

Early Thule Winter Houses: An Archaeoentomological Analysis

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Abstract. This paper presents the results of archaeoentomological analyses of soil samples from early Thule (ca. AD 1200–1400) winter-house remains at Cape Grinnell and Qaqaitsut, Northwest Greenland. Excavated over the summers of 2008 and 2009 by the Inglefield Land Archaeological Project (ILAP), four houses yielded 467 ectoparasites, mostly human lice, unevenly distributed across the identified areas of the structures. A recurring pattern of distribution was found in three of the houses and is interpreted as the result of delousing practices. Using historical explorer accounts, Inughuit oral tradition, and archaeoentomological evidence we investigate the potential for studying hygiene practices on Inuit sites.

Introduction

Over the last few decades, archaeoentomology has become established as a recognized field of specialization in archaeology. It provides a plethora of new information about past and present insects from archaeological sites and the humans who inhabited them. In Greenland, such investigations have been carried out as part of excavations on archaeological sites from diverse regions of the island; however, most studies have been conducted at Norse sites located in the Eastern and Western Settlements, and only three have investigated Inuit sites. If archaeoentomological studies undertaken in the Canadian arctic are included, it only brings the number of Inuit sites investigated up to 12, and, unfortunately, most of these are only in realm of the gray literature as unpublished reports.

Although the list of sites that have been studied through the archaeoentomological lens is short, the information gained from them is invaluable to our comprehension of the past environments on and around archaeological sites. The study of preserved insect remains may also reveal domestic economic activities or even cultural practices. Furthermore, past aspects of the Inuit way of life not easily understood through other means, such as hygiene, can be accessed via archaeoentomology.

The notion of hygiene encompasses conditions and practices associated with health, and it is often associated with cleanliness. Through time, the notion of hygiene and the practices defined as hygienic have changed (Smith 2007). For example, in Western cultures, the use of water and bathing was judged a good hygienic practice between the eighth and 16th centuries; however, in the 16th century, water was associated with the

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transmission of germs and diseases and people began bathing less often (Smith 2007). Hygiene is therefore not only a cultural construct, but also one that varies through time. Hygiene can also be defined as practices adopted to avoid infection (Curtis 2007:660), or a social and cultural history of preventive medicine (Smith 2007). In order to perceive hygiene and hygienic practices, it is then necessary to look at the cultural practices of the population studied, as they might entail different perceptions of hygiene.

In Greenland, archaeoentomology began with the analysis of the Semermiut site by Haarløv (1967) in the 1960s, followed by Jens Böcher's analysis of the Saqqaq site of Qeqqertassuk in the 1980s (Böcher and Fredskild 1993). Böcher's extensive study of the insect fauna revealed detailed information about the natural environment of the site, as well as raising questions about the entomological fauna attracted to Inuit dwelling structures (Böcher and Fredskild 1993:23–27). However, one of the most widely known entomological studies from a Greenlandic Inuit site was undertaken on the mummies of Qilakitsoq. The analysis of the hair and stomach content of these mummies showed lice remains in their stomachs, as well as nits (lice eggs) in their hair (Bresciani et al. 1989; Hansen et al. 1991). The presence of the insects in the mummies was explained as the result of eating the lice during the act of delousing (Bresciani et al. 1989; Hansen et al. 1991).

In 2008 and 2009, house features at the sites of Cape Grinnell and Qaqaitut, located in Inglefield Land, northwestern Greenland, were excavated by the Inglefield Land Archaeological Project (ILAP) (LeMoine and Darwent 2010). This project was aimed at studying the late prehistory of this remote region focusing on the culturally dynamic transition from the prehistoric to historic period that the Inughuit (or Polar Inuit) experienced at the end of the 18th to the beginning of the 20th centuries (LeMoine and Darwent 2010). Contact with the Euroamerican explorers in the region started in 1818 with John Ross (Ross 1819), increased through the 19th century as whalers and numerous scientific expeditions traveled to area, and culminated in the early 20th century with Robert E. Peary's expeditions to the North Pole (LeMoine and Darwent 2010). Complicating the picture, the shaman Qitdlarssuaq led a group of Inuit from Baffin Island to the region in the 1860s, bringing new people and reintroducing lost technologies (LeMoine and Darwent 2010; Mary-Rousselière 1991). One result of contact between the explorers and the Inughuit was the publication of several descriptions on the Inughuit way of life and habitation practices, which unfortunately often portrayed them as unhygienic, filthy, and unmannerly

(Hayes and Shaw 1860; Kane 1856; M'Dougall 1857; Ross 1819).

The present paper discusses explorer and ethnographic accounts of the Inughuit and compares them to Inughuit myths and legends as well as archaeoentomological analyses that were undertaken on the sites of Cape Grinnell and Qaqaitut. Analysis of the entomological remains revealed the presence of well-preserved human ectoparasite remains, in particular three species of lice—the head louse (*Pediculus humanus capitis*), the body louse (*Pediculus humanus corporis*), and the pubic louse (*Phthirus pubis*). The distribution of these lice in four of the sampled houses provides an opportunity to explore the hygienic practices of the Inughuit's Thule ancestors.

Ectoparasites: Highly Specialized Species

Ectoparasites are living organisms that evolved conjointly with a host and depend on them for subsistence. The study of ectoparasitic insects can shed light on different aspects of the past human daily life, such as hygiene. In archaeological sites, for instance, concentrations of fly pupae and ectoparasites can be interpreted as a mirror of the activities taking place (Panagiotakopulu 2004). Not only it is possible to learn about the hygienic practices, but also about the general health and risks to which the past populations were exposed because certain ectoparasites, including human lice, are known vectors of disease such as trench fever and typhus (Badiaga and Brouqui 2012; Busvine 1966; Kenward 2009).

There are three different types of lice that evolved to live on the human body, each with a different ecological niche. The first family of lice is composed of two different parasites; the head louse, which evolved to live in the hairs of its host, and the body louse, which evolved to live in the clothing of the host, moving to the body to take its meals. The third type of ectoparasite associated with humans, the pubic louse, is adapted to the genital areas of its host, although in cases of extreme infestations it can migrate to other areas of the body. Archaeoentomologists find remnants of these insects in sediments where conditions favor their preservation.

Culture and Contacts

Explorers, anthropologists, and ethnologists described the way of life of the turn-of-the-century Inughuit in a variety of published accounts (e.g., Bessels 1884; Hayes and Shaw 1860; Kane 1856; Peary and Peary 1896; Rasmussen 1920; Rasmussen et al. 1908). However, there are contradictions

in the literature with regard to the hygiene of this population, creating conflicting narratives between the 19th-century American explorers and the later anthropologists that followed them. This dichotomy is one of the reasons for the present research.

Beginning in the early 19th century, many ships set sail for the northern latitudes of the globe aimed at finding the mythical Northwest Passage that would allow ships crossing from the Atlantic Ocean to the Pacific Ocean. In fact, captain John Ross, was asked by the secretary of the Admiralty, John Barrow, to find the Northwest Passage in 1818 (Maurie 2001:21–22). While largely unsuccessful in his quest to find the passage, Ross's expedition named several places along the coast of Greenland and came across an unexpected group of people at this northern latitude: the Inughuit.

