

Appendix:

Faunal Remains from Illorpaat

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Abstract

The archaeological remains described in this article are from selected Thule culture contexts from the coastal site Illorpaat (Godthåb district), on the south side of Hope Island, excavated in 1972 and 1975. In order to obtain the best possible sample of specimens from the site, the excavations also included a substantial area of midden deposits. Radiocarbon datings of both marine and terrestrial animal bones together with historical sources place the occupations associated with these remains between 1445 and 1800 AD. In all, there are 73,376 bone specimens representing fish, birds and mammals, with harp seal (*Phoca groenlandica*) and Brünnich's murre (*Uria lomvia*) being predominant. Illorpaat was likely inhabited year round, with occasional hunting expeditions inland. However, the settlement was situated at the largest "winter open-water area" in Greenland making it a site of paramount importance. Changes in ratios of seal to bird bones through the midden sequences indicate fluctuations in climate, an inference further supported by tool remains. Furthermore, large samples of faunal remains provides a general overview of resource use over a time span of nearly four centuries.

Introduction

The situation of the Illorpaat settlement on the rough outer coast, frequently exposed to depressions with accompanying storms and sleet, would not seem to make the place attractive for occupation. However, it provides the productive and varied hunting grounds that are the foundation of an Inuit existence. Summer weather is often inclement, but due to the action of tides and currents, the ice never closes the sea, and therefore numerous birds and marine mammals gather here during the winter. Sealing, both in summer and winter, was performed from kayaks. One has to feel a profound admiration for these hunters, defying drift ice and heavy seas in their fragile vessels, navigating in the tempestuous winds and strong currents of this archipelago. It is no accident that this area produced the best kayakers in Greenland. Their hunting equipment varied from darts and harpoons for marine mammals to lighter bird spears or darts for birds. Baleens have also been found, and were probably used for long-line fishing.

Midden Layers versus Settlement Layers

Three houses and one midden were excavated. Careful excavation of houses is crucial for many aspects of archaeological analysis, but faunal remains from houses can be problematical. The house floors may have been laid down on top of older layers, and fallen peat roofs may introduce bones from other periods. Furthermore, it must be assumed that mostly smaller bone fragments were left behind on the floor in the houses. In contrast, the midden was where the vast bulk of ordinary refuse was concentrated. Year by year, it would grow thicker and thicker in accordance with the

human exploitation of the more or less stabile animal populations. That is why we emphasized the excavation of such a midden, and in order to make the sample as representative as possible, we excavated a reasonably large section, sixteen square meters. Layer after layer, we dug through nearly four centuries of left-overs and other waste. The result of this excavation was a vast number of bones, 47,328, which are summarized here.

Method

The midden section was excavated in 1×1 m horizontal units in vertical layers of 10 cm. The midden was approximately 1.5 m thick. The trench was dug from the eroding bank at the sea, and 8 m into the settlement. During excavation, stones and archaeological artefacts were drawn and measured, and the composition of the layers was described. No sieving was performed, because the layers consisted primarily of bones and plant remains. The bone samples were examined in the field and divided into two groups, one group being left behind, and the other being returned to Copenhagen. Only species diagnostic bones were returned, for example lower jaws (mandibulae), ear bones (pars petrosae), humeri and ulnae from ringed seals and harp seals. The bones from the other remaining mammals and birds were all brought to Copenhagen.

State of Preservation

Due to the permafrost the middens have been constantly frozen, accounting for the excellent preservation of organic remains. Only the top 10-15 cm of the top soil thaws during the summer, leaving underlying deposits sealed off from chemical or bacterial decomposition. Conditions promoting permafrost include sufficiently cold temperatures and water. The cold is inherent to the location, and organic matter itself produced moisture. If, on the other hand, the soil is dry or well-drained, permafrost is not possible. The permafrost of Illorpaat slowed down the excavation, because the layers in some places thawed very slowly. Thus one minor section could not be excavated completely in the time available.

