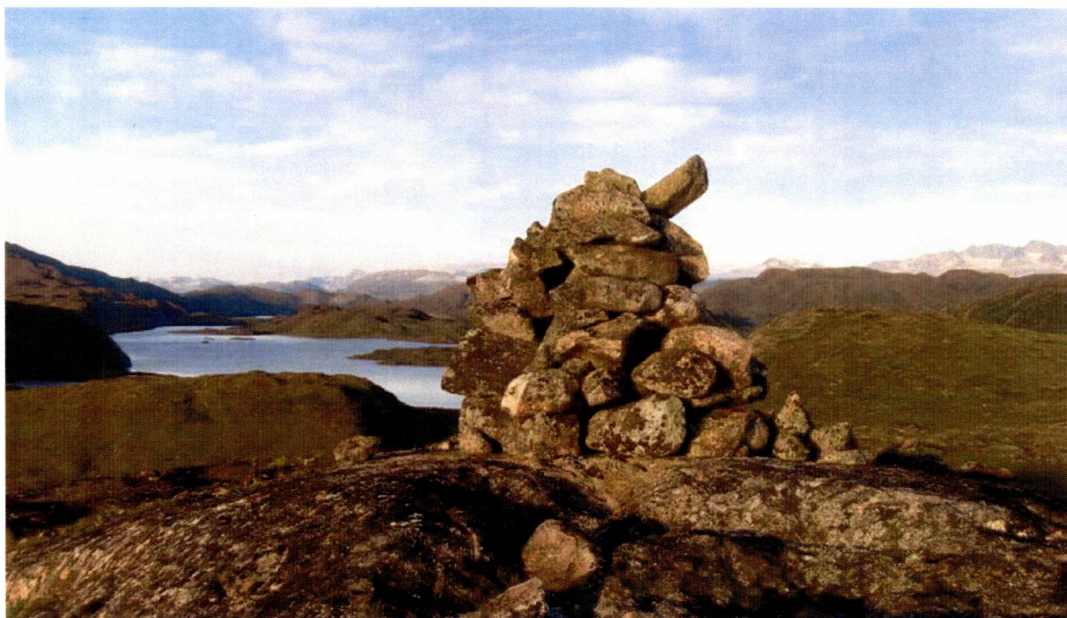


# Greenland 2007 Field Season Preliminary Report

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## Introduction

This is a preliminary report of archaeological field work done in Vatnahverfi region of the Eastern Settlement. Research was conducted by SILA - The Greenland Research Centre at the National Museum of Denmark and CUNY Graduate School and University Center between July 18<sup>th</sup> and August 21<sup>st</sup> 2007. The project's main mission was to excavate Norse churchyards (E78 and E64) to collect bone samples for DNA and Isotopic studies conducted by Jette Arneborg. Sondage trenches at several farms were the responsibility and agenda of CUNY. This preliminary report only describes the work done as a part of midden prospecting and omits all the work on the churchyards. All documentation produced, including photographs, plans, drawings, registers, GPS and coring data is on file with SILA. Field director was Niels Algreen Møller with assistance of Konrad Smiarowski, Christian Koch Madsen, Poul Baltzer Heide, Lousie Felding and Louise Johansen and all the kind help of the people of Greenland.

## E78 Eqluit - Excavation

July 20<sup>th</sup>

All gear and instruments were sorted and packed on zodiacs. We set for Eqluit from Qaqortoq around 11am and reached it few hours later. The day was spent setting up and organizing the camp, supplies and an a site visit. Camp was located about 8 minute walk from the site.



