1149	286	Metal	Iron, 1 complete nail, 37 g
1150	765	Metal	Iron, 1 nail head, SF 305, 14 g
1151	286	Wood	Wood, 11 fragments, burnt, 102 g
1152	371	Wood	Wood, 2 fragments, burnt, 19 g
1153	206	Wood	Wood, 3 fragments, 7 g
1154	431	Stone	Malachite? 1 lump, 95 g
1155	852	Stone	Basalt, maybe loom weight, SF 435, 252 g
1156	849	Stone	Basalt, maybe loom weight, SF 431, 681 g
1157	849	Stone	Basalt, not worked, SF 432, 389 g
1158	747	Stone	Basalt, 3 fragments, not worked, SF 379, 256 g
1159	868	Stone	Pumice, 2 fragments, SF 460, 3 g
1160	864	Stone	Schist, 1 fragment, SF 446, 9 g
1161	864	Stone	1 fragment of either Rhyolith or Sandstone, SF 440, 3 g
1162	752	Metal	Natural iron pan? 3 fragments, SF 420, 4 g
1163	849	Stone	Jaspis, 1 piece, SF 429, 10 g
1164	844	Stone	Basalt, maybe Loom Weight, SF 456, 81 g
1165	844	Stone	Loom Weight, Basalt, complete, Sf 457, 83 g
1166	864	Stone	Jaspis, 1 fragment, SF 450, 2 g
1167	864	Stone	12 small white stones, maybe Quartz, SF 443, 11 g
1168	894	Stone	10 small white stones, maybe Quartz, SF 464, 35 g
1169	868	Stone	1 fragment of Rhyolith (or Sandstone), SF 463, 10 g
1170	448	Metal	Copper alloy, 4 fragments, SF 238, 8 g
1171	747	Unknown	Slag? 1 fragment, SF 379, 26 g

No	Context	Material	Description
1172	752	Composite	Basalt and Iron, 1 piece, SF 418, 537 g
1173	849	Stone	Loom Weight? Basalt, SF 433, 267 g
1174	849	Stone	Loom Weight? Basalt, SF 434, 224 g
1175	864	Stone	Red Jaspis, 1 piece, SF 447, 22 g
1176	849	Stone	Opal? 1 piece, SF 430, 5 g
1177	747	Stone	Quartz? 1 fragment, SF 268, 4 g
1178	470	Metal	Lead, 2 fragments, SF 291, 9 g
1179	747	Metal	Iron, 1 small nail, SF 396, 3 g
1180	747	Metal	Iron, 1 fragment, 7 g
1181	431	Metal	Iron, 9 fragments, 395 g
1182	747	Metal	Iron, 1 nail, complete, SF 266, 5 g
1183	747	Metal	Iron, 1 nail, SF 327, 7 g
1184	747	Metal	Iron, 1 object, SF 297, 31 g
1185	442	Metal	Iron, 2 objects, 67 g
1186	210	Metal	Iron, 1 object, 15 g
1187	747	Composite	Knife, iron and wood, SF 373, 45 g
1188	444	Metal	Iron, 6 fragments, 75 g
1189	440	Metal	Iron, 5 fragments, 178 g
1190	245	Metal	Iron, 1 nail, SF 209, 20 g
1191	752	Metal	Iron, 3 fragments, SF 413, 42 g
1192	792	Metal	Iron, 1 fragment, maybe nail, SF 417, 4 g
1193	865	Metal	Iron, 1 nail, SF 436, 11 g
1194	795	Metal	Iron? 1 lump, SF 422, 33 g
1195	747	Metal	Iron, 1 object, maybe nail, SF 390, 20 g
1196	337	Metal	Iron, 2 fragments, 89 g
1197	747	Metal	Iron, 2 fragments, SF 401, 48 g
1198	747	Metal	Iron, 1 small nail, SF 359, 5 g
1199	747	Metal	Iron, 1 small fragment, SF 343, 4 g
1200	747	Metal	Iron, 1 small fragment, SF 269, 4 g
1201	747	Metal	Iron, 1 nail, complete, SF 265, 6 g
1202	826	Metal	Iron, 1 nail, SF 424, 10 g
1203	747	Metal	Iron, 2 fragments, SF 332, 4 g
1204	747	Metal	Iron, 1 fragment, SF 360, 6 g
1205	778	Metal	Iron, fragment of a barr? SF 358, 55 g
1206	747	Metal	Iron, 1 nail, complete, SF 273, 9 g
1207	747	Metal	Iron, part of a barr? SF 278, 24 g
1208	752	Metal	Iron, 2 fragments (or slag), SF 427, 20 g
1209	752	Metal	Iron, 6 fragments, SF 416, 55 g
1210	868	Metal	Iron, 2 fragments, SF 439, 16 g
1211	864	Metal	Iron, 1 complete nail, SF 449, 11 g
1212	747	Metal	Iron, 1 complete nail, SF 384, 7 g
1213	469	Metal	Iron, 1 fragment, 100 g