Comments on the Species List

It is evident from the species list that the fauna was very rich. In all, 33 different species, including three human bone specimens, probably introduced accidentally. Most striking are the many bird bones, clearly dominated by one species, the thick-billed murre (*Uria lomvia*), a pattern thus far unique for a Inuit settlement in Greenland (Godfredsen in press). The abundance of harp seal (*Phoca groenlandica*) bones is also striking compared to the few bones of ringed seal (*Phoca hispida*); the latter usually dominates zoological samples from Inuit settlements. The species list shows that the hunting of thick-billed murres and harp seals was the primary reason for the existence of the Illorpaat settlement. The high representation of these species is best viewed in relation to Illorpaat's location at a so-called "open-water area". The ice does not close the ocean during the winter in this area, leading numerous marine mammals and birds to aggregate here. The following facts can be detected from the species list: the thick-billed murre accounts for 97% of the birds, the harp seal accounts for 90% of the seals, and from the mussels/fish group, 87% are fragments from the common mussel (*Mytilus edule*). The last group, Other Mammals, accounts for only a small fraction of the bones, though several species are represented. The ratio between these four groups is shown in Fig. 141.

Species List

Species		Midden	3 Ruins
MOLUSCA	Common mussel, <i>Mytilus edule</i>	455	8
FISH	Fish unidentified, <i>Pisces</i> sp.	18	0
	Cod, <i>Gadus callarias</i>	8	3
BIRDS	Gyrfalcon, <i>Falco rusticolus</i>	1	0
	Fulmar, <i>Fulmarus glacialis</i>	13	7
	Cormorant, <i>Phalacrocorax carbo</i>	11	10
	Old-squaw, <i>Clangula hyemalis</i>	0	2
	Common eider, <i>Somateria mollissima</i>	7	101
	Duck unidentified, <i>Anas</i> sp.	176	4
	Read-breasted merganser, <i>Mergus serrator</i>	1	4
	Glaucous gull, <i>Larus hyperboreus</i>	0	1
	Iceland gull, <i>Larus glaucoides</i>	0	2
	Gull unidentified, <i>Larus</i> sp.	6	0
	Kittiwake, <i>Rissa tridactyla</i>	7	8
	Dovekie, <i>Plotus alle</i>	612	144
	Great auk, <i>Pinguinus impennis</i>	74	43
	Brünnich's murre, <i>Uria lomvia</i>	37160	15662
	Black guillemot, <i>Cepphus grylle</i>	58	27
	Shearwater, <i>Puffinus major</i>	7	1
	Ptarmigan, <i>Lagopus mutus</i>	0	1
	Raven, <i>Corvus corax</i>	10	1
	Common loon, <i>Gavia immer</i>	2	0
	Birds unidentified, <i>Aves</i> sp.	81	171
MAMMALS	<i>Wild</i>		
	Arctic fox, <i>Alopex lagopus</i>	37	4
	Harbor seal, <i>Phoca vitulina</i>	0	5
	Ringed seal, <i>Phoca hispida</i>	30	14
	Harp seal, <i>Phoca groenlandica</i>	298	537
	Seals unidentified, <i>Phocae</i> sp.	8032	8821
	Hooded seal, <i>Cystofera cristata</i>	7	5
	Reindeer, <i>Rangifer tarandus</i>	67	82
	Fin whale, <i>Balaenoptera physalus</i>	0	3
	Pilot whale, <i>Globicephala melas</i>	22	30
	Harbor porpoise, <i>Phocaena phocaena</i>	6	1
	Whales unidentified, <i>Cetacea</i> sp.	31	172
	<i>Domestic</i>		
	Dog, <i>Canis familiaris</i>	89	169
	Cow, <i>Bos taurus</i>	1	1
	Sheep, <i>Ovis aries</i>	1	1
MAN, <i>Homo sapiens</i>		0	3
Amount of bone fragment		47,328	26,048
Total			73,376

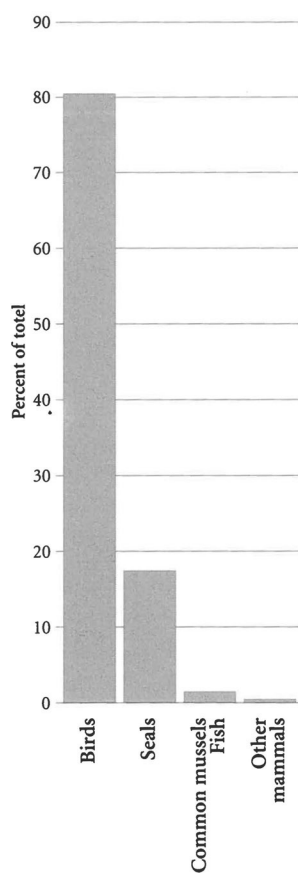


Fig. 141. Percentage representation of four animal groups based on numbers of identified specimens.

