THE INGLEFIELD LAND ARCHAEOLOGY PROJECT: Culture Contact and Human Ecology at the Entrance to Greenland

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2007

Final report of field research conducted by ILAP in 2004, 2005, and 2006
Submitted to the US National Science Foundation—Office of Polar Programs, the Greenland National Museum and Archives, and the Danish Polar Center

The Inglefield Land Archaeology Project is a multi-year project initiated by the Department of Anthropology University of California-Davis (C. Darwent) and The Peary MacMillan Arctic Museum at Bowdoin College (G. LeMoine), in collaboration with the Greenland National Museum and Archives. A number of factors make Inglefield Land of archaeological interest (**Figure 1**). First, it is located at the northern end of the North Water polynya, an area of permanently open water created by variations in ocean currents (Stirling 1980), which is associated with a wealth of marine life and is a major factor in human settlement of the region. Second, this landmass is one of the closest points between Ellesmere Island, Canada, and Greenland, which has made it one of the most the most frequently-used routes for human colonization of Greenland in prehistory. Third, throughout the historic exploration period (1816-1909), this region was the primary locus of contact between European and American explorers and Inughuit (formerly Polar Eskimo), and between Baffin Island Inuit and Inughuit. Of primary interest to this project is the study of culture contact, loss and regain of technology, changes in land use, and environmental impacts during the late Thule to early historic period (ca. 1700–1920).

Although initial archaeological exploration of Inglefield Land was relatively early (Rasmussen 1921) and includes the well-known excavations of Thule features at Ruin Island and Inuarfissuaq (Holtved 1944), the overall composition of the archaeological resources and culture history of the region was relatively unknown. Thus a systematic archaeological survey was necessary to identify sites pertinent to the project goals. During the 2004 and 2005 field seasons Inglefield Land we surveyed most of the coastline by helicopter, foot, and boat.

Archaeological Survey of Eastern Inglefield Land: Results of the 2004 and 2005 Field Seasons

Archaeological survey undertaken during the 2004 and 2005 field seasons had two distinct components: helicopter survey and pedestrian survey supported, when possible, by a small boat. Because of the expense of helicopter time in an area far from the helicopter base the main goal of the helicopter survey was to establish a broad assessment of the density of archaeological features in the region, and to identify profitable areas to undertake pedestrian survey. To this end, most of the helicopter survey entailed visually inspecting coastline at approximately 150 meters above sea level, landing in locations where concentrations or unique features were spotted. Thule (ca. AD 1000 and 1818) and historic-period winter houses are frequently clearly visible from the air because of their concave shape and associated vegetation and thus were the key features we sought. Much of this area is very sparsely vegetated however, so larger Paleoeskimo (ca. 2000 BC to AD 1000) tent rings—especially well-constructed examples—were also visible from the air.

The pedestrian survey was undertaken by crews of three to four people with the goal of recording all encountered features within walking distance of a base camp. Although the current emphasis of ILAP is on the late prehistoric and early historic period, we considered it important to record *all* archaeological resources that we encountered during our survey. Our efforts were primarily directed towards the

coastline because the majority of features are located within 50 m of the water line. Ideally crew members walked parallel to the coast spaced 10–15 m apart; however, most of the coastline is rugged and steeply sloped, requiring teams to split up, walking either along the ice foot or along high ridges. Inland areas were surveyed when crews were in transit to coast areas from camp, but only a few ephemeral features were encountered.

There is little in the way of soil deposition or vegetation in central and eastern Inglefield Land and most everything related to prehistoric and historic use of the region is literally lying on the surface. As a result, it was possible to collect information at a more-detailed feature level instead of at the site level, which in turn facilitated better temporal control over landscape use as often single locations would have features from multiple time periods (e.g., Dunnell and Dancey 1983). Location of features was recorded using a GPS, but in areas of high feature density a transit was used to create a more accurate map of the relationships between features. All features were digitally photographed and undisturbed tent rings and winter houses were sketched.

Helicopter Survey Results

Our original plan called for a comprehensive helicopter survey of the coast of Inglefield Land prior to beginning more intensive pedestrian survey in 2004. Scheduling helicopter flights in and out of Inglefield Land, however, is like playing a slot machine: unless you have three cherries line up in a row—good weather at Thule AFB, Qaanaaq, and Inglefield Land, between the hours of 8 am–1 pm Monday, Wednesday, Friday, and Saturday—you don't get a flight. As it turned out, 2004 was a poor year for flying. After a number of days of cancelled flights at the beginning of the season, we were forced to abandon this plan and instead based camp locations for pedestrian survey on educated guesses. Throughout a six-week season that year we continued to schedule survey flights, all of which were ultimately cancelled due to weather. As a result, helicopter survey of the coast was limited to a flyover of the region between Force Bay and Marshall Bay during a camp move, the only successful flight that season. Fortunately, during the 2005 season the slots were looser and we managed to complete the aerial survey. On two flights we covered most of the coast between Marshall Bay and the Humboldt Glacier and on the third we flew over portions Foulke Fjord.

Large sections of the eastern portions of the coast of Inglefield Land are virtually uninhabitable. Along the 110 km stretch between Force Bay and Advance Bay most of the coast is a precipitous 300 m drop from a relatively flat plateau of Cambrian limestone (Koch 1933) into Kane Basin. Areas suitable for occupation are restricted to alluvial fans associated with streams that cut through the cliffs, rocky outcrops and peninsulas, bays and fjords associated with river outlets, and occasional elevated beach terraces. East of Advance Bay the nature of the coastline changes with the disappearance of the limestone plateau. Here the coast becomes much more undulating, characterized by fjords and rocky exposures. Between Advance Bay and Paris Fjord the coast rises modestly and there are gravel filled nooks in the bedrock that are suitable for habitation; however, east of this area the coast becomes much more rugged. Although not as inhospitable as the cliffs in the west there were few areas suitable for habitation.

There is also an increase in the number of islands east of Advance Bay. Although there are small islands present in Renssaelar Bay, Glacier Bay, and Marshall Bay—most notably Ruin Island (Holtved 1944; Rassmussen 1921)—there are over 70 islands, most of which fall into the Fifteen, Bonsall, and McGary Island groups. With a few exceptions, these islands are relatively low-lying rocky outcrops and many have areas with potential for archaeological features.

We landed at thirteen spots in the eastern part of Inglefield Land, predominantly in locations where archaeological features were observed from the air but also in a few known locations (**Figure 2**). The former included stops on one of the McGary Islands (1), north of Cape Agassiz (2), one of the Bonsall Islands (3), two sides of the mouth of an unknown Fjord (4,5), Cape Kent (8), and south of Cape Russell (10). In addition, we touched down in Advance Bay (7), and along an unnamed fjord 5 km east of Paris Fjord to check out feature potential on the ground without detecting features from the air. The known locations we stopped at included Qaqaitsut (6)—a site reported by hunters to the Greenland National Museum and Archives—Wulff River (9) (a.k.a. Cape Kent), and Ruin Island (12). Based on our observations during these stopovers, we estimate that for every feature spotted from the air there are likely at least 10 others in the immediate vicinity.