Fig. 1 Arriving at Eqluit

July 21<sup>st</sup> – 29<sup>th</sup>

The site is located on the S bank of a river flowing out of Tasersuaq Lake in the East. Church and the main dwelling are located north of a modern track that connects the fjord with modern sheep farm of Eqluit. Several economy buildings are north and east of the main farm complex. The church ruin is visible on the surface as a roughly square stone ruin with the dyke slightly visible around the structure. The main farm house lays some 30 meters to the northeast of it. It is well preserved, and most of its rooms can be distinguished from the surface topography. There are several patches with lush vegetation that indicated possible targets for midden excavation just outside the house (as usually is the case with Norse middens). Grid was placed over the whole site in order to precisely map the site, and plan the church trench and the midden trenches for future reference.

Three main transects were used for systematic coring at 1-2 meter intervals. All cores produced poor results (coring data on file at SILA). Judgmental coring based on vegetation growth, proximity to the dwelling and terrain surface produced similarly disappointing results. The whole site (outside of the



structures) is a shallow deposit (at maximum ~62cm) with ambiguous traces of cultural activity. Nevertheless, a trench was placed E of the main house in area where cores showed only 52cm depth, but the deposit looked most promising (some bone flex, charcoal and peat ash were recorded in the core).

#### Test trench *no.1*

Trench was placed 7m west, down slope from the main dwelling. The dimensions were 1x2 meters, and its purpose was to extract C14 datable material such as local wood charcoal or twigs from upper and lower layers, and bone material for zooarchaeological analysis.

During the excavation it became soon apparent that the preservation was very poor at this site (as suspected while coring) and very few intact bone fragments were found. Most were either reduced to wet powder on touch, and others smeared like butter when touched with a trowel. Nevertheless, the whole trench was excavated with trowels and all material was wet sieved through a 4mm mesh. Only the densest animal bones such as dental enamel, and seal bullas (very hard skull fragments) preserved at all. Even the caprine teeth were very fragmented and fragile. Most bones from this trench consisted of calcite, burned, unidentifiable, small (~ 1-2cm) fragments.

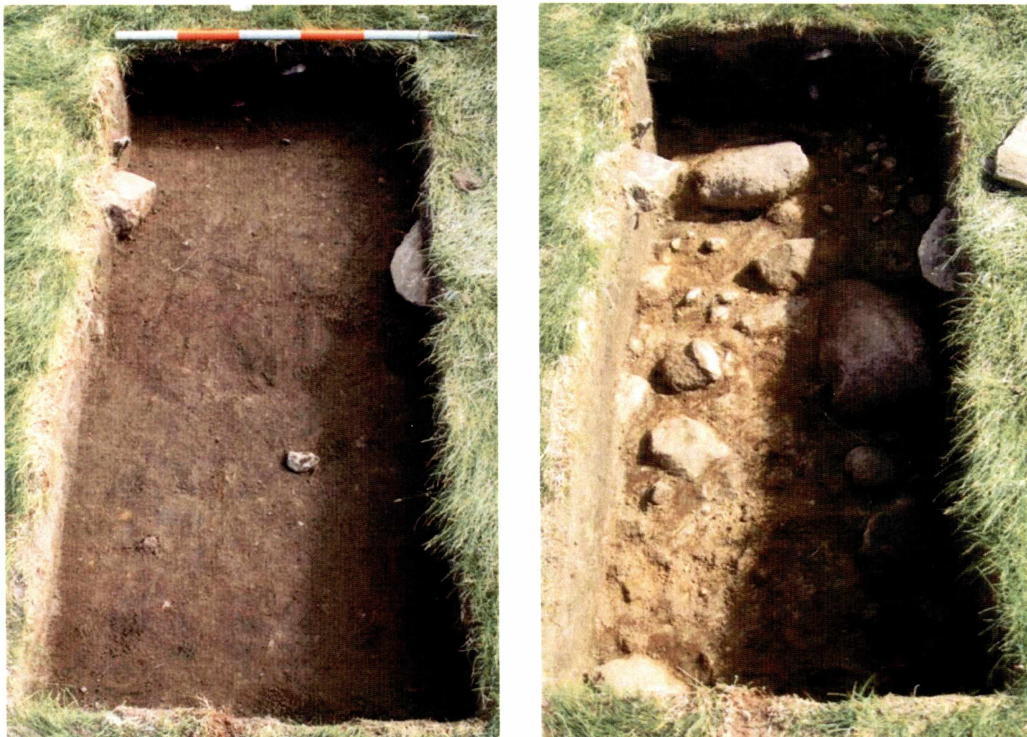


Fig. 2 Trench no.1 under excavation and after

Preservation conditions were most likely affected by the good drainage on the site where the underlying sterile soil is composed of gravel and stones. Water is