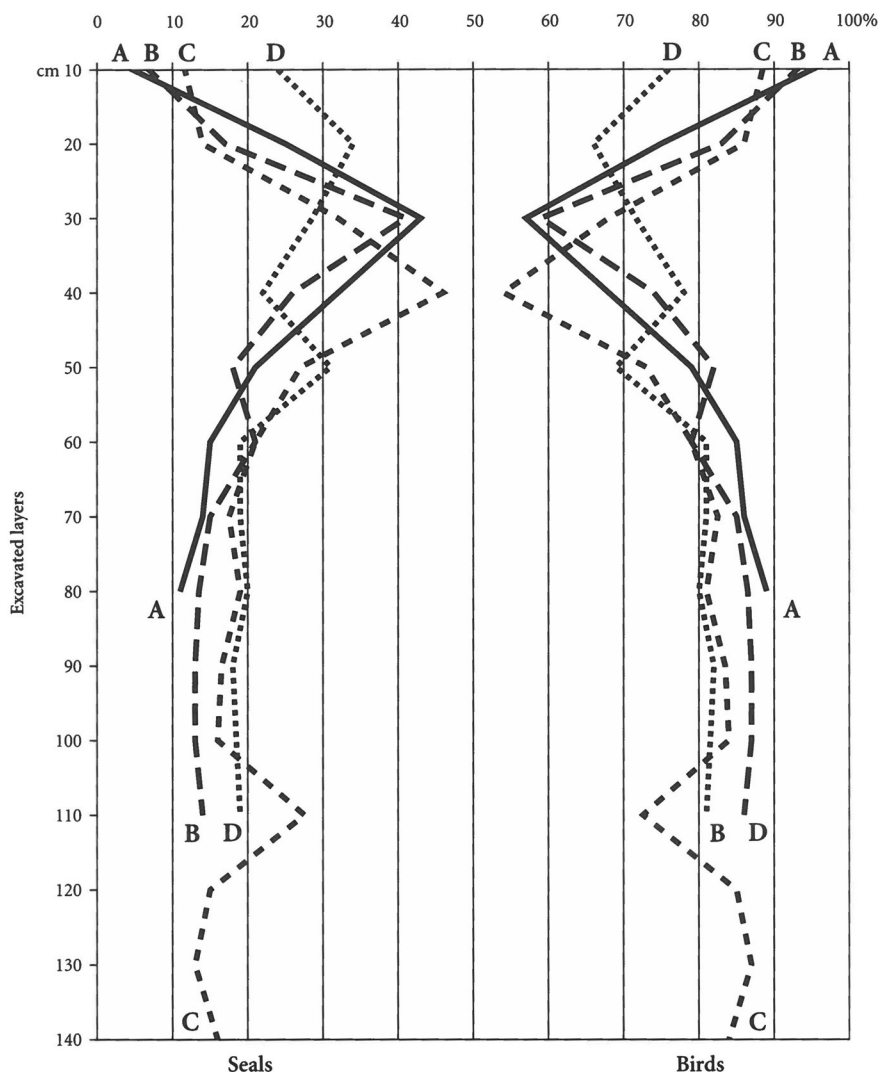


Fig. 142. Stratigraphic fluctuations in percentage representation of seals versus birds from sections A, B, C, and D, based on numbers of identified specimens.

The domination of bird bones is surprising, and this pattern was evident in the field as well. While excavating, we got the feeling that the Illorpaat settlement was centered on the hunting of birds. But one should bear in mind that the ratios in Fig. 141 refer only to bone fragments, not to meat yields. The average weight of a murre is app. 0.360 kg, whereas the weight of a seal is about 35 kg, or roughly 100 times more. (This is according to the Greenlandic harvest data). Thus, a single seal yields about 100 times the meat end entrails compared to a single murre. If this contrast is viewed in relation to Fig. 141, it can be seen that the murre were still important to the settlement, but the seals were of paramount importance. Not only did the seals provide meat, they also provided blubber for heating, cooking and light, and fur for clothing.