Both the Fifteen Islands and Bonsall Islands were identified by several informants from Qaanaaq during interviews undertaken by doctoral student Trine Johansen in 2004 as having numerous

archaeological features present and thus during the helicopter survey we made it a point to cover these islands. Paleoeskimo features were observed the Bonsall Islands from the air, and we landed on one of the larger islands after a large midpassage was spotted. At this location, which was a raised gravel beach in a gap in the bedrock, we found approximately 10 other tent rings spanning the Paleoeskimo period. In addition to these, several other tent rings were spotted on the same island, indicating the potential for many other features to be present. This is not the case for the Fifteen Islands. With a handful of exceptions, most of the islands in this group are sheer bedrock domes and only a few possible tent rings were observed from the air.

The coastline between Paris Fjord and Advance Bay consists of relatively low-lying rocky outcrops with the occasional gravel beach ridge found in gaps between the bedrock. Although in many places the bedrock face can be quite sheer, it is not as rugged as the far eastern coast and there are many places where there relief is moderate. During the helicopter survey we observed many features from the air in this area and made a stop at Qaqaitsut. Based on this evidence we decided to undertake our 2005 pedestrian survey in the region.

Pedestrian Survey Results

Pedestrian survey was undertaken in four different locations: Force Bay, Cape Grinnell, Marshall and Glacier Bays in 2004, and Jens Jarl and Paris Fjords in 2005 (**Figure 2**). Jens Jarl and Paris Fjords were chosen for investigation on the basis of the helicopter surveys. Without the benefit of prior aerial reconnaissance, we focused our efforts in 2004 on areas judged to have high potential based prior research but had not been covered by surveys in the 1990s.

In the 2004 and 2005 features, we recorded 1376 features, for which we produced 336 detailed sketch maps. Broken down by region, we recorded 96 features in Force Bay, 106 on Cape Grinnell, 626 in the Glacier and Marshall Bays region, and 549 in the Jens Jarl and Paris Fjords region (**Figure 3**).

Force Bay is a shallow bay located at the outlet of an unnamed river. The outer margins of the bay are lined with rocky outcrops and the inner bay consists of a series of river terraces, some of which were strewn with boulders. Most of the features identified in the region were caches (n=45), followed by tent rings (n=27; including fall-spring tent rings). The latter features for the most part were scattered along the river terraces but also along elevated beaches in the west.

Of the features that could be assigned to a culture, Thule and Thule-historic features (n=30) were most abundant, followed distantly by Paleoeskimo (n=6) and Historic/Historic-Modern (n=3). Most of the Paleoeskimo features were found on a gravel terrace approximately 20–24 m above sea level on the western side of the bay. Thule features were observed on both sides of the bay and were usually (but not exclusively) at a lower elevation. A number of the Thule features were found near or on rocky outcrops along the shore and also in boulder fields found along the eastern-side river terraces. Some of the more interesting features present in the area include a communal long house, two burials, and a winter house.

Five kilometers to the northeast of Force Bay at Cape Grinnell there are a series of elevated beach ridges in conjunction with an alluvial fan associated with a perennial stream. Here, scattered over the beaches and fan, we identified and mapped 106 cultural features (**Figure 3**). Approximately nine beach ridges extend back from the coast approximately 150 m where they are then covered by talus slopes at the base of 300 m high cliffs. Cultural features were present over the lower six beaches. The temporal sequence of the ridges has yet to be worked out, but Paleoeskimo features were found primarily on the higher beaches and Thule features on the lower ones. Features present on the alluvial fan were almost exclusively Thule with only one possible Paleoeskimo tent ring found at the far northeastern end of the site.

Caches (n=42) were the most common feature type recorded, followed by 28 tent rings and, most notably, 13 winter houses. Nine of these latter features were present in a row on one of the lower beach terraces, approximately seven meters above sea level in the southwestern portion of the site, and three others were located a little farther north at a similar elevation. Only two winter houses were found north of the main creek dividing the site. In addition to the thirteen winter houses, we identified three burials, two of which were possibly located in the ruins of winter houses.

Technically, our investigations at Cape Grinnell can be considered a revisit. In 1853, Kane (1856), as part of the Second Grinnell Expedition, reported a recently abandoned hut at Cape Grinnell and sketched the cathedral-like canyon behind the site. In terms of our overall project goals, this observation is of notable importance because it places the occupation of at least one of the winter houses at the cape just prior to significant Euro-American contact. Although the destructive forces operating on

the winter houses have been severe in comparison to other areas we investigated, there is no evidence that any of the houses have been occupied in the last 100 years. There is a modern tent ring with a battery cache on one of the higher terraces, but there are no modern Inughuit structures like those at Inarfissuaq, Qaqasuit, or Dundas, nor did any informants report this as an actively-used location (Johansen 2004 interviews). Based on Kane's description, it is likely that some of the houses come from the late prehistoric period; however, how representative the houses are of the rest of the period is unclear.

Marshall Bay and Glacier Bay are located at the terminus of two of the largest rivers in Inglefield land—an unnamed river originating from the September Lakes and the Minturn River. The landscape between the two bays is characterized by small finger-like, rocky peninsulas in the west, and most notably a large rocky peninsula in the east, at the end of which Inuarfissuaq is located (**Figure 1**). Also, Ruin Island (Holtved 1944) is adjacent to this peninsula. During the 2004 field season, we surveyed the whole coastline of this area between the mouth of Minturn and the start of the fjord in Marshall Bay, as well as portions of the interior. The only exception was the site of Innuarfissuaq itself because it was difficult to tell disturbed versus undisturbed features as a result of Holtved's excavations and modern land use.

It is not an understatement to label the occupation of the area through time as dense. We identified 626 features scattered throughout the area (**Figure 3**), and although it would be anticipated that they would be clustered on the larger eastern peninsula, the larger percentage of the features were present in the smaller peninsulas in the Glacier Bay area to the west. Surprisingly, the number of tent rings (n=242 including fall/spring tent rings) identified exceeded the number of caches (n=191), the latter of which were followed by fox traps (n=66) and hearths (n=29). Despite the large number of winter houses discovered in the area by Holtved (1944), we only located two unexcavated winter houses in the area.

There are notable differences between the distribution of Thule/Thule-historic sites and Paleoeskimo features in the region. One of the most salient is the distribution of period-specific tent rings on the Inuarfissuaq peninsula. Here, Paleoeskimo period tent rings were concentrated in three different localities: up on the eastern "prong" near the Inuarfissuaq winter houses, on the end of the western prong on the other side of Hyde Parker Bay, and on the northwestern side of a large lake in the interior of the base of the peninsula. In the case of the eastern prong, Paleoeskimo tent rings were found in bedrock gaps at elevations usually over 10 meters above sea level. Because of the ruggedness of bedrock in this area, suitable locations to put tents are rare. Although there was some temporal exclusivity to the clusters of these rings, in most cases Thule/Thule-historic features would be present adjacent or below, usually constructed out of stones borrowed from the Paleoeskimo rings. However, the temporally identifiable tent rings present on eastern prong and in the interior were exclusively Paleoeskimo.

The initial discover of Paleoeskimo rings in the interior was surprising because they are located at some distance away from the current coastline. However, several of the rings are located on a beach terrace that is approximately 16 meters above sea level, which likely was the coastline around 3500–4000 B.P. Based on the artifacts associated with the tent rings, as well as the architecture of several of the rings, suggest that the area was occupied during the Early Paleoeskimo period. Interestingly, the lake by which several other rings were located probably was either a lagoon or a shallow bay during the occupation based on topography. Other notable details about the Paleoeskimo features in the region is that Paleoeskimo tent rings are found further down in Glacier Bay than Thule/Thule-historic tent rings but are absent in Marshall Bay.