Following Ross, whalers and other expeditions occasionally encountered the Inughuit, but it was not until 1856, when Elisha Kent Kane's Second Grinnell Expedition overwintered in Inglefield Land that the Inughuit really came to the attention of the public. Following the expedition, Kane included descriptions of the Inughuit, including their homes and living conditions in his widely popular book *Arctic Explorations* (Kane 1856). His writings reflected the attitudes of the mid-19th century, which unfortunately contributed to negative stereotypes that remain to this day. In following years, other books written by arctic explorers who travelled to Greenland would offer different, but not necessarily more complimentary, descriptions of the Inughuit, their way of life, or their habits (Bessels 1884; Hayes and Shaw 1860). Although several explorers visited the region, such as Cook (1907–1908), Freuchen (1909–1922), Holtved (1935–1937, 1946–1947), Koch (1920–1923), Krueger (1932–1933), MacMillan (1914–1917), MacGregor (1937–1938), Laurie (1950–1951, 1967, 1969, 1972, 1982), Moltke-Mylius (1903, 1904), Rasmussen (1906–1907, 1909, 1910, 1912, 1913, 1916–1919), Shackleton (1934–1935), and Soby (1970) (see Laurie 2001), some of the most publicized expeditions would be led by Admiral Robert Peary.

Peary undertook several expeditions in Greenland and the Canadian Arctic beginning in 1886 and ending in 1909 (Peary 1898, 1907, 1910), with the goal of being the first to plant an American flag on the North Pole. These ventures were highly publicized, especially after his former assistant, Frederick Cook, announced that he had attained the North Pole in 1908 just weeks before Peary announced his own successful trip in 1909.

In many ways, the expeditions Peary led were the first of their kind. Before, most explorers traveling in the northern latitudes considered Inuit technology to be inferior to their own. Peary did not take this tack and adopted many aspects of the

Inughuit tool kit. He traveled on the ice and snow using sledges pulled by dogs and operated by Inughuit men. His clothing and boots were made of furs and sewn by Inughuit women he had hired along with their husbands. However, despite his dependence on their technology, he frequently described the people he referred to as “my Eskimos” as childlike (Peary 1898: 483).

Peary's wife Josephine accompanied him on his expeditions on two separate occasions and her memoir *My Arctic Journal* reveals her perceptions of the Inughuit (Peary and Peary 1893). Although it is not unusual to find ethnocentricity in writings from this period, the way she describes the Inughuit is particularly vivid with many descriptions of how the Inughuit were filthy, smelly, and covered with parasites.

The book described Josephine's life at Redcliffe House, where she lived from the fall of 1891 to the summer of 1892, and Anniversary Lodge, where she lived from the fall of 1893 to the summer of 1894 and gave birth to her daughter Marie. During these expeditions Robert Peary hired Inughuit women to prepare clothing for the expedition and men to hunt for food for dog teams and upcoming travel. After the visits of the Inughuit seamstresses to Redcliffe House, Josephine describes taking her little broom to sweep the floor to wipe away traces of the women (Peary and Peary 1893). She would also take the added step of sprinkling acid sublimate on the floor covered with carpet to kill any insect or parasite that might have fallen from its host (Peary and Peary 1893). As another precautionary step, she would not let the Inughuit women take the clothing they were preparing for the expedition back to their houses for fear they would come back filled with “Koo-mak-shuey” or parasites (Peary and Peary 1893:90). A further testament to her fear of the parasites is seen in her description of her nightly bedtime ritual, in which she and Robert would, after a bath, rub each other with alcohol to kill potential infesters (Peary and Peary 1893). Her descriptions were not limited to the Inughuit themselves, as Josephine also remarked upon their dwellings, describing the sleeping platforms and floors being so infested that they seemed to crawl (Peary and Peary 1893:126–126).

While most explorers mentioned parasites infesting the Inughuit, they rarely described their own hygiene, even when travelling and living the same way as the Inughuit. The only source that mentions the explorers during their travels comes from the writings of Matthew Henson. During the preparation for the Peary expedition, he wrote that they needed to get a “prize-fighter hair-cut,” because of the pests infesting them (Henson 1912:62).

Thus in the published explorer's accounts parasites seem to have been central to perceptions

of the Inughuit. Their preoccupations with these pests, which they associated with a lack of hygiene, scarred the public image of the Inughuit. However, in the 20th century a new group of Euro-americans came into contact with the Inughuit: anthropologists and ethnologists. Their descriptions were in direct contradiction to the explorer's accounts, describing efficacious hygienic practices, particularly that of delousing. The first anthropologist to visit the area was Knud Rasmussen, who first traveled to northwestern Greenland with the Danish Literary Expedition in 1904–1905 and later established the Thule Trading Station at Cape York in 1910 (Rasmussen et al. 1908). During his numerous travels in the Greenlandic and Canadian Arctic, Rasmussen brought back firsthand witness accounts of delousing activity undertaken by the Inuit he visited (Rasmussen 1929:97–98). Another

ethnologist, Kaj Birket-Smith, when working on the eastern coast of Greenland in the Egedesminde District backhandedly mentioned the overall hygiene of the Inuit of this region by stating that the Northern Inuit (Inughuit) were cleaner than the southern groups (Birket-Smith 1976:212).

The Inuit are renowned for their use of specialized tools. One of the objects that caught the imagination of these visitors is the lice catcher (Figure 1). This implement, initially described by William Thalbitzer (1979) during his fieldwork in Greenland among the Inuit in the early 1900s, has also been found in archaeological contexts (McCullough 1989). A historical account of the way in which a lice catcher was used was written by a sailor by the name of Redgrave who kept a diary during his service aboard the Dundee whaling ship *Eclipse* in 1894. Redgrave described daily



Figure 1. Inughuit woman using her lice-catcher. Original title of the picture: Ahl-Nay-Ah Catches a Louse! (PMAM 3000.32.1378). Hand-tinted glass lantern slide, courtesy of The Peary-MacMillan Arctic Museum, Bowdoin College.

life and events taking place aboard the ship, but of particular interest is his account of an encounter between the sailors and Greenlanders (Savours 1960). Here he described the clothing of men and women who climbed on the boat, mentioning their smell and general appearance using ethnocentric language typical of the 19th century. However, he also mentioned that the women had climbed on the boat with their louse catchers and took good care to describe the way they used this “mother of invention,” which involved inserting it between the clothing and the skin to efficiently remove the parasites, an action he never saw fail (Savours 1960:131).

Myths and Legends: Obtaining Information On The Traditions and Practices

From the Inughuit’s myths and legends it is possible to glimpse daily practices. Oral traditions collected by two anthropologists, Knud Rasmussen and Erik Holtved, provide information on delousing practices and perceptions of ectoparasites in Inughuit culture.

