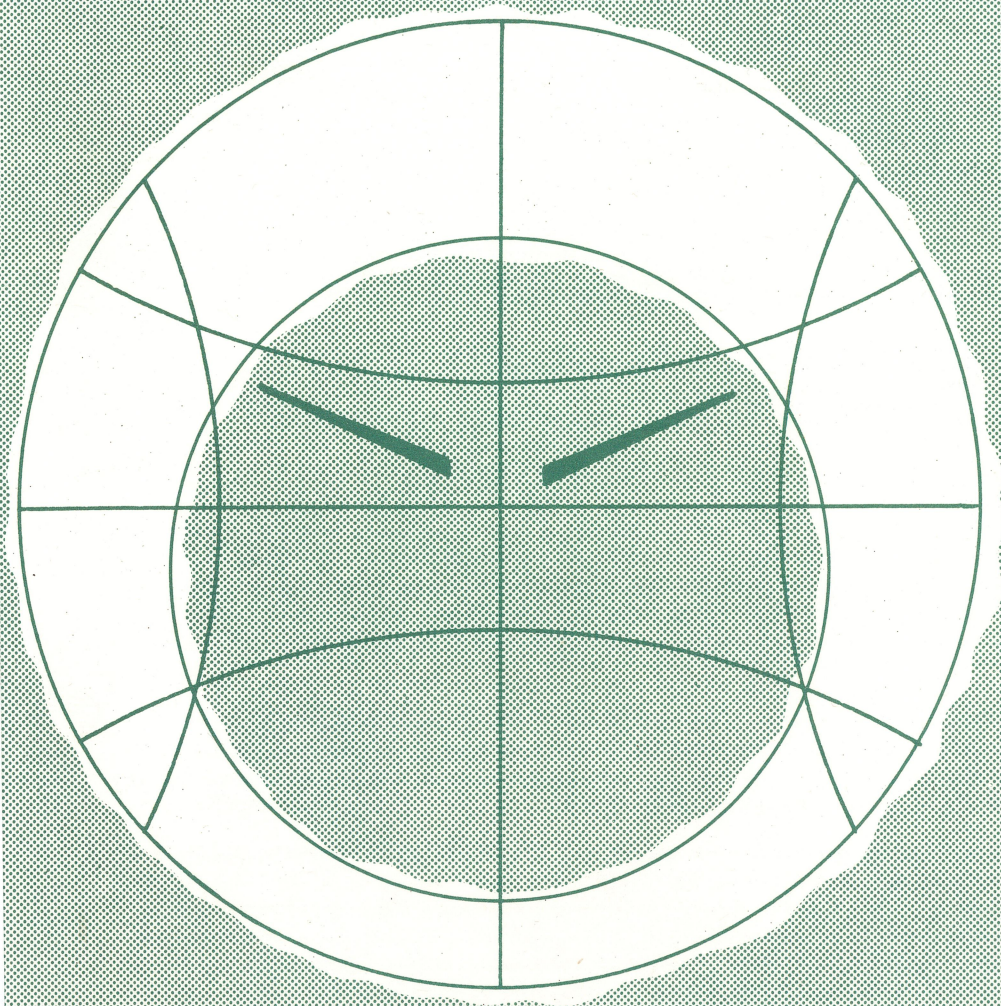




ARCHAEOLOGICAL DISCOVERIES, PAYNE BAY REGION,
UNGAVA, 1966

PAR

THOMAS E. LEE

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CENTRE D'ÉTUDES NORDIQUES

CENTRE D'ETUDES NORDIQUES
Université Laval, Québec, Canada

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CENTRE D'ETUDES NORDIQUES

TRAVAUX DIVERS

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ARCHAEOLOGICAL DISCOVERIES,

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par

THOMAS E. LEE

Ottawa

Université Laval
Québec - 1968

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PRESENTATION

A titre de chercheur invité au Centre d'Etudes Nordiques, Monsieur Thomas E. Lee d'Ottawa a continué en 1966 ses recherches sur les diverses cultures anciennes du Québec septentrional; pour ce faire, il a bénéficié de l'assistance d'un jeune archéologue français, M. Patrick Plumet et d'un guide esquimau de classe, M. Zachariasi.

Petit à petit, Monsieur Lee bâtit un dossier de plus en plus convaincant sur les anciennes pénétrations des peuples de l'Europe du Nord dans la péninsule du Québec-Labrador. Il croit que les rivages de la baie de l'Ungava ont pu servir de tremplin dans la migration de la colonie occidentale du Groenland vers le Payne intérieur. Les maisons longues de Pamiok de même que "les boîtes à feu" seraient au nombre des témoignages de cette culture "norse".

Le Centre qui sent la nécessité de poursuivre de telles recherches pionnières organisera au cours de l'été 1968 deux autres expéditions archéologiques sur les façades occidentales de la baie de l'Ungava.

Louis-Edmond Hamelin, Directeur
Centre d'Etudes Nordiques

Avril 1968

ABSTRACT

In the summer of 1966, under the sponsorship of the Centre d'Etudes Nordiques, further archaeological investigations concerned with the question of Norse penetration of the Ungava Peninsula were carried out. For aid in the preparation of this report we are indebted to the Ministère des Affaires Culturelles.

Work in the interior already had shown the presence of a European-type village on the south shore of Payne Lake. The present work was conducted along the coast in an effort to find slightly older coastal settlements that might produce burials and perhaps metal tools.

Following examination of some features up the Arnaud Estuary, which included a startling monument resembling the Hammer of Thor and two large stone beacons more than nine feet high, a survey was undertaken of the coast northward from the Estuary almost to the Eider Islands. The results were rewarding in the discovery of many stone beacons that we attribute to the Norse — beacons that were probably intended to guide ships into the Estuary.

The most interesting evidence was encountered on Pamiok Island, on a site that had been examined in 1957 by a National Museum party, known in the literature as the Imaha site. A house ruin 81 feet long had been reported there, and this was readily identifiable as a Norse Longhouse. Two other longhouse ruins were found, and one was completely excavated. The evidence is that the latter, when abandoned, was re-occupied by Dorset peoples. There is clear proof that they made crude roof repairs with the aid of posts or poles, probably pirated from another longhouse. A long period of abandonment followed, and then another group arrived to live on the same spot, although it is likely that the longhouse no longer stood.

The Norse occupancy of the longhouse is marked by a double row of stone-lined fire pits and ember boxes along the centre of the structure. Significantly, a non-Dorset stone work is associated with this period, probably reflecting the scarcity of iron and the complete dependence on stone, bone and ivory.

One longhouse was divided into a combined living and dining room, with sleeping areas at both ends. Interestingly, it had a vestibule on the side near one end of the building. The largest longhouse was divided into a living room, a kitchen, and two sleeping areas. These architectural features suggest a considerably earlier date than those seen at Payne Lake in the interior.

Many stone-vaulted tombs occur near the house ruins. Most have been completely looted, but two yielded skulls that are astonishingly European in appearance, although identified as Eskimo. Unfortunately, no means of dating them has been found.

A formidable body of evidence has now accumulated for the presence of Norse peoples in the Ungava Peninsula. While spread out over more than 200 miles, from Payne Lake in the interior, down the Arnaud Estuary and northward along the coast, a significant and meaningful structure emerges from the consideration of all evidence. The occupations, both inland and coastal, were not casual or chance occurrences but represent sizeable colonies of people, apparently in at least two different periods. Present indications are that the sagas offer an explanation for the earlier period, in the reference to the Kingdom of Skuggifjord, the Place of Fogs.

R E S U M E

Au cours de l'été de 1966, nous avons mené pour le compte du Centre d'Etudes Nordiques de nouvelles recherches archéologiques sur la pénétration "norroise" (norse) dans la péninsule d'Ungava. Nous sommes redevables au Ministère des Affaires Culturelles de l'aide apportée à la préparation du présent rapport.

Nos recherches dans l'intérieur avaient déjà révélé la présence d'un village de type européen sur la rive sud du lac Payne (Travaux Divers, no 16, 1967). Dans un effort pour retrouver des établissements un peu plus anciens, qui comporteraient des sépultures et peut-être des outils de métal, nous avons mené le présent travail le long de la côte.

Après l'examen de quelques éléments sis le long de l'estuaire de l'Arnaud, dont un étonnant monument qui ressemble au marteau de Thor et deux grandes balises de pierre hautes de plus de neuf pieds (2, 74 m), nous avons entrepris le relevé de la côte vers le nord, de l'Estuaire de l'Arnaud jusqu'au voisinage de l'archipel Eider. Le relevé a eu des résultats fructueux, car nous avons découvert de nombreuses balises de pierre que nous avons attribuées aux Norsemens; ces balises devaient probablement servir à guider les navires vers l'estuaire de l'Arnaud.

La preuve la plus intéressante a été trouvée dans l'île Pamiok, sur un site examiné en 1957 par une équipe du Musée national et connu dans les textes sous le nom d'Imaha. On y avait signalé une ruine d'habitation longue de 81 pieds (24,67 m). Il a été facile de l'identifier comme une longue maison norroise. Nous avons trouvé deux autres ruines de longues maisons et en avons complètement fouillé une. Cette dernière, après son abandon, avait été réoccupée par des gens de culture Dorset. Nous avons la preuve très claire que ces seconds occupants effectuèrent de grossières réparations à la toiture, à l'aide de poteaux ou de pieux probablement pris à l'une des autres demeures. Suivit une longue période d'abandon, puis la venue d'un troisième groupe à ce même site; il est probable que la longue maison était alors disparue.

Tout le long du centre de la structure, une double rangée d'âtres et de boîtes à tisons tapissés de pierre marque l'occupation norroise de la demeure. Il est significatif de voir associé à cette période une industrie de la pierre qui n'est pas Dorset, ce qui reflète probablement la rareté du fer et la dépendance complète envers la pierre, l'os et l'ivoire.

Une des longues maisons était divisée en trois : salle de séjour et salle à manger combinées, avec dortoir à chaque extrémité. Il est intéressant d'observer qu'elle possédait un vestibule sur le côté, près de l'une des extrémités. La plus grande des demeures était divisée en une salle de séjour, une cuisine et deux dortoirs. Ces éléments architecturaux nous suggèrent un âge considérablement plus grand que dans le cas de ce que nous avons vu au lac Payne.

On trouve, au voisinage des ruines, de nombreuses tombes à voûtes de pierre. La plupart ont été complètement pillées, mais deux contenaient des crânes d'allure étonnamment européenne, bien qu'ils aient été identifiés comme esquimaux. Malheureusement, nous n'avons trouvé aucun moyen de les dater.

Nous avons maintenant accumulé une formidable masse de preuves de la présence norroise dans la péninsule d'Ungava. De l'examen des indices, même éparpillés sur plus de 200 milles (317 km) du lac Payne à l'estuaire de l'Arnaud et vers le nord le long de la côte, émerge une structure significative. Ces établissements, tant intérieurs que côtiers, n'étaient ni occasionnels ni accidentels, mais formaient des colonies de belle taille, apparemment à deux époques différentes. Il semble que les sagas peuvent expliquer l'époque la plus ancienne par leur mention du royaume de Skuggifjord, le Lieu des Brûmes.

ACKNOWLEDGMENTS

Under the sponsorship of the Centre d'Etudes Nordiques, Université Laval, archaeological explorations of the lower Arnaud River, Arnaud Estuary, and the Ungava coast northward were undertaken in the summer of 1966. Certain excavations were also performed, with results detailed herein.

To the Centre d'Etudes Nordiques, to Dr. Louis-Edmond Hamelin, and to the assistant provided, monsieur Patrick Plumet, I express appreciation and thanks.

To the Ministère des Affaires Culturelles and to monsieur Paul Mercier, Directeur, Service de l'Aide à la Création, we are grateful for the substantial aid and support given toward the preparation of this report.

My thanks go also to Dr. Raoul Hartweg of Paris, who undertook a brief but most valuable examination of the skeletal evidence from Pamiok, making his findings available to us for publication.

We owe much to the information or assistance provided by Dr. Léopold Gélinas and Mr. Douglas Heyland on government surveys, to Mr. and Mrs. James Ford, Mrs. Daisy Watt, and Messrs. Roger Beaudoin, Reuben Ploughman, Norman Ford and Ross Tom of Fort Chimo, and to Mr. and Mrs. Marc Claveau, Mr. Robert Armor and Willie Thomasie of Payne Bay.

At one point we were fortunate in meeting monsieur Louis-Jacques Dorais, Social Anthropologist engaged in a field project at Koartak, who kindly served as interpreter, obtaining much valuable information for us at Payne Bay.

But to Zachariasi, who served as guide throughout our expedition, must go special mention. Zachariasi spent his entire life on the islands and coastline with which we were concerned. He showed us much that we could not have found otherwise. But more than this, he had taken a keen interest in all cultural remains, recalling not just locations but also the views of them held by his parents, grandparents, and people. It was, in a sense, his expedition.

Highlights in our summer were the chance meeting with four students of Dr. Hardy's geological party at Post Lake, a few miles from Payne Bay, and some appreciated though brief visits by others to Pamiok Island. On July 29, just after we had weathered a big storm on Pamiok, we were cheered by the visit of Dr. Benoît Robitaille and his party. Again, on August 23, the Anthropologists Mr. and Mrs. Bernard Saladin d'Anglure, returning to Koartak by canoe, spotted our tents on the island and turned in for a brief but most pleasant tour of the site.

Outstanding, however, was the August 11 visit of Mr. Farley Mowat, famed northern author, who flew over our heads a few times, returning by canoe in the evening for arguments that lasted until three in the morning. Most thoughtfully he offered the use of his Otter for the day for coastal survey, but a light drizzle came on, flattening the landscape until nothing could be spotted from the air. We did fly in to Payne Lake, in the interior, for an examination of the Cartier site, found by a C.E.N. expedition in 1964 and partly excavated in 1965. Following this he declared that the site was "unquestionably and unmistakably a European village".

An opportunity to leave Pamiok came on August 26. In the face of threatening weather we packed up and returned to Payne Bay in darkness. We reached Fort Chimo via Wheeler Norseman the following day.

INTRODUCTION

The work undertaken in 1966 was a direct and logical follow-up of the discoveries made in the interior, at Payne Lake (Fig. 1). To review these finds briefly, we may say that two kinds of evidence for the presence of Norse peoples in Ungava had been encountered. In the first case, in a stratified situation on the Michéa site, artifacts were found that bore the unmistakable marks of various metal tools, although the latter themselves were not found. Their direct association with stone tools normally attributable to the Dorset culture raised the distinct possibility of a blend of the two peoples.

In the second case, on the Cartier site, the foundations of square houses and a church-like structure, together with a stone dam and a stone causeway wide enough for wheeled vehicles, gave clear indications of a European-style village. It would seem to mean little or no mixing with native peoples, an impression further enhanced by the almost total absence of stone chips, artifacts or rubbish on the floors. The village might represent a Celtic occupation of Ungava, but a far more likely explanation was to be sought in the Norse records of Greenland. It was known that the people of West Settlement had mysteriously vanished before the year A. D. 1342. Various explanations concerning the destruction of the colony by a deteriorating climate, by Eskimo attack, by disease, famine and inbreeding seemed altogether unsatisfying, even before the discovery at Payne Lake. Reasonably, one could postulate a migration of at least some portion of the colonists to Ungava.

The reason for such a move was not hard to find. The east end of Payne Lake was the migratory crossing point for herds of caribou in almost incredible numbers. Here was an inexhaustible food supply, and an absolutely certain one.

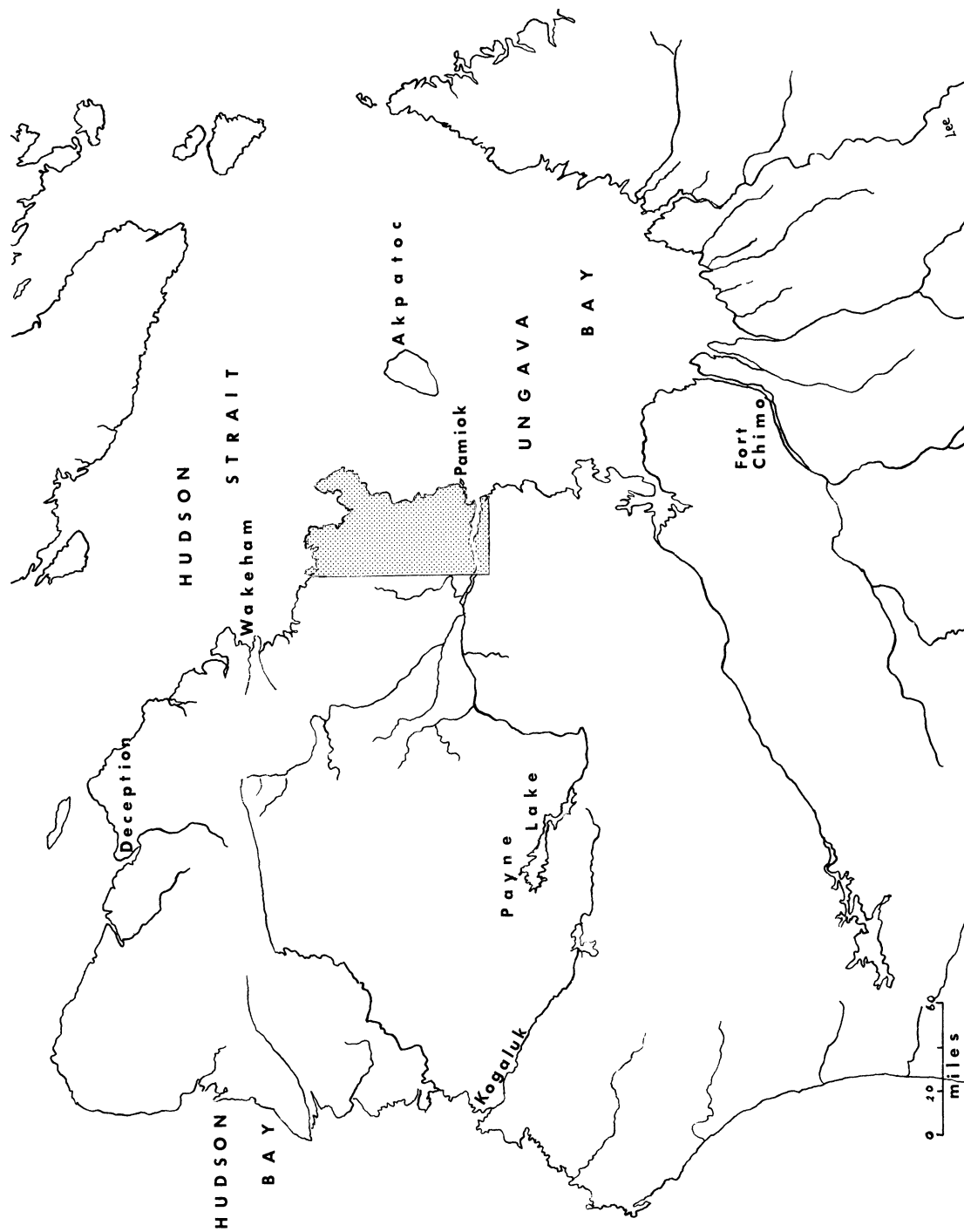


FIG. 1 - Map of Ungava Peninsula, the area under discussion in this report.

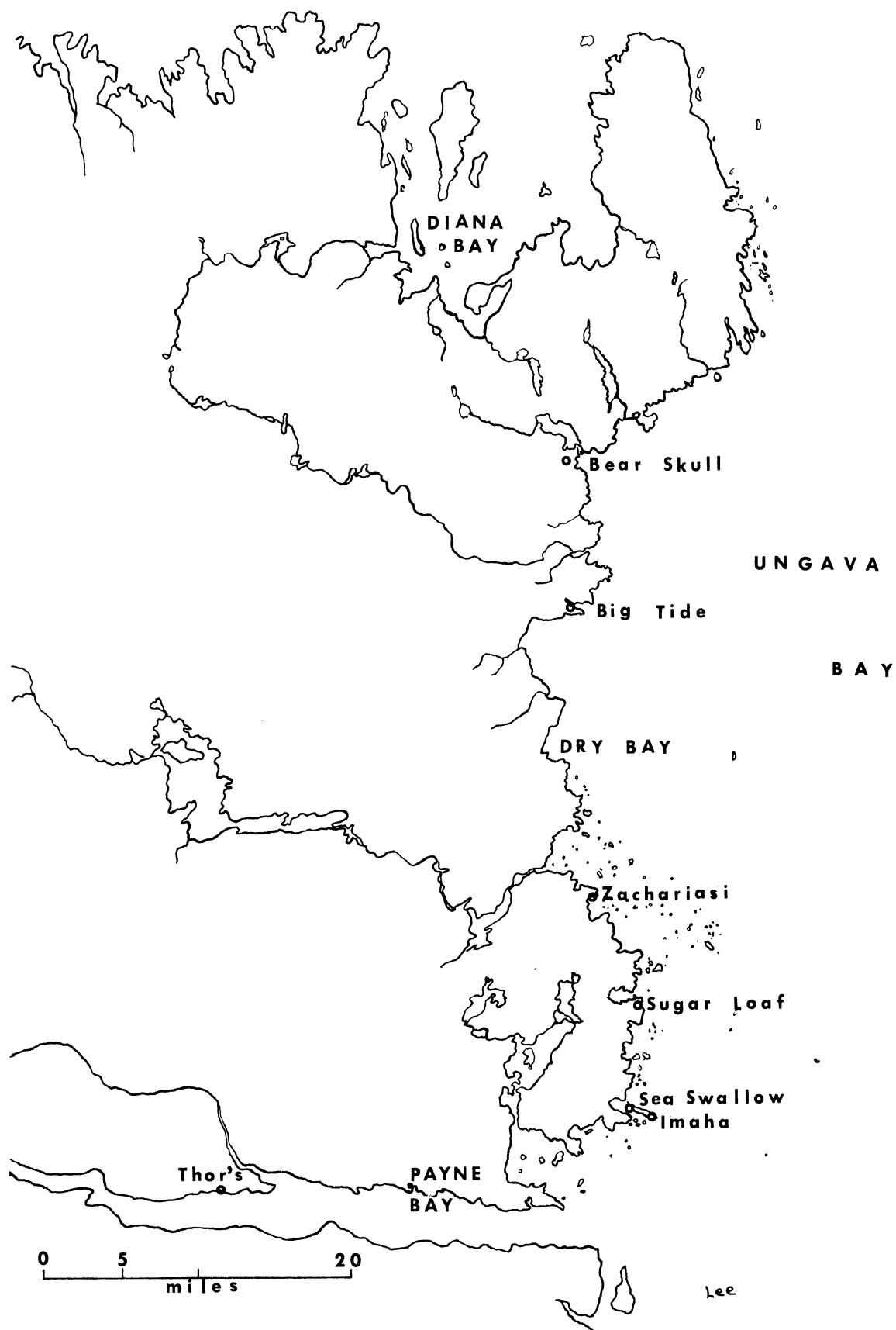


FIG. 2 - Map of the Ungava coast north of the Arnaud Estuary, showing the principal sites examined in 1966.

But would the seafaring Norse have known about this ? It is thought that the vanished colonists had turned more and more to hunting and to native ways of life, but it was easier and more reasonable to contemplate at least one intermediate stage, an occupancy of some part of the familiar coastal environment, before turning inland.

A further spur to us in this regard was the fact that any such coastal settlement would be a little older, a little closer to the homeland, and a little more likely to produce the traces of iron that had so far eluded us at Payne Lake.

The area for examination was obvious. The previous fall, when returning from Deception Bay on Hudson Strait, a chance meeting at the Fort Chimo airport with Mr. James Ford provided me with a wealth of exciting information concerning very large house foundations with cross walls or partitions near Payne Bay, together with a description of a strange and unexplained stone cross on the bank of the Arnaud Estuary. Baie Sèche or Dry Bay up the coast (Fig. 2) seemed promising for excavations, too, and many other places demanded investigation. To this end, a series of surveys was planned — one up the Payne Estuary, one up the coast to the opening on Hudson Strait, and a third in and around Dry Bay.

We arrived in Fort Chimo on June 29, where we were again treated to the hospitality of Richesses Naturelles personnel. In the following days, while waiting for a Canso aircraft that would permit us to team up with monsieur Yves Cartier's party for part of the trip, rewarding visits were made to the ancient Chimo 2 site on the bank of the Koksoak River, and to some of the Naskapi Earth Ring sites (Lee, 1966a). These were intact, just as they had been left the preceding year. It is therefore disappointing to record the fact that Chimo 3, the Robitaille site, when seen again in September, had been thoroughly looted by some white man. Behind, he left only open trenches (Fig. 3 A) to invite digging by others, the stakes and binder twine used to outline the large rectangles in which he dug, and the broken pieces of a green Government of Canada pencil. Amusingly, he has re-excavated a cache of caribou bones that I had hidden under one of the fireplaces, and these were now scattered widely around the area. It is such activities as this that make an archaeologist reluctant to publish precise locations of sites.

An important activity had to do with some 1896 photographs of Fort Chimo, taken by A. P. Low. Few could aid in the identifications, but ultimately every building could be named, together with something of its history and that of its occupants.



FIG. 3 A - Naskapi Earth Rings on site Chimo 3 at Fort Chimo.
Looted in the summer of 1966, with the excavations left open,
inviting further looting by others.

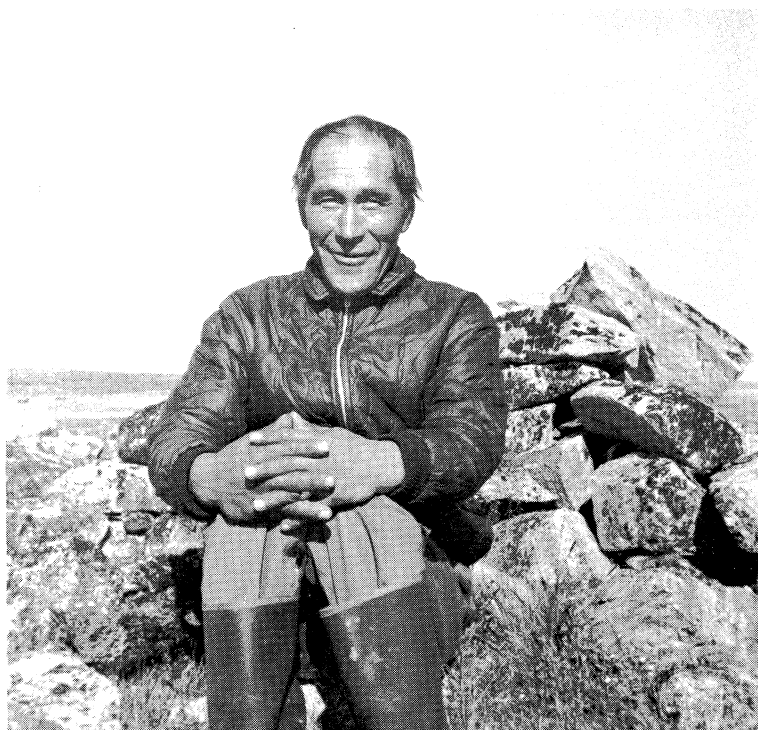


FIG. 3 B - Zachariasi, a wise and highly intelligent old Eskimo who guided us to
numerous valuable cultural features along a hundred miles of wild and
uninhabited coastline. His recollections were of great aid.

The delay was further used to advantage in checking our plans and maps with Mr. Ford and Zachariasi. It was then that we learned that Dry Bay was not our most important objective. This lay, instead, far to the north, just below the Eider Islands. Mr. Ford stressed the need for survey by canoe, rather than by air, and we found his advice sound.

On July 6, with Zachariasi, we flew by Wheeler Norseman to Payne Bay. Expecting to pitch a tent there, we were instead installed in warm, comfortable quarters by Mr. Claveau. In the storms that followed we were more than grateful. This served as a base for our several excursions up and down the Arnaud Estuary. Proximity to an excellent Hudson's Bay Company store was of great assistance.

Through Mr. Ford we had learned that the present H. B. C. establishment occupies the old Revillon Frères buildings, and that the Department of Northern Affairs buildings now occupy the site of the former H. B. C. post, it in turn being on what was apparently a Dorset site. This, he said, was thoroughly looted by servicemen during the war. A fine stream enters the little bay at this point, and it is a most likely place for the ancient house remains he described.

While at the post, we were shown a large Eskimo site, beginning just behind the buildings, by Mr. Armor. Numerous tent rings were spread over a fairly gentle slope, and in various pockets of level ground between outcrops. None seemed very old, and earliest occupancy probably relates to the founding of the trading post in the early 1920's. The ground was strewn with old bones, and Zachariasi there gave us the first of numerous valuable lessons in the identification of sea mammal bones.

Animal life on the coast provided interesting comparisons with that seen in the interior at Payne Lake. With rare exceptions, according to the place and weather conditions, mosquitoes were only a minor annoyance, while blackflies were almost absent. Bird life was far more numerous, particularly in the form of Eider ducks. It is my impression that few of this species occurred in the general area of Dry Bay, however. Various other ducks were of frequent occurrence, and there were occasional sightings of Canada geese. A most fascinating bird, the Arctic tern, appeared over Pamiok Island, along with an occasional Jaeger.

We had apparently reliable reports that a Payne Bay Eskimo was attacked and driven into the water by a black bear some 60 miles up the

River Arnaud. One full grown black bear was sighted on the site of the former Cartier camp, on the south side of Payne Lake, during our visit to the ancient European village site. Our only contact with a polar bear was in the form of a skull and other bones from a large specimen evidently killed in the previous winter, at the Bear Skull site (Figure 2).

The fresh track of a young caribou was seen at Dry Bay, but otherwise the Eskimos looked upon this place as poor hunting territory.

Seals were seen almost daily along the coast and at Pamiok. Zachariasi shot a young seal (Figure 10 B) and carefully prepared its flesh for distribution among relatives at Payne Bay, saving part of it for his own family in Fort Chimo. He reported that small whales approached the Pamiok shore very early each morning. These I did not see.

It remains only to mention two peculiar and unpleasant life forms observed on Pamiok. Our drinking water was obtained from two ponds, perhaps 100 feet across and 4 feet deep, although we often cooked with sea water. As the ponds shrank in August, the water teemed with small animals that had to be painstakingly removed, cup by cup. The most numerous was a reddish brown creature, about the size of a small flea, usually sluggish but capable of fast movement. The other resembled a minnow in its behavior, not more than one inch long. Closer inspection showed that a bank of myriad "legs" extended along each side, and that movement was achieved by the passage of waves along these banks. They did not look appetizing.

ARCHAEOLOGICAL SURVEYS

Several trips of varying length, sometimes by motor-driven canoe, but often on foot, were undertaken. Some of them were designed merely to see and record whatever there might be of a cultural nature. One was taken solely to investigate curious stone monuments reported by Mr. James Ford. The longest was of greater import, for its findings would determine the place of our major work of excavation through the summer.

ARNAUD ESTUARY

The mouth of the Payne River (now Arnaud), actually an estuary, was described by Robert Flaherty, in 1918 (pp. 126-7) as being 40 miles deep, 25 miles wide, and flanked by hills that fall half-sheer to the water, with no shoreline benches, a rugged trough of granite walls and black dikes. The granite ranges, he said, were from 300 to 600 feet high, with marine terraces up to 300 feet. He found it desolate and almost devoid of moss. There are exceptions to these statements, of course — otherwise we should have no sites to report !

The river, he said, debouched from a canyon, threadings its way through boulder bars and islands. One of the islands quite near the Payne Bay post, we may observe, is noted as a nesting place for Eider ducks.

We were informed that the tidal drop at the post is 35 feet. The resulting current in the estuary may well be imagined. On one occasion, with a loaded canoe and a 22-hp. motor racing at full speed, we gained not one inch up the river as the tide was going out. The water is thrown into turmoil by reefs and ledges at the outlet into Payne Bay, and we once passed between two whirlpools, each perhaps 20 feet

across and no more than 10 feet apart. I suspect that it would be unwise to let a canoe get into one of them.

Our investigations first took us upriver, on foot, from the post. Almost at once we passed an old kayak frame, which Zachariasi identified as his own, together with his old igloo and tent site. Just beyond less than a quarter-mile from the post, a large point projects downriver. Numerous tent rings of no great age are strewn across it, and there are curious little caverns dug into the steep bank on the north side of the point, probably for caches. Some rings are older, with deep-set, lichen-covered stones, containing a little flagging. One, circular and about 10 feet in diameter, is marked only by almost buried thin slate slabs on the floor, with a central slate-covered mound. Zachariasi had no explanation for this or the other very old tent sites.

In a little cove just beyond the point we found two old rings, deep-set, with a little flagging. Other rings extended up a small grassy slope, and still others onto a raised place on the west side. One ring, set against an outcrop, had wall slabs piled to 18 inches high and may represent a more permanent dwelling. Of particular interest, one nearly square tent ring, 9 by 10 feet, seemed to be very old, judging by the blackened lichens on its stones. It has a sleeping platform on the uphill side. Just above it, on an outcrop, is a cache pile, with an interior chamber 4'6" by 2 feet.

At about one mile upriver from the post, high on a rock ridge, we spotted two old fox traps, with binoculars. The stones were lichen-covered, and one had the gate still in place. In general they are like Deception Bay traps (Lee, 1967a, p. 23), although the stone piles are considerably smaller, being only 6 by 4 by 2 feet. Again, the gate was made to fall between two vertical slabs, rather than in slots.

Continuing along the river shore, we came to a small cove, with high rocks on the east but low on the west. Here we found several tent rings. One, very old, was rectangular, with a sleeping platform. A second was circular, with a central alignment of stones not part of a platform, although it might have marked the limits of the sleeping area. A third, 9 by 9 feet, had a central arrangement 3 by 3 feet, made of slabs placed end to end, presumably for a fireplace. A fourth occurrence, probably a house, was set against a rock face in a 7 by 5 feet semicircle, one course high. It looked very old.

On a point just to the west of the cove were several old tent rings. A curious arrangement of stone slabs, rectangular and perched on a rock ledge, attracted our attention. Zachariasi pointed to some

branches of a peculiar plant, its stems square in cross section, and explained that these were gathered for fire.

Beyond the point is an old beach, wet and poorly suited to camping. On this were several recent rings. On a grassy slope were recent rings 27 by 20 feet, each with a central fireplace. Then came a long stretch with no remains at all, until we approached a double bay. There we found a moderately old house ring 12 by 12 feet square, perched on a ledge, one side being formed by a 4-feet-high rock face. On the uphill half was the sleeping platform.