Three radiocarbon dates were obtained for Paleoeskimo tent rings in the Glacier and Marshall Bays region. The earliest of these was obtained on a charcoal sample (likely from *Salix* sp.) that dated to 3857 ± 45 B.P. (AA63346) (2465–2203 B.C. calibrated at 2-sigma), which was recovered in from the interior of a tent ring and possibly from a hearth remnant (**Table 1**).

Our interest in the Jens Jarl and Paris Fjord region was initially aroused by reports of winter houses at the abandoned village of Qaqaisut. Hunters who had lived at this location in the 1980s during an experiment into the viability of small semi–autonomous villages had collected a variety of Thule-period artifacts from the location, but no professional archaeologists had had an opportunity to visit until now. A visit to the area during the 2005 helicopter survey confirmed the archaeological potential of the area.

Paris Fjord is approximately 5 km long and serves as an outlet for an unnamed river. During the 2005 investigations, we surveyed the entire west coast of Paris Fjord from the mouth of this river to the west side of the peninsula between Jens Jarl Fjord and the Fifteen Island group. It was not possible to cross the river at the head of Paris Fjord on foot, but during the helicopter survey we had determined that

the east side of the fjord had few habitable spots. Unlike Paris Fjord, there is no large active drainage flowing into Jens Jarl Fjord. It appears to be an orphaned channel left over from glaciation. As a result, the character of this fjord is much different than its counterpart, being much more "stagnant" in terms of ice movement during summer thaw. Most of the coastline of the region consisted of low rocky outcrops broken by gaps with gravel-covered beaches, but topography at the end of the peninsula between the two fjords and on the western coast of Jens Jarl Fjord was quite rugged.

We identified 549 features in the Jens Jarl and Paris Fjord region (**Figure 3**). Like the Marshall Bay and Glacier Bay region, tent rings were the dominant feature type (n=175 including Fall/Spring tent rings) followed by caches (n=141). However, Jens Jarl and Paris Fjords had comparatively more hearths (n=54) than fox traps (n=32), and a higher frequency of kayak stands (n=22).

Paleoeskimo features (n=157) outnumbered Thule/Thule-historic features (n=122) in the area. The distribution of features by period in the Jens Jarl and Paris Fjord is similar to Glacier and Marshall Bays. With a few exceptions, most of the Thule/Thule-historic tent rings were concentrated on the eastern sides of the fjords, whereas the Paleoeskimo tent rings were spread across the northern ends of the peninsulas. The exceptions to this pattern are four small- to medium-sized clusters of rings located on gravel beaches in sheltered bays, and six well-shaped rings, of which several had sleeping platforms, located on a relatively exposed, flat-but-sheer outcrop of granite.

Not to be outdone by their predecessors, there were several notable late Dorset features present in the region. One of these, on the northwestern side of the peninsula between Paris and Jens Jarl Fjords, appears to be a late Dorset longhouse. The feature consists of a large tent ring with an eight-meter long axial midpassage nestled into a cleared section of a small boulder field among bedrock outcrops in the only location on the landform where a structure of this size could be placed. No dateable materials were found in association with the feature but a muskox horn core and auditory bulla was recovered from another relatively large tent ring with a six-meter long midpassage located nearby. This bone produced a radiocarbon date of 926 ± 47 B.P. (AA66427) or 1023–1208 A.D. calibrated at 2-sigma.

The majority of the Thule/Thule-historic features in the Paris and Jens Jarl Fjord region are located in the northeast shore of Paris Fjord clustered around the abandoned settlement of Qaqaitsut. This site is composed of 112 features of mixed Thule-historic, Historic, and Modern origins. The most salient features are related to the modern use of the site (n=39), which for the most part ended in 1989 but based on printed documents (newspapers, comic books, and magazines) occurred sporadically up until 1996. These features consist of four standing winter houses, tent rings, dog holds and houses, hearths, and artifact scatters, as well as many caches that likely are associated. 'Underneath' this modern material are an additional 10 winter houses that are either historic or Thule in origin, with the possibility of additional houses below the modern structures. Based on the architecture and condition of these earlier houses, it appears that many could have been occupied in the early- to mid-1900s, which makes the site important for the overall goals of the ILAP project.

A second group of Thule winter houses is located to the east of Qaqaitsut across a small lake. These houses appear to be earlier in the Thule period than those in Qaqaitsut based on the presence of whale bone, which appears to have been used for architectural framing. Curiously, these houses are quite removed from the current coastline (~100m) and are approximately 10 meters above sea level on the shore of a small lake, although they still have kayak stands in association. This lake is now in the process of destroying the houses because a natural moss dam has raised its water level. Any middens that would have been associated with the front of the houses have already been lost, as artifacts are visible on the lake bottom.

Chronology

While not unexpected, the whole sequence of High Arctic prehistory is present in eastern Inglefield based on results of the 2004 and 2005 surveys and previous work undertaken in the region. Of the identifiable features recorded during the pedestrian survey, 12% were modern or historic, 23% were Thule or Thule-Historic, and 21% were Paleoeskimo. Approximately half of the features, mainly caches and fox traps, were not assigned to a chronological period.

The earliest radiocarbon date we obtained for the area was 3,857±45 B.P. (2465–2203 B.C) (**Table 1**), which places it in the Pre-Dorset period outlined by Andreason (2000) for Northwest and Northeast Greenland. Similarly, the second earliest date we obtained from region was 3,241±55 B.P. (1659–1412 B.C.), which corresponds to Andreason's (2000) speculation that there was a second Pre-Dorset occupation of Northern Greenland between 1800 and 1600 B.C. All the features identified as

belonging to the Early Paleoeskimo period were minimally 16 meters above sea level but averaged around 22 m.

The Gateway to Greenland project (Appelt, Gulløv and Kapel 1998; Appelt and Gulløv [eds.] 1999) more than underscored the presence of Late Dorset groups in western Inglefield Land. Our results confirm that this occupation continues all the way to the Humboldt Glacier in the east. Although ILAP was not designed to examine Dorset-Thule Interaction, by chance the radiocarbon dates we obtained for Late Dorset and Early Thule features suggest occupational overlap.

Site Distribution

During the pedestrian survey we were as systematic as possible—all features encountered were recorded—but the feature data were not collected in a strictly probabilistic sense. Therefore, it is very difficult to assess feature density in one area over the other because the total number of features could be the result of the amount of time spent surveying rather than a reflection of feature density. In an attempt to normalize the data to some degree, we divided the total number of features found in each large survey area by the total amount of coastline in each area as determined by measuring a LANDSAT7 image scaled to 1:15,000 using ARCGIS. This gives us a rough indication of the number of features per kilometer of coastline, which although not a perfect measure, it is more reflective of the feature populations than raw counts alone. Based on the GIS measurements, we surveyed approximately 13.65 km in the Force Bay and Cape Grinnell region (including areas of uninhabitable coast that we bypassed by boat), 36.5 km of coast in the Marshall-Glacier Bay region, and 41.2 km of coast in the Jens Jarl-Paris Fjord region. Based on this measure, it appears that there was a significantly higher feature density in the Marshall-Glacier Bay region compared to the other two survey areas.