Rasmussen wrote several times about visiting Inughuit houses but never describes infestations or the presence of parasites. Considering his proximity with the Inughuit, it is highly improbable that he would not have seen the parasites that Birket-Smith (1976) describes in his ethnography of the Egedesminde District. Birket-Smith mentions that head and body lice (*Pediculus capitis* and *Pediculus vestimenti* [his own species names]), were probably the most common insects in the country, and the grace with which Inuit would delouse themselves seemed almost natural to him (Birket-Smith 1976:212). Rasmussen’s avoidance of the matter considering lice suggests he may have had a positive bias concerning the Inughuit that was not present when he described his encounters with the Canadian Inuit. Here his writings in his book *Du Groenland au Pacifique: deux ans d’intimité avec des tribus d’Esquimaux inconnus* show a real difference in his perception of lice:

Ce n’est pas uniquement la question de la nourriture qui nous déterminait à nous tenir un peu à l’écart. Nous redoutions les poux dont tout ce monde était couvert. Au bout d’un moment passé sur les fourrures de leurs banquettes, nous étions obligés de rentrer sous notre tente pour nous livrer à une chasse qui avait pour nous moins d’attrait que pour les indigènes. Ils restaient pendant des heures penchés au-dessus de leurs vêtements pour cueillir des poux, mais manifestement sans résultats pratiques. Nous en arrivons même à penser que ces gens éprouvent de la sympathie pour ces petits parasites, parce qu’ils sont, comme le renne,

les signes précurseurs de l’été. Ils viennent avec la chaleur et le soleil et pendant l’hiver ils ne peuvent résister dans les froides maisons en neige (Rasmussen 1929:97–98).¹

Even if his work might have been biased towards the Inughuit, these divergent discussions allow us to identify cultural differences in the perception of lice. During his Thule expeditions in Greenland, he was living with the people he was meeting, entering their houses and sharing their daily lives (Rasmussen 1920, 1927, 1929, 1969; Rasmussen et al. 1908; Rasmussen and Ostermann 1976). These expeditions allowed him to later write about the myths and legends of the Greenlanders, which give a glimpse of their delousing practices. Erik Holtved, who compiled oral traditions of the Inughuit in the 1930s (Holtved 1951a; Holtved 1951b; Rasmussen and Ostermann 1976) continued this work. In these oral traditions it is possible to find descriptions of activities undertaken during daily life with hygiene, such as delousing.

Myths and legends describe human behaviors and beliefs. These stories allow societies relying on oral tradition to describe practices and virtues that are important to them (Birket-Smith 1976:39; Savard 1966:17). Birket-Smith (1976:39) wrote that any person desiring to study the psychology of Greenlanders had no better source of information than their legends. The heroes of these stories are the bearer of the qualities and virtues that all Greenlanders appreciate the most.

The process of delousing is specifically mentioned in the story of Qilugtsûssat (Holtved 1951a:50, 1951b:50–53, 55). The main characters of this story are a woman and her husband, who would fight often to the point where the women would run away. However, upon fleeing her home she soon found a house where bears were living. She lived for a while with the bears, and after some time she decided to return home to her husband. When it was time to get to bed, she offered to delouse him. During the delousing she gave him information on the bears and tried to convince him to go to them.

A second legend mentioning delousing is the story of Maqo (Rasmussen and Ostermann 1976:22). In this story, an old man whose wife had passed away is visited by a woman who turns out to be a fox in human form. After receiving another couple in his house, they decide to exchange wives. During this swap the man mentioned that the wife smells like a fox, and following the comment she ran away. Maqo ran after his wife and tried to convince her to come back to the house. Other animals, seeing Maqo alone, tried to convince him to take them as a wife instead of the fox, but he turned them all down. The fox then tells him to enter the foxhole to join her. Once inside

the fox tells him he should remove his kamiik (boots) so she can delouse him (Rasmussen and Ostermann 1976:22–26).

The third legend, which was recorded by Rasmussen, also mentions the act of delousing. The story of Ukuamâq (Rasmussen and Ostermann 1976) describes the adventures of a woman and her son. In the story, the mother decided one day to trick her son's wife into thinking that he was being killed, and they both had to flee if they wanted to live. They ran and established themselves in another house, and the mother took the role of the husband. One day, coming back from the hunt, the mother entered the house and demanded "delouse me!," which the other subsequently did. The son, who was still alive, eventually found them and ended up killing his mother when she confessed to stealing his wife, and because his wife did not want to leave her new husband. The husband, now alone and knowing the intimate relations that took place between his mother and wife, stayed home alone and deloused himself (Rasmussen and Ostermann 1976:43–44). In each of these stories, delousing is an intimate act between spouses and family members.

Although not directly concerning the practice of delousing, the myth of "The Running Match of the Louse and the Worm" illuminates perceptions of lice, as well as knowledge of these insects. In this myth, a louse and a worm dare each other to win a race to a human to get the right to be its parasite. The worm falls down during the competition and comes in last, and thus the louse wins and becomes the human's parasite (Holtved 1951a; Rasmussen and Ostermann 1976:233). This myth suggests that in the Inughuit worldview, humans came into being without parasites, which later infested them.

Thus, through oral traditions it is possible to see that delousing was an important activity practiced by the Inughuit, often in domestic settings. Other sources, such as material culture and the historical accounts, reveal that tools were also used for delousing. Lice catchers inserted into clothing and boots as well as lice combs, allowed for personal delousing.

Inughuit Winter Houses

The winter house was the focal point of Inughuit life for a large portion of the year. Based on Helge Kleivan's (1978:526) drawing of Inughuit houses, usually three distinct areas were present in a typical house: an entrance tunnel, a main living area, and a sleeping platform (Fig. 2)

The entrance tunnel is found at the front of the house and is partially dug into the ground creating a cold trap designed to keep warm air inside the house. The tunnel was sometimes used to store hunting implements, but it was also used as a refuge for the dogs during the harsh winter cold,



Figure 2. Inglefield Land, Northwest Greenland, and the location of Cape Grinnell and Qaqaitut. Figure prepared by John Darwent.

especially for mothers and pups (Rink 1974:99). However, it was mostly a conveyance area providing access to the house and not necessarily a place where activities took place. When entering houses, Rink (1974:177) mentions that the entrance tunnel was small and narrow. Similarly Hayes describes having to crawl on his hands and knees to get in a house (Hayes and Shaw 1860:125).

The second area of the house is the main living area, usually paved in flat stones (Rink

1974:178). This section of the house contained lamps for heating and light and was where most daily activities took place, such as meal preparation. Drying racks made out of bones or driftwood were located over the oil lamps and allowed clothing to dry (Hayes and Shaw 1860:128). It was usual to be partly or completely naked within the living areas of these houses as air was warm enough to be comfortable (Vaughan 1991:21).

The last area of a typical house is the sleeping platform at the back of the house (Rink 1974:178), which was often covered with animal skins (Birket-Smith 1976:164). Constructed from flat stones, it was elevated to take advantage of warmer air. Sometimes there were also storage compartments under the platform.