Igloo Point

We then went out on a major point, about 3 miles above the post, known as Igloo Point. This was our objective, really, as Mr. Ford had stressed the importance of seeing some house ruins there. Unfortunately, a raw penetrating wind and spits of rain numbed the hands and made note-taking nearly impossible. Three house pits were found near the tip of the point and seemed to be contemporaneous. They appeared to be rather circular, although excavation would probably show them to be rectangular. The first, on the upriver side, was huddled under a high rock outcrop that gave shelter from the west and north winds. Its diameter was 19 feet. Surrounding earth ridges were not conspicuous, although the pit walls were about 2 feet high, constructed of rocks, now covered with moss and grass. The southwest side projected inward and probably contains a stone box. The entrance was at the southeast corner, but there was no passage-way whatever. Someone, a few years ago, had dug around the outside at the northwest. One may surmise that much was found, for the rejected and abandoned material included the specimens shown in figures 35 and 36, together with quantities of chips.

The second house pit, 100 feet eastward, was 18 feet in diameter, a circular jumble of tumbled rocks in the interior. Two centrally placed upright slabs were 2 feet high and 5 feet apart. These were doubtless roof supports. A stone platform could be seen in the northeast corner, and on it was a more recent cache containing an old walrus penis bone. Walls were constructed with stone slabs set on edge. No entrance could be distinguished.

The third house, 53 feet north of the second, was 18 by 15 feet, and rounded. A stone platform exists at the north end. Walls were of stone slabs set on edge. Again no entrance could be seen.

Without excavating, which I chose not to do as there was no possibility of completing the work and any digging would only attract others to do the same thing, and with only the crude and unfinished objects abandoned by some relic seeker, cultural identification cannot be certain. The coarse nature of the artifacts and chips, however, would seem to exclude Dorset. The one fragment of a soapstone vessel (Fig. 35; 1) is similarly rough and crude out of all comparison with any of the Dorset vessels thus far examined by me.

The absence of an entrance passageway is not characteristic of the Thule culture, so far as one may judge from the literature, but we must note that NacNeish, writing about the Mackenzie delta (1956 : 66) described "modern" Thule houses that had either very short entryways or none at all. Taylor has said (1964 : 203) that "it seems reasonable to assume that the Thule culture did not begin its expansion to and in Québec-Labrador before A. D. 1350".

Another possibility is the Sadlermiut. We have no proof that these people were in this area, although we may recall that a Sadlermiut-like stone culture in a pit-house, dating around A. D. 1200, showed up at Payne Lake (Lee, 1966b). Again, Dr. Henry B. Collins has commented on the similarity of a Payne Bay (Pamiok Island) tomb to those of the Sadlermiut (1962 : 131).

The situation remains unclear, however, for Collins (1956 : 82) has said that the stone-floored and walled houses are semi-subterranean, while Taylor (1957 : 40) says they are not semi-subterranean but are built up from ground level.

In the vicinity of the Igloo Point house pits, and extending back to the base of the point, are numerous shelters, houses, cache piles and fox traps. Some of the older and lichen-covered features may be looted tombs, but weather conditions prevented adequate examination.

Dr. Jacques Rousseau informs me that an old soapstone quarry exists about 4 miles upriver from the post. In his historic canoe trip across the Peninsula in 1948 he chanced to stop briefly just at the spot. This will be known to the Eskimos, of course.

Hammer of Thor

Our next venture was by canoe upriver, and our first objective was the strange stone cross that Mr. Ford had described. With binoculars it was visible from miles away, on the north bank some 14 miles above the post. This is a remarkable circumstance in itself for, so far as I know, no mention of it had ever appeared in the literature. It is situated at the mouth of a short amphitheatre-like valley, with high rock hills on three sides. It is 126 feet from the shoreline, but only 4'6" above spring tide.

The feature (Fig. 4) is in three parts. The first of these is a vertical column of granite, standing on bedrock but braced in position by 8 small stones that are heavily mossed over or covered with lichens. It stands 8 feet high, is 25 by 17 inches at the base, 23 by 7 inches at the top, and runs to about 4000 pounds. The problem of lifting it in this treeless and almost soil-free terrain is staggering — unless there were shipboard tools at hand.

Across its top is a T-bar, 4'4" long, wedge-shaped so that it is 22" wide at the west end, $\frac{1}{2}$ " wide at the east, 3" high at the west and 11" high at the east. It would run to about 390 pounds.

Surmounting this is a granite block, well off-centre, 8 by 12 inches at the base and 14 inches high. It would weigh about 130 pounds.

To hold the T-bar level, a wedge was inserted on top of the column, on the east side, about 11 by 5 inches across and 3 inches thick. The overall effect, in my view, is not that of a Christian cross but rather of an enormous "Hammer of Thor". This is even more obvious on the spot than in the photograph, for the picture loses much of the wedge shape of the T-bar. Inscriptions were said by old Eskimos to have been on this monument, among them Zachariasi's long-deceased grandfather, but neither Mr. Ford nor we could find any trace.

No indication of a village site was seen, nor is there much area for one. Near the shoreline we found two very old tent rings hidden in dwarf birches behind an outcrop, the remains of a ring just above spring tide, and two more recent rings below spring tide. Examination was made of the slopes far above on the east. In one gently sloping but very rough area I came upon several scattered cairns, usually only a single stone balanced on a boulder, but sometimes two such stones, one on top of the other. Near the hilltop I found a larger cairn, but the



FIG. 4 - The "Hammer of Thor." This strange monument, nearly 10 feet high and placed in a little valley mouth along the Arnaud Estuary, has long been known to Eskimos and certain white residents of the north, but seems to have escaped mention in the literature. The task of raising it must have been very great, for the weight of the vertical column alone is estimated at nearly 4,000 pounds. If erected by the Norse, no more obvious symbol could have been chosen to tell all searchers that the vanished colonists had gone on upriver. As we now know, the Arnaud River route leads right to what Mr. Farley Mowat has called "an unquestionable and unmistakable European village site".

rounded profile of the hill promised a long walk in search of others, and I left off. In that direction, however, is a lake that might hold interest.

Arnaud River Beacons

Our second and final objectives upriver were two cairns that had been reported to me by Mr. Ford. Astonishingly, no mention of them has been found in the literature, with the single exception of a work by Corrado Gini (1960 : 50a), wherein it is stated that the towers of Payne Bay are "some 15 feet high, overgrown with moss, of which the local Eskimos ignore the origin".

We found the first cairn or beacon, as we shall call such features in this paper to distinguish them from the usual carelessly constructed pile, on the south side of the river just above the first rapids and around a bend, some 32 miles above the post. It was conspicuous and impressive (Figure 5 A).

Its base was constructed of two boulders, primarily, one with dimensions of 5 by 3 by 2 feet (hence about 5000 pounds), the other a slab leaned against it, with dimensions of 5' by 1'2" by 3' (about 1340 pounds). Other stones were then piled at the ends. The beacon dimensions, then, are about 5'4" by 4'5" at the base, tapering somewhat to its full height of 9'3". The top is flat and there is no yielding or movement under a man's weight.

Above the basal rocks other stones, tending to be carefully selected slabs, were placed, cunningly fitted to produce a circular structure. Some of these upper blocks would run to 600 pounds.

We found moss — old, dry and dead — up to 3 inches thick against the basal stones. Black lichens covered nearly all stones on the east side, but there were few on the west. In this circumstance is seen one of the dangers in judging the age of features by the lichen accumulations.

The position, about 70 feet from the water, takes no account of immediately adjacent higher land and clearly has nothing to do with navigation. It is only about 6 feet above spring tide, as judged by marks on the rocks. Behind it rises the rocky approach to the hills. On this higher surface were two cairns. From their position, looking upriver,



FIG. 5 A - A mysterious stone beacon, nearly 10 feet high, situated just above the first rapids of the Arnaud River. Its position can have nothing to do with the navigation of ships. It could be a Norse signpost saying, "you will find us up the river."



FIG. 5 B - A second beacon, nearly two miles above the foot of the first rapids of the Arnaud River, and clearly visible from the first beacon. Although its construction is very different from the first, it is of the same height and probably contemporaneous.

one gets a good profile view of a big marine terrace running for miles, with a 45° slope down to the rocky bench along the shore.

From the first beacon one can easily see the second, something less than 2 miles upriver and again on the south side. In walking to it we crossed almost continuous remains of camp sites, tent rings, and caches. Beginning just 87 feet west of the first beacon there were, in succession : an old ring, 22' by 18', partly flagged, with two large sleeping platforms of large slabs, one a little higher than the other; a monolith standing 4 feet high; an old ring 21' by 12', with platform; 3 rings scattered downslope from the monolith; a ring 16' by 15'; a ring 20' by 16'; a ring 22' by 18'; a circular ring 15' in diameter; a ring 16' in diameter, made with larger stones; 2 rings 20' and 21' in diameter, the latter on bare rock; all of these formed a rather compact group and might be described as a site. But other rings continue at close intervals upriver for 60 or 70 rods.

Still other rings occurred farther west toward the second beacon. Some were obviously old, although no stone chips could be seen on the bedrock. Two large rings contained bits of glass, cut fragments of tinned cans, and nails — both wire and cut types. These might date at around A.D. 1900. One cache was of special interest. Constructed from only four slabs, its sides were made to slope in like a pyramid, thereby producing the cover at the same time.

The rings ceased only a few feet west of the second beacon, where there were two old rings, one 18 feet in diameter.

The second beacon was just 8 feet high, but a stone now lying 6 feet from it, 13" by 12" by 9" and weighing about 125 pounds, doubtless was pulled from the top and would have made the beacon 8'9" high. The upper surface of that stone was heavily encrusted with black lichens. A second block, lying 3 feet west, must have come from near the top.

Construction is very different from that of the first beacon. The base is a single boulder, almost a cube, 3' by 2'8" by 2'3" high, weighing about 3000 pounds. It is keyed up 3 inches at the west side, and 2"-thick moss encases some of the lower edges.

The second tier is also a single stone, about 3'8" by 1'8" by 11", and weighing around 900 pounds. Above this are two or more stones, tier by tier, tapering in toward the tip. The stones of the second, third and fourth tiers from the top are all carefully wedged in place.

All indications are that this beacon is contemporary with the other. If so, one may suppose that it did not carry the same significance for the builders, whatever meaning they may have had. Like the first, it too rests on bedrock a few feet above the river level and only a few yards from it. Both were designed to be seen from the river, not from a great distance.

As dusk was closing in, the tide was going out, and the rapids were becoming increasingly dangerous, we turned back, reaching safe waters shortly after ten o'clock. At one in the morning we encountered an Eskimo canoe — a father and his young boy taking fish from a net. We were presented with a fine Arctic char and continued on our way, reaching the post at 2.30 a.m., in a near-frozen state.

Downriver

Our explorations below the post were more limited and far less rewarding. There were fewer places suited to camping, but even these were not extensively used.

It is of some interest to note the features of the modern Eskimo cemetery. It is situated on a marine terrace of sand and gravel, high above the Eskimo settlement on the east side of the post. Some graves were unmarked, but others had crosses, mostly constructed from two thin lathes nailed together. A few graves were fenced in. A fresh mound of sand marked the grave of a baby who had died of respiratory complications in a canvas tent, during the worst of the storms while we were at Payne Bay. Only one grave of an older type was noted — a pile of cobblestones against one side of a boulder. At the south end of the cemetery we found a remarkably crude fox trap, 7' by 4' by 2'6" high. Beside it was an old cache pile.

At the first large point eastward, a hydrographic navigation site, we found a double tent ring, the inner circle about 8 feet in diameter, the outer of larger rocks, out about 4 feet. This is certainly not old. Three other rings, all single, were nearby.

Farther east, just beyond a conspicuous tumbled mass of boulders, is a cove. Here we came upon several tent rings on the steep slope, wherever a bit of level ground could be found between outcrops. Two rings, 25 feet up the slope, were 21 feet in diameter, each with a central dividing line of stones to mark the platform, and with a fireplace southwest of centre. These are not ancient. A ring of similar

size, 30 feet upslope, had no divider but is of the same age. Two small rings, 12 and 14 feet in diameter, were near the latter, and the remains of other rings were emerging from the snow eastward.

Just beyond the cove a small rocky point projects, and on it we found a minor occupation. Moss inside one ring indicates the passage of many years. Just below it was a curious rectangle 12' by 4' inside, constructed of single rows of cobblestones, hence, not a cache. A cache pile was nearby, against an outcrop. A ring 18' by 15' gave no indication of age, but contained a small pile of rocks near its north end. A crude ring 18' by 15' on the east side of the point similarly held a pile of rocks, but had a central mossed area, suggesting at least several years for its age. There was only a bare rock floor for much of the ring.

Farther eastward a large flat area opens up, perhaps a mile long. I did not explore it except with binoculars from a high point, but it seemed to hold little of interest. Two scattered rings occurred on a bench at the west end. Another, fairly old, lay about one third of the distance eastward. A very large double ring was seen at the halfway point at a large boulder, about 100 feet back from the bank, and another ring was about 100 yards eastward.

High above the flats, to the northwest, I came upon a single piece of worked quartzite. Nearby was an old fox trap, about 7' by 5' by 2' high, with a chamber 6 inches wide and 7 inches high. It was much like Deception Bay traps in having two projecting wings before the entrance. The gate was still in place.

The easternmost point reached was the outlet from Post Lake, where the water tumbles and roars down a steep, boulder-strewn channel. Again using binoculars from a high point, I made out several tent rings near the water. One old ring was perched on a ledge some 20 feet up, with a cache pile nearby. Two rings and a cache pile were situated on a small remnant of a terrace, above an iron-stained beach. Right at the stream, but on the west side of the point, three more rings could be seen. None seemed very ancient.

NORTHERN COASTAL SURVEY

Through the early part of our stay at Payne Bay, ice conditions on the coast made travel by canoe more hazardous than was justified. Our intentions of renting a Peterhead vessel were very suddenly changed when the Eskimos, in a meeting, decided to double the rate to one hundred dollars a day. Again, we delayed a few days in the hope of meeting Dr. Benoît Robitaille, who was expected daily but did not come until after our departure.

Eventually, we arranged with a young Eskimo lad, Willie Thomasie, to take us north in his home-made flat-bottom canoe. Unfortunately, with only half of our season's supplies and equipment, we were overloaded and ill-equipped therefore for a survey of this difficult shore. We expected to find a major site for excavation at Dry Bay, where we would unload part of the gear before going on.

For the most part we relied upon Zachariasi to take us to all points of special interest. Nevertheless, I constantly scanned the shore and hills throughout the trip, weather permitting, while monsieur Plumet kept our course and findings on his maps. Eventually, some minor readjustments of feature locations may be necessary, for it was often difficult to reconcile the maps with what we were seeing, especially in a cold wind with spray flying.

We got away with the tide at 11 a.m. on July 20. The first point of interest was what appeared to be a very large beacon, far off to the southeast on the horizon, at the mouth of the estuary. Through the courtesy of Mr. Mowat, who has passed on information supplied by Mr. Robert Williamson of Rankin Inlet, it can be stated that the beacon is on an island and that it is indeed very large and high. Neither Mr. Williamson nor Mr. Ford, who also knew of it, nor the Eskimos themselves could accept it as the work of Eskimos. It is surrounded by a circle of stones, the only such case that I have encountered. Curiously, although I looked for it on several subsequent trips, I had only this one chance sighting.

We went ashore at the last point of the estuary, before turning into Kayak Bay. There were several remains of tent rings and one stone cairn about 2 feet high, but nothing there seemed very old. We then made a rather purposeless run all around the shores of Kayak Bay. This, I found, was standard procedure for us, sometimes under the pretext that it was too dangerous to go straight across the mouth. In

the end I came to suspect that Zachariasi and Willie Thomasie were far more interested in hunting the seals along the shore than they were in getting on with the survey.

Savik Point

Presently we fetched up at a major point, probably Savik, where there were astonishing quantities of garnets eroding out of a rather soft schist. On a high hill nearly half-a-mile inland we could see two large constructions within a few feet of each other. One was apparently a circular beacon of large size. The other, on the northeast, was remarkable for a curious projection to the southwest, like a pipe with the bowl turned downward. A few minutes spent in climbing toward them convinced us that too much time was involved for our purpose, but the presence of a survey control point on the map makes the latter tower highly suspect. The first may be genuine.

Tuvalik Point

Our next stopping place was another major point, probably Tuvalik. Again we saw a large beacon on the hilltop. In climbing toward it we came upon a spacious, gently sloping area about a small lake, on the southwest face of the hill. Conspicuous were 2 small cairns, each about 5 feet high, crude and poorly laid up. They seemed not to be old. Near them were burial vaults (Fig. 6 A) that looked ancient, by the lichen encrustations. In a nearly complete tomb, which was about 2 feet high, some of the covering slabs were still in place. The interior was paved with very small stones, mostly moss-covered. Few bones showed through the moss at all. The skull was out of place in the northwest corner. It appeared to be Eskimoan, with flaring malar bones and a keeled vault, but Zachariasi said he did not know what people were buried there. A second tomb was looted and tumbled. Some tent rings nearby may be contemporaneous. The site probably extends onto the slopes on the west side of the lake, but in our need for haste we did not check.

Climbing to the high point of the hill, we found the remarkable beacon shown in figure 6 B. It is circular, 5 feet in diameter and 9 feet high, resting on bedrock. The base is a little wider, the result of 2-foot-high blocks being placed on end and slanted in, but the full diameter is otherwise held right to the top. A large block and a smaller stone beside it seem to have fallen or to have been pulled from the top.



FIG. 6 A - One of several tombs at Tuvalik Point. Zachariasi had no idea of their origin or cultural connections, but one cranial vault is keeled in the manner of Eskimos. They seem very old.



FIG. 6 B - A coastal beacon at Tuvalik Point, prominently situated on a hilltop as a navigational aid or mark. Nearly 10 feet high, it is one link in a continuous chain of beacons leading into the Arnaud Estuary. Zachariasi said they were not built by Eskimos.



FIG. 7 A - An open Eskimo burial on a beach near the Sugar Loaf. It blends so perfectly into the surroundings that we had pitched a tent beside it before noticing it. The head is to the westward.



FIG. 7 B - Baie Sèche (Dry Bay). Tidal range along the west coast of the Ungava Bay is enormous in places. Many experienced observers report between 57 and 62.5 feet. Our rough estimate at the Big Tide site, north of Baie de Rozière, where the fall-off seaward is quite rapid, was more than 60 feet.

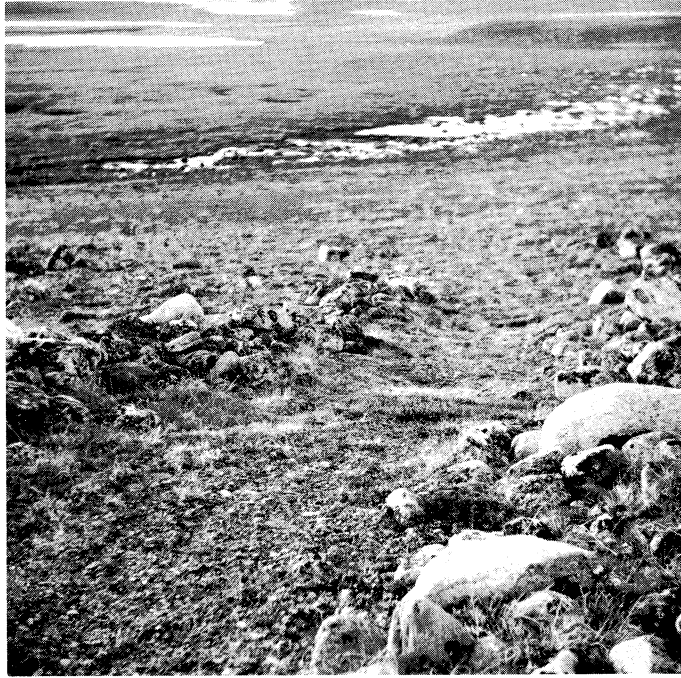


FIG. 8 A - A cleared path on the west slope of a ridge, about $2\frac{1}{2}$ miles inland from the Big Tide site. A line of small cairns leads to it from the coast. Zachariasi said that Eskimos had cleared it to permit sled travel across the wind-swept stony ridge.



FIG. 8 B - An unusual house ring at the Big Tide site. Stone blocks were selected for their rather uniform height, and set end to end, with a large block in the exact centre. Zachariasi immediately called it Tunnit, a name that he rarely applied to cultural remains.

Above the large in-sloping stones at the base are smaller flat stones, overlain by larger stones that project a few inches, increasing the diameter slightly and supporting the upper two-thirds of the structure. The whole is very solidly and carefully built. Stones were selected to even up the irregularities, in an attempt to maintain a level base for the next course. Lichens were heavy, actually joining some of the stones.

From this beacon one can clearly see those at Savik Point and three more in a group to the northeast.

Pamiok

After an attempt to pass behind a long point, which we now know was Pamiok Island, and finding it impassable, we went to the eastern end and landed in a little bay on the south side. On a grassy saddle (Fig. 9s) we found modern tent rings, an old kayak frame, and a triangular tent arrangement left by hunters. Nearby, on the tip of the island, were 3 cairns (Fig. 9t), the highest standing about 5 feet. These appeared to be recent, and we found a survey control marker between them.

Crossing to the west side of a canyon-like trough that crosses the island, we came upon ancient tent rings and cache piles (Fig. 9r), made of large stones. Beyond them, at the beginning of an outcrop, we found a modern Eskimo burial tomb (Fig. 9q), inconspicuous out of the very carelessness with which rocks had been piled around and over the body. Inside, one could make out the outline of the skeleton, completely covered by a mouldy green hide.

Just past the outcrop was a small grassy area, well sheltered from all winds by the surrounding outcrops of rock. There (Fig. 9p) we found two burial tombs. The one appeared to have been looted, but the other (Fig. 20 A) contained a skull that at once aroused our curiosity. As seen in figure 43, this skull is lacking in the conspicuous Eskimo features and is remarkably European in appearance, although identified as Eskimo. We collected it at once for study, although there were protests from Willie Thomasie.

Continuing, we crossed a second grassy area and came directly upon a large house foundation (Fig. 9 : l), about 45 feet long. One sidewall was largely formed by outcrops, but the other and the end walls,

being of turf and easily traceable, were outcurving — immediately suggesting a Norse origin. A short distance beyond it was a similar but much larger house foundation (Fig. 9 : 2), again with outcurving side and end walls. I paced it at 81 feet long and later found this was the correct measurement. The interior was remarkable for the wild jumble of very large stones. Despite the tumbling it was obvious that there were 3 cross walls or partitions (Fig. 13), dividing the structure into 4 rooms. Here was positive evidence of the presence of the Norse and our enthusiasm was spurred, for we had heard of a much larger structure far to the north. Open holes and piles of gravel at either end (Fig. 11 A) identified this as the Imaha site (Fig. 2), named by W. E. Taylor, Junior when he briefly examined it in 1957. We had been told by Mr. Ford that the site was not really on an island, however — later investigations showed that it is isolated from the mainland only at high tide — and we did not associate our position with Pamiok Island. At the moment it did not seem to matter, as we were bound elsewhere for the summer.

Close to this second house was a beehive-shaped structure (Fig. 14 A) that was vaguely reminiscent of the structures at Deception Bay (Lee, 1967a, pp. 15 and 17), but closer inspection showed that it was crudely built, comparatively, and lacked certain features of construction that are significant. The top was open, and the opening at the bottom permitted a clear view of the bone-littered interior. Zacharias at once identified this as a fox trap. The bones were from the bait. Interestingly, Mr. Norman Ford had shown me photographs of an almost identical fox trap situated at Stony Point in the vicinity of the Leaf River, and known to have been built by the father of Mark Ungnatuk of Fort Chimo for this purpose, about 70 years ago, and now encrusted with blackened lichens. In both cases the structures incorporated a large boulder on one side. No very great age is indicated for the Pamiok trap, in a casual inspection. It is about 5 feet high and 7 feet in diameter.

Also in the immediate vicinity of the second house were several burial vaults. Some were evidently recent, but others were very old. The same could be said for several house rings and tent rings in the same area.

Perhaps one-third-of-a-mile farther west, on a high point, were the three beacons we had seen from Tuvalik. From them the sea was visible on all sides, except for an area to the west. The western beacon is built on 5 blocks stood on end, 3 feet across at the base and

rising to a height of 4 feet. It seems very old, by lichens, but is not carefully done. The northeastern beacon, only 2 feet across the base and 3 feet high, looks recent and is carelessly built.

The third or northern beacon, however, is circular, 3 feet across the base and 5 feet high. Three stones had fallen, so it had been a little higher. Lichens covered its surface to a remarkable extent, and thick, dead and black accumulations of these plants completely cemented the rocks together, and even concealed some wide joints. These were the heaviest encrustations noted anywhere on the coast. It is evident, I think, that originally there was only one beacon in this place.

As we left Pamiok, threading our way through scattered fields of ice, we noted the bright mirage of Akpatoc to the east, its 900-foot cliffs, normally not visible even from a hilltop with binoculars, now standing high above the horizon, its colors those of the Arizona sandstones, its fluted columns rising to a patch of snow at the top (or more properly, the bottom, for it must have been inverted).

Kuglukvik Point (the location is not a certainty, but highly probable)

Two beacons, both tumbled but partly rebuilt, attracted our attention to this place. The stubs are 5 feet in diameter, very carefully and solidly built, and exactly like the Tuvalik beacon, with sloping blocks of stone on end at the bottom. Judging by the quantity of stones, the beacons had been about 9 feet high. The rebuilt portions, in sharp contrast to the stubs, were crude, and only about 5 feet high.

To the west and about 2 miles inland, a wide and tall beacon could be seen on a high hill. A tall slab seemed to stand straight beside it, on the southwest side. This checks closely with information received from Mr. Ford. We made no attempt to reach them.

Below the beacons on the point we found many tent rings, caches, and a burial vault. The latter contained a very old skeleton, as indicated by the lichens. The remains of a small rectangular house were also seen. Many of its stones were tumbled over the floor. We did not connect it with Norse activities, though it should be examined.

Sugar Loaf Area

The next beacons in the chain northward are on the east slope of the Sugar Loaf (Fig. 2) or an extension of it. They were not conspicuous, however, until we were nearly abreast of it. We did not investigate. Similarly, we passed by 3 beacons on a headland just across a small bay to the north. We were encountering much ice at this point.

About 3/4-of-a-mile north of the Sugar Loaf we entered a shallow bay and went ashore on a small beach where a stream emerged. Behind the beach is a broad apron of grass and moss, rising gradually to an old beach about 40 rods inland. There, dug into its crest, were 10 Thule house pits, their passageways facing east to Ungava Bay. Behind them are a pair of lakes.

Much looting of these houses has gone on in recent years. Many holes were open, and bones were scattered all about. Both Zachariasi and Willie Thomasie attributed the digging to Eskimos. Excavation would be rewarding.

We rounded a point, a little over a mile north of the Sugar Loaf, and camped on a gravel beach known to Zachariasi. Several tent rings occurred there, both oval and square, some with platforms. More interesting, however, was an open burial on the beach (Fig. 7 A), so inconspicuous with its lichen covered rocks that we did not notice it at first. The skeleton lay within a rectangle of stones — rough, elongated chunks but carefully placed end to end, 5 stones on each side and one or two at each end. The highest was about 10 inches. A few small stones formed a second course in places.

The burial was not recent, for the skeleton was barely traceable under low grass and moss. Heavy lichen growths occurred on exposed bones. There had been only minor disturbance, despite the exposed position, but a reversed humerus lay at the right side beside the femur. The skull showed strong Eskimoan features, with outflaring malars and a strong keel. We left it undisturbed.

As we left camp next day, we stopped at a small island, half-a-mile off-shore, to examine a cairn there. It was 30" in diameter but only 3 feet high. It was carefully laid up, but there were no indications of age on this wave swept island. Zachariasi said that "it was put up long ago by white men with harpoons". This might suggest whalers, although this seems not to have been a whaling coast. However, it

could not be very old, if estimates of an uplift of one foot per century have any validity, for storm waves would surely pound it if it were much lower. This was the only cairn or beacon to which Zachariasi attached any particular origin, other than "not Eskimo".

A few cache piles on the island held little interest and seemed recent. One feature did catch our attention, however. A nesting Eider duck flew out of a little artificial stone shelter, and we saw her eggs. This was not carefully built and almost certainly is one of the shelters that the Eskimos were encouraged to build years ago by Mr. Robert Williamson, in an effort to duplicate the old Norse practice along this coast. Some of the ancient structures had been seen by him, but we did not come upon any. We saw other shelters, all of them crude, some with no covers.

About three miles north of the Sugar Loaf a stone-littered terrace was seen to hold cultural features, with binoculars. Opposite it was a small cairn on an island. It looked like 2 boulders, with 2 smaller stones on top. Rounding a point, we turned into a large bay to land. There we found an extensive site containing many tent rings and caches. There were 3 fox traps but no burials, even though we checked back on the features first observed facing Ungava Bay.

Zachariasi expected to find a large rectangular house in this place, but much searching failed to produce it. He went far inland, reporting that he had found a "very big" circular Tunnit house. We were after rectangular houses, of course, and did not go to it. From a hilltop we looked back over our route and could see 3 beacons, evidently in the vicinity of the Sugar Loaf.

Running northwest along the coast, we saw a cairn, not elaborate, on a small island of the Plovers. We did not go to it. As we approached the mouth of the river spilling from Roberts Lake, we were forced by low tide to turn out 3 miles to round a long point, one that became a group of islands at high tide. Mirage effects were startling at this time. Akpatoc again loomed high on the horizon. Islands hung inverted in the sky far to the north and a giant waterfall, probably ice, seemed to be tumbling down great bluffs.

Big Tide Site

We asked to be taken to Dry Bay, but for unexplained reasons Zachariasi took us past both it and Baie de Rozière to a little bay just beyond the latter, where we pitched camp. The tide was nearly out

and at this point the foreshore was short. We had our first view of the most spectacular tidal drop that we encountered anywhere. We could only make rough estimates, but then and on subsequent occasions we thought it was over 60 feet. Zachariasi clearly was familiar with the place, yet seemed much puzzled and climbed a very high hill to get his bearings. There is no doubt that he had meant to take us to Dry Bay. It was then that we began to pay more attention to our maps, which he had intended to leave at Dry Bay while making a survey up to the Eider Islands. In consequence, too, gasoline supplies were dangerously low. They had been estimated on the assumption that we would make straight runs to objectives, not following shorelines into bays in search of seals. Our further plans were governed by these circumstances.

Climbing the slippery rock, we came upon cultural remains just above high tide — cache piles, a burial vault with a very old, mossy skull, a square one-course stone tent ring 9 by 9 feet, and a curious house ring (Fig. 8 B) in which stone blocks of almost uniform height had been set end to end in a perfect circle, 16 feet in diameter, its centre marked by a larger block on end. This was promptly labeled a "Tunnit" ring by Zachariasi. There were two unusual burial vaults. Both were empty. They had been very carefully built. One, 30 inches wide by 5 feet long, had a single slab cover that exactly fitted it. The other, 3 feet wide and about 5 feet long, had been looted by removing a single large slab at the end. It was precisely rectangular, 2 feet high, with 3 courses of stones. The site no doubt extended farther up the ridge, but we left, temporarily, as we thought, and did not get back to it again, as our camp was on the other or northern side of the bay.

Zachariasi took us inland to see a feature of which he knew, approximately $2\frac{1}{2}$ miles from shore. Almost at once we passed a water hole, dried up, in which lay a few bones and the skull of a modern Eskimo, small and delicate, which we left out of deference to our guides. As we progressed, we noticed occasional cairns, often only a single stone set on end on an outcrop, and these finally led to a sharply rising ridge of gravel, cobbles and boulders. Topping this, we came upon the feature illustrated in figure 8 A. It was a cleared pathway down the gentle westward slope of the ridge, perhaps 8 feet wide and 60 feet long. As explained by Zachariasi the slope of the ridge was often blown nearly free of snow, and Eskimos had made the path to permit sleds to pass. The boulders, of course, were rolled to either side, forming ridges. Presumably the route led to a favored hunting or kill spot, although it may also have been the easy way to reach Ruisseau Garnier, by passing several miles of very difficult coast.

Carefully calculating our gasoline for the return trip, but failing to allow for the pursuit of seals, we saw that we could just reach a bay 13 miles to the north, one that looked important as a probable crossing route to Diana Bay on Hudson Strait. We took only such supplies as were needed for the run. About a mile from camp we saw a Peterhead engaged in obtaining soapstone supplies from a quarry there. In a bay $3/4$ of a mile south of Ruisseau Garnier we saw a beacon near a small stream. It was 3 feet in diameter, circular, and 6 feet high. It was very well built and closely resembled the workmanship noted in the larger beacons to the southward. Tombs and cache piles were nearby.

Bear Skull Site

Zachariasi took us finally into a small southward-facing bay and pointed inland, but did not seem to know the place. Monsieur Plumet took the west side of the stream and I the east. About a mile inland, high on a slope, I came upon a conspicuous cairn built of brownish stones, about 30 inches across the base and 3 feet high. It lacked the care in building seen in the beacons. I started for another cairn half-a-mile farther north, when I was called across the valley to see some house rings, evidently old, on top of a hill. Others were visible on a ridge toward the shore. There were some old tumbled piles of stone and a modern burial with a wooden cross.

On a saddle nearby we found a house ring 12 by 14 feet, laid up in 2 and 3 courses, much like some on the Paquet site at Deception Bay (Lee, 1967a : 28). Another of the same dimensions occurred on a westward slope above a large lake, 2 courses high. Stones were up to 2 feet in diameter. The ring was mossed over on the inside exactly as on the outside and must be ancient.

At the shore of the lake were other rings, one 10 by 14 feet, with stones up to 3 feet in diameter. It had a storage bin at the south end. There were many old rings of large stones. A tent ring of small stones, 24 by 13 feet, had a central inward point on one side, much like the Naskapi earth rings of Fort Chimo (Lee 1966a : 37). As this people very likely never got so far north (Zachariasi knew of no record for them north of the Leaf River), the arrangement was probably accidental.

A little to the south, along the southeast side of a small lake, quite close to an arm of Ungava Bay, really, although we had come by a long circuitous route, we found a surprising village site. There were several stone house foundations, with some stones so much as 30" by 24" by 12". One wall was 3 feet high.

The foundations were square, rectangular, and oval, and of various sizes. One, not carefully laid up, was only 10 by 6 feet. Another was 21 by 9 feet, with stones up to 30" by 14" set end to end, and walls 30 inches high in a single course. The walls were straight and the corners generally square. Dividing lines of stones across this structure occurred at 30 inches from the north wall and 5 feet from the south.