Using the same measure, our initial impression from the 2005 helicopter survey that Paleoeskimo features are more numerous in eastern Inglefield Land than Thule features is borne out. The rate of Paleoeskimo features per kilometer of coastline is greater in the Jens Jarl-Paris Fjord region. Here Paleoeskimo features occur at a rate of 4 per kilometer; whereas there are only 2.9 Thule features per kilometer. There are also more early Paleoeskimo features in the Jens Jarl-Paris Fjord region than in other areas, largely due to the substantial cluster of 45 early features in Jens Jarl Fjord. Late Paleoeskimo features are evenly distributed between the two areas.

Seasonality of Human Occupation

Breaking the features down by season, it appears that eastern Inglefield Land was used mostly during summertime by both the Thule and Paleoeskimo. For the Thule, this evidence comes in the form of increase number of hearths, watercraft stands, and temporary shelters, which are more prevalent in the Jens Jarl and Paris Fjords Region than in the Marshall and Glacier Bay region, where winter houses. However, from the presence of winter houses in the East, especially in the Inuarfigssuaq area, it is clear that the Thule used Inglefield year round. Proportionately, there are more winter houses to other feature types in the Cape Grinnell region; however the overwhelming size of Inuarfissuaq suggests that there is no east-west division in winter use of the region but rather that this central region constituted the main focus of winter dwellings in this region.

It is more difficult to assess the seasonal use of the area by the Paleoeskimo because of the lack of seasonal indicators associated with features from the period. Most of the tent rings are very ephemeral with little evidence for long term occupation that could be associated with winter use. Late Dorset features are an exception. During the Gateway to Greenland project, Appelt (1999) excavated several semi-subterranean, rectangular houses from the Late Dorset period in the Hatherton Bay area. We did not identify any similar structures in eastern Inglefield Land but did find Late Dorset tent rings, communal structures, and hearths. Thus, the apparent lack of these semi-subterranean houses east of Hatherton Bay suggests that Late Dorset occupation of Inglefield Land during the winter was focused in the west, likely because of access to the Northwater polynya. In the summer months, some emphasis was shifted to the east, closer to the Humboldt Glacier. Here it could be surmised that ice conditions to take advantage of ice-lead hunting locations that might have remained later into the summer season.

Archaeological Survey and Excavation in Foulke Fjord, Western Inglefield Land: Results of the 2006 Field Season

Results of the 2006 field season exceeded our expectations. With a one-year no cost extension and additional logistical support from VECO Polar Resources, we deployed a team of ten people in the field for six weeks. The primary focus of fieldwork in 2006 was excavation at the historic site of Iita (Etah), in Foulke Fjord, with additional foot and boat survey of that area to round out our survey of Inglefield land. Both aspects were successful, despite some mechanical problems with the boat intended for survey.

Pedestrian (and Boat) Survey

Our initial survey plans for the 2006 season were to undertake pedestrian survey of the area surrounding Iita on the north side of Foulke Fjord and boat-based survey of the rest of the fjord, including Cape Kenneth and Port Foulke (this was site of Charles F. Hall's over-wintering expedition in 1871 and he reported archaeological remains in the area). Unfortunately, a series of logistical delays followed by inexorable mechanical problems curtailed the extent of the boat survey to two locations on the southern side of Foulke Fjord. Nevertheless, the pedestrian survey of the northern side of Foulke Fjord was very profitable, and we intensively surveyed the area from Jensen Point to Iita and cursorily covered the area east of Jensen point including Reindeer Point to the tip of Sunrise Point (time did not allow for extensive recording of most of the features in this area). Combined with the boat survey, a total of 459 features were photographed and recorded.

The results of the survey were similar to those from the previous two seasons with a similar proportion of caches, tent rings, fox traps, and hearths being present. However, the density of features appears to be relatively high compared to the other areas, and features were located from the coast line to well over 100 meters above sea level. For the most part, the features present at the higher elevations were animal-trap features consisting of linear piles of stone or walls of stones, which we term snare lines for a lack of a better descriptor. Ethnographically, animals captured using these sorts of features include arctic hare, water fowl, and caribou. These snare-line features comprise approximately 10% of the total features recorded and are not present in this large of a frequency in other areas of Inglefield Land. Therefore, it may be surmised that animals available to be trapped in this manner (e.g., hares) were more prevalent in the area.

There were several notable clusters of features. Immediately to the west of Iita, there was evidence that Provision Point was intensively occupied from Paleoeskimo times through the historic period. About a kilometer to the west on Jensen Point there was a sizable cluster of Thule-period features, which had many 'toy' features and an unusually well preserved play area, and a previously recorded but undocumented small late Dorset-period longhouse (the Etah Longhouse [Appelt and Gulløv 1999]). Because of their uniqueness, both of these clusters of features were mapped using a total station. The most remarkable cluster of features, however, was located further to the east on Reindeer Point. Here we discovered a heretofore undocumented late Dorset longhouse that stretched for 42 m in length, making it the largest known in Greenland to this point (and the second largest in the Arctic [see Schledermann 1990]). A detailed map of this site was made with a total station.

Excavations at Iita

We focused our efforts in 2006 on excavation at Iita. The site is located on an alluvial fan on the north side of, Foulke Fjord. Its familiarity to southern audiences stems from its being the nearest Inughuit community to a number of early over-wintering expeditions, such as those led by Elisha Kent Kane and Isaac Israel Hayes (Hayes 1867; Kane 1856), as well as being the de facto headquarters for Peary's later expeditions (Peary 1891, 1907, 1910), and Donald B. MacMillan's Crocker Land Expedition from 1913-1917 (MacMillan 1918). The people at Iita were the first to experience long-term, intensive contact with Euro-Americans, making Iita a key location for our project.

In historic documents, "Etah" is often used in reference to much of Foulke Fjord. Peary's base between 1898 and 1902, for example, which he describes as being at Iita, was in fact on nearby Provision Point. Similarly, the contemporary settlement tourists and other people think of as Iita is at the head of the fjord, where recently occupied houses are still standing (and in one case reoccupied since our helicopter survey in 2005). The historic Inughuit occupations, however, were on an alluvial fan, some 6 km from the

head of the fjord and it was here that we excavated. This was also the site of MacMillan's lodge between 1913 and 1917. Construction of the lodge, including blasting for the foundation, had a significant impact on part of the site, but much remains intact. Thanks to the many photographs MacMillan took during his years there, we were able to identify houses that had already been abandoned by 1913. (The latest occupation in a traditional house was ca. 1925. A modern, above-ground house was built sometime later, perhaps in the 1940s, but it was built on the foundation of MacMillan's lodge.)

During our six weeks at the site we mapped the whole site and excavated two winter houses and associated midden areas. Using a total station a detailed map of the site was created, recording the location of 181 cultural features (**Figure 4**). The site has been densely occupied for a significant period of time—the surface is littered with relatively recent artifacts, many probably attributable to the Crocker Land occupation, as well as a wide variety of archaeological features, including Thule and historic-period winter houses, tent rings, burials, caches, and snare lines. Excavation also revealed a buried Paleoeskimo component although the extent and nature of the occupation during this period is still unclear.

The two houses were selected for excavation based on a number of factors, including photographic evidence that they had already been abandoned by 1913, their relatively good preservation, and their proximity to the actively eroding bank that forms the edge of the site—both houses are threatened but erosion, and some associated midden deposits had already been lost.

