

Norse Coastal Landscapes

Field report on surveys and excavations in the coastal area of Vatnahverfi Summer 2010



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Explanations & Information:

Map/plan signatures: Dark grey = building interpreted as dwelling, grey = building in stone/turf, turf/stone, black = stone structure/stone wall/dike (in GoogleEarth imagery also natural stone/cliff), triangle = cairn, diamond = fox trap.

GPS Coordinates: Are given in degrees, minutes, and seconds relating to WGS84 map datum.

Descriptions: Stone/turf signifies a majority of stone in the construction and turf/stone vice versa. Unless otherwise noted, all measurements describe outside dimensions.

GUIDE (Greenland Unique IDentification number): Ruin numbering system used by P.B. Heide.

Original Field Notes: Are stored at the National Museum of Denmark, Department for Danish Middle Age and renaissance.

All Original Field Photos: Are found with the participants of the field season 2010.

Introduction

The survey and reconnaissance field work in Vatnahverfi, South Greenland, 2010 was the last and final part of two consecutive and linked research projects – “*The Vatnahverfi Project*” and “*Resources, Resilience, and Cultural Identity in Norse Greenland ca.985-1450 A.D.*” – both projects investigating medieval Norse habitation and culture in the Vatnahverfi region and both being coordinated from the Danish National Museum by Jette Arneborg from 2005-2010 (see Arneborg *et al.* 2009, Møller&Madsen 2006, 2008, Møller *et al.* 2007, Madsen 2009). The field season of 2010 was thus mainly aimed at wrapping up loose ends, i.e. surveying a few, remaining ruin groups of the “Vatnahverfi Peninsula”, reconnoitering unexplored areas, and retrieving datable material from eroding ruins in the coastal area. A part from a few minor investigations/surveys earlier in July and in August, this field work was carried out in the 14 days from the 07.07-21.07 2010 by Poul Baltzer Heide (PBH), Ph.D.-student at the Aarhus University, Christian Koch Madsen (CKM) Ph.D.-student at the Danish National Museum/University of Copenhagen, and Troels Bo Jensen (TBJ), stud.cant.mag. at the University of Aarhus.

Aims, Methods, and Reflections

The 2010 field season was, yet again, a joined venture and therefore seeing the implementation of different aims and methods;

The “traditional” ruin surveys:

4 Norse ruin groups required new or renewed surveying in order for the project to have visited and re-surveyed all known Norse farms/sites of the “Vatnahverfi Peninsula”. Visiting a new site, a few hours were spent identifying the ruins of the existing survey plans and searching the landscape in vicinity for new ruins. Once identified, these ruins were surveyed with a Leica SR20 DGPS, as well as individually described and photographed. Survey plans and individual ruin descriptions are presented in the following. Note that Inuit structural remains were only recorded where found in conflict or direct connection with Norse ruins.

The landscape surveys:

After the survey of the immediate environs of the known Norse site, the survey was often extended to the wider, surrounding landscape, partly in search of new, previously unregistered ruins, partly to gain knowledge of the landscape and structures in relation to the aims of P.B. Heide’s Ph.D. project on communication networks of Norse Scotland, Iceland and Greenland; the field work in 2010 for PBH’s part was focused on gathering data for these analyses. Along this line of work we recorded traces of physical communication networks, i.e. cairns and natural landmarks, suitable for navigating in the complex outer fjord seascape.

Part of the communication analysis has been to determine the relevant extent of the individual farmsteads, particularly as it would have been experienced by the people of the past. The approach has been based on experimental phenomenology, and includes the production of visual records in the shape of maps, photos and footage.

The landscape surveys also entailed reconnaissance of selected areas on the coast of the Vatnahverfi Peninsula with no former registration of Norse ruins. The aim here was dual; again one aim was to assess the character of the landscape in regards to Norse resource exploitation (i.e. describing, discussing and photo documenting the nature of the landscape). On the other hand, it was an attempt to survey areas that have not normally been surveyed for Norse activity. However, because of the wide expanses and many islands of the area, we could single out only a few islands and areas to survey thoroughly. Also, islands with good landing places, either located beforehand from studying maps or found during coastal survey, were visited when favorable.

The excavations:

Several sites in the coastal zone of the Vatnahverfi Peninsula are threatened by erosion, most from the sea, a few from the trampling of sheep. One aim of the 2010 field season was to try and retrieve datable material from a sound archaeological context; this meant exploiting the natural erosion by cutting back and/or cleaning already exposed sections of Norse ruins. This was done with spade and trowel, where after sections were photographed, drawn, described and sampled. The 3 ruins thus excavated all produced datable material from structural contexts of reasonable secure interpretation.

The described method of dating the Norse ruins is, for obvious reasons, not optimal; e.g. the natural eroded sections only allow for a very limited insight into the structural context and phasing, and we have no way of knowing whether such a structure has been constructed/abandoned prior to or later than others ruins on the same site. Thus, viewed on their own, the dates from these first few sites could appear of very limited value. However, because we have an almost completely lack any chronology for ruin groups in this area of the Vatnahverfi Peninsula, the new dates will constitute the first step in an attempt to solve this problem and will gain importance and relevance with more new dates from the area (e.g. a series of contemporary dates for site abandonment?). Also, these dates can be compared to those from midden material and thus nuance chronological discussions. Finally, it is a very cost-efficient method of retrieving datable material from Norse ruins, while at the same time documenting and describing them before they are eroded entirely.



Fig.1 Field life in the arctic, coastal area; even during the height of summer it can get bloody damp and chilly! On the left, Poul Baltzer Heide, right Troels Bo Jensen (Photo: C.K. Madsen 2010).

GPS: N60°45'53,23"/ W045°34'35,91"

Site history: The site Ø78a was first identified by Aa. Roussell in 1935 and subsequently surveyed and partially excavated by C.L. Vebæk in 1939, including complete or partial excavations of ruins 01-04. The location was visited by Knud Krogh in 1985, but only very briefly. The site was then revisited and surveyed by N.A. Møller and C.K. Madsen in 2006. In 2009, PBH and CKM revisited the site in search of a “sheep-shed” (ruin 08) mentioned by Vebæk, but not found during any of the other surveys. Although finding some new other new ruins, we did in 2009 not find the “sheep-shed”. The new ruins, as well as the mentioned sheep shed, were revisited and surveyed by CKM during c. 2 ½ hours on 04.07.2010. The ruin description only entails the ruins not described in the 2007 survey report (Møller&Madsen 2007a). Ruin numbering after Vebæk (1943) and Møller&Madsen (2007a).



Fig.3 Google Earth satellite imagery of the landscape around E78a and the location of the two clusters of ruins.

Site Description: The site is located by a small bay on the north side of the Egaluit Bay (fig.4). Here a flat, grassy foreland, c.200m's wide, rises gently from the beach towards the east, where one also finds the hayfields of a now abandoned modern sheep farm, as well as a two farm houses now used as summer houses. Just to the north and running parallel with the ruins and foreland is a rather steep faced, but low (c.25-35m) cliff ridge. About 400m's up the foreland, the landscape opens up towards the north and northwest in a gently sloped, relatively fertile (though on the visit somewhat dry) valley bordered on all sides, but the western by rising mountains. Here one finds the main buildings of the abandoned, modern sheep farm, cleared and fenced off fields (fig.4), as well as a wet, grassy meadow sloping gently towards the west and the small lake located here. Green and lush hayfields can also be found along the coast just to the west of the Norse ruins; a gently rising valley also connecting to the formerly mentioned lake.



Fig.4 View, looking towards the SW, of the buildings of the now abandoned, modern sheep farm and summer houses just NE of ruin group E78a. Note the dried out patches in the fenced off hayfields, the result of a very dry spring (Photo: C.K. Madsen 2010).

It must be observed that activities at the modern sheep farm (buildings, field clearing etc.) have markedly disturbed the landscape and, possibly, the Norse ruins. However, Vebæk's visit to the site was prior to the establishment of the modern farm and hence it is to be expected that most ruins were registered in 1939.

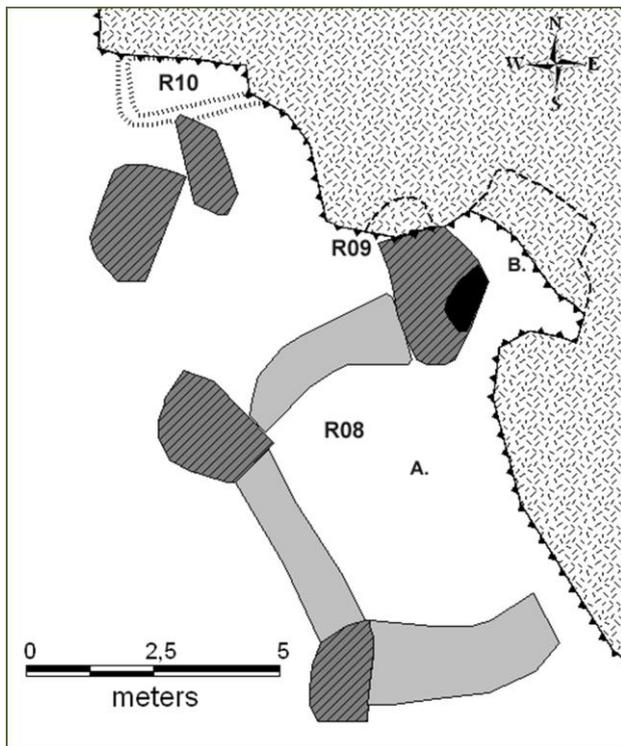


Fig.5 Ruin 08-10.

Ruin 08 (fig.5): This ruin is found some 600m up the valley, just north of the main cluster of structures (fig.3). The ruin is found in the edge of a boulder field just below a steeply ascending mountain side and exploiting several of these massive, naturally deposited boulders as part of the construction, hence giving the structure a rather uneven shape. The walls of the structure are either dry-stone build on top of these boulders to a height of c.50cm's (c.40cm's wide) or, in places, more collapsed turf-stone walls of c.40cm's height and c.100cm's in width. The structure is divided in two parts; a.) a c.8,5x5m large enclosure with an exit in the SE corner and with a entrance in the NE corner to b.) a smaller compartment or enclosure, c.3,5x3m, and halfway roofed by naturally deposited boulders. The structure is overgrown by willow, grass and buttercup.

Rather than a sheep-shed, as suggested by Vebæk, the structure is a combined sheep-/goats pen and shelter, associated with ruin 09-10 just a few meters NW.

Ruin 09 (fig.5-6): Rather than an actual structure, this ruin is a small gap, ca.1,5x1m, under and between the naturally deposited boulders, in front and back of which there are traces of built up wall. This structure is most likely a *lambakró* (a small pen/shelter for separating lambs/kids from ewes/goats for higher milk production) associated with the use of ruin 08.



Fig.6 Ruin 09 seen from the SW (Photo: C.K. Madsen 2010).



Fig.7 Ruin 10 seen from the E (Photo: C.K. Madsen 2010).

Ruin 10 (fig.5&7): Just c.5m's NW of ruin 08 one finds another rather irregular ruin; in the edge of the boulder field and partially exploiting this for walls, there is a small and roughly trapezoid structure, ca.2,1x0,5-1,1m (inside dimensions). To the W and S, the walls partly consist of naturally deposited boulders, partly of build up stone/turf, while the E and N sides are made up of naturally deposited boulders. This room appears to have been dug c.50cm into the ground. No visible entrance could be found. It is probably to be interpreted as a sheep/goats shed used in connection with ruin 08-09.

Ruin 11 (fig.8): Possible Norse turf/stone ruin, rectangular, c.8,2x6,5m, with a large, naturally deposited boulder in the NE corner, located some 250m W of the main cluster of buildings. The structure appears as a depression in the surface surrounded by collapsed turf walls about 1,5m wide and preserved to a height of c.50cm. The ruin is completely overgrown with lush grass. This, and a very distinct inside wall line in the northern gable, suggests these might be the remains of a more recent building?



Fig.8 Ruin 11 seen from the NNW (Photo: C.K. Madsen 2010).



Fig.9 Ruin 12 seen from the SE, where a clearly visible stone/turf box wall or foundation is visible (Photo: C.K. Madsen 2010).

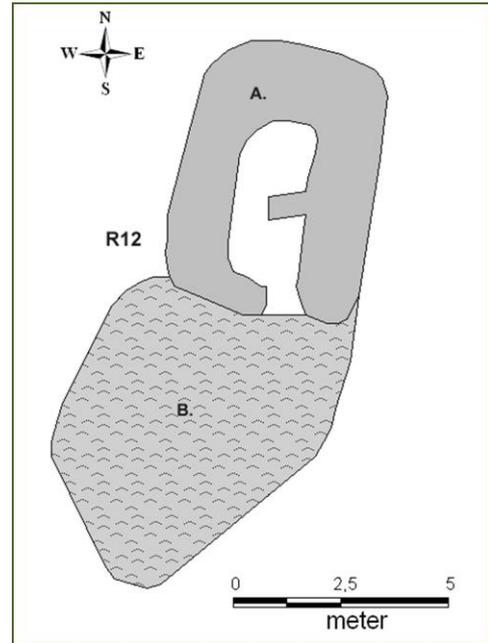


Fig.10 Ruin 12

Ruin 12 (fig.9-10): Between the main cluster of ruins and ruin 11 one finds ruin 12, a turf/stone structure seemingly consisting of two parts: a.) a reasonably distinct, rectangular building measuring c.6,1x4,6m with walls c.1,5m wide and preserved up to a height of c.60cm in the northern end, where the structure has been cut slightly into the slope. A clear stretch of wall divides the building in two parts and in the SE corner is a likely entrance. South of and running against this clear structure is; b.) a slightly elevated area with many protruding stones, but only on the eastern side is a more clear wall line visible w. walls 60-80cm wide and 20cm high. The ruin is overgrown with grass, Alpine lady's mantle, and willow. Ruin 12 is likely an a.) animal shed with, if it is not a recent disturbance, b.) a collapsed adjoining enclosure or hay yard?

Field notes 07.07.2010

PBH and TBJ arrived in Igaliku around 16.00 on a beautiful and sunny summer day, where CKM had been since around noon to do some shopping and restocking for the survey and the excavation team working at E172. With the 2010 survey team now complete, we then sailed for Igaliku Kujalleq in strong fjord wind to pick up a few items needed for the survey. From Igaliku Kujalleq we went on to E172, Tatsip Ataa, to join the excavation team working here under the direction K. Smiarowski, CUNY.



Fig.11 The, fully packed, 90hp zodiac owned by the National Museum of Denmark and used for the surveys (Photo: C.K. Madsen 2010).

Field notes 08.07.2010

Having spent the night at E172, we sailed to Qaqortoq to stock up on gasoline on the morning of the 8th in a light fog. From there we continued on towards E118, Sarfarmiut, in beautiful sunshine and light wind; once one enters the narrow, sheltered fjords and straits of the southwestern part of the “Vatnahverfi Peninsula”, the effects of the incessant fjord wind diminishes considerably, making sailing a lot easier.

Notes on Landscape – two islets



Fig.12 GoogleEarth© satellite imagery of the two islets west of E334, of which the larger one, Upermaviarsuaq, was surveyed, while the smaller only visually inspected.