No pits or semi-subterranean features were seen. Circular houses on top of a ridge had a slight amount of flagging. The site was called Bear Skull (Fig. 2), with the finding of a skull in a recent Eskimo camp nearby. Excavation could yield important results.

Baie de Rozière

Returning to camp, over the protests of the Eskimos who wanted to go on to a settlement of their people somewhere up the coast, we reloaded and started for Dry Bay. A strong wind from the west forced us to hug the shores of Baie de Rozière, however, with two of us walking. In this way I came upon a small site of some interest, on a little point on the north shore, about a mile into the bay.

On the east side of the point were some old rings, the small stones nearly buried and lichen-covered. One was 13 by 12 feet, with straight sides. Some larger rocks in the centre appeared disturbed. Two ancient cache piles were situated below this ring, at the foot of a steep slope.

A second ring, 21 feet south of the first, was 16 by 13 feet, with excurvate sides and an exit facing eastward onto the bay. There was disturbance at the south end. At least half of the ring was flagged. The small wall stones were in one course.

Twelve feet from it, on the south, was a nearly buried ring 13 by 13 feet. Its sides were straight, and there was a nearly buried central mound of larger stones, evidently the fireplace. Nine feet south of this ring was another, so nearly buried that the walls could be traced only by stamping one's feet. Similarly a rounded ring 15 feet beyond it could not be fully traced.

On an outcrop to the south were larger stones, up to 18 inches in diameter, arranged in an 8 by 8 feet square. A rounded and ancient ring was situated to the north of the square.

Near the high point to the west was a semicircle of large rocks, up to 8 by 3 by 2 feet, 10 feet across the cord and 6 feet wide, 3 courses high in places, and arranged against a rock face 4 feet high. A doorway faced east. The feature had been disturbed recently for a wind shelter.

One other feature on the site is of interest. At the base of the point, near its west side, a shallow cave occurs, high enough for a man to stand in. This had been walled up somewhat to produce an excellent shelter. No artifacts or debris were noticed in it.

Continuing to a small inlet at the northwest corner of Baie de Rozière, we saw many cache piles and pits along its east side. They were remarkable for the box-like forms and the use of large slabs of stone, some up to 6 by 4 feet and 8 inches thick.

On the west side, circular rings 14 feet in diameter occurred. These were house rings with walls laid up in from one to three courses. They looked fairly old, but recent bones and metal were found within them under the lichens. Two carelessly built cylindrical cairns stood beside the rings, 30 inches wide at the base and 3 feet high.

Without incident other than seal hunting we proceeded to Dry Bay, where the Eskimos showed a remarkable reluctance to turn in. We actually went past the bay, but they turned back on a direct order. A large rectangular foundation had been reported there and I had to look for it. But the Eskimos were right — there was practically nothing there. I climbed to the highest point south of the stream and scanned the entire area with binoculars. Making a broad sweep back to the boat and finding nothing except a line of Eskimo markers, I made a longer circuit northward, paying particular attention to the bare gravel surfaces of a prominent marine terrace, but there was nothing at all in the nature of cultural traces. I followed a ridge westward to 3 lakes on which I had meant to land, if we had come by air, and again found nothing, in an otherwise fine camping area. Returning to the boat I examined two recent tent rings, the only points of interest. The Eskimos said that Dry Bay is "no good for hunting" and the answer may lie in part in the enormous sweep of boulder-studded mud lying before it at low tide (Fig. 7 B). Experience and perhaps folklore had taught them that this was a poor place to go.

Zachariasi site

With the argument that departure would save an extra unloading and loading of the boat, as well as the pitching of the tent, I persuaded Zachariasi to go on to the Roberts Lake outlet. The tide floated our boat at 1 a. m. By the faint light of stars we groped our way between islands and among winding channels, guided by the remarkable memory of Zachariasi. At last we went ashore on the south bank of the small river, and felt among the rocks with our fingers for a place to pitch the tent.

There was little of interest at the river itself. Zachariasi and I headed south across a series of ridges. At the top of the first was a fox trap about 8 by 6 feet and 30 inches high. The chamber was 6 inches wide and high. Nearby, at an outcrop, we saw a very old looking tent ring of peculiar form, roughly triangular, with outcurving sides and end, 15 feet long and 10 feet wide. At the pointed end a few stones seemed to indicate the fireplace, although it does not seem very practical. The tent must have been high at the front end, with a ridgepole slanting back to the apex. Something much like it is illustrated by Hammer (1921, Plate XIX, Figs. 36 and 37), for Greenland.

Following a valley close to the coast, we came upon a Peter-head pulled up above high tide, along with an abandoned camp. It was littered with cans and drums, while a roofless shack of packing crates, containing an iron bed and some makeshift couches, seemed to indicate passage of a year or more since occupancy. Zachariasi was clearly surprised at these evidences, and gave the boat and other items a very thorough inspection.

Climbing the fourth ridge southward, the last before the coast swung westward into a large bay, we encountered what is now called the Zachariasi site. It lies on a rocky east-west ridge, barren except for lichen cover in some places, with small patches of soil. Of significance for us, one rectangular structure seemed to be 27 by 15 feet. The east end and central part were distinct, but the small stones of the western section gradually faded out among scattered rocks, leaving uncertainty. The stones were deeply sunken and the structure is ancient. A cross wall, or perhaps just a divider, was seen 5 feet from the east end.

Nearby we saw 5 square house foundations, each 15 by 15 feet, outlined by small stones. They were deep-set and evidently very old. One had been dug out a few inches deep, the only such instance.

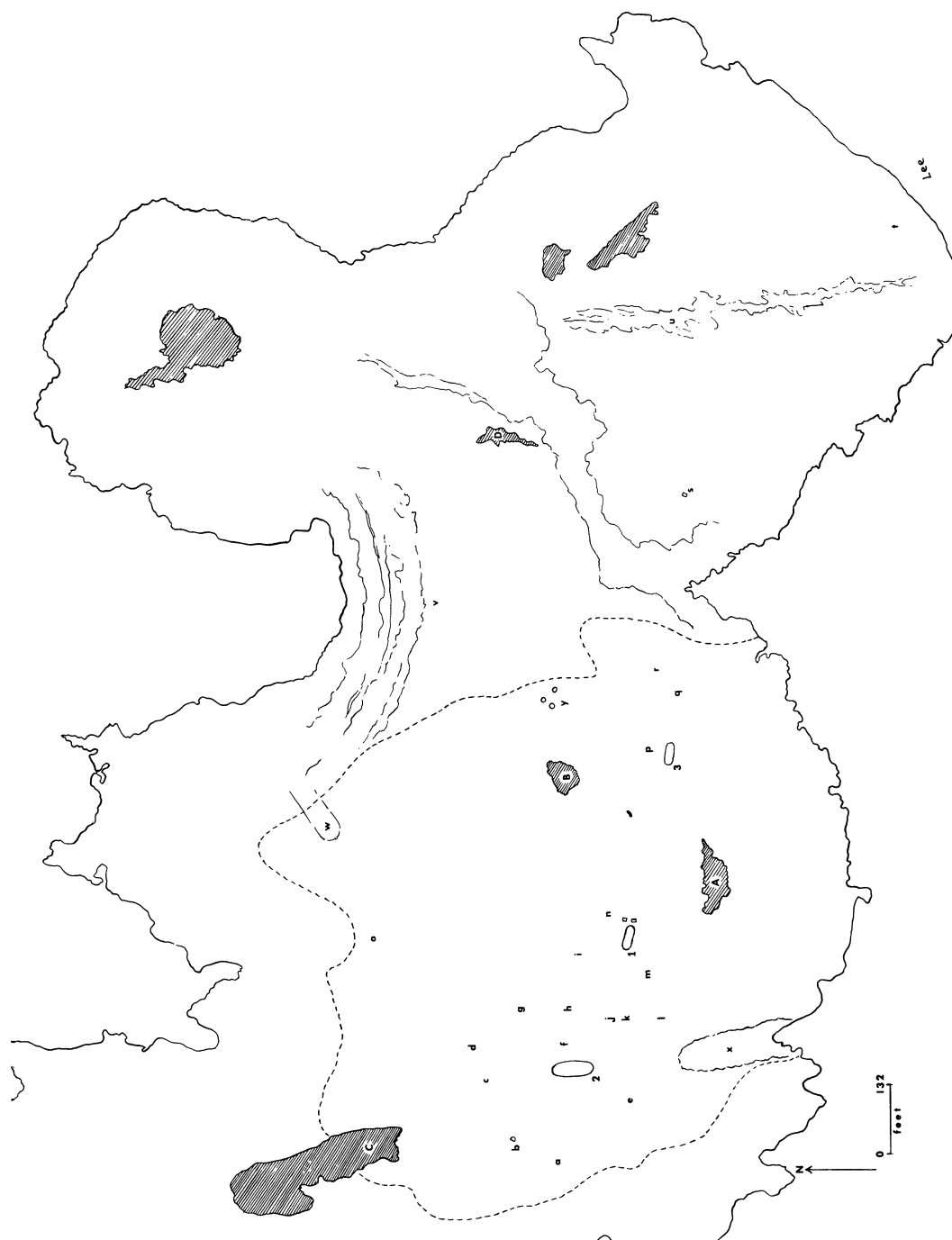


FIG. 9 - Map of the east end of Pamiok Island. The Imaha site is enclosed by dashed lines. A, B, C and D are water holes of importance. Nos 1, 2 and 3 are Longhouses 1, 2 and 3 respectively. a, the wooden scoop; b, a small Dorset house; c, disturbed tomb and house ring; d, beehive fox trap; e, Tomb 2; f, historic tomb; g, house ring 2; h, Thule tomb; i, looted tomb; j, Tomb 5; k, house ring 1; l, tomb of Aloupas Eetiatok; m, Tomb 3; n, looted tomb; o, looted tomb and windbreak; p, Tomb 4; q, modern Eskimo burial; r, old house rings; s, our first camp; t, 3 Survey cairns; u, trough containing tent rings; v, sand beach; w, unexplained feature on aerial photo; x, possible shiphauling beach; y, 3 "Tunnit" tent rings. Map drawn from aerial photo, courtesy of Québec Photo Bibliothèque, Ministère des Terres et Forêts. Scale 132 feet per inch.



FIG. 10 A - Pamiok. About the head of a small bay on the north shore are old sand beaches, and on them are dense stands of Strand Wheat. The full heads might have interested the Norse people.



Fig. 10 B - Pamiok. Zachariasi proudly preparing to skin a seal he had just shot. So inaccurate was his rusty old rifle that his final gesture, when leaving the island, was to hurl it overboard.



FIG. 11 A - Pamiok. At either end of a very large foundation, Longhouse No. 2, we found abandoned trenches from an earlier time. These had been left open, apparently encouraging considerable indiscriminate digging in the ruins. Shovel provides scale.

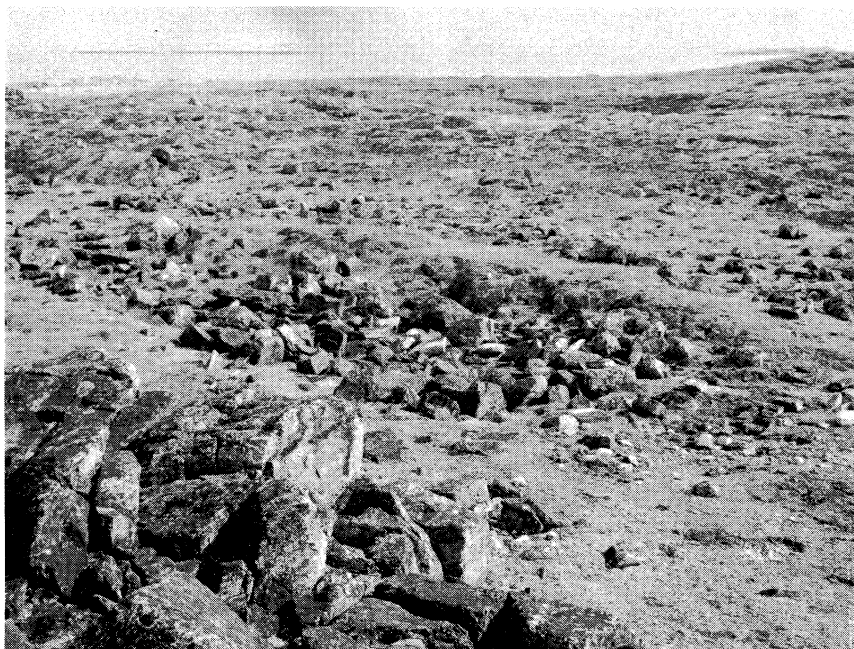


FIG. 11 B - Pamiok, Longhouse No. 2, looking northeast. This astonishing feature is more than 80 feet long by about 30 feet wide. Three stone partitions divided it into four rooms — apparently a living room, a kitchen, and two sleeping areas. The sidewalls are outcurving in typical Norse fashion, and the ends are rounded.



FIG. 12 A - Pamiok, Longhouse No. 2, looking north across the jumble of rocks in the interior. This wildly tumbled condition of walls and partitions has been encountered on every one of the Ungava house foundations thus far attributed to the Norse. It remains unexplained.



FIG. 12 B - Pamiok, Longhouse No. 2. One of five food storage pits forming a row alongside what was probably the kitchen. They contain only a few scraps of bones.

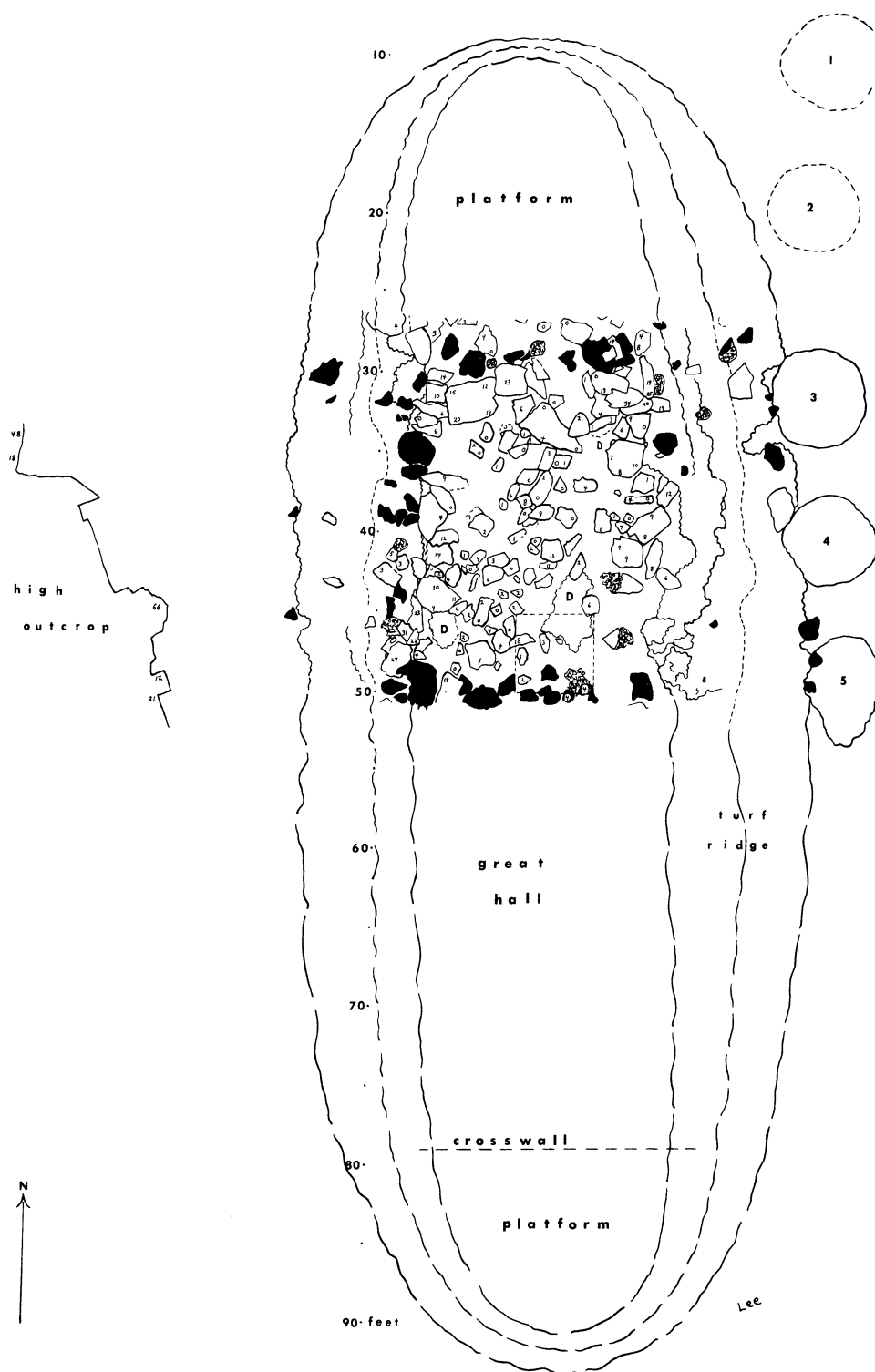


FIG. 13 - Pamiok, Longhouse No. 2 in plan. This typically Norse house ruin is the largest so far examined, although larger foundations are reported. The end sections are obviously sleeping platforms. The area marked "great hall" was probably the living quarters. The remaining section, the only one fully mapped, was probably the cooking area, as suggested by the five food-storage pits adjacent to it. Black stones indicate those probably in their original positions. Wall slumping has concealed foundation stones on the east side.



FIG. 14 A - Pamiok. Monsieur Plumet examines a "beehive" fox trap. The floor is thickly littered with animal bones --- from the bait, according to Zachariasi. The top is open, and the basal opening was easily closed. Although well built for the purpose, construction is far inferior to that of the "beehive" dwellings at Deception Bay.



FIG. 14 B - Pamiok. A small house ring, No. 1, that had been dug and disturbed some years earlier. Proper excavation produced quantities of coarse chips of stone, but few artifacts. The ring was partly restored after excavation.

Two more of the odd triangular tent rings were on the same site, their stones sunken so deeply as to be almost invisible.

Turning back, we saw a curious semi-circular wall of stones, huddled against the south side of the third ridge. It was about 10 feet across the open end, facing southward, and about 15 feet long. Large rocks, up to 3 by 2 feet by 8 inches thick, stood on edge to form the wall, with smaller stones at some points in 3 or 4 courses. A sleeping platform extended across the rear portion. The structure was not ancient.

Returning to camp in pouring rain, we packed up ready to return to Imaha, the only place we had seen that would justify a full summer of digging for Norse evidence. Then began one of those ordeals that sometimes afflict the traveller. By the time Willie Thomasie returned from a hunting excursion, the tide was running out. We thus had a long plunge through rapids, wading at times and trying to keep up with the fast-receding tide through miles of boulder-strewn mud flats. Even when deeper water was reached, progress was painfully slow because of the thousands of submerged boulders. Soaked to the skin, we passed the hours in a biting wind from the northwest. Fog began to close in and we lost sight of land. Our tanks ran dry but we switched to a drum of Naphtha and kept going. Eventually, by means that I cannot fathom, Zachariasi brought us directly to a familiar headland, in fog so dense that it loomed up only 3 or 4 boatlengths ahead. Rounding a point we landed. By 11 p.m. we had a tent up (Fig. 19s) and our supplies safe. Then followed two nights and days of violent wind and icy rain, during which Zachariasi and I remained wet in wet bedding. Willie Thomasie and monsieur Plumet had set out for Payne Bay, but became storm-bound on a small island, where they huddled under rocks.

PAMIOK ISLAND

Although we did not then know it, we were on Pamiok Island. In our earlier visit we were under the impression that the Imaha site was on the mainland, as we had been thus informed, and this impression continued as we investigated our situation. The maps, made from aerial surveys, were surprisingly inadequate for identifying our position. To further confuse the issue, Zachariasi vehemently insisted that we were on Nugu Aktchuk, a name not appearing on the maps, and that Pamiok Island was to the north, to which he kept pointing. In this circumstance it is evident that a geographical error has been made in assigning the name Pamiok to Nugu Aktchuk, as we ascertained from other Eskimos.

Pamiok, as shown on a 1961 Mines and Technical Surveys map, is made up of two islands, together being $2 \frac{1}{3}$ miles long by $\frac{2}{5}$ mile wide, maximum. Actually, the separation is a narrow neck that I was able to cross at high tide by jumping from boulder to boulder. Again, the inner separation is not so real as is indicated, for I saw that at low tide one could walk to the mainland. The shores are much indented and the topography complex. Mostly it is bare rock, but there are grassy meadows in places, with some lichen cover on the rocks. Elevations are not great. By hand level, working from a considerable distance, I obtained a figure of 52 feet for the extreme east end. To the west are 4 higher knobs.

Culturally, the entire island has to be considered, although in varying degrees. Beginning at the east end, there is a deep, flat-bottomed trough (Fig. 9u), running north and south, in which are several tent rings of various ages. This is one of the most sheltered spots available, and there are water holes (shaded areas) nearby. Westward from this is a much exposed camping area (Fig. 9s), where only recent rings can be evaluated because all stones available have been used again by each successive camper, as we did ourselves.

The island is then almost divided by a deep and wide trough, flat-bottomed, and bearing northeast-southwest. In it were numerous remains of tent rings, with caches of seal or whale oil. Nothing there suggested much age.

Immediately westward are a grassy meadow and the features of what I have included in the Imaha site, as they formed a unit somewhat distinct from other remains on either side. These will be considered at a later time. Taylor, however (Laughlin and Taylor, 1960) placed the site "some 500 yards to the northwest".

The meadow seems to be made up of old beaches, although few are distinct, and these are still forming as uplift continues. Remarkably, this grass-and-moss-covered sand shows little trace of habitation. Possibly this is because the foreshore in the bay, at low tide, is a limiting factor for the use of boats, while the steep and rocky shores elsewhere permit landing at any time. Dense stands of Strand Wheat grow just above high tide (Fig. 10 A).

The next ridge west of the Imaha site has an ancient and well worn pathway coming from the latter. Along it are old tent rings. The single fox trap occurring there is about 5 by 5 feet and 18 inches high. Its chamber is 6 inches wide and 5 inches high.

Several features occur in the vicinity of the three prominent beacons already discussed. About 300 feet to the northeast and 20 feet northwest of a large boulder was a tomb, quite carefully built and evidently old. It was set on a ledge, its west side formed by bedrock and the east by 3 large stones. It contained a skeleton, heavily covered with moss and scarcely discernible. The skull was at the south end, facing east, and only this was collected. It appears to be Eskimoan (Fig. 47), with flaring malars and marked keel. The lower mandible was not visible through the heavy layers of moss. No other tombs were seen in the vicinity, but a row of cache piles extended either way from the tomb, along the ledge. Somewhere in the vicinity monsieur Plumet found the fragments of a soapstone cooking pot, seen partly restored in figure 38 B.

Eastward of the cairns, along the north shore, were many tent rings, with associated cache piles. All of these appeared to be recent. The same type of features extended along a slope to the beach north of the cairns. One tent ring was circular, about 9 feet in diameter, with a sleeping platform away from the water side. A recent cache pile was about 75 feet east of it. Upslope was a circular ring 16 feet in

diameter, with no sign of a platform. East of it, again, was a ring 24 feet north-south by 21 feet east-west. The north end narrowed somewhat, and it was there that the fireplace circle, about 5 by 6 feet, was situated on the long axis. At the south side was a stone-bordered platform, 6 feet wide.

West of the cairns, on the south side of a ridge, was a small ring of very heavy stones. A similar ring occurred on a meadow to the west, along with some much more recent rings. Just across the meadow was a fox-trap, about 6 by 4 feet, with a chamber 5 inches wide and 6 inches high. Another trap was on a slope up to a high ridge on the west, with dimensions of 10 by 8 feet and 30 inches high. It was very crude, with a chamber measuring 12 by 12 inches in cross section. At the west end of this ridge was a third trap, partly pirated. The chamber remained, however, and was 5 inches wide, 6 inches high, and 4 feet long. These traps give the impression of being only crude imitations of those at Deception Bay.

West of a meadow and beyond a high knob were old tent rings, one being 22 by 18 feet with some flagging and a sleeping platform. There was one other of the same type, and others more recent.

Beyond another high knob was a looted tomb and a tent ring. Cultural remains then thinned out westward almost to the end of the island. There, on the south side of a sheer cliff, where Arctic terns were nesting, was a large site of apparently great age. Mosquitoes were almost comparable to the hordes at Payne Lake and, without a headnet, observations were necessarily hasty. There were numerous tent rings and cache piles. One ring was square, about 11 by 11 feet. Another ring was circular, made of the end-to-end block arrangement that had brought the designation "Tunnit" from Zachariasi, in an earlier situation. It was about 18 feet across, but had been disturbed by a cache pile built inside, itself very old. There were oval rings and others so deeply buried that the shapes could not be determined in a quick inspection. Rocks everywhere were heavily covered with lichens, and everything looked ancient. Because of the impressive behavior of the terns, this was called the Sea Swallow site (Fig. 2), a name by which they are known in some areas.

One other area remains to be briefly discussed. A half-mile west of the Imaha site is a rock bluff. Around its base are tumbled stone blocks of very large size. Among these we found four cleverly arranged shelters. To enter these one had to crawl through narrow cracks or very low short tunnels. Once inside there was room for two

or three persons to lie down comfortably in each. Floors were flagged with very small slabs or with small gravelstones. No cultural remains were found anywhere. They could be either recent or very ancient.

Projecting southward from this is a long rocky point. It is shown on the Survey map (Mines & Technical Surveys, 1961) as a pair of islands, the southern rising to more than 50 feet, but the separation occurs only at the peak of the tide. On the north side of the outer knob is a grassy meadow, and at the eastern edge of this is a group of remarkable tombs, all of them looted and empty. Single slabs were used for the sides, where possible, and one of these measured 6 by 2 feet and from 4 to 10 inches thick. The weight might run well over 1000 pounds.

One such stone box is 30 inches wide at one end, 22 inches at the other, and 5 feet long. Another, 24 inches wide and 5 feet long, had the rusted rim of a can tucked under one of its stones. It cannot be contemporaneous with the tomb, of course.

Most of the 7 tombs had their covering slabs removed. Zachariasi says they are Tunnit. One may recall the heavy stone construction of tombs at the Big Tide site, where there was one ring that he called Tunnit.

One feature here might have been a very large cache or a small house ring. It was 5'5" in diameter, inside, but its walls were considerably tumbled.

On the meadow, at the east side, was a circular mound of possible interest, about 15 feet across and 2 feet high. A burrowing animal had pulled out a large bone from it.

Tent rings were also scattered over this area. An oval ring, 30 by 21 feet, was partly flagged. It was not old, but some older straight rows of stone were in association and suggest that some rectangular structure had been pirated. A ring 18 by 20 feet was near some cache piles in and beside the rock outcrops to the north side of the meadow, where there also was a possible looted tomb.

One ring was 21 by 21 feet, almost straight-sided and square. Beside it was another of similar size and shape, but with 3 or 4 sleeping platforms in it.

Two circular rings, about 16 feet in diameter, had a single platform in each. Another, 19 by 16 feet, had 2 platforms. A smaller ring, only 10 feet across, was situated on a slope just below the latter, with an associated cache pile in the rocks.

Two rock shelters were noted, with all openings save the entrance chinked up. One was under a stone block 18 feet square and 4 feet thick.

The top of the rock knob was barren, but its west face held two rock shelters, each circular and about 6 feet in diameter.

On a beach terrace adjacent to the large grassy meadow were more tent rings, two circular, 16 and 12 feet in diameter, and a third oval, 30 by 24 feet. A large ring lay to the east.

One curious arrangement of thin stone slabs, set up against a low, facing wall of rock, caught our attention. It has two end slabs on edge and a covering slab, much like the Eider duck shelters but far less sturdy. Zachariasi studied it and declared it was a child's toy fireplace.

IMAHA SITE

The site, as defined here, encompasses an area containing numerous cultural features somewhat related in terms of considerable age and within particular categories, as distinct from the more recent tent rings and cache piles found both east and west from it. Some recent features are included, of course. In figure 9 it is the irregular area contained within the dashed line.

Three water holes are included in this area, and served as a source of water for cooking purposes. The water level of the southern, marked "A", began to lower suddenly in early August and it was dry within a few days. Presumably the melting back of permafrost exposed cracks in the rock and permitted rapid drainage. Water hole B also shrank uncomfortably in mid-August, but with one happy result. Some worked bones attracted attention, and wading produced several interesting items. The muck on the bottom seemed to be made up of small flakes, possibly decaying algae, rather than mud, although it made the water hopelessly cloudy in the same way. Boots sank into it approximately 18 inches, and there can be little doubt that excavation would be rewarding.

Water hole C, on the other hand, held its level very well, and differed from the others in having a sandy bottom in most places. Wading through it produced only the skull and part of the skeleton of a dog, near the south end. These were collected for future study and comparisons.

One of the most intriguing features on the site may turn out to be not cultural at all. To begin, on the assumption that Norse features were represented on the site, Mr. Farley Mowat had surmised that the natural feature, marked as "x" on figure 9, might have been used for the pulling out of ships. Upon seeing it he was even more enthusiastic. Every detail fitted what would be expected, but there was not a scrap of proof. One can only say that "it might have been".

Then, in having a small section of an aerial photograph enlarged 20 times, a hitherto unnoticed feature (Fig. 9w) suddenly became conspicuous. It has parallel sides, whatever they may be, joined by a curving line at the landward end. It is near the latter, inside, that a curious "star-shaped" object can be seen. The whole feature is about 42 feet wide by 140 feet long. To add to the impression that it might be the remains of a ship shed, it lies directly across an old shoreline that reasonably might have marked high tide some 600 years ago. Further, the beach and bay are sandy and almost boulder-free, the only such occurrence on the island. Yet the rough-looking interior of the feature cautions that it may turn out to be a completely natural, though as yet unexplained, development.

Tombs

There are many burial vaults on the Imaha site, ranging from very recent Eskimo graves to far older tombs that we would like to see dated, if it were possible. It is very likely that we have not found all of them. Some were investigated more thoroughly than others, but all are worthy of comment.

A Recent Burial (Fig. 9 l) is illustrated in figure 19 B. This we did not disturb. A carved wooden slat, marked with Eskimo syllabics, proclaimed that Aloupas Eetiatok was buried here on June 11th, 1937, aged 89 years. Willie Thomasie added that Aloupas was from Koartak, information possibly obtained from Zachariasi. This tomb, although obviously effective, was laid up with a certain lack of skill, quite unlike many of the ancient tombs.



FIG. 15 A - Pamiok. A tomb that had been dug some years earlier, looking east. Re-excavation produced a tooth, a finger bone, numerous bone fragments, and some chips. The tomb had been constructed inside a flagged house ring (note small flagstones extending under the wall). It was formed merely by moving the long slab in the foreground across the floor, with a few wall stones added to cover it. Dorset material underlay the flags.



FIG. 15 B - Pamiok. A house ring dug some years ago, looking northward. It is situated only 12 feet from the above tomb and is, presumably, Dorset. No trace of flagstones was observed, except for two slabs.

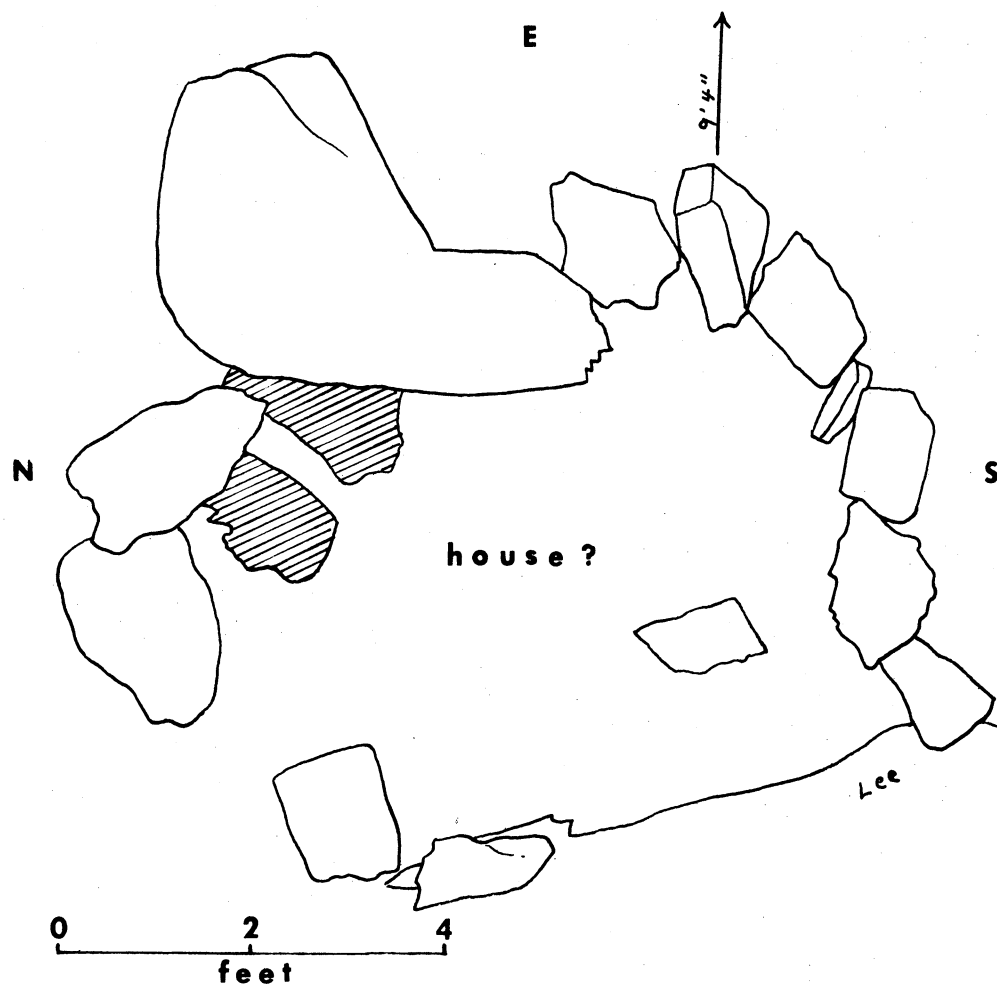


FIG. 16 - Pamiok. A house ring that had been dug some years earlier, situated only 12 feet from a disturbed tomb. Only a few chips remained scattered over the disturbed surface. It is said to be Dorset.