Fluctuations in the Taxonomic Composition

Fig. 142 summarizes variation in representation between birds and seals through the fourteen midden layers. This figure, like Fig. 141, expresses the ratio between bird and seal bones fragments from sections A, B, C and D, singled out by the individual lines in the figure. A regular distribution can be seen, with a marked per cent increase of seals, or decrease in birds, in layers 3 and 4. The numbers 1 to 14 designate the different 10 cm layers vertically through the midden, with layer 14 representing the Thule culture remains dated at 1445 AD. On the basis of the archaeological artefacts, layers 8 – 2 are assigned to the eighteenth century. In layers 5 – 2, a change in the composition between birds and seal can be seen. It is tempting to correlate this pattern with the climatic change that occurs in West Greenland, according to written sources, at the same period of time. Moreover, a change in the tool inventory has been recorded (cf. Chapter III). According to tradition, the Illorpaat settlement was in use all year with minor expeditions to the inland for reindeer hunting and trout fishing (cf. Møhl 1982). Therefore, no attempt has been made to establish seasons from the bone remains, but the settlement's situation on the outer coast's open-water area cannot be over-emphasized (Fig. 143). The entire area was one giant larder because birds and seals were able to find food here when the waters in other areas were closed by ice during the winters (cf. Møhl 1979a).

Fig. 143. A wintertime satellite photograph of Greenland's west coast showing the distribution of the sea ice and open water along the coast.

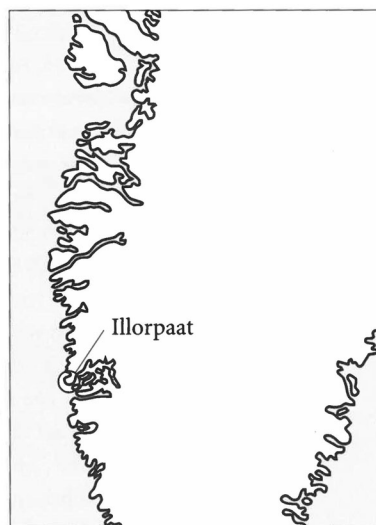
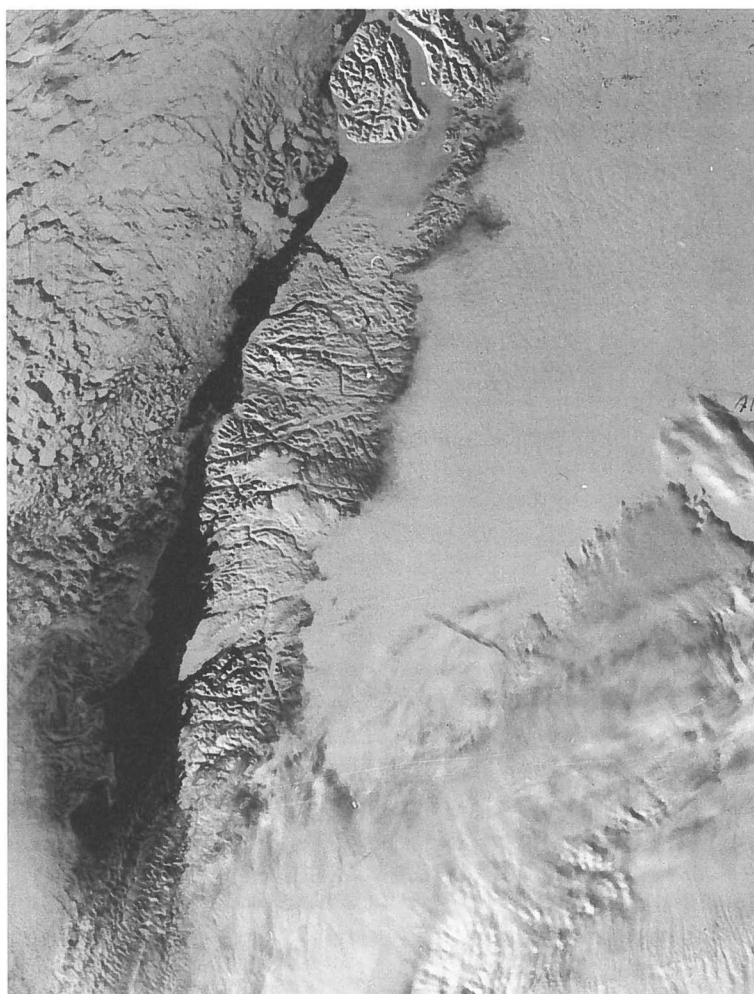
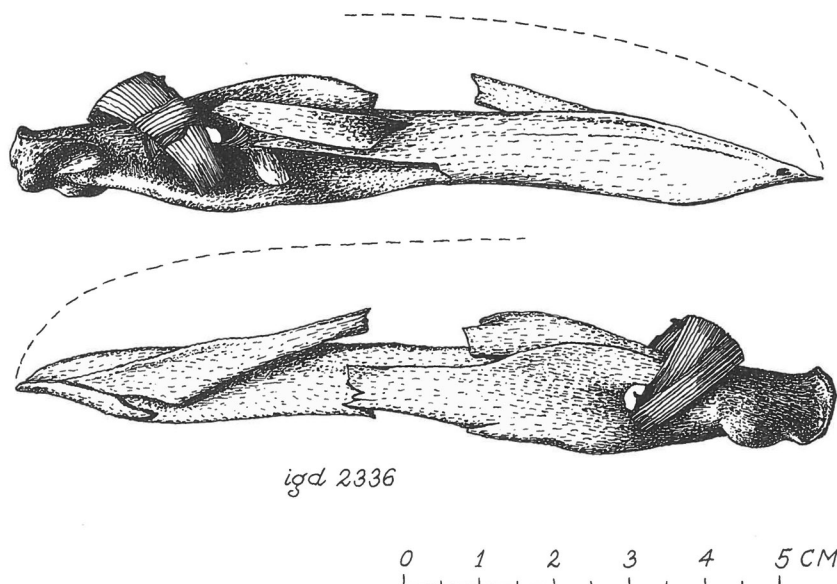