On the way to Sarfarmiut, E118, we decided to have lunch on and survey the larger of two small islets, Upermaviarsuaq, just west of the Norse site E334 (fig.12). Surrounded by strong currents, close to a known Norse site and located in a central position in the outer fjord system, these islets could have been interesting in the past for e.g. pasture, fishing, sealing or traffic dominance.

The island consists of sandy beaches, rocky coast and a low central plain with few rocky outcrops. Landing almost all types of vessels is very easy,

either on the beaches or by the shallow watered, rocky inlets. Vegetation is dominated by beach plants but the central plain houses more terrestrial species, e.g. *betula*, *salix* and grasses. There are no freshwater sources on the island.

Spending about half an hour walking across the islet, we found several traces of Thule-culture summer habitation (tent rings, summer huts, graves), as well as traces of later fishing activities, though finding no traces of Norse structures. This might be due to the simple fact that the island is situated very close to the mainland site (E334) and that the natural cliffs on the islet can provide shelter for animals from all wind directions, i.e. there was no need for the Norse to erect any structures on the islets. From here we continued on to Sarfarmiut and E118 on the island of Kangeq.



Fig.13 Panoramic view across the strait between E 334 and the small island closest to it. Note the friendly beach and the lush vegetation on the beach ridge. *Photo: P.B. Heide 2010.*

GPS: N 60°39'4.30" / W 45°47'51.41"

Site history: The ruin group was first found and registered by Mogens Clemmensen in 1910 (1911;355p.) and then resurveyed and described by Joel Berglund in 1980. PBH, CKM and K. Smiarowski visited the site in 2009 with the intent of surveying the ruins, but, alas, did not manage to identify the ruins on that occasion. PBH, TBJ, and CKM then returned to the site 08.07 2010 and surveyed the 7 Norse ruins located there in 1980. Approx. 3 hours were spent doing the survey.

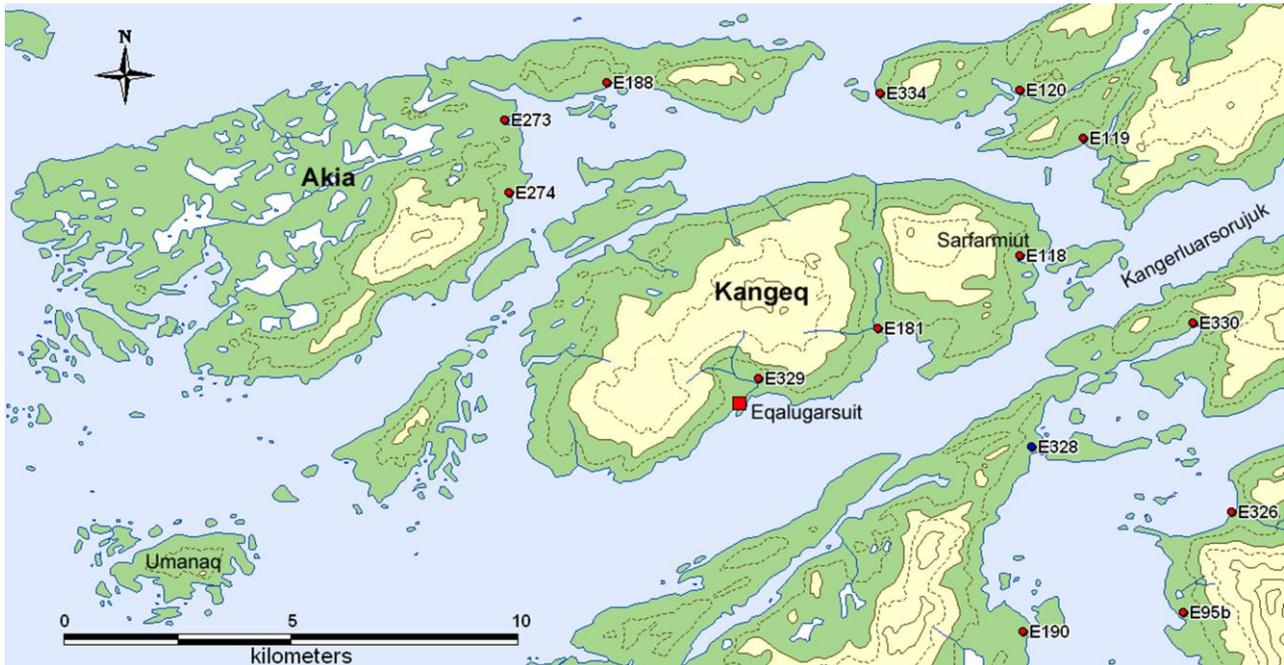


Fig.14 Overview map of the ruin groups of the islands Akia and Kangeq.

Site Description: In the eastern end of the island Kangeq is a small inlet ending in a horse-shoe shaped, stony beach with reasonably landing conditions (fig.14-15). This is actually the drowned lower parts of an eastern facing, eroded circus valley, on the northwestern slopes of which one finds all the Norse ruins on the well-drained part of the slope, just before the mountains rise more steeply. The mountain sides are traversed by numerous small streams (though most were dried out at the time) feeding a small pond just east of the dwelling and a stretch of wet, grassy meadowland closer towards the coast. Just west of the farm is a patch of more pure grassland, the presumed homefield area of the farm. Along the coast on the northern shore of the inlet, but somewhat withdrawn from it, are 6-7 very well-preserved Thule-culture winter houses (not surveyed) and other Thule-period features are found scattered about the immediate landscape. Ruin numbering after Berglund 1980.



Fig.15 Panoramic view of the inlet by E118. The ruins are located near the yellowish spot of vegetation on the left (Photo: P.B. Heide 2010).

In spite of the wet, grassy meadowland and the patch of grass close to the farm, E118 today seems far from an optimal place for farming; the whole terrain is basically one large boulder field covered by a very thin vegetation surface, the many stones also being the reason why it is so hard to locate the ruins. An experimental grass field, c.21,6x2,6m (A. in fig.16) was at some point in recent times established just east of the dwelling, indicating that while grass growing was tested at Sarfarmiut, it was apparently abandoned.

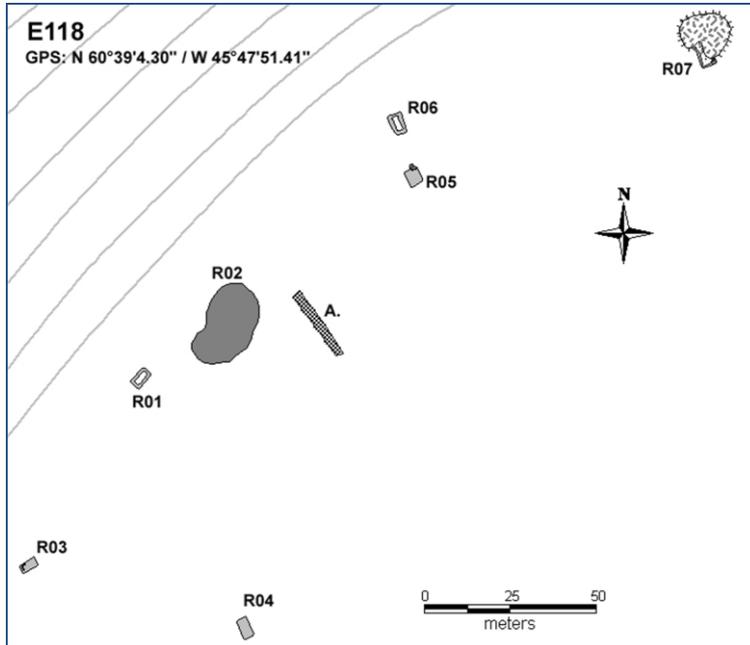


Fig.16 Survey plan of E118.

The ruins of E118 display some of the worst preservation the authors have seen anywhere in the Vatnahverfi, almost all appearing completely collapsed and indistinct. Thus it could be suggested, as it indeed was by the survey team of 1980, that both the poor state of the ruins and their apparently rather insubstantial construction, could signify that the ruins were in use only for a short period of time.

Ruin 01 (fig.16-17): Description after Berglund 1980: “ *The remains of a small, collapsed house build in stone, probably with a box wall. Outside dimensions are c.6x3,2 and the walls are c.60cm wide. The western end is preserved to a height*

of 60-70cm with some stones in situ. The northern and southern long walls are almost entirely collapsed to ground level. The ruin is vegetated by with grass, herbs, and willow – also on the walls”. The ruin is most likely a small animal shed with a possible extension to the SW.

Ruin 02 (fig.16): Description after Berglund 1980: “ *Completely collapsed and indistinct remains of a presumed dwelling, which covers an area of approx. 29x20 (in the 2010 survey c.25x15m) and is orientated NNE/SSW.*

Many stones are visible on the surface and there are traces of several rooms – not parallel. By the northern side is a massive boulder, which has been part of the structure. To the south a midden area is visible”. It should be noted that because of the naturally stony surface, the structure is very hard to delimit. The mentioned rooms are also very seem very uncertain and were thus not recorded. The ruin does, however, distinguish itself much from the surrounding terrain by its distinct vegetation of dominated by buttercup and grass.



Fig.17 Ruin 01 seen from the E (Photo: T.B. Jensen 2010).

Ruin 03 (fig.16): Description after Berglund 1980: “ *The remains of a completely collapsed structure built in stone, outline c.4x6m (in the 2010 survey c.5,1x2,75m9) and orientated NE/SW. To the north a stretch of wall, c.1m wide and consisting of two, parallel rows of stones, is visible. The rest of the ruin spills over the terrain. Is situated on a elevation towards the transition to the mountain side. Vegetated by grass, willow and moss*”. Because of the limited amount of collapse, the structure was, however, probably not built in stone, but is rather a stone foundation for a stone/turf, economy building.



Fig.18 Ruin 04 seen from the E (Photo: T.B. Jensen 2010).

Ruin 04 (fig.16, 18): Description after Berglund 1980: “*The remains of a complete collapsed stone house lying on a small knoll between the coast and mountain side. Its outline is assessed to measure c.3,5x4-5m (in the 2010 survey c.5,85x3,2m), orientated E/W. The greater part of the building stones has fallen to the north*”. Again, these remains might only be from a stone foundation, as many of the surrounding stones appear rather natural. From the location of the ruin, it could be a skemma. The ruin is vegetated by juniper, willow, grass, and moss.

Ruin 05 (fig.16): Description after Berglund 1980: “*The remains of a completely collapsed building, probably built in stone and turf. Indistinct outline, measures c.5x7m (in the 2010 survey 4,8x4,2m), orientated ESE/VNV. To north a large, naturally deposited stone has formed part of the building. Appears as an elevation in the terrain*”. It is a very indistinct ruin, because of its extremely poor preservation, now vegetated by willow and grass.



Fig.19 Ruin 06 seen from the S (Photo: T.B. Jensen 2010).

Ruin 06 (fig.16, 19): Description after Berglund 1980: “*The remains of a completely collapsed building, most probably erected in stone/turf and very indistinct, covers c.10x8m, but is hard to delimit, because it is densely overgrown by grass and willow*”. The ruin numbered 06 in the 2010 survey was, in fact, rather distinct on the inside, measuring c.6,4x4,1m, and build in stone and turf with walls c.60-80cm wide. Only to the north is the ruin hard to delimit, as it was here dug slightly into the slope. For this reason, this might be another ruin, albeit its position and orientation corresponds very well with the 1980 survey. The ruin is vegetated by grass, willow, and Alpine lady's mantle.



Fig.20 Ruin 07 seen from the S (Photo: T.B. Jensen 2010).

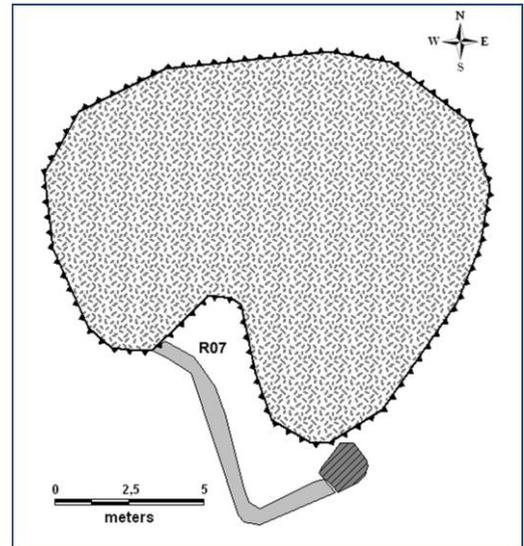


Fig.21 Ruin 07 survey map.

Ruin 07 (fig.16, 20-21): Description after Berglund 1980: “A small animal enclosure built against a cliff formation. The stacked stones are completely hidden under dense willow shrubs. The cliff formation is characteristic by supporting a lintel so that a framed opening appears. The enclosure measures c.7x3m and is orientated NNW/SSE”. The walls are c.50cm wide and rise up to 50cm above ground level.

Notes on Landscape – Sarfarmiut

Setting up a base camp on the SW side of the inlet (fig.15), we noticed that the narrow strait just south of the inlet is a very popular fishing spot for locals, who, on sailing to and fro, often stop there for a few minutes of fishing (note that the name of site, Sarfarmiut is Inuit for “the settlement by the narrow strait”). Also fishing there ourselves, we found that 10-15 minutes is all you need to catch half a dozen arctic cods. Thus, the location of E118 might be, at least partially, focused on the exploitation of marine resources.

Next to E 118 we located a collapsed cairn, apparently of considerable age. The location could associate the cairn with either the Norse structures and the later Inuit, but as the cairn is far more visually active when observed from E 118, PBH interpret it as being Norse.

GUIDE	Coordinates	Type	Notes
85	60°38'50.63"N 45°47'21.08"V	Cairn, collapsed	Visual connection to E 118 and overseeing the strait next to the site.

Field notes 09.07.2010

On the morning of July 9th, foggy as commonly in the coastal area, we sailed for E182. Having spent about an hour searching for ruins on the southern side of the bay, PBH and TBJ sailed out to do reconnaissance further out the Kangerluarsorujuk, while CKM did resurvey and excavations at E182.

Notes on Landscape – Kiinatuluisuak

Sitting as a cork in the junction between the Kangerluarsorujuk fjord and the strait north of Kangeq, the island of Qimatulivissuaq (modern spelling) (N 60° 38'56.21" / W 45° 46'37.17" V, area approx. 61 ha) demands attention from anyone travelling this way.



Fig.22 Qimatulivissuaq and the surrounding fjordscape, including Kangeq. The sea marker cairns marked on the map are still extant. Map by C. Moltke, summer of 1894.

The steep sides and high ridges a very visually characteristic, and the presence of at least two modern sea marker cairns from the 19th century underlines the islands importance for navigation.

The horseshoe-shaped island has rocky beaches, with a few good landing places; particularly a small bay on the northern side, and a shallow rocky beach on the south side, which has been more to the liking of the Inuit means of

transportation up till recently. The central part consists of the ridge, rising up to app. 80m a.s.l. The vegetation is similar to the coastal zone around the fjord, and is dominated by low crawling shrubberies of betula and salix, grasses and mosses in the rocky parts. There is very limited freshwater supply, and when we visited the island in July, the only small pond had dried out.

