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Investigation of Stratified Archaeological Deposits at Iita, Foulke Fjord, Northwestern Greenland, 2012

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INTRODUCTION

This is a preliminary report that details the findings of the Investigation of Stratified Archaeological Deposits at Iita, Foulke Fjord, Northwestern Greenland (ISADI) project (NSF Polar Programs EAGER Project Award # 1134977) (Fig. 1). Fieldwork for this project was undertaken between August 7, 2012 and September 10, 2012. The main goal of this project is to assess of the nature of the Paleoeskimo deposits present at Iita (Etah) in order to evaluate the future research potential and resources that will be lost to ongoing erosion at the site. The first section of this report documents the efforts of the ISADI project to evaluate these resources and includes background information and recommendations for future investigations. A second goal of the ISADI project was to undertake archaeological survey of walkable areas of the coastline of Foulke Fjord down to the Dodge Glacier. The second section of this report details the findings of this survey work.

Goals of the ISADI Project Excavations at Iita

The Inglefield Land Archaeology Project (ILAP) undertook excavations at the site of Iita, which is located on an alluvial fan on the north shore of Foulke Fjord, Inglefield Land, Greenland as part of a multiyear study focused on investigating the dynamic changes that affected the Inughuit over the past 300 years in 2006 (LeMoine and Darwent 2010) (figs. 2 and 3). Iita was chosen for excavation because it offered an ideal window into this period. The site offered minimally nine Inughuit (Polar Inuit) winter house depressions identifiable on the surface and has rich historical documentation. Starting with Kane's (1856) descriptions from the early 1850s, but particularly after the 1890s due to Robert Peary's use of the area during his quest for the North Pole and Donald MacMillan's subsequent occupation of the site, there are many historical photos and doc-

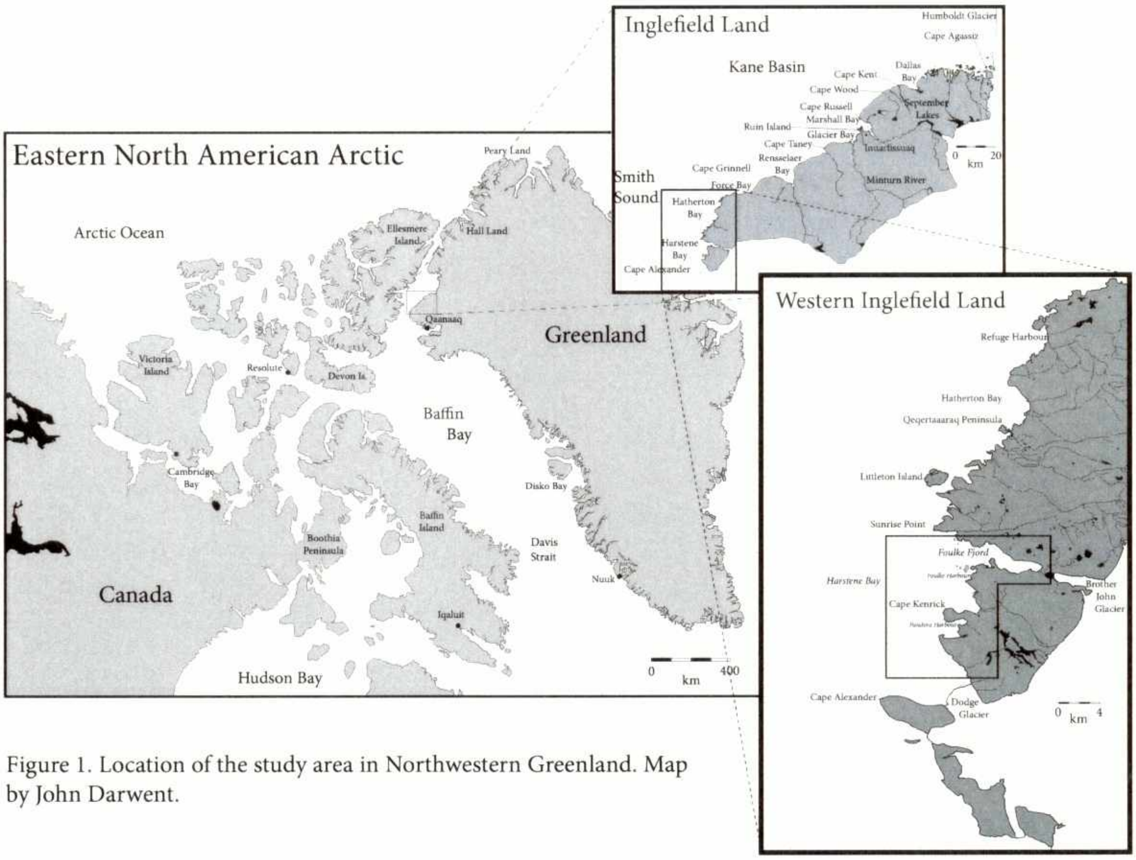

Figure 1. Location of the study area in Northwestern Greenland. Map by John Darwent.

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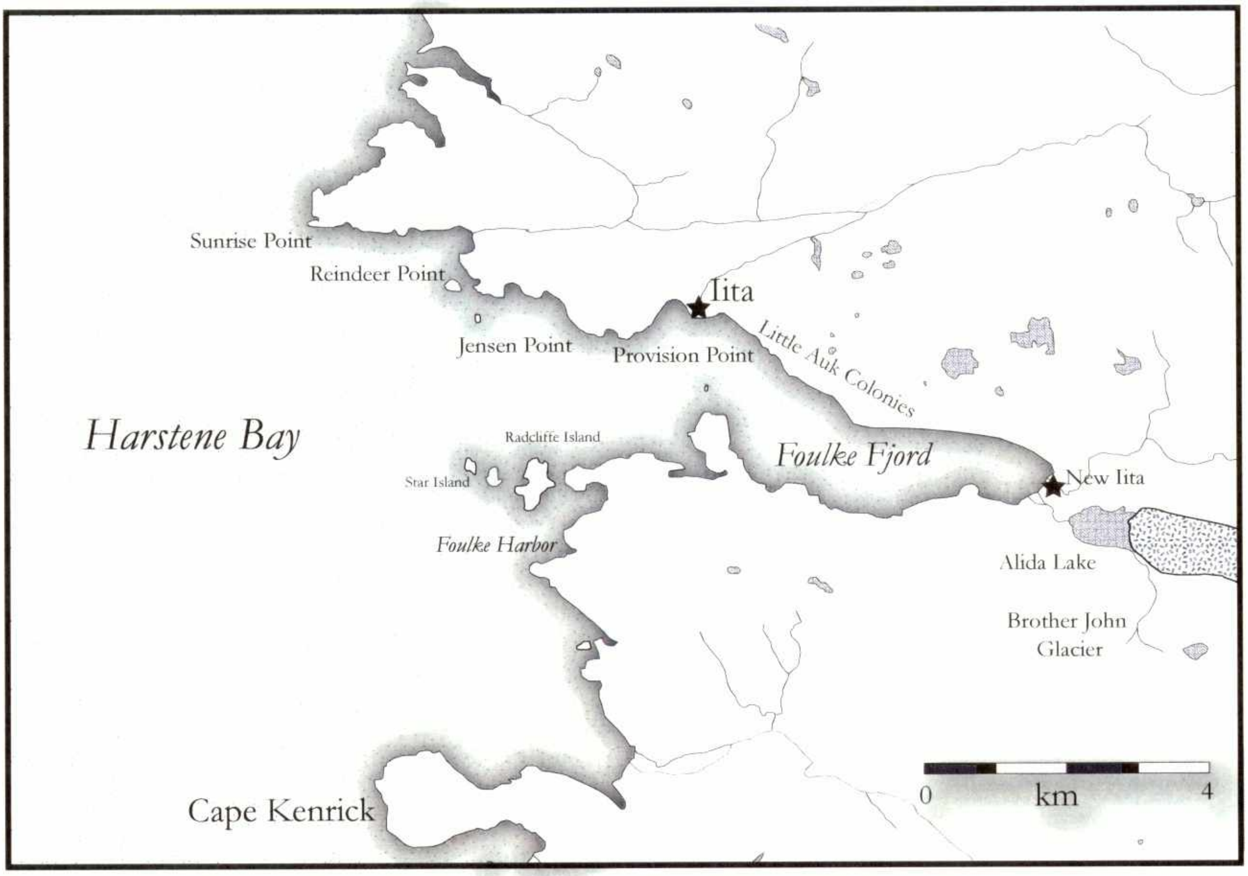

Figure 2. Location of Iita in Foulke Fjord with other place names denoted. Map by John Darwent.

uments that detail life at Iita and in Foulke Fjord (e.g., Peary 1898; MacMillan 1918, 1927; Peary-MacMillan Arctic Museum archival records).

The focus of the 2006 field season was on two historic period winter houses, both of which were excavated (see LeMoine and Darwent 2010 for details), along with test units in front of the houses to search for associated midden deposits. Not to disappoint, Iita turned out to be remarkable for several reasons. First, house floors dating to the specific period of interest were encountered in the two excavated winter house depressions. In the case of one of the two houses, House 2, multiple house floors spanning the period from before contact, the late A.D. 1800s, and the early A.D. 1900s were present. Second, a buried winter house from the early to mid-Thule period plus other midden deposits spanning the whole Thule period were discovered underneath House 1 (Fig. 4). It is possible that the people who constructed House 1 were taking advantage of excavations made during the construction of the buried Thule house. Third, it was discovered that the builders of the buried house dug into a natural fan deposit that had a series of buried soils, one of which had Paleoeskimo artifacts in what appeared to be primary context.

The first inkling that there had been Paleoeskimo occupation on the Iita fan was the discovery of chert artifacts that appeared to be of Paleoeskimo origin throughout the excavation of the Thule deposits of House 1 (Fig.4). Nevertheless, the presence of flaked stone objects in and of themselves is not entirely uncommon in Thule deposits, and it is possible that the Thule themselves were making flaked stone artifacts or scavenging such artifacts from local Paleoeskimo features. The second more conclusive indication of a Paleoeskimo occupation was the presence of 43 pieces of chert debitage, two flake tools, and two bifaces in a dark band of soil in a 50x50 cm quadrant in one unit. Nearly all pieces were lying flat indicating that they were likely in the same location as when they were initially deposited. The dark band, which was thought to be buried soil, was cut into by early Thule inhabitants during their construction of the now buried house; thus, it was clear that this deposit predates Thule occupation of the location. In addition to the potential buried soil associ-

Figure 3. Aerial view of Iita in June 2006 prior to excavations looking north. Excavations were undertaken on the western side of the fan (on the left) in both 2006 and 2012. Photograph by John Darwent.

ated with the Paleoeskimo artifacts, several other dark bands indicative of buried soils were noted. Although no artifacts were identified in association with these bands, it did not preclude that artifacts may be found in these soils in other areas of the fan.

Unfortunately, the alluvial fan at Iita is actively being eroded. The extent of this erosion was evident from the initial visit of the ILAP project to Foulke Fjord in 2005 and most of the western third of the shoreline of the site has already been impacted. Damage to the site seems to be primarily due to wave action in the fjord that has been causing blocks of the fan to slough off and fall into the fjord (where they are quickly destroyed). As discussed below, the erosion of the fan appears to have accelerated in the past 100 years.

While the discovery of the Paleoeskimo period artifacts in 2006 indicated that there was at least one buried Paleoeskimo deposit and that other buried soils were likely present in the fan deposits, the evidence was recovered from a single 50x50 cm area in one unit it was of limited (yet tantalizing) value. It was not clear which Paleoeskimo period(s) were represented, whether multiple Paleoeskimo period occupations were present, how dense the deposits were, or how extensive they were in terms of area. Thus the ISADI project was initiated.

The main goals of the excavation component of the ISADI project were as follows:

1. Verify the existence of Paleoeskimo period deposits in primary stratified contexts.
2. Determine the vertical extent of the Paleoeskimo deposits—whether multiple buried soils are present and whether archaeological materials are associated with these soils.
3. Determine which Paleoeskimo period groups are present.
4. Determine the approximate areal extent of the Paleoeskimo occupation and buried soils.
5. Determine the nature of Thule deposits that overlay the Paleoeskimo material.
6. Assess the research potential of the site for future investigations of the Paleoeskimo occupation of Inglefield Land.
7. Assess the extent and significance of archaeological resources imminently threatened by erosion of the alluvial fan due to wave action.

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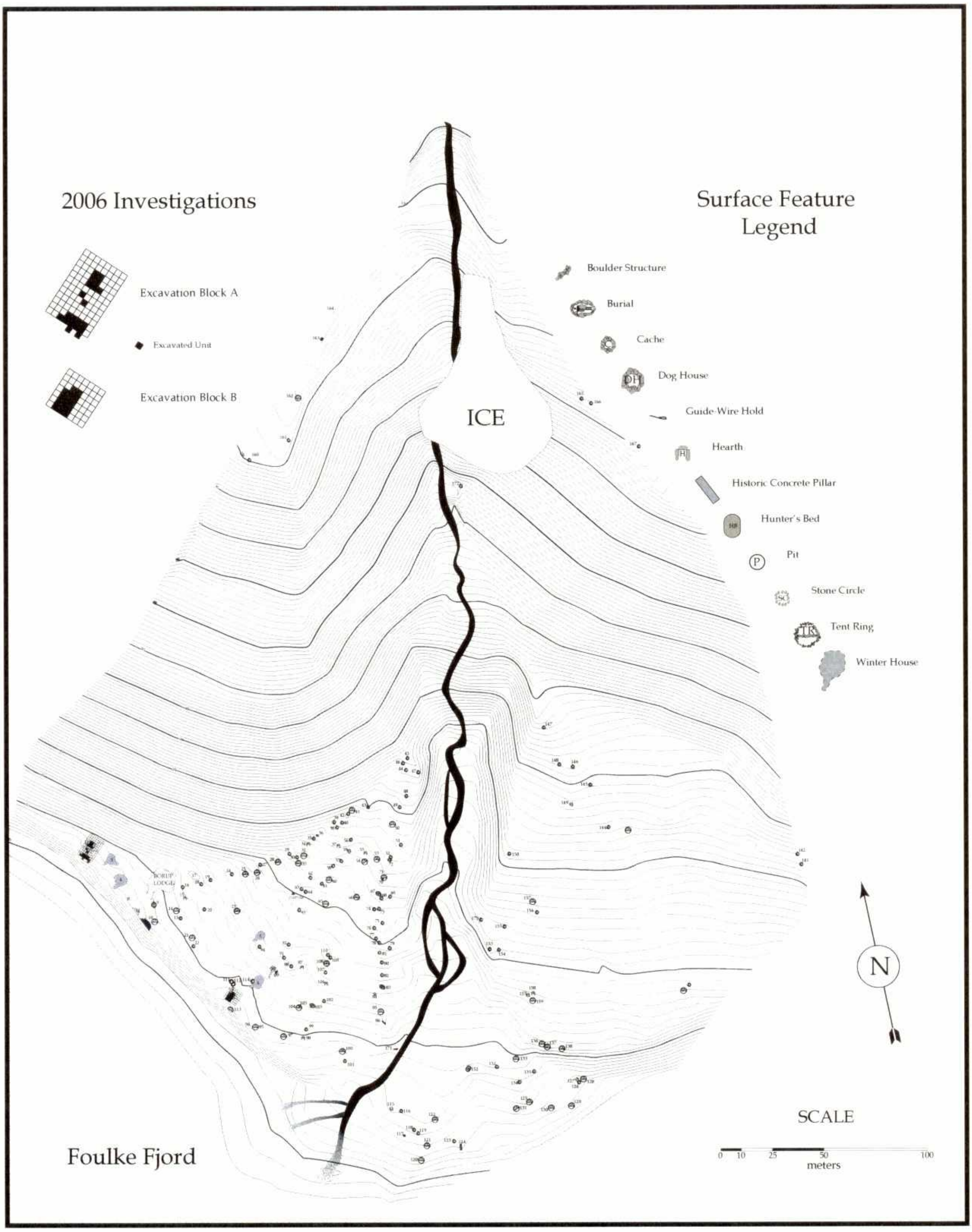

Figure 4. Location of archaeological features present at Iita and excavations undertaken in 2006. Mapping was undertaken in 2006 with a total station with the assistance of Micah Hale. Map produced by John Darwent.

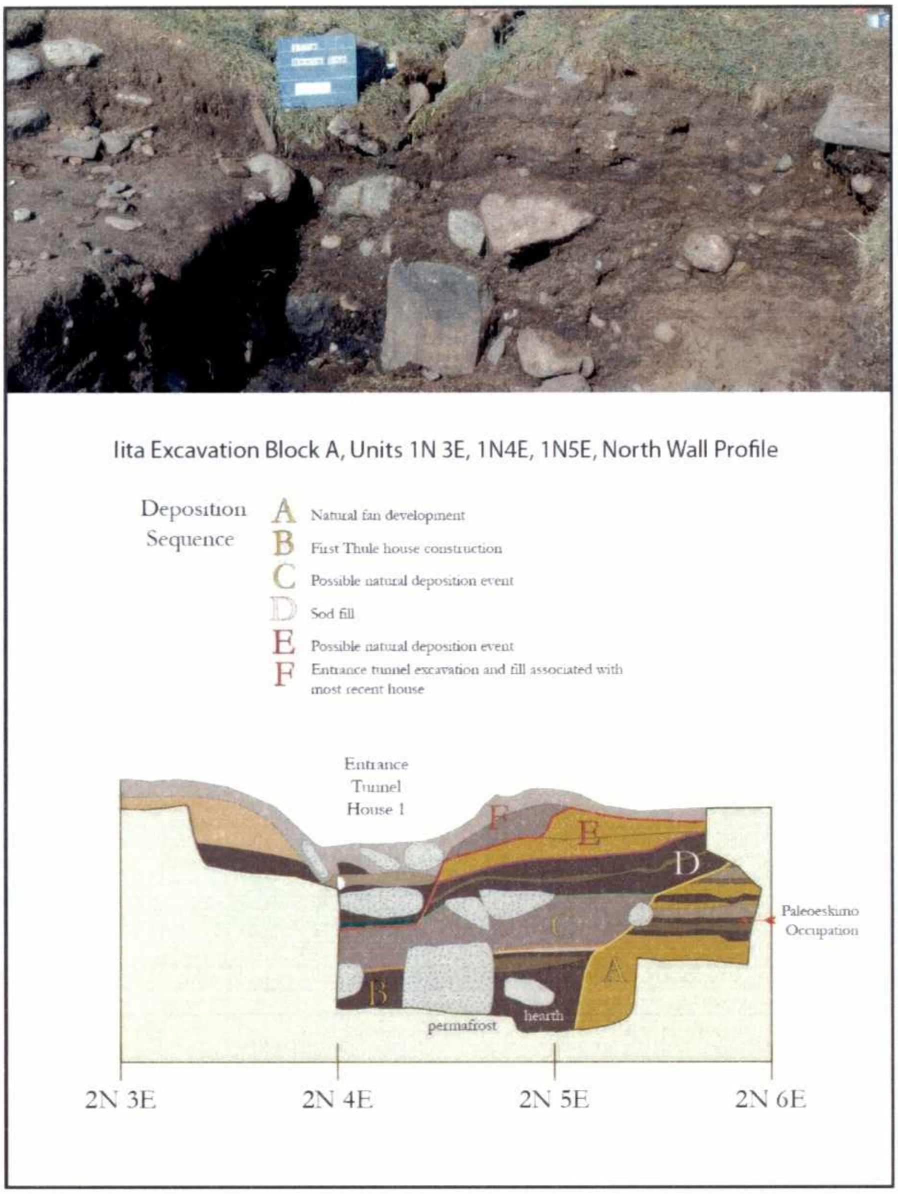

Figure 5. Profile depicting the location of the early Thule house buried under the early historic period House 1. The lower illustration shows the location of the paleoeskimo period occupation discovered in Unit 1N 5E. Photograph and illustration by John Darwent.

Fieldwork Details

Dates of Investigation

Fieldwork was carried out at Iita, Foulke Fjord, and regions south between August 7 and September 10, 2012. Logistics support for the project was arranged by CH2MHill Polar Services, and helicopter support was contracted through Air Greenland.

Field personnel

The field crew consisted of four members: Dr. John Darwent (Research Associate, University of California, Davis), Hans Lange (Curator, Greenland National Museum and Archives), Hans Kristen Lennert (graduate student, University of Greenland), and Justin Junge (graduate student, Portland State University) (figs. 6-11).

Figure 6. Hans Lennert (left), Hans Lange (center), and Justin Junge (right) taking lunch during surveying. Photographed by John Darwent.

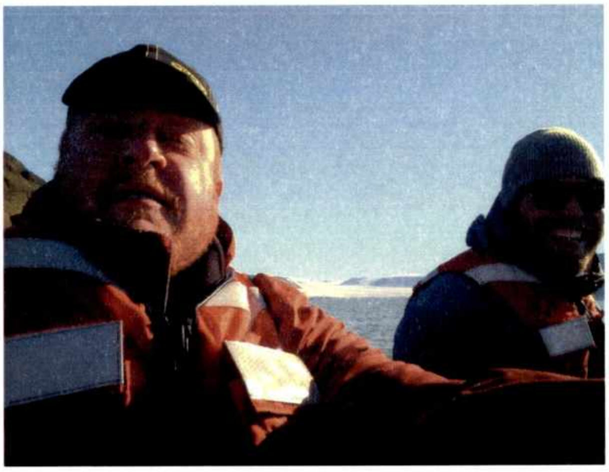

Figure 7. John Darwent (left) and Justin Junge with the Dodge Glacier in the background. Photographed by John Darwent.

Figure 8. Hans Lennert (left), Hans Lange (center), and Justin Junge (right) excavating on the eastern side of the stratified deposits at Iita. Photographed by John Darwent.

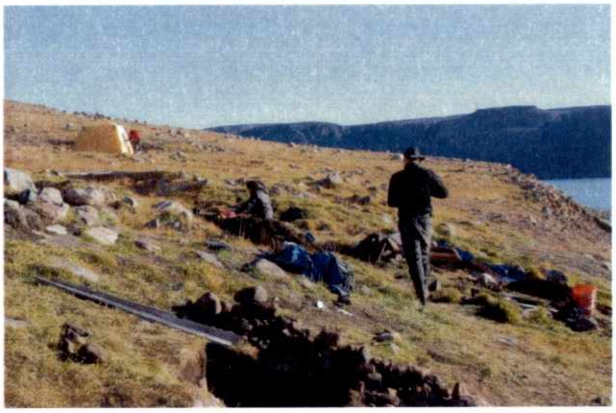

Figure 9. Another photo of the excavations at Iita. The yellow tent sits in the remnants of the foundation associated with Borup Lodge. Photographed by John Darwent.

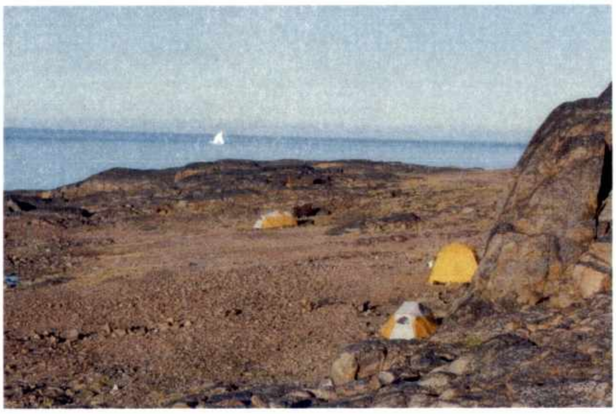

Figure 10. Muskox in camp behind Hans Lennert's tent. Muskox were very plentiful in Foulke Fjord throughout the field season. Photographed by John Darwent.

Figure 12. John Darwent recording a Late Dorset hearth feature in Foulke Harbor. Photographed by Hans Lange.

Excavations

Through consultation with the NKA, it was established prior to the field season that the ISADI project was permitted to excavate up to a total of 14 noncontiguous 1x1 m units during the 2012 season. This was a change from the initial proposed strategy—a linear trench—which would have proved inadequate and impractical for the needs of the project.

Although permission was granted for 14 units, only nine 1x1 m excavation units were opened during the 2012 field season (Fig. 12)—during the initial phase of the excavations we quickly found that there were a tremendous number of Thule artifacts and faunal remains in the upper levels, which substantially slowed work to the point that excavation of further units was not feasible. However, nine units were sufficient to complete the goals of the project.

In order to tie the excavation units to the existing map created for Iita during the 2006 season, the excavation grid for House 1 (also known as Excavation Block A) was expanded and all units were tied to this grid. Although using this grid was largely a factor of convenience, House 1 is in the center of the stratified soils present at the site. All units were identified by their position in the grid. The original 0N 0E designation of the 2006 grid was maintained, and thus some units had negative numbers.

The units were not randomly chosen for excavations; rather, attempts were made to define the extent of the buried deposits of the site. Therefore, five units were placed to determine the perimeters of the buried-soil area. The other four units were place more centrally in the excavation block in hopes of best defining the vertical sequence of deposition at the site. There were some practical issues that also dictated where units were placed, which were mainly related to avoiding construction and perceivable earth movement associated with the Thule features in the excavation area.