fast absorbed and had washed off most organic archaeological deposits. This was also visible in the stratigraphic profile of the trench, where 2 main layers were hardly distinguishable, testifying further to the good water drainage on the site. Bone preservation at the churchyard was similarly poor.

Since there was still a lot of time to be spent at this site while the other part of the team excavated the churchyard we decided to place another test trench in the second most promising place of the site in search for better preservation of organic material.

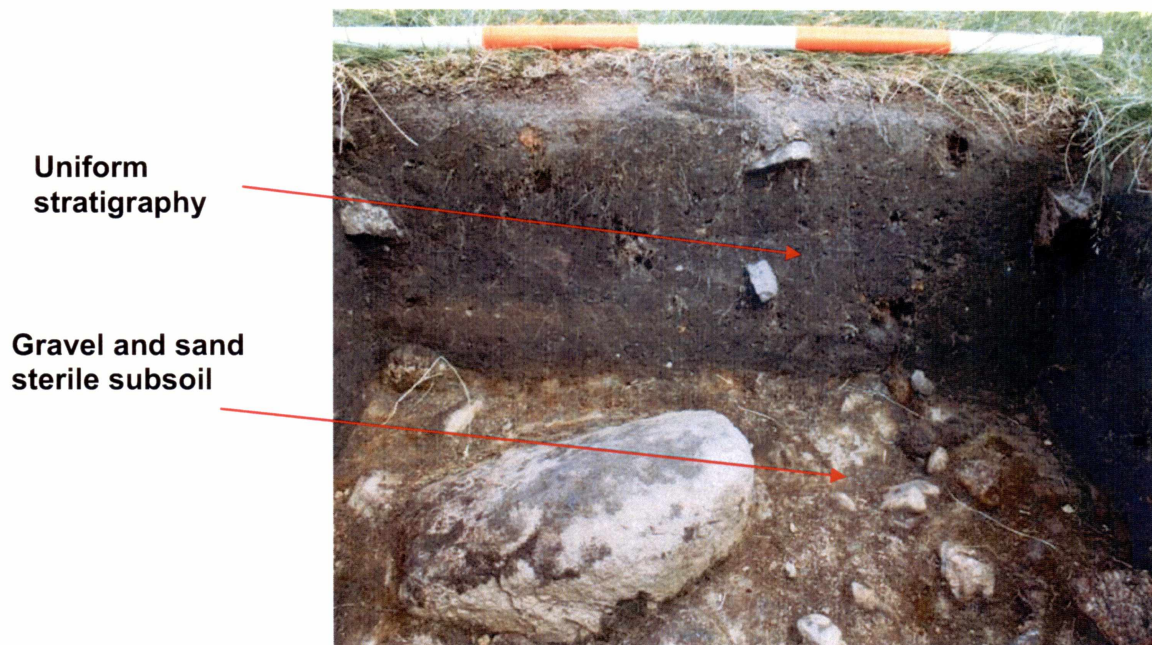


Fig. 3 Trench no.1 N profile

#### Test trench no.2

Trench placed 5 meters east of the main dwelling site had dimensions of 1x1m. There was not much difference between the contents of the trenches. Even though this was a different midden deposit the preservation was similarly bad. This test trench was dug using the same methods as Trench no.1. The only difference between the trenches was that this one contained more numerous large stones from wall collapse in its upper layer because it was located closer to the structure.