The island contains a number of cultural remains, including Inuit house remains, stone rings for drying nets, a small presumably Norse pen (see field notes 16.07.2010) and a number of cairns from a long period of time. On the south coast are the remains of three large Thule summer houses (fig.24), next to the small pen (GUIDE 86). The northern tip of the island was only inspected visually from afar.

GUIDE	Coordinates	Type
87	60°39'0.41"N 45°46'4.32"V	Cairn, conical
88	60°39'0.98"N 45°46'11.69"V	Cairn, simple
89	60°39'1.54"N 45°46'23.84"V	Cairn, beehive
90	60°39'1.96"N 45°46'10.75"V	Cairn, beehive



Fig. 23 GUIDE 87 and TBJ. This cairns has well located lichens up to 6 cm, suggesting a date pre 1400 A.D (Photo: P.B. Heide 2010).



A local Greenlander later informed us that the bay with the summer houses and the pen is called Qimutuluissuaq, which roughly translates into 'the large place where to meet in the autumn'. This place was used by modern Inuit to gather and redistribute resources, which underlines the islands central location with regards to the movement patterns in this part of the fjord system.

Fig. 24 The Thule summer houses on the eastern side of the island Qimatulivissuaq. The small bay in the centre of the picture offers good landing for boats and kayaks. GUIDE 86, is on the low shelf to the right of the houses (Photo: P.B. Heide 2010).

E182 – Kangerluarsorujuk

60V2-0IV-582

GPS: N60°45'53,23" / W045°34'35,91"



Fig.25 160% view, looking SW, of the bay with E182. The majority of the ruins are located on the north (right) side of the bay, just right of the modern sheep farm. As seen in the picture, the Kangerluarsorujuk is open right out to the arctic North Atlantic (Photo: C.K. Madsen 2010).

Site history: E182 was surveyed by Berglund 1980 and, subsequently, by Møller&Madsen in 2006. It was determined to return to this site, because its ruin nr. 07 is being eroded by the ocean (fig.29-30) and thus provided an opportunity for retrieving datable material from an established, archaeological context. The surveys and excavations were conducted during 09.07-10.07.2010.

Site Description: E182 is found at the bottom of the c.30 km long, narrow fjord of Kangerluarsorujuk, at the head of a valley running NE, sloping gently from the beach up towards the mountains. The Norse ruins, as well as the modern sheep farm and its fields, are all found on the lowest, flattest part of the valley near the relatively shallow beach that provide easy landing. On the south side of the fjord, the mountain sides are fairly flat and fertile, and here has been established a number of new grass fields, while coastline of the north side is steeper and stonier, and cut by a modern gravel road leading to the sheep farm at E331 (which has removed ruins 10-11 and, probably, 06). The soils of the valley terrain are generally very thin and gravelly/stony, the major part of the whole valley system being littered with boulders and stones.



Fig.26 GoogleEarth© satellite imagery of the inner part of the Kangerluarsorujuk Fjord with the location of the Norse ruins of E182.

In the 2006 survey, some ruins were wrongly numbered and one ruin not located. In 2010 it was attempted to clarify this error, so that the ruins of the 1980 and 2006 survey correspond accordingly:

1980	2006
03	03-04
04	05
06	Removed?

While spending an hour trying to locate ruin 04 of the 1980 survey, a new, likely Norse ruin was found. Incidentally, this ruin has almost the exact same dimensions as described for ruin 04 of the 1980 survey, but, however, differs very much in appearance and somewhat in location. This R12 is most probably a new ruin, rather than the ruin 04 of the 1980 survey, unless the latter has collapsed much during the 30 years between the two surveys:

R12 (fig.27-28): Presumed, Norse ruin, rectangular of shape (c.7,7x3,5m), erected in mostly rounded stones with walls c.60cm thick and now completely collapsed. Especially the outline of the western gable and northern long wall are fairly distinct, whereas the southern long wall seems to have collapsed down the slope. Two rooms are glimpsed; one larger in the western end and one smaller in the eastern. Judging from the amount of collapse stone, this structure must have been erected primarily in turf. The ruin is vegetated by grass and low willow shrubs and rises only about 10-30cm above the terrain.

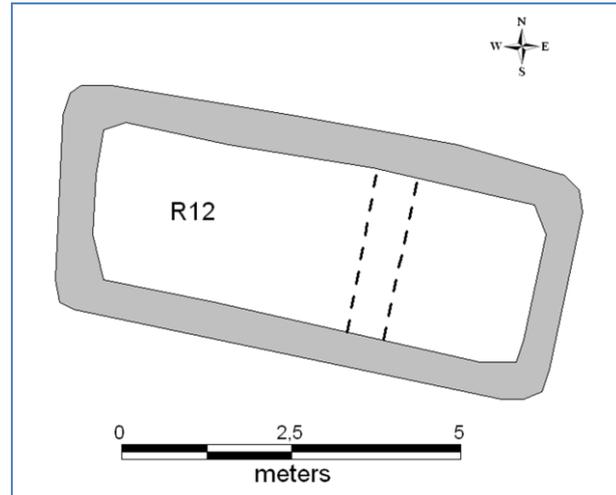


Fig.27 Survey plan of the new ruin 12



Fig.28 Ruin 12 seen towards the SW (Photo: C.K. Madsen 2010).

Excavations: As mentioned above, ruin 07 (fig.29-30), probably a staple complex of some sort, was selected for excavation; this ruin is found on a small, flat foreland elevated about 3-4m a.s.l. It is a turf/stone build ruin, rather indistinct and collapsed, measures c.18x9m and is orientated NNW/SSE. Several rooms and wall lines are discernable. In the north end of the ruin a platform of flat stones (probably reused Norse building stones) has been constructed in recent time, maybe a drying platform. With a c.15-20m wide, stony beach in front during low tide, but no beach at all during high tide, the fjord is constantly gnawing at this small plateau with ruin 07 and marked erosion had visibly occurred since the visit to the site in 2006. This erosion is exacerbated by the fact that the ruin group, as mentioned, lies directly exposed to the wind and ocean and, possibly, decreasing amounts of summer drift ice to work as wave barrier. On and just in front of the eroding side of the slope and ruin is a large quantity of fallen building stones, suggesting both that quite a bit of structure have already eroded and that stones formed a major part of the structure. On the slope one also finds pieces of charcoal and burned bone.



Fig.29 The eroding west side of ruin 07 after clean up. Many of the stones below the erosion front are collapse stone from the building (Photo: C.K. Madsen 2010).

After resurveying the structure, cleaning up the eroded sections was the first task (fig.29), which was done with a trowel. From this section possible rooms and in situ stretches walls were visible, as well as an area with collapse and sheet midden south of the structure (fig.30). Based on the evidence of this profile and the structural details visible on the surface, two sections, designated P I and P II, were then excavated during the 09.-10. July. These were then photographed, drawn, described, and sampled. The weather was clear and sunny on both days of excavation, which seriously complicated the excavation; as mentioned, the Kangerluarsorujuk Fjord opens right up to the outer coast (fig.25) and narrows from here towards its bottom, which means that the fjord wind on clear, sunny days is being funneled and picking up speed towards E182. Apart from this making E182 a very windy location, it also resulted in the complete drying out of the soils in the section, rendering interpretations of the layers extremely difficult and, probably, to simplified.

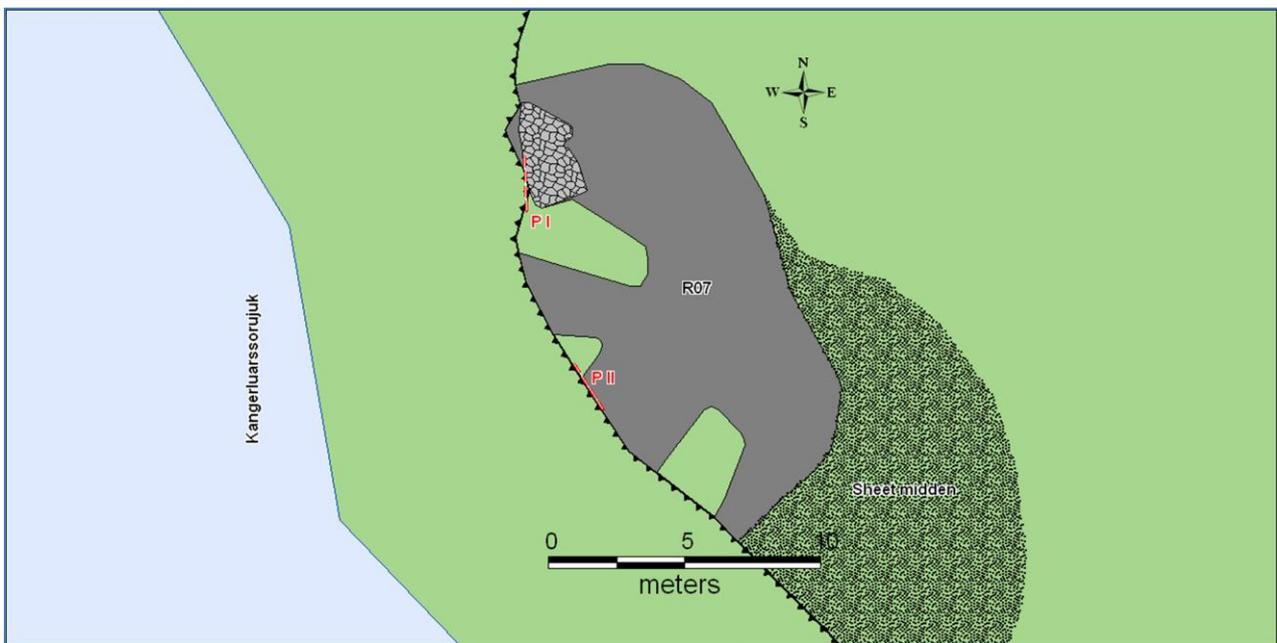
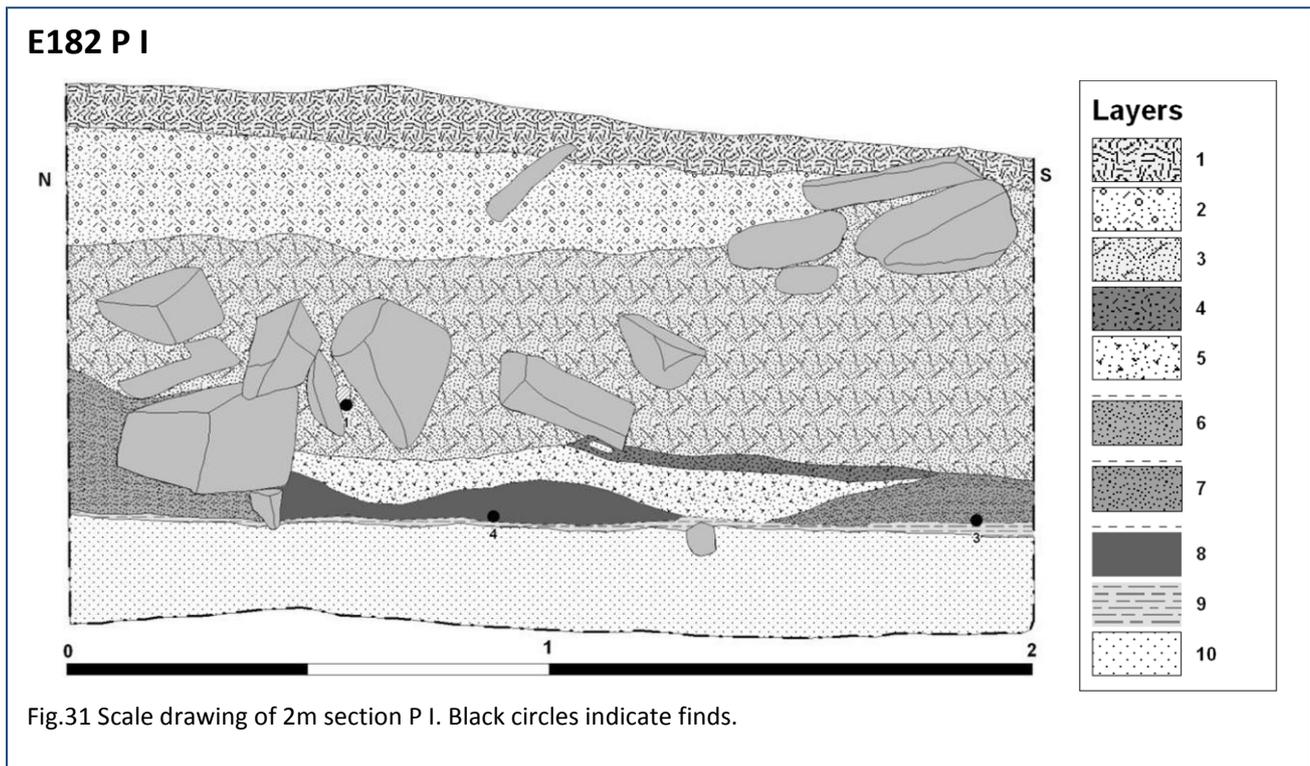


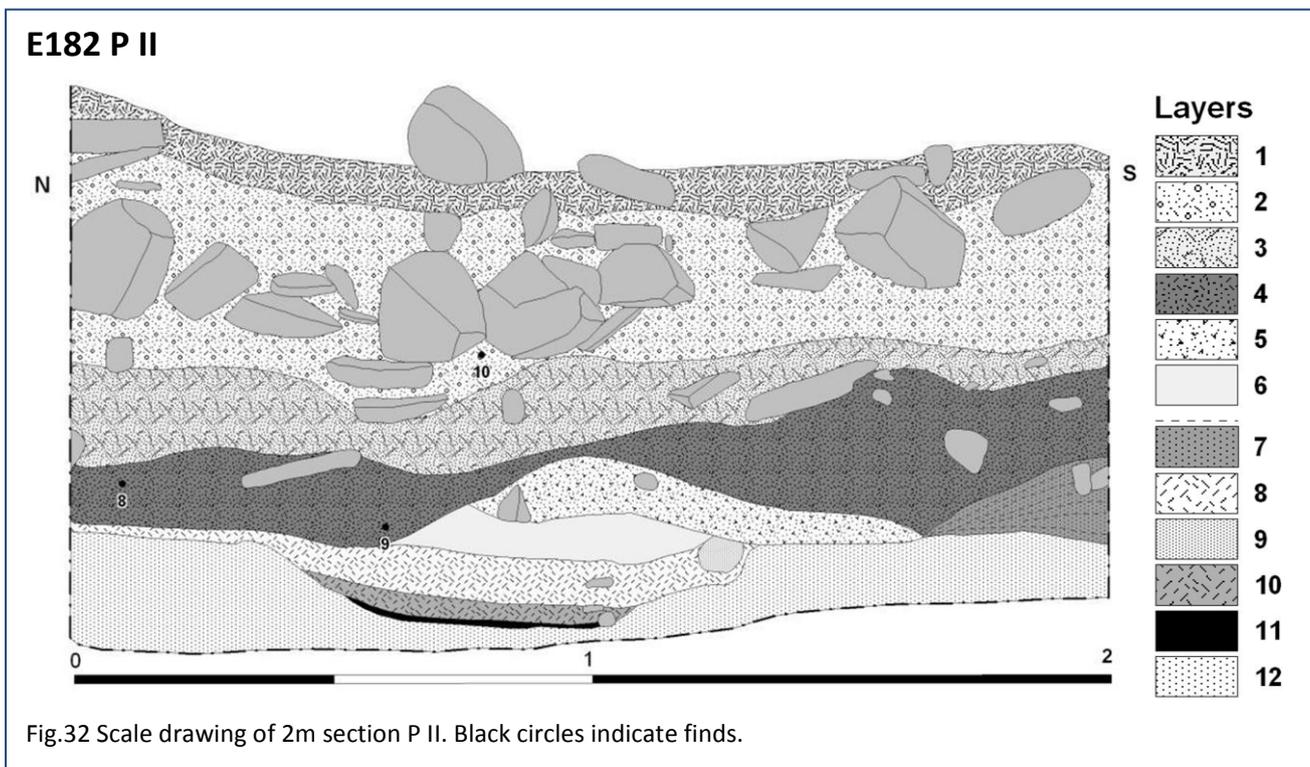
Fig. 30 The new survey plan of ruin 07. The black “barbed line” demarcates the erosion front and black area south of the ruin is sheet midden seen in the section.