The excavation of the test units was primarily undertaken with trowels; however, it was necessary during the removal of the sod layer to use shovels in order to preserve the sod in blocks for replanting after excavation. All excavated soil (with the exception of sod blocks) was screened through 1/8 inch (3.175 mm) mesh. The fine mesh size of the screens was employed specifically to facilitate the recovery of small pieces of lithic debitage associated with potential Paleoeskimo deposits. While this did result in the recovery of many small pieces that would have been lost through use of 1/4 inch screen, it substantially slowed

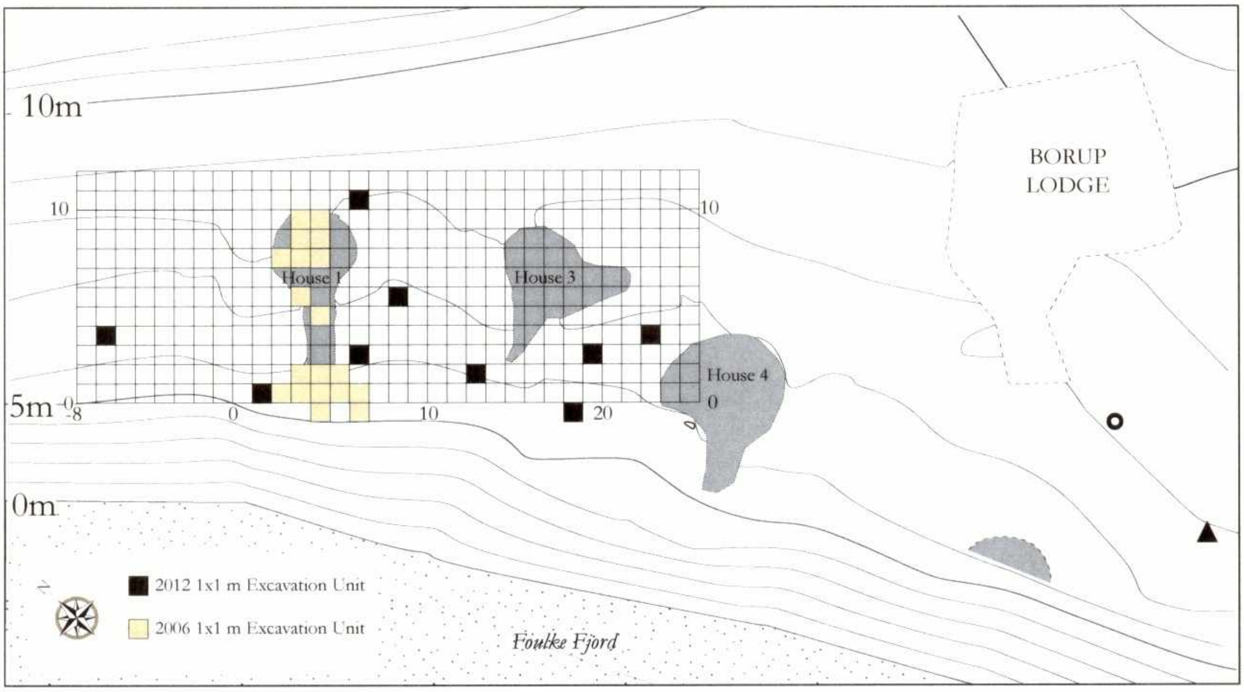

Figure 12. Location of excavation units from the 2006 and 2012 field seasons at Iita. The grid for the units was established in 2006 (Excavation Block A). Map by John Darwent.

the excavation in the upper Thule and historic period layers because of the extensive number of little auk (dovekie) bones present.

The units were excavated in 10 cm arbitrary levels. Although natural levels would have been preferable (see recommendations below), we used arbitrary levels due to time constraints and the exploratory nature of the excavations. In the central units of the excavation area, efforts were made to take down the levels in relation to the surface slope. Depth measurements were made using line levels, using the highest elevation corner of the unit as the datum point.

All formed artifacts discovered in situ were measured to a three point provenience using the south and east walls. Those which were recovered from the screen and other "bulk" artifacts—faunal remains, lithic debitage, wood, and metal—were collected by quadrant for each level.

At the outset, the intention was to excavate the 1x1 m units down to sterile soils and then excavate one quadrant down as deep as was practical. Unfortunately, in several units excavation was halted by permafrost. Due to the lateness of the season, ambient air temperature slipped below 0° C for most of the day, which made it impossible to melt the permafrost in the lower units. In two units at the end of the excavation season, excavation became limited to one quadrant each because of freezing temperatures. After the completion of excavation minimally one wall per excavation unit was profiled, with the most representative wall recorded.

Results

Stratigraphy

During the 2006 season it was noted that Iita possessed complex stratigraphy and there were different depositional regimes across the site that relate to the formation of the kame and alluvial fan at the site. These zones are depicted in Figure 13 and can be seen in an aerial view of the site in Figure 3. Although there is no data at present to determine the calendric years when the feature was formed, it is fairly evident that it began to build in the early to mid-Holocene on top of preexisting Palaeoproterozoic quartz diorite bedrock (see Dawes et al. 2000). The first Holocene feature to form was the central kame, which was created by a glacial lobe that ran down the now-present creek bed into the fjord. It is not known how big the kame was originally, but a series of three to four benches, presumably of marine origin, suggest that after its formation there has been significant uplift in the region. It is likely that once the smaller glacier lobe had abated that an outwash creek continued to flow in the channel and began to cut through the kame and begin to build the alluvial fan present today. Based on England (1999) and England et al. (2006), this process likely began 8000–7000 years ago when the ice sheet in this area of Greenland started to recede. Again, the timing of the retreat of the ice and subsequent sea level changes is not available at present; nevertheless, based on the location of Late Dorset and Thule features at the same elevation in other areas of Inglefield Land, it is likely that the fan as is present today was in place by A.D. 1 to 500. However, at this time this date is just an estimation, and further geomorphic study of the fan and the adjacent fjord is necessary to accurately resolve the history of the fan's development.

The different areas indicated in Figure x have had differential deposition, which affects where archaeological features are or could be located. The area marked in blue was a surface that was originally created with the development of the kame. Although there was no testing on this surface, it appears that there has been little in the way of soil or sediment deposition (based on erosional cuts), and thus most of the potentially 7000 years that the surface has been open might be in as little as 10 cm of soil.

The two surface areas marked in yellow and orange lie directly on alluvial fan deposits associated with the stream. In both of these areas soil development appears very restricted and very little in the way of deposition has occurred. Thus like the older upper terrace surface, most archaeological deposits are either on the surface or within the upper 20 cm of the soil column. There has been considerably more soil development on the western side of the fan (denoted in yellow) than on the eastern side of the fan (denoted in orange). It is not clear whether this difference is related to the history of the fan's development—the eastern side appears to have more recent abandoned stream channels—or some factor related to the nature of the fan surface—the eastern side is constructed of larger boulders and cobbles and thus is not as amenable to soil development as the west side. Most of the archaeological features in these two areas based on the inventory completed in 2006 of the site are of Thule or historic origin, but in 2012 a potential Late Dorset structure was found on the western side of the fan possible associated with a rectangular house depression. However, evidence for this feature (lithic artifacts and the depression itself) is directly on the surface adjacent to historic artifacts, and thus there is little possibility of extensive buried deposits being present in this area.

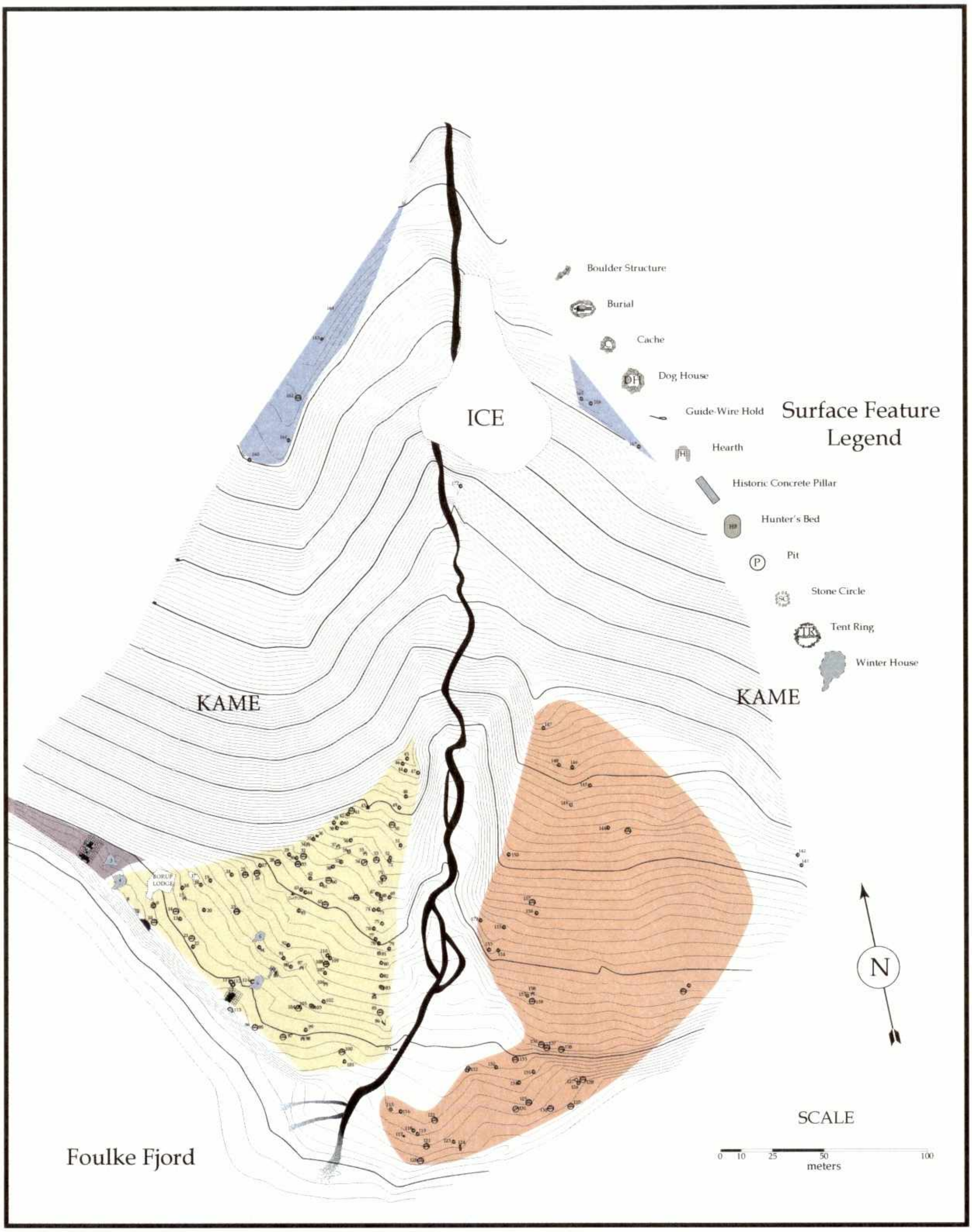

Figure 13. Site map of Iita depicting the location of different depositional regimes (indicated by color) of the locality discussed in the text.

The fourth area of deposition is indicated in purple in Figure 13 and was the main focus of the 2012 testing because it has had substantial deposition over at least the past 1200 years. Behind this area is the kame slope, which gains approximately 6.75 m for every 10 that translates into approximately a 65–70° slope. At this grade the slope is not stable and there is a constant flow of material—sand, small pebbles, and cobbles—down the kame that is continually building at the base. From the stratigraphic profiles of the test units, to be discussed below, it appears that there are punctuated events—larger slides or rapid deposition. In what appears to be a fairly regular cycle, these slide events give way to periods of stasis where there was first vegetation growth followed by soil development, which is subsequently followed by another colluvium/alluvium flow. At present, the periodicity of this cycle or whether it is regular or erratic are not known, though radiocarbon dating should clarify this.

Profiles

Unit 2N 6E

Unit 2N 6E was a 1 m^2 unit that was placed northeast of Unit 1N 5E, which was excavated in 2006, in order to investigate the initial discoveries made during the earlier excavations at Iita (see Fig. 12). It was excavated down to 75 cm below the ground surface as a 1x1, at which point it was sterile of cultural material, but it was taken down an additional 37 cm in the northwest quadrant to permafrost (112 cm below surface) to insure that this was the case.

A total of 30 different depositional layers were identified in the profile of the unit after completion of excavation (Fig. 14; Table 1). Not including the sod, these strata broke down into three types of layers—buried soils, pebble layers, and sand layers—that seem to have developed under similar depositional contexts.

The buried soils are characterized by a silty loam to loamy sand texture with dark coloring produced likely by high organic content related to the development of surface vegetation. Presumably these soils would have resembled the current surface of the alluvial fan today. Twelve such strata were present in the column. Those at the top of the sequence tended to be silty loams, where as those near the bottom were loamy sands. At present it is not understood why there is an increase in the coarseness of the matrix size in the lower regions of the sequence, but probably the phenomenon relates to variations in the deposition of parent material through time (e.g., marine source as opposed to colluvium).

Based on field assessments—which may be changed after radiocarbon evidence and cataloging of the artifacts has been completed—the different layers were associated with tentative temporal/cultural periods. Obviously, the sod relatively modern in age, and layer 2 probably was deposited in the 20th century as well. Preceding this, layers 3, 4, and 5 were likely associated with the same period of time that House 1 was occupied and Donald MacMillan's (1918) Crockerland expedition was at Borup Lodge—the early 20th Century—or later during the historic period based on artifacts that were in association. A complete inventory is now underway, but some of the more diagnostic artifacts include bullet casings, a brass 35 mm film reel, nails, and glass, as well as Inughuit artifacts such as an ivory needle case, a wooden ulu handle, a bone bead, dog harness pieces made of ivory, and miscellaneous worked bone, antler, and ivory objects.

In the third level of excavation (~20–30 cm BS) there was a dramatic decrease in the number of historic items present. Therefore, layers 6–10 are probably Thule-historic in age, but the layers below these, 11 to 14, were more than likely prehistoric and therefore can be considered Thule, especially on the basis of a radiocarbon dated of 272±35 BP (AD 1492-1952)(see Appendix 1 for details). Although the tail-end of this date is modern, based on probablity most like this date is from bone As can be seen in the west wall profile (Fig. 15), there has been some sort of truncation of the upper layers in the southern end of the unit above Layer 9. Although there are some discontinuous layers present (meaning they do not extend the entire length across the unit), there do not appear to be any breaks in the depositional sequence. And thus while radiocarbon dating will be necessary to confirm this, there does appear be a continuous sequence of occupation through the Thule period present in this area of the site. Although speculative, we conjecture that Layer 15 might be Early Thule in origin (approximately 14th–15th centuries). The reason for this conjecture is that this layer (and Layer 16) overlies an odd deposit of sand (Layer 17) that is substantially thicker in the west than in the west. This slope, in conjunction with textural and color differences compared to the strata above and below and an increase in the number of larger cobbles, suggest that possibly this sand accumulated during the construction of the early Thule house discovered in front of House 1 during the 2006 excavations. However, if sea level was higher at this point in the past, a marine origin might be plausible. Further work by a geomorphological specialist is necessary to determine the precise derivation

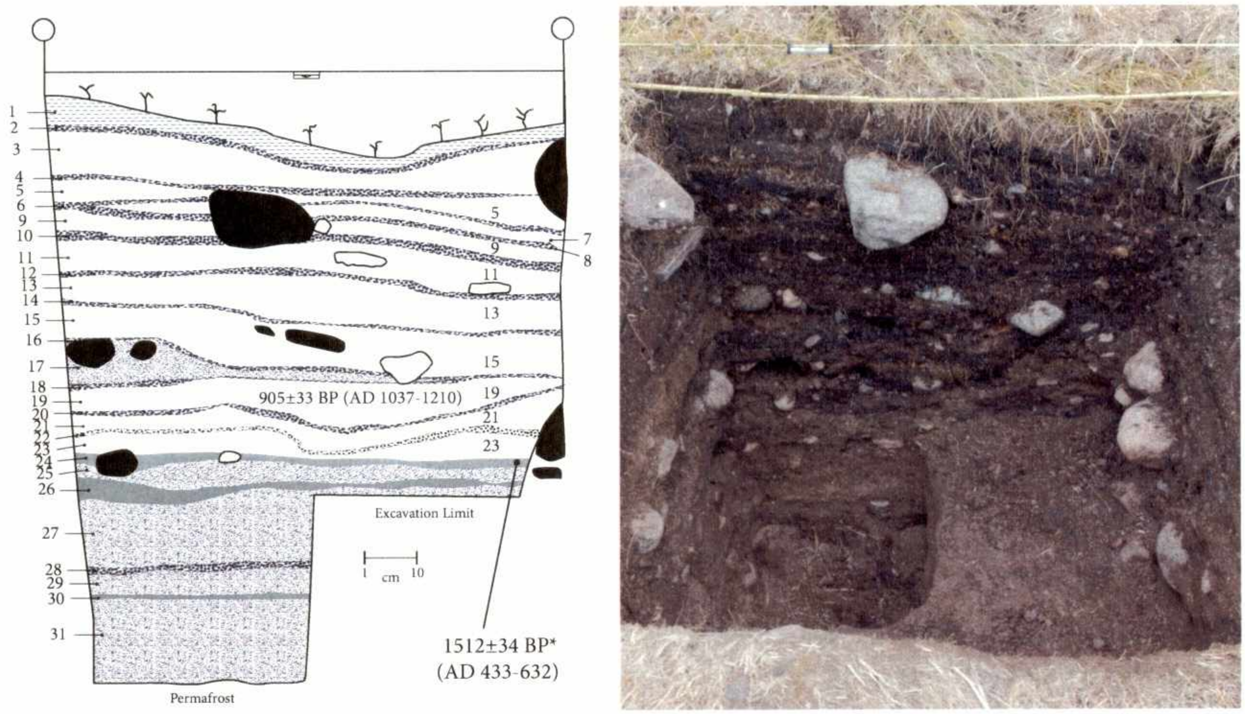

Figure 14. North wall soil profile illustration and photograph of Unit 2N 6E. Numbers correspond to layer descriptions present in Table 1. Illustration and photograph by John Darwent.

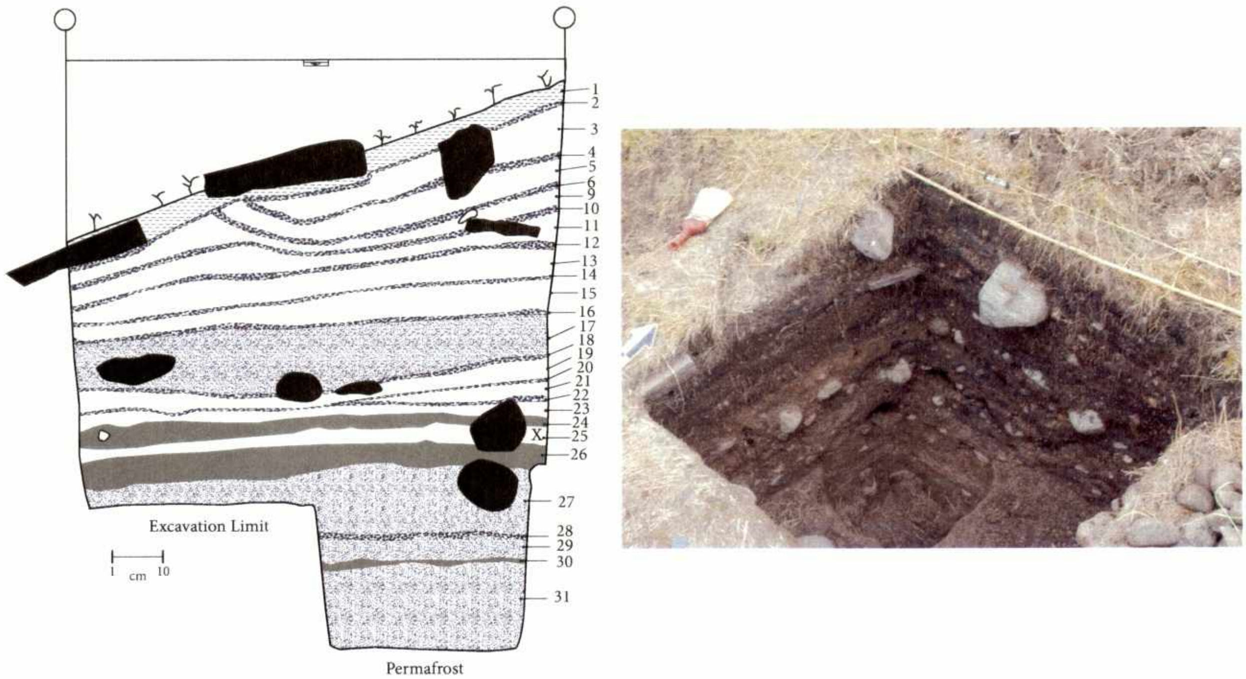

Figure 15. West wall soil profile illustration and photograph of Unit 2N 6E. Numbers correspond to layer descriptions present in Table 1 and Figure 14. Illustration and photograph by John Darwent.

Table 1. Soil layers present in the north and west wall profiles of Unit 2N 6E, depicted in Figure 14 and 15.

Layer	Layer type	Description	Color	Postulated Cultural / Temporal Affiliation
1.	Sod	Silty loam with some pebbles.	10 YR 4/1	Modern
2.	Pebble	Continuous ~1 cm thick band of pebbles in silty sand.	Color is variable. ~ 10 YR 5/2	Modern
3.	Buried soil	Silty loam with pebbles. Primarily black in color with some mottles. Very midden-like in nature based on the large amount of bone present.	10 YR 2/1 with 10 YR 3/2 to 10 YR 2/2 mottles	Historic (associated with House 1)
4.	Pebble	Continuous ~1 cm thick band of pebbles in silty sand.	Color is variable. ~ 10 YR 5/2	"
5.	Buried soil	Silty loam with pebbles.	10 YR 3/2 to 10 YR 2/2 mottles	"
6.	Pebble	~1 cm thick band of pebbles in silty sand that joins with Layer 8 on the west side of the profile.	Color is variable. ~ 10 YR 5/2	Thule-historic
7.	Buried soil	Very thin layer of silty loam with pebbles that disappears on the west side of the profile.	10 YR 3/2 to 10 YR 2/2 mottles	Thule-historic
8.	Pebble	~1 cm thick band of pebbles in silty sand that joins with Layer 8 on the west side of the profile.	Color is variable. ~ 10 YR 5/2	"
9.	Buried soil	Silty loam with pebbles. Very dark colored in the west side of the profile. Bone is present in the wall in this layer. This layer may have a thin band of pebbles running through it.	10 YR 2/1 with 10 YR 3/2 to 10 YR 2/2 mottles	"
10.	Pebble	Continuous ~1 cm thick band of pebbles in silty sand.	Color is variable. ~ 10 YR 5/2	"
11.	Buried soil	Silty loam with pebbles. Very dark throughout level.	10 YR 2/1 to 10 YR 2/2	Thule
12.	Pebble	Continuous 0.5–1 cm thick band of pebbles in silty sand.	Color is variable. ~ 10 YR 5/2	"
13.	Buried soil	Silty loan with pebbles. Relatively dark throughout profile.	10 YR 2/1 to 10 YR 2/2	272±35 BP (AD 1492–1952)
14.	Pebble	Continuous band of pebbles in silty sand. Usually 0.5–1 cm thick but very thin in some locations of the profile.	Color is variable. ~ 10 YR 5/2	"
15.	Buried soil	Silty loan with pebbles. Bone present in profile.	10 YR 3/2 to 10 YR 2/2 mottles	Early Thule
16.	Pebble	Continuous band of pebbles in silty sand. Usually 0.5–1 cm thick but very thin in some locations of the profile.	Color is variable. ~ 10 YR 5/2	"
17.	Sand	Sand with cobbles and some pebbles. Origin not clear—could be construction fill, land slide, or even marine origin.	10 YR 5/2	"
18.	Pebble	Continuous ~1 cm thick band of pebbles in silty sand, though it is thinning in the east	Color is variable. ~ 10 YR 5/2	"
19.	Buried soil	Silty loam with pebbles. Midden-like soil, very dark through-out.	10 YR 2/1	Late Dorset 905±33 BP (AD 1037-1210)
20.	Pebble	Continuous ~1 cm thick band of pebbles in silty sand.	Color is variable. ~ 10 YR 5/2	"
21.	Buried soil	Silty loam with pebbles. Dark but not as much as previous buried soil	10 YR 2/1 with 10 YR 3/2 mottles	Late Dorset
22.	Pebble	Continuous ~1 cm thick band of pebbles in silty sand.	Color is variable. ~ 10 YR 5/2	"
23.	Sand	Sandy gravel with large fist-sized cobbles. Artifacts and bone present	Color is variable. ~ 10 YR 5/2	"
24.	Buried soil	Silty–sandy loam with pebbles and cobbles.	10 YR 3/2 to 10 YR 2/2 mottles	"
25.	Sand	Sand with pebbles and cobbles. Continuous across profile. Artifacts present in profile in west wall	10 YR 5/2 to 10 YR 4/3	"
26.	Buried soil	Silty–sandy loam with pebbles and cobbles. NO artifacts or bone present.	10 YR 3/2 to 10 YR 2/2 mottles	PRE-Late Dorset
27.	Sand	Sand with pebbles and cobbles. Continuous across profile. Artifacts present	10 YR 5/2 to 10 YR 4/3	"
28.	Pebble	Continuous ~1 cm thick band of pebbles in silty sand.	Color is variable. ~ 10 YR 5/2	"
29.	Sand	Sand with pebbles and cobbles.	10 YR 5/2 to 10 YR 4/3	"
30.	Buried soil	Loamy sand but with limited visible organics	10 YR 3/2	"
31.	Sand	Sand	10 YR 5/2 to 10 YR 4/3	"

of this soil. Unfortunately there were a limited number of artifacts recovered in the depth range of these layers.

The transition between the Thule and Late Dorset occupation of Iita is probably associated with Layer 18 based on artifact depths. The last artifacts that were undoubtedly of Thule origin were recovered from Level 4 (~40–50 cm below surface) (a piece of drilled whalebone that was likely part of a sled shoe, one small piece of bone with multiple finely drilled holes, and a piece of thick soapstone lamp/pot), which is likely associated with layers 15 or 16. Beginning with Level 5 (~50–60 cm BS), the artifact inventory is Paleoeskimo in origin, consisting of chert debitage. This level is most likely associated with Layer 19 based on depth. Although no diagnostic artifacts were recovered with Layer 19, in Level 6, which was associated with layers 20, 21, and 22, an endblade of undoubtedly Late Dorset origin was recovered, indicating that the materials above were also most likely Late Dorset as well. In addition, a radiocarbon date of 905±33 BP (AD 1037-1210) from a caribou metacarpal strongly suggests a Late Dorset affiliation (see Appendix 1 for details). Level 6 (~60–70 cm BS) had the most extensive number of Late Dorset artifacts present for all of the units excavated in 2012, comprised of 336 pieces of debitage, six microblades, two bifaces, two flake tools, one endblade, and one microblade tool.