The vast majority of daily activities that took place inside a winter house were undertaken in the main area of the house, either nearby the sleeping platform or on the platform itself. The

entrance tunnel of the structure, being a mainly a passage, was not a place where time was spent on daily activities. Following this pattern, logically it would be expected that most human ectoparasites would be found in the sections where people spent the most time—the main living area and the sleeping platform—if people were not actively delousing. Without human intervention Busvine (1966:246) records that lice will live on its host from nine to 30 days and die (variation depending on the subspecies). Once dead, the ectoparasite is unable to keep its grip on its host and falls to the ground where it is integrated in the soil matrix.

Site Descriptions

Excavations were undertaken at Cape Grinnell and Qaqaitut by the ILAP project in 2008 and 2009 respectively (Fig. 3).

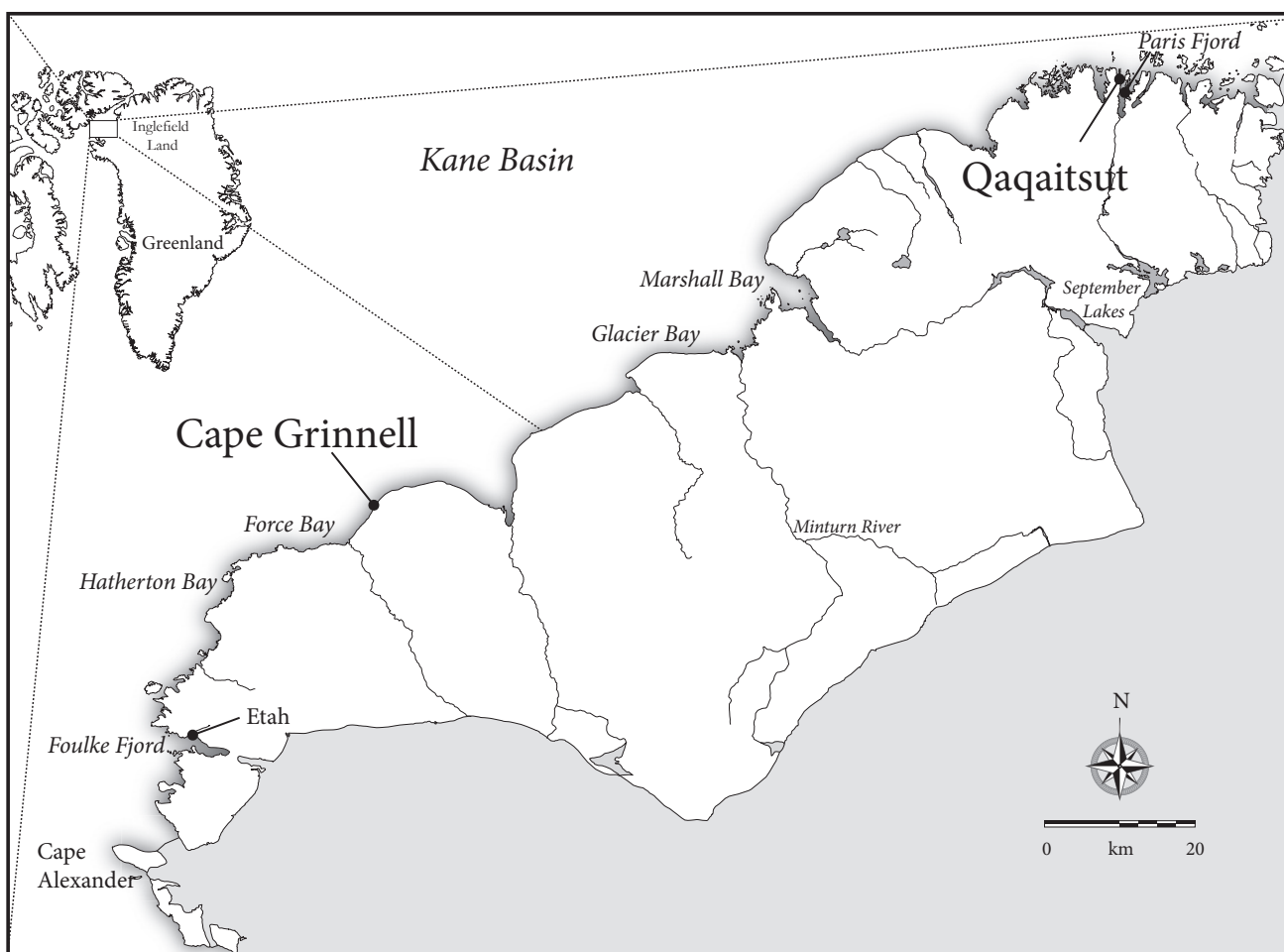


Figure 3. Example of a well-preserved early Thule winter-house structure (Feature 65 at Qaqaitut) noting the location of the sleeping platform, main living area (with small kitchen area to left of the tunnel), and the entrance tunnel. Figure prepared by John Darwent.

Cape Grinnell

The site of Cape Grinnell is spread over a kilometer of raised beach terraces facing Kane Basin (Darwent et al. 2007; LeMoine and Darwent 2010:287; Mason 2010). The site was first documented by the American explorer Elisha Kent Kane (1856), who reported seeing a recently abandoned Inughuit house there in 1853. Over the course of a six-week field season, three Thule winter houses were excavated and samples for archaeoentomology were taken in three houses: Feature 16 (KNK2667), Feature 18 (KNK2668), and Feature 20 (KNK2669) (Fig. 4).

It quickly became evident that Feature 16 was severely disturbed by slumping, and therefore archaeoentomological sampling was abandoned, as it was impossible to identify discrete architectural elements with any confidence. However, features 18 and 20 were better preserved and were more extensively sampled. Both were generally in oval shape, with long entrance tunnels facing the

shore. Although parts of Feature 18 were poorly preserved—the back of the house (sleeping platform) was entirely missing—the tunnel and the main living area were sampled (LeMoine and Darwent 2010:290). Feature 20 was the best preserved, missing only the front of its entrance tunnel and the paving stones of the sleeping platform. The floor of was paved and uprights were found where the sleeping platform would have been, suggesting it was a raised platform with storage lockers below (LeMoine and Darwent 2010:291).

The features excavated at the site were radiocarbon dated using terrestrial-mammal bone samples. The AMS radiocarbon dates obtained for the different features, house 16, 18, and 20, are associated with an early Thule occupation, between 603 ± 42 and 714 ± 59 BP (see Table 1 for details).

Qaqaitsut

The site of Qaqaitsut was inhabited on and off over the last 800 years and as recently as the mid-1980s.