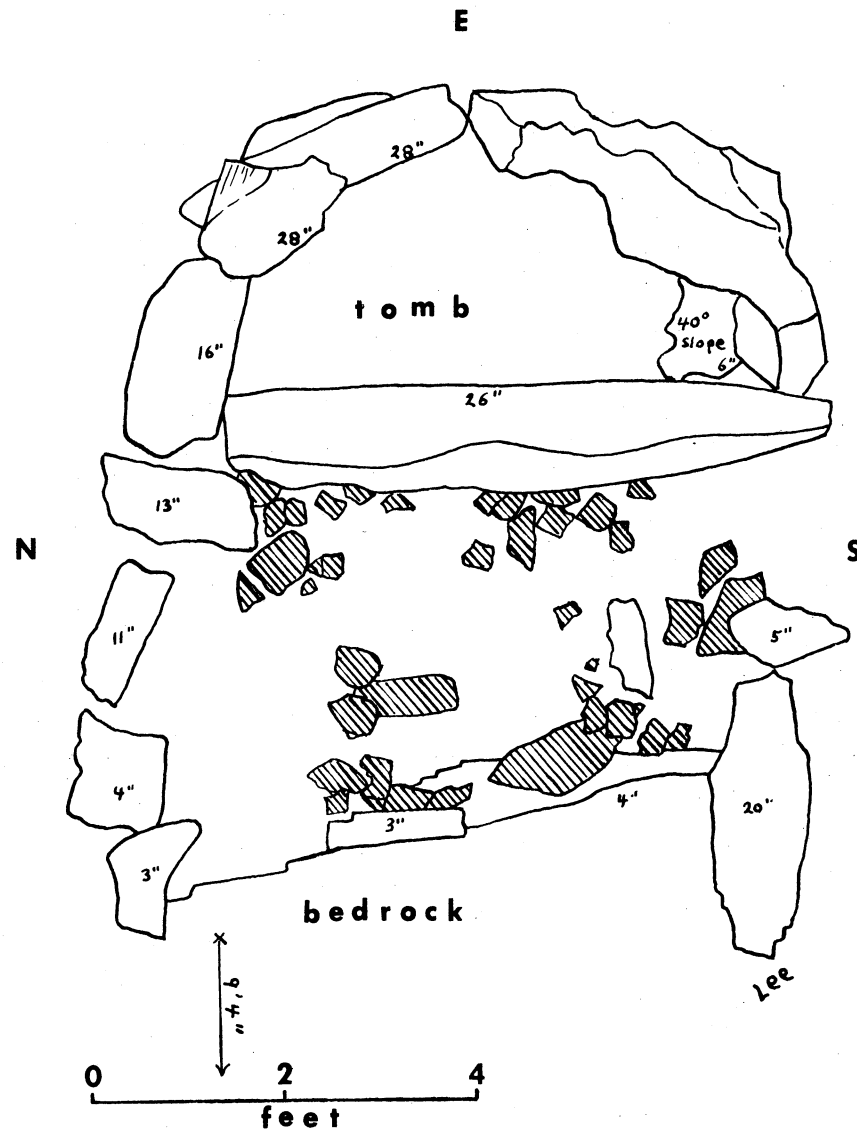


FIG. 17 - Pamiok. A disturbed tomb inside a flagged house ring. Note that construction of the tomb required the moving of only one large stone from its bedrock base on the west side of the house to its present position. Covering slabs were obtained from the sidewalls.

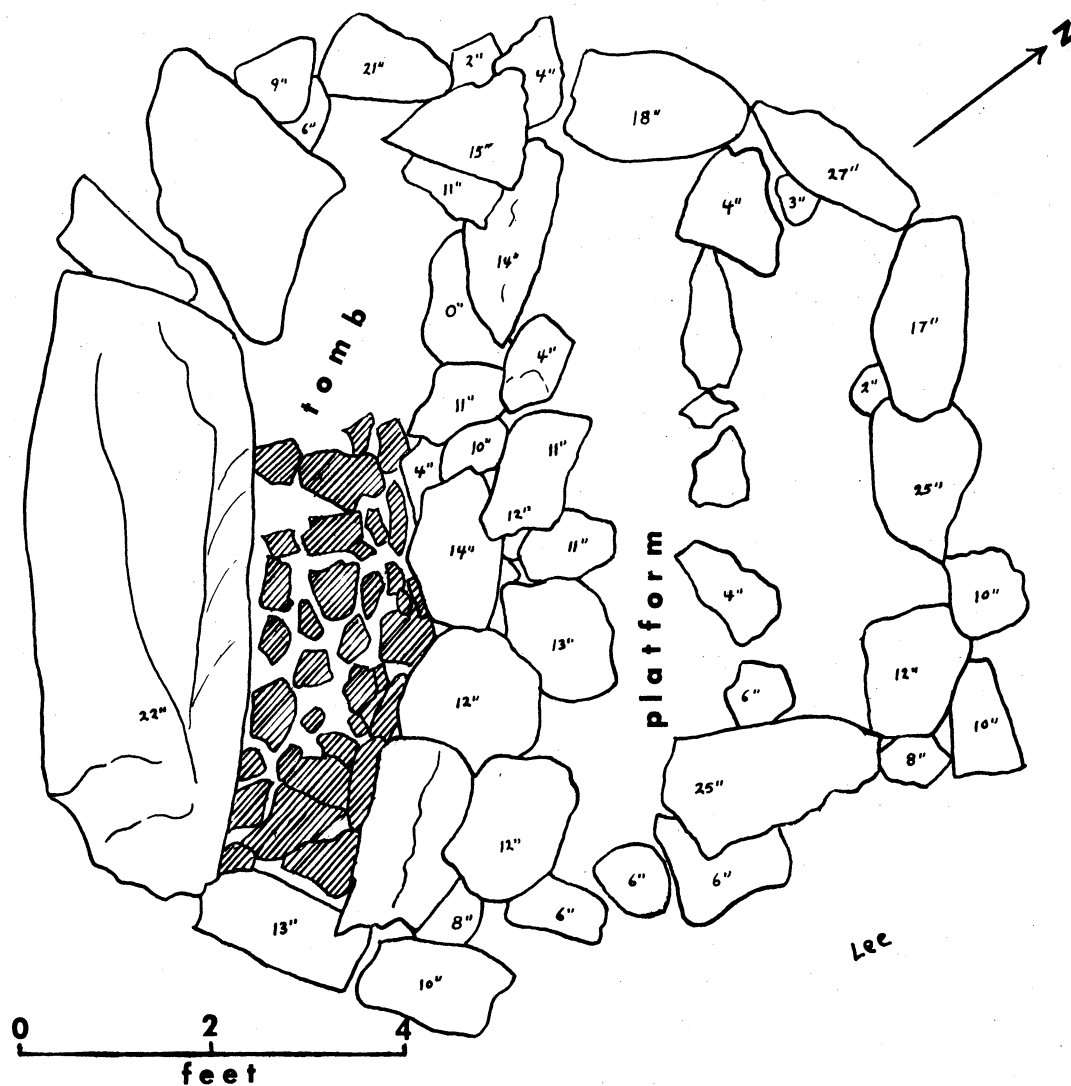


FIG. 18 - Pamiok, Tomb No. 5. Constructed by the simple expedient of making a stone wall across a house ring, thereby cutting off a section of the interior for burial purposes. Only the part thus needed was flagged. The platform division of the house was left undisturbed.



FIG. 19 A - Pamiok, House Ring No. 2, looking eastward. Excavated and partly restored. Since there were neither artifacts nor bones, cultural identification is not attempted. Note the crossing line of small stones that formed the edge of the sleeping platform.



FIG. 19 B - Pamiok, looking southwestward. An Eskimo tomb with wooden marker : "1937, June 11, Aloupas Eetiatok, aged 89". Willie Thomasie said Aloupas was from Koartak. Note the relatively careless tomb construction.

An open and looted tomb stood on a ridge of rock (Fig. 9n), separated from all other features. Two pieces of the cranium were found about 40 feet east of it, but no other bones were visible. Another completely looted tomb (Fig. 9n) was close to our tents, on a lichen-covered area.

A Very Different Type of Tomb, No. 6, and the only such occurrence noted (Fig. 9h) was produced not by building up a structure but by the removal of stones to leave a suitable hollow that was then covered over with rocks (Fig. 23 A). It contained several fragments of a soapstone vessel seen partly restored in figure 38 A. These fragments and many others found by Zachariasi, scattered across the bedrock starting some 15 feet east of the tomb, doubtless represent the activities of looters who, not wanting the vessel, had some sort of amusement in smashing it. No bones or other material could be seen in the tomb, which we carefully examined. The removal of stone blocks exposed a soil-covered bottom, about 5 by 2 feet, and 16 inches deep. In the southwest half were accumulations of sterile black soil up to 3 inches thick. These thinned out to almost nothing at the northeast end. Part of this soil must represent the decomposition of a burial, with perhaps some soil added to level up the pebbled bottom. A test hole outside revealed only a very thin black stratum at 8 inches depth.

Another Looted Tomb stood just 60 feet east of House 2 (Fig. 9f). No bones whatever could be seen in it, and we did not excavate. However, part of a wooden vessel, weathered but probably not ancient, and with fibers of either sinew or baleen in one of three mending holes, was found tucked among the stones of the east side wall.

A Double Feature, regarded as a tomb although it could have been an unusual form of cache (Fig. 9, near m), was seen to be looted, but worthy of examination. In particular, flakes of rusted iron attracted attention. The long axis lay east-west. The west half was 3'5" east-west by 30" north-south, and the east half was about the same. The dividing central wall was mostly formed by a 16-inches-wide outcrop projection from the south, requiring only a small boulder and a cobble to complete it. A sort of paving had been accomplished by filling in some irregularities with layer after layer of schist slabs until all was level. Over this was about 3/4" of black soil under moss. Looting seemed to have occurred about 5 years ago, in both enclosures. Even the paving had been disturbed.

The east half produced flakes of iron from an axe, as indicated by a tiny fragment of the cutting edge. A single flat piece of bone

(Fig. 41 : 5) turned up, on or barely in the moss. It had a drilled hole and an iron rivet. Its shape suggested a bow part.

The west half, with slightly thicker soil, had a few flakes of iron but also bits of wood, presumably from a handle. A badly decayed fragment 3 inches long was found, and one decayed section was traceable in the ground for 22 inches, running east-west. Two fragments of wood came from undisturbed black soil in the southeast corner, along with a quartz crystal flake in the top $\frac{1}{2}$ inch. A smoky quartz flake completed the finds.

The care in paving and the remains of tools or other items are suggestive of a tomb. Yet the size of each chamber would be very tight quarters for anything other than bundle burials or cremations. The age, which would seem to be great by the reduction of the axe head to mere flakes, is cast in doubt by the proximity to salt water. The stone flakes can be accounted for in other ways than contemporaneity.

A Looted Tomb just north of House Ring 1 (Fig. 9k) is of some interest, although we did not excavate. It was not carefully made. A very large stone, naturally placed, formed part of the south side, while rounded boulders completed it. The west end was pinched in, almost pointed. The north side was made up of a triangular slab on edge, a smaller slab, and some rounded stones. The east end was a single large rectangular block. The tomb interior was 4'6" east-west, 27" wide at the east end and tapering to a point at the west.

Some teeth at the east end must indicate the skull position. The arms were nearer the east end but on the north side, perhaps indicating burial on the right side. Toe bones were found at the west end.

A synthetic material from the tomb, resembling celluloid, burns but not vigorously. It could be a fragment of a cup or drinking vessel. Also in the tomb was the end of a wooden box, about $2\frac{1}{2}$ by $1\frac{1}{2}$ inches, with four lacing holes in each end. Certainly this is not one of the older tombs.

Tomb No. 1 (Fig. 9, on the north ridge of House 3, and Fig. 20) was the burial vault from which we had removed the skull (Fig. 43) on our first visit. Its position right on the ridge of a presumed Norse house established at least the temporal relationship between the two. The area is flat and surrounded by outcrops, and is roughly triangular, the apex 117 feet west of the 114-foot-wide base. About 21 feet north-east of Tomb 1 was another tomb, no. 4. To the south, forming a



FIG. 20 A - Pamiok, Tomb No. 1, looking westward. From this tomb came a skull that is remarkably European in appearance, although identified as Eskimo. Burial was with the feet to the east. A small enclosure at the west end, looted, doubtless contained grave offerings. The tomb is built on the turf ridge of a Longhouse, No. 3.



FIG. 20 B - Tomb No. 1 seen from the west, after excavation. Note the careful selection and fitting of stones. The relic box in the foreground is marked by the camera case.



FIG. 21 A - Pamiok, Tomb No. 2. Placed in a tomb constructed of large boulders, the skeleton is seen here well matted over with lichens, moss, and grass. There had been no recent disturbance, unless of the skull, and the vault cover remained in place over the head.

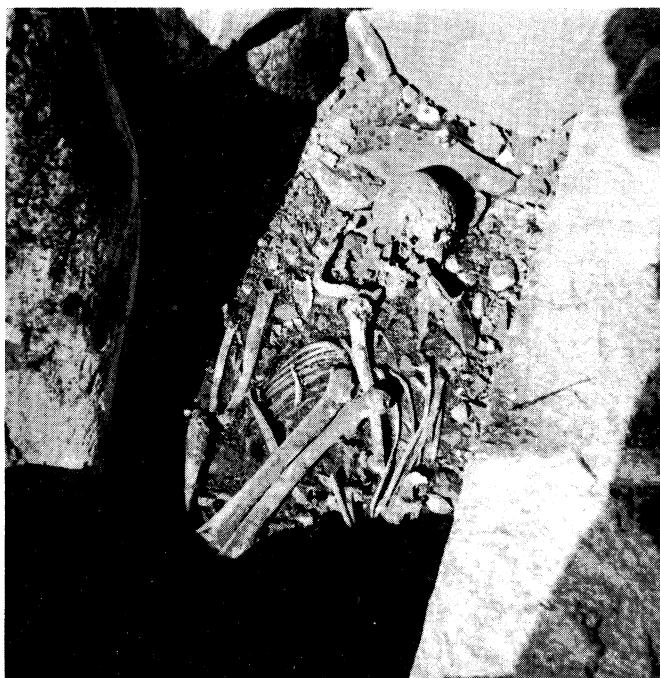


FIG. 21 B - Tomb No. 2, partly excavated, looking northward. Earlier disturbance is obvious. Burial had been with the body lying on its right side, facing west, with the knees drawn up in flexed position. A small whetstone was concealed at the head of the tomb.

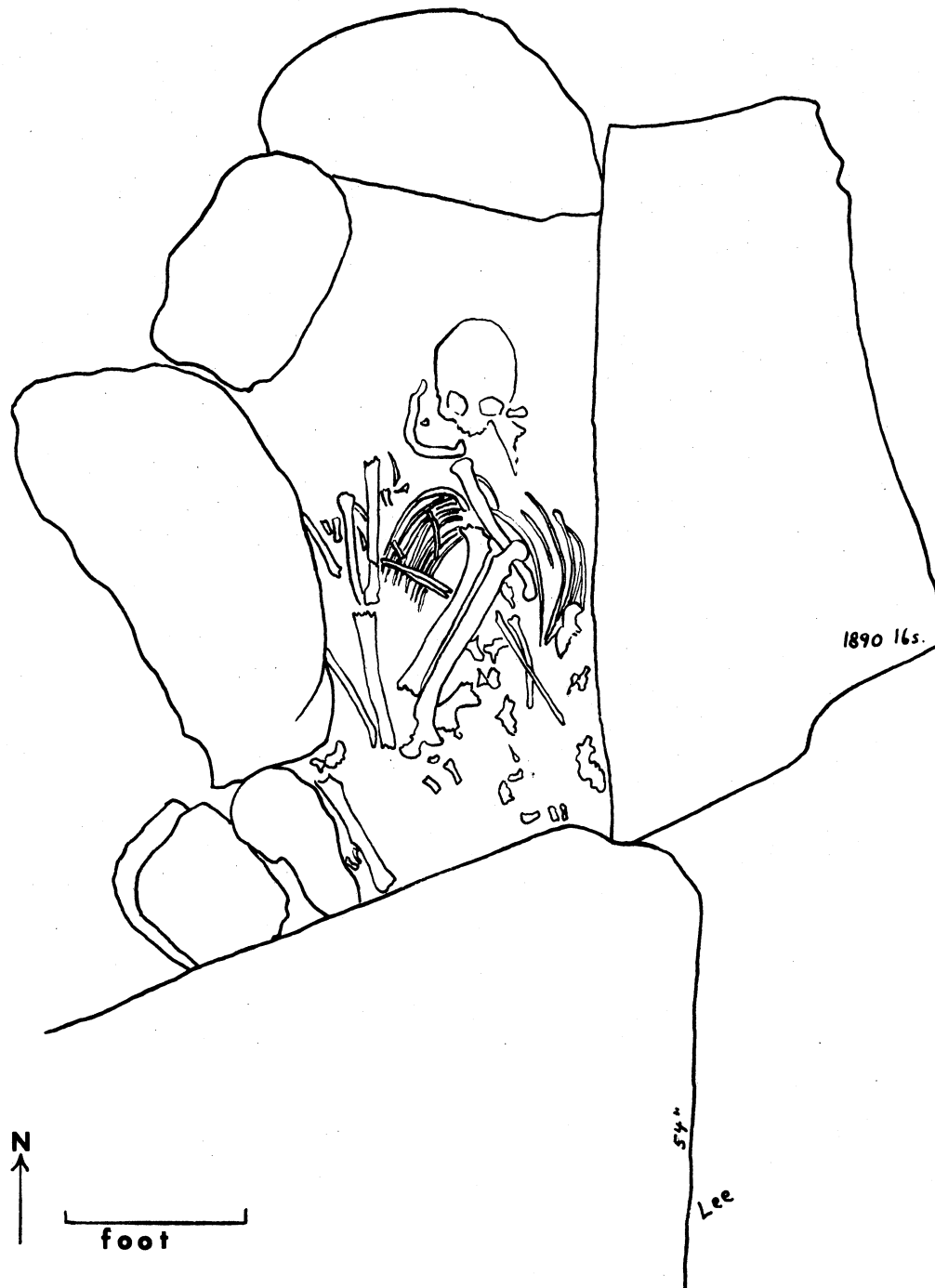


FIG. 22 - Pamiok, Tomb No. 2. Sketch shows the massive nature of the vault. Covering slabs were also very heavy. The portion over the head remained in place, inhibiting the growth of anything but lichens. Much grass cover formed in the open section, with moss. No significant artifacts were found.



FIG. 23 A - Pamiok. A presumed Thule tomb, between Longhouses 1 and 2, looking eastward. No bones were found, but a pit of suitable size for extended burial was filled with the rock fragments shown. In addition, parts of a large soapstone vessel with drilled suspension holes came from the pit.



FIG. 23 B - Pamiok, Tomb No. 3, looking south. The skeleton was fragmentary, but burial was in the extended position, and on a flagged floor. Note the very careful selection and fitting of stones.

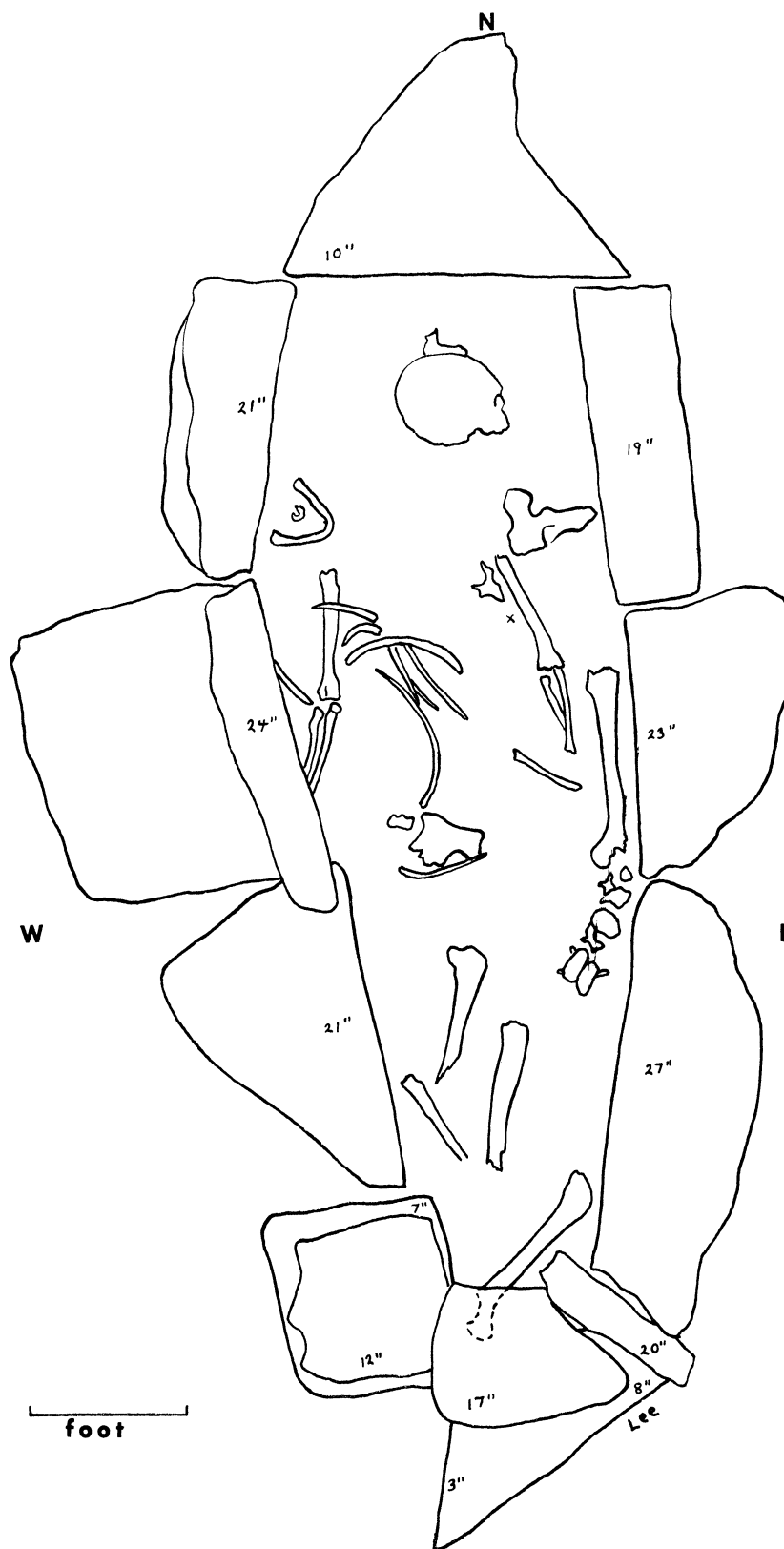


FIG. 24 - Pamiok, Tomb No. 3. An extended burial on a flagged floor, with the head to the north. Most of the disturbance has been in the lower portion. The care in selecting and fitting of stones was not seen in the more recent Eskimo tombs examined.



FIG. 25 A - Pamiok, Tomb No. 5, looking eastward. Again we have a tomb constructed inside a house ring, thereby saving the labor of building more than one side. In this case the tomb, seen at the right as a pile of stones, was much too long. Only the portion actually needed for the burial was flagged. The head was to the east.



FIG. 25 B - Tomb 5, excavated, with the flagstones restored to position. At the right are the large stones of the housewall. The left side, of smaller stones, was added to enclose the body.

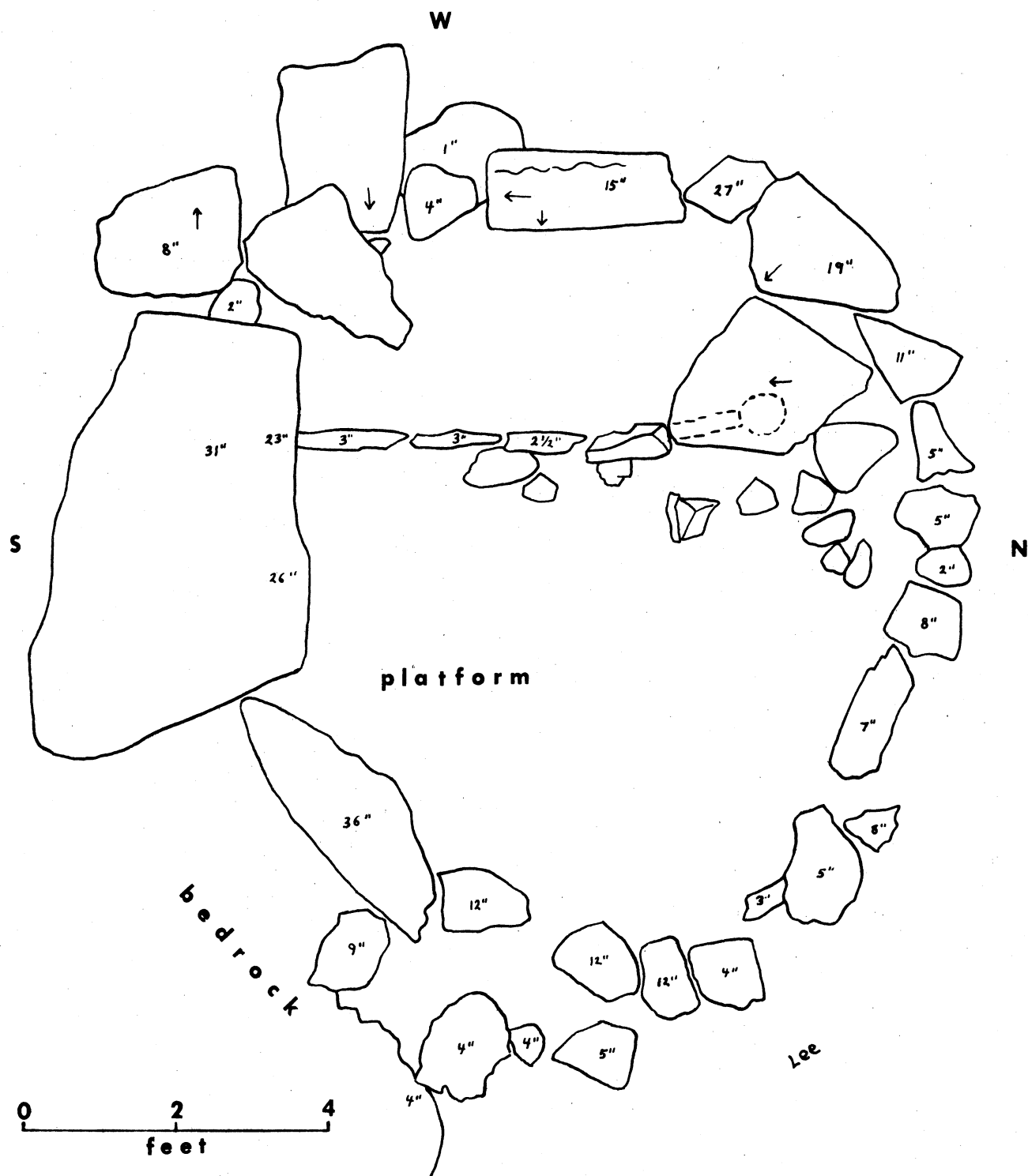


FIG. 26 - Pamiok. One of three house rings forming a compact group. It was totally unproductive of artifacts or bones. The large platform was clearly faced with thin slabs of stone set on edge. Heights of stones are indicated.

semicircle against a bedrock face, was an enclosure about 9 by 3 feet. Its walls were formed by large and very heavy boulders. These doubtless came from the former walls of the house. Although this could have been a large cache, it was more like a double tomb, thoroughly looted. An ancient tent ring nearby completed the cultural features.

Tomb No. 1 was well constructed of large blocks, brought to a uniform height by the addition of slabs where necessary. Over this had been placed long covering slabs, and three of these were still in place, protecting the tomb except at the east end, as seen in figure 20 A. They measured 45 by 19 by 11 inches, 34 by 11 by 8 inches, and 31 by 10 by 10 inches, and were heavily encrusted with lichens. A single slab, on edge, formed the west end. A low westward extension, 28 by 19 inches and 8 inches high, probably contained grave goods, originally. Mathiassen (1928 : 572) reported something similar from the Nain area of the Labrador Coast.

Looting probably accounts for the skull being out of position. A circular depression in the moss and gravel, 11 inches from the west wall, probably marks the correct place. A strip of leather, not old, came from the interior, just under the covering moss. Digging seemed to have occurred in the west half, and the westward extension was looted and dug. Some relatively recent digging occurred outside, too, between 5 and 10 feet east of the tomb, and directly on the house ridge, which may have looked like a grave mound to someone.

Traces of flagging occurred both above and below bones in some places. This is interpreted as evidence of digging. Some bones were reversed or otherwise out of place. Three teeth were found in the east end, contrary to all other indications of the head position. Disturbance was not total, however, for the arms seemed to have been folded over the breast, although bones were reversed. Further, a remnant of an old soil layer, $\frac{1}{2}$ inch thick, was seen at the north edge. A tooth and a small fragment of wood came from black soil between paving stones at the west end.

One artifact was found in one inch of black soil, in the northeast corner — a projectile point base that has not turned up in the collections. It was rather thick, with a double flake scar on both faces of one of the sidenotches, and the notches were heavily ground. It was 22 mm. across the base, 19 mm. across the shallow notches, and 21mm. across the blade. Although it was under a stone, its occurrence in black soil suggests association with the skeleton. On the other hand, the top

of the house ridge was a very likely place to be turning up Dorset material, as this seems to be.

Tomb No. 2, isolated from all others and of a very different character, was almost concealed among a wild jumble of rocks (Fig. 9e). The skeleton lay in a loosely flexed position on the right side, originally facing west, between massive rocks (Fig. 22). The chamber was made too small for an extended burial, hence the flexing was purposeful and not out of necessity.

The covering slabs were still in place over the head section, and on the skull lichens were thickly encrusted (Fig. 45). The facial bones were in extremely fragile condition and had to be restored somewhat. In contrast, the exposed portion of the burial was matted with moss and grass (Fig. 21 A), to the extent that only a few bones could be seen at all.

Removal of all vegetal matter and a minor amount of soil (Fig. 21 B) revealed that there had been some disarrangement of skeletal parts. The femurs in particular were in an unnatural position, fragments of pelvis were scattered, and foot bones were not in place. Indications were, however, that the right arm had been doubled up, while the left remained extended along the side. The skull had been moved in recent times.

Burial was on rough gravel, without flagging. No grave goods whatever were found in excavating, but a small whetstone was found concealed under a large white stone on top of the head stone.

Tomb No. 3 (Fig. 9m) had been looted, although the skull (Fig. 44) was still present. Some of the covering slabs were still in place, affording good protection for the bones. The tomb had been built with care, the stone blocks nicely fitted together (Figs. 23 B and 24). The orientation of the long axis was north-south. The sides were composed of three blocks each, with a fourth on the west projecting a few inches from the foot. These were placed in curving lines, such that the foot end was narrower than the shoulder area, with the head end drawing in slightly. The tops were brought to a uniform height by the addition of a second course where needed. The heights of major blocks are indicated in figure 24. A single triangular block formed the head end.

Although the skull was out of place, a depression at the north end indicated its former position. The lower mandible was under moss

near the west wall and a tooth was out of place. As can be seen in figure 24, there was extensive disturbance of the bones in general. Only the arms seemed to be in or near their original positions, and these suggest that the body had been placed on its right side, facing west. The clues obtainable from the scattered ribs and a few fragments of vertebrae support this position. The left tibia was much disintegrated, but marks of the bone in the soil showed that it had been exactly 12 1/4 inches long. Bones were heavily mossed over.

In places there were sections of stone flagging. Generally, there were merely slabs and chunks smoothing up hollows in the bedrock. At some point humus had formed over bedrock up to two inches thick. Much of this must have been there before the burial, for the bones were either on or just slightly in the soil. Possibly it was used to level up irregularities. A single fragment of wood came from the south end of the tomb. It cannot be stated whether or not it was contemporaneous with the burial, but it probably was.

Tomb No. 4 (Fig. 9p) had been looted and the skull was gone. The structure appeared to be of the same period and culture as Tomb No. 1, although there were important differences. It was very carefully built, with long covering stones. Lichens inside, seemingly very old, obscured all bones. The orientation was northwest-southeast. The interior length was 5 feet, and the width varied from 2'4" at the southeast to 20" at the northwest. Only the northwest capstone remained in place. This had inhibited the growth of lichens at that end.

Excavation revealed a layer of sorted grey sand under the lichens. Nothing like it appeared elsewhere, although we tested, and it apparently was brought in as a covering for the body. Bones came out of a black layer immediately under the sand. All were above a definite and careful paving of small schist slabs and other flat stones. Beneath them were only a little humus and gravel.

Slim evidence, particularly the shape of the tomb, suggests that the head was placed to the southeast, on flagging. Most of the skeleton had disappeared, and disintegration does not seem a probable explanation, considering the condition of the few bones found, although they were fragmentary.

Tomb No. 5 (Fig. 9j) is of unusual interest because it was built within the walls of an older house ring (Fig. 25 A). The construction was simple. The house ring already formed three sides of the planned tomb. It was only necessary to construct a wall of small

boulders across the sleeping platform to seal off a section for burial purposes, as shown in figure 18 adding a few wall stones to cover it. No great care was exercised in the building, except in the flagging of the portion needed for the burial.

Removal of the mounded-up top revealed 4 long covering stones in place. One of these was on the verge of falling directly onto the skull (Fig. 46), which lay at the southeast end.

Aside from the skull, a fragment of the lower mandible, and 5 loose teeth, all near the southeast, the vault was empty of skeletal parts. Two chips of fine quartzite were visible and a third lay outside the tomb, on moss.

The flagging was moss-covered. It was removed, although replaced after excavation, and investigation was begun of the underlying materials that, of course, predated the tomb.

Immediately under the flagging, and in the first inch of soil, were flakes of fine quartzite and a soapstone rim fragment (Fig. 34 : 1). Tiny chips occurred over the entire tomb area. Walrus teeth and traces of fire were seen, especially toward the southeast end.

The second inch, in humic gravel, produced the base of a point or knife (Fig. 34 : 9) from a pocket of humus in the gravel, but only a few chips. The third inch contained nothing but the remains of a shallow pit, extending down to a maximum of 8 inches, 22 inches in diameter, partly under the tomb cross wall.

The cross wall itself was rolled aside, then restored after excavation. An interesting basal section of a projectile point (Fig. 34 : 2) was found in the first inch, along with a section of a knife, the tip of a point, and some flakes. Excavations outside the tomb but within the house ring produced only a bit of bone from two inches of humus.

A Disturbed Tomb and tent ring situation, much like Tomb 5 in plan and nature, was situated about 130 feet north of House 2 (Fig. 9c), close to another disturbed house ring and quite near the beehive fox trap.