Level 7 (~70–80 cm below surface) also had Paleoeskimo period artifacts present, but in reduced numbers (three pieces of chert debitage and one microblade tool). These artifacts were observed during excavation to come from Layer 24, which is a dark buried soil. In addition, one flake was discovered in association with Layer 25 during the drawing of the west wall profile. These artifacts are from the earliest Late Dorset occupation of the site. Interestingly, Layer 2, which is another buried soil, is devoid of artifacts, bone, or other macro-scale organic matter. We presume that this was an open surface that was present prior to the Late Dorset occupation of the site and possibly Inglefield Land itself. Although radiocarbon dates are not yet available, this soil most likely predates A.D. 700.

In the remaining layers—27 to 31—no evidence for human use of the fan was discovered. The presence of another pebble layer and one additional buried soil indicates that the fan and the development processes that typify the landform today were in operation prior to the Late Dorset movement into the region. Undoubtedly this dearth relates to the abandonment of Inglefield Land between the Early Dorset (A.D. and Late Dorset (A.D. 750–1350). Permafrost was encountered at 112 cm below surface, and thus it is not known how deep evidence for cyclical development of soils goes in the landform.

Unit 1N 12E

Unit 1N 12E was 1 m^2 unit placed in front of House 3 in order to determine whether the Late Dorset deposits continued to the east of the House 1 area. It was excavated to a depth of 75 cm below surface; unfortunately, permafrost was encountered at this depth but cultural material was still being recovered. Thus the ultimate depth of occupation in this location is not known.

Seventeen layers of deposition were identified in the north wall profile unit after excavation was completed (Fig. 16.; Table 1). Like 2N 6E, most of the layers classified as buried soil, pebble, and sand layers; however, four depositional layers (11, 12, 13, and 17) relate to a pit feature that was identified in the northwestern quadrant of the unit at approximately 65 cm below surface. This feature is discussed below.

The sod layer was particularly thick on 1N 12E and appears to have been built up by construction and use of House 3. Like 2N 6E, the sod layer is late historic to modern in age and has a random assortment of metal, glass, and ceramic materials, with the most interesting object being a fork. Due to the density of the soil and thick root growth, portions of this level had to be removed by shovel and most of it was not screened.

Layers 2 and 3 appear to be composed of old sod and thus are probably construction fill associated with the construction of House 3. In addition to the sods, multiple large rocks were present in these layers, as is evident from the profile. Depending on when House 3 was constructed, these layers are either late prehistoric or early historic period in origin related to the Inughuit occupation of Foulke Fjord—very few historic items were associated with these levels.

Layers 5 to 9 are Thule in age, with the lower ones possibly being early Thule, but this speculation is based merely on superposition. Unlike the previous layers, these strata appear to have a midden origin as opposed to a construction origin. Although Layer 7 is drawn as one unit, the presence of a thin band of pebbles half way through the layer (Layer 8) on the west side of the profile suggests that it was probably two different soil building events that cannot be discerned. Large amounts of bone were recovered from these layers but few artifacts—one of the most distinctive pieces was a thick rim of a soapstone vessel.

While it is not certain that Layer 10 is the beginning of the Late Dorset occupation, it is clear that the layer was an open surface during the Late Dorset period. At approximately 63 cm below the surface a trian-

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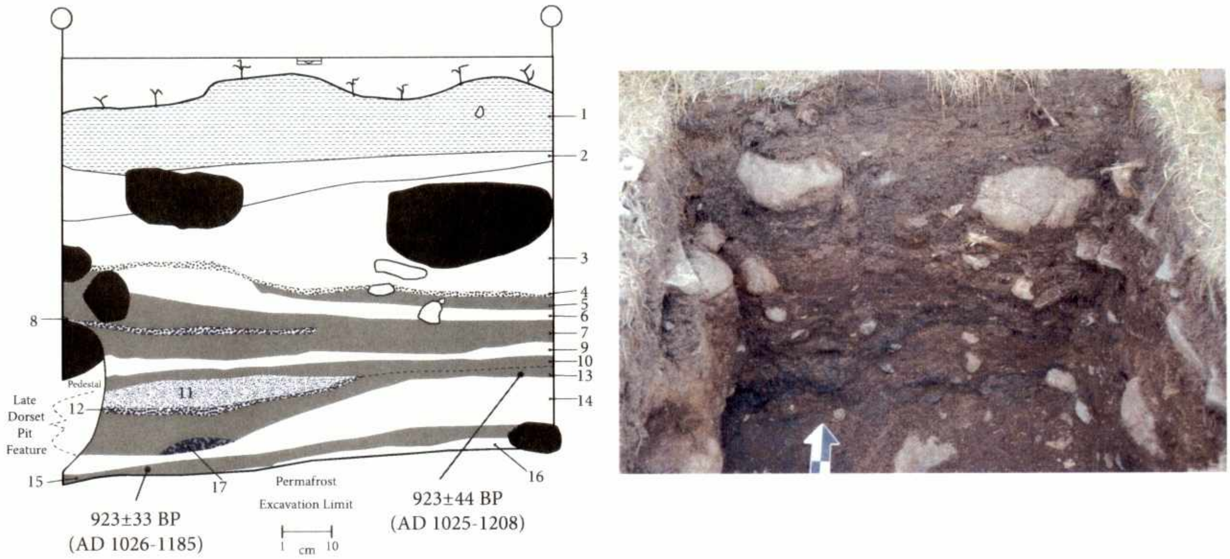

Figure 16. North wall profile illustration and photograph of Unit 1N12E. Numbers correspond with layer descriptions listed in Table 2. Illustration and photograph by John Darwent.

Table 2. Soil layer descriptions for the north wall profile of unit 1N 12E, depicted in Figure 16.

Layer	Layer type	Description	Color	Postulated Cultural / Temporal Affiliation
1.	Sod	Silty loam. Very thick and dense, many roots	10 YR 2/2	Modern
2.	Older sod	Silty loam. Very thick and dense, many roots	10 YR 2/2	Thule-historic
3.	Sod and fill	Sod and fill associated with the construction of the Thule-historic House 3 at the site. Mixed sods, large rocks, and bone present	Mixed variable	"
4.	Pebble	Continuous ~1 cm thick band of pebbles in silty sand.	Color is variable. ~ 10 YR 5/2	"
5.	Buried soil	Silty loam with pebbles. Present in the eastern two-thirds of the profile	10 YR 2/1 to 10 YR 2/2	Thule
6.	Sand	Silty sand with some pebbles	10 YR 4/2	"
7.	Buried soil	Silty loam with pebbles. Although represented as one layer, it is likely a combination of two layers but the division is not salient in the eastern half of the unit. On the western side it is bisected by Layer 8	10YR 2/2 with some 10YR 2/1 mottles and sections	Early Thule
8.	Pebble	Discontinuous 0.5–1.0 cm thick layer of pebbles with silty sand	Color is variable. ~ 10 YR 5/2	"
9.	Sand	Silty sand with some pebbles	10 YR 5/2 to 10 YR 4/2	"
10.	Buried soil	Silty loam with some pebbles. Many pieces of organic matter are visible, including wood fragments. Possible split in two with Layer 12 in the east side of the profile	10 YR 2/1	Late Dorset
11.	Post-feature fill	Sand. Appears to be material that filled in the pit feature (Layer 13) after its abandonment.	10 YR 5/2	"
12.	Post feature fill	Pebbles with silty loam. Appears to be material that filled in the pit feature (Layer 13) after its abandonment.	Color is variable. ~ 10 YR 4/2	"
13.	Feature fill	Silty loam with a large amount of organic material (charcoal, burnt blubber)	10 YR 2/1	923±44 BP (A.D. 1025–1204)
14.	Sand	Silty sand with some pebbles and cobbles. Some dark black mottles present	10 YR 4/2	"
15.	Buried soil	Silty loam with a large amount of organic material (charcoal, burnt blubber)	10 YR 2/1	923±33 BP (A.D. 1026–1185)
16.	Sand	Silty sand with some pebbles and cobbles	10 YR 4/2	"
17.	Burnt blubber	Fat encrusted black soil	10 YR 2/1	"

gular Late Dorset endblade was recovered in the southwest quadrant. Serendipitously, Late Dorset Harpoon heads—types E and G—were recovered from the same quadrant 20 cm deeper. Although during the excavations it was not possible to discern individual layers at this depth because of the blackness of the soil, these harpoons were likely associated with either layers 13, 14, or 15. The implication of this is that it is clear that there are at least three buried soils associated with Late Dorset materials.

During the course of the excavations, it was recognized by the excavator (Hans Lange) that the northwest quadrant of the unit was chocked-full of burned organic matter, including charcoal, wood, bone, and particularly burned blubber. Because of the uniqueness of the deposit and its likely Late Dorset associations, a sample was taken of the soil. This was a fortunate action, because once excavation was completed, it appears from the north wall profile that there was a pit feature present. This feature would have been dug at the same time as Layer 13 was an open surface because two layers of fill are present in the feature (layers 11 and 12) that were subsequently covered by Layer 10. Although the function of the depression will probably be never precisely known, the presence of burned blubber in the bottom of the depression (Layer 17) that suggest that minimally the feature was some sort of heath, possibly for sea mammal fat rendering.

Permafrost was encountered during excavation of layers 15 and 16, and thus it is not known whether Layer 15 was the last occupied surface or if there was cultural material in Layer 16. A Late Dorset lamp fragment and a complete hafted scraper were found at a depth that is in line with Layer 15, so it is clear that it also contains an occupation as well.

Unit 5N 8E

Unit 5N 8E was a 1 m2 unit positioned between House 1 and House 3 in such a way as to avoid construction fill associated with the building of both houses but still evaluate the stratigraphy in this section of the fan. This unit was excavated to 70 cm below surface, at which point permafrost was hit. Unfortunately, cultural material was still being found at this depth and thus the terminal depth of the Late Dorset occupation was not determinable.

Thirteen strata were identified in the north wall profile of the unit (Fig. 17; Table 3). These layers paralleled those present in other units (i.e., pebble, sand, and buried soil layers), though there seemed to be fewer pebble layers.

While the placement of the unit was successful in avoiding construction fill associated with the houses, the upper levels of this unit were essentially midden associated with the use of these features. Obviously this includes the sod layer, which was relatively thick, and layers 2 and 3 as well. Historic artifacts abated after level 2 (approximately 20 cm below surface), and thus layers 4, 5, and 6 are likely Thule in origin.

Both layers 4 and 6 were buried soils that were midden like in their appearance, with a large amount of organics and bone. They were separated by a thin less-dark band of silty loam (Layer 5). As is evident from the drawn profile, large cobbles were present throughout these levels. Although it cannot be determined with certainty at this point, Layer 6 is probably early Thule in age as it right above or is the interface with the Late Dorset occupation of the fan. Level 4 (~30-40 cm BS), which roughly corresponds with the depth of Layer 6, did contain drilled whale bone that was unmistakably of Thule origin. However, a scraper and toy lamp fragment that were likely of Late Dorset derivation also turned up in Level 4 as well.

Although a plethora of artifacts were not recovered below Layer 6, those that were present were Late Dorset. The most spectacular piece was an ivory two-headed bear carving that was likely an amulet (described below), which was associated with Layer 11. Another two telling pieces were a thin-walled soapstone lamp fragment found in Layer 9 and a quartz crystal microblade recovered from Layer 13.

No features were encountered in the unit; however, layers 10, 11, and 12 were quite variable in thickness, which suggests that either there were erosion events or the land surface had a different topology than today. Permafrost was struck in Layer 13 and due to the lateness of the season and groundwater movement, it was impossible to complete the unit down to sterile soils.

Unit -1N 18E

Unit -1N 18E was the last unit started during the season. It was placed relatively close to the current erosion face to determine whether or not substantive stratified deposits were present in the area because this is one of the more threatened areas of the site. Initially this unit was 1x1 m in size; however, because the ambient air temperature fell below 0°C it became impossible to continue excavating the whole 1x1. Therefore, the SE quadrant (50x50 cm) was taken down to sterile soils in permafrost, which was encountered at 88 cm below the surface.

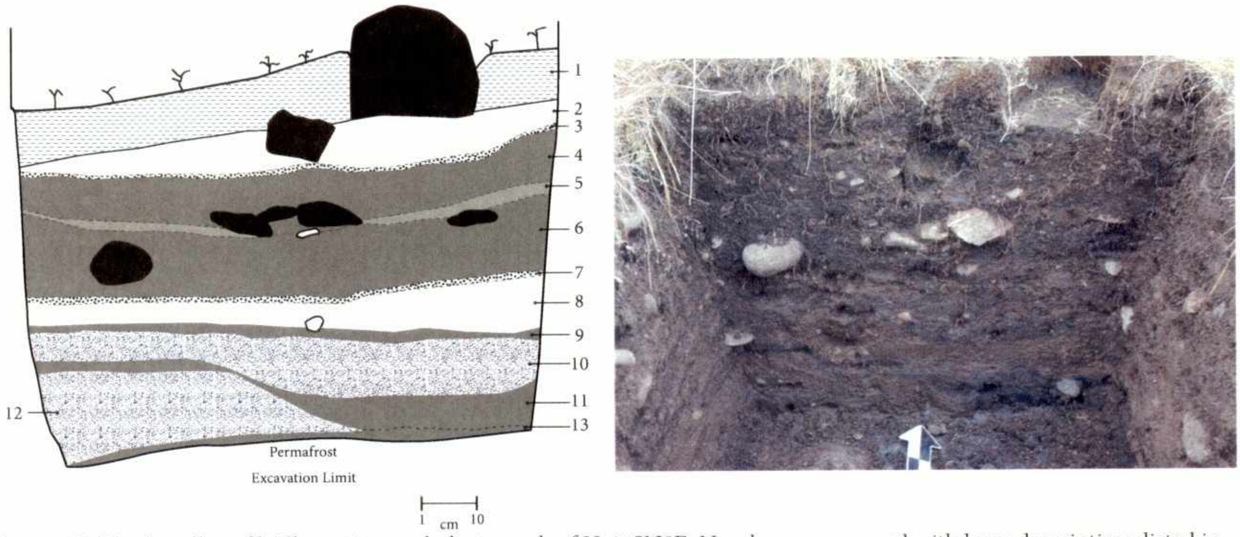

Figure 17. North wall profile illustration and photograph of Unit 5N8E. Numbers correspond with layer descriptions listed in Table 3. Illustration and photograph by John Darwent.

Table 3. Soil layer descriptions for the north wall profile of unit 5N 8E, depicted in Figure 17.

Layer	Layer type	Description	Color	Postulated Cultural / Temporal Affiliation
1.	Sod	Silty loam. Very dense, many roots	10 YR 2/2	Modern
2.	Buried soil	Silty loam with many roots (older sod layer)	10 YR 2/2	Historic (associated with House 1 and 3)
3.	Pebble	Continuous ~1 cm thick band of pebbles in silty sand	Color is variable. ~ 10 YR 5/2	"
4.	Buried	Silty loam with many roots, pebbles, and cobbles	10 YR 2/2 grading to 10 YR 2/1	Thule-historic
5.	Silty loam	Silty loam. Possible buried soil. More sand and lighter in color than layer above and below	10 YR 4/1	"
6.	Buried soil	Silty loam. Midden-like soil with larger amounts of bone, along with cobbles and pebbles	10 YR 2/2 grading to 10 YR 2/1	Thule
7.	Pebble	Continuous ~1 cm thick band of pebbles in silty sand	Color is variable. ~ 10 YR 5/2	"
8.	Sand	Sand with pebbles and cobbles	7.5 R 4/1	"
9.	Buried soil	Silty loam with a large amount of organic material	10YR 2/1	Late Dorset
10.	Sand	Sand with pebbles and cobbles	7.5 R 4/1	"
11.	Buried soil	Silty loam. Very thick in the eastern side of the profile (Late Dorset carving associated)	10YR 2/1	"
12.	Sand	Sand with pebbles and cobbles	7.5 R 4/1	"
13.	Buried soil	Silty loam with a large amount of organic material, including wood and bone.	10YR 2/1	"

Despite being only a 50x50 cm unit for the most of its depth, 16 individual layers were discernible in the east wall profile (Fig. 18). Although all of the layers match those found in other units, the strata in this unit seem to have a much higher sand content. However, this might be due to fewer "upper" layers being present. The sod layer was the typical dense root-laden silty loam present in all the other units, followed by a silty loam layer that appears to be a buried soil based on organic content. Of particular note, artifacts that were of either historic or Thule origin were only in the sod layer or possibly at the top of Layer 2 in this unit. Therefore, all artifacts below 10 to 15 cm below surface in this unit likely are of Late Dorset origin.

With the exception of one pebble layer—Layer 10—the rest of the profile is an alternation between buried soils and sand layers down to permafrost. Cultural material was recovered down to Layer 13 (and possible 14) and then the unit became sterile. A muskox radius collected from this layer dated to 944±35 BP (AD 1020-1167), which was the oldest noncontaminated Late Dorset date collected in 2012 (see Appendix 1 for details). Thus based on this profile, there are potentially six open surfaces that the Late Dorset occupied; however, the presence of a large rock in the southeast corner of the unit might have affected the deposition of layers 3, 4, 5, 6, 7, and 8. Even if this was the case and these layers represent one unit of sorts, then instead of six layers there are still four surfaces associated with the Late Dorset occupation in this area of the site. Unfortunately, the small size of this unit makes it difficult to extrapolate this out to the rest of the stratified deposits.

Most of the Paleoeskimo period material consisted of debitage but one quartz crystal microblade was present as well as two flake tools. Two bifaces—an endblade and a projectile point—are stylistically Late Dorset. Although debitage was present throughout the sequence, it was present in the greatest quantities in Level 6 where 57 chert flakes were recovered, which corresponds to Layer 13 in the profile.

Unit -1N 18E had a developed buried soil underneath the Late Dorset occupation—Layer 15. It is very likely that this is the same sterile layer that was encountered in Unit 2N 6E (Layer 26) and by stratigraphic implication, Layer 13 in -1N and 18E and Layer 24 in 2n 6E are also one in the same. Although more work is needed to correlate layers within the stratified deposits, the correspondence of these layers suggests that it might be possible to trace individual strata (and by inference occupations) across this area of the fan.

12N 6E

Unit 12N 6E was placed north of Feature 1 adjacent to the slope of the Kame. The purpose of this unit was to determine the nature of the stratigraphy closer to the source of parent material, as well as establishing whether cultural materials were present in this area of the stratified deposit. This unit measured 1x1 m2 and was taken to a depth of 93 cm below surface where permafrost was encountered.

Nineteen different layers were identified in the west wall profile of the unit (Fig. 19; Table 4), and consist of the same sorts of strata identified in other units at the site—buried soils, pebbles, and sand layers. However, likely due to its proximity to the kame, a considerably greater number of rocks—fist sized and larger—were present, which made excavation difficult.

Faunal material was found throughout the unit down to permafrost; however, artifacts were sparse and only two pieces of debitage were recovered—one from Level 5 and the other from Level 7. Based on the depth of these pieces and the orientation of the strata, it is likely that layers 2 to 6 are associated with the use of House 1, layers 7 to 12 are associated with Thule use of the site, layers 13 to 15 are either Thule or Late Dorset, and layers 16 to 19 are Late Dorset in age. Unfortunately, without more artifacts it is not possible to be certain of these temporal assignments.

3N -6E

Unit 3N -6E was placed on the western side of Feature 1 in order to determine whether the stratified deposits extended this far west and if Late Dorset material was also present in this location of the fan. This 1x1 m unit was excavated to a depth of 102 cm below surface, though the last 34 cm was in a 50x50 quadrant on the southeastern side of the unit.

Only eight layers could be identified in the profile wall. While this could be a case of simpler deposition processes occurring on this end of the site, the lack of differentiation was more than likely related to the presence of a larger boulder within the unit (see Figure 20). This rock was of such a size that it could not be removed from the unit and likely interfered with the deposition of matrix in its local area. Thus this unit is not likely representative of the overall strata of this portion of the stratified deposits; however, time did not allow for the excavation of a second unit in this area. A second large boulder was also found at a similar depth, but it could be removed from the unit.

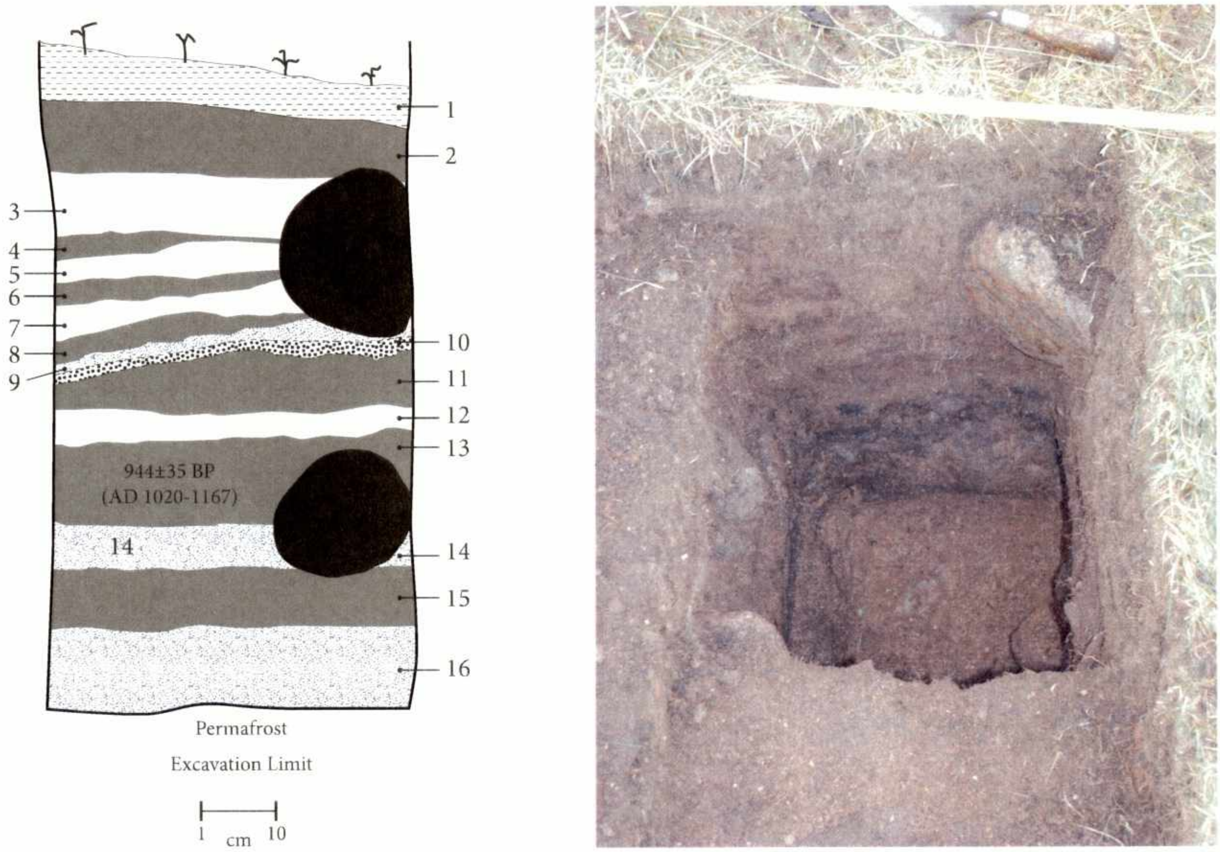

Figure 18. East wall soil-profile illustration and photograph of Unit -1N 18E. Numbers correspond with layer descriptions listed in Table 4. Illustration and photograph by John Darwent.

Table 4. Soil-layer descriptions for the north wall profile of unit -1N 18E, depicted in Figure 18.

Layer	Layer type	Description	Color	Postulated Cultural /Temporal Affiliation
1.	Sod	Silty loam. Very dense, many roots	10 YR 4/1 to 10 YR 3/1	
2.	Buried soil	Silty loam with pebbles	7 .5 R 4/1 to 7.5 R 5/1	Thule-Late Dorset
3.	Sand	Silty sand with pebbles	~7.5 YR 4/1	Late Dorset
4.	Buried soil	Silty loam with pebbles	7 .5 R 4/1 to 7.5 R 5/1	“
5.	Sand	Silty sand with pebbles	~7.5 YR 4/1	“
6.	Buried soil	Silty loam with pebbles	7 .5 R 4/1 to 7.5 R 5/1	“
7.	Sand	Silty sand with pebbles	~7.5 YR 4/1	“
8.	Buried soil	Silty loam with pebbles	7 .5 R 4/1 to 7.5 R 5/1	“
9.	Sand	Sand with pebbles	~7.5 YR 4/1	“
10.	Pebble	Continuous ~2 cm thick band of pebbles in silty sand.	Color is variable. ~ 10 YR 5/2	“
11.	Buried soil	Silty loam with pebbles	7 .5 R 4/1 to 7.5 R 5/1	“
12.	Sand	Sand with pebbles	7 .5 R 4/1 to 7.5 R 5/1	“
13.	Buried soil	Silty loam with pebbles	10 YR 2/1	944±35 BP (AD 1020–1167)
14.	Sand	Sand with pebbles	7 .5 R 4/1 to 7.5 R 5/1	“
15.	Buried soil	Sandy loam sand with pebbles	10 YR 3/2	Pre-Late Dorset
16.	Sand	Sand with numerous pebbles (more than layers before)	7 .5 R 4/1	“

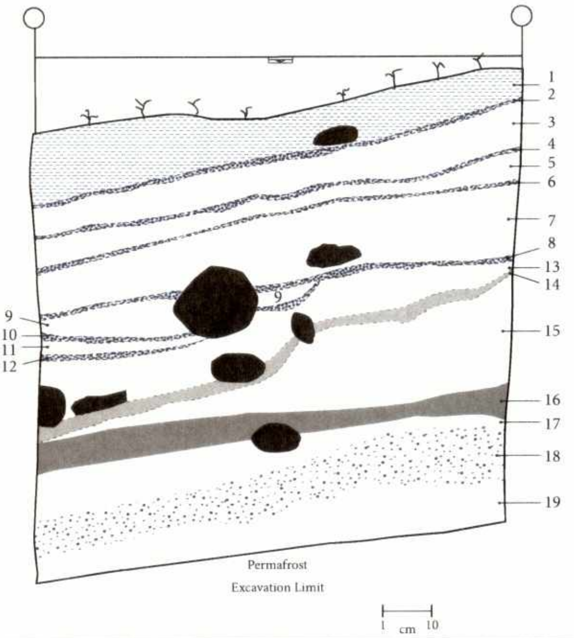

Figure 19. West wall soil-profile illustration and photograph of Unit 12N 6E. Numbers correspond with layer descriptions listed in Table 5. Illustration and photograph by John Darwent.