No	Context	Material	Description
1214	747	Metal	Iron, 1 fragment, SF 326, 4 g
1215	747	Metal	Iron, 1 nail, SF 399, 6 g
1216	795	Metal	Iron, 1 object, SF 421, 28 g
1217	747	Metal	Iron, 1 complete nail, SF 261, 11 g
1218	815	Metal	Iron, 1 fragment, SF 393, 11 g
1219	389	Metal	Iron, 1 object, SF 389, 18 g
1220	815	Metal	Iron, 1 object, SF 410, 9 g
1221	747	Metal	Iron, 1 hook, complete, SF 397, 3 g
1222	751	Metal	Iron, 2 fragments, SF 281, 23 g
1223	747	Metal	Iron, 3 small fragments, SF 274, 4 g
1224	752	Metal	Iron, 3 fragments, SF 288, 18 g
1225	635	Metal	Iron, 1 nail, 27 g
1226	747	Metal	Iron, 1 fragment, SF 387, 3 g
1227	747	Metal	Iron, 1 fragment, SF 411, 8 g
1228	747	Metal	Iron, 1 fragment, SF 376, 4 g
1229	747	Metal	Iron, 3 fragments, SF 386, 68 g
1230	737	Metal	Iron, 1 fragment, SF 261, 28 g
1231	747	Metal	Iron, 1 nail head, SF 275, 11 g
1232	747	Metal	Iron, 2 fragments, SF 322, 24 g
1233	747	Metal	Iron? 1 small fragment, SF 336, 5 g
1234	752	Metal	Iron, 1 fragment, SF 290, 13 g
1235	747	Metal	Iron, 1 fragment, SF 268, 6 g
1236	210	Metal	Iron, 1 fragment, SF 206, 6 g
1237	314	Metal	Iron, 2 fragments, SF 212, 26 g
1238	245	Metal	Iron, 1 complete nail, SF 208, 20 g
1239	279	Metal	Iron, 1 complete nail, 15 g
1240	747	Metal	Iron, 2 fragments, SF 402, 20 g
1241	752	Metal	Iron, 1 fragment, SF 419, 13 g
1242	815	Metal	Iron, 1 fragment, SF 405, 10 g
1243	747	Metal	Iron, 1 fragment, SF 372, 8 g
1244	747	Metal	Iron, 1 complete nail, SF 267, 10 g
1245	815	Metal	Iron, 1 fragment, SF 400, 3 g
1246	747	Metal	Iron, 2 fragments, SF 347, 2 g
1247	747	Metal	Iron, 1 fragment, SF 331, 3 g
1248	765	Metal	Iron, 1 small fragment, SF 311, 3 g
1249	771	Metal	Iron, 1 complete nail, SF 341, 5 g
1250	747	Metal	Iron, 3 fragments, SF 404, 33 g
1251	747	Metal	Iron, 1 complete nail, SF 395, 8 g
1252	300	Textile	Textile, 10 fragments, threads and felt, 3 g
1253	208	Metal	Lead, 6 fragments of a thread, SF 204, 4 g
1254	332	Ceramic	Whiteware, 9 fragments, 35 g
1255	332	Ceramic	Redware, 2 fragments, 50 g