E182 P I (Section 1): The 2m P I section was located by a probable room in the NW side of ruin 07 (fig.30). The section was cut back c.20-30cm. From the plan of the section (fig.31) it is evident that the lower large stone and adjoining turf layers (6) in the north end of the section is in situ wall, while layer 7 appears more like a turf slide, although probable in situ turf wall was seen just south of this layer. Thus the section would seem to cut the corner of a room, which fits well with the survey plan (fig.30). Layer 8 is a possible floor layer mixed with collapse material, which was sample at the transition to layer 9. However, sampling this it was found to be very thin and containing only little cultural material, for which reason it was decided to excavate a new section. Only few finds were made during the excavation (see appendix I).



Layer	Description	Interpretation
1	Growth layer with roots	-
2	Light grey brown silt with spots of red and yellow with many roots and specks of charcoal.	Collapse material
3	Red brown silt and fine grained sand with spots of turf, many larger stones, and specks of charcoal (layer 3 probably consists of several layers, but these could not be distinguished because of the soil drying out).	Collapse material (wall?)
4	Yellowish grey fine grained sand with inclusions of turf and specks of charcoal	Collapse material
5	Brownish grey silt with inclusions of sand, lenses of yellowish and reddish brown, and specks of charcoal (only pebbles were seen in layer 5).	Collapse material (roof?)
6	(Left side of plan) series of 0,4-1cm thick turf layers varying in color from white to dark grey brown and red brown and with very few inclusions. The layers run approx. horizontally.	In situ turf/stone wall
7	(Right side of plan) series of 0,3-0,6cm thick turf layers varying in color from light grey to dark grey black and with very few inclusions. The layers run approx. horizontally.	Wall- collapse
8	Brownish grey silt and fine grained sand with reddish spots and a few specks/pieces of charcoal.	Supposed floor layer mixed with collaps
9	Dark red brown turf layer with a few inclusions of specks of charcoal.	The original and disturbed growth surface on with the structure was build, which is trampled inside the supposed room.
10	Yellow stony sand and gravel	Subsoil

E182 P II (Section 2): In order to disturb the ruin as little as possible, P II was not cut back, but instead only cleaned, for which reason the section was not entirely straight and the view of the layers slightly warped. Although appearing so from the observations of the structure on the surface, P II did not cut a corner of a room, but rather seem to lie directly in the middle of one, as evident from the floor layers (8-11) and the preserved turf wall/wall slide (7) just north and south of the trench. The seemed to be quite a few more layers, but these could not be securely distinguished because of the drying out of the soils.



Layer	Description	Interpretation
1	Growth layer with roots	-
2	Grey brown turf and silt with many specks of charcoal and a few pieces of burnt bone.	Collapse material (wall?)
3	Grey brown silt with yellow spots of yellow turf with many pieces of charcoal and a few pieces of burnt bone.	Collapse material (wall?)
4	Heterogeneous yellowish brown to grey black loose silt and finely grained sand with many specks of charcoal and burnt bone, as well as a few unburned. Almost complete absence of larger stones.	Collapse material (roof?), in the lower part mixed with floor layers?
5	Same description as layer 4, but more yellow.	Collapse material (roof?), in the lower part mixed with floor layers?
6	Heterogeneous red brown to grey black loose silt and finely grained sand with many specks of charcoal and burnt bone, as well as a few unburned. Almost complete absence of larger stones.	Collapse material (roof?), in the lower part mixed with floor layers?
7	Series of light grey to grey black turf layers, lowest deposited directly on is the original growth surface.	Wall/wall collapse
8	Dark brownish grey sandy silt with many specks of charcoal and burned and unburned bone.	Floor layer (?)
9	Greenish, coarse silt.	Lens
10	Yellow, clayish silt with many specks of charcoal, probably several layers.	Floor layer (-s)
11	Grey black charcoal layer mixed with gravelly silt and quite a few pieces of burned bone.	Floor layer
12	Yellow stony sand and gravel	Subsoil

Finds & Samples (appendix I): Only finds which could be securely attributed to a layer were collected and, as is evident, only few were collected. The preservation of the unburned bone was very poor and the burned bones consisted, expectedly, only of tiny fragments. The finds are listed in the finds register. Soil samples were taken only from layers of identified stratigraphic context, i.e. floor layers, and were brought home in double bagged plastic zipp bags.

Visiting the farmer on the first day at the site, we were told that they had collected a number of soap stone artifacts from the beach below the erosion front. Kindly, they permitted us to photograph these, of which fig.33-36 display the more interesting pieces (soap stone fragment in fig.35 was found to have a runic mark):



Fig.33 Grooved soapstone; net sinker?.



Fig.34 Bottom of soap stone vessel/lamp.



Fig.35 Drilled soapstone fragment with runic marks.



Fig.36 Bottom of soap stone vessel.

Field notes 10.07.2010

Having decided to excavate a new section at E182, CKM was dropped off at the site to do this work (see above). PBH's survival suit having split in the crotch the day before and all mending attempts having failed, he and TBJ sailed to E172 to pick up a new suit and picked CKM up again in the late afternoon, luckily, on a day with very fair weather.

Notes on Landscape – Kangerluarsorujuk

In relation to the excavation at E 182, a visual-phenomenological recording was done at E 331. The terrain between E 182 and E 331, as well as around the latter has undergone considerable transformation due to modern road building, and not much surface appears to be original.



Fig. 37 Poul doing a visual map and landscape room recording at E 331. Note the extensive roadwork in the middle ground. The survey setup can be seen on the ground (Photo: T.B. Jensen 2010).

Field notes 11.07.2010

In the morning we all sailed back to E182 in search of the project credit card, which had been lost the previous day. We spent about an hour looking at both E182 and E331, though having no luck. We then sailed for Eqalugarsuit, E329, where CKM spent the rest of the day excavating a section in the Norse dwelling here (see below), while PBH and TBJ went surveying. On this, again, very sunny and warm day, we had been invited by two locals, Arne and Vivian, to sup and watch the World Cup Final between Spain and Holland. After a wonderful evening, ending with Spains 1-0 victory, we returned to the base camp at Sarfarmiut at around 20.15.

GPS: N 60°37'29,8056" / W 045°54'32,6664"

Site history: The ruin group was first found and described by O. Bak in 1968 and 1971, and then resurveyed in 2009 by the authors and K. Smiarowski (see Madsen 2009;85pp.). During this survey, it was noticed that erosion was occurring in two spots of the presumed dwelling (ruin 01), these sections showing specks of charcoal and a few pieces of burned bone, for which reason PBH, TBJ and CKM returned on the 11.07.2010 to excavate a section (for a description of the site see Madsen 2009).



Fig.38 Panoramic view of E329 and Eqalurgarsuit on Kangeq island. The modern settlement is seen to the right (by the splendid and protected natural harbor), while the Norse site is to the left of the stream next to the soccer field (grey patch) (Photo:P.B. Heide 2010).

Excavation: The procedure of excavation at E329 was the basically the same as described for E182 (see above), except that the erosion at the former site consists of sheep trampling on both the east and west side of the dwelling, probably from the sheep taking shelter behind the dwelling during rough weather from changing sides. The erosion now seems fairly stable. After a quick cleaning of the both eroded sections, the eastern erosion front was chosen, because it seemed closer to the actual building and less probable to yield only collapse material. This section was then cut back 20-30cm with a spade and cleaned with trowel (fig.39-40). Seeing yet another day of bright, sunny weather, the section would dry out very fast, making it hard to see and interpret the layers, for which reason the section scale drawing is most likely very oversimplified. Finally, the excavated section was backfilled and covered with turf.



Fig.39 The excavated section E329 P I seen from the E (Photo:C.K. Madsen 2010).

E329 P I

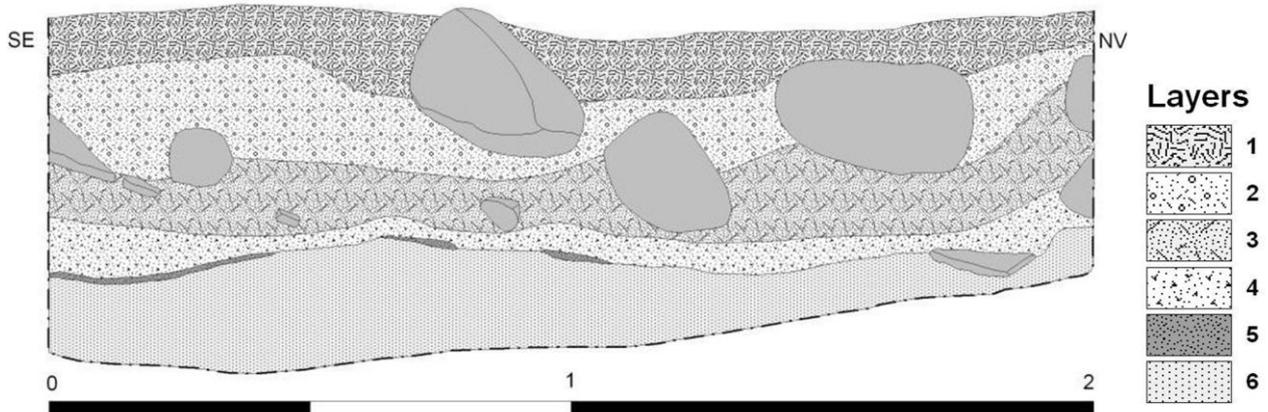


Fig.40 Scale drawing of 2m section E329 P I.

Layer	Description	Interpretation
1	Growth layer with roots	-
2	Homogenous grayish brown silt (decomposed turf) with a few specks of charcoal.	Collapse material
3	Heterogeneous grayish brown to brownish yellow silt and fine grained sand with some specks of charcoal.	Collapse material
4	Heterogeneous brownish grey silt with light grey and yellow turf lenses, many specks of charcoal and some burned/unburned bone.	Sheet midden?/Collapse?
5	Dark grayish brown stripe of compact gravel and silt.	Original vegetation surface w. podzol?
6	Yellow sand/gravel with a few stones	Subsoil

From observations made during excavation and visible in the E329 P I section, it quite quickly became obvious that the shallow section did, in fact, not lie inside the structure, but only revealed collapse material, in the bottom mixing with possible sheet midden (layer 4). Underneath were traces of the remains of a natural vegetation surface, layer 5, containing almost no cultural material. The lack of a natural growth horizon indicates some kind of initial leveling of the gravel surface, which is also indicated by a small, steep rise in the level of the cultural layers in the right side of the section just after a small, deliberately placed, small stone slap. Under the cultural layers was some evidence of frost action, not drawn on the plan, but clearly visible in the photo of the section (fig.39).

Finds & Samples (appendix II): Only finds which could be securely attributed to a layer were collected and thus only few were collected. The preservation of the bone was very poor and consisted only of tiny fragments. The finds are listed in the finds register. Soil samples were taken only from layers of identified stratigraphic context and were brought home in double bagged plastic zipp bags. Samples from layer 4 were taken from its lower parts at the transition to layer 5-6 and should date to a period of prior to abandonment of the site and the collapse of the structure.

Notes on Landscape – E329 and hinterland

In relation to the small site of E 329 that we surveyed in 2009, two potentially interesting areas were surveyed: the larger valley in which the site lies, and the highland east of the site.

The valley was surveyed systematically up to a height of app. 100m. We concentrated the survey on the small lake in the bottom of the valley (fig.41), and a flat area with much cultural activity next to this. There were however no traces of Norse activities to be found, and chances are, that the lush valley might simply have been used for pasture directly connected to the farm. The shrubberies might still hide a small pen or two, but such structures could also have been taken down during the last century of settlement. On the way back to the site we discovered one collapsed cairn (GUIDE 91, fig.42)



Fig. 41 The small pond, secluded in the bottom of the valley behind E 329 and modern day Eqalugarssuit. The modern settlement can be seen by the coast of the fjord (Photo: P.B. Heide 2010).



Fig. 42 GUIDE 91. A collapsed cairn in the valley behind E 329 (Photo: P.B. Heide 2010).

After a disappointing morning we headed back to E 329 for lunch and then went off to the highland. The access way goes through a narrow ravine, rising steeply from the Norse site. Greenlanders told us how this route is still used, even by the older people, to go and bath in the sun warmed lakes in the highland. On the ridge rising from the fjord, a number of cairns have been built through time. Two cairns on the ridge were particularly interesting, as they have clearly been rebuilt after a long period of time (GUIDE 92 and 93). There is no little telling how old these older parts are, but judging from the wear of the surrounding rocks, these bottom courses has been there for significantly longer than the top ones, i.e. longer than the recent settlement which is just over 100 years old. On the way down we examined a few more of the cairns visible from the site, but these appears to be much younger.

GUIDE	Coordinates	Type	Notes
91	60°37'37.69"N 45°55'5.82"V	Cairn, collapsed	Visual connection to E 329
92	60°37'29.11"N 45°53'51.06"V	Cairn, partly rebuilt	Visual command of fjord
93	60°37'27.44"N 45°53'34.02"V	Cairn, partly rebuilt	Visual command of fjord



Fig. 43 It is sometimes necessary with a moment to regroup the thoughts. Poul surveying above E 329 (Photo: TBJ 2010).

Field notes 12.07.2010

Around 8.30 we left the camp at Sarfarmiut (E118) and sailed for Egoalugarsuit to buy gas and restock. After a quick rendezvous with our host family from the previous evening, we sailed west on along the south coast of Kangeq and having rounded the island, back east through the narrow strait Ikerasaarsuk along the north coast of Kangeq, all the way spotting for likely locations for Norse sites. Around 11.30 we landed at the small bay by E188. After lunch we reconnoitered the coast just east of the site, finding nothing. PBH and TBJ continued through a valley cutting across the island of Akia, while CKM went back to start surveying the site (see below).