We excavated the complete interior of the houses, working first in a checkerboard pattern to preserve the soil/stratigraphic profiles at 1 m intervals. We used a combination of natural and artificial stratigraphic levels, dividing thicker natural layers into 10cm levels. All material was screened through ¼" mesh, and soil samples were collected from a variety of contexts. Bulk samples (fauna, metal, glass, wood and stone debitage) were collected by 25cm quadrant and all other material was mapped with three-point provenience. For both houses we also sampled the entrance tunnels, but were unable to excavate them completely as they were heavily frozen and did not melt sufficiently during the field season. Midden areas adjacent to the houses were also sampled.

The two houses were well chosen. Both were clearly historic occupations, with House 1 appearing to be more recent than House 2. Both houses were semi-subterranean, originally excavated into the sloping surface of the alluvial fan, the walls reinforced with boulders and sod. At the back, the surface of the sleeping platform in House 1 was over a meter below the surface. Portions of the walls had collapsed, but they were largely intact. Each house would have been roofed with a combination of stone and sod. No roof-fall was present however. Historic and ethnographic accounts describe how Inughuit families would remove the roof of the house in the spring, to allow it to air out over the summer before rebuilding it in the fall.

House 1 had well-preserved boulder walls, including the lintel over the entrance from the tunnel, and a sleeping platform, but the floor was largely absent. Remnants suggested it had been made of recycled wood planks running parallel to the long axis of the house, nailed to supporting boards running cross-wise. The one remaining partial support board was supported from below by small rock slabs. Most of the wood was missing, however, and probably recycled. Below this remnant floor, we found a little evidence of an earlier, stone pavement, but no clear evidence of earlier floors. Instead there was a jumble of rocks and bone (primarily dovekie or little auk). A number of finds point to the late historic occupation, including a well-preserved ulu and skin scraper, both with iron blades and wood handles, typical of the early twentieth century. Similarly a harpoon from the excavations in front of the house is a classic Inughuit narwhal hunting type, seen in late nineteenth and early twentieth century collections.

It was the midden in front of House 1 that was, in some ways the most intriguing. As a midden, it was less productive that we would have hoped, being rather thin. Below these deposits, however, and below a layer of nearly sterile sand, we identified an earlier Thule occupation, indicated by paving stones, with a layer of heather on top of them. This appears to have been a house, and probably the sleeping platform of a house. The entrance tunnel for House 1 cut into this house, leaving only portions intact. The sterile level is presumably slumping from the steep but poorly consolidated slope above and behind the structure.

We found small numbers of lithic debitage (stone waste flakes), and a single burin spall in all the deposits, both in House 1 and its midden. As we dug into the midden, it became clear that the early house and possibly the entrance passage from the later house had cut into earlier Paleoeskimo deposits (**Figure 5**). In one unit a portion of these deposits was undisturbed, but although we recovered many more flakes, there were no diagnostic pieces. We did recover numerous faunal remains, however, which we hope will provide material for useful radiocarbon dates. Finally, in the very bottom of House 1, at the

interface of the floor fill and a level of sterile sand, we recovered a single Late Dorset Type G harpoon head (Maxwell 1985). Unfortunately time and permafrost prevented us from investigating this any further.

House 2, although older than House 1, was also well-preserved. The sod, stone and wood walls were largely intact, as were part of the sleeping platform and the floor of paving stones. Indeed, beneath the floor, remnants for two previous floors were uncovered, with thin layers of fill, consisting largely of heather and other vegetation, between them. Rubble and large intact bones in the uppermost layers indicate that the house was used as a dump after abandonment. Artifacts associated with the last occupation are dominated by industrial materials (glass, steel, wood), with increasingly earlier materials between and below the floors. These include a Civil-war era bayonet likely made between 1855 and 1870 between the topmost and middle floors, Carnegie Foundation ceramics, and Inughuit carvings typical of 19th century trade goods, but also strongly reminiscent of early prehistoric carvings.

Ongoing Analyses

Cataloguing and analysis of all materials collected during the 2006 field season excavations is on-going. Trine Johansen (doctoral student, UCD) under the supervision of CMD has undertaken a complete inventory of the faunal remains collected in 2006 and has started the element and species identification of the bone material, or the faunal analysis. Preliminary results suggest a constant diet of little auk throughout site occupation, but an increase over time in the number of large walrus hunted from this locality. Trine will be taking her Ph.D. exams in May with her dissertation focused on Iita. Dorian Sabenorio (undergrad, UCD) is working on his BA Honors Thesis, which is an analysis of arctic fox mandibles/canines by thin sectioning them and studying the cementum annuli to determine the age of the foxes at death. Michael Tillotson (undergrad, Bowdoin) and GML have begun the extensive process of cataloguing all of the artifacts. John Darwent (lecturer, UCD) is working with the survey and mapping data and coordinating these results with Hans Lange of the Greenland National Museum.

REFERENCES CITED

Andreasen, Claus
2000 Paleo-Eskimos in Northwest and Northeast Greenland. In *Identities and Culture Contacts in the Arctic, Proceedings from a Conference at the Danish National Museum, Copenhagen, November 30 to December 2, 1999*. Martin Appelt, Joel Berglund and Hans Christian Gulløv, eds. Pp. 82–96. Copenhagen: The Danish National Museum and Danish Polar Center.

Appelt, Martin
1999 The David Site. In *Late Dorset in High Arctic Greenland: Final Report of the Gateway to Greenland Project*. Martin Appelt and Hans Christian Gulløv, eds. Pp. 24–41. Danish Polar Center Publication 7. Copenhagen: The Danish National Museum and Danish Polar Center.

Appelt, Martin and Hans Christian Gulløv (eds.)
1999 *Late Dorset in High Arctic Greenland: Final Report of the Gateway to Greenland Project*. Danish Polar Center Publication, 7. Copenhagen: The Danish National Museum and Danish Polar Center.

Appelt, Martin, Hans Christian Gulløv and Hans Kapel
1998 The Gateway to Greenland: Report of the Field Season 1996. In *Man, Culture and Environment in Ancient Greenland*. Jette Arneborg and Hans Christian C. Gulløv, eds. Pp. 136–153. Danish Polar Center Publication, 4. Copenhagen: The Danish National Museum and Danish Polar Center.

Dunnell, Robert and William Dancey
1983 The Siteless Survey: A Regional Scale Data Collection Strategy. *In* Advances in Archaeological Method and Theory, Vol. 5. Michael B. Schiffer, ed. Pp. 267-287. New York: Academic Press.

Hayes, Isaac Israel
1867 *The Open Polar Sea: A Narrative of a Voyage of Discovery towards the North Pole in the Schooner "United States"*. New York: Hurd and Houghton.

Holtved, Eric
1944 Archaeological Investigations in the Thule District, I-II. *Meddelelser om Grønland* 141(1-2).

Kane, Elisha Kent
1856 *Arctic Explorations: the Second Grinnell Expedition in Search of Sir John Franklin, 1853, '54, '55.* Philadelphia: Childs & Peterson.

Koch, Lauge
1933 The Geology of Inglefield Land. *Meddelelser om Grønland* 73.

MacMillan, Donald B.
1918 *Four Years in the White North or Life within Twelve Degrees of the Pole*. New York: Houghton Mifflin.

Maxwell, Moreau S.
1985 *Eastern Arctic Prehistory*. Orlando: Academic Press.

Peary, Robert E.
1891 *Northward over the "Great Ice": A Narrative of Life and Work along the Shores and upon the Interior Ice-Cap of Northern Greenland in the Years 1886 and 1891-1897*. New York: Frederick A. Stokes Company.