Fig. 144. Lower jaw of a great auk (*Pinguinus impennis*) with a knot of baleen probably used as an amulet.



The Great Auk (*Pinguinus impennis*)

The presence of great auk from Illorpaat warrants separate comments. This large specialized bird probably became extinct in the first half of the nineteenth century (ca. 1815, Meldgaard 1988), and today very little is known about it (Fig. 144). Its bones were found, albeit sparsely, in all layers of the midden, indicating a regular but not common occurrence. The midden and the house ruins yields a total of 117 bones of the great auk, and of these two are from very young individuals, confirming that the birds bred in the area. Contrary to earlier investigations, but with support from finds from Itinnera (1010 \pm 100 BC) and Qeqertasussuk (2400 -1600 BC) (Meldgaard 1988), those remains show the great auk has existed in Greenland for a very long time. The youngest bone from Illorpaat should be assigned to ca. 1800 AD. From oral tradition we hear about the great auk from catechist Apollo Tobiassen, Kangeq, who says the bird was hunted on open waters from kayak with darts in August-September.

The great auk was considered special among the Inuit, and only men were allowed to eat this rare bird. The fat from the bird was apparently considered especially delicate. Also, Apollo Tobiassen related that he himself once found an almost entire auk in a frozen midden at Kangeq, only three kilometers from Illorpaat (Tobiassen n.d., p. 54).

The domestic animals

It is quite surprising with the relative many dog bones as it is not a good dog-sledge area along these rough coastline with tides and current waters. But according to information of the local inhabitants (Kangeq), it was normal practice in this region to keep dogs just for the skin. The contact with Europe is shown in the bone material by two teeth of cow and one tooth and an astragalus of sheep. These bones may be brought to the site either by the whalers or from Hans Egede's contemporary Hope Colony. But as provision on board the whaling ships consist of salted rib sides and haunch of venison it is more likely that the three teeth and the tarsal bone are remains of the domestic animals Hans Egede kept at his colony (Møhl 1979b).

Cut marks, butchering and bone splitting

The scarcity of cutting or crushing marks throughout bone sample can be accounted for by considering the way seals are butchered. Usually, seals are skinned by a longitudinal incision down the abdomen, followed by cuts around the nose and flippers, but because of the thick layer of blubber, these cuts do not reach the bones. It is likewise easy to cut off the flippers and the ribs and to cut up the back without leaving marks on the bones. Seal bones, and marine mammal bones in general, do not have a marrow cavity. Instead, the bones are filled with a spongy tissue, which is why they are not split for marrow. Finally, because of their light construction, the bones are seldom used to make tools. Occasionally, tibiae and bacula were used, and teeth from walrus were preferred for harpoon heads. Few harpoon heads were found at Illorpaat, suggesting a scarcity of resources, that forces the hunters to re-use raw materials more than usual.

In contrast to the seals, many reindeer bones were split for marrow, even the small toe bones. When the added value of reindeer bones for tool manufacture is considered, it is easy to understand why they are more fragmented compared to seal bones (cf. Meldgaard 1986; Møhl 1972). As for the birds, and especially the murre which accounts for 98% of the bird bones, cut marks are infrequent, which could be explained by the fact that Inuit often boil the birds, feathers and all.

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