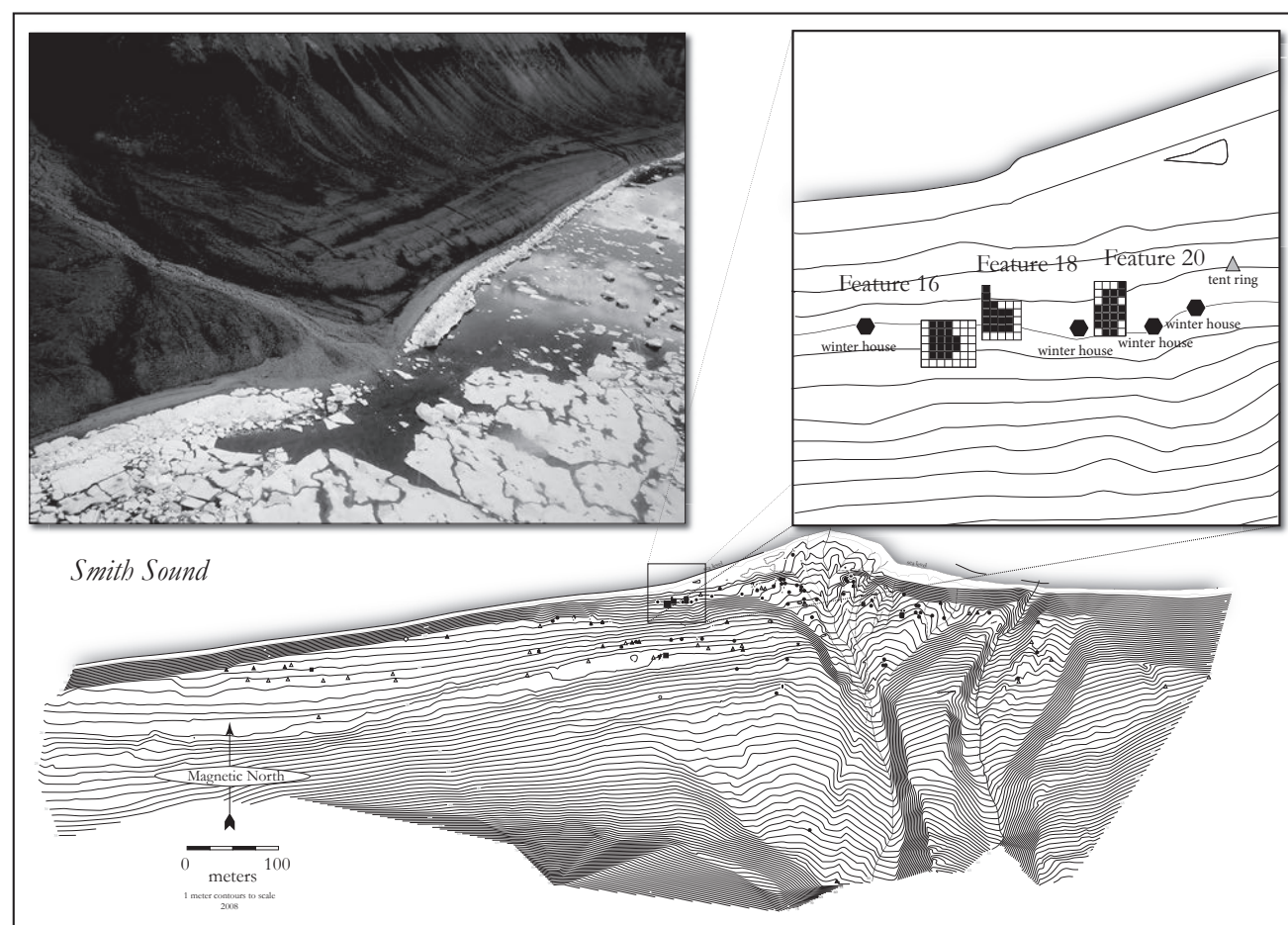


Figure 4. Location of early Thule winter-house excavation blocks at Cape Grinnell: Features 16, 18, and 20. Soil samples were collected from features 18 and 20. Figure prepared by John Darwent.

Table 1. Radiocarbon dates from Cape Grinnell Thule features.

Arizona AMS#	d13C value	F (d13C)	±dF (d13C)	¹⁴ C age BP	± 14C age	Location	Material	Weight (mg)
AA83637	-19.6	0.9277	0.0048	603	42	3N,2E; NE, Lv.4	Caribou, rib shaft frag.	3,910
AA83638	-18.9	0.9262	0.0048	616	42	3N,1E; NE, lv.6	Caribou, thoracic vert.	9,470
AA85146	-19.2	0.9273	0.0067	606	58	4N, 0E; SE, Lv.7	Caribou, lumbar vert.	38,650
AA85147	-18.9	0.9198	0.0067	672	59	1N, 3E; NW, Lv.8	Muskox, femur midshaft frag.	20,960
AA85148	-19.8	0.9217	0.0067	655	58	3N, 0E; NE, Lv.9	Caribou, rib sternal end +3/4 shaft.	9,640
AA85149	-19.5	0.9212	0.0067	659	58	2N, 3E; SW, Lv.3	Caribou, rib shaft frag.	940
AA85150	-19.8	0.9150	0.0067	714	59	1N, 3E; Lv.3 Floor cleanup	Caribou, rib shaft frag.	6,250
AA85151	-18.9	0.9275	0.0068	605	59	2N, 2E; Lv.3, under flagstones	Caribou, rib shaft frag.	2,270

Hunters from the community of Qaanaaq reported archaeological features to the Greenland National Museum and Archives. A survey by ILAP in 2005 recorded hundreds of feature in the area (Darwent et al. 2007). Four houses and a cache associated with the Thule culture were excavated during the 2009 summer.

Located on a bench overlooking Paris Fjord, two houses—features 65 and 71—were extensively sampled, while sampling in two house—features 2 and 3—located on the west side of a small lake across from the main body of features, was quickly abandoned due to flooding caused by the proximity of the lake (Fig. 5) and will not be discussed here. The cache (Feature 7), located on the western side of the lake, was specifically excavated in an attempt to identify insects that could be related to the storage of meat.

Feature 65 is an oval structure with a deep entrance tunnel taking advantage of a natural fault in the bedrock (Fig. 2). On the floor of the tunnel was a high concentration of partly decomposed organic material encased in the permafrost. The main area of the house was paved with slabs while the sleeping platform was unpaved. Close to the entrance, on the north side of the house, a small area containing several bones and animal remains suggests the presence of a kitchen alcove.

The second structure, Feature 71, was also oval in shape. The main area of the house was mostly unpaved, except close to the entrance where slabs were laid on sandy soil. Elsewhere, exposed bedrock formed the floor. The sleeping platform was, like Feature 65, an unpaved sandy area. The tunnel was also unpaved, but had an intricately made cold trap where a thick layer of organic material was found.

The features were radiocarbon dated, using caribou bones and tooth (Table 2). The two features investigated in this, Feature 65 and Feature 71, were dated to close, but separated time periods. The first was dated between 519±52 and 678±52 BP, while the latter was date between 373±52 and 452±53 BP (see Table 2 for details).

Methods

Field Methods

Based on the divisions in Inughuit houses highlighted by Kleivan (1978:526), it was decided that the occupation layers associated with three areas would be sampled: the entrance tunnel, the main floor, and the sleeping platform. Also, to capture exceptional situations found in the features, judgmental samples were taken in hearths, middens, and layers with high organic content.