This site has very little potential for further zooarchaeological excavations as the preservation conditions are unfavorable.



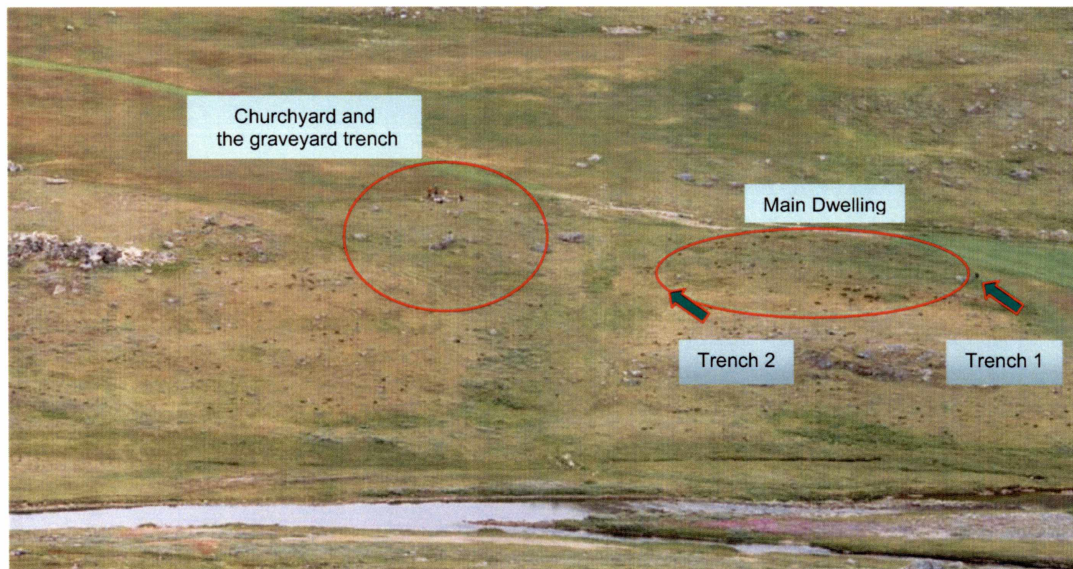


Fig. 4 E78 Eqaluit looking south (photo Niels Møller)

## Coring Survey - July 30th

After completing the excavation of both trenches I and Niels undertook a surveying/coring trip on the eastern bank of Igaliku Fjord (western boundary of Vatnahverfi region). We visited 4 coastal sites already registered and mapped by previous expeditions. E196, E172, E76b, and E60 were cored in search for good midden preservation.

### E196 Ruin group - Nimerialik

The site is located just about 2km NW of Eqaluit (see the map on the last page) and consists of a main dwelling and few economy buildings scattered north and east of it. Systematic and judgmental coring showed almost non existing cultural deposits along the structures placed on the south slope of a hill. It is very likely that water erosion had washed away the deposits. The sterile soil below the thin topsoil (~25 cm) was very similar to the one at Eqaluit (gravel and stones) and coring produced no promising results. There were some traces of construction turf alongside the main dwelling (notably from the collapsed walls), but all poor in cultural traces such as charcoal, peat ash or bone. There are no midden deposits at this site anymore.



Fig. 5 Structural turf at E196

#### E 172 Ruin group - Tatsip Ataa

The vegetation at the site looked very lush, and the main dwelling was easily recognized by surface topography. There had been 20<sup>th</sup> century sheep farming at this site and there are some remnants of it even now. Although this place no longer serves as a farm, there is a small vegetable garden and a summer house located there. Traces of old animal enclosures and old building foundations (pre 1970's?) are still visible south of the archaeological site. One of the animal enclosures is located on top of a small Norse economy building. NW of the main archaeological dwelling a component of Thule culture on this site is located. A cairn grave carefully built is in the center of a small valley leading from the Igaliku Fjord in the west to the Tasersuaq Lake in the east. This grave must have been placed there after the Norse abandonment.