Table 5. Soil-layer descriptions for the north wall profile of unit 12N 6E, depicted in Figure 19.

Layer	Layer type	Description	Color	Postulated Cultural Affiliation
1.	Sod	Silty loam. Very dense, many roots.	10 YR 4/1 to 10 YR 3/1	Modern
2.	Pebble	Continuous ~1 cm thick band of pebbles in silty sand.	Color is variable. ~ 10 YR 5/2	Modern?
3.	Silty loam	Silty loam with pebbles. Possibly a buried soil or could be related to construction of House 1.	10 YR 4/1 to 10 YR 3/1	Historic (associated with House 1)?
4.	Pebble	Continuous ~1 cm thick band of pebbles in silty sand.	Color is variable. ~ 10 YR 5/2	Historic (associated with House 1)?
5.	Silty loam	Silty loam with pebbles. Possibly a buried soil or could be related to construction of House 1.	10 YR 4/1 to 10 YR 3/1	Historic (associated with House 1)?
6.	Pebble	Continuous ~1 cm thick band of pebbles in silty sand.	Color is variable. ~ 10 YR 5/2	Historic (associated with House 1)?
7.	Silty loam	Silty loam. Possibly a buried soil and might be two layers; however, they are not distinct. Black organic mottles are present at the bottom of the layer.	10 YR 4/1 to 10 YR 3/1 with 10 YR 2/1 mottles	Thule?
8.	Pebble	Continuous ~1 cm thick band of pebbles in silty sand.	Color is variable. ~ 10 YR 5/2	Thule?
9.	Sand	Silty sand present on the southern side of the profile and disappears approximately half way across.	10 YR 5/2	Thule?
10.	Pebble	~1 cm thick band of pebbles in silty sand that continues one-third of the way across the western profile and disappears at a large cobble, though it may continue below Layer 9 half way across the unit after the cobble.	Color is variable. ~ 10 YR 5/2	Thule?
11.	Sand	Silty sand present on the southern side of the profile and disappears approximately one-third across.	10 YR 5/2	Thule?
12.	Pebble	~1 cm thick band of pebbles in silty sand that continues one-third of the way across the southern profile and disappears at a large cobble, though it may continue below Layer 9 half way across the unit after the cobble.	Color is variable. ~ 10 YR 5/2	Thule?
13.	Sand	Silty sand that runs across the profile but at a marked slope. Black organic mottles are present at the bottom of the layer.	10 YR 5/2	Thule-Late Dorset?
14.	Silty sand	Silty sand; darker than previous layer with the same black organic mottles. Possible buried soil.	~10 YR 3/2	Thule-Late Dorset?
15.	Sand	Sand layer. Runs across the profile but is considerably thicker in the northern end of the wall face.	10 YR 5/2	Thule-Late Dorset
16.	Buried soil	Loamy sand. Very dark in color and runs across the profile.	10 YR 2/1	Late Dorset?
17.	Sand	Sand with pebbles and cobbles.	7.5 YR 4/1	Late Dorset?
18.	Sand	Sand with pebbles and cobbles; black mottles present through layer. Increased pebbles compared to previous and lower layers.	7.5 YR 3/1	?
19.	Sand	Sand with pebbles and cobbles	7.5 YR 4/1	?

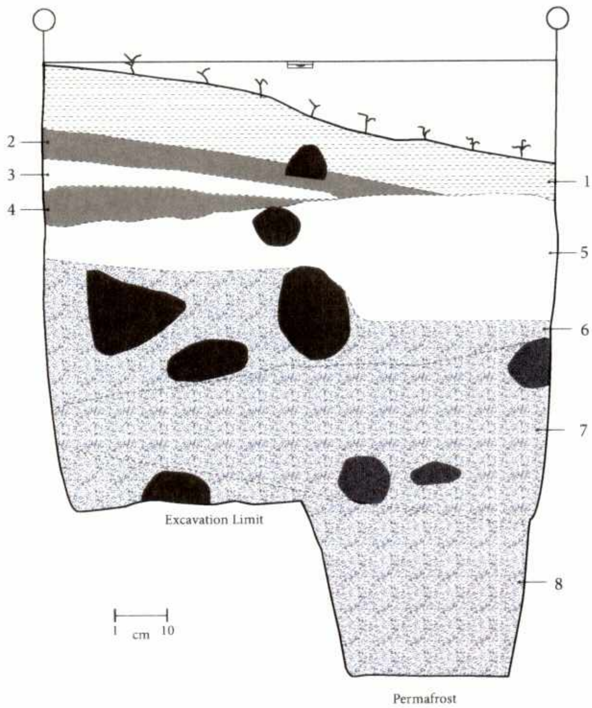

Figure 20. West wall soil-profile illustration and photograph of Unit 3N -6E. Numbers correspond with layer descriptions listed in Table 6. The large rock present in the NW corner of the unit likely altered the stratigraphy in this unit. Illustration and photograph by John Darwent.

Table 6. Soil-layer descriptions for the north wall profile of unit 2N -6E, depicted in Figure 20.

Layer	Layer type	Description	Color	Postulated Cultural /Temporal Affiliation
1.	Sod layer	Silty loam. Very dense, many roots	10 YR 4/1 to 10 YR 3/1	Modern
2.	Buried soil	Silty loam with pebbles, cobbles, and organic matter.	10 YR 2/1	Thule-historic
3.	Silty loam	Silty loam with pebbles and cobbles. Ends approximately half way across the unit	10 YR 4/1	"
4.	Buried soil	Silty loam with pebbles, cobbles, and organic matter.	10 YR 2/1	"
5.	Silty sandy loam	Silty loam with pebbles and cobbles. Might have been divided into several different layers but there were not distinct enough to discern	10 YR 4/1 to 10 YR 3/1	Thule-Late Dorset?
6.	Sand	Sand with numerous cobbles—some very large—and pebbles	10 YR 5/2	Late Dorset
7.	Mottled sand	Sand with black mottles, which may have been related to an old surface that is now ill -defined. Numerous cobbles continue	10 YR 4/1 to 10 YR 3/1 with 10 YR 2/1 mottles	"
8.	Sand	Sand. Less cobbles but more pebbles, some of which are possibly banded	10 YR 4/2	?

Artifacts were not prevalent in this unit, including the sod layer. While faunal remains were prevalent in layers 1, 2, 3, and 4, its frequency curtailed significantly in Layer 5 and below. The artifacts recovered in the unit consisted of five pieces of chert debitage that were found between 50 and 70 cm below surface, which corresponds to layers 6 and 7. These layers consisted of sand with many large cobbles. Layer 7 was very mottled, with several areas that verged on dark grey to black coloration. However, it was not possible to link these mottles to any one stratum. Thus it is likely that there were buried soils in the area, but they are not discernible in this unit.

Provided that there has not been extensive mixing in this location, it is likely that layers 6 and 7 were Late Dorset in age because of the debitage recovered at this depth. Layer 5 might be in the same period but it could be Thule-historic in age as well. Definitively, all layers above this layer were Thule-historic and the sod layer modern. Based on the orientation of the strata, it appears there was some sort of break between Layer 5 and those above, and thus it is likely that these layers formed after the large boulder came to rest in the unit.

3N 22E

Unit 3N 22E was placed on the east side of House 3 to see if the stratified deposits and cultural material extended over to this area of the fan. Unlike most of the other units excavated during the season, the stratigraphy in this unit was compressed and not as developed. It was excavated to a depth of 50 cm below surface. Although initially a 1x1 m unit, most of the excavation was in the southwest quadrant because of time constraints and air temperature (Fig. 21).

The sod layer and the deposits directly beneath it were unequivocally related to the use of the fan by MacMillan and the Inughuit who were living at the site—large amounts of coal were present in all quadrants along with a large amount of charcoal. Although a biface that was likely Late Dorset origin was recovered, it was not possible to separate the strata that were present into different time periods. It is likely that the lower deposits are Late Dorset in age, but the strata were thin and not easily defined, consisting of black mottles rather than bands.

After completion of the unit it was recognized that the unit likely is sitting in an abandoned stream channel. It is not clear when this channel was active, but it is likely a good marker to indicate where the majority of the stratified soils end based on the strata present in 3N 22E.

0N 1E

Unit 0N 1E was placed on the west side of the 2006 excavation block to assess the nature of the stratigraphy

Figure 21. West wall profile of Unit 3N 22E after completion of excavation. Photographed by John Darwent.

Figure 22. North wall profile the NE quad of Unit 0N 1E. Photographed by John Darwent

close to the edge of the embankment in this location. Initially started as a 1x1 m unit, it quickly became apparent that the unit was sterile immediately below the sod and thus the unit was completed as a 50x50 cm unit. The matrix here was sand with numerous cobbles and did not appear to have any buried soils present. It is probably that erosion has removed all the upper strata from this area of the site (Fig. 22).

1N 19E

Unit 1N 19E was placed in front of House 3 to investigate the nature of the strata in this area of the fan late in the excavations. Although the unit was opened, it was never completed—an inordinately thick sod layer full of historic and modern artifacts that slowed excavation was present and once the air temperature dropped on average below freezing the unit became impossible to excavate. Only a few artifacts—two trade beads (which have been rare on the site) and some dog harness components were collected. The rest of the material was reburied.

Artifacts and Faunal Remains

Analysis and cataloging of the artifacts and faunal remains collected from the 2012 excavations is still under way. To this point all artifacts have been washed and the faunal remains are in the process of being dried. A majority of the prehistoric and early historic artifacts have been cataloged (Table 7); however, work is still continuing on the historic/modern artifacts. Therefore, rather than being a comprehensive account of the artifacts that were recovered, this section highlights the more important discoveries made during the season. Full descriptions of the recovered artifacts, along with metric analysis, will be present in the final report on the excavations.

Chipped-Stone Artifacts

The chipped stone assemblage recovered from the excavations at Iita consisted of 525 pieces of debitage, eight microblades, seven flake tools, three endblades, four bifaces, four scrapers, two microblade tools (Table 8). Based on the style of tools recovered and the small-sized nature of the debitage, undoubtedly most of the chipped stone was produced by Late Dorset occupants, including those pieces recovered in later Thule levels that were likely redeposited through house and other subsurface feature construction.

The overwhelming majority of raw material present was bluish grey-colored chert (n=513), followed distantly by green-colored chert. The former material is found throughout Inglefield Land in Paleoeskimo features, including those in Hatherton Bay, Cape Grinnell, Glacier Bay, Jens Jarl Fjord, and Paris Fjord. At Hatherton Bay, Appelt and Gulløv (1999) specifically term the material an agate and source it to Washington Land to the north. The green-colored chert may possibly have a more local origin, as occasional small nodules of the material turn up in the gravels of the region. One piece of red-colored chert was recovered as well, but it is not clear if this color is original to the material or the product of some form of heat treatment. With the exception of one piece of granite and two flakes of unknown material, the remaining specimens are either quartz or quartzite, with five of the former being quartz crystal.

Specimens A, B, and C in Figure 23 are the three triangular endblades recovered during the excavations, all of which are stylistically Late Dorset in origin based on comparisons to examples presented by Maxwell (1985) and Schledermann (1990). The most archetypal of these is Figure 23-A because of its elongated tangs and deep basal concavity.

One biface, a fragment of a side-notched biface (Fig. 23-D), was recovered from level 6 in Unit -1N 18E, which is clearly in Late Dorset strata. Assuming the specimen was symmetrical, it likely was a projectile point of sorts. Likewise, Figure 23-F appears to be from a stemmed biface; however, it may have been a knife or a projectile point. In the case of Figure 23-E, the biface is worked primarily on one margin and clearly is some form of knife very similar to an ulu. This particular piece was recovered from Thule/Thule-historic associated levels in Unit 3N 22E and may possibly be of Thule-historic origin, though whether this actually was the case is ambiguous.

Two of the four scrapers recovered from the excavations are present in Figure 23. Figure 23-G was recovered from Late Dorset contexts in Unit 1N12E; it has salient spurs on each side of the working face and based on its basal configuration was likely hafted. Specimen 23-H was recovered from a potentially mixed Thule-Late Dorset layer but based on the fine flaking pattern was likely of Late Dorset origin. Whether it was scavenged and reused during the Thule period is not discernible. The configuration of its working edges is considerably different than 23-G, having what appears to be two different areas of use, but it was likely hafted as well. Of the two pieces not depicted here, one appears to be an exhausted form of Figure 23-G and the other is a fragment.

Figure 23-I is a chert flake tool and intentional retouching is evident on the upper margin of the specimen in the photo. The other six flake tools are not so intentionally worked and are simple flake tools where one or more edges of use wear are evident. Six of the seven flake tools are made of grey chert, and one was on a larger piece of light grey quartz. Based on stratigraphic position, four of the seven are likely of Late Dorset manufacture, while the other three could have been made by either the Late Dorset or Thule.

Two of the 12 microblades (which includes two used specimens) are present in Figure 23 (J and K). As is evident, both of these examples are made of chert, along with eight others of the microblades. The two remaining microblades are made of quartz crystal. Although microblades were made throughout the Paleoeskimo period, it is most likely that these were produced in Late Dorset period as no other artifacts point to earlier Paleoeskimo deposits being present in the fan. One

Table 7. Prehistoric/early historic artifacts recovered during 2012 excavations

	OBJECT	2N 6E	1N 12E	-1N 18E	5N 8E	12N 6E	-3N 6E	1N 19E	3N 22E	T
THULE-HIST.										
SOAPSTONE	LAMP, SOAPSTONE				1					1
	VESSEL, SOAPSTONE	1	1							2
	TOY LAMP, SOAPSTONE				1					1
OSSEOUS	ADZE SOCKET	1								1
	BEAD	1								1
	COMB TOOTH	1								1
	DOG HARNESS PIECE	3	2					2		7
	ICE PICK		1							1
	DRILLED BONE OBJECT	1					1			2
	DRILLED IVORY OBJECT			1		2				3
	DRILLED NARWHAL TUSK			1						1
	WORKED ANTLER OBJECT	1								1
	WORKED BONE OBJECT	3								3
	CORE, ANTLER					1				1
	DEBITAGE, IVORY	8				13	3			24
WOOD	ULU HANDLE, WOOD	1								1
	Total	21	4	2	2	16	4	2		51
THULE										
SOAPSTONE	SOAPSTONE VESSEL	1								1
OSSEOUS	SWIVEL	1								1
	DRILLED BONE OBJECT	1			1					2
	DRILLED IVORY						2			2
	DRILLED WHALE BONE	1					1			2
	Total	4			1		3			8
LATE DORSET										
CHIPPED STONE	ENDBLADE	1	1	1						3
	BIFACE	2		1					1	4
	SCRAPER	1	2							3
	FLAKE TOOL	3		1						4
	MICROBLADE TOOL	2								2
	MICROBLADE	6		1	1					8
	DEBITAGE	396	1	100	3	2	5			507
SOAPSTONE	TOY LAMP, SOAPSTONE				1					1
	LAMP, SOAPSTONE		2		1					3
	DEBITAGE, SOAPSTONE				3					3
OSSEOUS	HARPOON		2							2
	CARVING				1					1
	WORKED IVORY OBJECT	1								1
	Total	412	8	104	10	2	5		1	542
UNKNOWN										
METAL	ENDBLADE, METAL				1					1
CHIPPED STONE	SCRAPER				1					1
	FLAKE TOOL	1		1	1					3
	DEBITAGE	4	3	6		1	4		1	18
OSSEOUS	PERFORATED ANTLER OBJ.		1							1
	DRILLED BONE OBJECT	1								1
	WORKED BONE OBJECT		1							1
	Total	6	5	7	3	1	4		1	26

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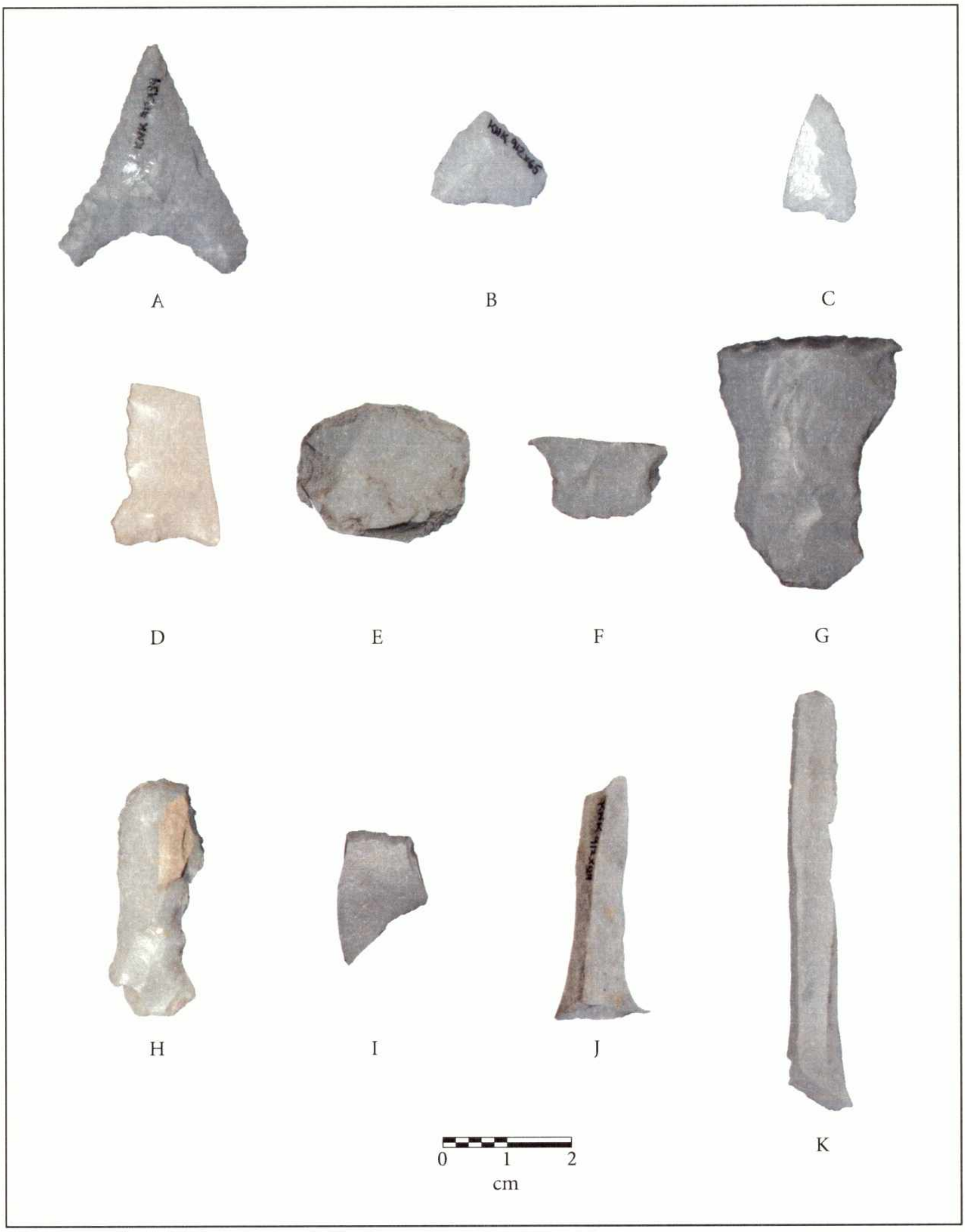

Figure 23. Selected chipped-stone artifacts recovered from Iita during the 2012 test excavations. A. Endblade KNK 912x39; B. Endblade KNK 912x65; C. Endblade KNK 912x25; D. Projectile point KNK 912x75; E. Biface KNK 912x78; F. Biface KNK 912x24; G. Scraper KNK 912x55; H. Scraper KNK 912x104; I. Retouched flake KNK912x23; J. Microblade KNK 912x29; K. Microblade KNK 912x26.

Table 8. Chipped-stone artifacts recovered from excavations at Iita during the 2012 field season.

	2N 6E	1N 12E	-1N 18E	5N 8E	12N 6E	-3N 6E	3N 22E	COUNT
BIFACE	2	-	1	-	-	-	1	4
DEBITAGE	400	4	106	3	2	9	1	525
ENDBLADE	1	1	1	-	-	-	-	3
FLAKE TOOL	4	-	2	1	-	-	-	7
MICROBLADE	6	-	1	1	-	-	-	8
MICROBLADE TOOL	2	-	-	-	-	-	-	2
SCRAPER	1	2	-	1	-	-	-	4

specimen—Figure 23-J—is complete and measures over 6 cm long.

Soapstone Artifacts

A total of 12 soapstone artifacts were recovered during the 2012 excavations. Five of these pieces were likely of Thule/Thule-historic origin and seven were Late Dorset based on stratigraphic evidence or construction. Of the Thule/Thule-historic pieces, four were vessel fragments (most likely lamps), and one was a toy lamp. The Late Dorset specimens consisted of three lamp fragments (based on charring present), one fragment of a toy lamp, and three fragments of soapstone that may be debitage.

Four examples of the soapstone artifacts are present in Figure 24, with the top two pieces being vessel/lamp fragments and the bottom pieces being toys. Figure 24-A is a Late Dorset lamp fragment, based on both construction and stratigraphy. As can be seen, the walls of the vessel are very thin and charred fat is encrusted on the inside. In contrast, Figure 24-B is a Thule vessel/lamp fragment (based on both stratigraphic position) and is very thick walled.

Two potential toy lamps were recovered from Unit 5N 8E. One (Fig. 24-C) was found in a Thule-historic level and is very similar in shape to full-sized Thule lamps. The second piece (Fig. 24-D) is just a small fragment of finely made thin-walled lamp-shaped soapstone, which we have tentatively interpreted as part of a Late Dorset toy lamp. Unfortunately, the specimen was recovered from level 4 of the unit, which appears to be a surface shared by the Thule and Late Dorset, and thus context cannot be used to confirm this speculation.

Osseous Artifacts

Sixty-one osseous (bone, antler, ivory) artifacts were collected from prehistoric/early-historic sources during the 2012 excavations, though this total may increase if further artifacts are identified when formal faunal analysis is undertaken. The majority of these artifacts (n=54) are Thule or Thule-historic in origin.

Most of the Thule/Thule-historic osseous tools are fragments of larger tools and bear evidence of working in the form of drilling, flaking, grooving, and grinding. Some of the more interesting ivory pieces are depicted in Figure 25.

Figure 25-A is an ivory ice pick from a harpoon that would have been scarfed to a shaft with a rivet, the hole for which was drilled into the proximal end. Based on its stratigraphic position, this piece is likely Thule-historic in age. Figure 25-B is also Thule-historic in deposition and is an ivory adze socket. Although not visible from the angle of the photograph, there is a rectangular shaped socket on the distal end of the piece.

The third piece in Figure 25 (C) is a component from a dog harness. In addition to this specimen, six other similar harness pieces were recovered from Thule-historic contexts (four of ivory, two of whale bone)in varying degrees of preservation.

The last artifact in Figure 25 (D) was found in Thule contexts and has tentatively been identified as a swivel of sorts, but its function is unknown.