No	Context	Material	Description
1256	388	Ceramic	Clay pipe, 1 stem fragment, 6 g
1257	332	Glass	Vessel, 1 fragment, 2 g
1258	332	Glass	Window glass, 1 fragment, light green colour, 4 g
1259	343	Glass	Melted glass, 1 fragment, 14 g
1260	LF	Bone	Handle, 1 fragment, 4 g
1261	LF	Metal	Iron (or slag?), 7 fragments, 57 g
1262	LF	Metal	Iron, 2 fragments, SF 348, 10 g
1263	747	Metal	Iron, 2 fragments, SF 296, 3 g
1264	747	Stone	Vessel? Sandstone? 1 fragment, worked, SF 322, 2 g
1265	101	Plastic	McDonalds spoon, modern, fragment, SF 210, 1 g
1266	799	Metal	Weight, complete, copper alloy, SF 352, 27,7 g
1267	369	Bone	Whale bone, worked, 6 g
1268	646	Bone	Whale (?) bone, worked, SF 256, 6 g
1269	747	Stone	Pumice, 1 fragment, 1 g
1270	890	Stone	Whetstone, 1 fragment, 6 g
1271	901	Metal	Iron, 2 fragments, 3 g
1272	864	Metal	Iron, 5 fragments: 1 complete nail, 4 unknown objects, 3 g
1273	747	Bone	Walrus tusk, almost complete, SF 355; 35, 5 cm long
1274	747	Bone	Walrus tusk, almost complete, SF 337; 38 cm long; preservation poor
1275	778	Bone	Walrus tusk, almost complete, SF 388; 29, 5 cm long; preservation poor

Appendix 8

The Soapstone Artefacts

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The Aðalstræti Artefacts

Three fragments of soapstone were recovered during the 2001 excavation season at the Aðalstræti house site. The most complete artefact recovered was a spindle whorl <AST01-737, SF258>. The whorl was manufactured from a re-used vessel wall fragment, as indicated by the slightly curved profile of the artefact. Due to the relative fineness of the original vessel wall (c. 12mm), the diameter of the whorl (5.0cm) is atypically large, though the weight (63g) is not exceptional. The whorl has been heavily scoured to achieve a smooth surface and edge; scouring marks associated with the original vessel would be more unidirectional.

In addition to the whorl, a vessel fragment and a worked miscellaneous artefact were recovered. The vessel fragment <AST01-735, SF254> is much thicker than that from which the whorl is manufactured, with a wall thickness of 18 - 24mm. The working of the vessel is plain, with horizontal scouring marks visible on the interior surface, probably indicative of cleaning with an abrasive medium (e.g. pumice or sand and water). The external surface is covered in soot demonstrating that the vessel has been used for heating, most likely as a cooking pot. It is possible to analyse organic residues extant within the matrix of the soapstone vessel walls, or the adhering burnt residue, which would potentially give some indication of the vessel use. Little work has yet been carried out on soapstone vessels, but the success of analytical techniques (gas-chromatography and gas-chromatography mass-spectrometry) on ceramics is encouraging.

The final artefact recovered from Aðalstræti is a worked object <AST01-736, SF291>, though not a recognisable form. It is possible that the object was once a handle or lug from a vessel, but the level of reworking makes identification impossible. A groove, 4-6mm wide, has been scored along the length of one of the faces, though for no obvious reason.

As a group of artefacts the Aðalstræti soapstone objects give little indication of date, but do highlight either a trade contact with, or link to, either Norway or Shetland. Sourcing soapstone artefacts to a particular region, even differentiating finds from Norway and Shetland, is not a straightforward task. Previous scientific studies of British soapstone have been hampered by the huge diversity of stone found within a single quarry (Bray 1994), though more recent work has shown more promising results (Jones, pers. comm.). Other recent studies have demonstrated the potential for differentiation using more traditional morphological indicators (Forster and Bond, forthcoming), e.g. vessel shape and manufacture, though such an approach is difficult when applied to small and/or badly preserved artefacts. At present, therefore, there is no unequivocal way to source small assemblages such as that recovered from Aðalstræti.