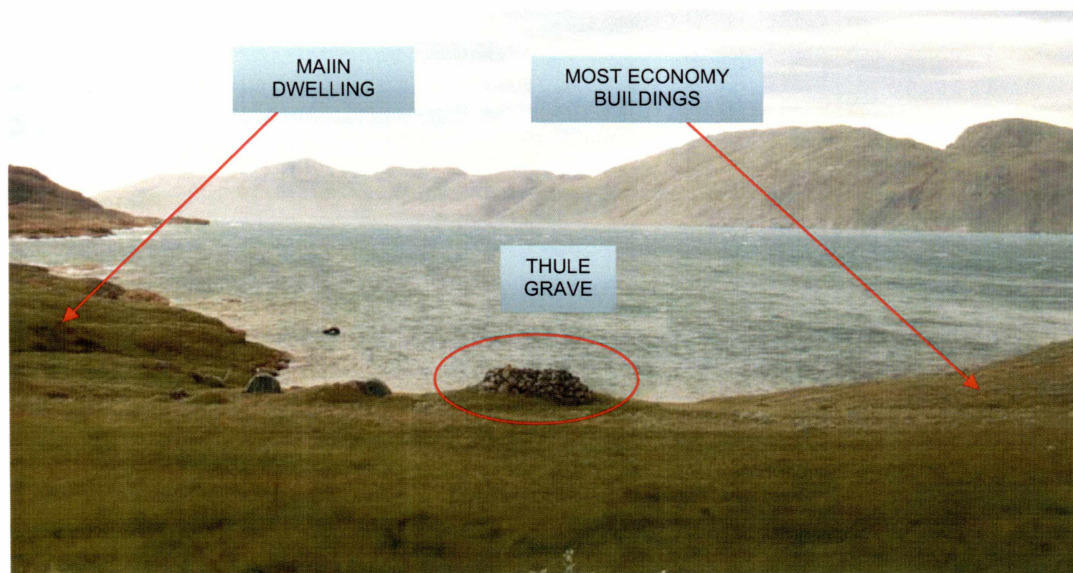


Fig. 6 E172 Tatsip Ataa looking east

As with the previous sites coring transects were placed on all four sides of the main dwelling. Coring north of the dwelling produced best results. On a line of



10 meters, beginning from just outside the building, we recorded a rich, well preserved midden deposits reaching 120cm in depth. In the core we observed bone fragments, preserved wood, peat ash, charcoal and turf traces. This deposit extends for at least 8 meters north from the house. We decided to place a trench here later this season.

Transects east, south and west of the structure did not reveal any midden deposits, just light cultural sediments.

#### E 76b Ruin Group – Qanisartuut

Further north we landed at E76b. This site has a very well preserved building of unknown function. A long hall with walls made of stone still standing is similar to the “feasting” hall structures at Gardar and Hvalsey. The main dwelling is located close to the shore and at first it seemed that the midden would have had eroded to the sea. There is an erosion face showing a good geological profile of the site, but no archaeological deposit was recorded there. Here too the subsoil was made of stone and gravel, providing for excellent drainage of the site and poor preservation conditions.

After extensive judgmental coring around the main house structure no midden deposits were found. Very little cultural activity was recorded, apart from occasional charcoal specs. This site would have proved unrewarding if excavated for bone collection.



Fig. 7 E76b looking north

### E60 Ruin Group - Isotarfik

To this site we came during heavy rain therefore the only thing we did that day was to perform a series of cores around the main dwelling structure. As with most Norse ruins it was easily visible on the surface, with distinct rooms. A transect of soil cores west of the house revealed a midden deposit. There were bone flex, charcoal, peat ash, and some turf specs recorded in the cores. The depth varied from ~20cm to ~60cm. Later in the season Niels Møller made several trips to the site where he excavated a 1x2 meters trench in the most promising area.