Although not as to the same degree as in as the Thule layers, there was preservation of some organic artifacts in the Late Dorset levels at the site. Of these, three stand out, and two are depicted in Figure 26. The first of these is a two-headed bear carving with a central hole (Figure 26A), which likely makes it an amulet. The faces on the bears are elaborate, with eyes and nostrils represented, and very similar to those on other Late

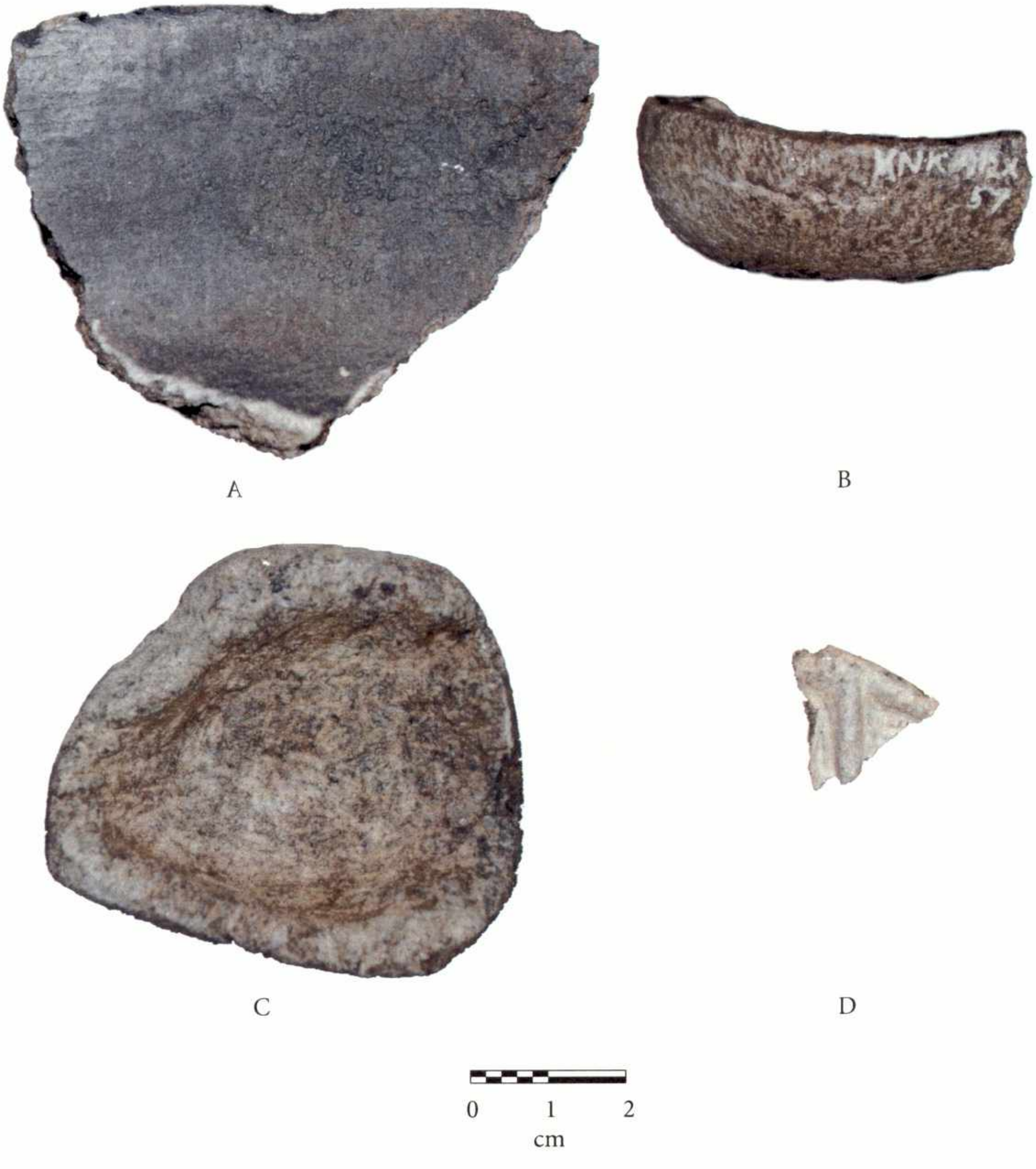

Figure 24. Selected soapstone artifacts recovered from the 2012 test excavations at Iita. A. Late Dorset soapstone lamp KNK 912x83; B. Thule-historic lamp fragment KNK 912x57; C. Thule-historic toy lamp KNK 912x44; D. Late Dorset (?) toy lamp fragment KNK 912x54.

Figure 25. Selected Thule-historic ivory artifacts recovered during test excavations at Iita in 2012. A. Ice pick KNK 912x91; B. Adze socket KNK 912x99; C. Dog harness piece KNK 912x100.

Dorset carvings. While the central hole is round, there is evidence that it was gouged instead of drilled, which is in line with Late Dorset ivory working methods documented elsewhere (LeMoine and Darwent 1998).

The other two finds are harpoon heads and thus are important for culture historical reasons. One of these is depicted in Figure 26B and classifies as a Late Dorset Type G in Meldgard's (1977) typology. It exhibits two line holes, a rectangular-shaped closed socket and a endblade groove on the distal end. Unfortunately, the piece is badly eroded but appears to be made of ivory.

The second Late Dorset harpoon is not shown here because it is in exceptionally bad condition and therefore its features are not visible. It is likely a Late Dorset Type E (parallel sided) variant and is larger than the other harpoon.

Metal Artifacts

With one exception, all of the metal artifacts are probably Euroamerican in origin and are historic in age, likely related to MacMillan's occupation of the site. One item, however, was found in level 3 of 5N 8E, which is likely a Thule layer as opposed to a Thule-historic layer. This artifact is a metal endblade, (Fig. 27) likely for inset into a harpoon head, that is roughly triangular in shape with rounded basal tangs and has a hole in its proximal end (probably for a rivet). While there was the possibility that the metal for this endblade was obtained from Euroamerican whalers that were in the region prior to the 1800s, the piece was submitted for nondestructive XRF analysis. This test revealed that the endblade is iron but has a very high nickel content, which likely indicates that the iron is meteoric in origin.

Figure 26. Late Dorset ivory artifacts. A. Two-headed bear carving (amulet) KNK 912x97; B Type G harpoon head KNK 912x96.

Figure 27. Thule meteoric-iron endblade recovered from Unit 5N 8E in 2012 (KNK 912x53).

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Assessment of Ongoing Erosion

Efforts were made during the 2012 field season to assess the ongoing erosion problem at Iita. Although most of the coastline of the site is under threat of erosion, the main concern is with the shoreline on the western side of the fan (see Fig. 4). The initial reason for this fear is that numerous features on the surface are in jeopardy of slumping into Foulke Fjord, but now this concern is intensified because of the precarious position of the stratified deposits.

It was not possible to quantify a rate of destruction of the western bank as the coast has not been measured in such a way as to quantify the slumping. However, based on comparisons of historic photos to those taken in 2006 and 2012, it is clear that significant damage has occurred since the early 1900s. In figures 28 and 29 are photos of Iita in ca. 1914 that show the edge of the fan during the Crocker Land Expedition. As is evident, most of bank at the shoreline of the fan is vegetated and there are no slump blocks. In comparison, in figures 30 and 31 the coastline is depicted from similar angles to those in the 1914 photos. It is clear that large slump blocks have formed over the past century.

Figure 28. Iita in ca. 1914 looking east. Borup lodge is visible on the fan. Note the lack of erosion in front of the lodge. Photo courtesy of The Peary-MacMillan Arctic Museum at Bowdoin College.

Figure 29. Iita looking east in 2012 from a similar location as the photograph in Figure 28 was taken. Photograph taken by Justin Junge.

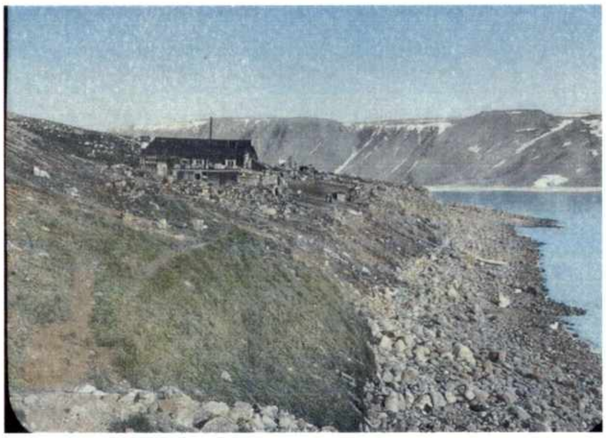

Figure 30. Iita in ca. 1914 looking east from the far western side of the alluvial fan. Photo courtesy of The Peary-MacMillan Arctic Museum at Bowdoin College.

Figure 31. The western end of the Iita fan taken from the ice foot in 2006. Note the extent of erosion compared to the same face in photograph in Figure 29. Photograph taken by Hans Lange.

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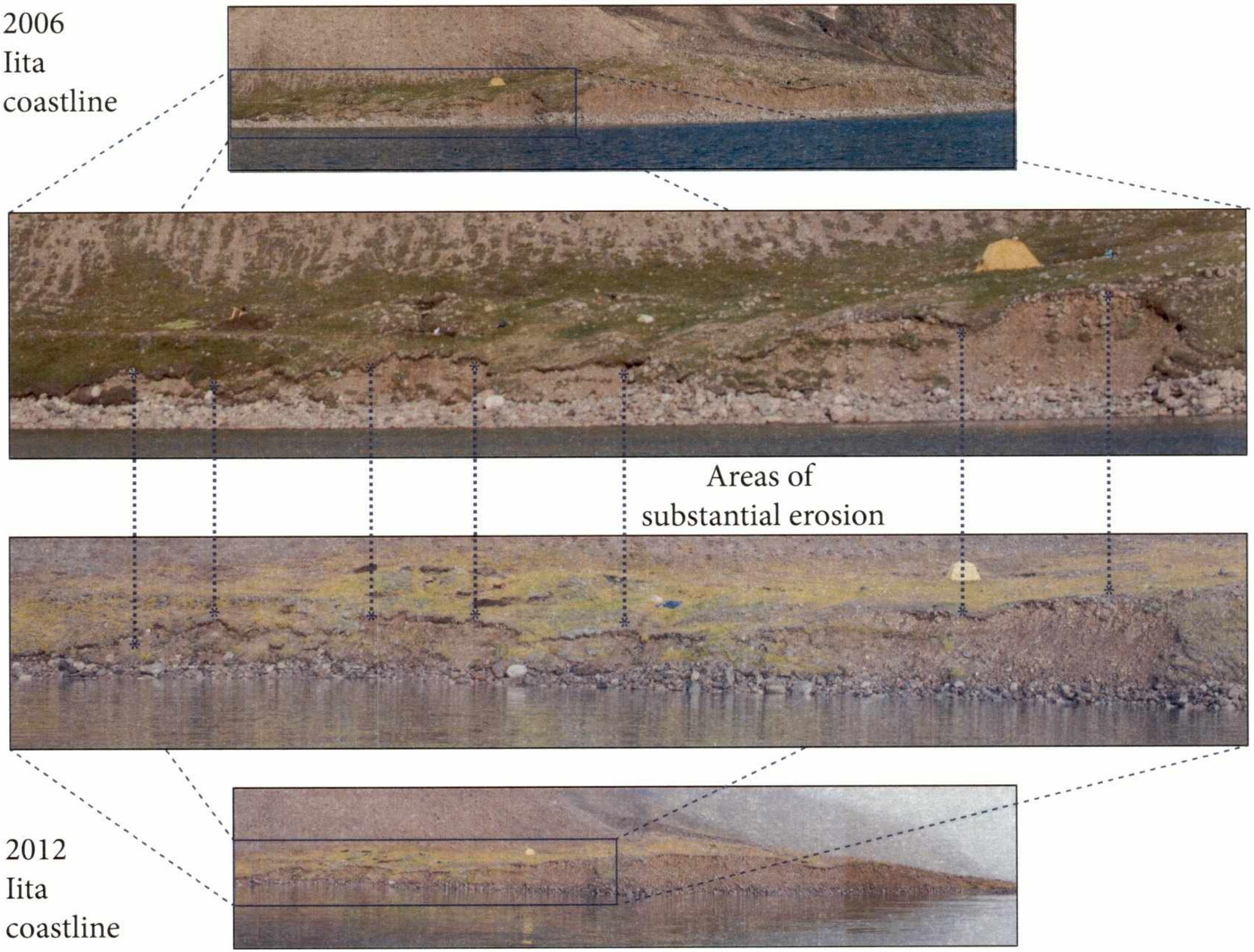

Figure 32. Comparison of coastline erosion at Iita from the 2006 and 2012 field seasons. Photographs taken by John Darwent.

Between 2006 and 2012 there were noticeable changes in the coastline. Displayed in Figure 32 are two panoramic shots of the western side of the fan at Iita—one taken in 2006 and the other 2012, with blow-ups of the area where the stratified deposits are present. As indicated in the figure, there are numerous locations over the six year period between excavations at the site where there has been obvious erosion.

In Figure 33 is a close up shot of an eroding area that is immediately in front of the stratified deposits. Two issues of note are present in the photograph. First, the manner in which the fan is being destroyed is evident. As can be seen, the matrix underneath the stronger sod layers and stratified layers is being eroded away, likely by wave action. Eventually the surface will fail and slump off into the fjord in blocks.

The second issue of note in Figure 33 is that a cultural feature is in the process of being destroyed. Based on the depth of the feature in comparison with the results of the 2012 excavations, this is likely a Late Dorset feature. No artifacts were directly observed with eroding, but one other pit feature was noted in the excavations in Unit 1N 12E, which is in the near vicinity, and thus it could be related.

One last thing of note is that despite the density of artifacts—both historic and prehistoric—present in the excavation units, very few items were present at the foot of the erosion face of the fan. It appears that once the sod blocks break off, the artifacts in them are transported away by wave action fairly rapidly.

Figure 33. A feature of likely Late Dorset origin being destroyed by fan erosion caused by wave action in Foulke Fjord. Bone seen protruding from the top of the sod is likely related to MacMillan's use of the site as industrial artifacts are present as well in association with the bone. Photograph taken by John Darwent.

Excavation Conclusions

While much analysis needs to be completed on the artifacts and other data collected during the 2012 field season at Iita, it is clear that Iita has significant stratified archaeological deposits. In terms of addressing the ISADI project goals as outlined in the introduction, the results are as follows:

1. There is artifactual, zooarchaeological, and depositional evidence for a Paleoeskimo period occupation of Iita, which appears on the basis of the presence of a feature to be in primary context.

2. Depending on the location on the fan, intact Paleoeskimo period materials are present in primary contexts under 25 to 50 cm below the current ground surface. These materials are associated with minimally three buried soils—artifact densities were greatest in the black soils—though the artifacts may have been deposited in the strata surrounding these buried soils.

3. Based on the style of artifacts recovered, including endblades, harpoons, and the carving, the Paleoeskimo occupations at Iita in this area of the site are Late Dorset. There is a definite absence of material prior to the strata containing the Late Dorset artifacts, thus there is no Early Dorset occupation present in the stratified deposits.

4. The buildup of stratified deposits at Iita appears to be confined to the far western extent of the site. We do not know how far west the Paleoeskimo deposits go, but based on the results from Unit 3N 22E the eastern margin of the Late Dorset occupation occurs between Features 3 and 4, and is denoted on the ground by the remnants of an old stream channel (see Figure 12).

5. It is not possible to determine the age of the Thule material that covers the Late Dorset deposits because radiocarbon dates are pending. No definitive Thule features were encountered; however, some of the upper deposits appear to be related to construction events, and others appear to be midden. The interesting aspect of Thule material excavated is that we identified that middens associated with the Thule houses were on the sides if the structures, not in the front (which explains possibly why explains middens were not identified during previous excavations because they were assumed to be in the front of the houses).

6. Stratified sites are very uncommon in the Arctic, particularly the high Arctic. Because of this rarity, Iita holds immense research potential for determining the culture history of Inglefield Land for the past 1400 years. The 2006 investigations of the Thule features of the houses at the site demonstrated this value for the Thule period; the 2012 excavations revealed this to be the case for the Late Dorset period as well. Because there are three, if not more, intact Late Dorset occupations present, it will allow for a temporal examination of change during this period, which is difficult to undertake at typical Late Dorset sites where the whole period is found mixed together on one surface.

7. The Late Dorset deposits at Iita are the most threatened cultural resources at the site because they are located close to the erosion face. Unit -1N 18E demonstrates this best, as it contained multiple Late Dorset occupation layers but is only two meters away from the fan edge. As shown in Figure 12, Late Dorset features, as well as Thule features, are currently falling into the fjord. It is not possible yet to predict how quickly this destruction will occur, but in a worst case scenario potential several meters of the current shoreline could be lost if a large summer or early fall storm from the southwest during a period of maximum high tide.

Recommendations

If weather and climatic conditions keep their current course, it is likely that large portions of Iita, including the stratified deposits, will be lost. Because of the site's remoteness, there is likely little that can be done to abate the destruction, such as reinforcing the banks against erosion with rip rap (large boulders) or concrete—the logistics, of moving machinery and supplies to undertake such a project would be prohibitive, not to mention the environmental impacts.

Therefore, in order to mitigate the loss of important archaeological data, the best course of action would be to excavate threatened areas of Iita prior to their destruction. This would include the following:

1. The block of coast between House 1 and House 4 to investigate the buried Late Dorset components,

2. House 4 itself because of its precarious location adjacent to the coast,

3. The remaining deposits within House 2 not excavated in 2006 should be excavated (Figure 4).

House 3 may also fall into excavation category as well. The remaining Thule features (e.g., the other winter houses) are considerably further back from the erosion bank and are not imminently threatened.

Archaeological Survey

The archaeological survey undertaken by the ISADI project in 2012 was carried out to complete the survey of the Foulke Fjord region initiated in 2006 (under National Science Foundation's Office of Polar Programs NSF grant Darwent #0732850; LeMoine # 0732620). Because of mechanical issues with the rubber boat used during 2006, this survey was limited to the north shore of Foulke Fjord, a peninsula projecting out from the south side of the fjord, Reindeer Point, and a small area of Foulke Harbor (see Fig. 34). The results of this survey are summarized in Darwent and Johansen (2010) and will be detailed in Darwent (n.d.). Based on comparisons with other areas of Inglefield Land, Foulke Fjord has the greatest concentration of archaeological features in Inglefield Land that indicates it was an important region throughout the human occupation of the region. Some of the highlights of the survey included the site of Iita (Etah) itself, which had nine Thule winter houses and 180+ features present; Reindeer Point, which had a 72 m long Late Dorset Longhouse (Darwent et al. 2010) and five Thule winter houses; Jensen Point, which had a concentration of children's features; and the Late Dorset aged Etah Longhouse, which was previously reported but found to be extensively altered during the Thule-historic period (Appelt and Gulløv 1999).

Logistical steps were taken in 2012 to ensure that an operable boat with sufficient fuel for multiple days of survey was in place. Sixteen different areas of Foul-

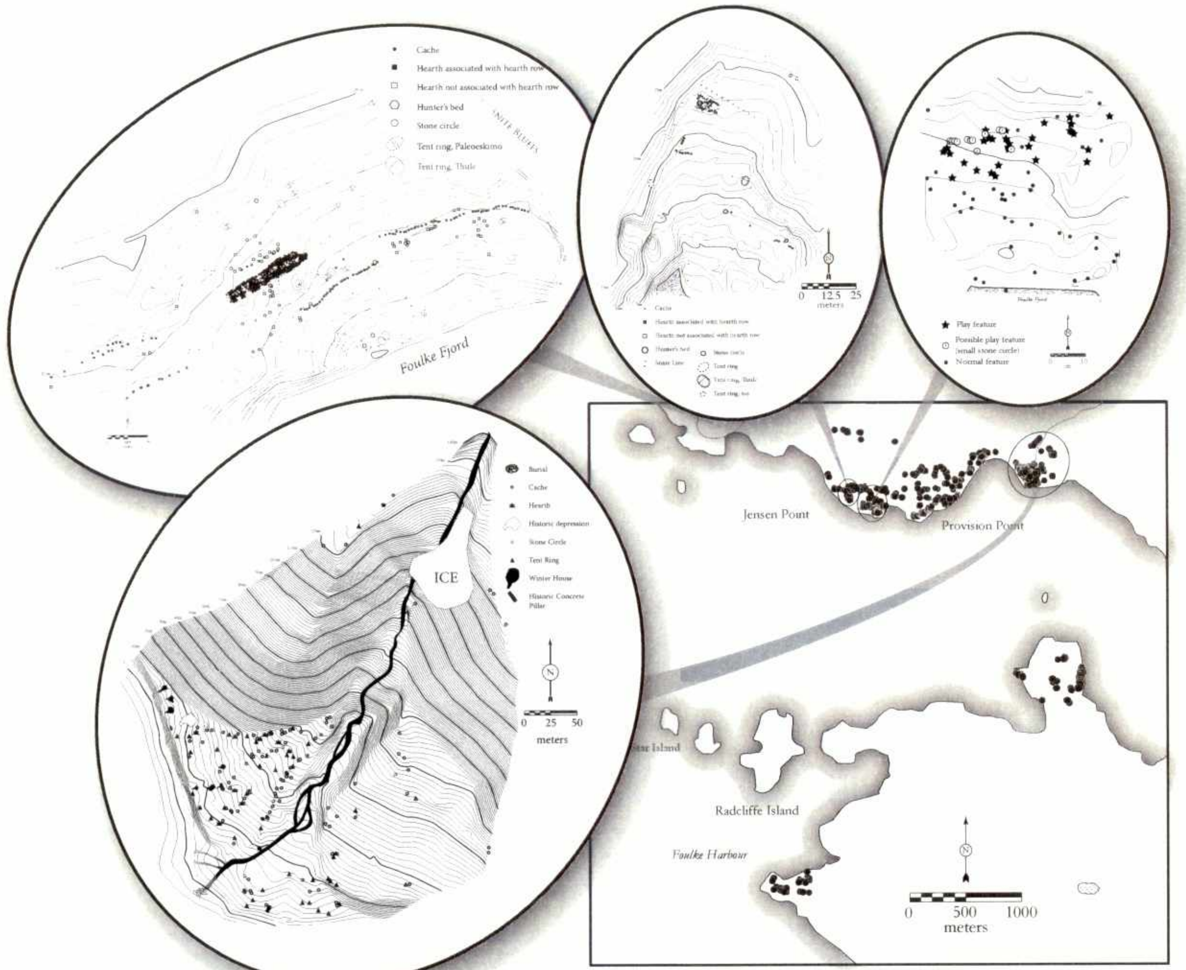

Figure 34 Location of features recorded in 2006 in the Foulke Fjord region, with blow ups of Reindeer Point, the Etah Longhouse, Jensen Point, and Iita. Figure modified from Darwent and Johansen (2011).

ke Fjord and regions south—essentially the extent of Harstene Bay—were selected via boat for pedestrian survey and 208 features were recorded in 2012 (figs. 35 and 36). The area covered by boat is depicted as green shading in Figure 36 and included the northern and southern shores of Foulke Fjord to Cape Welcome. For the most part, the locations chosen for stops in 2012 were locations where there were areas where there were higher probabilities to find archaeological features but, more importantly, were safe enough to traverse on foot. The brown shaded areas along the coast in Figure 36 show locations on the coast where the shore was too rocky and steep, for both survey and the presence of numerous archaeological features. There is the chance of sporadic features—primarily caches and tent rings—being located in this area, but unfortunately both safety and time necessitated skipping this segments of coastline. Even for the areas that were examined it was not possible to systematically record all the features due to time constraints. Therefore, the 208 record features should not be considered extensive for the entire survey area because it was only possible to systematically record features in six locations, which were chosen for increased scrutiny because of increased feature density compared to the other locations.

In the areas chosen for systematic survey, attempts were made to identify all possible features in the location. Information recorded for each feature included type of feature, location using GPS (accurate to +/- 5 m), cultural/temporal period of manufacture, size, artifacts and bone present, condition, future risks, and vegetation cover. The features recorded in 2012 are individually listed in Appendix 2. For nonintensively surveyed areas, the general nature and an estimation of the number of features present was recorded.

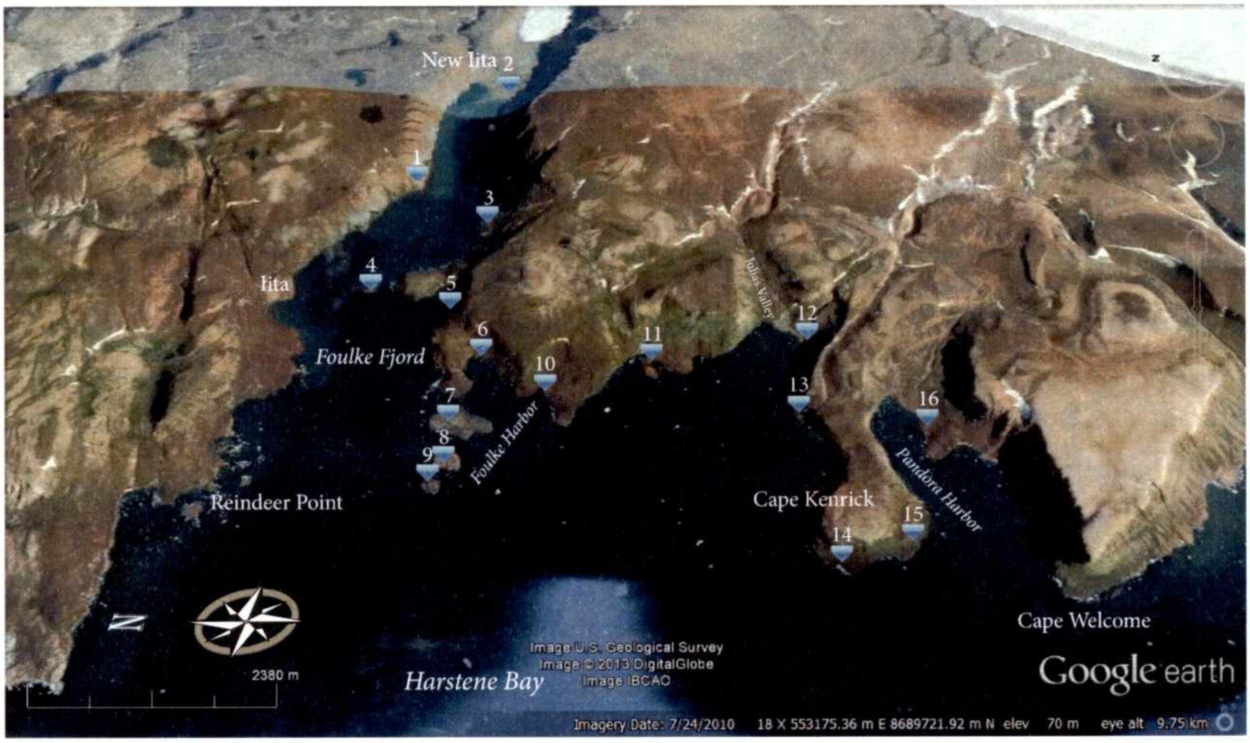

Figure 35. Location of stops made during the 2012 field season. Modified from Google earth image to show locations and place names in the region.