The wider context

A wider project, currently underway by the author and funded by the Arts and Humanities Research Board (British Academy), aims to elucidate the nature of the soapstone trade in the North Atlantic region and has included a study of Icelandic soapstone artefacts. Though soapstone is not a rare find on Viking and Medieval sites in Iceland, it is certainly not recovered in quantity. Furthermore, artefacts recovered tend to show signs of reworking (e.g. whorls are frequently made from broken vessels) and are often very worn. Even where larger assemblages have been recovered, such as that from earlier excavations in Reykjavik (see Nordahl, 1988), much of the assemblage is made up of small, worn or reworked fragments. A similar pattern can be seen throughout Icelandic settlement sites, with the larger and more complete finds tending to come from funerary sites.

In addition to Icelandic-based research, artefacts have been examined from other Norse settlement areas including the Faeroes, Orkney, York, and the regions where soapstone artefacts are known to have been manufactured, namely Norway and Shetland. Future work by the author will include an examination of imported soapstone objects from the Scottish Western Isles, Dublin and Denmark and the native soapstone artefacts recovered from Norse sites in Greenland. Once such work has been carried out and data assimilated it is hoped that the nature of the movement of soapstone goods around the North Atlantic will be more fully understood.

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Appendix 9

The Pumice

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A total of 15 pumice pieces were retrieved from contexts 747 and 868 at Aðalstræti. Ten pieces were pale yellowish white in colour and five were dark brown to black. The light coloured pumice is very vesicular and has a low density, whilst the darker pumice is less vesicular and denser. The pumice ranges in size from small fragments 15 mm in diameter to large pieces up to 85 mm across.

Six of the pumice pieces show evidence of having been used as tools or decorative objects. The most striking is Find 765, where a piece of pale pumice has been fashioned into a ring with an outside diameter of 47 mm and an internal hole of 25 mm. There is also evidence of decoration along part of the outside edge, with several vertical scores up to 5 mm in length. Other evidence of use include flattened faces (5 pieces) and grooves (three pieces). One side of Find 683 is perfectly flat and the other sides are flattened. Find 681 has been broken in to two at some stage and the broken face has been used to rub against a material. There is an obvious black deposit on this broken face. Other pieces which have flattened faces include Finds 682, 686 and one of the two pieces in Find 687. The grooves range from the narrow cuts (1 mm wide by 15 mm long) found in Find 684 to wide U shaped grooves (up to 2mm in diameter) found in Find 686 and one of the two pieces in Find 687.

In the British Isles some rings of pumice recovered from archaeological sites have been interpreted as having been used as fishing floats and there is evidence that this practice was continued until fairly recently in Unst, Shetland (Newton, 1999a). Find 765, however, appears too decorative and fragile to have been used as a fishing float and may have been pendant or toy. A spindlewhorl or ring of whitish grey pumice was also found at the Norse Medieval site at The Biggings, Papa Stour, Shetland (Newton, 1999b). Flattened sides are produced when the pumice is used as an abrasive to rub down objects such as animal hides or wood. Grooves are interpreted as having been formed by rubbing wood, bone or antler against the pumice to either

smooth or sharpen the material. Some grooves have also been interpreted as having been produced by twine or string which was tied around the pumice. Such worn finds are common from coastal archaeological sites in Scotland (Branigan et al., 1995; Dugmore and Newton, 1999; Newton, 1999a; Newton, 1999b; Newton and Dugmore, 1995; Newton and Dugmore, Forthcoming).

Pumice has been recovered from over 140 archaeological sites in the British Isles (over 130 in Scotland), as well as numerous other sites around the North Atlantic region. Recent research has demonstrated that all of this was produced by volcanic activity in Iceland (Newton, 1999a). Archaeological pumice is found in sites ranging in age from the Mesolithic to early modern times. Geochemical analysis has shown that the vast majority of this pumice was produced by a series of volcanic eruptions from Katla between about 6800 14C years BP and 1600 14C years BP (c. 400 A.D.). Some white pumice found at Medieval sites in Shetland, including the spindlewhorl described above, was produced by the 1362 AD eruption of Öræfajökull. No pumice from Hekla has so far been found. The dark coloured pumice found at Aðalstræti closely resembles the Katla pumice which is found throughout the North Atlantic region, including Scotland. The lighter coloured pumice could have been erupted by several Icelandic volcanoes including Snæfellsjökull and Hekla. Pumice from Öræfajökull is usually whiter in colour and is more friable. A positive identification, however, of the source of the pumice relies on geochemical analysis.

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