Trench was excavated with mechanical layers as there was not enough natural stratigraphy to work with (similar situation as in Eqluit). All material was wet sieved through 4mm mesh sieve, and a small sample was sieved for control purpose using the 1mm mesh.

Only a few species were distinguished in this collection, and there are so few bones in it that it can not be treated more than just an incomplete list of species utilized t at the site. Cattle, caprines (sheep or goat) and Harbor seal were the only animals positively speciated from the bones recovered. The preservation at this site was equally unsatisfactory as at E78.



Fig. 8 Profile at E60 – note the uniform stratigraphy and sand/gravel subsoil (as at E78)



## Excavations at E172 Tatsip Ataa

On August 1<sup>st</sup> we began excavations at E172. We placed a 1x3 meter trench on an E-W axis in the area where coring data confirmed good preservation, and a 120cm deep midden deposit. Quickly the size of the trench was doubled in size (2x3m) as it became apparent that the preservation was good, and there is a chance of obtaining a considerable zooarchaeological collection from this site. The trench was located approximately 5 meters west of the main dwelling. All units were assigned consecutive numbers, described, measured and wet sieved with 4mm or 1mm mesh screen in the waters of the Igaliku fjord.

Note: The 1mm mesh was easier to use in the field conditions (bending over water table of the fjord), therefore most of the deposits were wet sieved that way.

From the very beginning preservation proved to be much better, and we recovered better quality and more bones there than at E78. Steatite vessel fragments were also recovered from the very first layer.



Fig. 9 Wet sieving with 1mm mesh in Igaliku Fjord

Layer [001] consisted of mixed turf deposit with coarse sand, and some charcoal present. This layer was the roots of grass and the soil in between them only, although it yielded some bones (both wild seals and cattle bones), steatite fragments and charcoal already. Two buckets were sieved through a 1 mm mesh sieve.

Layer [002] is a gray silt midden deposit with yellow turf lumps. There are several large (head size) stones in it, most likely fallen after the collapse of the building walls and roof. In this layer the frost action is very visible in form of the oxidized polygons. Material that came out of it includes bones, charcoal, and soapstone vessel fragments. 5 buckets were wet sieved through a 1 mm mesh sieve.

Layer [003] is a mechanical layer. After cleaning [002] the distinction between the next layers was not clear enough so we decided to dig a 10cm mechanical unit in expecting that the coloring and texture of the layers will change and next stratigraphic unit could be distinguished. 6 buckets of soil from this context were wet sieved with 1mm mesh. First fish bone at this site was found during sieving (arctic char). Large stones from wall collapse were still present.

Layer [004] is dark gray sandy silt. It also contains many frost polygons, and the oxidation is even more severe than in previous layers. The deposit looks very red-brown, although it is obvious that it is a false and misleading coloration. Bones, charcoal, peat ash and soapstone artifacts are present in this layer, and so are the large structural stones. First piece of iron slag was also recorded in this layer. 100% of all the soil (35 buckets) was wet sieved through a 1mm mesh in the fjord.



Fig. 10 4mm sieve





Fig. 11 E172 under early stages of excavation

Layer [005] – mottled mid dark gray sandy silt with specs of light yellow peat ash. Frost action is still clearly visible, but much less than in previous layers. Structural stones are present. Charcoal, bone, soapstone vessel fragments are all present in this layer too. Some bones have a lot of oxidized iron and a red “glaze” to them. 33 buckets sieved with 1mm mesh sieve (100%).

Layer [006] is a dark grey midden deposit rich in peat ash and turf. Structural stones are still present. The coloration is very similar to layers [002] – [005] and could probably be safely combined together as one on account that they all have very visible frost polygons, and that the material they consists of had been most likely mixed within them by the frost action. In this layer the preservation gets even better as there are wood fragments appearing and the bones are harder, and more fragile (less dense elements) appear more often. 100% (16 buckets) of this layer was wet sieved through 1mm mesh screen.