One side and both ends of the tomb were formed by the original walls of the house, with large stones arranged on a curving line. The fourth side was composed of a single stone slab, 6'4" long, 26" high and 8" thick (Figs. 15 A and 17). The tomb had been opened and the

covering slabs stood outside on the west, leaning against it. It was monsieur Plumet who first saw that the tomb was built inside a house ring. It was then obvious that the tomb construction required the moving of only one stone, the big slab weighing about 1000 pounds, from its original position on bedrock at the west side of the house, thereby sealing off a section on the east for burial purposes.

The interior showed clear signs of disturbance some years earlier, but re-excavation was undertaken. As the loose gravel was removed, the stubs of floor flags projected from the sides, some of these passing under the big slab on the west. The remainder of the flagging lay outside at the northeast corner where it had been thrown in a heap. There were 49 schist slabs or flat stones in the discarded pile, the smallest 3" by 3", the largest 11" by 14". Clearly the tomb had been flagged and the skeleton had lain upon the flagging.

The loose dug-over gravel was about 2 inches thick, although ranging up to 6 inches in pockets on the west side, following the dip of the bed-rock. The presence of a human bone at the base of the disturbed material led to a careful check of the entire interior. One tooth and a fingerbone at the south end seemed to indicate that the skull had been there. About 20 fragments of bones and three light-colored quartz flakes were also found.

Under the gravel was a thin accumulation of black soil that also seemed to have been dug over. One undisturbed pocket in a rock cleft went deeper but contained nothing of a cultural nature.

A small test trench was placed about 6 feet west of the south end of the tomb and just outside the house ring, 4'2" east-west by 22 inches. In the first inch under the moss, in mixed gravel and humus, were found a soapstone fragment and some very dark chips.

The house ring itself was perched on a flat area of its own size, on a rocky slope facing west, thinly covered in places with soil and grass or moss. Rock outcrops 5 feet to the south, gradually rising southward in a ridge 2 feet high. To the west the gentle slope changes soon to a steeper drop into a grassy grough. To the north is a gentle northward-sloping boulder-strewn terrace. To the east and beginning only 4 feet from the tomb, outcrops rise another 5 feet in 15 feet of distance.

Excavating within the house ring, we uncovered more of the floor flagging, continuing westward from under the tomb wall (Figs.

15 A and 17). Above the flagging or between the slabs at the same level we obtained the specimens shown in figure 33 : 10-18. Outstanding among the finds were two amazingly delicate tools (Nos. 10 and 11), a soapstone bead, some large black quartz flakes, smaller flakes of light-colored quartz as in the tomb, and thick fragments of a soapstone vessel. The latter is suggestive of some development later than Dorset.

Continuing under the flagging, we found signs of a shallow pit, not stone-lined, about 12 inches in diameter and near the south side. At about the centre of the ring outside the tomb, directly below the position of a large flagstone, we found a beautifully carved object that seems to be a harpoon head, although not sharp, representing a bear's head with the forepaws trailing straight back on the under side (Fig. 33: 19). Four encircling lines may be owner's marks. With it was a much decayed ivory object (Fig. 33 : 20), possibly a harpoon head, although very bulky for this purpose. In both specimens a hole has been carved through for a line. They would seem to be Dorset.

Whether the house ring was originally Dorset or was simply built over ground containing a few Dorset artifacts is not demonstrated. The proof might be found under the large stones forming the east side of the tomb, which we did not disturb. In any case, some later culture, perhaps a degenerate form of Dorset, occupied the house ring with its flagged floor. Still later — and we have no way of knowing how much later — some group decided to use the house ring as a convenient tomb. By shifting a single stone they accomplished their purpose, covering it over with other slabs from the house walls, all ready at hand.

House Rings

The term house ring is used here to distinguish certain stone circles from mere tent rings. The latter result from the weighting down of tent flaps, a convenient and necessary procedure in the high winds and on stony ground or even bedrock. When the tent is removed the stones remain as a circle. Often they are re-used and moved elsewhere by the next set of travellers.

House rings, on the other hand, are of a more permanent nature. The sizes of the stones used, often too heavy for one man even to turn over, and the end to end placement with added courses on occasion,

make it obvious that they were not merely holding down a tent. Presumably a skin roof was supported over the circle.

Just 9'4" west from the northwest corner of the important disturbed combination of tomb and house ring described immediately above is another disturbed ring (Figs. 15 B and 16). It had been completely dug some years ago, but moss was only beginning to form on the exposed gravels and schist slabs. Only a few small quartz chips could be salvaged here. Two large flagstones projected into the ring from the northeast corner (Fig. 16). There was no adjacent pile of schist slabs outside, however, as there was at the tomb, and it may be assumed that the flagging did not cover the entire floor.

House Ring 1 (Fig. 9k) is a small ring, almost too small for occupancy even by one person, although it seems to have been so used. Some of the remarkably large stones used in its construction had been tumbled away (Fig. 14 B) and there had been some disturbance of the remaining stones. Much digging had gone on inside the ring, and the surface was littered with chips. Almost all of these were coarse and crude, certainly not characteristic of Dorset, and probably not of great age.

Removal of undisturbed areas of moss showed chips at one inch depth in humic sand, whereas in the disturbed portions they lay in numbers just under the moss. Remnants of floor flagging occurred but most were disturbed. A decayed bone and a tiny wood fragment were above the flagging.

In the second one-inch level, which carried into sterile gravel, the chips declined sharply in both number and size. These could have filtered down, one may suppose, between the flagstones, but there was too much disturbance to settle the point.

At the west side of the little enclosure was a small stone-lined pit, circular, 12 inches in diameter and 4 inches deep. It contained only a disintegrated bone, and there was no trace of fire.

House Ring 2 (Fig. 9g) is one of three closely grouped rings in a sheltered trough. It was set up against a large boulder, beside an outcrop on the southeast side, and was constructed of very large stones (Figs. 19 A and 26). Most of these were restored to their probable original positions upon completion of the work.

Even before excavation a north-south line of stones could be seen crossing the feature near the west end. These were soon revealed as slabs set end to end and on edge to face a large sleeping platform on the east. They were undisturbed, although there had been a little digging here some years earlier.

The platform area was excavated to 4 inches, where stones permitted, but contained little of interest except at 3 inches, where a few flat stones looked like flagging. These covered only a small area, however. A few more were found on the east side of the vertical facing, near the surface of the platform, with clean sand under them.

The small remaining section at the west end was similarly taken down in one-inch levels, but like the platform produced very little. In the total absence of artifacts, cultural identification will be made eventually on the construction features alone. Presumably the occupation was of very short duration. On the assumption that the other two rings are contemporaneous, since an adjacent structure, if usable and older, presumably would have been used again, we may hope one day for clues from them. There were 2 chunks of milky quartz and 7 flakes (3 milky quartz, 2 smoky quartz, 1 quartz crystal, and 1 black chert).

Tent Rings : Although this brief section is not intended to discuss all tent rings on the site, there are two occurrences worthy of mention. At tomb 5, starting just 5 feet southeast from the house ring, was an old-looking tent ring of cobbles and boulders, set deeply but on rock hidden by lichens. It was circular and 16 feet in diameter. Some central stones evidently marked the position of a fireplace, but no sleeping platform could be seen. Immediately touching on its south side was a similarly old ring, 21 feet in diameter. The eastern one-third seemed partly flagged, as was a smaller section on the north.

A very different type of ring occurs on the meadow just east of water hole B (Fig. 9y). There are two distinct rings and a probable third. No stones mark their perimeters, but there is a shallow trough from which, apparently, earth was thrown into the central area to mound it up slightly. In the moss and grass cover, no means of assessing age were seen, without excavation.

Longhouses

As shown in figure 9, there were three large house ruins that, by reason of their size and shape, may be called longhouses. Two are

almost identical in size, while the third is much larger. All, however, have slightly excurvate sides, rounded ends, and low walls of turf and stones. Two have partitions, but only excavation can reveal the presence or absence of this feature in the third. Regardless of minor differences, all are immediately recognized as belonging to the same culture. It is seen, too, that the manner of construction and other details at once set them apart from all other features observed either on the island or up the coast, although several similar foundations are reported that we did not see.

While the largest longhouse was by far the most attractive archaeologically, with its promise of rich returns, as we saw even from surface collections, wisdom cautioned against disturbing it until experience had been gained on a less important feature. For this reason we selected the first that we had seen, No. 1 in figure 9.

Longhouse No. 1. This feature, as first seen, was a long stone-littered, shallow depression, outlined by a very low turf ridge that was interrupted on the south side by rock outcrops. It was situated in a flat lichen-covered area little larger than itself, although sloping surfaces were available on the north side.

The turf wall line was not everywhere evident at first, and tracing it showed that it was broken at many points, as seen in figure 27. Generally, it ranged from 12 to 24 inches in width and from $\frac{1}{2}$ to 4 inches high. A lighter shade of lichens on the crest aided greatly in identifying it where the turf was very thin. In the southeast quadrant, however, the width of the feature expanded to 60 inches and the height to 10 inches. Although the significance of this was not apparent to us at the time, it is now regarded, as we shall see later, as one of the most promising bits of evidence.

About 11 feet outside the north wall and parallel to it was a row of 5 pits, just shallow depressions with a barely noticeable earth ridge encircling each. A sixth such depression was seen a few feet to the southeast. Zachariasi suggested that they were garbage pits for seal bones, but subsequent investigation did not bear this out. We have come to regard them rather as food storage pits.

From the east end of Longhouse No. 1 a broad shallow trough leads southward to water hole A (Fig. 9). An unnatural arrangement of cobblestones and flat rocks, almost concealed by lichens, attracted attention. The formation was not continuous, on the surface, at least, but appeared to be about 3 feet wide. When shown to Zachariasi, he

turned and pointed to the longhouse on which we were working, making the same association between the two features as ourselves. This was a flagged or cobbled pathway leading from the house across spongy areas to the nearest source of water. He had no idea about what people were responsible, but readily saw the relationship also with the larger structure to the west. He added, "Not Eskimo".

Other pathways, not paved, radiate from Longhouse No. 1 to various water holes, to the other longhouses, to the bay where we first camped, and toward the mainland to the west. Parts of them are still in use by the Eskimos, for they follow the easiest routes to various destinations. In places they are felt under foot rather than seen. At other points they are completely lost on bare rock. That the longhouse is the focal point is very evident — and it is precisely here that there are no tent rings or other Eskimo features, with the exception of one looted tomb. Similarly, a section of pathway leading from Longhouse No. 2 northward to a water hole is roughly flagged.

As a preliminary step a baseline was laid along the northern wall, bearing N 58° W, true. Its zero point was in line with the eastern end of the structure and shows readily (Fig. 27) that the building was about 45 feet long by about 17 feet wide, almost identical with the shape and size of Longhouse No. 3. Bedrock projected into the building from the south, and there were indications that some of its ledges had been smoothed up with gravel and used as benches or couches. The turf walls on the south side passed directly across the outcrop. The line of them was particularly difficult to trace at this point, because they had spread out so much, and it was necessary to project from known positions at either end.

On the south side, near the west end, was a projecting arrangement of stones that strongly suggested a vestibule. It opened directly onto a broad shallow trough leading southward between outcrops, an obvious place for a doorway and foot path. Subsequent excavations seemed to conform this. In addition, breaks in the turf ridge at both ends strongly argue for exits there also.

It was apparent, even before excavation, that there had been two stone partitions dividing the structure into 3 rooms, even though the rocks were tumbled and considerably spread. Full exposure showed that they had been constructed, especially the east partition, from stone slabs of remarkably uniform size, ranging from 26 to 28 inches long. Almost certainly these had stood on end, presumably supported by

rocks piled on either side against their bases. In reconstructing the walls upon completion of the work, this method was successfully followed.

The precise positions of the walls were more difficult to establish. The eastern seemed reasonably assured by the presence of a firm gravel ridge a little higher than the floors on either side, and this seemed confirmed by the firm bedding of some smaller stones upon it. A gap of 2 feet at the north end probably represented an entrance to the central room. The western offered two choices, one of which would have put the wall squarely in front of the vestibule, an unlikely place. The one selected was based upon the presence of some firmly bedded rocks in that position. One in particular, near the south end and 18 inches in diameter, had 5/8 inch of brown soil under it, free of the black accumulations seen elsewhere. Hence, it was an original partition stone. Later evidence uncovered showed that the partition could not have been farther east in any case.

The complexities of the tumbled stones in the interior and the desire to obtain an overall picture of the internal features led to rejection of the square system, and the structure was excavated as a unit, but without disturbing the turf walls. All measurements were made with respect to the baseline and a similar line marked out parallel to it on the south wall.

Removal of the grass, moss and lichen cover immediately exposed many flakes, mostly of quartz, and seal bones. With the lifting of the thin sod, many layers of old dead leaf-lichens underlying it came away too, clearly indicating a long accumulation and the passage of much time. With the entire area cleared, we were ready to begin excavation in one-inch levels. Most of the digging fell to monsieur Plumet, while I prepared detailed plans on graph paper.

The first level, 0-1", exposed a further accumulation of flakes, a spurred scraper, two stemmed points, a tiny triangular point, and other flaked objects reminiscent of Dorset, although not fully satisfying. A soapstone rim fragment similarly suggested Dorset rather than Thule, but lacked the finesse seen in Dorset work. A single section of antler was found, important in showing that antler could survive in the conditions, and thus by its lone occurrence reasonably eliminating antler as a probable material for roof construction. Almost all specimens throughout were seen in situ.

The eastern partition was already a certainty and its probable base was apparent. But two other features were also recognized, and

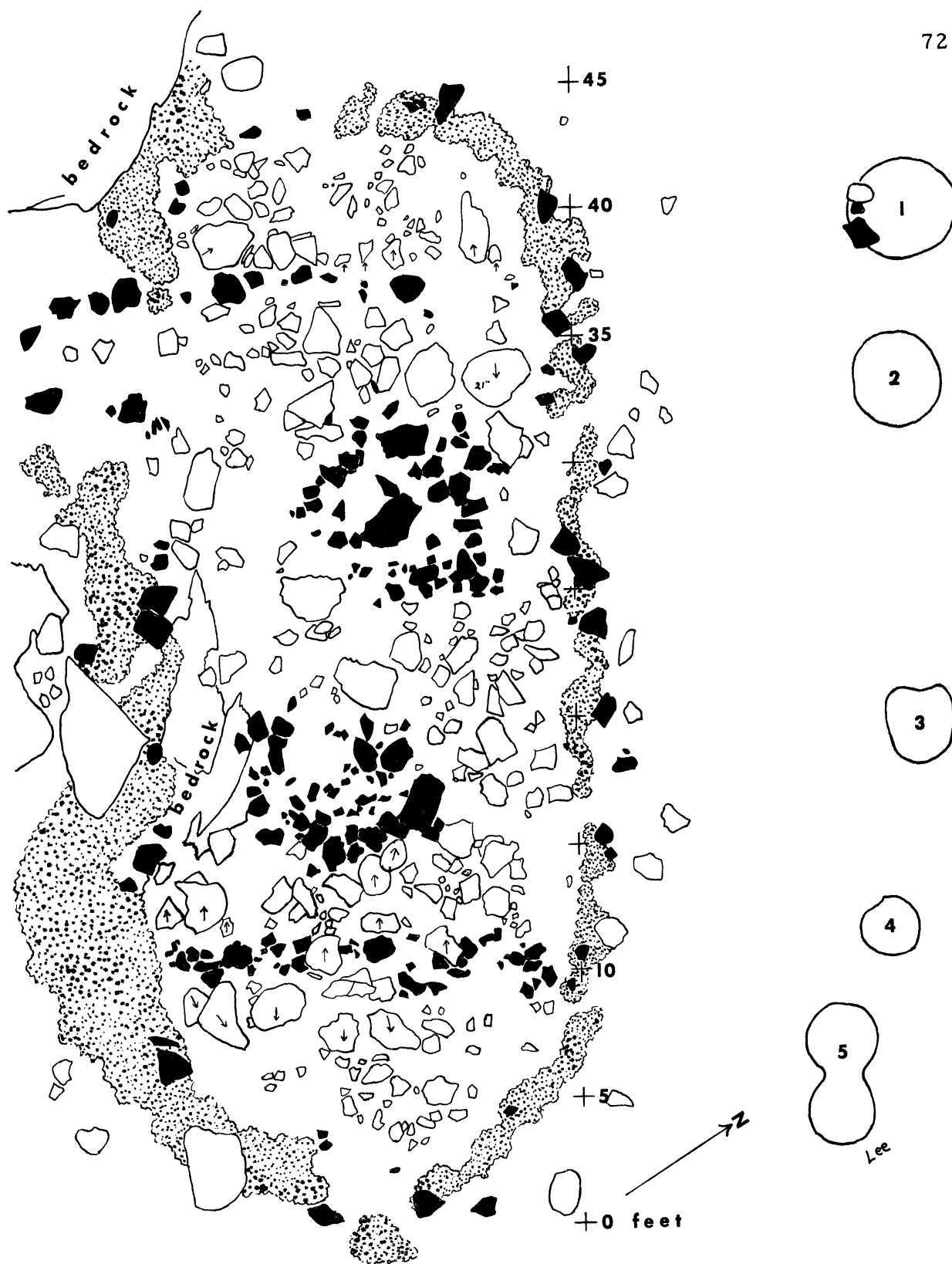


FIG. 27 - Pamiok, Longhouse No. 1 as revealed by excavation. Speckled areas are the remains of turf walls. Black stones are in original positions. The two circular concentrations in central position are fireplaces from a later occupation. Five food storage pits occur along the north side, and a sixth, not shown, lies opposite the southeast corner.

they are of importance as additional proof of repeated occupation. Two centrally placed circular arrangements of stones clearly were fireplace features. All were left in place until the full pattern of each could be worked out. They are shown in black in figure 27.

Further, as became more apparent with increasing depth and the continued occurrence of bits of charcoal in one area, a third fireplace existed along the north wall between the two others.

Level 2 was almost sterile and tests showed that only sterile gravel remained in the eastern sleeping area. Four of the 5 specimens found (a worked flake is not illustrated) are shown in figure 31, nos. 10-13. The workmanship is crude, although again suggestive of Dorset. All were found in the humus belonging to the soil stratum partly worked in Level 1, or in a nearly sterile brown stratum just beneath it, and these specimens are believed to be part of the upper culture. Although there were concentrations of chips, particularly in the northeast corner and again along the north wall between 27 and 32 feet west, these again were part of the upper cultural level. It is apparent that there was a distinct break in occupation here, with sufficient passage of time for the accumulation of a sterile soil layer, up to $2\frac{1}{2}$ inches thick in places, although very thin at some points.

The east partition base had become more obvious by this time, and the fireplace rings were more conspicuous. In the eastern of these, in attempting to define it completely, we went deeper and at 17 feet west and 10 feet south exposed the top of a definite stone-lined pit ringed by boulders. Suspecting that this was an older feature having no cultural relationship to the fireplace, and encountering too many similar complexities in the central area, we left a broad belt down the centre line for later investigation. Interestingly, in the charcoal-sprinkled area along the north wall at 11 feet west, much consolidated earth was found. Similar material had been found at Payne Lake in 1964 and 1965, being attributed to the accumulation of fats in the soil. The present occurrence in relation to a fireplace would make this the most probable explanation.

Level 3, unlike the upper levels, produced strong evidence for occupation by Dorset people (Figs. 31 : 14-23 and 32 : 1-9). The combination of a triangular point, red-painted soapstone vessel fragment, small tools and delicate chipping seemed unmistakable. Of interest in terms of possible preservation of roofing materials was a discovery of a small section of almost disintegrated hide near the south wall and 12 feet west, an area where deposits were thicker than in general.

A small fireplace situation developed at 11'4" west and 11" south, but charcoal was scattered all around. A sample was collected for possible testing, although taken only 3 inches below the moss.

Farther west, further evidence in connection with the position of the west partition was revealed. A definite gravel ridge was exposed, crossing the house, and squarely on it was a small rounded boulder, 13 inches in diameter. Despite the presence of a tiny crystal flake under it, its nesting on clean gravel showed that it was in its original position. Again there appeared to be a narrow gap in the ridge near its north end.

In performing some clean-up work at the northwest corner I found that the original house depression sloped down toward the centre, and that a remnant of apparently original soil, sterile and less than one inch thick, clung to the north wall. This extended into the house pit for 2 or 3 feet, decreasing in thickness, where it ceased as the house builders cut through it into the underlying sand and gravel. In this work it became evident that some chips of a peculiar black cherty quartz were coming from the remnant, particularly from its surface. Except for a few scattered occurrences this had not been seen before.

In the same clean-up, and definitely from the house floor, since they lay on sterile sand, a nest of vein quartz chips and the base of a tool of that material came from about 22 feet west and 3 feet south, just beyond the trailing off of the original soil remnant.

Level 4 was considerably shrunken in area. The eastern sleeping room was completely finished, the western was almost so, the central band of complexities remained untouched, and there was no point in going deeper along the north wall.

Specimens and flakes continued to come from the old floor, however, and it became obvious that the black cherty quartz was the important material at the bottom. It seemed, too, that there were pockets of the original soil layer farther out from the wall, and black chips were associated with these. Possibly there were natural hollows in the original surface on which the soil formed.

At 12'6" west and 30" south, the last traces of an area of charred bone fragments faded out, one that had persisted from Level 1, showing that some digging, probably for fire pits, had gone on here.

The vestibule, identified as such by its shape and position, produced further evidence that it was so used. The earth was hard-packed

in layers, and in troweling tended to split horizontally along these former surfaces. Over this, in later times, a thick brown peaty material had formed.

The stones at the sides of the vestibule were found to be sitting on from one to two inches of rich humus, and this would doubtless represent the surface at the time of building. Several flat stones and schist slabs in the central area of the vestibule showed that it had been flagged at one stage.

In scraping out the humus layer on the inside of the vestibule, but particularly on the west side, several flakes, a crude biface, and a core of the black cherty quartz turned up. Continuing into the underlying gravel, a scraper of that material was found at a depth of 6 inches of soil.

It became essential then to know if a pre-house occupation was represented. A trench 4 feet north-south by 3 feet east-west was continued beyond the vestibule to the west, at the point where the chips had been most numerous. The house ridge was involved and in cross section was seen to be of sand and gravel under the lichens. Otherwise, the first inch was of the brown peaty material seen in the vestibule, containing only a bone and one chip. The second inch, in humic sand, yielded a quartz tool and one chip. Below this there was absolutely no trace of man's presence. The old horizon, 2 inches deeper, was completely sterile, even adjacent to the spot in the vestibule producing the most chips. Had it been contemporaneous with the humus of the vestibule, the frequency of flakes inside would have assured the presence of some outside.

It is clear, then, that there was no pre-house occupation here. The vestibule was cut down by the builders, to or into the gravel, became partly filled by accumulating refuse and tracked-in soil, and was then flagged. On the basis of this evidence, the black cherty flakes and tools must represent the culture of the original settlers of builders, and a glance at the assemblage illustrated (Fig. 32 : 10-16) should make it clear that those builders were not Dorset. While some of the specimens are from other situations, all of them represent the earliest trace of man in each case.

The central area alone remained to be examined, and it soon developed that we had done well to leave it. Excavation of the gravelly and schist-strewn mass revealed a double row of stone-lined shallow pits, arranged mainly in pairs as shown in figure 28. The almost

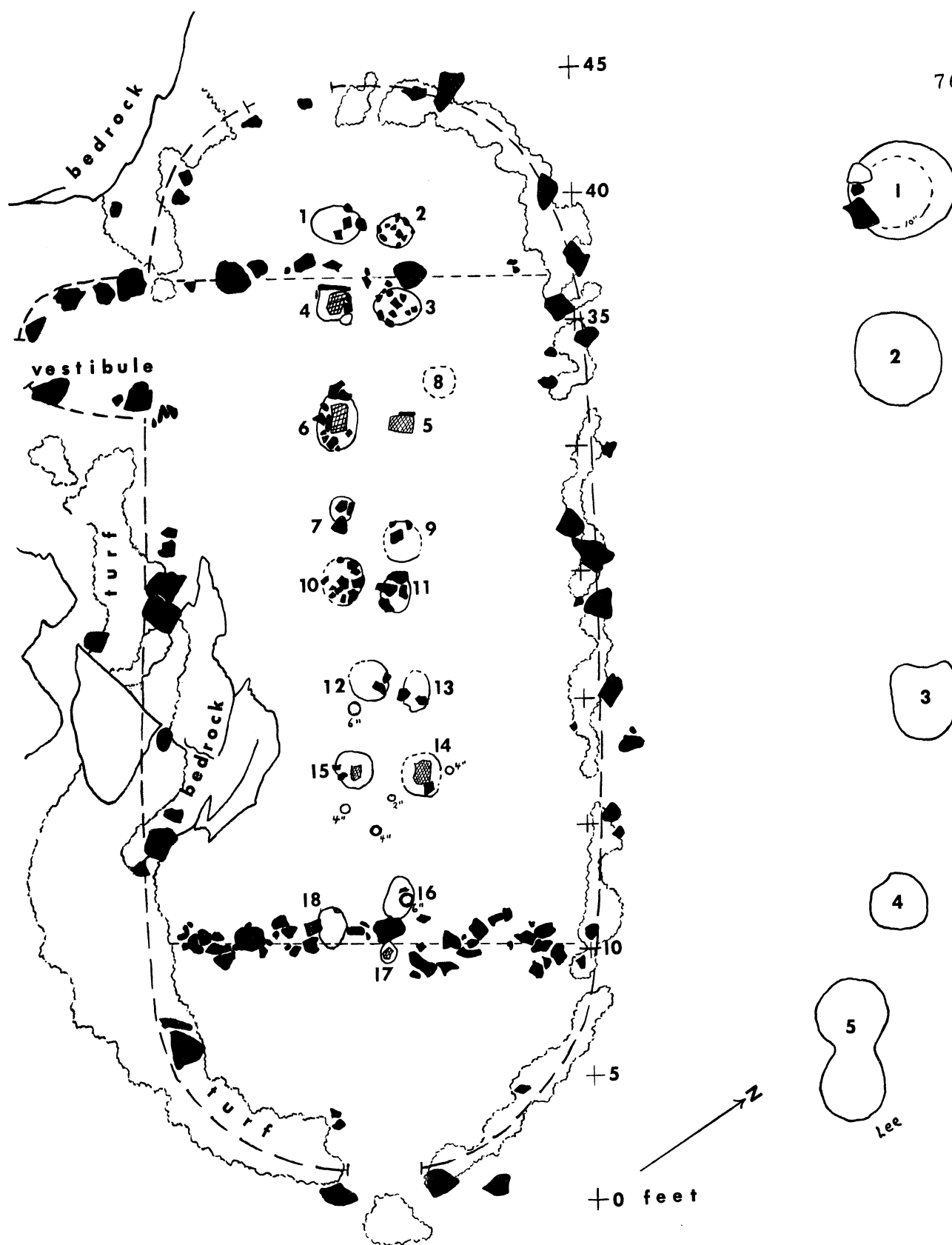


FIG. 28 - Pamiok, Longhouse No. 1, shown with only the earlier features. The main exit was clearly through a vestibule on the south side, but breaks in the turf walls at either end suggest openings off the sleeping areas. Note the intrusion of bedrock on the south side. The central paired pits, stone-lined, are a part of the original structure. A scattering of post molds between pits 12 and 16 represents efforts by a second group of occupants to prop up a sagging section of the roof.



FIG. 29 A - Pamiok, Longhouse No. 1, looking eastward after excavation. Stakes mark the positions of the paired stone-lined pits along the central line of the longhouse. Two partitions divided the dwelling into a living room and two sleeping areas. The east partition base is seen here restored.



FIG. 29 B - Pamiok, Longhouse No. 1. Two of the sunken stone boxes in the floor, Nos. 5 and 6. Other pairs were not yet excavated. Note the probable covering slabs lying about.



FIG. 30 A - Pamiok, Longhouse No. 1, Pit No. 5, looking east, jack knife for scale. The bottom slab is probably the fallen cover, for its removal revealed a larger slab that extended under the sides and ends. This pit contained a superb and delicate triangular projectile point.

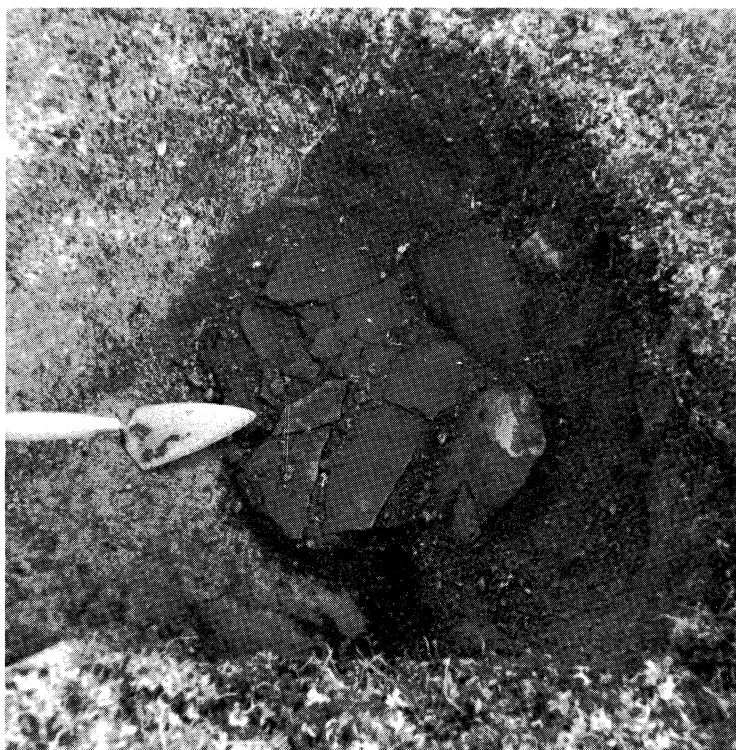


FIG. 30 B - Pamiok, Longhouse No. 1, Pit No. 3. Many of the pits were simply shallow basins, stone-lined, as shown, with thin slabs of schist. While a few contained small amounts of charcoal, others held bones, stone chippings, and debris. All have been restored and preserved under covering stone slabs.

perfect regularity of these features shows beyond question that they were contemporaneous with each other. A possible exception is No. 8, which was situated out of line with the others and was very different from them.

That the pits were a part of the oldest occupation is again obvious, for they are perfectly aligned down the centre and stop barely within each of the sleeping areas. This could not be chance.

It will be recalled that their presence was first detected in Level 2. This circumstance must mean that they were originally set on a very slight ridge, no more than one inch high. The stone linings projected outside the pits for a few inches and provided a little additional height. In order to present an accurate record and to allow comparisons, the pits are presented individually.

Pit 1 : 23 inches diameter by nearly 3 inches deep. Partly lined with schist slabs. The remainder may have been scattered in the immediate vicinity, a matter difficult to resolve in some cases because of the profusion of such slabs all about and even overlying the pits on occasion. Contents : a few flakes of milky quartz and a quartz crystal flake.

Pit 2 : Paired with No. 1, 18 inches in diameter and nearly 3 inches deep. Lined with small schist slabs. No contents.

Pit 3 (Fig. 30 B) : 16 by 18 inches diameter, $3\frac{1}{2}$ inches deep. Lined with small schist slabs. No contents.

Pit 4 : Paired with No. 3, a stone box 14 by 10 inches long, axis east-west. Depth 8 inches. A single flat stone 9 by 8 inches covered much of the bottom. The west end was made of a single thin slab 10 by 8 inches, slanting in slightly toward the top. The north wall was formed by 2 cobbles of 4 inches diameter. The south and east sides were only gravel, although differences in the densities of this material left no doubt about the size of the pit. It is not unlikely, however, that a slab 12 by 8 inches lying on top could have formed the south side originally. No contents.

Pit 5 : A stone box of thin vertical slabs set in the floor, with an interior bottom area of 13 inches north-south by $8\frac{1}{2}$ inches at the north end and $6\frac{1}{2}$ at the south (Fig. 30 A). The schist sides varied from $\frac{1}{2}$ " - $\frac{3}{4}$ " thick, with a maximum height of 7 inches. The area

over the box and to the west and north of it was flagged with schist slabs, apparently representing an original floor, as they rested on clean sand around the box. Those immediately over it may be part of the original cover or may represent a later occupation and floor.

Excavation produced two flakes and, at 5 inches, a superb quartzite triangular point (Fig. 32 : 8). At the same level was a small worked object. At $5\frac{1}{2}$ inches there were decayed bits of bone, suggesting that food may have been stored in the box before soil was allowed to fill it.

A flat stone 9 by $7\frac{1}{2}$ inches filled most of the bottom but was probably part of the original cover. Under it was $\frac{1}{4}$ inch of humus, and beneath it a larger slab with the side-walls sitting on it. To avoid destruction of the box, I tunneled under it from the west, ascertaining that it had been set into clean sand and gravel.

Pit 6 : Paired with No. 5 (Fig. 29 B). A stone box with a floor slab 18 inches east-west by 13 inches, and a depth of 6 inches was exposed. Its sides were less definite than those of Pit 5, being made up of schist slabs and other rocks. Small schist slabs sloped into the box from the east, evidently somewhat disturbed. No contents.

Pit 7 : A very small pit 2 inches deep, with a floor stone 4 by 5 inches. On the northeast was a sloping schist slab 5 by $3\frac{1}{2}$ by $\frac{1}{2}$ inch, and on the southeast a 9-by-9-inches cobblestone. The remaining sides had no lining at all. Contents : 1 small bone.

Pit 8 : A shallow basin 3 inches deep and 18 inches in diameter. It had no contents and no stone lining whatever. The latter circumstance and its occurrence out of line with all other pits strongly argue that it was a later addition.

Pit 9 : Paired with No. 7, although not directly opposite. Very poorly outlined, it was about 20 inches in diameter and $2\frac{1}{2}$ inches deep. It had very little lining, a small schist slab at the bottom and some very small slabs on the rim. Contents were limited to an almost totally decayed bone 4 by $\frac{3}{4}$ inches.

Pit 10 : A shallow circular basin, 4 inches deep and 20 inches in diameter. Most of its stone lining of schist slabs was intact. No contents.

Pit 11 : Paired with No 10, a shallow basin 20 inches diameter east-west by 18 inches north-south, stone-lined and 3 inches deep. It

contained 4 chips. A slab 11 by 5 inches lay in the central position but not at the bottom. It was probably the missing east side of the stone lining.

Pit 12 : A circular pit, 19 inches in diameter and $4\frac{1}{2}$ inches deep. A litter of schist slabs about the pit probably represented the disturbed pit lining. Other slabs were scattered over the pit, showing activity after it was filled. Some chips and a few charred bits of bone were noted, and the latter probably indicate food preparation here.