A total of 51 soil samples were taken and used in this study: 24 from Cape Grinnell and 27 from Qaqaitut. The volume of the samples varied from 0.5 to 3.5 liters, but most were around 2 liters. Before taking the samples the surfaces to be sampled, as well as the trowels used, were cleaned in order to avoid contamination. Each sample was double bagged and labelled individually to insure tracking throughout the field and laboratory procedure. In addition to the samples taken in the different structures, reference samples were collected at a distance away from archaeological features. The reference samples were analyzed and used as a comparison to the cultural samples in order to understand the human impact on the environment.

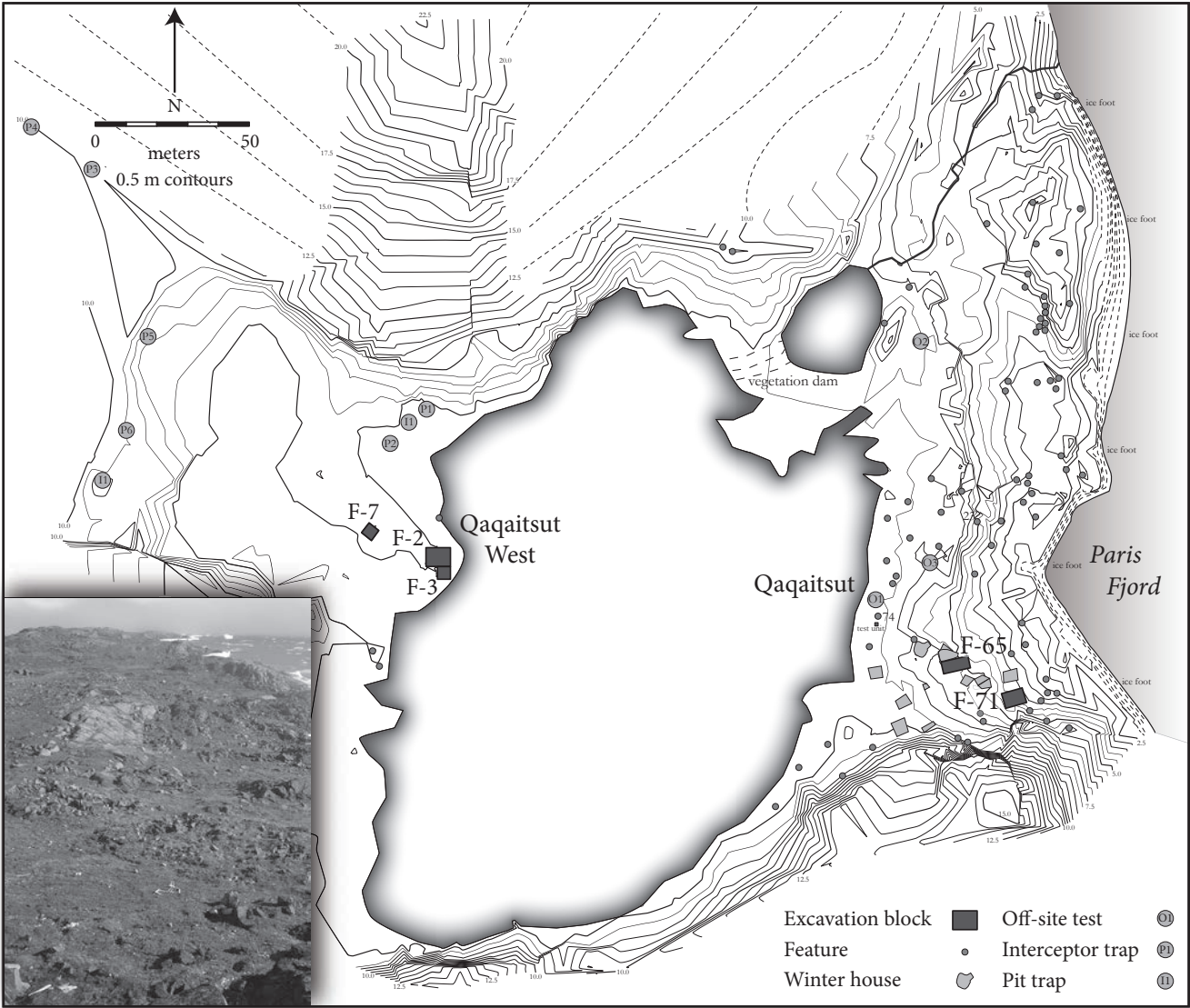


Figure 5. Location of winter-house excavation blocks at Qaqaitsut (Features 2, 3, 65 and 71 and early Thule meat cache (Feature 7). Soil samples were collected from features 7, 65, and 71. Figure prepared by John Darwent.

Table 2. Radiocarbon dates for the site of Qaqaitsut.

Arizona AMS#	d13C value	F (d13C)	±dF (d13C)	14C age BP	± 14C age	Location	Material	Weight (mg)
AA90329	-18.5	0.9191	0.006	678	52	1N, 2E; NW, Lv.2	Caribou, scapula	69500
AA90330	-20.6	0.9374	0.0061	519	52	1N, 5E; Lv.4	Caribou, rib shaft	5900
AA90331	-19.4	0.9453	0.0062	425	53	2N, 3E; NW, Lv.2	Caribou, premolar	1500
AA90332	-20.7	0.9546	0.0062	373	52	Qaqaitsut, 3N, 4E; SW, Lv.3	Caribou, Thoracic spine	3100

Laboratory Methods

Upon arrival at the *Laboratoire d'archéologie environnementale* at Université Laval, Québec, the samples were refrigerated to prevent dehydration and mold growth that could interfere with the identification of the insect remains.

Treatment of samples followed methods developed by Coope and Osborne (1967) for archaeoentomological analysis, later described by Kenward et al. (1980, 1986), and modified by Bain (2001). Since most insect remains found were ectoparasites, which tend to have a fragile cuticle (the hard, protective shell covering the epidermis of invertebrates) (Kenward 2009:342), they were kept in alcohol and not glued to prevent distortion during drying.

Identification of insects was performed using the reference collection kept at the *Laboratoire d'archéologie environnementale*, but also by using specialized literature, such as Mullen and Durden's (2002) *Medical and Veterinary Entomology* and Busvine's (1972) *Bionomics of Lice*. Following identification of the insect remains and characterization of the assemblage, the minimum number of individuals (MNI) associated with each section of the studied structures was calculated using the most frequently encountered body part in a given sample (Table 3).

Results

The analysis from both sites yielded interesting results. Several ectoparasite species were identified, mostly human lice (head, body, and pubic). An MNI of 467 ectoparasites was calculated from the identified insect remains, with 441 of them being human-hosted parasites and the other 26 being associated with dogs (n=19) and birds (n=7).

Preservation of the insect remains was exceptional: several insects had their main body parts (head, prothorax, and abdomen) joined together (Fig. 6), and some had their antennae intact. This preservation is likely due to the high organic content in the sediment inside the houses that retained water and thus inhibited decomposition by limiting biological activity (Hall and Kenward 1990; Kenward 2009:83). In addition, the house was in permafrost, one of the best preservation conditions, as freezing retards bacterial action and prevents movement of specimens (Elias 2010:12).