1907 *Nearest the Pole: A Narrative of the Polar Expedition of the Peary Arctic Club in the S.S. Roosevelt*. New York: Doubleday Page & Co.

1910 *The North Pole: Its Discovery in 1909 under the auspices of the Peary Arctic Club*. New York: Frederick A. Stokes Company.

Rasmussen, Knud
1921 *Greenland by the Polar Sea: The Story of the Thule Expedition from Melville Bay to Cape Morris Jessup*, translated by A. Kenney and R. Kenney. London: William Heinemann.

Schledermann, Peter
1990 *Crossroads to Greenland: 3000 Years of Prehistory in the Eastern High Arctic*. Komatic Series, 2. Calgary: The Arctic Institute of North America.

Stirling, I.
1980 The Biological Importance of Polynyas in the Canadian Arctic. *Arctic* 33:303–315.

Table 1. Radiocarbon dates obtained on material collected from Eastern Inglefield Land during the 2004 and 2005 field seasons.

Provenience	Lab Number	Material	Association	Radiocarbon Age	δC^{13}	2-sigma calibration
JUL16A-2-1	AA63360	Tooth (Muskox)	Thule tent ring (with historic iron leg-hold trap)	854±40	-21.13	A.D. 1045 – 1264
JUL16A-2-3	AA63344	Bone (Muskox humerus)	Thule tent ring	208±45	-22.36	A.D. 1528 – 1953
JUL14B-1	AA63361	Bone (Muskox humerus)*	Thule winter house (in associated midden)	854±44	*-14.23*	A.D. 1040 – 1265
JUL17A-2	AA63345	Bone (Caribou metacarpal)	Late Dorset tent ring (in associated midden)	972±45	-22.71	A.D. 987 – 1166
JUL21A-11	AA63346	Charcoal (*Salix* sp.)	Early Paleoeskimo tent ring	3,857±45	-25.34	2465 – 2203 B.C.
JUL31B-7-1	AA63347	Bone (Muskox horn core)	Late Dorset tent ring (5m midpassage)	860±45	-25.44	A.D. 1043 – 1262
JUL25A-5	AA63348	Bone (Muskox humerus)	Paleoeskimo tent ring	944±45	-24.34	A.D. 1017 – 1207
JUL26B-9	AA63349	Bone (Caribou femur)	Thule tent ring	449±44	-22.02	A.D. 1403 – 1620
AUG10A-20	AA63350	Bone (Muskox cranial frag.)	Early Thule winter house (in associated midden)	972±45	-21.6	A.D. 987 – 1166
JN30A-14	AA66425	Bone (Caribou antler)	Thule tent ring	550±100	-19.9	A.D. 1264 – 1627
JL2B4-2	AA66426	Bone (Muskox horn core)	Late Dorset midpassage tent ring (3.5x6m)	926±47	-22.1	A.D. 1023 – 1208
JL17A3-27	AA66427	Bone (Caribou long bone)	Early Paleoeskimo tent ring (5x5m)	3,241±55	-20.6	1659 – 1412 B.C.

*Although the bone is a complete muskox humerus, the stable carbon isotope value is that of a marine-based consumer, which either suggests a considerably different diet than typical for muskox or, more likely, that deposition of this bone near the shore resulted in diagentic processes that altered its bone chemistry. The resulting radiocarbon date is likely several hundred years older than its actual age and thus this date should be disregarded.

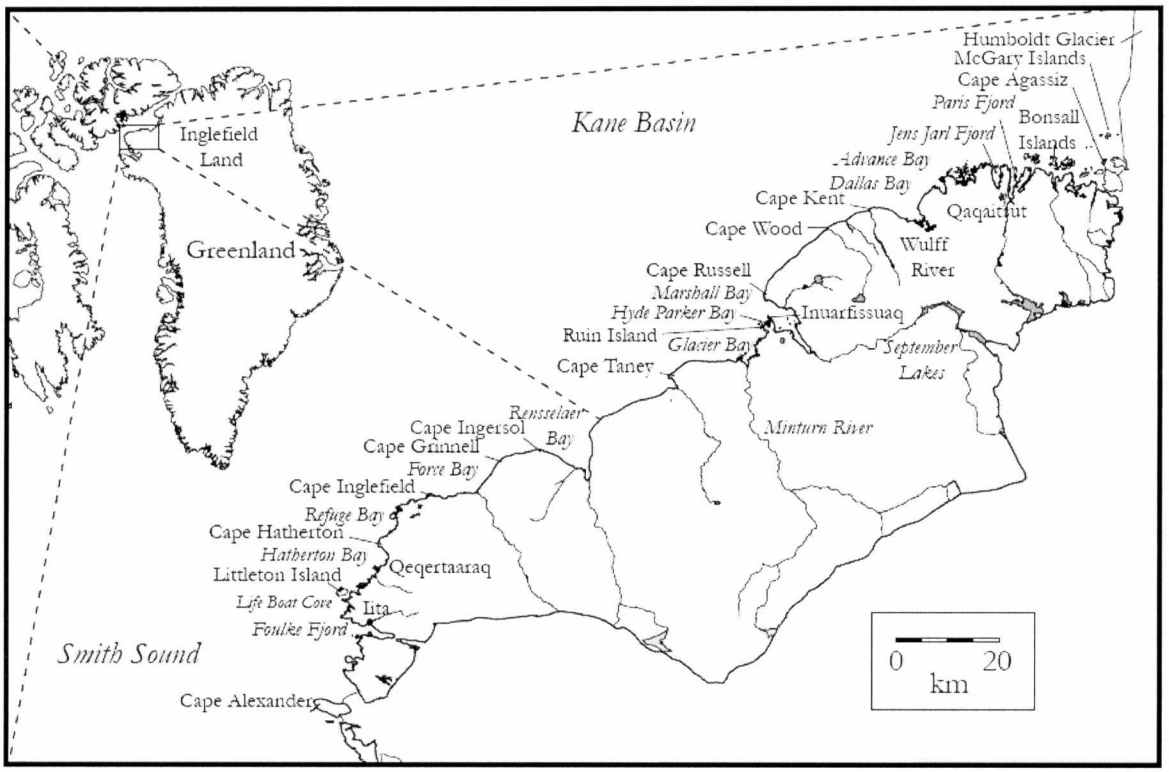

Figure 1. Location of Inglefield Land, Northwest Greenland, and place names mentioned in the text.