An outstanding discovery was the occurrence just outside the pit, on its southeast corner, of a post mold 6 inches in diameter and 4 inches deep. A schist slab slanted into the hole, as though for wedging.

Pit 13 : Paired with No. 12, a relatively deep pit 18 inches in diameter east-west by 14 inches north-south, and $5\frac{3}{4}$ inches deep. A few lining slabs of schist were still in place. A fragment of bone lay on the narrow (8 inches) division toward Pit No. 12; association cannot be proven.

Pit 14 : A circular pit with a floor slab of schist 11 by 9 inches, at a depth of $3\frac{1}{2}$ inches. Excavated in my absence, monsieur Plumet reports that numerous slanting schist slabs stood 2 or 3 deep around the edges of the pit. A check on the feature showed that a lining of one inch of humus still remained. The schist slabs therefore cannot be a part of the original pit, and may instead indicate its use at a later time. There were no contents, but the base of a unifaced knife was found in the narrow space separating Pits 14 and 15.

Pit 15 : Paired with No. 14, a circular pit with a small central floor slab, $4\frac{1}{4}$ inches deep. A quartz scraper was found in the bottom.

Pit 16 : A pit of great importance, 21 inches in diameter on its long east-west axis, and 4 inches deep. It contained only a small decayed fragment of bone.

Its significance lies in the circumstance that a post, about 6 inches in diameter, had been set within it, thereby establishing a chronological order for two important features. The post mold extended to a depth of $5\frac{1}{2}$ inches below the old floor surface, or $1\frac{1}{2}$ inches deeper than the pit.

Pit 17 : A small and very shallow pit, 8 inches in diameter and one inch deep, definitely situated within the sleeping area at the east.

It was not paired, and was surely tucked into a small recess in the wall. A thin schist slab covered the floor, and contents were limited to a single chip.

Pit 18 : Paired with No. 16, although not directly opposite, with a diameter of 20 inches east-west by 17 inches north-south, and 4 1/4 inches deep. It contained no schist lining, but bits of schist suggested that it may have had one. No contents.

This pit is remarkable for the single circumstance of its placement within the crossing stone wall dividing the eastern sleeping area from the living quarters. As there is no question about the position of either wall or pit, one may surmise that it may have contained embers designed to provide a little direct heat for the sleeping area and indirect heat through radiation from the warmed stones. The latter aspect would be true for Pit No. 16, adjacent, and for pits 3 and 4 at the western partition.

Post Molds : We have already discussed two 6-inch post molds occurring at Pit No. 12 and in Pit No. 16. But there were others in the same area, as is shown in figure 28. Two molds of 4 inches diameter and one of only 2 inches lie between Pits 15 and 16, while another 4-inches mold occurs on the north side of Pit No. 14, from 2 to 6 inches deeper than the oldest floor.

That they were not part of the original structure is proven by the mould set within Pit No. 16. Further evidence in this direction is seen in the manner in which they are scattered haphazardly among the pits, certainly not part of the orderly arrangement in the construction of the house as revealed in other details.

The grouping in this one area is significant, too, for it indicates that the roof of the structure was still in place when the second occupants moved in, but required repair at one point. Unlike the orderly builders, these people saw need only to prop up a sagging section of the roof, with no interest in the loss of space. To do this they pirated posts either from other parts of the dwelling or more likely from the nearby House No. 3. Excavation of the latter might show when it was abandoned.

Although the full significance of a certain matter did not occur to me until long after in my office, it is now evident that the peculiar differences in the widths of turf walls (Fig. 27) are meaningful. With the existence of wooden posts at last demonstrated, it is possible to

conceive of an entire frame of wood. While it may be that the side walls were constructed of horizontal logs, the shape of the building, or at least of its ends, favors vertical posts. In that case we may hope to find post molds, providing the posts were set deeply into the lighter-colored sands and gravels below the dark soil. But if the turf ridges are of sand and gravel, as they were where tested beside the vestibule, and if the low ridge was simply packed around the posts, as I suspect was the case, then we may hope for traces of even very shallow post moulds.

The probability of finding post molds is greatly increased by the fact that the turf ridge is so much wider and thicker on the south-east corner. It is there that the wall crossed over an exposure of bed rock. Posts could not be set down, so they probably were stood on rock, with earth and turf packed tightly against them, both inside and out. With the collapse of the structure, the earthen pile spread out more widely than elsewhere simply because it was much higher; that is, there was more of it to spread. Fortunately, our excavations stopped just short of the turf walls everywhere, as I hoped to preserve them.

Some interesting features, not part of the house but certainly related to it, occurred in a row along the north side (Fig. 28). These were in the form of shallow pits that are now regarded as food storage pits, although there was little real proof of the manner of their use.

Storage Pit 1, the westernmost, was about 8 inches deep prior to excavation by 4 feet in diameter. Precise boundaries were not well fixed. Removal of moss and examination showed that a half-inch of black soil overlay humic gravels. Several cobblestones and schist slabs were also exposed, mainly on the sides of the pit. At 4 inches depth 3 tiny fragments of bone were discovered, and the earth seemed laden with disintegrated bone and hide. At the same depth, but in situ on the north wall of the pit, were the tip of a bifacial tool and a triangular point (Fig. 32, Nos. 10 and 14). Interestingly, these were of black cherty quartz. Later, Zachariasi probed into the spot and got so many chips of this material that we were forced to expand the excavation to include it. It appeared not to be a part of the pit, yet the chips were not lying on an old surface.

Within the pit, at $9\frac{1}{2}$ inches depth below its former surface, two fragments of wood were found, one being 5 inches long. The other, $13\frac{1}{2}$ inches long and $\frac{5}{8}$ inch in diameter, was gently rounded on one side and flat on the other. Bedrock was reached at 10 inches depth, dipping southwest.

Storage pit 2, about 6 inches deep before excavation, seemed almost paved under the moss. Full exposure showed a jumble of cobblestones and slabs, presumed to be the covering material for the pit, with bedrock intruding from the northeast and dipping southwest. There were no other contents.

Storage pit 3 differed in having dark soil under a foot of sand. About half of the pit was lined with schist slabs. A few chips were found under the moss, but there were no other contents.

From the house itself much was learned. For instance, there was a remarkably uniformity, from end to end, in elevation, and it cannot be mere chance on such uneven ground. Using a hand level and a yardstick, it was impossible to detect any difference in height between the ends of the house. The most likely explanation is that the horizon of the sea was used to achieve this.

Various sightings, working from the oldest floor in the central area, showed that the living quarters were about 8 inches lower than the surfaces along the north wall and 6 inches below those in the vestibule area on the south, an exception being the rock outcrop, which stood 30 inches higher than the central floor. Probably there had been a natural depression here, but certainly earth was scooped out to make a broad shallow basin, rising toward the sides and to the sleeping quarters, which were about 4 inches higher than the central floor.

Many areas in the central part, but less toward the walls, seemed to have been flagged with schist slabs. There were, in fact, 3 or 4 layers at some points, although these seemed more in the nature of later arrangements for small fireplaces, rather than floors. Certainly there was much disturbance in later times.

Ideally, a stripping process would have been better than the one-inch level system. That there was stratigraphy was definitely seen in various tests. The situations were very local, however, and everywhere became involved in a jumble of rocks and schist slabs, so that it is doubtful if any of the thin layers could have been traced far enough to provide significant information. The thin layers were discontinuous. What has come out of the method used is a clear indication of three distinct cultural assemblages. The probability is that two of them were very near each other in time. The third and last suggests considerable separation and probably the use of the ground and accumulations of stone materials, rather than of the building itself.

Longhouse No. 2 : This enormous structure (Fig. 13) is 81 feet long by 23 feet from crest to crest of its ridges. According to Zachariasi it was not built by Eskimos. It has long been known to Mr. James Ford, now of Fort Chimo, but was apparently first entered in the literature by W.E. Taylor (1958 : 25), following his investigation of it in 1957. It was again the subject of discussion by Mr. Farley Mowat (1965 : 470), who showed not the least doubt that he considered it to be a Norse house, an opinion with which I am in full accord.

Aside from its size, the most striking feature about the ruin is its stone-filled interior (Fig. 12 A). We have seen this circumstance before, at Payne Lake and again in Longhouse No. 1 on Pamiok. In this case, however, the stones are so very much larger and blocky. The mere task of rolling some of the stones would require the concerted effort of two or more strong men. Yet they are tumbled in wild profusion over the two central rooms, and especially in what I have termed the great hall.

The time available for mapping the house permitted the precise placement of only two of the three partitions, but the third is even more apparent on the spot. It is evident, too, that the stone side walls of the rectangular rooms are almost concealed by slumping of the earth and turf ridges.

A single test trench, 5 feet square, was opened within the mapped area. Its position was selected partly as an aid in determining the exact position of the central partition and partly to eliminate a portion of a dug-over area, labeled D, the mossed surface of which seemed to relate to the same time period as that of the open holes at either end of the house.

Removal of the moss and one inch of soil revealed a seal bone, charcoal, and a number of stones of uneven height. If part of a floor, there has been disturbance by frost or other action. A triangular point (Fig. 33 : 2) came from this level, and a Dorset connection was indicated.

It became evident that, aside from the previous area of disturbance, three distinct layers of flat stones crossed the trench. Preliminary indications are that there were at least three floors and occupations. In association with the lowest layer, which was composed of thin schist slabs, another triangular point (Fig. 33 : 4) was found, and this definitely seems to be Dorset.

A fourth layer of schist appeared, in association with a small pit, roughly 18 inches in diameter and 2 inches below the surrounding sand level or $2\frac{1}{2}$ inches below the lowest schist floor flagging. It contained sloping bits of schist, indicating that it had been stone-lined, and several chips of quartz crystal. The nature and position of the pit suggest that we may expect to find a central arrangement of pits such as was seen in Longhouse No. 1.

Outside the pit, but close to it, were quantities of charcoal; an excellent sample was saved for possible testing. In the same area a polished and very hard stone tool was found (Fig. 33 : 8), one of the type commonly called "burin-like", in reference to its probable use, and attributed to the Dorset culture.

As at Longhouse No. 1, a series of pits extended along the outside of the structure. One of these, No. 3 (Fig. 13) was fully investigated. It was about 5 feet in diameter as first seen, was about 5 inches deep, and was filled with stones (Fig. 12 B). Some previous digging had occurred, but apparently failure to find anything discouraged the effort. However, bare gravel was strewn over an area of 48 by 16 inches.

Full excavation showed that the pit had been more than 6 feet in diameter, and only $1\frac{1}{2}$ inches deeper than the surface indications. It contained only a few flakes, mostly just under the moss cover, and 2 bones.

Unintentionally, excavations were extended on the west side, biting into the ridge of the house, and with important results. From ground level there came many chips of black cherty quartz, the same material as had been associated with the earliest occupation of Longhouse No. 1. With them were two artifacts (Fig. 32 : 14 and 15). These lay under $5\frac{1}{2}$ inches of turf, presumably slumped from the house wall. Tests showed that below the old soil horizon at this point were only pebbles and a fine podzol.

Two other features associated with this Longhouse deserve preliminary comment. The first is a curious arrangement of tumbled stones beginning at 22 feet south of the house and extending an additional 9 feet southward, at which point there is a curving line of stones, perhaps 20 feet long, that has led some to suggest the presence of a defensive breastwork. The situation of the house right beside a high ridge of rock is wrong for defence, however, and some other explanation must be sought. Included in the arrangement are three stone-

filled pits, much like the food storage pits along the side. But the location, directly off the end of the natural slipway (Fig. 9x) leads to the question of whether anchor devices may have been set up here as an aid in hauling out vessels. They are worthy of excavation and study.

The other feature takes the form of a broad flagged pathway leading northward through a grassy trough, through spongy areas, toward a large water hole (Fig. 9 C). Again Zachariasi was positive in his rejection of it as an Eskimo feature.

ARTIFACT COLLECTIONS

In the accompanying plates of artifacts, the majority of the specimens were obtained by excavations on Pamiok Island. Because of the circumstances of very thin deposits amid jumbled rocks it was not feasible to follow a stripping technique. By adhering to one-inch levels throughout, however, considerable vertical control was maintained, and the validity of the results seems borne out by the repetition of sequence in three separate excavations. Further, a definite time break and absence of cultural material was detected in all three situations.

Some minor surface finds are included for their interest, in addition to a collection from Igloo Point, upriver from Payne Bay Post. The latter, although only the material abandoned by souvenir hunters or collectors, is of value for comparative purposes, emphasizing the differences between the coarse crude workmanship at Igloo Point and the fine, delicate chipping and tools of the Dorset culture on Pamiok Island.

FIGURE 31

Pamiok Island, Longhouse No. 1. Nos 1-9 are from Level 1 (0-1 inch) and have Dorset characteristics, although of relatively crude workmanship. Nos. 10-13 are from Level 2 (1-2 inches), are similar to specimens of Level 1, and probably belong with them. Nos. 14-23 are from Level 3 (2-3 inches) and appear to be typical Dorset.

No. 1 is a soapstone rim fragment, undecorated.

No. 2 is a light quartz projectile point, bifacially flaked, with edge trimming mainly on one face.

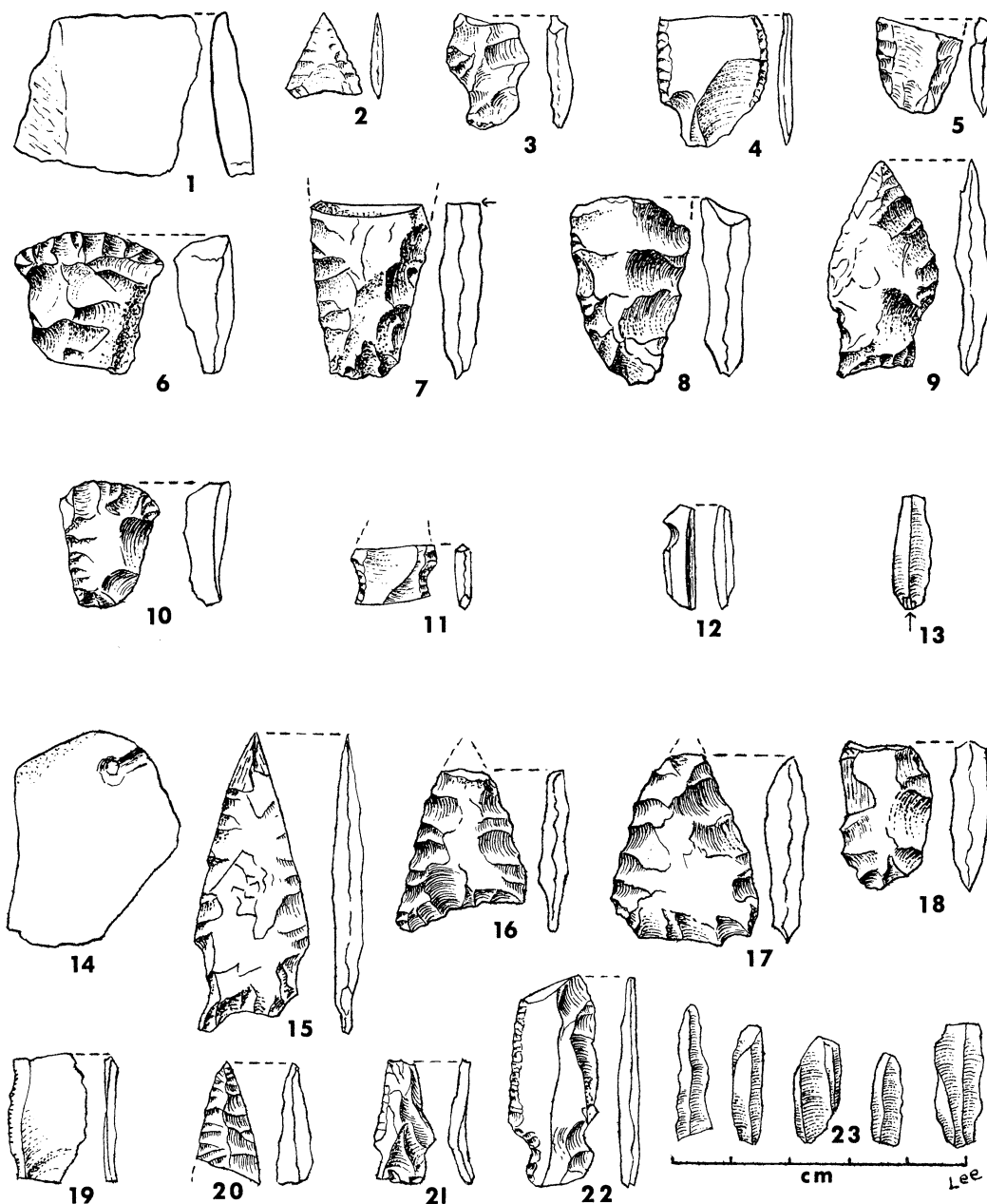


FIG. 31 - Pamiok, Longhouse No. 1, dug in one-inch levels.

Level 1 (Nos. 1-9), degenerate or late Dorset ? No. 1, plain soapstone vessel rim; No. 2, triangular point; No. 3, notched point; No. 4, knife; No. 5, section of knife; No. 6, spurred scraper; Nos. 7-8, basal sections of points or knives; No. 9, Stemmed point.

Level 2 (Nos. 10-13), Dorset ? Probably belong to the upper level. No. 10, a scraper; No. 11, notched section of point; No. 12, notched and polished object; No. 13, lamellar flake.

Level 3 (Nos. 14-25), part of the material from the Dorset level. No. 14, a red-painted soapstone rim fragment; No. 15, unusual projectile point with tip ground to a diamond-shaped cross section; Nos. 16-17, triangular points; No. 18, side blade section; No. 19, used flake; No. 20, tip of point; Nos. 21-22, notched tools; No. 23, lamellar flakes of quartz crystal.

No. 3 is a light smoky quartz base, unifacially flaked and probably a stemmed projectile point. The notches were formed mainly from the obverse face and have slight edge grinding.

No. 4 is a light smoky quartz flake, carefully trimmed by pressure along both sides, on the obverse face only, to produce a knife-edged tool, not a scraper. Use wear can be felt and seen.

No. 5 is of very dark smoky quartz, unifacially flaked along both sides. Possibly the base of a knife-like tool. An attempt was made to flake the edge of the break.

No. 6 is a spurred scraper on a dark grey chert. It is bifacially chipped and crude, with little evidence of use. It appears to be almost identical with a specimen illustrated by Maxwell (1962, Plate XII T) for Baffin Island, and considered to be Dorset.

No. 7 is a basal section, possibly of a projectile point, in dark quartz. The chipping is crude in a poor material. The minor amount of edge trimming is mostly on the obverse face. The tapered base is a feature of Taylor's (1962, Plate 2 : 7 and 30) "end blades" from his "Pre-Dorset".

No. 8 appears to be the base of a projectile point or knife, in light smoky quartz. It is bifacially worked but only very crudely on the reverse face. On the obverse face, at least, it compares very closely with Taylor's "sideblade" (1962, Plate 2 : 19), again from his "Pre-Dorset".

No. 9 is a stemmed projectile point in dark quartz. The chipping is crude in poor material, with minor edge trimming on both faces. The edges of the stem are ground. It bears some resemblance to Dorset specimens shown by Collins (1956, Plate XII : 17 and 25) and would fit easily into the categories shown by him.

In addition to the specimens shown, Level 1 produced a small soapstone rim fragment 7 mm. thick; a milky quartz core 27 mm. in diameter; 2 chunks of vein quartz; a lamellar flake of quartz crystal with 2 flake scars; a flake with a prepared platform; and 61 other flakes. The flakes were : 31 coarse dark quartz (Range 46-7 mm., Mostly 22-8); 12 fine grained light quartz (R 21-6, M 17-13); 2 vein quartz (R 24-11); 3 milky quartz (R 35-9); 3 quartzite (R 19-11); 9 grey chalcedony, translucent (R 26-7, M 15-7); and 1 slate, 27 mm.

Sixteen chunks of vein quartz and 14 flakes of that material also came from a gravel-covered bedrock shelf on the south side, but it was impossible to relate these to any particular level.

No. 10 is a plano-convex scraper in milky quartz, well chipped in a difficult material. In shape it is like a Thule specimen from the Central Barren Grounds (Harp, 1962, Plate 4 : 11) and a Dorset scraper (Harp, 1964, Plate XII : 2).

No. 11 appears to be the stem section of a unifaced projectile point, in light quartz. The notches, edge-ground, are chipped on one face only.

No. 12 is a fragment of a thin polished stone, normally black but jade-green when held to strong light, and harder than quartz. The half-notch on one edge has the appearance of being "carved" from both faces, and is polished. In addition there are 7 polished facets, some having a gouge shape, and there is high polish on some edges, indicating use.

No. 13 is a lamellar flake of light brown chalcedony, bearing the scars of two other lamellar flakes. There is no indication of use. A second such flake, smaller, was of quartz crystal.

Level 2 produced 8 chunks of vein quartz, 4 chunks of coarse light quartz, 4 chunks of milky quartz, and 78 flakes. Of the latter, there were 21 coarse light quartz (R 29-7, M 19-7); 32 coarse dark quartz (R 23-4, M 20-5); 14 vein quartz (R 13-5, M 13-5); 4 milky quartz (R 16-7); and 7 light grey chalcedony (R 35-4). The impression gained from the excavations is that these materials properly belong with those of Level 1, and there are few differences in stone types.

No. 14 is a soapstone rim fragment, 4 mm. thick, with red paint on the inner surface and a little outside. The painted vessel has been regarded as a purely Dorset trait (Leechman, 1943 : 373) but at Payne Lake (Lee, 1966b : 50) it was found in later associations. No. 14, however, has a carved hole, regarded as a good identifier of Dorset.

No. 15 is an unusual projectile point, in black chert. It is chipped bifacially, with minor edge trimming and with remarkably shallow flake scars that have left sharp edges. The side notches are steeply beveled from both faces, and are edge-ground. The tip is ground and polished to a diamond shape in cross section, sharply

pointed. This type was not found illustrated in the literature, but the essential features — delicate ears, shallow side notches, central ridge and sharply pointed tip — are seen in Meldgaard (1962, Plate 2), attributed to early Dorset.

No. 16 is a triangular point of coarse light quartz, very well chipped from poor material. The indented base is beveled from the obverse face.

No. 17 is probably a crude projectile point. The material is a very poor smoky quartz, and the flaking is very crude on the reverse face. The point is broken off, producing a chisel edge that seems to have been so used.

No. 18 is of coarse light quartz, asymmetrical and possibly a side blade. It is crudely flaked, mostly from the obverse face.

No. 19 is a used flake of fine-grained light quartz. The sides show unintentional chipping, with use-wear, and both of the end breaks show use-wear.

No. 20 is the tip of a projectile point, in coarse light quartz. Its cross section is plano-convex, and most of the fine flaking is on the high obverse face, working to a heavy median ridge.

No. 21 is a small notched tool in light brown chalcedony. The major flaking is longitudinal, with one scraper edge. The notches are worked on the plane (reverse) face only, with multiple flake scars and edge grinding. On the base are the remains of a striking platform.

No. 22 is a notched tool of fine-grained light quartz, unifacially worked on a large lamellar blade. One side is flaked as a fine scraper. The other side shows edge-wear, as do the end break and the basal edge. The notches are formed from the obverse face and are edge-ground. It is much like a specimen illustrated by Collins (1956, Plate VI : 30) and described as a Dorset tanged knife or scraper.

No. 23 : five lamellar flakes in quartz crystal, each bearing the scars of other lamellar flakes. These are a Dorset feature, although not exclusively so.

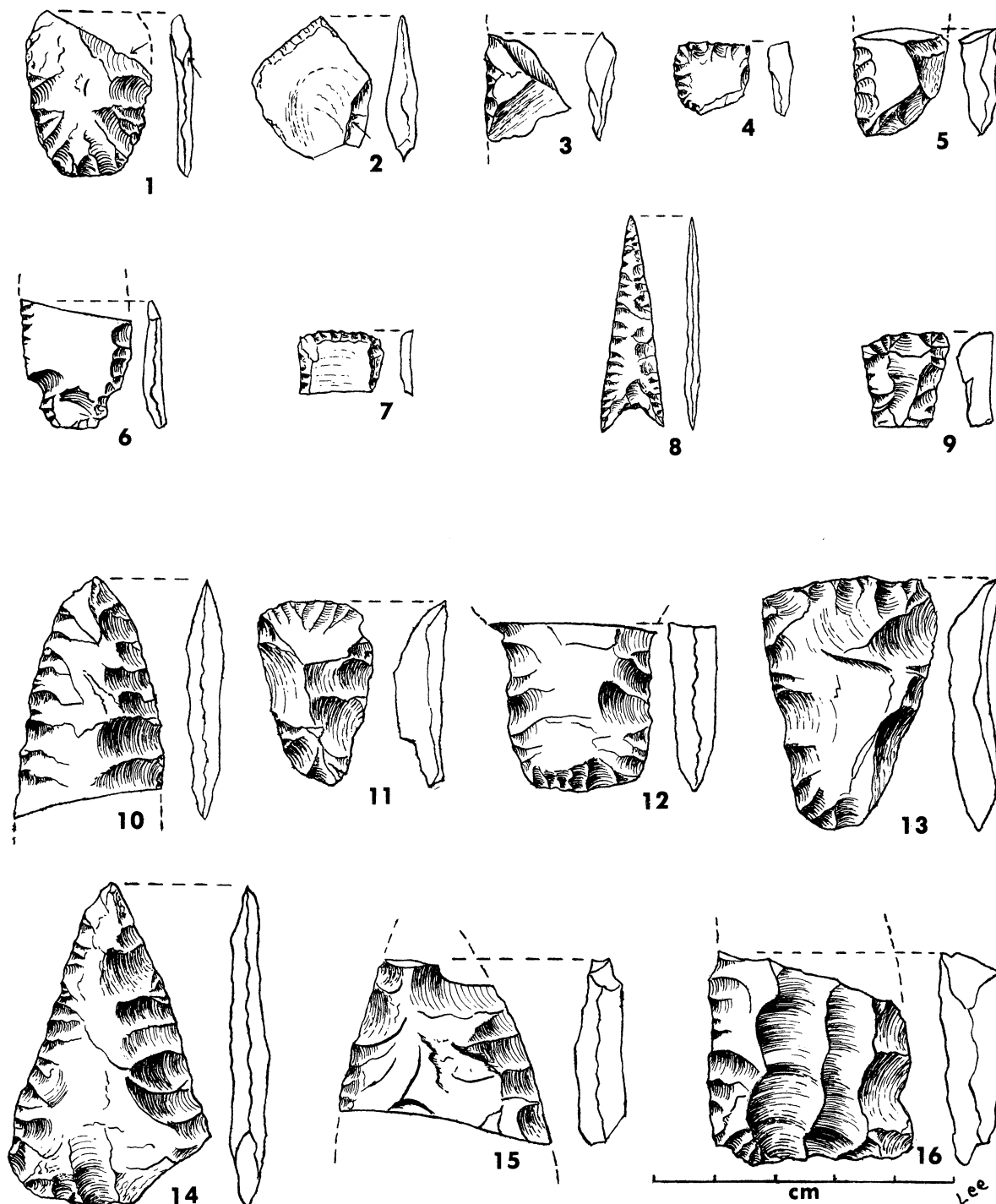


FIG. 32. Pamiok, Longhouse No. 1.

Level 3, Dorset material continued. No. 1, basal section of knife; No. 2, cutting and graving tool; No. 3, edge fragment of bifacial object; No. 4, scraper of quartz crystal; No. 5, basal section of biface; No. 6, basal section of notched knife; Nos. 7 and 9, scrapers; No. 8, delicate triangular point.

Level 4. Earliest occupation and therefore probably Norse. No. 10, tip of knife; Nos. 11 and 13, planing tools; No. 12, base of projectile point; No. 14, triangular point; No. 15, mid-section of knife; No. 16, worked object. Material is a distinctive black cherty quartz.

FIGURE 32

Pamiok Island, Longhouse No. 1. Nos 1-9 are from Level 3, a continuation from Figure 31, and are regarded as Dorset. Nos. 10-16 are presumably Norse work, since some may predate Longhouse No. 2 but are demonstrably the first occupation of House No. 1.

No. 1 is a unifacially worked basal section of a knife, crude but thin, of grey chalcedony. The poor flaking has left a blunted scraper-like edge on one side.

No. 2 is a grey chalcedony flake, finely chipped along one edge as a knife. It has use-nicks along 2 edges and a sharp graver point.

No. 3 is an edge fragment from a thin biface, in grey chalcedony.

No. 4 is a small scraper made from quartz crystal. It is thin, steep-faced and crude.

No. 5 is the basal end of a thick, crude biface in light fine-grained quartz.

No. 6, from Pit No. 13, is the basal section of a notched knife, unifacially chipped, in light fine-grained quartz. The notches are formed from alternate faces. Slight corner wear shows at the acute angle of the end break.

No. 7, from Pit No. 15, is a thin and delicate scraper in light fine-grained quartz.

No. 8, from Pit No. 5, is a remarkably thin, bifacially-worked triangular point with indented base, in light fine-grained quartz. A slight median ridge extends over 2/3 of its length from the point. It is basally thinned from both faces. It has the same slender blade, although more deeply indented, as one shown by Meldgaard (1962, Plate 2 B), termed early Dorset. It also resembles a Dorset point shown by Collins (1956, Plate VI : 2).

No. 9 is a crude scraper, end and sides, in light fine-grained quartz. It closely resembles a Dorset scraper illustrated by Collins (1956, Plate VIII : 2).

Level 3 produced 3 cores, all crudely polyhedral — 2 in vein quartz 29 and 20 mm. in diameter, and 1 in milky quartz, 12 mm. in diameter. In addition there were 19 chunks — 3 coarse dark quartz, 2 coarse light quartz, 2 dark cherty quartz, 9 vein quartz, and 3 milky quartz.

There were 450 flakes, and the presence among them of materials clearly associated with Level 4, as shown by the artifacts, reflects the circumstances of thinner deposits toward the ends of the house, and the difficulties in distinguishing strata over more than a foot or so in any direction. Level 3 has certainly crossed into the oldest occupational deposits at some points.

The flakes are : 99 coarse dark quartz (R 40-5 mm., M same); 5 fine dark quartz (R 16-10, M same); 28 dark cherty quartz (R 42-8, M same); 207 coarse light quartz (R 40-4, M 38-4); 45 fine light quartz (R 32-4, M 21-4); 40 vein quartz (R 28-4, M same); 6 milky quartz (R 28-9); 9 quartz crystal (R 20-4, M 13-8); 3 white chalcedony (R 8-4); 2 greenish chert (R 11-8); 1 slate (rubbed); and 5 mica fragments (maximum 13 mm.). Three unidentified fragments of bone and 1 seal bone came from this level.

The central pits contained 33 flakes; 7 coarse dark quartz (R 20-8); 2 fine dark quartz (R 17-15); 5 coarse light quartz (R 29-8); 5 fine light quartz (R 17-6); 3 vein quartz (R 9-8); 7 milky quartz (R 17-8); 3 quartz crystal (R 19-12); and 1 black chert (13 mm.). With these were 3 unidentified bone fragments and 1 walrus bone.

No. 10, from Food Storage Pit No. 1, appears to be the tip of a knife although it could also be a projectile point. It is of coarse, dark cherty quartz, and represents good work in poor material.

No. 11, chipped at a low angle on its forward edge, seems more in the nature of a planing tool rather than a scraper. The material is coarse dark quartz.

No. 12, in coarse dark cherty quartz, is the base of a stemmed projectile point. It is skillfully flaked on both faces, in poor material.

No. 13, like No. 11, seems to be a planing tool, with flakes struck off at a low angle from the front and one side. There are indications of use-wear.

No. 14 is a triangular point or possibly a knife, in cherty black quartz. It is moderately thin and well flaked in poor material. The

basal thinning is poor, however, with much step-flaking. There is some edge trimming. It is from under the earth ridge of Longhouse No. 2, beside Food Storage Pit No. 3.

No. 15, from the same location as No. 14, is probably the mid-section of a knife, rather thick but with fair flaking in poor material. There is only monor edge trimming. Both breaks appear to be unintentional, and there is no sign of use.

No. 16, in coarse dark quartz, is the basal section of a biface, crudely flaked, and interesting mainly for the 2 long parallel flake scars on the obverse face.

Level 4 also produced a possible fragment of a slate knife, with both sides polished; a crude biface base in dark cherty quartz; a thick crude biface fragment in coarse dark quartz; a thick crude scraper in vein quartz; 3 lamellar flakes of quartz crystal, and a dark chert flake with the strong remnant of a prepared platform. Two chunks occurred, one of milky quartz, the other of coarse light quartz.

The 93 flakes from Level 4 were : 21 coarse dark quartz (R 24-7 mm., M same); 1 fine dark quartz ; 20 dark cherty quartz (R 24-8, M 17-8); 13 coarse light quartz (R 21-8, M 11-8); 1 fine light quartz (18); 18 vein quartz (R 26-7, M 18-7); 11 milky quartz (R 15-8, M same); and 8 quartz crystal (R 16-6, M same).

Food storage Pit 1, as mentioned earlier, edged into a concentration of tools and flakes on its northern side. One of these, in dark cherty quartz, seemed to have been used along one side as a scraper. Its chief interest lies in the circumstance that one face seems worn as a beach pebble, the only indication thus far of the possible source of this material. There were also one chunk and 94 flakes in the accumulation. Of the latter, there were 41 dark cherty quartz (R 27-8, M same); 4 coarse dark quartz (R 22-15); and 49 mixed light-dark iron-stained quartz (R 42-8, M 27-8).

FIGURE 33

Pamiok Island, House Ring 1 (No. 1), inadvertently included in this figure, is non-Dorset; Longhouse No. 2 (nos. 2-9); and a disturbed House Ring-Tomb (Nos. 10-20).

From the Longhouse, Nos. 2 and 3 are from Level 1 (0-1 inch) and show Dorset characteristics, following a time break; Nos. 4-7 are from Level 3 (2-3 inches) and are Dorset; Nos. 8 and 9 are also Dorset, from Level 4 (3-4 inches).

From the disturbed House Ring, Nos. 10-18 are from Level 1 (0-1 inch), and have Dorset characteristics of an apparently late period. Nos. 19 and 20 are from Level 4 (3-4 inches) and are typical of Dorset work.