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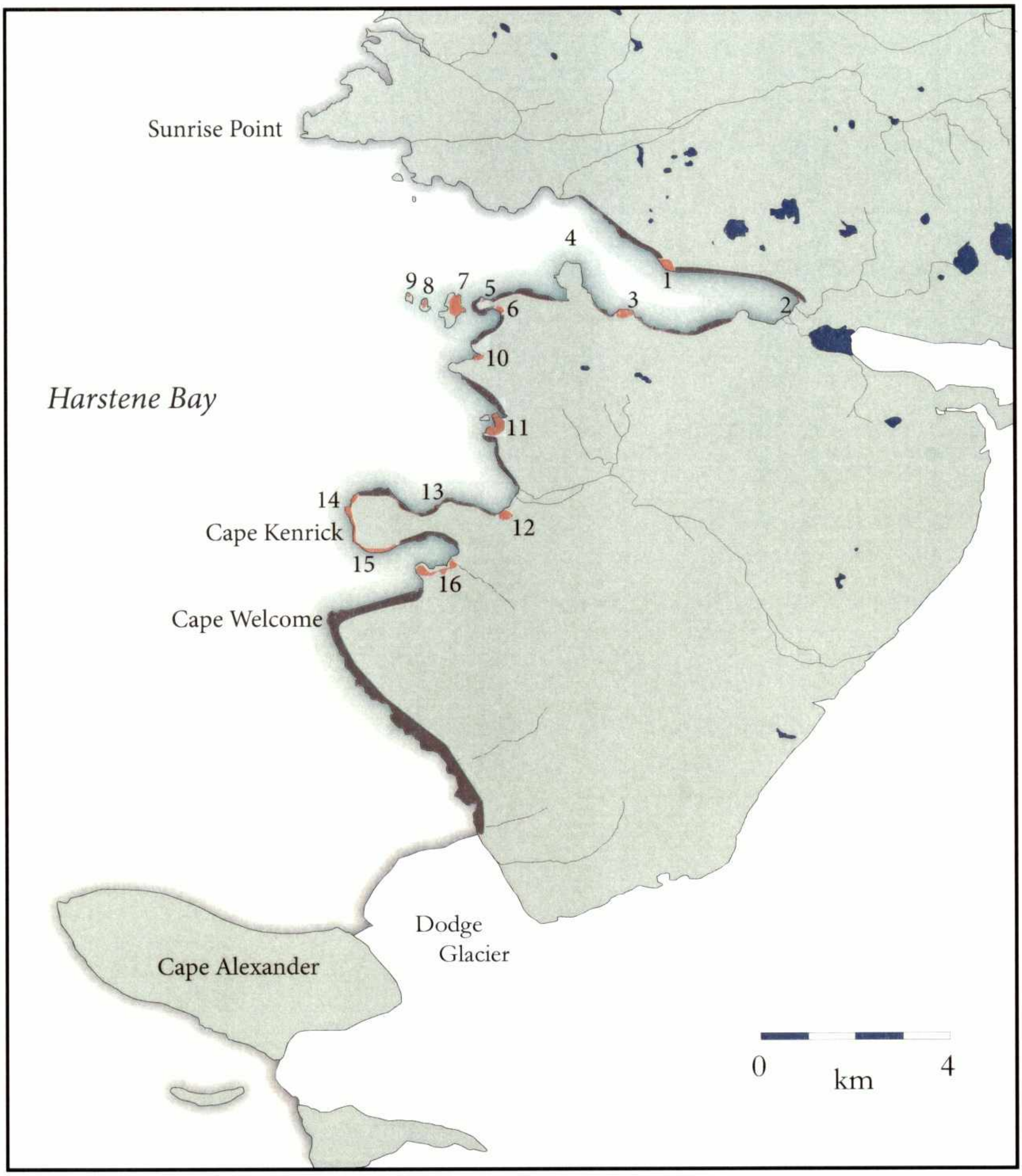

Figure 36. Map of location of survey areas depicting the area covered on foot (red shaded areas) and boat (blue shaded coastline) in Harstene Bay. The brown shaded areas indicate regions of rocky and steep coastline that could not be surveyed on foot nor were suitable for feature construction. Map by John Darwent.

1. Middle Iita

Thirteen features located on an alluvial-fan and bedrock outcrop that projects slightly into the northern shore of Foulke Fjord (figure 37, 38, and 39) were unexpectedly sighted during a boat foray to New Iita on August 26 and were subsequently recorded on August 29 (Table 9). Of particular note, seven of the 13 are previously unrecorded Thule-historic winter houses. Three Thule-historic tent rings and three caches comprise the remainder of recorded features.

Based on rectangular outlines (figs. 40 and 41), standing tunnels (Fig. 42) and walls (Fig. 43), and historic artifacts strewn across the area, it is likely that most of the house depressions are either late prehistoric or early historic in age. However, at least two of the depressions appear to be older, but testing would be required to ascertain this. One of the three tent rings appears to have been lined with sod, and thus it was likely related to a longer term stay at the location.

There has been little in the way of erosion of the features at this location; nevertheless, two of the entrance tunnels of the houses essentially open up to the banks of the fjord (2012-66 and 2012-68; see Fig. 42). Although no extensive damage was noted at present, both houses will be susceptible to damage with any rise in sea level.

Figure 37. Location of features at the Middle Itah cluster. As is evident from the three-dimensional projection of the topography, this alluvial fan offers one areas of less relief upon which to buiild features on.

Table 9. Type and age of features recorded at the Middle Iita Cluster.

FEATURE TYPE	Early Paleoeskimo (2000-500 BC)	Late Paleoeskimo (500 BC–AD 1300)	Paleoeskimo (2000 BC–AD 1300)	Thule-historic (AD 1250-[1818]1953)	Historic (AD 1818 - 1953)	Unknown	Total
Cache	-	-	-	2	-	1	3
Tent Ring	-	-	-	2	-	-	2
Tent Ring, Sod	-	-	-	1	-	-	1
Winter House	-	-	-	7	-	-	7
	-	-	-	12	-	1	13

Figure 38. Alluvial fan associated with the Middle Iita feature cluster. Three houses are visible on the left-hand side of the shoreline. Herds of muskox, such as those on the fan in this photograph, were present during each visit. Photograph taken by John Darwent.

Figure 39. Four house depressions are visible in the photograph taken on a high bench immediately behind the cluster. The dense vegetation present here likely aided in house construction. Photograph taken by Hans Lange.

Figure 40. Winter house with an exceptionally rectangular planview (2012-65) at the Middle Iita feature cluster. Photographed by Justin Junge.

Figure 41. Winter house with rectangular planview at the Middle Iita feature cluster. Photograph by Justin Junge.

Figure 42. Well-preserved entrance tunnel with stone lintel still in place associated with Thule-historic period winter house 2012-66. Photograph taken by Justin Junge.

Figure 43. Well-preserved winter house wall associated with feature 2012-68. Note the rectagular shape and proximity to the fjord shore. Photographed by Justin Junge.

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2. New Iita

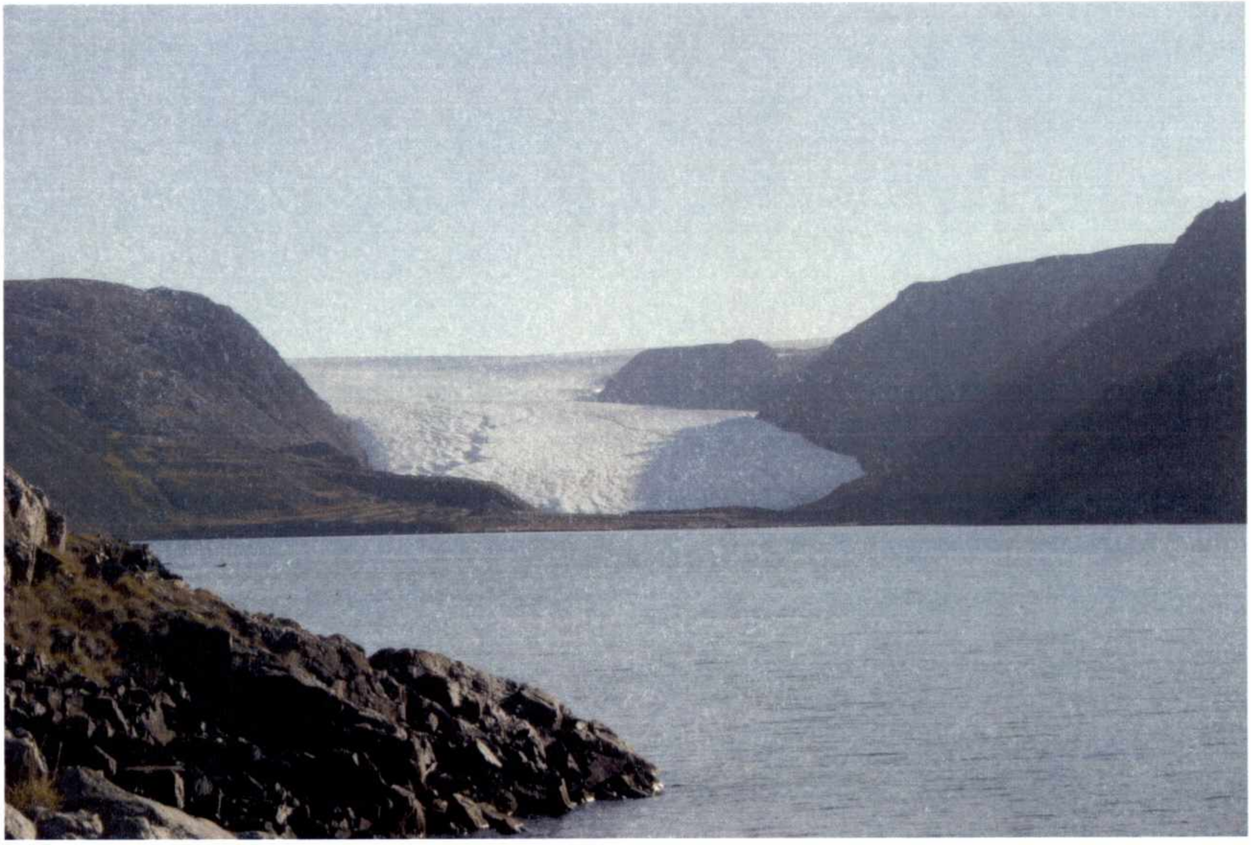

Figure 44. View of New Iita from the Middle Iita feature cluster with the Brother John Glacier in the background. Photographed by Hans Lange

New Iita is located on a morraine deposit that sits between Alida Lake and the start if Foulke Fjord (Fig. 44). It was briefly visited on August 26. No attempts were made to record features in the area because the site is covered with a veneer of historic activity that would make such an endeavor too complicated and time consuming for the present project.

All of the historic 1950s-aged hunter's cabins are still standing on the site. However, it is possible that there has been some impact on the features in the area related to tourism. In particular, a pile of dog bones and other sea mammal elements noted in a previous visit to the area in 2005 was missing. Although this is not technically a large loss of cultural property, it does bring to light potential dangers to archaeological resources in the fjord. During the 2012 field season we observed nine zodiacs full of tourists being ferried to New Iita from the ship the Blue Swallow. If these zodiacs were to deviate to other locations in the fjord (e.g., Iita, the Reindeer Point longhouse, the Etah longhouse) or to locations such as Foulke Harbor, there is potential for some loss of artifacts from the surface of these features. Therefore, it is possible that operators of cruise ships in the area should be made aware of the illegality of collecting artifacts from cultural resources in the area.

3. Moraine Remnant on the South Shore of Foulke Fjord

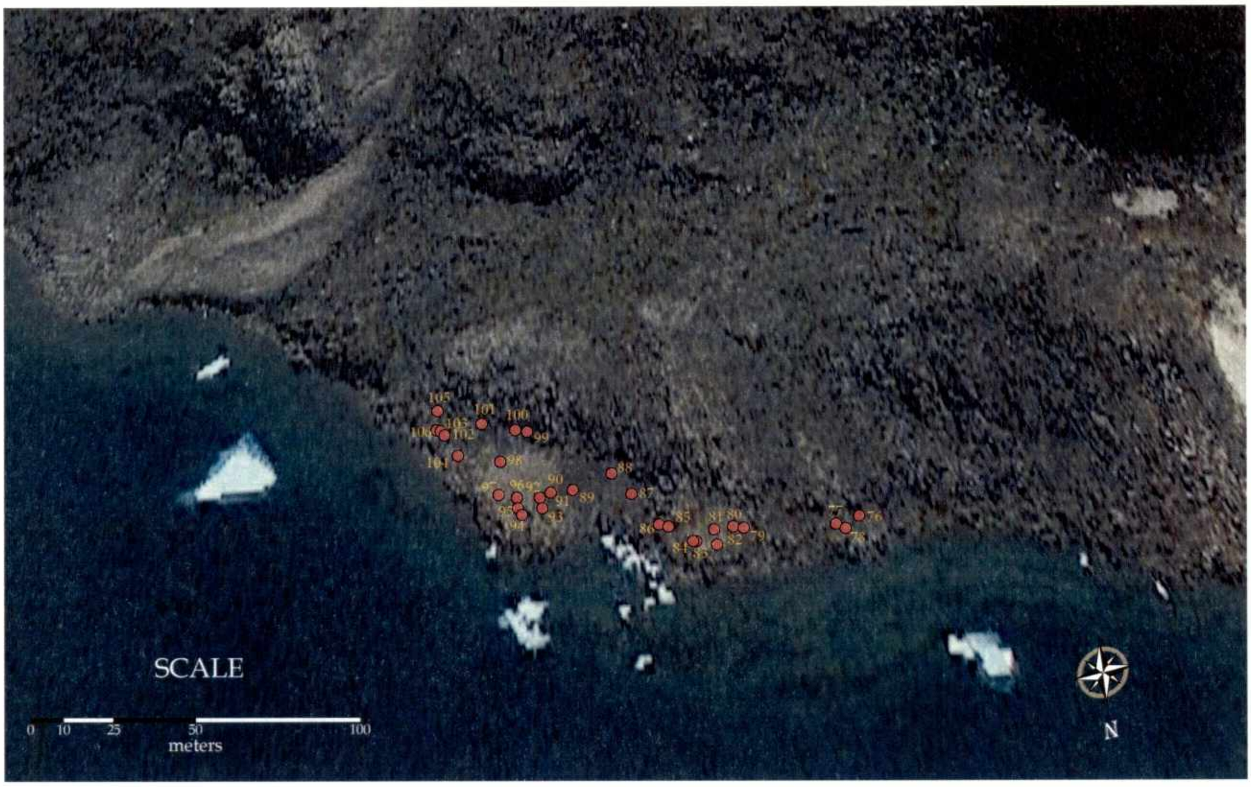

Figure 45. Locations of features on the moraine remnant present on the south shore of Foulke Fjord.

This location consists of several small gravel beach terraces on what appears to be the remnants of a moraine associated with a former limit of Brother John Glacier. It was chosen for more intensive survey because in other areas this sort of landform has yielded Paleoeskimo period features. However, after an extensive search, no features that could be linked to the Paleoeskimo period could be identified. Those that could be placed in the period were from the Thule-historic or historic period.

A total of 31 features were identified in the area, which consisted of 21 caches (one of which had multiple chambers), nine tent rings, and one hearth (Table 10). Eight of the tent rings are Thule-historic in age (one example is pictured in Fig. 46), and one is historic (Fig. 47). The other features could not be placed in a time period.

The seeming lack of Paleoeskimo period features in this area further supports the supposition put forth by Darwent and Johansen (2010) that the Paleoeskimo did not use the inner regions of the fjord, possibly because ice was still present.

Table 10. Type and age of features recorded on the moraine remnant located on the south shore of Foulke Fjord.

FEATURE TYPE	Early Paleoeskimo (2000-500 BC)	Late Paleoeskimo (500 BC–AD 1300	Paleoeskimo (2000 BC–AD 1300)	Thule-historic (AD 1250-[1818]1953)	Historic (AD 1818 – 1953)	Unknown	Total
Cache	-	-	-	-	-	20	20
Cache Complex	-	-	-	-	-	1	1
Hearth	-	-	-	-	-	1	1
Tent Ring	-	-	-	8	1	-	9
	-	-	-	8	1	22	31

Figure 46. Heavily built tent ring on the morraine remnant present on the south side of Foulke Fjord. Photographed by John Darwent

Figure 47. Recent tent ring on gravel covered bench on the morraine remnant present on the south side of Foulke Fjord. Photographed by John Darwent

4. Dog Island

This island was named by the Oxford University Ellesmere Land Expedition in 1934 because it was the location where they isolated their dogs during the construction of their winter quarters (Laursen 1972). The island was briefly investigated on August 10 because it lies in the middle of Foulke Fjord. Other than a few caches of likely Thule or historic age, no cultural features were present on the island.

Figure 48. Hans Lange and Hans Lennert on Dog Island. In 2012 this island was used by a mineral exploration company as a base of operations in the fjord. Photographed by John Darwent.

5. Upper Bedrock Terrace, South Side of Foulke Fjord

Several gravel covered benches are present on a rocky peninsula on the south terminus of Foulke Fjord at approximately 25-30 m above sea level. These benches were briefly investigated because Paleoeskimo features are often found on similar looking benches of this elevation. However, it quickly became evident that Paleoeskimo features were not present and, with the exception of one snare line (Fig. 49) likely from the Thule-historic period, no other features were visible as well. A cache was noted near the shoreline (see Fig. 50).

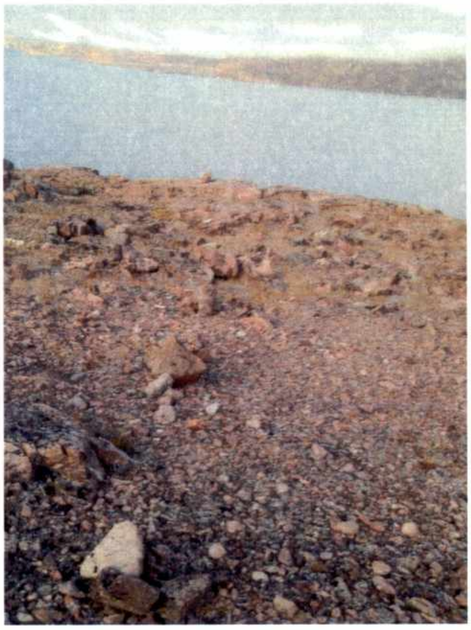

Figure 49. Snare line on high gravel-covered bench on the south side of Foulke Fjord. Photographed by John Darwent.

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6. Sontag's Grave Area

This area is located in the rear of a small bay that is likely related to Foulke Harbor. In this location there is a series of gravel covered terraces that extends from the shore line to the top of the rocky peninsula to the north of the bay. A grave with a tombstone is a marked feature on the lower terrace. This location was initially visited on August 11 and then systematically recorded on September 5, 2012 (Table 11).

Twenty-two features were recorded in the area (Fig. 50), most of which were relatively close to the shore line. These features consisted of five caches, five hearths, three tent rings, two snare lines, one hunter's bed, one miscellaneous shelter, one rock alignment, one fox trap, one cairn/cache combination, one possible grave, and one definitive grave, which will be discussed below. Despite a search of the upper regions of the graveled area above 40 masl, no Paleoeskimo period features were identified in this area; however, one hearth that tentatively appears to be Paleoeskimo in origin was present at approximately 30 m above sea level. The remaining features that could be placed into a time period were either Thule-historic or Historic.

The grave is the most salient feature in the location and consists of a 2x0.75 m rectangular pile of stones with a gravestone present at one end (figs. 51, 52, and 53). Although eroded to some degree, the stone belongs

Figure 50. Location of features in the vicinity of August Sontag's grave.

Figure 51. August Sonntag's grave in 2012. Photographed by Hans Lange.

to August Sonntag who died in December 1860 at 29 years of age. Sonntag was an astronomer who initially came to Inglefield Land with Elisha Kent Kane's ill-fated Second Grinnell expedition in 1853. He survived this first expedition but returned to Inglefield Land with Isaac Israel Hayes aboard the schooner the United States in 1960. During this expedition, Sontag fell into water through sea ice and subsequently died of exposure the next day after south of Cape Alexander (see Hayes 1867). Time has not been kind to Sonntag's gravestone—there has been considerable erosion on its face (which is presumably made of limestone) that has resulted in many portions of the stone to become unreadable. For comparison, a photograph of the grave was taken by the Crockerland expedition in 1914 (Fig. 53) where the gravestone is not slumping and does not have facial erosion. Unfortunately, little can be done at this point to stop further erosion of the gravestone; however, the grave itself is some distance back from the edge of the terrace upon which it sits and therefore is in little jeopardy of destruction in the foreseeable future.

Figure 52. Close-up of August Sontag's grave stone showing the extent of erorsion to the limestone. Although still legible, many of the letters are becoming obscurred. Photographed by Hans Lange

Figure 53. August Sontag's grave in 1914 taken by the Crockerland Expedition. Photograph courtesy of The Peary-MacMillan Arctic Museum at Bowdoin College.

Figure 54. Large cache feature in the vicinity of August Sontag's grave. Photograph taken by John Darwent.

Table 11. Type and age of features recorded in the vicinity of August Sontag's grave in 2012.

FEATURE TYPE	Early Paleoeskimo (2000-500 BC)	Late Paleoeskimo (500 BC–AD 1300	Paleoeskimo (2000 BC–AD 1300)	Thule-historic (AD 1250-[1818]1953)	Historic (AD 1818 – 1953)	Unknown	Total
Cache	-	-	-	-	-	5	5
Cache/Cairn	-	-	-	-	-	1	1
Fox Trap	-	-	-	-	-	1	1
Grave	-	-	-	-	1	-	1
Grave, possible	-	-	-	-	-	1	1
Hearth	-	-	1	-	1	3	5
Hunter's Bed	-	-	-	1	-	-	1
Rock Alignment	-	-	-	1	-	-	1
Shelter	-	-	-	1	-	-	1
Snare Line	-	-	-	1	-	1	2
Tent Ring	-	-	-	3	-	-	3
	-	-	1	7	2	12	22

7. Radcliffe Island

Radcliffe Island is the largest of three islands located on the southern terminus of Foulke Fjord (Fig. 55). Although separated by water during the summer months from the mainland, the channel is quite shallow and thus the island is likely joined most of the year with a substantial ice foot. The island has extensive areas of gravel benches but also areas of bedrock outcrops. It was initially investigated on August 10, 2012; however, due to time constraints it was not possible to systematically record the features.

Overall, the feature density on the island was low and the main feature type present was snare lines, followed distantly by caches and a few tent rings. Based on topography, the snare lines were likely for arctic hare, but it is conceivable that caribou were also targeted. Most of the features on the island are likely Thule-historic in origin but at least one Late Dorset feature—a triangular midpassage—was identified (Fig. 56). Unfortunately, this feature has been impacted by the construction of a boulder wall, which was likely some form of hunting blind.

Figure 55. Oblique Google earth image of the three islands located at the southern end of Foulke Fjord. Although Radcliffe Island has some suitable areas for tent ring construction, both of the other two islands are predominantly bedrock.

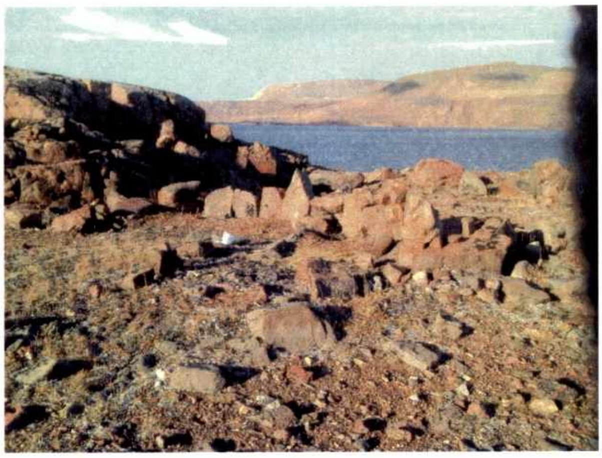

Figure 56. Late Dorset triangular midpassage with boulder wall on top. The Reindeer point longhouse is present behind on the mainland to the north. Photographed by John Darwent.

8. Unnamed Island (possibly Knorr Island)

This island, which may be Knorr Island (the place name map in Laursen [1972] does not properly show the islands in this location for the region), was visited on August 11, 2012. The island is quite rocky and only a few gravel-covered areas amenable to feature placement were present (see Fig. 55). A Thule-historic tent ring and a few caches were noted but little else of interest was present.

9. Starr Island

Starr Island was investigated on August 11, 2012 to determine whether the remains of a radio tower used during the Crockerland Expedition were still present. Although some mechanical parts were present on the island (which appeared to pump components) the only feature noted was a well-made cairn.

10. Foulke Harbor

Foulke Harbor was initially investigated during the 2006 field season and was found to have many Early Paleoeskimo features present (Fig. 57). However, due to time limitations during that field season, the whole region was not surveyed, and therefore we returned to the area in 2012 to complete the survey. As is evident from the location of features recorded in 2006 (Figure 58), most of the survey of the area was concentrated on the end of the rocky peninsula on the south side of the harbor. The survey in 2012, which included systematic recording of identified features, was to the north of this area and completed the south extent of the bay (Figure 58).

The area was initially visited on August 29 and then systematically recorded on September 5, 2012. Almost immediately upon arrival on the first visit Early Paleoeskimo period features and artifacts were encountered. Sixty-eight features were recorded: 22 tent rings, 19 caches, 15 hearths, four hearths, two snare lines, two activity areas, one hunter's bed, one shelter, one box hearth, and one boulder wall (Table 12; Fig. 58). Broken down by time period, 20 of these features were from the Early Paleoeskimo period, 11 were of Thule-historic origin, nine were from the general Paleoeskimo period, and three were Late Paleoeskimo in age. Twenty-five of the features were not classifiable to a time period.

Thirteen of the tent rings and seven of the hearths were of Early Paleoeskimo origin—assessments that were made based on feature architecture and associated artifacts. Most of these features were located on the top of (Fig. 59) and immediately below (Fig. 60) a bedrock outcrop approximately 30 m above current sea level (see boxed area in Fig. 58; figs. 61 and 62 for examples). It is clear that both PreDorset and Saqqaq groups occupied the area based on the tools found on the surface (Fig. 63); however, no Independence I diagnostic artifacts were located. Two of the most remarkable pieces were Saqqaq endblades that are made of dark-grey and black silicified slate, which appears remarkably similar to the Killiaq described from the south. If the raw material that these pieces are made of did originate from West Greenland, it would implicate that there was a back migration or movement of the Saqqaq people into this region from the south.