Around 16.30 PBH and TBJ returned to the camp, where after they sailed out to survey some of the small islets just south of E188, again finding nothing. They did a bit of fishing on the way back, but when returning to camp found our equipment almost flooded because of the extreme spring tide! Luckily, the box with electronic equipment had been placed higher up and was undamaged, while the other equipment could easily be dried because of the still very fair weather. After dinner, CKM surveyed the last of the ruins.

GPS: N 60°41'6.07" / W 45°58'15.63"

Site history: E188 was briefly visited in 2009 by PBH and CKM (Madsen 2009;63), at which time it was noted that someone had trenched the dwelling at the site. Having thoroughly checked the archives at the Danish National Museum, no record of this ruin group could be found (although GFA might hold a record of earlier archaeological investigations at the site). The 2010 survey team returned on the 12.07.2010 to survey the site and excavate a trench in the dwelling during 3 days of work (the circus valley was intensively surveyed, but no more ruins could be found).



Fig.44 Survey plan of the 10 ruins at E188 on GoogleEarth© satellite imagery.

Site description: The ruin group is found by a small sheltered and shallow cove on the eastern side of the island of Akia and is divided in two clusters of ruins; one cluster (R01-05, 10) lies very close to the small cove, which provides excellent and sheltered landing (fig.45), and the well-preserved (fig.48) R05 is visible upon approaching the site from the fjord. The terrain sloping down to the cove is fairly green with patches of lush grass and flowers, but is otherwise mostly dominated by low heather vegetation. A single stream runs from the northwest, where a lowering in the terrain funnels one into a perfect, southern faced circus valley circled by steep slopes on all sides but the western; central in this valley is a shallow lake and between this and the fallen boulders at the foot of the steep slopes, is a belt of reasonably lush vegetation, changing from grassy meadow closest to the water to birch and willow shrub towards the higher ground. The circus valley is perfectly sheltered from the cold and misty coastal winds and on warm, sunny days, temperatures in the valley will soar. At the northwestern end of the lake, just above the wet meadow, is the second cluster of ruins (R06-09), 4 outhouses lying in close proximity.



Fig.45 Panoramic view of the environs around E188. Ruins 1-5, 10 are located by the small bay to the right, on the left the circus-valley with ruins 6-9 (Photo: B.P. Heide 2010).

Ruin 01 (fig.46): Completely collapsed ruin, undoubtedly dwelling, appearing as a uneven elevation in the terrain with many protruding stones and a few possible rooms (not surveyed). The ruin is oblong and c.20x12m. In the E side of the ruin a trench, 5x4,5m has been excavated (a. fig.46) and just east of the structure is the stone heap (c. fig.46) left from this excavation. Judging from the vegetation and lichens on the stones in the heap, the trench is not recent, but neither very old. The ruin is overgrown with grass, upon the visit dried out and dead. Around the ruin and especially S down slope towards the cove is lush vegetation dominated by buttercup (midden).

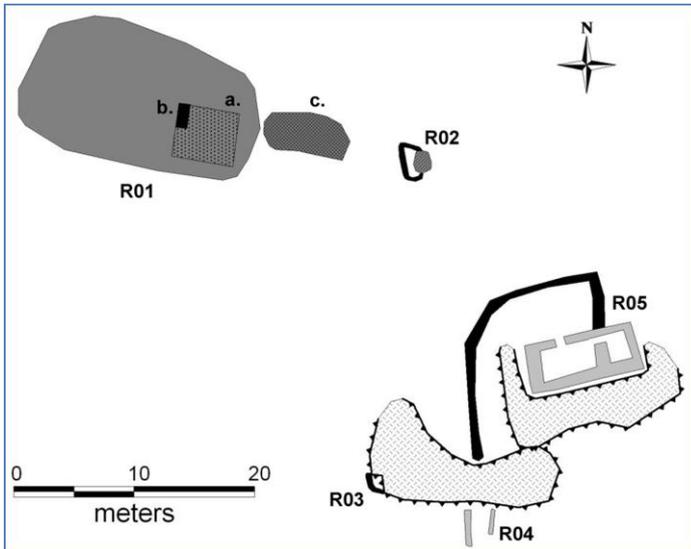


Fig.46 Survey plan of ruin 01-05 at E188.

preserved in up to 2 courses (ca.40cm) and are c.20cm wide. The ruin is vegetated by grass and buttercup.

Ruin 04 (fig.46): Very indistinct ruin consisting of two stretches of parallel turf wall, c.40cm wide and 30cm high, running towards the same steep cliff as ruin 03. The ruins measures c.3x2,5m and especially the western wall is very clear, while the northern gable/end seems slightly dug into the slope. No southern gable/wall is visible and based on the proximity to the shore, this might have been a small boat house with an opening towards the fjord? Otherwise, it is some kind of outhouse. The ruin is overgrown with grass and buttercup.

Ruin 02 (fig.46): Small ruin, approx. 3,2x1m, built up against a naturally deposited boulder. The walls are built in stone (foundation for turf wall), preserved in 2-3 courses, c.30cm wide and rising c.30cm above the surface. If this is not a structure built during the excavation (a fireplace?), it is most likely a small enclosure for penning lambs/kids (i.e. a lambakró). Vegetated by grass and buttercup.

Ruin 03 (fig.46-47): Small ruin, c.1,6x1,4m, build against a steep cliff, thus forming a small enclosure, probably for penning lambs/kids (i.e. a lambakró). The somewhat collapsed stone walls (foundation for turf wall) are



Fig.47 Ruin 3 seen from the S (Photo: C.K. Madsen 2010).



Fig.48 Ruin 5 seen from the W. Note the marked slope of the adjoining enclosure (Photo: C.K. Madsen 2010).

Ruin 05 (fig.46, 48): Very well-preserved building consisting of two parts; a W-E oriented rectangular dry-stone masonry building, c.9,5x4m, built on top of a low cliff knoll. The well-built box walls are ca.60-80cm wide and preserved in up to 7 courses (c.1m). Especially the eastern gable is well-preserved while the western is more collapsed, probably owing to considerable amounts of turf being part of the construction in this end. This building is divided into two, a small compartment in the E and a larger, with entrance to the north, in the W. The ruin is most

likely a stable and barn. Running from the north wall of this building, directly in line with the separating wall inside the structure, is a well-preserved stone and stone/turf build wall preserved in up to 4 courses (c.80cm) and c.70cm wide. This wall runs W around the knoll with the building, thus forming a rather large enclosure with direct entrance to the stable. The enclosure wall is most distinct in the NE and seems less substantial in the SW. This wall must have had additional courses of turf, as most stones are still in place. Based on the construction of the enclosure, it seems possible that it is a later addition.

Ruin 06 (fig.49, 50): Very well-preserved and distinct ruin with several visible rooms. It is roughly rectangular, NE-SW oriented, c.23,9x10,5 and evidently built with turf walls with a stone core, c.80-120cm wide at the base and in some places preserved in up to 4 courses (ca.110cm). All the rooms and corridors open towards the grassy meadow and lake in the SE. In the SW is a wide opening to a room with two small, stone built compartments. Centrally in the ruin an opening to three compartments, one of which seems to lack an entrance, although otherwise clearly discernable. In the NE is an opening to a single large compartment. The ruin seems a likely stable/byre complex, but as noted by P.B. Heide, the structure bares a marked resemblance to the Støng longhouse and could thus be an early dwelling. However, the structure seems too well-preserved and substantial to be an early longhouse and there is no trace of midden, for which reason it must at least have been reused as/modified into a stable. The ruin is vegetated by grass, willow and crowberry.

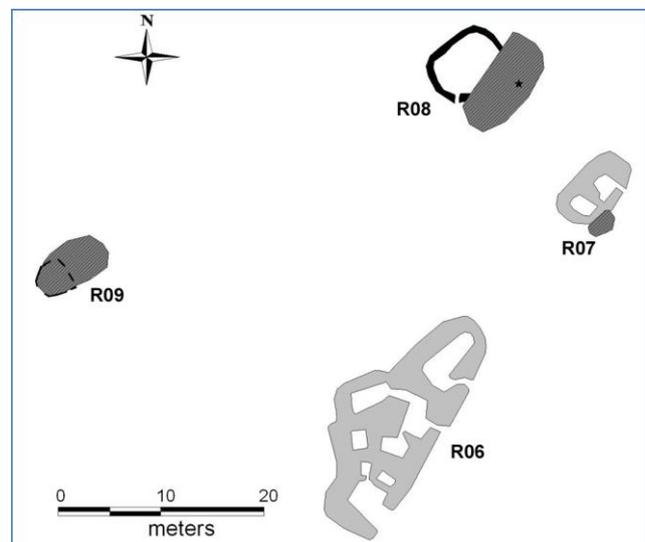


Fig.49 Survey plan of ruin 06-09.



Fig.50 Ruin 06 seen from the NNW (Photo. C.K.Madsen 2010).



Fig.51 Ruin 07 seen from the NW (Photo. C.K.Madsen 2010).

Ruin 07 (fig.49, 51): Well-preserved rectangular, c.7,9x4,8m, NE-SW oriented turf/stone built house. The walls are 100-120cm wide at the base and preserved in up to 5 courses (c.110cm). Two distinct rooms are visible; a larger eastern with entrance to the S and a smaller western with no apparent entrance, but clearly with more stones in the wall (a natural deposited boulder forms part of the wall). Likely a sheeps/goats house with barn. The ruin is vegetated by willow, birch and crowberry.



Fig.52 Ruin 08 seen from the NNW (Photo. C.K.Madsen 2010).

Ruin 08 (fig.49, 52): Well-preserved enclosure, c.7,8x5,4m, built up against a massive boulder. The remains of heavily built stone/turf walls, c.60-80cm wide, are preserved in up to 8 courses, c.150cm, though only in the southern corner near a c.40cm wide entrance to the enclosure and otherwise only standing 60-80cm. This wall must, based on the amounts of collapse stone, have had additional courses of turf. Inside the ruin grows crowberry, willow, buttercup and Roseroot. Additionally, a single light stone has been placed on top of the large boulder, possibly for visual effect (i.e. the enclosure can be seen from the opening of the valley).

Ruin 09 (fig.49, 53): Shelter built under massive boulder. By erecting stone wall along the SW and NW openings under a large boulder, a completely sealed cave has been created under a boulder, measuring c.3x3m and c.80cm from floor to ceiling (at most). The entrance to the S is very narrow, only c.30-40cm wide. This is probably an animal shelter for goats/sheep.



Fig.53 Ruin 09 seen from the NNW (Photo. C.K.Madsen 2010).

Ruin 10 (fig.46, 54): Somewhat uncertain ruin on the S side of the stream running to the cove. It appears as a roughly rectangular area, c.3,6x3,2m, with many stones rising c.30-40 above the surrounding terrain and, especially in the SW end traces of what could be walls foundations. It could be a natural formation, otherwise an outhouse of some sort. Between the stones grows crowberry.



Fig.54 Ruin 10 seen from the NNW (Photo. C.K.Madsen 2010).

Excavation: A trench of 2x1m (fig.55, b. fig.46) was deturfed in the NW corner of the old 5x4,5m trench, hoping to reveal by single context excavation a section wherefrom datable material could be retrieved without disturbing the ruin too much. Therefore, it was decided to leave as many stones as possible in place, but the



Fig. 55 The section in ruin 01 after excavation seen from the ESE (Photo. C.K.Madsen 2010).

deturfing alone revealed large amounts of collapse stone, some disturbed by the old excavation, some impossible to interpret. However, judging from a few stray finds from this context (layer 2), it was possibly not disturbed and the sides of the old trench sloping markedly inwards. The trench E188 PI (fig.55-56) was then excavated over two days by single context, accordingly with the additional documentation of these (not shown here). Finally the section was photographed and drawn.

The excavation revealed a series of undisturbed layers under a stone collapse layer with uniform filling (layer 2 fig.56), probably collapse material sliding into the abandoned trench. Hence, the earlier trench excavation had not been followed through and the small dimensions of the new trench did not allow for any precise structural interpretation of the revealed layers. However, the charcoal rich layers 8 and 16 rested directly upon subsoil (layer 20) and must according represent either a phase of clearing or, possibly, the earliest floor layers. The stone resting on layer 8 and 16 seemed to be in situ, for which reason layers 6, but especially 13 and 15 might be later floor layers?

E188 P I

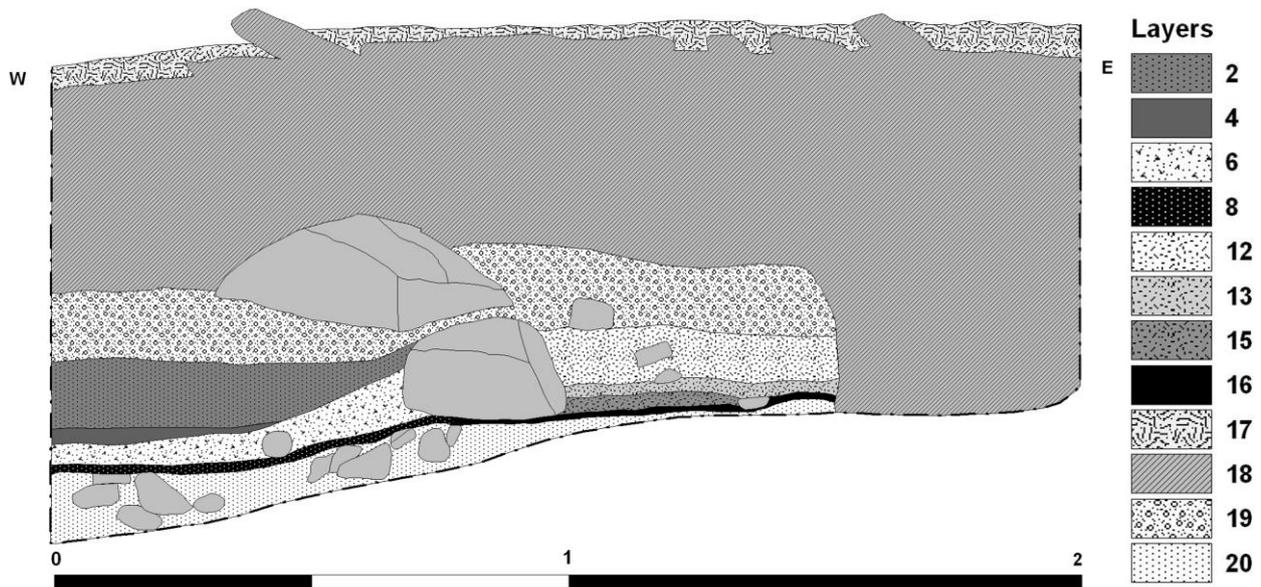


Fig.56 Scale drawing of 2m section P I.