No. 1, a thick, crude, unfinished projectile point or knife, in coarse grey quartz. With it were 29 chunks (21 coarse grey quartz, 6 with rind remnants showing a beach cobble origin; 1 vein quartz; and 7 milky quartz) and 452 flakes, mostly chunky, even when small. There were 398 coarse grey quartz (R 45-3, M same); 2 vein quartz (12); 34 milky quartz (R 31-10, M same); and 18 black chert (R 37-4, M 28-13). The second Level (1-2 inches) contained 21 chunks (17 coarse grey quartz and 4 milky quartz) and 279 flakes, chunky except in chert and smoky quartz. The flakes were 258 coarse grey quartz (R 40-9, M 26-9); 1 smoky quartz (20); and 20 black chert (R 30-4, M 30-10).

No. 2 is a triangular projectile point in smoky quartz. The chipping is only fair in good material. There is strong basal thinning on the obverse face only, and some minor edge trimming. With it were 8 flakes (3 light smoky quartz and 5 quartz crystal), a seal bone and an unidentified bone fragment. The point has the outcurving edges, indented base, and size of a Newfoundland Dorset point (Harp, 1964, Pl. 1, No. 7) and a Cape Dorset point (Jenness, 1925, Fig. 4 : f).

No. 3 is from Food Storate Pit No. 1. It is unifacially worked to a knife edge, with a delicate scraper edge on the end, in smoky quartz.

Level 1 produced little material. There were 5 flakes of quartz crystal (R 13-9 mm.) and 3 of smoky quartz (R 9-7). One seal bone and an unidentified mammal bone were found.

Level 2 was sterile.

No. 4 is a triangular projectile point in medium smoky quartz. The chipping is fair on both faces, with a delicate tip. Basal thinning is mainly from the obverse face. Edge trimming is poorly done, with much step-flaking. Although slimmer and more deeply indented at the base, it resembles a Dorset point shown by Collins (1956, Plate V : 24).

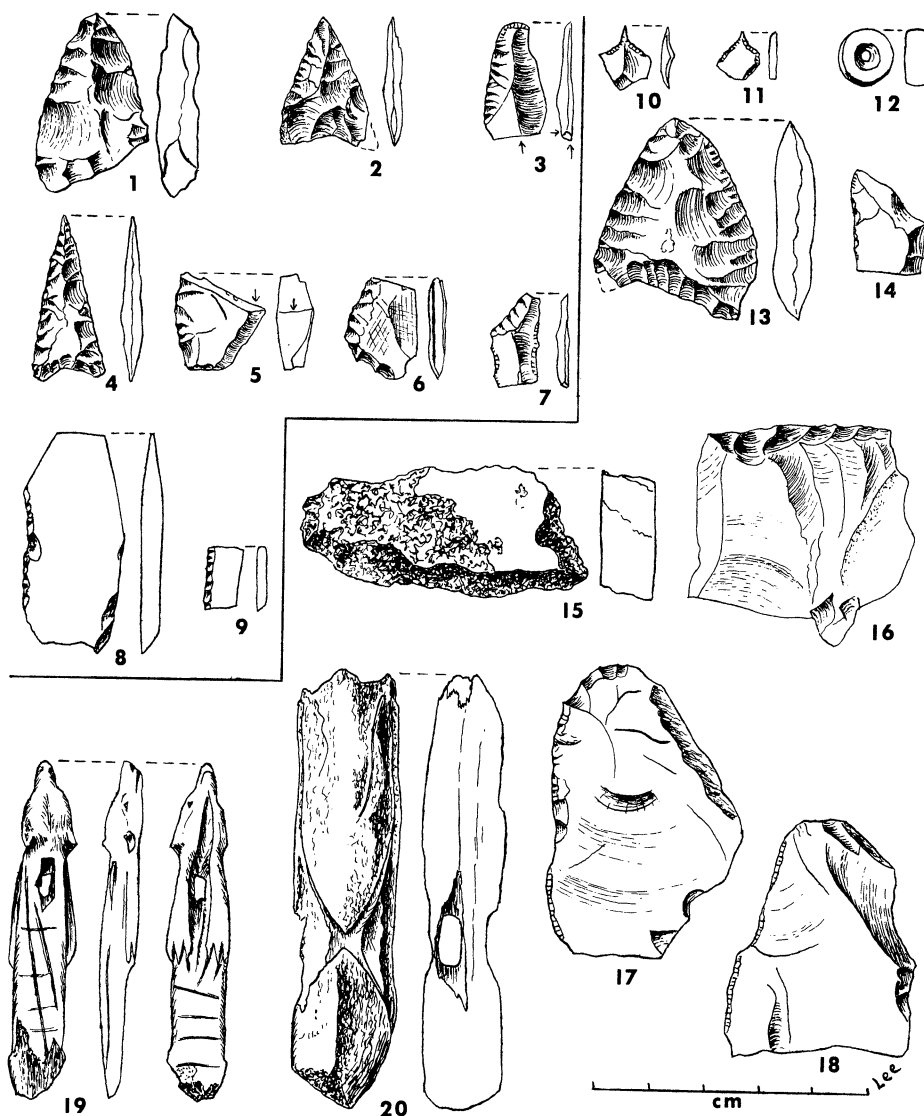


FIG. 33. Pamiok. No. 1, House Ring 1; Nos 2-9, Longhouse No. 2; Nos. 10-20, disturbed tomb-house ring.

Longhouse 2, Level 1 (Nos. 2-3), Dorset characteristics, following a time lapse or cultural break. No. 2, triangular point; No. 3, scraper.

Longhouse 2, Level 3 (Nos 4-7), Dorset. No. 4, triangular point; No. 5, fragment of biface; No. 6, a scraping tool; No. 7, a cutting tool.

Longhouse 2, Level 4 (Nos. 8-9), Dorset. No. 8, polished burin-like tool; No. 9, scraper.

Tomb-house, Level 1 (Nos. 10-18), degenerate Dorset ? Nos. 10-11, delicate graving tools; No. 12, soapstone bead; No. 13, milky quartz knife; No. 14, used flake (scraper and graver); No. 15, thick soapstone vessel fragment; Nos. 16-18, used flakes.

Tomb-house, Level 4 (Nos. 19-20), Dorset. No. 19, probable harpoon head, carved with bear motif. Possible "owner's marks" around shank. No. 20, ivory object with line hole, possibly harpoon head ?

No. 5 is a fragment of a smoky quartz biface, with one flake struck off to produce a burin edge. Use wear can be seen on this edge.

No. 6 is a basal fragment of a black chert tool. The break is ground, as are two facets of one face. The ground edge and a corner show use wear.

No. 7 is a unifacially flaked tool of grey chalcedony. It is flaked much like an off-set knife, and there are unintentional edge-flakings from use, on both faces. Use wear is seen on the broad end.

Level 3 produced only 10 flakes. Of these, 4 were quartz crystal (R 17-10 mm.), 4 were smoky quartz (R 11-7), 1 was vein quartz (6 mm.), and 1 was cherty black quartz (8 mm.).

No. 8 is a polished green stone, 6.5 in hardness, and 3.5 mm. thick. It is polished on all flat surfaces and on three edges. The latter show use wear, as do corners. Evidently it was used as a burin. The remaining edges are roughly broken. This tool type has been described by Collins (1950 : 25) as "one of the most typical of all Dorset implements."

No. 9 is a small scraping tool, chipped only on one face. It is light smoky quartz. No use wear is visible.

Level 4 contained 15 flakes. Of these, 5 were quartz crystal (R 17-8), 7 were light smoky quartz (R 12-6), 2 were black cherty quartz (16, 7), and 1 was vein quartz (9 mm.). With them was a seal bone, notched as though by a knife.

Nos. 10 and 11 are remarkably delicate tools worked on flakes of light smoky quartz. The slender points are worked on all sides. They seem better suited to removal of splinters than for graving.

No. 12 is a soapstone bead, 5 mm. high, and hand-drilled by countersink, from both faces.

No. 13 is a crude triangular knife, 8 mm thick, in milky quartz. Aside from thickness and shape, however, it is finely chipped despite the poor material. Attempts at basal thinning have produced a flute on the reverse face, while the obverse is distinctly ridged. The leading edges show use wear.

No. 14 is a flake showing use as a scraper and graver. It is of black cherty quartz.

No. 15, one of 18 fragments of a soapstone vessel, probably significant for its thickness (10 mm.). It is thinly encrusted inside and out with sediments and stain. It is strongly suggestive of something other than Dorset, unless it represents a late stage of that culture.

Nos. 16-18 are large, crude flakes of black cherty quartz. All show minor edge chipping, partly resulting from use.

Level 1 produced 5 chunks (2 black cherty quartz retaining beach cobble rinds, and 3 milky quartz) and 21 flakes (18 black cherty quartz, R 49-8; 1 coarse grey quartz, 37 mm. ; 1 dark smoky quartz 13 mm. ; and 1 black chert 8 mm.). There were 23 bones (6 seal, 17 unidentified) and a seal tooth.

Level 2 contained 3 chunks (2 black cherty quartz, 1 milky quartz) and 9 flakes (7 black cherty quartz (R 36-9) and 2 light quartzite (36, 9). With them were 17 bones (1 seal and 16 unidentified). The absence of artifacts and the general chunky character and larger sizes of flakes suggest that the materials of Level 2 are merely the basal portion of Level 1 and that they belong together as a unit.

No. 19 appears to be a harpoon head, with its line hole, but would seem to be inefficient with a rather blunt point. The representation of a bear's head is realistic and is excellent from all angles. Trailing back along the underside are the forepaws. These project as flanges along the sides. The line hole is carved. The coffee-brown stain is a further indication of Dorset connections.

No. 20. Found in close association with No. 19, this appears to be an ivory harpoon head. A prominent line hole is cut from both edges, neatly grooved for the line. A shallow groove at one end on one edge might be for a side blade. The specimen is much eroded.

Although Nos. 19 and 20 are the representatives of Level 4, it should be noted that they seemed to be in a shallow pit and that nothing else was found at a comparable depth.

FIGURE 34

Pamiok, Tomb 5 (Nos. 1-7 are from 0-1" depth; 8 and 9 are from 1-2"); Nos. 10-13 are from a small Dorset tent ring set against a large boulder about 130 feet northwest of Longhouse No. 2;

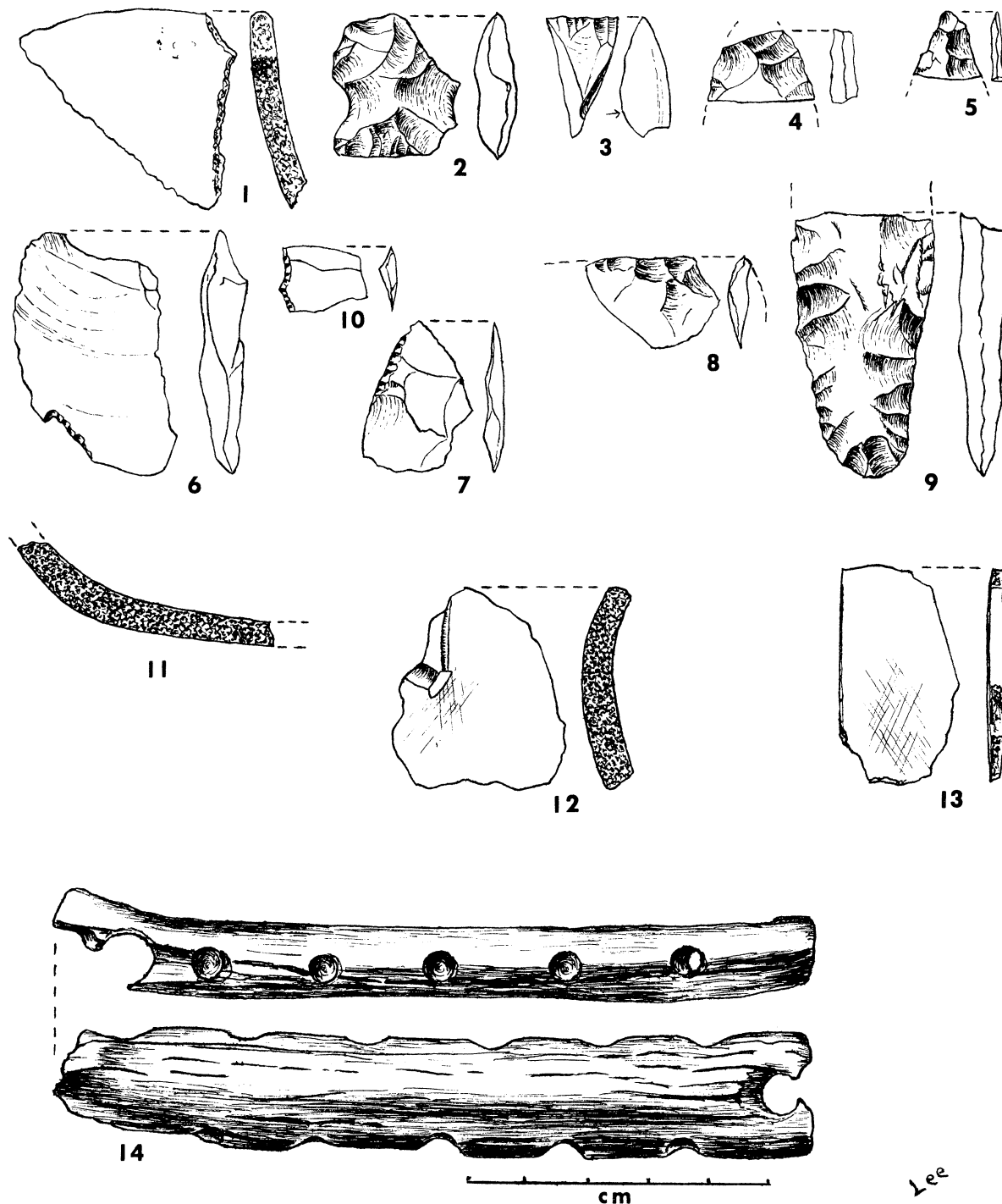


FIG. 34.- Pamiok, Tomb 5 House Ring. Dorset (Nos. 1-12).

No. 1, soapstone rim; No. 2, notched tool; Nos. 3-5, edge fragment, mid-section, and tip of bifaces; Nos. 6-7, used flakes; No. 8, edge fragment of biface; No. 9, basal section of projectile point; No. 10, used flake; Nos. 11 and 12, cross section and rim fragment, soapstone lamps.

Surface Finds : No. 13, polished burin-like tool from Dorset house ring about 120 feet northwest of Longhouse No. 2. No. 14, ivory object, possibly used in a pin game, and probably Thule, found on a ledge of stone.

No. 14, presumably Thule, is from a ledge near the north side of a waterhole (Fig. 9 A).

No. 1 is a rim fragment of a soapstone vessel. One edge was rounded after breakage. Thick sediments occur on both faces. It is Dorset in general character.

No. 2 is the basal section of a projectile point, in light smoky quartz. It has been reworked, and the blunted end is much worn from use, presumably as a scraper. The side notches are edge ground. In form the specimen closely resembles the basal portion of a Dorset point shown by Collins (1956, Pl. VI, No. 34).

No. 3 is a fragment of a biface in smoky quartz. The specimen was deliberately broken but shows no sign of use.

No. 4 is a mid-section of a small bifacial tool, in smoky quartz.

No. 5 is the tip of a bifacial tool, in smoky quartz.

Nos. 6-7 are smoky quartz flakes showing use, evidently as scrapers.

Level 1 included 5 chunks (3 coarse smoky quartz and 2 milky quartz) and 283 flakes (267 smoky quartz, R 30-3, M 22-4; 7 coarse black quartz, R 27-7; 5 vein quartz, R 16-6; and 4 black chert, R 17-7). The flakes, especially those of smoky quartz, regardless of size, are remarkably thin and delicate. Only 1 bone was found, a sea mammal.

No. 8 is an edge spall of a bifacial tool, in black chert. It is edge-ground.

No. 9 is probably the tang of a projectile point, in smoky quartz. The chipping is of fair quality, aside from the thickness of the specimen. A medial ridge remains on one face. Edge trimming is minor. There is some resemblance between this base and one from Level 1 of Longhouse No. 1 (Fig. 31 : 7), especially in the manner of flaking. This was considered as a late manifestation of Dorset, perhaps a degenerate phase.

No. 10 is a used flake, apparently as a scraper.

Level 2 produced 1 chunk of smoky quartz and 77 flakes, again thin and delicate. The latter were 71 smoky quartz (R 20-3, M 19-5 mm.); 3 black quartz (R 10-9); 1 black cherty quartz (8 mm.); and two black chert (11-8 mm.) Three sea mammal bones were also found. It should be noted that some of this material, both levels, was obtained beneath the flagging of Tomb 5, and from beneath the north wall of that tomb.

No. 11 is the cross section of a basal fragment of a lamp. Its curvature suggests an almost flat-bottomed oval vessel.

No. 12 is a rim fragment of a soapstone lamp. Grooves to countersink lashings lead to a broken edge from the carved mending hole. One edge was smoothed after breakage. Sediments occur on the inside, but the outside is merely stained black.

No. 13 is a burin-like tool of greenish stone, hardness 6. It is polished over both faces. The single corner and the edges show wear. It is similar, of course, to the specimen shown in figure 33 : 8, and is generally regarded as a Dorset identifier.

No. 14 is an ivory object of unknown use, although it might represent a variation of the cup-and-pin game. At each end, although not in the same plane, is a drilled hole. One of these has been enlarged from both sides, perhaps for lashing. That at the opposite end, drilled through edgewise, is 7 mm. in diameter.

Along each edge are five holes, each 5 mm. in diameter. The drill was wobbled, however, so that the holes are larger both outside and at their inner extremities. Interestingly, although each hole is drilled halfway through, they are carefully spaced to avoid meeting each other. A single exception occurs at the right hand end in the drawing, but this is surely unintentional, the two meeting only by chance.

FIGURE 35

Igloo Point, Arnaud Estuary. Non-Dorset, possibly Thule. All specimens were dug up and abandoned by a souvenir collector.

No. 1 is a rim fragment of a soapstone lamp. Its curvature is similar to several Dorset specimens from Pamiok Island, but the

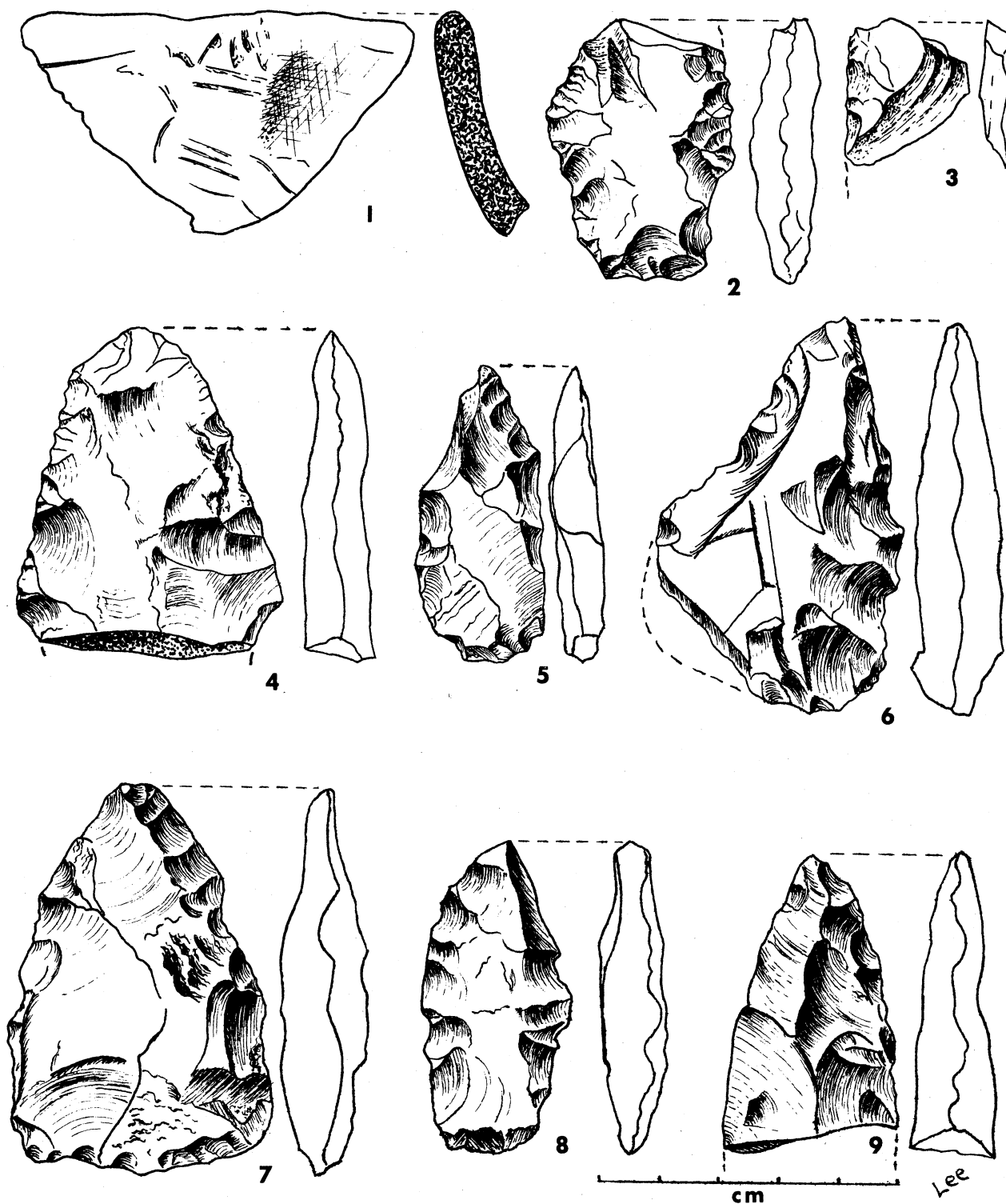


FIG. 35 - Igloo Point in the Arnaud Estuary. Materials abandoned by looter. Possibly Thule.

No. 1, thick soapstone vessel rim; No. 2, unfinished projectile point; No. 3, edge fragment of biface; No. 4, part of notched bifacial tool; Nos. 5-8, unfinished bifaces; No. 9, tip of unfinished biface.

depth is greater, the work is crude and uneven, and gouging scars remain on both sides.

No. 2 is an unfinished stemmed point in milky quartz. Minor edge-trimming is seen.

No. 3 is an edge fragment of a thin bifacial tool, in black chert. It is finely worked. There is slight edge wear, both on the original edge and on two of the broken edges, apparently resulting from a scraping action.

No. 4 is the blade of a notched or possibly stemmed bifacial tool, in coarse, dark, smoky quartz. The flaking, entirely primary, is poorly executed, leaving the edges blunted.

No. 5 appears to be an unfinished projectile point, unifacially flaked, in milky quartz. The flaking is crude, steeply beveled, and entirely primary.

No. 6 is an unfinished smoky quartz bifacial tool. The flaking is primary, crude, and stepped or hinged.

No. 7 is a quartzite bifacial tool, unfinished, with crude primary flaking that has left it thick. The flaking tends to break out in hinges.

No. 8 is a milky quartz bifacial tool, possibly intended as a projectile point or a knife. It is unfinished. The flaking is mostly primary and crude. In form it resembles a Thule specimen from the Barren Grounds (Harp, 1962, Pl. 4 : 9), although smaller. His entire plate, in fact, shows crude, thick specimens for Thule, with poor flaking control. Similarly, there is a resemblance to a Sadlermiut specimen shown by Taylor (1960, Pl. X : P).

No. 9 is the tip of a projectile point in coarse black quartz. It is crude, unfinished, and ridged on the obverse side. The flaking is primary and poorly done.

FIGURE 36

Igloo Point, Arnaud Estuary. Non-Dorset, possibly Thule. All specimens were dug up and abandoned by a souvenir collector.

No. 1 is a mid-section of a smoky quartz biface. Although the flaking is primary only, it is very well done, despite a tendency for the

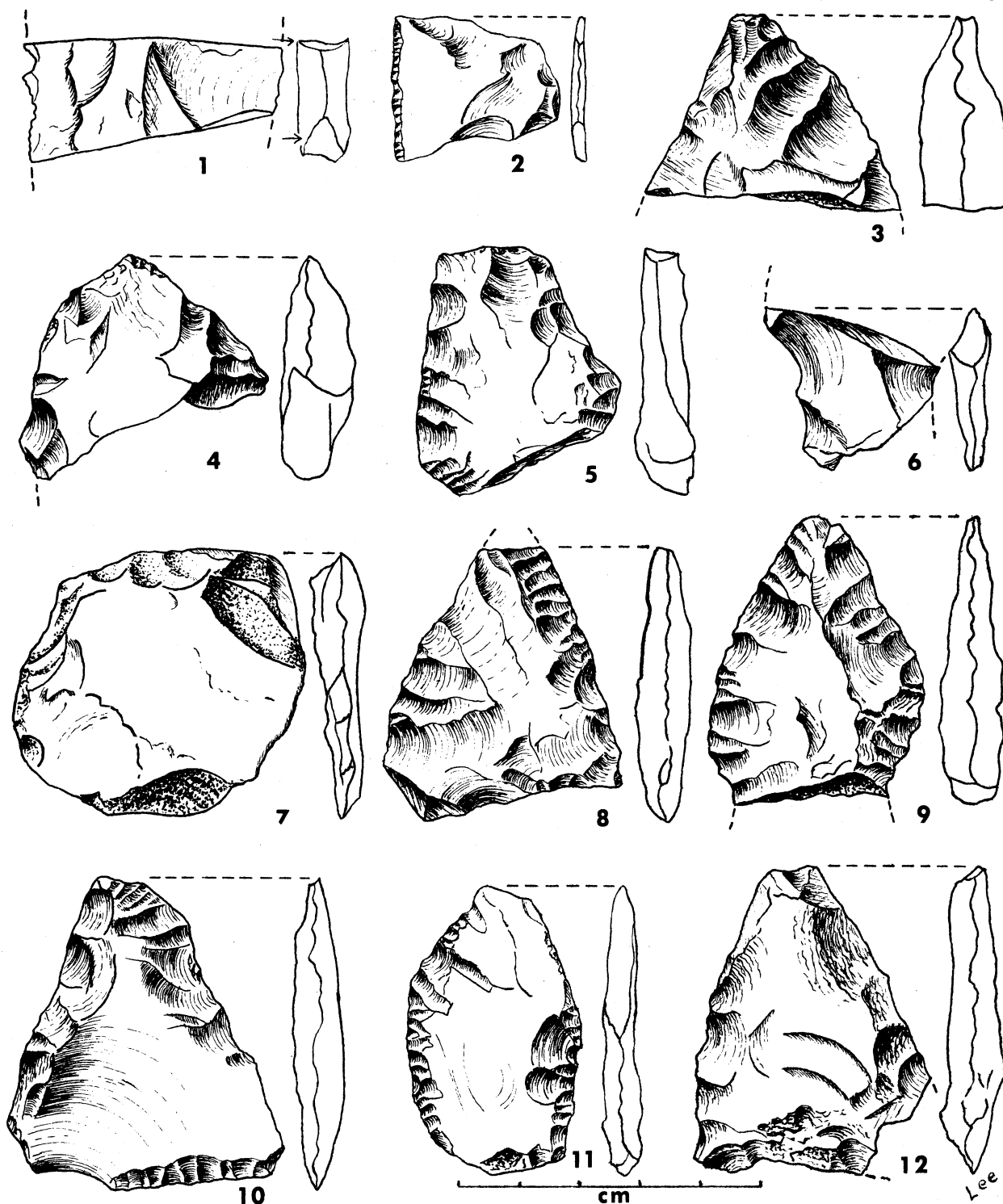


FIG. 36 - Igloo Point. Materials abandoned by looter. Possibly Thule.

No. 1, mid-section of biface, purposely broken; No. 2, flake scraper; Nos. 4-6, discarded fragments of unfinished bifaces; No. 7, unfinished, partly polished cutting tool of extremely hard stone; Nos. 8-9, unfinished projectile points; No. 10, scraper or unfinished unifaced point; No. 11, knife-scraper tool; No. 12, unfinished point.

material to break out in hinges.

No. 2 is a scraper, its scraping edge finely flaked. The material is milky vein quartz.

No. 3 is the tip of a smoky quartz biface, crude and unfinished. It is thick, with steep primary flaking. The flakes tend to break out in hinges.

No. 4 is a worked object, possibly an unfinished bifacial tool, in milky quartz. The flaking is very crude.

No. 5 is a milky quartz tool, unifacially flaked somewhat in the manner of a scraper. However, the low flaking angle has left a sharp edge better suited to cutting than to scraping.

No. 6 is a chipped object in greenish quartzite. Although the purpose is not apparent, it could well be a stem fragment of a projectile point, as suggested in the sketch by dashed lines.

No. 7 is a crudely flaked dark grey stone, hardness 7, with large portions of its major surfaces suggesting a beach pebble origin. It is pale green when thin areas are held to strong light. One corner, the upper right in the illustration, has been polished from both faces to form the blade of a celt. Polished tools in hard stone are commonly attributed to the Dorset culture, but as demonstrated at Payne Lake (Lee, 1966b), they are by no means confined to that culture.

No. 8 is a thick triangular point in milky quartz, probably unfinished. The flaking is quite well done, and there is considerable secondary work.

No. 9 is a crude, unfinished projectile point in milky quartz. It was probably stemmed. There is moderate secondary flaking, poorly done, with the edges left blunted.

No. 10 is a unifacial tool, possibly a scraper, in coarse smoky quartz. It is steeply chipped along two areas in scraper fashion, but there is very little indication of use wear.

No. 11 appears to be a knife, scraper, and graving tool. The material is probably vein quartz, although it has the waxy surface of chalcedony. The edges show considerable use wear.

No. 12 is an unfinished triangular biface, possibly intended as a projectile point. It is of milky quartz. Flaking is primary only.

In association with the artifacts at Igloo Point were 58 chunks (34 coarse smoky quartz, mostly dark; 7 milky vein quartz; 14 milky quartz; 1 light quartzite; and 2 igneous) and 49 flakes (25 coarse smoky quartz, mostly dark, R 57-26 mm.; 2 fine smoky quartz, R 45-13; and 7 light greenish quartzite, R 70-32). All chunks and flakes were discarded, but it was noted that only the flakes of milky vein quartz were thin. The remainder were thick and crude.

It is suggested here that the flakes may be more significant than the artifacts. The latter represent only the crude and unfinished materials not wanted by the collector, but the flakes should be almost the total of what was found. Their large size and crude character, in my opinion, instantly exclude them from the Dorset culture, insofar as I have encountered it thus far in the Ungava Peninsula.

I have no basis for comparison with the Thule culture, but note that Collins (1951a) remarked that the "paucity of stone" on Thule sites near Resolute was unusual. I note, too, that chipped stone traits for Sadlermiut are rather abundant (Taylor, 1960), with considerable use of flakes for scrapers and knives, and that some of the workmanship must be described as rough.

FIGURE 37 A

Wakeham Bay. Soapstone cooking vessel, presumably Thule, collected by Dr. Benoît Robitaille from an island about 10 miles east of Wakeham Bay. Its overall dimensions are 17 $\frac{3}{8}$ by 12 $\frac{1}{4}$ inches, with a height of 5 $\frac{3}{8}$ inches. It is 7 $\frac{3}{4}$ inches wide at the ends.

Its shape is oblong, with both ends and sides outcurving conspicuously, and the corners rounded. The walls of sides and ends rise almost vertically but are outcurving. Weak handles or lifting holds, only 6 mm. deep, occur 62 mm. below the lip at each end. They are produced by a slight bulge above and a shallow hollowing below the hold.

Decoration is in the form of a slight collar, 15 mm. high, emphasized by a broad shallow groove below it. A narrower groove runs completely around the lip. These may show Norse influence or derivation (see Nørlund 1930, p. 151, Fig. 86; Hamilton 1956, p. 117,



FIG. 37 A - Soapstone cooking vessel collected by Dr. Benoît Robitaille, from an island near Wakeham Bay. Broken and cleverly mended, it continued in use. Note the bulge at the end, which makes a handle. A slight collar is formed on the rim, and a decorative groove extends around the lip. Similar features occurred in Norse vessels. Dimensions $17 \frac{3}{8}$ by $12 \frac{1}{4}$ by $5 \frac{3}{8}$ inches (ends $7 \frac{3}{4}$ " wide). Reconstructed by Pierre Lévesque and T. Lee.



FIG. 37 B - Soapstone cooking vessel collected by Dr. Benoît Robitaille, from Akpatoc Island, Ungava Bay. Note the central bulge on the end, overhanging a hand hold. An encircling decorative line gives the impression of a collar. Tool marks are visible. Dimensions $18 \frac{7}{8}$ by $11 \frac{1}{4}$ by $5 \frac{3}{4}$ inches (ends 7" wide). Weight $26 \frac{1}{2}$ pounds. Reconstructed by Pierre Lévesque and T. Lee. Photographs by Yves Tessier.

Fig. 54; and Roussell, 1936, Fig. 209). The lip is otherwise flat, except for a slight rounding at both edges. It is of rather uniform thickness, about 16 mm. Suspension was by means of paired holes drilled downward from the lip at each corner, curving outward to emerge in the shallow groove below the collar. One such suspension device is illustrated by Turner, 1894, Fig. 53.

The exterior, although quite smooth, shows faint traces of some flat and finely toothed implement, presumably metal, that was evidently dragged across the surface. The interior, while rougher and somewhat pitted, seems to have been scraped with the same tool before smoothing.

The vessel was broken at some time, but continued in use with the aid of some remarkable repairs. One end broke out intact, and two sections of an adjacent side went with it. At each of the four breaks, paired holes were drilled, but lashings were not sunken. At least two such pairs were used for three of the breaks, while one corner, as seen in the photograph, received four. Concerning the Copper Eskimo, Jenness reported (1946 : 66) that apparently no cement was used to fill up the cracks other than fat or grease.

Additionally, the bottom broke out. The ingenuity of the Eskimo is seen in the circumstance that the bottom pieces, only 3 mm. thick in places, were drilled to permit lashing together, and the reconstructed sections were further drilled to match the positions of similar holes along the base of the side and end walls. Considerable reshaping of the fragments took place, to obtain the best possible fittings.

Heavy corrosive sediments occur over the under side, while small patches of map lichens are seen on the interior.

FIGURE 37 B

Akpatoc Island. Soapstone cooking vessel, presumably Thule, collected by Dr. Benoît Robitaille from Akpatoc Island, Ungava Bay. Its overall dimensions are 18 7/8 by 11 1/4 inches, with a height of 5 3/4 inches. It is 7 inches wide at the ends.

The shape is rectanguloid, with strongly outcurving sides and gently outcurving ends. Corners are only slightly rounded. Sides and ends meet at an angle of about 106 degrees. The sides and ends, gently outcurving vertically, slope in toward the lip, forming an angle of about

85 degrees with the bottom. Narrow lifting holds, three fingers wide and 10 mm. deep, are formed at each end about 76 mm. below the lip. A conspicuous bulge occurs above them, with a deep scallop below.