Late Paleoeskimo peoples used the location as well based on the presence of two hearths and a tent ring. This latter feature was located close to the Saqqaq features and bore a distinctive triangular-shaped midpassage (figs. 64 and 65) that has been dated to the Late Dorset period. One of the hearths was associated with the tent ring and might have been a larger box hearth. The other hearth was very similar to hearths seen in association with other Late Dorset features in the area (e.g., the Reindeer Point and Etah longhouses) and was large in size and had two square-shaped chambers (see Fig. 12). The remaining Paleoeskimo period features consisted of seven hearths (one of which was a box

Figure 57. Early Paleoeskimo hearth discovered in 2006 in the Foulke Harbor area. Photographed by Hans Lange.

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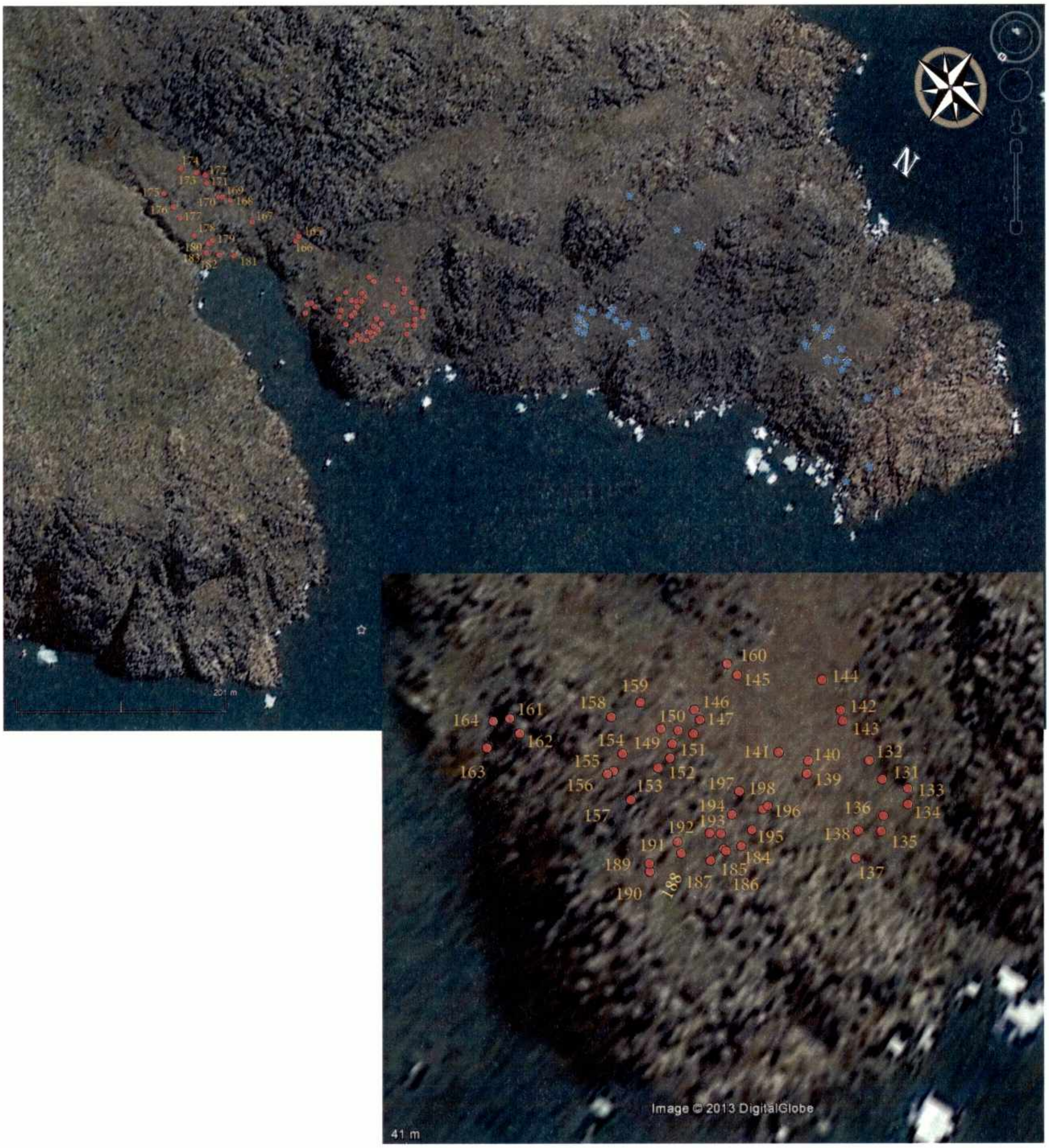

Figure 58. Location of features recorded during the 2006 (blue stars) and 2012 (red dots) pedestrian surveys. The lower cut away image show the locations of primarily Early Paleoeskimo period features located on top of and around a bedrock knoll approximately 30 m above current sea level. These maps were modified from Google earth imagery of an oblique view of the Foulke Harbor area. The key to the feature numbers is present in Appendix 1.

hearth) and two tent rings that could not be placed in a more definitive time period.

The Thule-historic features consisted of six tent rings, a snare line, a hunter's bed, one cache, a shelter, and a boulder wall. For the most part these features are typical of other similar features in the area with the exception of the boulder wall. This feature, which is depicted in figs. 66 and 67, consisted of a boulder wall comprised of several courses of large rocks that stretched over 50 m and had multiple spokes. Based on the robustness of the feature, this feature was likely used to hunt caribou or even muskox.

The research potential for studies examining the Early Paleoeskimo use of Inglefield Land of this area is very high, especially when considering the finds of both seasons. Although some of the early features have been impacted by later occupants of the area, there are a number of rings that have vegetation present that might preserve organic artifacts. However, because of the elevation of these features, there is little immediate threat of destruction. The greatest current threat for impacts to this location would be if tourists to the area were to scavenge artifacts from the surface.

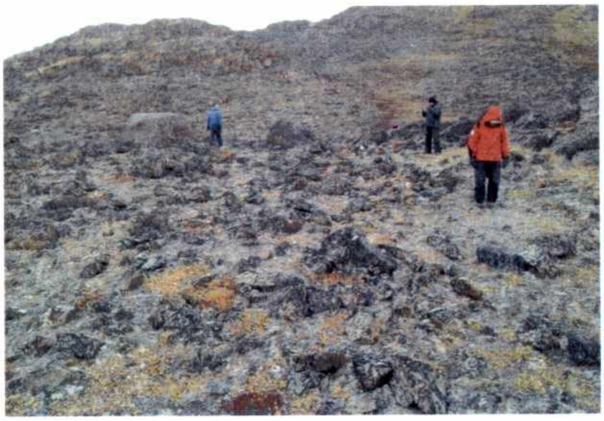

Figure 59. Area of Early Paleoeskimo period features on bedrock knoll in Foulke Harbor discovered in 2012. Photographed by John Darwent.

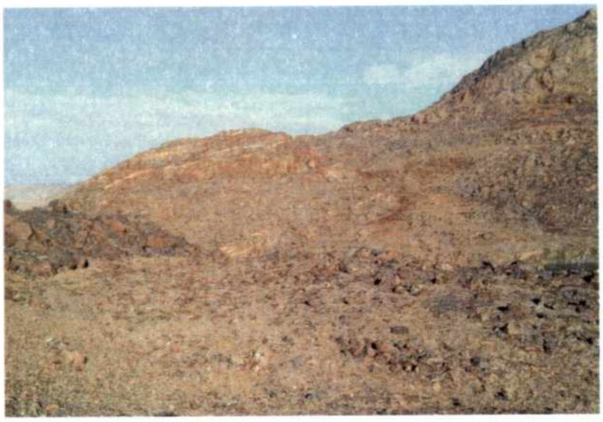

Figure 60. Second area if Early Paleoeskimo period features on gravel bench next to bedrock knoll. Photographed by John Darwent.

Table 12. Type and age of features recorded in the Foulke Harbor area in 2012.

FEATURE TYPE	Early Paleoeskimo (2000-500 BC)	Late Paleoeskimo (500 BC–AD 1300	Paleoeskimo (2000 BC–AD 1300)	Thule-historic (AD 1250-[1818]1953)	Historic (AD 1818 – 1953)	Unknown	Total
Activity Area	-	-	-	-	-	2	2
Boulder Wall	-	-	-	1	-	-	1
Box Hearth	-	-	1	-	-	-	1
Cache	-	-	-	1	-	18	19
Fox Trap	-	-	-	-	-	4	4
Hearth	7	2	6	-	-	-	15
Hunter's Bed	-	-	-	1	-	-	1
Shelter	-	-	-	1	-	-	1
Snare Line	-	-	-	1	-	1	2
Tent Ring	13	1	2	6	-	-	22
	20	3	9	11	-	25	68

Figure 61. Hans Lennert recording debitage next to an Early Paleoeskimo period tent ring in Foulke Harbor. Photographed by John Darwent.

Figure 62. Early Paleoeskimo period hearth at Foulke Harbor. Photographed by John Darwent.

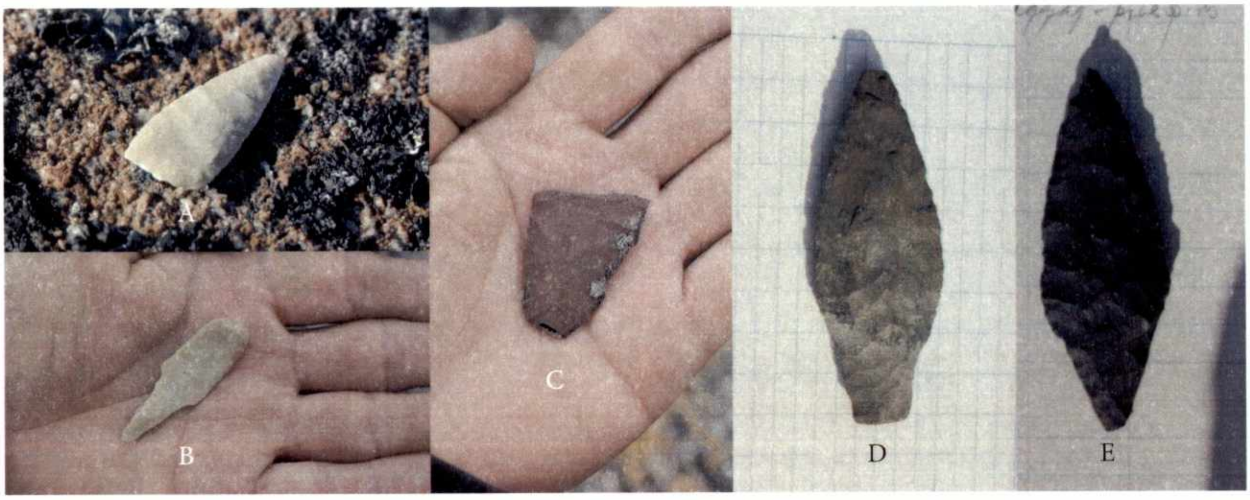

Figure 63. Early Paleoeskimo period artifacts found in the Foulke Fjord area in 2012. A is likely a PreDorset endblade; B. and C. are Early Paleoeskimo stone tools; and D. and E. are Saqqaq projectile points, which appear to be made from made of killiaq. Photographs taken by Hans Lange.

Figure 64. Late Dorset triangular midpassage located approximately 10 m above sea level in Foulke Harbor. Photographed by John Darwent.

Figure 65. Another view of John Darwent recording the Late Dorset triangular midpassage in Foulke Fjord. Photographed by Hans Lange.

Figure 66. John Darwent, Justin Junge, and Hans Lennert walking next to Thule-historic boulder wall. Photographed by Hans Lange.

11. Unnamed Promontory

Just to the south of Foulke Harbor is another small bay with an associated rocky promontory that was very similar to Foulke Harbor itself. Because of this similarity, one stop was made in the location to make a preliminary survey on August 11, 2012. The results were unexpectedly meager, as only a few Thule-historic and Paleoeskimo features—mainly tent rings—were noted as well as some snare lines but not in large numbers. The most important feature discovered was a Thule-historic grave consisting of one individual inside a stone crypt. Unfortunately, time did not permit a revisit to for systematically record of the features of the area.

Figure 68. Hans Lange walking on gravel-covered bench in survey location 11, located at approximatel 30 m above sea level. Although such locations often have feature presents in other areas, none were present here. Photograph taken by Justin Junge.

Figure 67. Image showing the extent of the boulder wall (John Darwent is in the background). The wall extends further on each side of the photograph (taken by Hans Lange).

12. Julias Valley

The Julias Valley sits to the north of Cape Kenrick and was visited on August 11, 2012. Although a very scenic area with some potentially habitable terraces (Fig. 69), no archaeological features were noted.

Figure 69. Gravel beaches at the Julias Valley. Photographed by Justin Junge.

13. Waterfall

A brief stop was made at a waterfall (Fig. 70) with an approximately 100 m drop on the north side of Cape Kenrick on August 11, 2012. The alluvial fan associated with this waterfall was steep and not conducive to habitation, and no archaeological features were identified.

Figure 70. Hans Lange in front of +100 m water fall on the Cape Kenrick peninsula. Photographed by John Darwent.

14. & 15. Cape Kenrick

Cape Kenrick sticks prominently out into Harstene Bay. While most of the peninsula is a steep rocky bedrock outcrop, there is an outer bench that surrounds the end of the peninsula. This outer bench is mostly covered with thick tundra growth, which is atypical vegetation for most of the region, with a few gravel covered benches present. The cape was initially investigated on August 20 and then was systematically surveyed and recorded on August 29, 2012 (Table 13).

Four different areas of Cape Kenrick had distinct clusters of features. The smallest of these, and the furthest north, is a group of three Paleoeskimo tent rings located on a gravel-covered terrace that sits approximately 20 m above sea level (Fig. 72; 2012-1 - 2012-3). This terrace had an excellent view of the entire Harstene Bay area to the north. The rings themselves were relatively disturbed (Fig. 73) and no artifacts were present. And although clearly Paleoeskimo in origin, could not be placed into a more specific time period.

The second group of features was located on the tip of the peninsula on a bedrock and gravel bench immediately adjacent to the shoreline (Fig. 74). Most of the features were caches (n=19); the remaining features consisted of four tent rings, three fox traps, and three hunter's beds. The tent rings and hunter's beds were

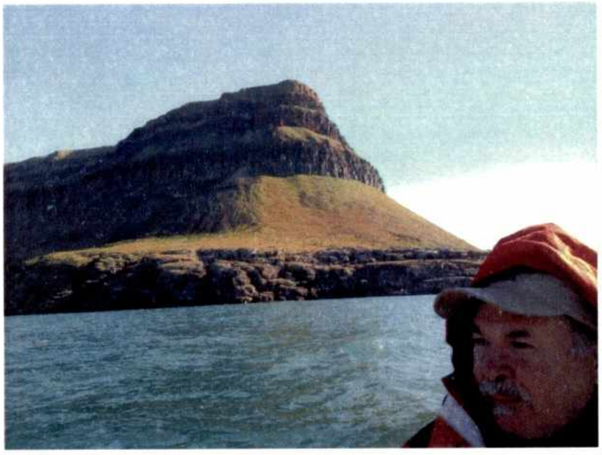

Figure 71. Cape Kenrick. Note the flat bench, which was the location of Thule-historic period features assocatied with survey stop 14. Photographed by John Darwent.

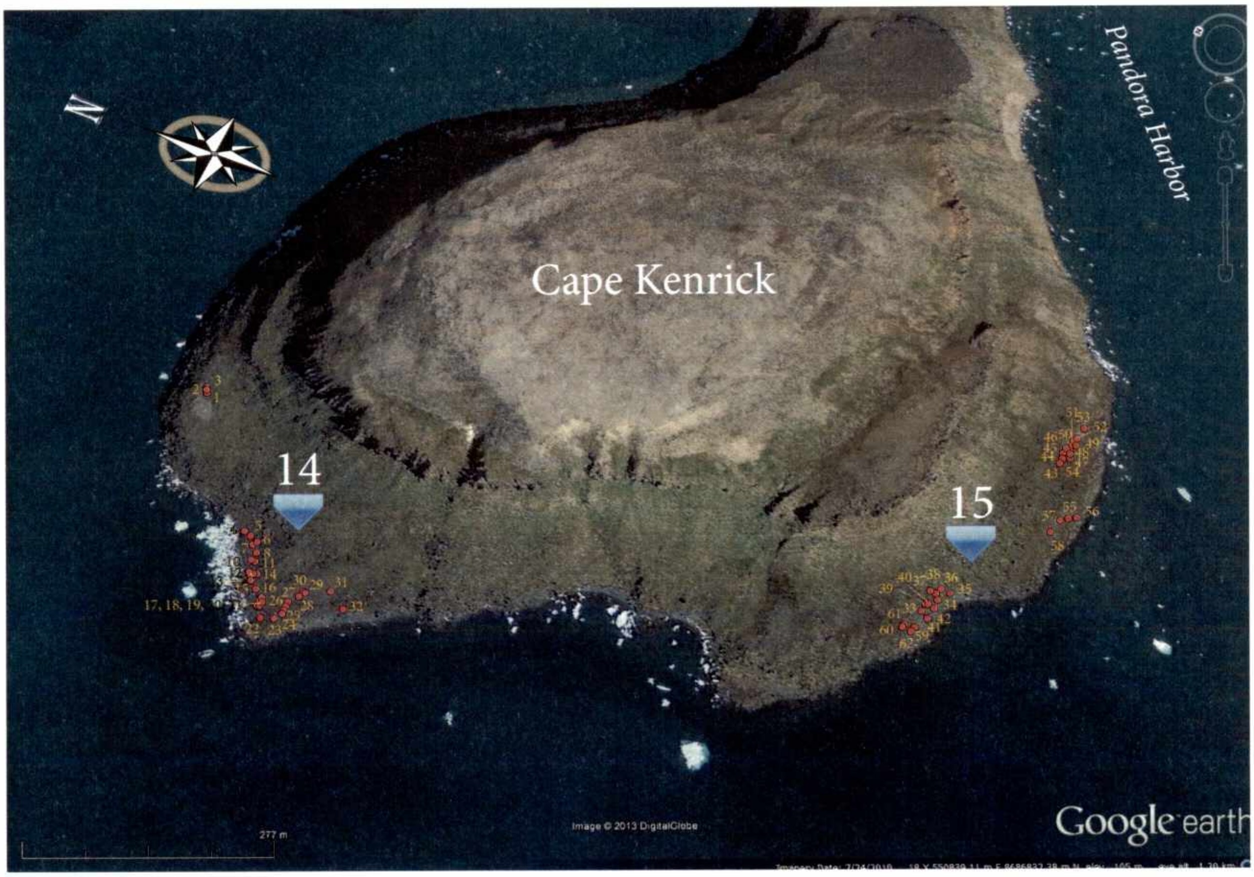

Figure 72. Location of features on Cape Kenrick. Note that all fall into four different clusters discussed in the text.

Thule-historic in age, and it is likely that the other features are from the same time period.

The third group of features was located on the southwest side of the cape and included five previously unrecorded Thule-historic winter houses (figs. 75, 76, and 77). For the most part, these houses appear to be in good condition and relatively undisturbed; however, several have large boulders in them that have rolled in from the cliffs behind the feature (Fig. 77). In addition, two of the houses have entrance tunnels that exit onto the shore as it is configured now, which places both under threat for destruction with any rise in sea level (Fig. 78). Four caches and one fox trap were associated with the houses.

Slightly to the west of the winter houses, two rect-

Figure 73. Disturbed Paleoeskimo tent ring on the north side of Cape Kenrick. Photographed by John Darwent.

Figure 74. Thule-historic cache on furthest tip of Cape Kenrick (survey location 14). Photographed by John Darwent.

Figure 75. Thule-historic winter house built into suitable gap in local bedrock. Photographed by Justin Junge.

Figure 76. Entrance tunnel of Thule-historic winter house with stone lintel still in position on Cape Kenrick. Photographed by Justin Junge

Figure 77. Thule-historic winter house with large boulder inside. The boulder rolled into the feature from the cliffs behind the site. A recent boulder of a larger size was also present between two winter houses, which likely rolled into the cluster during our stay in the region. Photographed by Justin Junge.

Table 13. Type and age of features located on Cape Kenrick.

FEATURE TYPE	Early Paleoeskimo (2000-500 BC)	Late Paleoeskimo (500 BC–AD 1300	Paleoeskimo (2000 BC–AD 1300)	Thule-historic (AD 1250-[1818]1953)	Historic (AD 1818 – 1953)	Unknown	Total
Box Hearth	-	-	1	-	-	-	1
Cache	-	-	-	4	-	20	24
Fox Trap	-	-	-	1	-	3	4
Hunter's Bed	-	-	-	3	-	-	3
Lithic Scatter	-	-	2	-	-	-	2
Play Tent Ring	-	-	1	-	-	-	1
Semisubterranean Tent Ring	-	2	-	-	-	-	2
Tent Ring	9	-	6	4	-	-	20
Winter House	-	-	-	5	-	-	5
	9	2	10	17	-	23	62

angular depressions covered with thick sod were identified, lying at approximately 5 m above sea level (Fig. 79). Because of the thick vegetation in the area, a small trowel test approximately 20 x 20 cm in dimensions was excavated into the tundra to determine whether the features were cultural or just natural depressions. At approximately 15 cm below surface two grey chert flakes were encountered. Based on the shape of the depression and the lithic artifacts, we surmise that these features are likely Late Dorset semisubterranean houses. Because both of these features are buried under vegetation, there is a high likelihood that they contain well preserved artifacts. Both houses are at some distance from the coast and thus are safe from coastline erosion. A cache and a tent ring were also in the vicinity of the houses but likely are not related.

The most easterly group of features was located on two gravel covered benches approximately 180 m to the east of the Thule-historic winter houses. This cluster consisted of nine Early Paleoeskimo tent rings, two Paleoeskimo tent rings, two Paleoeskimo lithic scatters, one Paleoeskimo box heath, and one Paleoeskimo toy tent ring. The nine Early Paleoeskimo rings (figs. 80 and 81) were constructed in a parallel line on a gravel bench situated approximately 20-25 m above current sea level, and lithic artifacts were noted in several locations

Figure 78. Entrance tunnel of a Thule-historic winter house that sits immediately above the current sea level in the area. Photographed by Justin Junge.

Figure 79. Late Dorset semisubterranean house located on Cape Kenrick. Rocks outline the extent of the features. Photographed by John Darwent.

Figure 80. Upper gravel-covered bench on south side of Cape Kenrick. Early Paleoeskimo period features run parallel to the coastline. Photographed by Justin Junge.

Figure 81. Early Paleoeskimo period tent ring on upper gravel-covered terrance on Cape Kenrick.. Photographed by John Darwent.

(Fig. 82). The other Paleoeskimo features were located predominantly on a lower gravel covered bench (~10 m above sea level), but it was not possible to determine any specific period within the larger Paleoeskimo period (figs. 83 and 84). Overall, the features in this cluster are relatively disturbed through ground movement, and while outwardly this cluster seems as dense as the cluster of Early Paleoeskimo features over in Foulke Harbor, there are considerably less artifacts and the features themselves more ephemeral.

Figure 82. Hafted endscraper found on the upper gravel terrace at Cape Kenrick, which is likely of Early Paleoeskimo origin. Photographed by Justin Junge.

Figure 83. Lower gravel-covered terrace on the south side of Cape Kenrick. Very few tent rings were observed, but several areas were covered with lithic scatters. Photographed by Justin Junge.

Figure 84. Vegetation covered Paleoeskimo period tent ring on lower gravel terrace on the south side of Cape Kenrick. Photographed by John Darwent.

16. Pandora Harbor

Pandora Harbor was visited on August 18, 2012. It sits on the south side of Cape Kenrick and is a relatively sheltered bay with a creek running into it from the east (Fig. 85). Hopes were high that Pandora Harbor would contain the same feature densities seen in Foulke Harbor because the two areas share similarities in topography; however, this was not the case. After a search of the area, although some tent rings (almost all of which were Thule) were present, there was relatively little use of the area. The most notable feature in the area was a well-made cairn that was either historic or modern in construction (Fig. 86). A sealed bottle was present in the cairn but it appeared to be relatively modern and was not opened. Some features were recorded in the harbor, but this effort was curtailed due to time and productivity (see Appendix 2).

Figure 85. Justin Junge, Hans Lange, and Hans Lennert in Pandora Harbor. Photographed by John Darwent.

Figure 86. Large, well-made cairn in Pandora Harbor. A sealed green bottle, possibly a geocache, was present in the base of the feature. Photographed by Justin Junge.

Survey Results Discussion

Although it was not possible to systematically record all the walkable coastline areas south of Foulke Fjord down to the Dodge Glacier, the evidence we do now gives a fairly clear picture of the feature density in the region. Like other areas of Inglefield Land, where there are sections of coastline where it is possible to build archaeological features they will be present. However, it is clear here in the Harstene Bay region that there were some preferences, particularly on the part of Early Paleoeskimo groups for certain locations.

For the Early Paleoeskimo groups, it appears that Foulke Harbor and the south of Cape Kenrick were key locations for settlement. While it is not known what glacial ice conditions or limits were at this time, in the case of the Foulke Harbor locality, there is a direct, relatively low grade corridor into the interior areas via the stream valley that enters at the fjord. This corridor may have been used for access into area or alternatively driving animals down for dispatch. What is needed in the future is some exploration of the interior area to the east of Foulke Harbor to see if Paleoeskimo features can be identified in the region. Although the features on the south side of Cape Kenrick are not in exactly the same location, the occupants of this region would have had relatively easy access to the interior as well.

Because the surveyed area of Foulke Fjord itself was extended further to the east, the results of the new survey supports the speculation from the original survey in 2006 that Early Paleoeskimo groups did not use inner fjord (Darwent and Johansen 2011). This conclusion is based on the results of the surveys in locations 1, 3, and 5.

Some new information concerning the Late Paleoeskimo period use of the Harstene Bay area also came to light with the new survey data, particularly the Late Dorset. The most important find was the identification of the two Late Dorset semisubterranean houses on Cape Kenrick. These houses mark the first of such features found in the Foulke Fjord region and indicate that the region was likely used by the Late Dorset in the winter months as well as the spring-summer-fall as denoted by the previous discoveries of the Reindeer Point and Etah longhouses and Late Dorset tent rings. A possible semisubterranean feature was also identified at Iita to the east of the excavation areas in 2012, which brings the total to three of these features known for the region. In addition, two tent rings with triangular midpassages were also identified at Foulke Harbor and Radcliffe Island, which is the first evidence for these structures in this area of Inglefield Land.