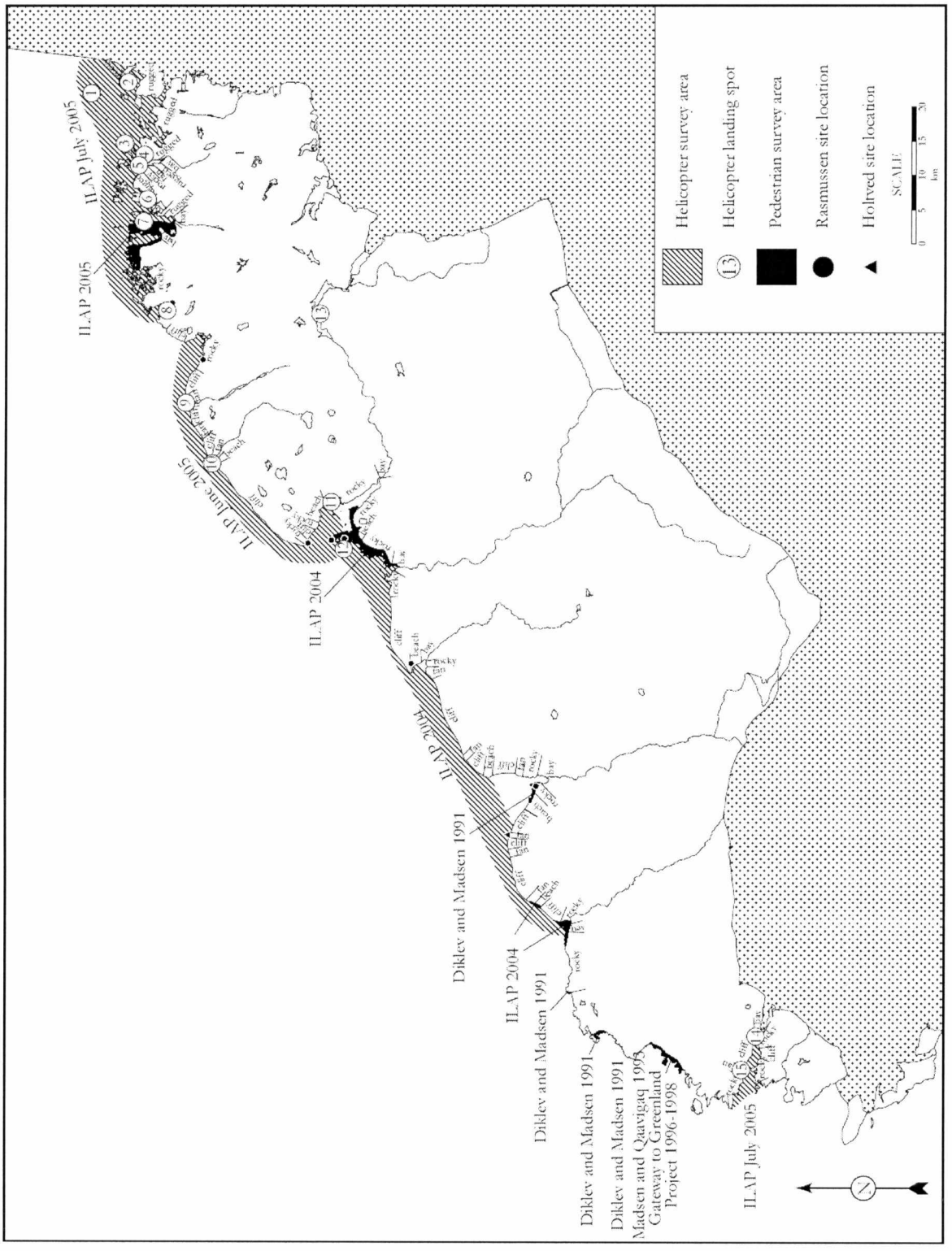

Figure 2. Location of helicopter and pedestrian archaeological survey in Inglefield Land (2004 and 2005).

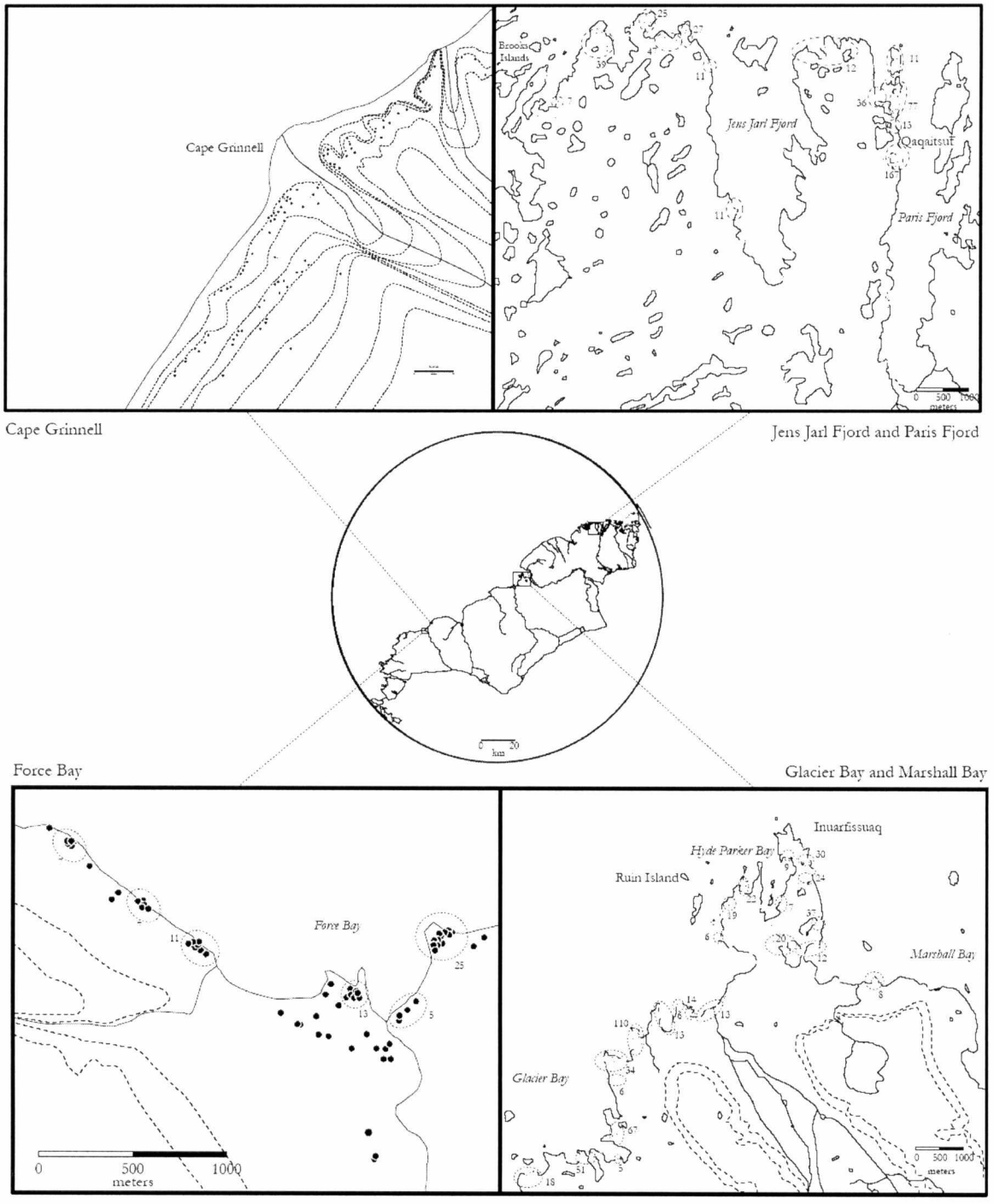

Figure 3. Archaeological feature locations for the Force Bay, Cape Grinnell, Glacier and Marshall Bay, and Jens Jarl and Paris Fjord regions.