Layer [007] is gray silt mottled with spots of yellow turf (less than in 006). The frost polygons are present, but there are no large structural boulders anymore, except some small (~10cm) cobbles. Charcoal, wood, and bones make the

cultural composition of this layer. Some fire cracked stones are present. 90 buckets (100%) were screened through the 1mm mesh.

Layer [008] is black/gray colored silt with much charcoal, yellow turf lenses and fire-cracked stones. This layer is possibly a re-deposition of floor layers from the house structure. Excellent organic preservation, and damp, even wet conditions. A lot of twigs and small wood pieces are excavated. 5 buckets (100%) were wet sieved through the 1mm mesh.

Layer [009] is medium-gray silt mixed with some coarse sand, brown turf and charcoal. Frost polygons are still visible, but only a little bit in the western end of the trench. There is considerably less wood and twigs (this is not a re-deposited floor) but the amount of bones is comparable. 65 buckets (100%) of the whole deposit was wet sieved with 1mm mesh.

Layer [010] is another episode of re-deposited floor cleaning. Black, wet silt with some coarse sand and enormous quantities of twigs and charcoal mixed with bone make it slow to excavate. There are some small cobbles and fire cracked stones present.



Fig. 12 Bone sample from context [012]



Layer [011] is a dark gray deposit of silt mixed with yellow turf specs. No frost polygons present. Bones, twigs, steatite vessel fragments and charcoal are present in this as numerous as in other of this midden's layers. 35 buckets (100%) were wet sieved with 1mm mesh.



Fig. 13 Steatite artifact (possibly a net weight) and re-deposited floor [012]

Layer [012] is another episode (or many episodes actually) of re-depositing floor layers. The organic component is almost equal to the amount of soil in this layer. Black and gray in color, has a strong smell and is wet. Bones, wood, twigs, and charcoal is excellently preserved. 84 selected buckets were wet sieved with the 1mm mesh.



Fig. 14

Layer [013] is a lens (size of about 70cm x 1m and 8cm thick) of yellow/gray turf within context [012] with less wood and bones. Probably debris from fixing a wall and had been deposited at the time of major cleaning of the house.

Layer [014] is a brown/gray turf layer mixed with silt and some peat ash. Wooden artifacts, including rivets, nails, and handles; as well as bones, twigs, steatite fragments and charcoal are numerous. This layer is very wet. Selected

12 buckets were wet sieved with 1mm mesh. Only  $\frac{1}{4}$  of it was excavated as we ran out of time.



Fig. 15 Wood objects

Layer [015] is a brown, organic, pure turf deposit. Most likely a piece of turf placed over a trash heap to prevent the smell or blowing off of the contents. It has preserved very well. No archaeological material present in it. One bucket selected for sieving did not produce any results. Only  $\frac{1}{4}$  of it was excavated as we ran out of time.



Layer [016] is a black, wet, re-deposited floor cleaning deposit similar to [008], [010] and [012]. Only ¼ of it was excavated as we ran out of time. Selected 4 buckets were wet sieved with 1mm mesh.

Layer [017] is the sterile soil. It is a smooth, greenish brown pure turf layer that is very water resistant. The moisture keeps above it, as it is hard to penetrate it; therefore, the site is not as easily drained as E78 or E196. Under it is solid granite bedrock that also prevents the drainage on the site, and helps the preservation of organic materials.