Layer	Description	Interpretation
2	Layers of reddish brown to grey brown, roughly horizontal turf layers w. many collapse stones and specks of charcoal.	Wall/wall collapse?
4	Grey black silt (decomposed turf) with much charcoal and some burned/unburned bone.	Wall/wall collapse?
6	Heterogeneous brownish grey to reddish brown gravelly silt with specks of charcoal and a few burned bones.	Collapse/floor layer?
8	Brownish grey silt and fine grained sand with specks of charcoal and spots of red silt.	Original vegetation surface with clearing?
12	Heterogeneous dark brownish grey to red brown lightly sanded silt (decomposed turf) with specks of charcoal and a few burned bones.	Collapse/floor layer?
13	Heterogeneous dark brownish grey to red brown silt and fine grained sand with many specks of charcoal and burned bones (resembles 4&&).	Floor layer?
15	Heterogeneous grey brown to red brown silt with greyish turf spots, specks of charcoal, and burned bone.	Floor layer?
16	Blackish grey charcoal rich silt w. a few spots of reddish silt.	Original vegetation surface with clearing?
17	Growth layer with roots.	-
18	Stone collapse with fill of loose, homogenous silt with specks of charcoal and a few pieces of bone.	Collapse material (backfilling?)
19	Greyish to red brown silt with specks of charcoal, a few burned bones, and few collapse stones.	Collapse material
20	Naturally deposited, sterile layers deposited on top of gravel.	Subsoil

Finds & Samples (appendix III): Only finds which could be securely attributed to a layer were collected and thus only few were collected. The preservation of the bone was very poor and consisted only of tiny fragments. The finds are listed in the finds register. Soil samples were taken only from layers of identified stratigraphic context and were brought home in double bagged plastic zipp bags.

Notes on Landscape – Locating ruin 01 2010, Akia



Fig. 57 Trying to find a path... The land route between E 188 and the newly found 01 2010 is hard to negotiate, and requires considerable effort to make use of (Photo: T.B. Jensen 2010).

The site 01 2010 (see below) is connected by land to E 188 by a narrow passage along the south coast of Akia. The passage goes along and cross a fairly steep cliff, dropping directly into the sea, and even though passage is possible, the survey team concluded that travel in a small boat along the coast must have been preferred in almost any case. No cultural traces were discovered on these narrow shelves, apart from modern fences. Across Akia, connecting 01 2010 with the southern side of the isthmus, runs a somewhat narrow pass that rise to 110m a.s.l. By the bottom of the bay are the remains of a modern turf and wooden structure for drying nets, fish or storing boat equipment. On the top of the pass were located two cairns of uncertain origin, but with clear visual relation to the place where the ruined modern farmstead is located. The two cairns are believed to be related to this modern site, maybe to guide walkers through the pass.

We surveyed the plain where the modern farm is located thoroughly for traces of Norse buildings, but found none apart from the two ruins by the shore (01 2010). The terrain has been subjected to serious land improvement in connection to the modern farm.

Field notes 13.07.2010

Having registered and photographed the last ruins at E188, CKM began excavating a 2x1m trench (see below). Meanwhile, PBH and TBJ sailed for E273 (see below) to locate the Norse ruins here, which we had not found on a brief visit in 2009. After finding these, they continued on to survey some of the western end of Akia (see below). All this was accomplished on a summer day that was, yet again, extraordinarily beautiful, sunny and warm.

Notes on Landscape – The wider Akia

Akia, the large and oblong island across the fjord from Qaqortoq, is curiously devoid of Norse cultural traces. Only four sites are known to this day, including ruin 01 2010, and except for the latter, they are all located on the southern side of the island. As Akia would seem large enough to support more sites, we decided to test out more areas on the island: the southern coast (see below) and a part of the large, lake district on the western side of the island.



Fig.58 panoramic view of Akia's central part with low, rounded mountain ridges and hundreds of small lakes and streams. The entire district is surrounded by a mountain ridge, offering some protection from the oceanic weather. (Photo: B.P. Heide 2010).

1,4km² of the lake district (fig.58) closest to E 273 was surveyed and, due to the terrain, another large portion was visually inspected. The survey took a good three hours. Apart from the weathered remains of a chamber type fox trap, the terrain revealed no traces of human activity. In the distance to the North, on Akia's northern ridge, TBJ noticed a rather large cairn on a peak, but we were unable to get to it in the same day.

Field notes 14.07.2010

Around 08.00 we sailed east around Akia to survey the site PBH and TBJ had located on the 12.07.2010. Once there, 2 possible Norse ruins (see below) were surveyed and we continued across the fjord to Qaqortoq to buy gas. While going to the Seaman's Home for lunch, we were so lucky as to encounter Rie Oldenburg, director of the Museum of Narsaq and had a nice chat. It was agreed to try and bring her to a dinner at Igaliku later in July and, possibly also to the excavation at E64 in Aug. After the stop in Qaqortoq we sailed west around Akia, again searching for locations that could hide Norse ruins and landing at a few of them, but finding no Norse ruins.

We finally continued east around the south coast of Akia, landing on the way at E273 to survey the ruins PBH and TBJ had found on the 13.07.2010. (see below). We spent c.2 hours surveying the site and finding 2 new ruins, after which we returned to our base camp at E188. Most of the day the weather was fair and still, but in the afternoon a thick cloud cover began to drift in from the coast.

New ruin group 01 2010 - Akia

GPS: N 60°41'28.21" / W 45°57'8.66"

Site description: On the north coast of the eastern half of the island of Akia is a small bay, behind which is a gently sloping stretch of grassy land, which has been cultivated in recent years. Landing conditions are



Fig.59 Panoramic view of the plain with new ruin group 01 2010 on Akia. The possible Norse ruins are located close to the shore. A modern hay field is seen just left of the "barracks" and the islets south of E188 are just visible in the top left corner (Photo: P.B. Heide 2010).

reasonable and several traces of activity are visible; closest to the shore is the remains of an 18th century sod house and earlier, partly eroded Thule-culture structures. Two fishing sheds, one still in use, are also found here. On the edge of the grassy patch is a couple of barracks, which possibly have been used for grass harvesting or butchering? The two registered ruins are definitely not Thule-culture, as they have both been built against a cliff, but do not seem typically Norse either. The amount of preserved turf in ruin 01 hints at an interpretation of these as newer, possibly 18th century, structures, but one cannot exclude these as Norse either. The grassy patch of land does lend some credibility to the interpretation of this site as a possible hay-making shieling belonging to E188?



Fig.60 Ruin group 01 2010 (and E188) seen on GoogleEarth© satellite imagery. Note the field SW of the ruin group.10 seen from the NNW (Photo. C.K.Madsen 2010).

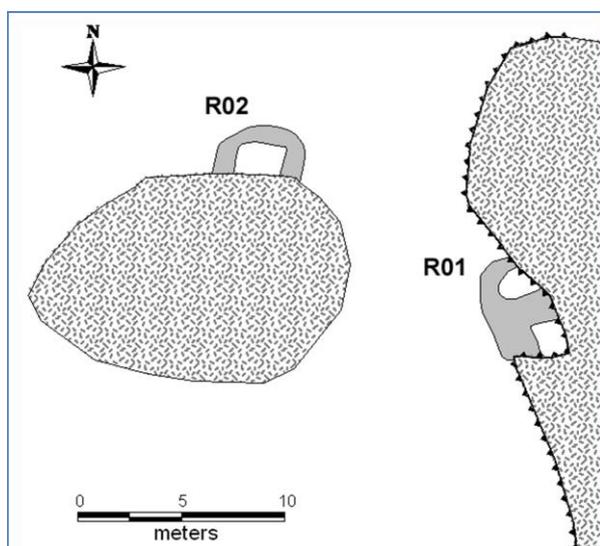


Fig.61 Survey plan of the ruins at 01.2010.

Ruin 01 (fig.61, 62): Small ruin built up against a low cliff ridge with steep sides, which form the E wall of the building. The walls are made of a collapsed stone/turf wall with a width of c.80cm at the base and preserved to a height of up to c.80cm. The structure is rectangular; c.4.,5x3m, oriented NNW-SSE and is located only 70-80m from the beach of the fjord. To small rooms are visible inside the ruin and in the SE corner, where the cliff forms a sharp angle, to stone slaps have been placed to form part of a roof. The ruin is vegetated by grass, willow, and crowberry.



Fig.62 Ruin 01 seen from the WSW (Photo. C.K.Madsen 2010).



Fig.63 Ruin 02 seen from the S Note the “modern” fishing shed and 18th century sod house remains in the background (Photo. C.K.Madsen 2010)..

Ruin 02 (fig.61, 63): Small stone/turf built ruin built up against a low, naked cliff. The structure measures c.4,2x2,5m and the walls, c.80cm wide, rise up to 50cm above the surrounding terrain. One distinct room is visible. The ruin is vegetated by crowberry.

Notes on Landscape – The skerries of Akia

On the trip west around Akia from Qaqortoq, we did a preliminary survey of the extensive archipelago that breaks the Atlantic temper before it reaches the Akia mainland. The islands are bare outcrops of bedrock with little vegetation. They drop steeply into narrow straits, and just in a few places is landing possible in tiny coves. Two members of the team conducted a survey of the island of Inartalik. The island is home to numerous Inuit remains, graves, houses and the remains of the last centuries’ whaling. The latter could be of future interest to the Norse research, as Inartalik has a unique geography for whaling. A shallow watered bay on the south side dries out at low tide. Whales caught at sea could be dragged in here at high tide, and as the carcasses stranded when the tide lowered, they could be butchered with ease, as in a floated dock. Even though we could identify no Norse traces at this place, the natural qualities for whaling here are so exceptional, that this *could* have taken place here in Norse times too.



Fig. 64 Whalebone and driftwood by a large Inuit whaling site on Inartalik. The whale cranial bone has been cut into in order to extract the useful substance for e.g. tool making. The short cuts are app. 15cm long (Photo: P.B. Heide 2010).

GPS: N 60°40'38.96"/ W 46° 0'42.87"

Site history: There is no description at the Danish National Museum of the ruin group Ø273. PBH and CKM briefly visited the location in 2009, but because the site was wrongly marked on the map (placed opposite of the small bay where the ruin group is actually located) did not manage to find it. It was then found by PBH and TBJ on the 13.07.2010 and consequently surveyed by CKM during c. 2 hours on the 14.07.2010.



Fig.65 Survey plan of E273 on GoogleEarth© satellite imagery.

Site description: The ruin group is located only c.2,3km west of E188 on the Akia island. Here one finds a small, narrow inlet at the bottom of which is a perfectly sheltered stony beach providing excellent landing conditions. A grassy slope rises rather steeply from the beach and half way up is ruin 07 (at the only relatively level spot) and the top of the slope ruin 01, located just below a low cliff shelf. The 5 other ruins are scattered about this grassy slope. There are no signs of an actual homefield, only scattered patches of grass between the cliff riches. An interesting element at E273 is the fact that while there are only 7 ruins in all, two of these, ruin 04 and 02, seem to be well built dry-stone masonry houses, i.e. probable skemma's, which is also supported by their location on top of cliff knolls. While E273 could be a small farm, it is equally possible that it is a shieling facilitating the use of resources from the western end of the Akia island (see description), for which the ruin group is excellently positioned.

Ruin 01 (fig.66): Very collapsed turf/stone built ruin, c.21x1m, undoubtedly a dwelling lying on a narrow, southern faced plateau on top of a grassy slope. To the north the ruin group is sheltered by a low cliff. The ruin is visible as a slight elevation in the terrain with many protruding stones with indistinct outlines of walls and rooms. Apparently the structure was slightly dug into the slope towards the north. The ruin is vegetated by grass, juniper and, noticeably, buttercup and purple flowers of unknown species.



Fig.66 Ruin 01 seen from the N. The small gravelly beach at the bottom of the fertile slope is seen in the background (Photo: C.K.Madsen 2010).



Fig.67 Ruin 02 seen from the W. Ruin 01 is located at the light green patch of grass beneath the cliff, top left (Photo: T.B. Jensen 2010).

Ruin 02 (fig.67): Ruin built in dry-stone masonry, c.4,4x3,9m, lying on an exposed cliff knoll. The walls have collapsed outwards, but in some places in situ walls, c.30-40cm wide, are preserved in two courses (c.40cm). Based on its location and construction, it is probably a skemma. Inside the walls grows crowberry, grass and birch. One stone has a rhizocarbon geographicum lichen of 9cm's.

Ruin 03 (fig.68): Semicircular enclosure, c.8,3x3,4m, built against a vertical cliff wall and in the edge of a boulder field,

using stones from here in the construction, while some are naturally deposited boulders. The walls are preserved in up to 2 courses (c.50cm) and have been c.50cm wide. Inside the enclosure is a smaller, possible partition, maybe a lambakró. Another such is found outside the ruin, measuring c.1,6x1,4m. A possible entrance is seen in the NW corner. Inside the enclosure grows grass and Alpine lady's mantle.



Fig.68 Ruin 03 seen from the E (Photo: T.B. Jensen 2010).



Fig.69 Ruin 04 seen from the W In the background fjord south of Akia (Photo: T.B. Jensen 2010).

Ruin 04 (fig.69): Well-preserved structure built in dry-stone masonry lying on an exposed cliff knoll with a view into the fjord. The ruin measures c.4,8x3,2 with box walls preserved in up to 5 courses (c.120cm) and 60-70cm wide. Especially the two gables are well-preserved, while the two long walls have collapsed outwards. Judging from the amount of collapse stone, the stone walls cannot have stood significantly higher than the c.1,2m, indicating that the rest was constructed in other materials. Based on its location and construction, it is probably a skemma. Inside the ruin grows willow, and on two or three stones, one sees rhizocarbon geographicum lichens of c.10cm.

Ruin 05 (fig.70): On the plateau N of the dwelling, ruin 01, is another enclosure roughly similar, though smaller (c.6,8x3,8m) and more square in shape. It is built against a steep cliff to the N with stone walls c.60cm wide, preserved in up to 4 courses (c.1,2m) that, however, have mostly collapsed. Towards the S is a nicely preserved entrance. Inside the enclosure is vegetated by crowberry and birch.



Fig.70 Ruin 05 seen from the E (Photo: T.B. Jensen 2010).

Ruin 06 (fig.71): On a level spot just below ruin 01 are the remains of a turf/stone built structure, probably a small stable/byre. It measures c.7,6x3,8m. Though fairly collapsed, walls 30-40cm high and up to 1,2m wide are clearly visible. The same is a central room with a possible entrance in the SE corner. To the NE is pile of stones, either a addition or collapse stone. The ruin is vegetated by grass, buttercup, juniper and birch.



Fig.71 Ruin 06 seen from the NW (Photo: T.B. Jensen 2010).

Ruin 07 (fig.65): Small and somewhat indistinct ruin of a small structure built against a cliff and measuring c.4,2x2,5m. The walls are c.50cm wide and rise c.20-30cm above the terrain. An entrance in the western gable is clearly discernable. The ruin is completely overgrown by crowberry and birch.

Field notes 15.07.2010

After breakfast CKM began the finishing work on the section at E188, ending only around 19.30. Meanwhile PBH and TBJ sailed out to survey the islands of Uummannalik and Uummanaq, finding nothing but Thule-culture structures. On their way back, they stopped at E274 to see if they could locate any distinct Norse ruins there, which we had not found on a brief visit in 2009. They found a single enclosure and then returned to base camp at E188. The weather was all day cloudy, but windless and fairly mild, but it started raining heavily around 19.00., which it did throughout the night.