Some areas within the houses were sampled more often than others, in particular the sleeping platform, which was sampled more than the entrance tunnel. To circumvent bias caused by the uneven sampling in the structures, the density per liter of soil of ectoparasites was calculated for different areas of the house. The graphs in Figure 6 illustrate the distribution of human ectoparasites

present in each of the four structures analyzed according sample location.

Discussion

Of the four structures analyzed, three houses—features 18 and 20 from Cape Grinnell and Feature 71 from Qaqaitut—had similar patterns of ectoparasite distribution, with the greatest number of remains present in the entrance tunnel, while Feature 65 from Qaqaitut, had a different pattern. Three of the houses had entrance tunnels with higher concentrations of ectoparasites than both the living areas and sleeping platforms (Fig. 7). This goes against our expectation that more ectoparasites would be found in main areas of the house if lice were simply sloughing off of their hosts upon their death. Thus, this pattern of distribution was probably caused by human activity that influenced the deposition of dead parasites into the soil matrix. According to Panagiotakopulu (2004:1680), the presence of flies and ectoparasites mirrors human activities and concentrations of ectoparasites can be interpreted as activities such as delousing.

As mentioned earlier, Inughuit myths and legends mention that the act of delousing took place inside the house in the main living area. However, because in features 18, 20, and 71 the majority of the insects were found in the tunnel, which is a low activity area, our interpretation is that the lice, once removed from the host's body, were thrown in the entrance tunnel along with refuse from the house. This action would create the accumulation that was seen in the analysis of these houses.

Only one structure, Feature 65 at Qaqaitut, differs from the others. Ectoparasites in this house were distributed more evenly across all the sections of the structure. Even though the tunnel contained a high number of ectoparasites, it was no higher than the other areas, which is in contrast to the other houses where the tunnel's density was the highest (Fig. 7). This difference in distribution suggests that hygienic practices might have been conducted differently in this house.

A second difference between the Feature 65 and the other houses (features 18, 20, and 71) is the distribution of dog lice. Ectoparasites associated with dogs were found in all the house areas in Feature 65, while in the other structures the parasites were found only in the entrance tunnel and not in the main area of the house.

Animal Parasites and Their Hosts

Although most of the ectoparasites that were found during the analysis are associated with humans, two taxa are found on animals: the dog-sucking louse

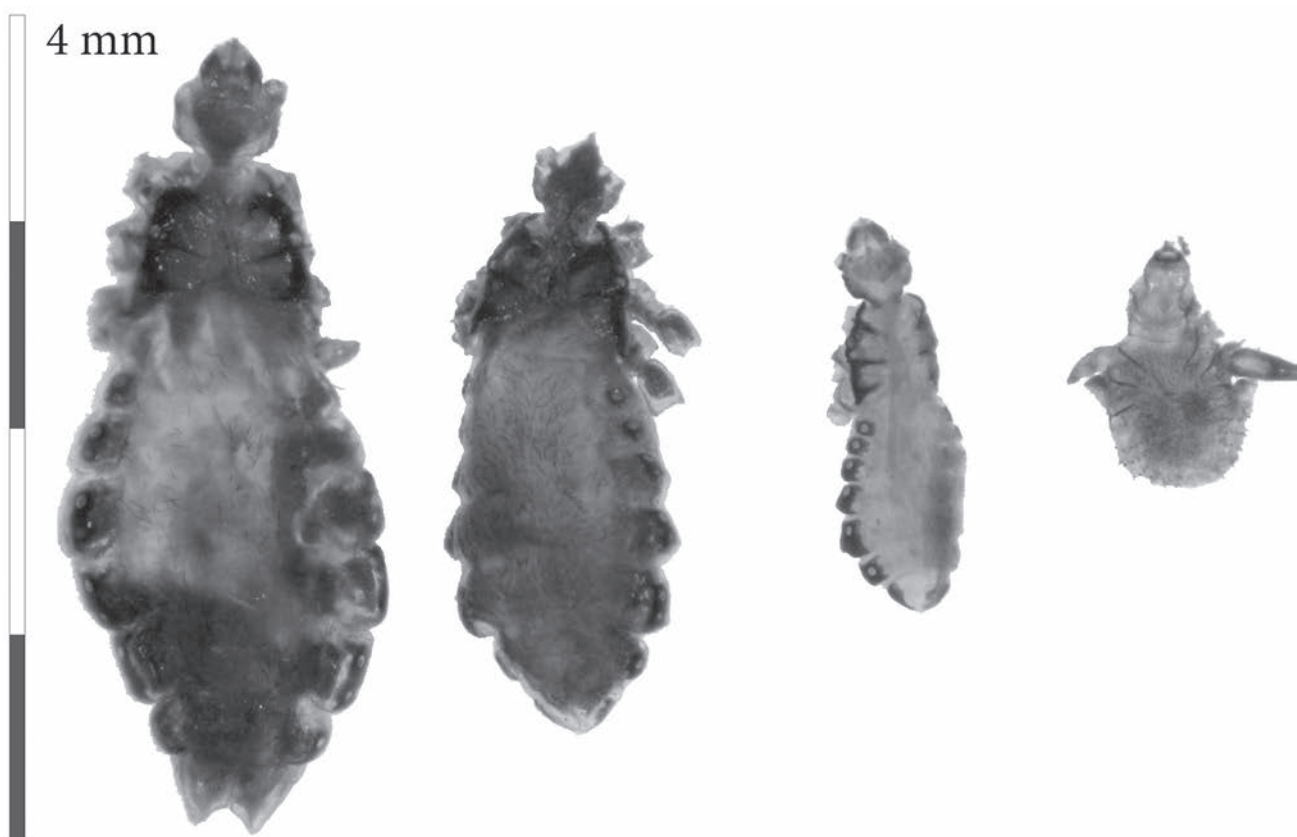


Figure 6. Lice recovered from winter-house ruins at Cape Grinnell. Left to right: female and male body lice from Feature 18, head louse, and pubic louse from Feature 20.