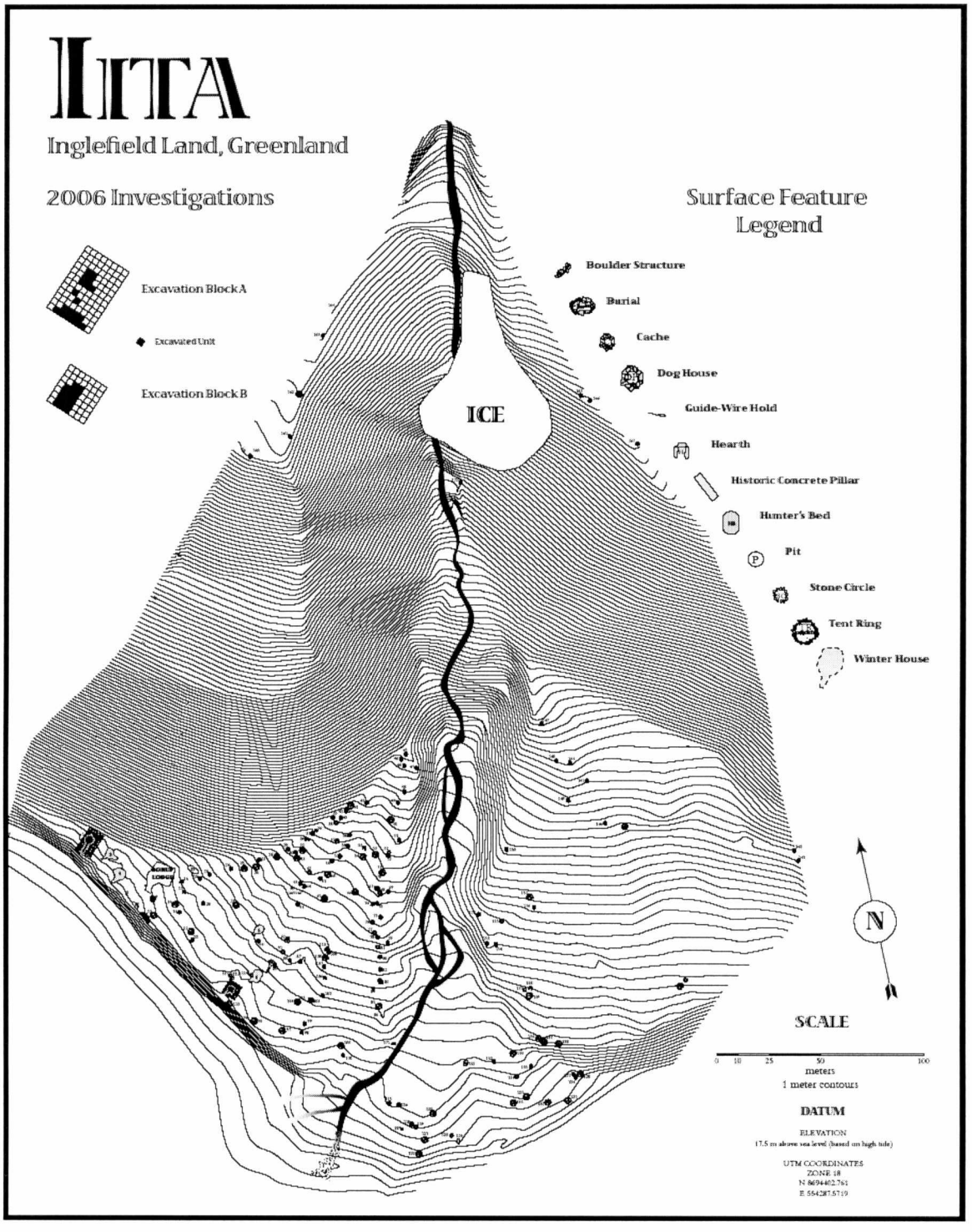

Figure 4. Contour map of the Iita site denoting the location of features and archaeological excavation units.

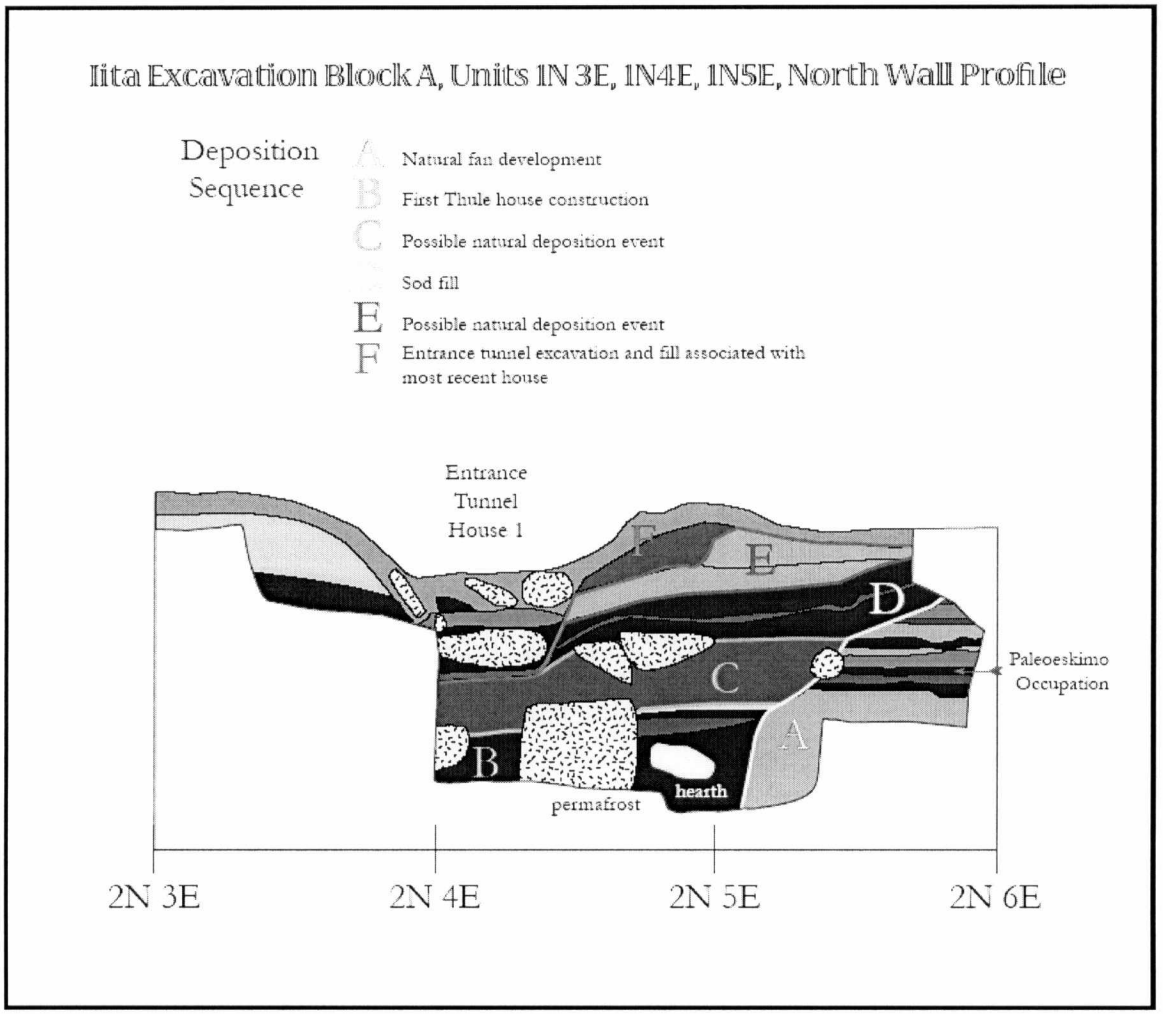

Figure 5. Stratigraphic profile for Excavation Block A (House 1) at Iita indicating multiple occupations.