Notes on Landscape – Coastal islands

The Uummanaq island is part of the outer frontier of the South Greenlandic deep fjords. It guards the entrance to the Kujalluarnifz fjord, and along with the second row, Uummannalik, it takes all the weather from the North Atlantic ocean, before it hits the inner part of the fjords. Uummanaq has a central highland, that drops steeply down to a narrow coastal slope and a few, narrow fissures. The rock is porous, and most of the bare rock appears to be boulder fields or low, worn down outcrops. A number of small coves cut into the coastline, but due to the harsh climate, they only offer poor landing, even for small and flexible boats like our zodiac.



Fig. 72 Coastline at bay on Uummanaq. Bare rocks dominate the landscape, and even the marine vegetation seems to have a hard time in the strong currents and frequent waves (Photo: P.B. Heide 2010).

We went ashore in a cove on south side of the island, and surveyed a small part of the terrain here. The survey took 40 minutes, until we had to abandon due to bad weather. We were not able to identify the Inuit settlement supposed to be here, and found no other cultural traces. The terrain is less than easy to walk across, and offers no obvious locations for anything but marine exploitation.

We attempted to land in the neighbouring bay, but were unable to find suitable shelter for the boat. In a last attempt to get ashore, we sailed in to the small lagoon on the northwestern tip of Uummanaq (60° 35' 04.80"N / 46° 06' 02.61"W).

The lagoon is treacherously shallow, with blank or sharp rocks on the bottom, and we could only survey with one man on land and one man holding the boat. The lagoon might however be suitable for e.g. kayaks, and we found a rather large Thule Inuit settlement right on the shore, with summer and winter houses, and at least six graves. Neither this site did though show any traces of the Norsemen.

Sitting on the frontline between the fjords and the ocean, Uummanaq is extremely exposed to the oceanic storms, and this is clear when being there. Even on a fairly calm day, waves higher than 6 feet break on the rugged coast and the many skerries, and the wind from the ocean cuts through skin and flesh. Making a living here would be substantially different from life in the bottom of the fjords, much more different than the just 50km between there and e.g. Igaliko suggests.

Between Uummanaq and Kangeq is Uummannelik, an island slightly larger than its western neighbour. As Uummanaq, the island consists of a highland and an adjacent fjord system and archipelago. We visited the island on the return from Uummanaq, and went ashore on the eastern flat land and archipelago. This area is dominated by long small fjords, that partly dry out at low tide, thus making the area largely accessible all over.



The vegetation covers the whole of the lowland, but is low and shrugged. *Betula* seems to be dominant, along with grasses and small herbs.

There is limited fresh water supply on the large flat land, but along the steep precipice towards the highland, several streams come down in series of small lakes.

Fig. 73 Characteristic landscape of the Uummannelik flatland. The shallow straits catch a lot of driftwood (and these days trash), and has plentiful seaweed. (Photo: P.B. Heide 2010).

GUIDE	Coordinates	Type	Notes
97	60°36'46.01"N 46° 1'57.41"V	Cairn, conical.	Despite the lack of other ruins, the cairn carries a Norse look to it and features lichens up to 6 cm.

The most conspicuous cultural element on Uummannelik is the abandoned fishing station near the central highland. It is accessed through a narrow fjord, and close to a fascinating tidal lagoon. Here are extensive remains of Thule winter houses and the remains of a larger, modern house. We found no traces of Norse activities, but I suggest that the extensive buildings at the fishing site might lay on top of a Norse predecessor, based on the apparent long term resource abundance at this place.

The climatic conditions on Uummannelik seems far less hostile than on Uummanaq, and the rather large flat area could have an interest to a persistent sheep farmer.

Field notes 16.07.2010

Still in rain, we broke camp after breakfast and sailed west around Kangeq and on to Eqalugarsuit to buy gas and victuals. Stopping on the way by E274 (see below), we quickly surveyed this site and sailed on to Eqalugarsuit, where we ran into Arne (the man we had dined with on the night of the World Cup finals), who needed a ride to Qaqortoq and did not mind stopping at a few sites on the way. So we took him along, continuing east from Eqalugarsuit towards the bay at E181, wanting to search the eastern side of this for a single ruin we had missed



Fig. 74 The structure on the island of Qimatulivissuaq first interpreted as a possible pen, later identified as a likely large Thule-culture meat cash. In the background PBH is talking with our informative local host Arne (*Photo: C.K. Madsen 2010*).

in 2009. We did not, however, find it during our c. ½ hour stay on this occasion either.

Continuing on to survey a structure found by PBH and TBJ on the island of Qimatulivissuaq east of Kangeq on the 09.07.2010, the weather turned mild, with a warm breeze blowing from the east. We landed at the island and surveyed the ruin, which has later been identified as a large Thule-culture meat cash and have not been included in the description.

Sailing onwards towards Qaqortoq, the wind picked up and we realized that a foehn was building up. When we reached the Igaliku fjord, the wind was already howling out the fjord, rising foaming white waves of up to 2-3 meters. As our zodiac was loaded to the brim with equipment, we were rather stable in the water and slowly made it across the fjord to Qaqortoq, just before the storm peaked. Having secured the zodiac, we waited a few hours for the storm to subside, but as it did not, we spent the night in town.

E274 – Akia

60V1-00I-501

GPS: N 60°39'44.78 / W 46° 0'36.39

Site history: No earlier record of this site found at the National Museum of Denmark, but might possibly be found in Greenland's National Museum in Nuuk. The site was visited briefly by PBH and CKM in 2009, at which time we did not locate any distinctly Norse feature, besides the possible cairn. The area was then researched by PBH and TBJ on the 15.07.2010, finding one Norse enclosure. The area has thus been searched for ruins for about 1 ½ hour, ruling out that any major ruins have been overlooked.



Fig. 75 The stony beach and grassy foreland at E274 seen from the WSW. The enclosure is located by the rocky outcrop to the left (Photo: P.B. Heide 2010).

Site description: On the south coast of the Island of Akia, just before one goes into the narrow straits separating Akia and Kangeq is a small bay with a stony beach, which provides easy landing (fig.75). Climbing the beach wall, one ascends up on to a small, gently sloping grassy foreland. Just a little ways to the right, near the fjord, is a few Thule-culture houses and other structures, including a well-built cairn (sea marker) that PBH has interpreted as likely Norse. Continuing along ENE along the beach, descend grassy patches are found among the

otherwise fairly rocky terrain. The single ruin at E274 is found at the edge of the grassy slope just north of the beach. Consisting of one ruin only, E274 is undoubtedly a small shieling for gathering and/or milking sheep/goats grazing on Akia.

Ruin 01: Small enclosure, c.5x3m, built against a steep cliff. The somewhat collapsed walls are c.60-80cm wide and preserved in up to three courses (up to a height of ca.50cm). A possible entrance is seen to the south. Inside the structures is vegetated by willow, grass, buttercup and angelica.

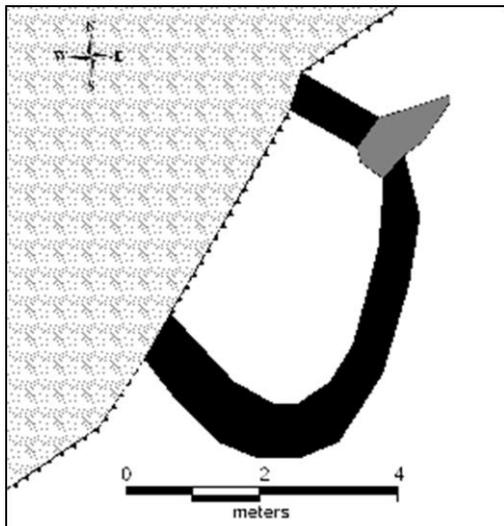


Fig.76 Survey plan of ruin 01.



Fig. 77 Ruin 01 seen from the E (Photo: P.B. Heide 2010).

Field notes 17.07.2010

After shopping for the excavation team at E172, we then sailed from Qaqortoq, around 11.00, for E172 in the Igaliku Fjord. On the way to the excavation, we first stopped by E83, Hvalsøfjordens Kirke, in order for PBH to do some surveying for his ph.d.-project here. We then continued on to E80 to see the ruins there. Finally, we set out for E172, but on the way we encountered a boat with oil problems, which we could not, however, help. Having spent some time with this work, we finally arrived at E172 around 16.00, but found that we had left PBH's jacket at the shop in Qaqortoq, so PBH and TBJ sailed in to get it and then back to the excavation at E172. Meanwhile, CKM dried the tents that were still soaked from the previous night. Luckily, it was again a warm and sunny day.

Notes on Landscape – E80



Fig. 78 The extremely well preserved skemma at E 80 (in front of it is a second, less well-preserved structure). The total height of the boulder and rock is app. 4m (Photo: P.B. Heide 2010).

On our way from Hvalsey to E 172, we made a brief stop at E 80 on the western shore of the Igaliku Fjord. We did a brief in-suit survey of the dwelling complex, and could conclude that the ruins appear to be extensive and well preserved. From the dwelling complex we could see the remarkable skemma on the opposite shore of the bay. The skemma is spectacular, built on a two meter high boulder, spatially separated from the rest of the farm site and extremely well preserved. Three walls are almost intact, and as the fourth side, facing the fjord, has no stone debris, this might very well have been made from timber.

Field notes 18.07.2010

Around 08.30 we left the excavation at E172 and sailed to Igaliku Kujalleq, where we secured the zodiac and then started hiking up towards the glacier. We were intending to spend a day up there, trying to get across the glacial melt water river and survey E64b on the other side, for which reason we brought plenty of rope. By way of a narrow valley that cuts across the Undir Høfde mountain, we made it to the camp site by the glacial melt water plain in 2 ½ hours and struck camp (about 500m from where the melt water from Jespersen's Bræ meets the melt water from the other glacier). Although a short hike, we were soaked with sweat because it was one of the warmest and most still days of all summer.



Fig. 79 PBH and CKM on their way to test the current of the glacial rivers (Photo: T.B. Jensen 2010).

On the wide glacial melt water plain the glacial rivers divide in many, wide branches and we thought it possible to cross here. We spent an hour or so trying to get across the first branches of the river, which proved successful (fig.79). But because it was getting afternoon and E64b would still be a considerable hike, we decided to do this next day and instead we surveyed the mountain side running parallel to the melt water plain, finally reaching gorge where the river from Jespersen's Bræ cuts deep into the mountains, just to check whether passage would be possible here, but it proved impossible. We then returned to camp, where PBH revealed that he was suffering from seriously worsening pains in his knee. We decided to wait until morning to see how his knee fared, before setting our minds on anything definite.

On the morning of the 19th we realized that crossing the river, hiking to E64b and back would not be feasible with the condition of PBH's knee, which had gotten even worse from the hike of the previous day. Instead, we returned to Igaliku Kujalleq, which we reached at around 12.00. While eating lunch, we learned that PBH and TBJ were due to sail from Igaliku the next at 9.30 and as we had to do shopping for the excavation team on PBH's credit card, we then rushed to E172, picked up the stuff PBH and TBJ had left here, as well as Jade de la Paz with a shopping list, and then sailed straight on for Igaliku, in a strong fjord wind, and got there around 14.45, i.e. 15 min before the shop closed. Having successfully gotten what we need, we then said our farewells and CKM and Jade sailed back to E172, while PBH and TBJ were left at the hostel in Igaliku. Hereby, the surveying season 2010 was ended.

Field notes 19.07.2010

On the morning of the 19th we realized that crossing the river, hiking to E64b and back would not be feasible with the condition of PBH's knee, which had gotten even worse from the hike of the previous day. Instead, we returned to Igaliku Kujalleq, which we reached at around 12.00. While eating lunch, we learned that PBH and TBJ were due to sail from Igaliku the next at 9.30 and as we had to do shopping for the excavation team on PBH's credit card, we then rushed to E172, picked up the stuff PBH and TBJ had left here, as well as Jade de la Paz with a shopping list, and then sailed straight on for Igaliku, in a strong fjord wind, and got there around 14.45, i.e. 15 min before the shop closed. Having successfully gotten what we need, we then said our farewells and CKM and Jade sailed back to E172, while PBH and TBJ were left at the hostel in Igaliku. Hereby, the surveying season 2010 was ended.



Fig. 80 CKM hiking through the pass through the mountain of Undir Høfde (Photo: P.B. Heide 2010).



Fig. 81 The 2010 survey team. From left to right Troels B. Jensen, Christian K. Madsen and Poul B. Heide (*Photo: T.B. Jensen 2010*).

Field notes 20.07.-28.08.2010

CKM helped finish the excavation at E172, as well as open and end the new excavation at E64, returning to Denmark on 28th of Aug.

GPS: N 60°55'3.58" / W 45°15'21.87"

Site description: Part of the church yard at E64 was excavated from the 7.08-28.08 2010, during which time a couple of new ruins between E64 and E209 were surveyed and investigated.

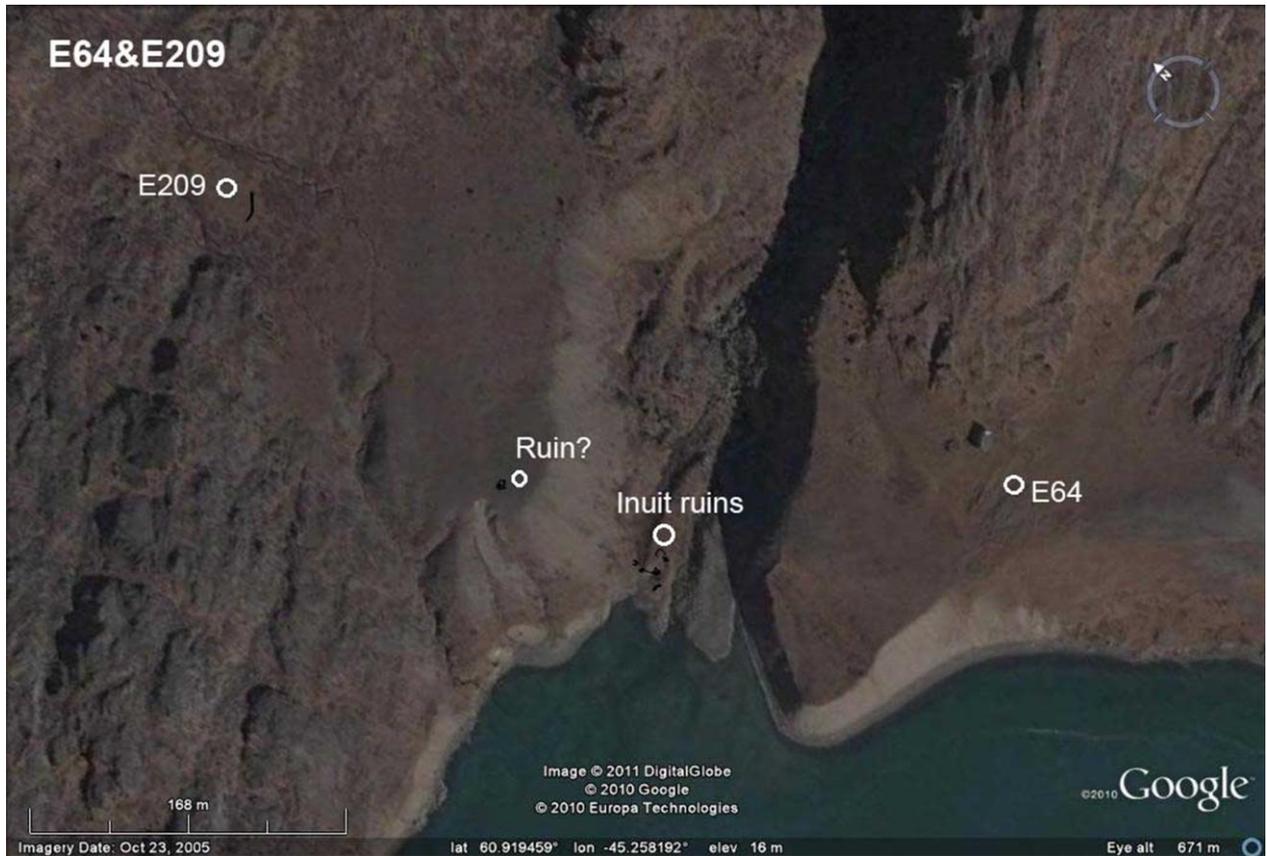


Fig. 82 GoogleEarth© satellite imagery overview of ruins between E64 and E209 surveyed in 2010.