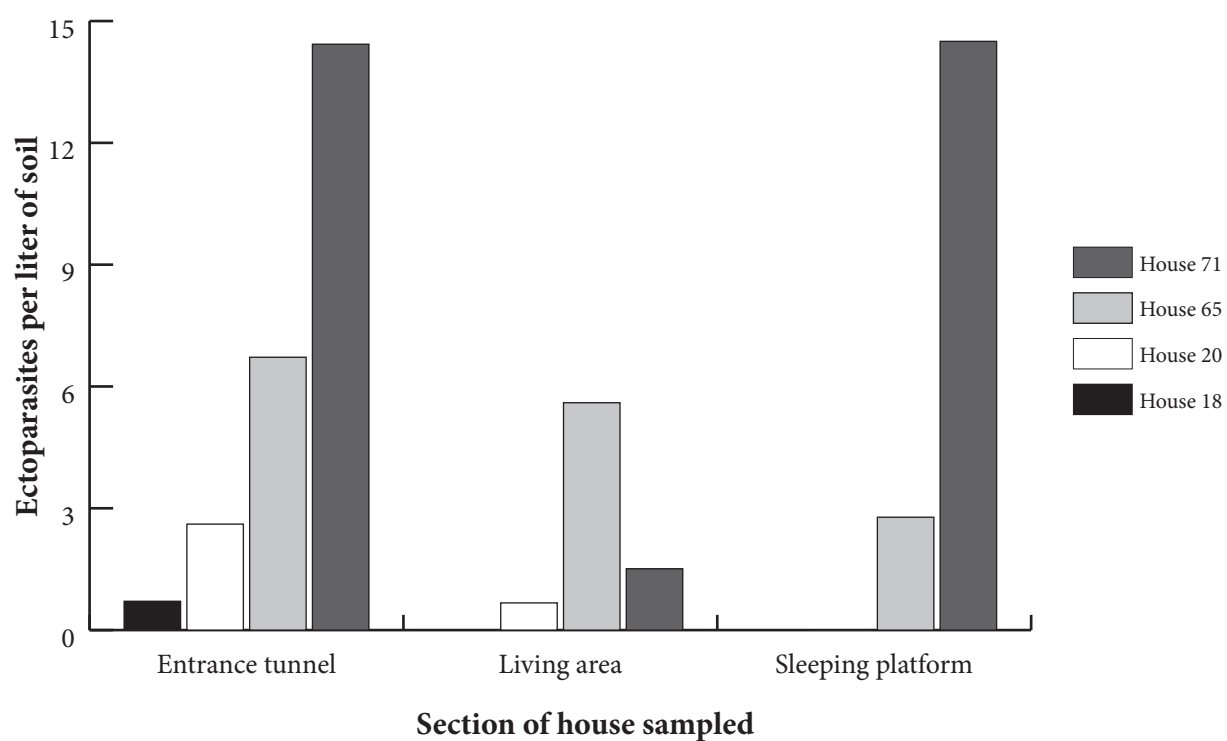


Figure 7. Ectoparasite density from different areas of the four winter-house structures.

(*Linognathus setosus*) and bird louse (*Nirmus* sp.). Although not directly associated with humans, the presence of those insects allows us to glance at economic activities taking place in the house and at cultural practices that can be linked to hygiene.

The presence of bird lice followed the same pattern in all the houses where they were identified. These parasites mainly were found in the main living area, where the hearth was located, and in the entrance tunnel near the cold trap. This louse lives between the feathers of birds, which makes it difficult to dislodge it accidentally. These insects were probably introduced into the house with bird carcasses that were thereafter prepared and consumed. The feathers and skins that were not sewn in the clothing may have been cast away in the entrance tunnel where the parasites were integrated in the soil. During the processing (removing of feathers and skin) parasites might have fallen off in the main living area.

The distribution of the dog sucking louse follows the same pattern as human lice, with three of the houses (features 18, 20, and 71) having the same distribution and the fourth one diverging. In the “regular” houses dog lice were found almost exclusively in the entrance tunnel, while in feature 65 the parasites were found in all areas of the house. Usually, dogs are not allowed in the main area of the house, and they are only allowed in the entrance tunnel during the cold winter months (Rink 1974:177). Restricting dogs to the entrance tunnel creates a pattern similar to the one found in the three other houses. Thus feature 65 stands out as both the animal and human parasites present different spatial patterns.

Oral traditions once again provide a possible explanation for the unusual distribution pattern that was observed in Feature 65. The story of Uteritsoq (Rasmussen and Ostermann 1976:58–60) illustrates why dogs should not be allowed in the house. Uteritsoq was a very obstinate man who did not follow social taboos; rather, he preferred to impose his will. After having broken the taboo of not making his women work during mourning, the man from the moon visited him, which resulted in a fight. Having won the scuffle, Uteritsoq asked the man from the moon if he could go to the moon and visit him, to which he agreed. Having set his mind on visiting the man in the moon, Uteritsoq tried to make his dogs fly, but there was a problem. Having kept his dog inside his house there was a large amount of filth in their fur, and thus they could not fly. He had to wash them twice before they were clean enough to take flight (Rasmussen and Ostermann 1976: 58–60). This legend suggests that dogs should not be kept in the house. Perhaps keeping them inside the house was thought to make them unsuitable to work in addition to being dirty and even dangerous indoors.

It seems likely then, that the occupants of feature 65, like Uteritsoq, kept dogs in their house for some periods of time and practiced different delousing techniques, in contrast to the occupants of the other three houses examined here. Another possible explanation for the distribution of parasites is the possible reuse of the structure as a dog house after abandonment. One or more dogs tethered in and around the house could have reworked the sediments, creating a more even distribution of parasite remains. The markedly uneven distribution of other remains from the house argues against this, however. Animal bones were concentrated in the kitchen alcove, for example, while most artifacts were found in the entry. It seems unlikely that redistribution of parasites remains could occur without also redistributing other remains.

Individually both distribution patterns, human and animal parasites, have very little in common, since all those parasites are host specific. However it is possible to draw links between the two patterns and the fact that both “abnormal” patterns were found in the same house and could be explained by the cultural practices of the past inhabitants. Since both divergent patterns were found in the same house, it is possible to think that this kind of digression to the usual custom could be observed for delousing. It is possible to think that the hygienic activities, such as delousing were practiced, but in a lesser measure and would result in the pattern that was seen.

Conclusions

The results of the current study allow us to explore the dichotomy in explorers’ and anthropologists’ perceptions of hygiene and delousing practices of the Inughuit. By looking at the remains of human ectoparasites and examining the spatial distribution of these insects in the four houses it was possible to confirm that delousing, as described in oral traditions, was indeed practiced by Inughuit ancestors at Cape Grinnell and Qaqaitut. In the case of two features at Cape Grinnell and one house at Qaqaitut, the exceptional preservation of the entomological remains found in the different sections of houses (tunnel, living area, and the sleeping platform), and the distribution of these insects, allows us to infer that delousing was undertaken inside the house in either the living area or sleeping platform as suggested by Inughuit myths and legends. However, once removed, the insects were thrown in the entrance tunnel, creating a distribution pattern consistent across three of the structures studied. This suggests that care was taken to delouse oneself or one’s partner and to discard the lice away from the living area of the home.

However, one structure had a different pattern of ectoparasite distribution, not only for

human lice but also for animal lice. The dog-sucking louse was found in all the areas of feature 65 at Qaqaitut and human lice also had a different distribution pattern in comparison with the three other structures. These patterns suggest that the hygienic practices might have not been the same for all inhabitants of this region. Each human group and cultures defines its own hygienic standards and practices (Smith 2007), but individual variation is also present.

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Endnote

1. English translation: It is not only the issue of food which determined us to stand a little apart. We dreaded lice which everything else was covered. After spending some time on their fur seats, we had to go into our tent for us to deliver a hunt that had us less attractive than for natives. They stayed for hours hunched over their clothes to pick lice but obviously without practical results. We even come to think that these people feel sympathy for these little pests, because they are, like reindeer, signs of summer. They come with the heat and the sun and in the winter they can not withstand the cold snow houses

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