With regards to the Thule-historic use of the region, the discovery of 12 new winter houses indicates that this area was more intensively used during the winter than previously thought. Added to the known 19 winter house recorded during the 2006 survey (including the buried winter house discovered during excavations that year), brings the total number of Thule-historic winter houses to 31, which parallels the number recorded at Innuarfissuak. All of these winter houses were found on the southern sides of peninsulas or shorelines, which indicates a preference for such locations—possibly due to less exposure to northerly winds. Tent rings and caches, conversely, appear to be ubiquitously distributed.

Most of the Paleoeskimo features are situated in locations where there is little imminent threat of being destroyed through coastal erosion or solufluction. As with other areas of Inglefield Land, the Thule resources are much more vulnerable to any increases in sea levels or weather pattern changes that would change the direction of wave action. Four of the most jeopardized features are winter houses located at Middle Iita (survey area 1) and Cape Kenrick, where the entrance tunnels of these features open out on to the current water line (similarly, two of the winter houses located on Reindeer Point share the same predicament).

In terms of future research, if time permits with future projects, efforts should be made to record features in Survey Area 11 and on Radcliffe Island (Survey Area 7), as well as the peninsula to the north associated with Sunrise Pynt (time and fuel did not permit revisiting this area from the 2006 season). It should also be possible to range down to south of Cape Alexander. Although Diklev and Madsen (1992) undertook some preliminary investigation of this area, more systematic work is needed.

Figure 87. The rubber boat "The Gimme Gimme" and a Greenland shark investigating a seal carcass. Photographed by John Darwent.

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Appendix 1: Radiocarbon Dates

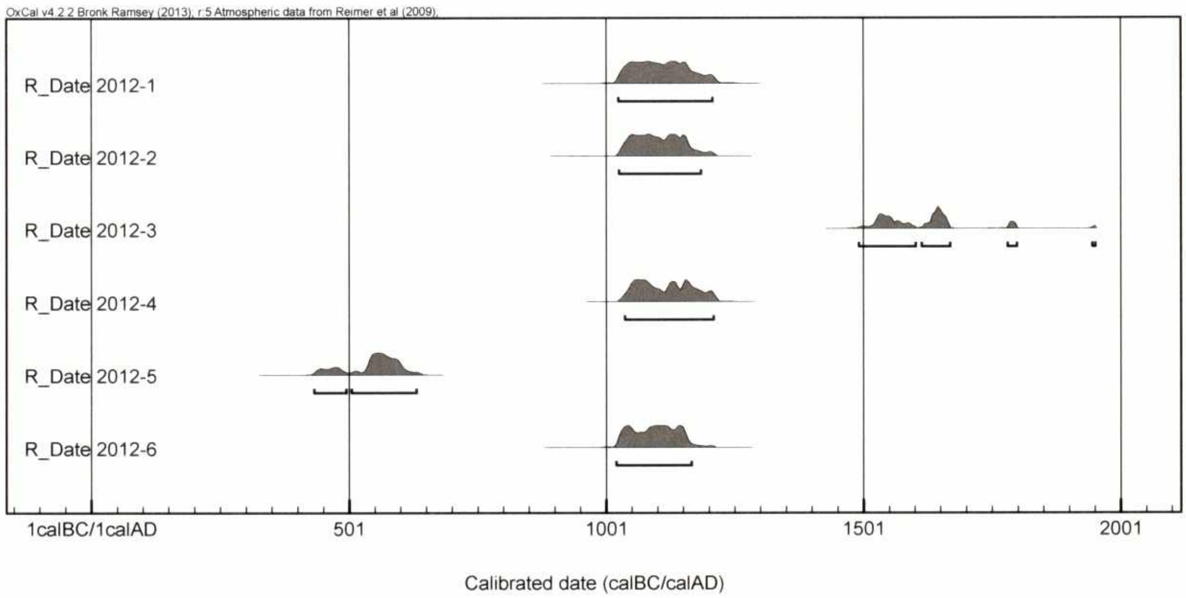
Money was available for six initial radiocarbon dates. These six samples were chosen to date based on their associations with Late Dorset artifacts, with the exception of one sample associated with Thule artifacts. This latter date was run in order to assess the integrity of the stratigraphic column. These dates were run by the Arizona AMS Laboratory at the University of Arizona amd are listed in the table below. The dates were calibrated using OxCal 2.2 (Bronk Ramsey 2009).

Although six dates is not an extensive number, the initial results are encouraging. Four of the five dates submitted in association with the Late Dorset materials came out clearly in the period of time usually associated with the Late Dorset occupation of the high Arctic. Furthermore, the position of the dates within the stratigraphic column do not suggest that there is major turbation of the strata. In fact, the deepest date in the sequence (2012-6) is the oldest date and the highest date (2012-4) is the youngest. Corroborating this is a date from the Thule level (2012-3) that also comes out correct in the sequence.

The one aberrant date—2012-5—is too early to be from the Late Dorset period, though stratigraphically is still in place. However, this date has a Δ13C that suggests that the bone is of marine-mammal origin, and thus it cannot be used without calibration to account for the marine-reservior effect.

Sample	Lab Number	Unit	Level	Quad	Context	Dated Object	14C age BP	Δ13C	Min	Max	Mean Cal(AD)
IITA2012-1	AA101041	1N12E	4	SE	Late Dorset	Muskox molar	923+/-44	-21.1	1025	1208	1109
IITA2012-2	AA101042	1N12E	5	SW	Late Dorset	Long-bone shaft fragment (terrestrial ungulate)	923+/-32	-19.2	1026	1185	1104
IITA2012-3	AA101043	2N6E	3	NE	Thule Level	Caribou femur	272+/-35	-20.9	1492	1952	1611
IITA2012-4	AA101044	2N6E	5	NW	Late Dorset	Caribou metacarpal	905+/-33	-19.2	1037	1210	1117
IITA2012-5	AA101045	2N6E	6	NW	Late Dorset	Long-bone shaft fragment	1512+/-34†	-13.3†	433	632	546
IITA2012-6	AA101046	-1N 18E	6	SE	Late Dorset	Muskox right distal radius	944+/-35	-21.8	1020	1167	1096

†Based on the Δ13C values this bone is likely of sea-mammal origin (polar bear?). Before submission it appeared to be muskox long-bone shaft fragment.



Appendix 2. Location, type, and period of features recorded by the ISADI project in 2012.

FIELD NUMBER	FEATURE TYPE	PERIOD	UTM ZONE	EASTING	NORTHING	Local Area
2013-1	Tent Ring	Paleoeskimo	18	550682.8	8687487	Cape Kenrick
2013-2	Tent Ring	Paleoeskimo	18	550683	8687489	Cape Kenrick
2013-3	Tent Ring	Paleoeskimo	18	550687.3	8687491	Cape Kenrick
2013-4	Fox Trap	Unknown	18	550510.2	8687254	Cape Kenrick
2013-5	Tent Ring	Thule-historic	18	550508.2	8687243	Cape Kenrick
2013-6	Tent Ring	Thule-historic	18	550504.7	8687229	Cape Kenrick
2013-7	Cache	Unknown	18	550500.1	8687229	Cape Kenrick
2013-8	Cache	Unknown	18	550492.2	8687218	Cape Kenrick
2013-9	Cache	Unknown	18	adjacent to 2013-8	--	Cape Kenrick
2013-10	Cache	Unknown	18	550484	8687216	Cape Kenrick
2013-11	Cache	Unknown	18	550482.2	8687209	Cape Kenrick
2013-12	Fox Trap	Unknown	18	550467.5	8687205	Cape Kenrick
2013-13	Cache	Unknown	18	550466.8	8687198	Cape Kenrick
2013-14	Hunter's Bed	Thule-historic	18	550466.7	8687192	Cape Kenrick
2013-15	Hunter's Bed	Thule-historic	18	550459.4	8687195	Cape Kenrick
2013-16	Hunter's Bed	Thule-historic	18	550451.7	8687182	Cape Kenrick
2013-17	Cache	Unknown	18	550443.1	8687166	Cape Kenrick
2013-18	Cache	Unknown	18	550437.8	8687166	Cape Kenrick
2013-19	Cache	Unknown	18	550439.1	8687165	Cape Kenrick
2013-20	Cache	Unknown	18	550435.3	8687165	Cape Kenrick
2013-21	Cache	Unknown	18	550434	8687163	Cape Kenrick
2013-22	Fox Trap	Unknown	18	550423.2	8687147	Cape Kenrick
2013-23	Cache	Unknown	18	550429.2	8687132	Cape Kenrick
2013-24	Cache	Unknown	18	550439.6	8687129	Cape Kenrick
2013-25	Cache	Unknown	18	550443.7	8687129	Cape Kenrick
2013-26	Cache	Unknown	18	550448.2	8687128	Cape Kenrick
2013-27	Cache	Unknown	18	550449.2	8687129	Cape Kenrick
2013-28	Tent Ring	Thule-historic	18	550470.6	8687121	Cape Kenrick
2013-29	Cache	Unknown	18	550477.3	8687123	Cape Kenrick
2013-30	Cache	Unknown	18	550475.4	8687124	Cape Kenrick
2013-31	Tent Ring	Thule-historic	18	550491.7	8687087	Cape Kenrick
2013-32	Cache	Unknown	18	550478.4	8687058	Cape Kenrick
2013-33	Winter House	Thule-historic	18	550829.3	8686411	Cape Kenrick
2013-34	Winter House	Thule-historic	18	550851.3	8686400	Cape Kenrick
2013-35	Winter House	Thule-historic	18	550866.7	8686390	Cape Kenrick
2013-36	Winter House	Thule-historic	18	550867.5	8686401	Cape Kenrick
2013-37	Winter House	Thule-historic	18	550858.6	8686408	Cape Kenrick
2013-38	Cache	Thule-historic	18	550860.3	8686402	Cape Kenrick
2013-39	Cache	Thule-historic	18	550839.5	8686410	Cape Kenrick
2013-40	Cache	Thule-historic	18	550839.5	8686411	Cape Kenrick
2013-41	Fox Trap	Thule-historic	18	550823.9	8686403	Cape Kenrick

FIELD NUMBER	FEATURE TYPE	PERIOD	UTM ZONE	EASTING	NORTHING	Local Area
2013-42	Cache	Thule-historic	18	550839	8686400	Cape Kenrick
2013-43	Tent Ring	Early Paleoeskimo	18	551138	8686327	Cape Kenrick
2013-44	Tent Ring	Early Paleoeskimo	18	551146.7	8686325	Cape Kenrick
2013-45	Tent Ring	Early Paleoeskimo	18	551153.1	8686327	Cape Kenrick
2013-46	Play Tent Ring	Paleoeskimo	18	551159.3	8686317	Cape Kenrick
2013-47	Tent Ring	Early Paleoeskimo	18	551159.5	8686320	Cape Kenrick
2013-48	Tent Ring	Early Paleoeskimo	18	551166.2	8686320	Cape Kenrick
2013-49	Tent Ring	Early Paleoeskimo	18	551172	8686318	Cape Kenrick
2013-50	Tent Ring	Early Paleoeskimo	18	551178.4	8686320	Cape Kenrick
2013-51	Tent Ring	Paleoeskimo	18	551181.7	8686319	Cape Kenrick
2013-52	Tent Ring	Early Paleoeskimo	18	551188.7	8686316	Cape Kenrick
2013-53	Tent Ring	Early Paleoeskimo	18	551213	8686313	Cape Kenrick
2013-54	Box Hearth	Paleoeskimo	18	551151.3	8686316	Cape Kenrick
2013-55	Lithic Scatter	Paleoeskimo	18	551056.6	8686290	Cape Kenrick
2013-56	Lithic Scatter	Paleoeskimo	18	551065.3	8686281	Cape Kenrick
2013-57	Tent Ring	Paleoeskimo	18	551047.5	8686297	Cape Kenrick
2013-58	Tent Ring	Paleoeskimo	18	551024.4	8686305	Cape Kenrick
2013-59	Cache	Unknown	18	550803.9	8686412	Cape Kenrick
2013-60	Tent Ring		18	550797.8	8686424	Cape Kenrick
2013-61	Semisubterranean Tent Ring	Late Paleoeskimo	18	550797.2	8686424	Cape Kenrick
2013-62	Semisubterranean Tent Ring	Late Paleoeskimo	18	550799.9	8686413	Cape Kenrick
2013-63	Winter House	Thule-historic	18	556685.3	8693066	Middle Iita
2013-64	Winter House	Thule-historic	18	556680.5	8693075	Middle Iita
2013-65	Winter House	Thule-historic	18	556656.4	8693115	Middle Iita
2013-66	Winter House	Thule-historic	18	556631.4	8693127	Middle Iita
2013-67	Winter House	Thule-historic	18	556638.4	8693118	Middle Iita
2013-68	Winter House	Thule-historic	18	556638.5	8693118	Middle Iita
2013-69	Cache	Unknown	18	556797.5	8693123	Middle Iita
2013-70	Tent Ring	Thule-historic	18	556765.4	8693022	Middle Iita
2013-71	Winter House	Thule-historic	18	556761	8692987	Middle Iita
2013-72	Cache	Thule-historic	18	556776.8	8692988	Middle Iita
2013-73	Tent Ring	Thule-historic	18	556660.4	8693108	Middle Iita
2013-74	Tent Ring, Sod	Thule-historic	18	556668.2	8693093	Middle Iita
2013-75	Cache	Thule-historic	18	556685.9	8693076	Middle Iita
2013-76	Tent Ring	Thule-historic	18	555980.3	8691966	Southern Moraine
2013-77	Cache	Unknown	18	555986	8691972	Southern Moraine
2013-78	Cache	Unknown	18	555989.4	8691970	Southern Moraine
2013-79	Tent Ring	Thule-historic	18	556023.8	8691970	Southern Moraine
2013-80	Cache	Unknown	18	556027.5	8691970	Southern Moraine
2013-81	Cache	Unknown	18	556034.6	8691970	Southern Moraine
2013-82	Cache	Unknown	18	556034.1	8691978	Southern Moraine
2013-83	Cache	Unknown	18	556042.6	8691976	Southern Moraine

FIELD NUMBER	FEATURE TYPE	PERIOD	UTM ZONE	EASTING	NORTHING	Local Area
2013-84	Cache	Unknown	18	556042	8691976	Southern Moraine
2013-85	Cache	Unknown	18	556051.4	8691969	Southern Moraine
2013-86	Cache	Unknown	18	556054.8	8691967	Southern Moraine
2013-87	Tent Ring	Historic	18	556064.3	8691953	Southern Moraine
2013-88	Hearth	Unknown	18	556071.4	8691943	Southern Moraine
2013-89	Tent Ring	Thule-historic	18	556086.5	8691950	Southern Moraine
2013-90	Cache	Unknown	18	556094.9	8691951	Southern Moraine
2013-91	Cache	Unknown	18	556098.1	8691958	Southern Moraine
2013-92	Cache	Unknown	18	556099	8691954	Southern Moraine
2013-93	Cache	Unknown	18	556098.6	8691953	Southern Moraine
2013-94	Cache	Unknown	18	556105.6	8691961	Southern Moraine
2013-95	Cache	Unknown	18	556107.3	8691958	Southern Moraine
2013-96	Cache	Unknown	18	556107.8	8691953	Southern Moraine
2013-97	Cache Complex	Unknown	18	556114.9	8691951	Southern Moraine
2013-98	Tent Ring	Thule-historic	18	556114.3	8691935	Southern Moraine
2013-99	Tent Ring	Thule-historic	18	556103.9	8691921	Southern Moraine
2013-100	Tent Ring	Thule-historic	18	556108.4	8691920	Southern Moraine
2013-101	Tent Ring	Thule-historic	18	556121.6	8691916	Southern Moraine
2013-102	Cache	Unknown	18	556136.1	8691921	Southern Moraine
2013-103	Cache	Unknown	18	556137.4	8691919	Southern Moraine
2013-104	Cache	Unknown	18	556130.5	8691931	Southern Moraine
2013-105	Tent Ring	Thule-historic	18	556139.1	8691908	Southern Moraine
2013-106	Cache	Unknown	18	556139	8691918	Southern Moraine
2013-107	Snare Line	Unknown	18	553250.9	8692087	Upper Bedrock Bench
2013-108	Cache	Unknown	18	553338.1	8692145	Upper Bedrock Bench
2013-109	Grave	Historic	18	553376.2	8691699	Sontag's Grave Area
2013-110	Grave?	Unknown	18	553376.4	8691702	Sontag's Grave Area
2013-111	Hearth	Historic	18	553376	8691703	Sontag's Grave Area
2013-112	Cache/Cairn	Unknown	18	553376.7	8691705	Sontag's Grave Area
2013-113	Hearth	Unknown	18	553393.5	8691716	Sontag's Grave Area
2013-114	Cache	Unknown	18	553392.4	8691717	Sontag's Grave Area
2013-115	Hearth	Unknown	18	553393.2	8691718	Sontag's Grave Area
2013-116	Cache	Unknown	18	553397.1	8691713	Sontag's Grave Area
2013-117	Shelter	Thule-historic	18	553367	8691733	Sontag's Grave Area
2013-118	Tent Ring	Thule-historic	18	553362.1	8691743	Sontag's Grave Area
2013-119	Tent Ring	Thule-historic	18	553350.1	8691742	Sontag's Grave Area
2013-120	Rock Alignment	Thule-historic	18	553353.5	8691746	Sontag's Grave Area
2013-121	Hearth	Paleoeskimo	18	553370.9	8691770	Sontag's Grave Area
2013-122	Snare Line	Unknown	18	553370.6	8691808	Sontag's Grave Area
2013-123	Cache	Unknown	18	553472.3	8691691	Sontag's Grave Area
2013-124	Snare Line	Thule-historic	18	553419.2	8691591	Sontag's Grave Area
2013-125	Hearth	Unknown	18	553399	8691593	Sontag's Grave Area
2013-126	Tent Ring	Thule-historic	18	553361	8691591	Sontag's Grave Area

FIELD NUMBER	FEATURE TYPE	PERIOD	UTM ZONE	EASTING	NORTHING	Local Area
2013-127	Hunter's Bed	Thule-historic	18	553372.7	8691607	Sontag's Grave Area
2013-128	Cache	Unknown	18	553402.5	8691646	Sontag's Grave Area
2013-129	Fox Trap	Unknown	18	553409	8691653	Sontag's Grave Area
2013-130	Cache	Unknown	18	553410.2	8691657	Sontag's Grave Area
2013-131	Hearth	Paleoeskimo	18	552831.7	8690646	Foulke Harbor
2013-132	Tent Ring	Early Paleoeskimo	18	552837.8	8690644	Foulke Harbor
2013-133	Cache	Unknown	18	552825.2	8690644	Foulke Harbor
2013-134	Cache	Unknown	18	552822.6	8690648	Foulke Harbor
2013-135	Cache	Unknown	18	552823.7	8690660	Foulke Harbor
2013-136	Cache	Unknown	18	552825.6	8690655	Foulke Harbor
2013-137	Shelter	Thule-historic	18	552824.3	8690671	Foulke Harbor
2013-138	Tent Ring	Late Paleoeskimo	18	552828.2	8690663	Foulke Harbor
2013-139	Hearth	Late Paleoeskimo	18	552846.5	8690661	Foulke Harbor
2013-140	Cache	Unknown	18	552848.4	8690657	Foulke Harbor
2013-141	Cache	Unknown	18	552855.5	8690661	Foulke Harbor
2013-142	Tent Ring	Early Paleoeskimo	18	552850.7	8690639	Foulke Harbor
2013-143	Hearth	Early Paleoeskimo	18	552848.6	8690641	Foulke Harbor
2013-144	Tent Ring	Thule-historic	18	552860.1	8690634	Foulke Harbor
2013-145	Fox Trap	Unknown	18	552877.3	8690649	Foulke Harbor
2013-146	Tent Ring	Early Paleoeskimo	18	552878.6	8690666	Foulke Harbor
2013-147	Tent Ring	Early Paleoeskimo	18	552876	8690667	Foulke Harbor
2013-148	Tent Ring	Early Paleoeskimo	18	552874.7	8690671	Foulke Harbor
2013-149	Tent Ring	Early Paleoeskimo	18	552881.3	8690676	Foulke Harbor
2013-150	Hearth	Early Paleoeskimo	18	552877.9	8690673	Foulke Harbor
2013-151	Tent Ring	Early Paleoeskimo	18	552876.7	8690677	Foulke Harbor
2013-152	Tent Ring	Early Paleoeskimo	18	552874.6	8690681	Foulke Harbor
2013-153	Hearth	Early Paleoeskimo	18	552874.9	8690685	Foulke Harbor
2013-154	Tent Ring	Early Paleoeskimo	18	552883.8	8690688	Foulke Harbor
2013-155	Tent Ring	Thule-historic	18	552882.2	8690693	Foulke Harbor
2013-156	Cache	Unknown	18	552882.8	8690695	Foulke Harbor
2013-157	Hunter's Bed	Thule-historic	18	552874.1	8690697	Foulke Harbor
2013-158	Tent Ring	Paleoeskimo	18	552892.5	8690682	Foulke Harbor
2013-159	Cache	Unknown	18	552890.1	8690673	Foulke Harbor
2013-160	Cache	Unknown	18	552881.3	8690649	Foulke Harbor
2013-161	Tent Ring	Thule-historic	18	552909.8	8690699	Foulke Harbor
2013-162	Tent Ring	Thule-historic	18	552905.4	8690701	Foulke Harbor
2013-163	Fox Trap	Unknown	18	552908.2	8690709	Foulke Harbor
2013-164	Fox Trap	Unknown	18	552912.1	8690703	Foulke Harbor
2013-165	Boulder Wall	Thule-historic	18	552953.9	8690658	Foulke Harbor
2013-166	Cache	Thule-historic	18	552953.8	8690661	Foulke Harbor
2013-167	Snare Line	Unknown	18	552991.8	8690672	Foulke Harbor
2013-168	Snare Line	Thule-historic	18	553018.5	8690667	Foulke Harbor
2013-169	Cache	Unknown	18	553027.7	8690671	Foulke Harbor

FIELD NUMBER	FEATURE TYPE	PERIOD	UTM ZONE	EASTING	NORTHING	Local Area
2013-170	Cache	Unknown	18	553026.8	8690670	Foulke Harbor
2013-171	Fox Trap	Unknown	18	553042.7	8690665	Foulke Harbor
2013-172	Hearth	Early Paleoeskimo	18	553046.4	8690662	Foulke Harbor
2013-173	Actvitity Area	Unknown	18	553053.5	8690665	Foulke Harbor
2013-174	Actvitity Area	Unknown	18	553065.7	8690669	Foulke Harbor
2013-175	Hearth	Late Paleoeskimo	18	553065.8	8690696	Foulke Harbor
2013-176	Tent Ring	Paleoeskimo	18	553052.1	8690701	Foulke Harbor
2013-177	Box Hearth	Paleoeskimo	18	553041.7	8690706	Foulke Harbor
2013-178	Hearth	Paleoeskimo	18	553023.7	8690711	Foulke Harbor
2013-179	Tent Ring	Thule-historic	18	553008.9	8690706	Foulke Harbor
2013-180	Tent Ring	Thule-historic	18	553009.5	8690710	Foulke Harbor
2013-181	Cache	Unknown	18	552987.3	8690706	Foulke Harbor
2013-182	Cache	Unknown	18	552997	8690713	Foulke Harbor
2013-183	Cache	Unknown	18	553005.7	8690717	Foulke Harbor
2013-184	Tent Ring	Early Paleoeskimo	18	552846.8	8690688	Foulke Harbor
2013-185	Hearth	Paleoeskimo	18	552848.9	8690692	Foulke Harbor
2013-186	Cache	Unknown	18	552849.5	8690692	Foulke Harbor
2013-187	Hearth	Early Paleoeskimo	18	552849.9	8690696	Foulke Harbor
2013-188	Cache	Unknown	18	552856.4	8690700	Foulke Harbor
2013-189	Tent Ring	Early Paleoeskimo	18	552860.4	8690707	Foulke Harbor
2013-190	Cache	Unknown	18	552859.1	8690708	Foulke Harbor
2013-191	Hearth	Paleoeskimo	18	552858.8	8690698	Foulke Harbor
2013-192	Tent Ring	Early Paleoeskimo	18	552854.5	8690691	Foulke Harbor
2013-193	Hearth	Early Paleoeskimo	18	552852.4	8690689	Foulke Harbor
2013-194	Tent Ring	Early Paleoeskimo	18	552853.6	8690683	Foulke Harbor
2013-195	Hearth	Paleoeskimo	18	552847.5	8690683	Foulke Harbor
2013-196	Cache	Unknown	18	552848.5	8690675	Foulke Harbor
2013-197	Hearth	Early Paleoeskimo	18	552856.1	8690676	Foulke Harbor
2013-198	Hearth	Paleoeskimo	18	552848.9	8690677	Foulke Harbor
2013-199	Tent Ring	Late Paleoeskimo	18	552320	8691959	Radcliffe Island
2013-200	Boulder Wall	Thule-historic	18	552321.6	8691963	Radcliffe Island
2013-201	Stone Circle	Unknown	18	552931.4	8686130	Pandora Harbor
2013-202	Snare Line	Unknown	18	552885.6	8686102	Pandora Harbor
2013-203	Tent Ring	Historic	18	552474.3	8686010	Pandora Harbor
2013-204	Cache	Unknown	18	552513.3	8686021	Pandora Harbor
2013-205	Play Tent Ring	Unknown	18	552559.7	8686093	Pandora Harbor
2013-206	Tent Ring	Thule-historic	18	552561.1	8686125	Pandora Harbor
2013-207	Cache	Unknown	18	552555.1	8686111	Pandora Harbor
2013-208	Cairn	Historic	18	552199.5	8686037	Pandora Harbor