Inuit ruins (fig.83): E64 and E209 are divided by a deeply cut ravine, where today runs a smaller river with excellent trout fishing. Towards the mouth of this river, it forms a small delta, which during the summer consists mainly of two branches, but the landscape morphology tells of times with considerably higher water flow. On a slightly raised gravel bank and running down into the nearby depression, one finds a number Inuit structures indicative of this rivers potential as fishing location (fig.83); A. newer tent ring, B.&C. horseshoe shaped stone built features, D. a stone built dike, E. Stone built meat cash, F. stone heap (possible structure). These structures are likely huts and structures used during fishing activities at the river.

Inuit/Norse ruin? (fig.83-84): At the edge of the gravel plateau west of the river, one finds an oblong ring of stones with a possible entrance on its S long side. This feature does not have the appearance of a Norse structure, but neither does it look like anything typical Inuit. In order to find out what this structure is, Museum director P.K. Knudsen and CKM did a 50x50cm test trench inside the structure just NW of the assumed entrance. Directly beneath the low vegetation of shrub were uneven layers of stones with a slight filling of silt, all looking natural. We thoroughly searched the outside of the structure for lithic debris, finding nothing as well.

Considering the odd shape of the structure, the uneven surface inside, and the complete lack of cultural material, it is very likely that this a natural formation, possible formed by frost action. On the other hand, the surrounding area displays no stone clusters of a like kind and is, in fact, very flat and uniform (fig.83), opting for the possibility that it might actually be a manmade structure.



Fig. 83 Inuit/Norse ruin seen from the E (Photo: C.K. Madsen 2010).



Fig. 84 Survey plan of structures near the river on GoogleEarth© satellite imagery.

E209 ruin 11 (fig.82): Immediately south of the dwelling (ruin 1) of ruin group E209 there is an open, grass-vegetated area, undoubtedly a small home field belonging to the farm. Running ??? meters along, slightly within, this open area are the faint remains of a possible home field dike, consisting of a slight raise in the terrain with a few larger protruding stones.

Results and Perspectives

Project conclusion: With the surveys conducted during the 2010 field season, the Vatnahverfi-Project was effectively concluded; till this day, more than 115 ruin groups have been DGPS-surveyed, some 700+ individual ruins, described and photo documented (the photos are kept at the authors). These ruin groups are found across a landscape stretching from the outer coast and almost to the edge of the Icecap, thereby presenting a uniform body of survey data of the entire regional settlement pattern in Vatnahverfi. This data is currently being studied and analyzed in conjunction with a Ph.D.-project at the National Museum of Denmark.

Eroding farms: Many hundred coastal ruins, mostly Inuit, but also quite a few Norse, are today being eroded by wave action and rising sea levels, especially in the outer fjords. The 2010 field season proved that these can be recorded, documented and possibly dated in a cost-efficient way. While the excavations performed during the 2010 season must certainly be considered an absolute minimal effort, a week spend excavating at each such sites should give us reasonable insight into the nature and layout of the eroding structures, if they are not too many.

An episcopal reindeer farm?: An interesting point as to the ruin groups visited during the 2010 field season regards the farms/sites on the island of Akia; only two larger ruin groups are found on this island, whereas, for instance, Kangeq has 3. Since Kangeq today has relatively poor vegetation, it is interesting that the better vegetated Akia only has two larger ruin groups, as the vegetation seems better. If Akia was indeed the “Renøe” (“Caribou Island”) mentioned in Ívar Bárðarson’s description of Greenland, it ruled under the episcopal farm of Garðar (Igaliku) and, consequently, farming might have been limited to the 1-2 sites directly under the cathedral?

The flat heather and lake landscape on the western end of Akia, does indeed seem suitable caribou country (compared e.g. to the Tuttutooq (Greenlandic for reindeer) Island, where reindeer today are being farmed) and it is possible that a herd of reindeer could survive there, if hunting was managed by the episcopal farm, as clearly indicated by Ívar Bárðarson. Interesting to this notion is the fact that the otherwise relatively small E273 had two skemmas (stone structures for drying meat) and one might wonder, whether the butchering and conserving of reindeer meat was the main purpose of this site? It is, furthermore, perfectly located just at the entrance to the flat part of Akia. The small economy and livestock buildings also found at E273 might simply pertain to the few animal husbandry brought there for the summer stay, i.e. it was a shieling.

Norse coastal sites: The 2010 season saw the active search for Norse ruins in the outer coastal environs, i.e. the low, exposed skerries and islands, where one normally only finds Inuit structures. Although the attempts to located Norse ruins proved unsuccessful, it far from rules out that they were not there; almost all suitable landing spots and protected areas have numerous remains of Inuit activities likely to hide any traces of an earlier and undoubtedly very temporary Norse presence (fishing, sealing etc.). Proving this is, of course, exceedingly difficult, but seeking out an island with some potential as pastureland (for a few animals brought there for the temporary stay), a good, sheltered landing site, narrow straits (for sealing/fishing) and several Inuit ruins, one might hope to find traces of Norse activities under the later Inuit, e.g. by trenching the midden areas.

Communication networks in the Eastern Settlement: Communication was a key element in Norse social practice, as it is, and has been, in all societies. Small and great messages were conveyed e.g. by speech or monuments. Some of them lasted only the few seconds till the sound died away, but some of the monuments still transmit their message to us today – whether we are able to understand it or not.

Communication is conducted through networks, and one of the objectives of this year's survey was to gather information to better understand the development, shape and intensity of use of these networks in the Eastern Settlement. Communication networks are diverse and we have therefore focused on identifying routes of movement, as a mean of bringing people within bodily communication distance, and visual communication lines between e.g. two farmsteads or a number of farmsteads and a church.

Routes of movement can be found on land, sea or in the unique winter season landscape. Studying the specifics of these routes can be done by analysing actual trails or related monuments; cairns, causeways, bridges or the likes. As another approach the terrain between departure point and destination can be examined, on map or foot, and the most likely route to be taken can be suggested (Heide 2008, Madsen 2009).

In the Eastern Settlement particularly cairns have been useful to understand the routes of movement within the settlement. Norse systems of cairns to travel by have been recorded close to Brattahlid, in Vatnhverfi and in one unconfirmed case near Klosterfjord. A few of the cairns recorded in 2009 and 2010 can be interpreted to have this function, but as the cairn systems have deteriorated over time, the systemic functions get hard to interpret on the basis of a few cairns. Other cairns appear to have been sea markers. Sea markers can be used to guide ships through difficult seas, but in a number of cases, it might simply have been a matter of actually finding the right fjord, strait or island among the many options in the outer part of the fjords.

In the Eastern Settlement, where traffic at the peak of the Norse presence had to be distributed to hundreds of individual sites, the traffic pattern seem to have been dominated by a few large trunks of heavy duty sea transportation – the fjords. From here a number of gateways gave access to a terrestrial set of pathways, connecting larger farms, but also shooting out minor branches to more remote farms. This is not surprising, as it is also the most efficient way to distribute traffic, even in a landscape free of obstacles.

The visual communication networks are basically determined by the location of the farmsteads within the physical landscape, and are easily measured through simple observation. Through a series of observations a map can be made, showing the density of the visual network within a settlement.

In the Eastern settlement a pattern emerges of tight knit clusters in some areas, and very loose – if existing – connections in others. The spatial proximity of the farmsteads are not necessarily determining for the visual connection. Furthermore, proximity to the major routes of transportation is also a connection to other people – and thus a part of the visual network.

Norse Cairns in the Eastern Settlement: The presence of Norse cairns in Greenland has been debated for about a century, albeit not very intensely. Both Gustav Holm and Daniel Bruun routinely noted the presence of cairns that they considered to be Norse, but to them the cairns was such and integral part of the Norse landscape, that they needed not do more detailed records. After this the cairns seem to slip out of the Norse archaeological scope, but are reintroduced with a new detailed recording campaign initiated in 2007, carried out by C.K. Madsen and P.B. Heide.

Cairns in Greenland are in abundance, as not only the Norse, but also Inuit, colonists, surveyors, explorers and not least tourists have busied themselves with cairn building throughout at least the last 600 years. A major task

is therefore to determine if a cairn is at all Norse. To do this, PBH have operated with three criteria: the age of the structure, the building style and the structures' relation, visual or physical, to other building complexes. In the recording process, not all criteria had to be fulfilled, as diachronic deformation of the cairns and the systems they sit in may have changed some aspects fatally.



Fig.85 GUIDE 89 overlooking the fjords (Photo: P.B. Heide 2010).

Almost 100 cairns have been recorded until today, including the early recordings and chance observations without thorough records. These cairns fit into a rather firm pattern of shape and function.

Even if the building style in many cases is just “a pile of stones”, in other cases a distinct morphological language exists, not least when compared with the Inuit cairns. The Norse cairn builders seem to have fancied right angles, square shapes and generally much less organic shapes.

They have been interpreted to have functioned as way markers, sea markers and as individual monuments. Furthermore they seem to have acted as time markers and as landscape ornaments, visually tying together the small cultural islets with the vast natural landscape.

A full discussion of Norse cairns in Greenland can be found in a forthcoming article by P.B. Heide.

Fox traps: In 2007, 2009 and 2010 PBH have recorded approximately 30 of the fox traps we have come across, in order to get a preliminary dataset on this unexplored category of structural remains. As with the cairns, these structures are very hard to date absolutely, and I have therefore used their connection to known Norse sites to suggest their Norse origin.

Fox traps occur in two different types, chamber or crush. The crush type operates with a wooden frame, weighed down by stones, that crushes the fox. The chamber type on the other hand has a stone chamber, and a stone drops down in front of the entrance. This type is easy to recognize, as the outline of the chamber will almost always be intact, even if the rest of the trap has collapsed into it. The dimensions of the chamber are normally app. 15x15x80cm, and the whole trap is considerably bigger.

On a number of traps PBH have found lichens up to 7 cm, in some cases even bigger. Similar traps have been found in Iceland, although they are of unknown date. This combined with the fact that the traps are often located a little away from the farm complexes, albeit within sight from these, leads me to suggest that at least part of the chamber type traps are of Norse origin, even if the technology might later have been adapted by the Inuit.

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Appendix I – Finds & Samples E182*

Finds no.	E182: Layer	Material	Description
X01	PI layer 3	Soapstone	Soapstone fragment. with drilling
X02	Stray	Sandstone	Wet stone fragment
X03	PI layer 7/9	Bone	Bone fragments
X04	PI layer 8	Charcoal	Round wood charcoal sample for ¹⁴ C-dating
X05	PI layer 8 (top)	Charcoal	Round wood charcoal sample for ¹⁴ C-dating
X06	Stray	Teeth	Two animal teeth, 1 cattle upper molar no.1 or 2, 1 caprine molar 1 or 2
X07	Stray	Bone	Bone fragments
X08	PII layer 4	Bone	Bone, seal thoracic vertebra
X09	PII layer 4	Bone	Bone, seal phalanx no. 1
X10	PII layer 2	Bone	Bone shaft fragment, medium terrestrial mammal
X11	PII layer 8	Bone	Fragments of burned bone
X12	PII layer 8	Charcoal	Round wood charcoal sample for ¹⁴ C-dating
X13	PII layer 10	Charcoal	Round wood charcoal sample for ¹⁴ C-dating
X14	PII layer 11	Charcoal	Round wood charcoal sample for ¹⁴ C-dating
X15	PII layer 11	Bone	Fragments of burned bone
X16	Stray	Soapstone	Two soapstone fragments

* The identification of the animal bones was performed by K. Smiarowsky, CUNY

Sample No.	E182: Layer	Description
S1	PI layer 8	Soil sample for macrofossil analysis, 1 medium bag
S2	PII layer 11	Soil sample for macrofossil analysis, 1 medium bag
S3	PII layer 10	Soil sample for macrofossil analysis, 1 medium bag
S5	PII layer 8	Soil sample for macrofossil analysis, 1 medium bag

Appendix II – Finds & Samples E329

Finds no.	E329: Layer	Material	Description
X01	PI layer 2	Charcoal	Round wood charcoal sample for ¹⁴ C-dating
X02	PI layer 3	Charcoal	Round wood charcoal sample for ¹⁴ C-dating
X03	PI layer 4 (top)	Charcoal	Round wood charcoal sample for ¹⁴ C-dating
X04	PI layer 4 (bottom)	Charcoal	Round wood charcoal sample for ¹⁴ C-dating
X05	PI layer 4	Bone	1 fragment of burned bone

Sample No.	E329: Layer	Description
S1	PI layer 4	Soil sample for macrofossil analysis, 1 medium bag
S2	PI layer 3	Soil sample for macrofossil analysis, 1 medium bag

Appendix III – Finds & Samples E188

Finds no.	E188: Layer	Material	Description
X01	Stray (deturf)	Soapstone	Larger soapstone fragment
X02	Stray (deturf)	Soapstone	Soapstone fragment
X03	PI layer 3	Soapstone	Soapstone vessel fragment
X04	PI layer 4	Charcoal	Round wood charcoal sample for ¹⁴ C-dating
X05	PI layer 6	Charcoal	Round wood charcoal sample for ¹⁴ C-dating
X06	PI layer 8	Charcoal	1 Round wood charcoal sample for ¹⁴ C-dating
X07	PI layer 12	Charcoal	Round wood charcoal sample for ¹⁴ C-dating
X08	PI layer 13	Charcoal	Round wood charcoal sample for ¹⁴ C-dating
X09	PI layer 15	Charcoal	Round wood charcoal sample for ¹⁴ C-dating
X10	PI layer 16	Charcoal	Round wood charcoal sample for ¹⁴ C-dating

Sample No.	E188: Layer	Description
S1	PI layer 4	Soil sample for macrofossil analysis, 1 medium bag
S2	PI layer 6	Soil sample for macrofossil analysis, 1 medium bag
S3	PI layer 8	Soil sample for macrofossil analysis, 1 medium bag
S4	PI layer 13	Soil sample for macrofossil analysis, 1 medium bag
S5	PI layer 15	Soil sample for macrofossil analysis, 1 medium bag
S6	PI layer 16	Soil sample for macrofossil analysis, 1 medium bag