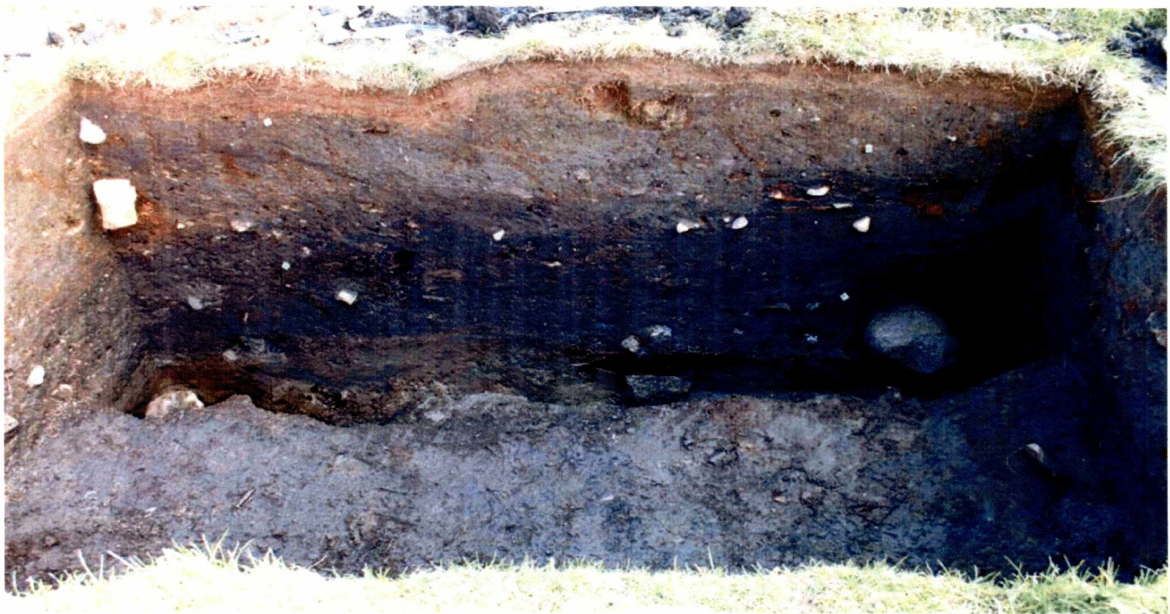


Fig. 16 Three meters long North profile of trench at E172 Tatsip Ataa with 2 major kinds of deposits visible. The first [002]-[007] with frost action are the main gray area with the brown/red oxidized polygons visible in the higher part of the profile. The more organic, wet, and well preserved layers [008]-[016] are the main black part (lower profile).

#### E64 Ruin Group - Inoqquaasaq

While the Churchyard team excavated at E64 they have encountered a small midden deposit overlying the graveyard. A small, hand picked bone collection was shipped to NY (with all the faunal material from this season) and quickly analyzed. There were only 113 fragments present; therefore, as with E60 the analysis can not be treated more than just a species list. Nevertheless, a wide variety of species was present within this small sample.

Bones include almost all classic species utilized by Norse Greenlanders: harp, harbor and hooded seals, cattle, reindeer, caprines (sheep or goat), small whale (beluga size), pig and walrus (represented here by mandible rather than by maxillary piece).

## **Conclusion**

The team going in the field this season was skeptical about encountering well preserved midden deposits in SW Greenland. Experiencing poor preservation at E74 last year the team did not expect to find such well preserved bone deposit as at E172. There is an opinion among archaeologists and environmental scientists that the poor bone preservation in this part of Greenland may be attributed to the freeze and thaw action connected to the recent climate change. The permafrost that kept the bones intact for centuries is no longer present year round, and the ground is freezing and thawing according to the seasons of the year and destroys the bone.

This is a preliminary report, or rather an informal narrative of the work that had been performed in the field during the excavation season. With the bones shipped to the zooarchaeology laboratory in New York's Hunter College and Brooklyn College an analysis is underway, and a further look into Norse Economy of the Eastern Settlement will be possible. Soon a bone report will follow this field report.

Under the International Polar Year Project we would like to do more work in the Vatnahverfi region in 2008, namely excavate more of the midden at E172 and possibly find more sites with similar preservation conditions.