Decoration is confined to a single narrow groove along one side and both ends, becoming a broad shallow groove on the remaining side, undercut in the latter case in such manner as to produce a slight collar 30 mm. high. The lip is flat, ranging from 19 to 24 mm. wide, with slightly rounded edges. Suspension was accomplished by holes drilled from the lip downwards, meeting upslanting holes drilled from the groove below the collar. These are placed at corners and on the ends.

The vessel walls broke in only a few places, just 7 breaks at the lip. Two-thirds of the bottom, which is only 10 mm. thick, broke into numerous fragments. No attempt was made to repair the vessel, and it may have had burial associations.

Both inner and outer surfaces were considerably smoothed. Tool marks show only on the exterior surface of the bottom, and on the interior. In the latter, at least, a broad gouge tool was used. The interior was also scraped with some toothed implement. The scratchings are usually not parallel, and it is difficult to establish the nature of the tool.

The vessel has a new or "flesh" look, relative to all others considered in this paper. It is about 95% complete and weights $26\frac{1}{2}$ pounds.

FIGURE 38 A

Pamiok Island. An end and corner section of a soapstone vessel from a presumed Thule tomb on Pamiok Island. Additional fragments and sections not shown permit reasonable projections of curves. With the midpoint known at both ends and the rim at one end complete, it is suggested that the overall length was about 17 inches and that the midpoint width was about $9\frac{3}{4}$ inches. The ends, 6 inches wide, are beveled rather than curved, with the two planes forming an angle of 165 degrees. Each in turn forms an angle of 115 degrees with the adjacent side. Sides and ends slope in upward, forming an angle of 82 degrees with the bottom, gently outcurving vertically.

The basal edges of the walls are now flat and smooth, but vestiges of breaks indicate that there has been repair and that the original

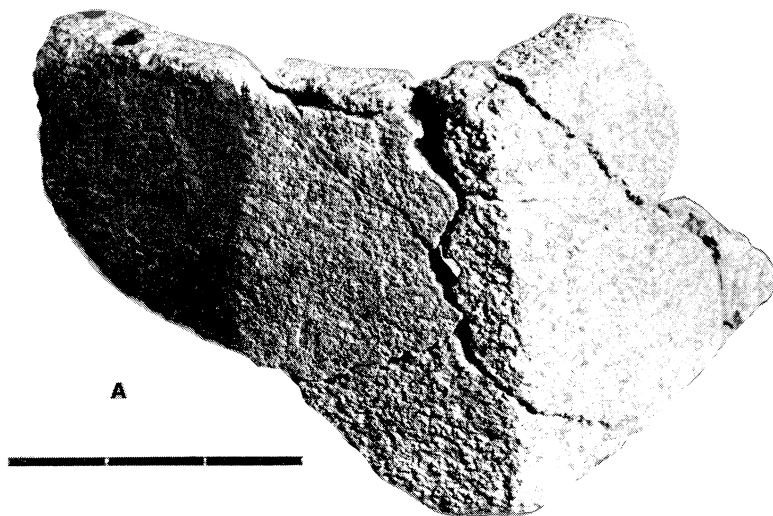


FIG. 38 A - Part of a soapstone cooking pot found by Zachariasi on Pamiok, in and around a presumed Thule tomb. It is very carefully beveled and shaped from an unusually coarse stone. It had no handles. Dimensions about 17 by 9 $\frac{3}{4}$ by 4 $\frac{1}{4}$ inches (ends 6" wide). Scale in inches.



FIG. 38 B - Part of a soapstone cooking vessel, collected by Patrick Plumet on Pamiok, near three ancient cairns. A rounded ridge, formed by grooves above and below, encircles the rim. Note the deep gouge near the bottom of the end, which provided a handle. Dimensions about 18 by 11 by 5 $\frac{3}{4}$ inches (ends 8 $\frac{1}{2}$ " wide). Scale in inches. Reconstructed by Pierre Lévesque and T. Lee. Photographs by Yves Tessier.

bottom joined onto the sides in one piece. After breakage a bottom section, presumably made from the original, was fitted on. The fragments of this vary between 8 and 5 mm. in thickness. Walls are heavy, varying between 24 and 16 mm. thick. They are entirely without decoration, and there were no handles or lugs. Suspension was achieved by a pair of holes straddling each corner, drilled downward from the lip at an angle such that they meet some 20 mm. down, without emerging on the sides. Lips are flat.

The material is, of course, soapstone, but it seems to be an unusually coarse variety of it. Despite considerable smoothing on the exterior, to the extent that no tool marks remain, the surface is still rough, and it seems not to be the result of weathering. The interior, also smoothed but to a lesser degree, shows the marks of a shallow gouge, about 8 mm. wide, and presumably metal.

Even in such fragmentary condition, the remarkable beauty, simplicity, and symmetry of this vessel are apparent. It is difficult, indeed nearly impossible, to make comparisons with vessels mentioned in Arctic literature other than Scandinavian, but from the few examples available at the Centre d'Etudes Nordiques museum it is apparent that a basic pattern or form, in these large vessels, was widespread in the Ungava Bay region of the Arctic. If we may judge by the comments of Jenness concerning the Copper Eskimo (1946 : 66), a narrower version, but otherwise similar in size, occurred westward.

FIGURE 38 B

Pamiok Island. Sections of a soapstone vessel, presumably Thule, collected by monsieur Patrick Plumet near 3 cairns on Pamiok Island. Although the sections shown in the photograph are not joined, reasonable projections of curves, with the midpoint known on both end sections, suggest an overall length of 18 inches and a midpoint width of 11 inches. It is $8\frac{1}{2}$ inches wide at the ends and $5\frac{3}{4}$ inches high.

After breakage the vessel was made narrower and the breaks were shaped and smoothed to match. The complete end shows that 4 holes were drilled, by metal of about 6 mm. diameter, along each matching edge for lashings. The latter were sunken in some instances. The vessel thus created was $6\frac{1}{4}$ inches wide at the ends and about 9 inches wide at the midpoint.

In shape it was oblong, with both sides and ends outcurving. The corners were only slightly rounded. The sides and ends slope in

upwards, and are slightly outcurving vertically. They form an angle of about 80 degrees with the bottom, and about 120 degrees with each other at the point of juncture. Across both ends, starting 1 1/4 inches up, a heavy groove was cut, 3/4 inch wide and 1/2 inch deep. A considerable bulge or thickening of the vessel wall at midpoint on the ends, and overhanging the groove, provided a good hand hold.

Decoration consists entirely of a rounded ridge 6 mm. wide, centred 30 mm. below the lip. It stands out from the plane of the side below, but not from above. A slight collar thus occurs, and the ridge is separated from it by a shallow but conspicuous groove. The possibility of this design stemming from Norse contact in the remote past has to be considered.

The lip is almost flat, with rounded edges. Its width is a uniform 18 mm. Suspension was accomplished by means of a hole on either side of each corner, about one inch apart and drilled downward, curving outward to emerge about an inch below the rim.

Walls, other than in the handle area, have a maximum thickness of 24 mm., with 20 mm. a more common figure. At one point, where sections were lashed together, an unusual feature occurs. Just below a lashing groove, halfway down, there are two vertical slots just over 1/4 inch long. Embedded in one is a section of iron. Its precise function is not recognized, but it penetrates to the interior, occurring just under a similar lashing groove there. The bottom of the vessel is thinner than the walls, being not over 13 mm. in any piece found. Most of it is missing.

Tool marks are not visible over the surface, but in the grooves forming hand holds are indications that some metal chisel of about 8 mm. width was used. Thus it seems that the vessel surfaces may have been quite smooth once, and that the present roughness of parts of the exterior may be due to weathering.

FIGURE 39 A

Interior. Soapstone lamp, probably late Eskimo, collected by Mathias Nolin, at the confluence of the Arnaud and Hamelin Rivers. Overall dimensions are 5 7/8 by 4 1/4 inches, with a height of 1 7/8 inches.

The shape is a broad oval, with the sides and ends curving under to a flat oval bottom.



FIG. 39 A - Small soapstone lamp collected by Mathias Nolin, at the confluence of the Arnaud and Hamelin Rivers. Its thick walls and crude finish suggest a late date, despite its typically Dorset form. Note the wick ledges. Dimensions $5 \frac{7}{8}$ by $4 \frac{1}{4}$ by $1 \frac{7}{8}$ inches. Photograph by Yves Tessier.

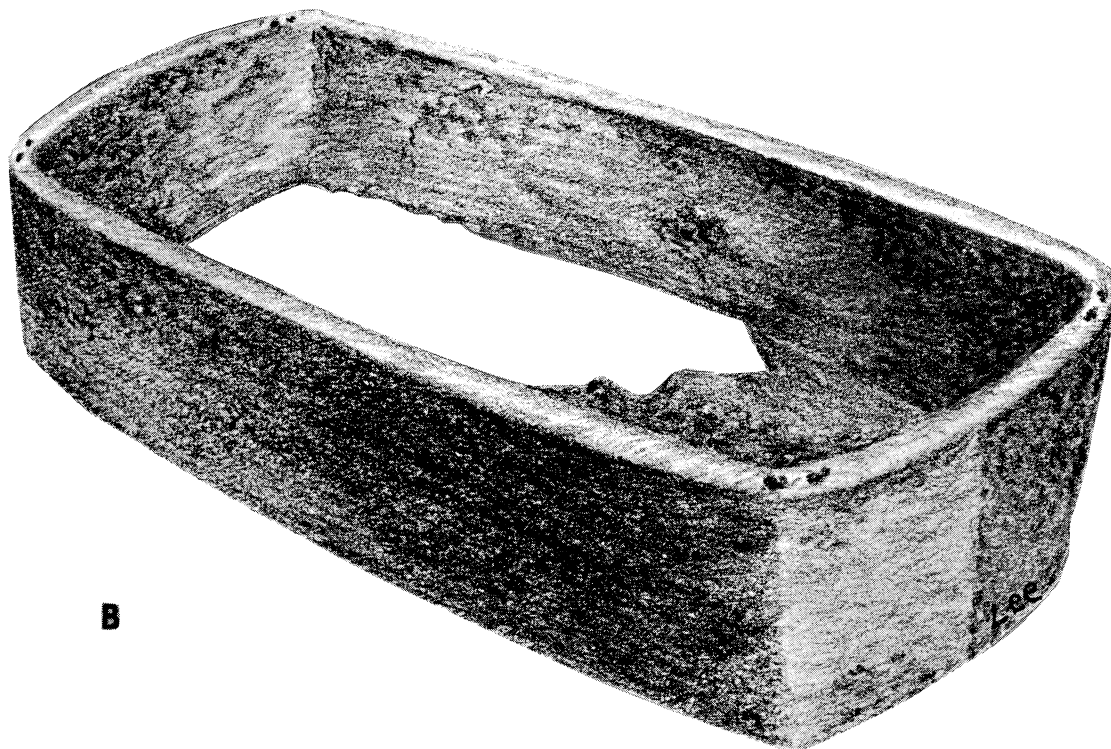


FIG. 39 B - Memory sketch of a soapstone cooking vessel seen at Payne Bay, from Kayak Bay. Probably obtained from a tomb. Dimensions $12 \frac{1}{8}$ by $6 \frac{3}{4}$ by $3 \frac{1}{2}$ inches.

There is no decoration whatever. A wick ledge runs along one side and both ends of the interior, dipping sharply almost to the bottom on the remaining side, as shown. The ledge is only about 5 mm. wide.

The vessel walls are thick, mainly about 17 mm., but the intrusion of the wick ledge has reduced the lip to a thickness of 10 mm. The lip is rather flat or in places slightly rounded. The weight is 2 pounds.

Surfaces, both inside and out, show little smoothing, and the marks of a tool, presumably metal, remain prominently. The tool seems to have been a very shallow and narrow gouge.

Unfortunately, the vessel was thoroughly cleaned and scoured before I saw it, so that no clues as to its former appearance and age implications remain. Despite its rather typical Dorset shape, however, its crudity and thickness, together with the presumed metal tool marks, argue for a much later date. A rather similar vessel from Julianehaab, southwest Greenland, is illustrated by Mathiassen (1936 b, p. 76, Fig. 40), but no connection is postulated.

The circumstances of finding are of considerable interest, as reported by monsieur Nolin. It was half buried in the centre of a circle of rocks, roughly 18 inches across the interior. Similar rock enclosures occurred in groups of 3 or 4 some 15 feet apart and forming a line along the south side of the Arnaud River, the groups about 50 to 75 feet apart. The formations were visible at a distance. Only the one circle was examined.

FIGURE 39 B

Kayak Bay. This vessel, collected by a young Eskimo lad at Payne Bay, was said to have come from an island at the north side of Kayak Bay. He declared that there was nothing else there, but its condition very strongly indicates that it came from a tomb, probably late Eskimo. Its dimensions are 12 1/8 by 6 3/4 inches with a height of 3 1/2 inches.

The vessel is roughly rectangular, with slightly outcurving sides and ends. The latter have a slight median ridge. There is little rounding of the corners. The vessel walls slant inward toward the base. The lip is flat.

It bears no decoration or handholds. Suspension was by means of metal-drilled holes $\frac{3}{4}$ inch apart, in the lip at each corner, but placed on the ends. Stubs of leather thongs still project from some of these.

The walls are about $\frac{1}{2}$ inch thick, although not uniform. The bottom is thinner and about 75% of it is missing. The exterior of the bottom is encrusted with black sediments. The vessel surface is quite smooth, but not polished. There is little trace of scoring.

This vessel was available for purchase, but was not obtained, in the probably futile hope that further tomb looting might be discouraged, even on a small scale.

FIGURE 40 A

Pamiok Island. A wooden scoop, possibly late Eskimo, collected on Pamiok Island (Fig. 9 a). Overall dimensions are 267 mm., or 229 mm. without the handle, by 143 mm. It is 78 mm. high at the handle end, dropping to 70 mm. along the sides, then rising slightly to the centre of the scoop end.

The shape is that of a slightly narrowed oval, truncated at the scoop end. Sides slope out slightly from the rounded basal edges, curving back inward near the thin and rounded lips. The scoop end is sharply beveled, meeting the bottom at an angle of about 140 degrees. The handle, 38 mm. by 30 mm., is rather irregular. Interestingly, its flattened form projects exactly from the heart of what was probably a black spruce log, as suggested by the extremely fine growth rings and the type of knots — surely a product of the tree line area, possibly the Koksoak River.

Walls are thin, about 7 mm., thickening somewhat toward the handle. It is there, however, that a break occurs — a horizontal split, with two small holes drilled vertically, showing the effort made to mend it. Similarly, a vertical break at one corner of the scoop end was mended by means of small paired holes, with fragments of the sinew or possibly baleen lashings still in place (see photo, left end).

The bottom is surprisingly thin, from 2 to 3 mm., and much damage has resulted there, with splitting, warping, and breaking.



FIG. 40 A - Wooden scoop with handle, found on Pamiok. Possibly used as a ladle for seal oil, or as a boat bailer. The rim has been mended, apparently with pegs now missing, and a corner with baleen or with sinew. Such vessels may trace back to the Norse. Dimensions overall, $10\frac{1}{2}$ by $5\frac{5}{8}$ by $3\frac{1}{8}$ inches (handle $1\frac{1}{2}$ " long). Reconstructed by T. Lee.



FIG. 40 B - Walrus lower jaw, found on Pamiok in the deep muck of a water hole. The end and chin area have been cut away, perhaps by a saw. Possibly used as the bow piece of a kayak, as suggested by Dr. Jacques Rousseau. Scales in inches. Photographs by Yves Tessier.

The scoop end bears thick black sediments on the exterior, and the bottom is stained. The remainder of the exterior is merely like the normal appearance of weathered wood, but a thin lichen growth occurs. Thicker lichens, apparently long dead, cover most of the interior.

When discovered, it was sitting upright in normal position, neatly wedged between two very large blocks of stone, in a rather sheltered position. The rocks bore away sharply below the vessel, providing ample drainage and, in effect, suspending the scoop in mid-air. Yet decay, which is an incredibly slow process in the Arctic, had progressed to the point where the vessel fell into several pieces upon being moved. Warping and the extreme delicacy of the specimen prevented perfect reconstruction, within the time available.

In searching for comparable specimens, I find that the literature, especially Scandinavian, is well endowed with instances of wooden scoops and ladles. The latter, I think, should be excluded on grounds of much longer and usually upturned handles.

An identical vessel, as seen from above, is shown by Larsen (1934, p. 171) from northeast Greenland. It is steeper on the forward end, however — less like a scoop — and the handle appears to occur nearer the lip. He places it in a late period, from about A. D. 1600 to the early 1800's.

In the matter of resistance to decay and possibly remarkable antiquity, it is interesting to note that Maxwell (1960 : 87) contemplates an age of nearly 600 years for a fragment of a wooden vessel that he found wedged between rocks on Ellesmere Island. He assigns it to the Inugsuk period, a "late Thule development with strong Norse influence". In the latter connection we note too a comment by Mr. Farley Mowat that Norse peoples used similar scoops for boat bailers. In any case, regardless of its age, it seems probable that our scoop ultimately derives from the Norse culture and custom.

FIGURE 40 B

Pamiok Island. Walrus jaw, collected on Pamiok Island from a water hole (Fig. 9 B).

This otherwise normal jaw, evidently ancient and of an aged walrus, has been modified in an interesting and puzzling manner. The

chin area has been cut away in two planes that meet at an angle of 107 degrees. Faint traces of tool marks appear to be partly the result of chopping with a metal tool, but a certain regularity and degree of straightness in some of the marks also suggests use of a saw.

The purpose of the modification remains in doubt. The lower plane could be the base for a sort of stand, but the specimen topples over when placed thus. Of course, if used as a support for a lamp or other heavy object, this objection would be removed.

However, there is merit in a suggestion of Dr. Jacques Rousseau that it might have served as a kayak bow piece. Despite the objectionable weight of walrus bone, the piece could have been symbolic, carrying some magic association for the owner. Nothing of the sort has been mentioned in the literature thus far examined.

FIGURE 41

Pamiok Island. No. 1 was obtained by Zachariasi from a disturbed tomb (Fig. 9 o); Nos. 2-4 and 6 are from a dried-up water hole (Fig. 9 D). No. 5 is from an excavated double tomb that had been looted.

No. 1 is a heavy, curving, whale bone band, probably broken off at the midpoint. The thick basal edge is flat, and provision was made on both sides for lashings leading to the 5-mm. drilled holes. The specimen was shaped by chopping with a metal tool, probably an axe. Presumably the specimen was part of a sled. It is probably late Eskimo work, although Zachariasi did not recognize it or understand it.

Nos. 2 and 3 are bone edge mountings. The lashings were sunken on the larger specimen, however, as though for a sled runner. The under side, too, is deeply stained green, as though it had been in contact with copper. The drilled holes suggest either Thule or late Eskimo.

No. 4 is a knife handle, made of two bone plates that formerly encased the butt of a thick knife blade. A small section of the blade and 6 heavy iron rivets are still in place. The seventh hole may have held a thong, rather than a rivet. It is probably late Eskimo.

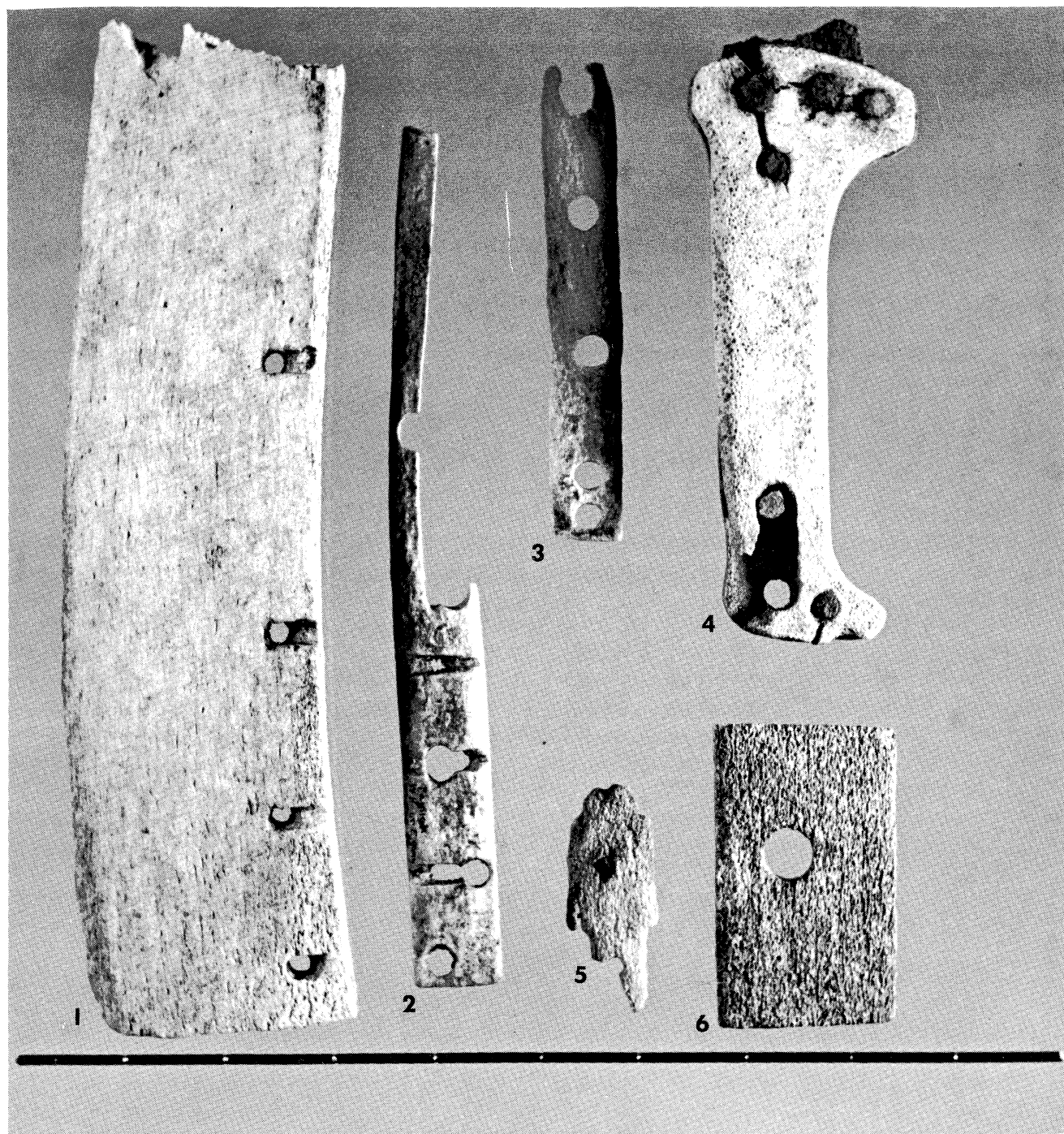


FIG. 41 - Objects found on Pamiok. No. 1 is probably a sled part. Nos. 2-6 are from a dried-up water hole. Nos. 2 and 3 are bone edge mountings. No. 4 is a knife handle with iron rivets. No. 5 may be part of a composite bow and has an iron rivet. No. 6 is probably part of a sled runner. Scale in inches. Photograph by Yves Tessier.

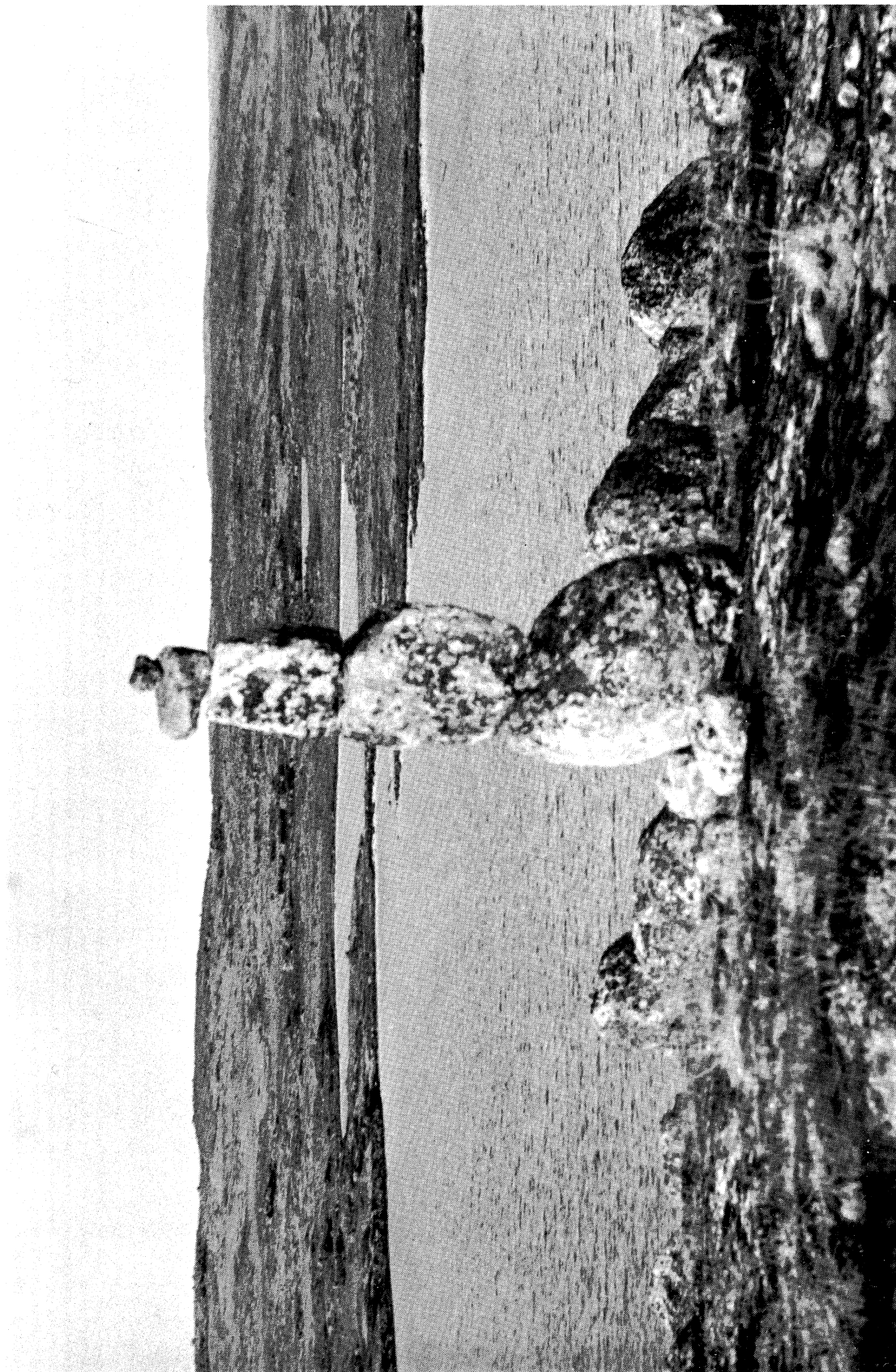


FIG. 42 - Small beacon prominently set at the head of the Kogaluk River south of Payne Lake. Possibly significant in the matter of postulated Norse crossings to Hudson Bay. Photograph by Dr. Jacques Rousseau, 1948.

No. 5 is a flat, shaped bone object that suggests use in a composite bow. A small iron rivet is still in place. It may be either Thule or late Eskimo.

No. 6, measuring 71 by 43 by 7 mm., is evidently a bone sled runner part, being plano-convex. It has a central drilled hole 12 mm. in diameter.

Not shown are 2 specimens from the same water hole. One is a wooden handle, possibly for a knife. It is crudely carved to shape but apparently was never used. A small-headed wire nail driven into one side identifies it as of very recent origin.

The second object is of heavy bone, evidently sea mammal, 14 1/4 inches long, although it is broken off at one end. The intact end is notched as though to receive a bow string. There is considerable curvature to the specimen, but Zachariasi suggested that it was so used.

SKELETAL MATERIAL

At this time it is possible to make only a brief and preliminary comment on the skeletal materials obtained in 1966 on Pamiok Island. Through the kindness of Dr. Raoul Hartweg of Paris, who had only a very brief time at his disposal for study of the remains, we are fortunate in having precise measurements of significant features of the skulls, although poor preservation made some measurements doubtful, as indicated in Table 1, or even impossible to obtain.

For comparative purposes I have included a Labrador specimen, together with the Imaha skull found by Taylor on Pamiok in 1957 and some figures for Recent Eskimos, as presented in Laughlin and Taylor, 1960, p. 9. From our Table 1 it is apparent that the Labrador specimen, which is markedly Eskimo in all of its features except the nasal sill, is far closer to the Imaha skull than to those obtained by us in 1966. This is perhaps most apparent in the cranial module, which is a rough indication of skull size. When the skulls are placed side by side, the striking differences in size and general characteristics are immediately apparent to everyone, and it is difficult for the laymen to think of them as representatives of one race only.

I have referred to what I regard as a European appearance in two of the skulls, particularly prominent in the case of Tomb No. 1 (Fig. 43). It is important to realize at once that in the firm opinion of Dr. Hartweg, a noted authority, even these are typical Eskimo. Yet the apparent variation is so very great that to a layman, at least, it must then seem that there can be no such thing as "typical Eskimo".

That there are positive Eskimo features present, particularly in the nasal sill, is a certainty, as explained by Dr. Hartweg. But a perusal of the literature inevitably raises questions. For instance,

TABLE 1

	Tomb 1	Tomb 2	Tomb 3	Tomb 5	Cairns	Labr.	Imaha	Recent
Glab-occip length	179.0	180.0	171.0	172.0	175.0	189.0	185.0	185.7
Maximum breadth	130.0	131.0	134.0	131.0	130 ?	136.0	130.0	134.4
Bas-breg ht	132.0	135.0	122.0	116.0	136.0	134.0	140.0	134.0
Cranial index	72.6	72.8	78.4	76.2	74.3	71.9	70.3	72.6
Length-ht index	73.7	75.0	71.3	67.4	77.7 ?	70.9	75.7	72.7
Breadth-ht index	101.5	103.0	91.0	88.5	104.6 ?	98.5	107.7	99.8
Cranial module	147.0	148.7	142.3	139.7	147.0 ?	153.0	151.7	151.0
Max front. bdth	112.0	?	108.0	105.0	106.0	116.0	?	?
Min front. bdth	97.0	?	88.0	91.0	93.0	94.0	98.0	92.2
Upper facial ht	71.0 ?	65.0 ?	72.0 ?	62.0 ?	68.0 ?	75.0	?	?
Tot. fac. ht pog.	104.0 ?	?	113.0 ?	?	?	126.0	?	?
Tot. fac. ht gna.	111.0 ?	?	120.0 ?	?	?	130.0	?	?
Bizygomatic bdth	126.0	131.0	130.0	?	129.0	139.0	142.0	133.0
Nasal height	48.0	45.0 ?	51.0	43.0	47.0	52.0	48.0	50.9
Nasal breadth	21.0	23.0 ?	26.0	21.0	22.0	25.0	26.0	22.5
Nasal index	43.7	51.1 ?	50.9	48.8	46.8	48.0	54.2	44.3
Orbital height	35L-35R	?	35L-34R	36L-34R	33L-33R	42L-41R	34.5	35.8
Orbital breadth	39L-40R	?	38L-38R	33L-33R	39L-40R	37L-37R	41.5	38.8
Orbital index	89.7	?	92.1	109.1	84.6	113.5	83.1	92.5
Foramen magnum lth	37.0	36.0	35.0	36.0	37.0	45.0	?	?
Foramen mag. bdth	27.0	26.0	26.0	26.0	29.0	33.0	?	?
	M Fairly Old	M Very Old	M Fairly Old	F Adolesc	M Middle Age	M 20-25 Years	M 35-45 Years	?

the Eskimo face is said to be broader than the cranium, in its most characteristic form (Collins, 1951 : 441). The bizygomatic widths in Table 1 show that, while the statement holds for the Labrador and Imaha skulls, it is not at all true for any of the Pamiok skulls, especially Tomb 1.

Other features, said to be highly characteristic of the Eskimo, are conspicuously lacking or only very mildly present in the Tomb 1 skull. These are the keel or ridge (Fig. 44), normally obvious when viewed from the front (Daris R. Swindler in Giddings, 1964 : 306 and Collins, 1951b : 441); very prominent cheekbones, with narrow, sloping forehead; and a large and heavy jaw with ascending ramus outflaring at the back (Collins, 1951b : 441). Again, there is the nasal breadth of 26 mm. — a figure declared by Collins (1962 : 131) to almost exceed the Eskimo range, especially when applied to the eastern Eskimo.

The Imaha skull, as illustrated by Laughlin and Taylor, and the Labrador specimen included here are heavy, massive, in appearance. This is in marked contrast to the appearance of the Tomb 1 Pamiok skull (Fig. 43), which is instead small and delicate. The same may be said for the Tomb 2 skull (Fig. 45).

With the exception of Tomb 3 and the tomb at the cairns, skeletal disintegration had progressed very far. Indeed, almost nothing remained but the skulls in Tombs No. 1 and No. 5. Even Tomb 3 had no such good preservation as was encountered by Taylor in the case of the Imaha find. What this circumstance may mean in terms of age is far from clear. Certainly the obvious conditions of degree of exposure for Tombs 2 and 5 were very similar to those of the Imaha tomb. Nos. 1 and 3 involved a slight accumulation of soil — yet one preserved reasonably well while the other did not. It is interesting to note, however, that Taylor was able to contemplate preservation of at least 1,000 years for a skeleton on the surface in a tomb. We do not consider such an extreme age likely for any of the Pamiok remains, despite their advanced state of decomposition.

The question that we should like to see most thoroughly examined is the matter of racial mixing. As matters stand now, it is authoritative opinion that there was none in the Pamiok finds. We note with interest, however, that certain Eskimo traits, such as the thickened typanic plate and the mandibular and palatine tori had a high incidence among iron-age and mediaeval Norse crania from Iceland and Greenland (Collins, 1951b : 453). Again, in the same work (p. 447), Collins

states that it is quite evident that the Labrador natives are by no means pure Eskimo, and gives his opinion that fairly recent contacts are responsible.

Some racial mixing in Greeland in Norse times is recognized. The Norse were in Ungava and, logically, mixing must have taken place there also. The intriguing question is : if a minority white group (Norse), endowed with at least some traits normally attributed to the Eskimo, were absorbed by a majority Eskimo population, what evidence would appear in the skulls of descendants some 500 or 600 years later ? Would there be anything left of the minority group traits other than in terms of "individual variation" in the dominant group ?

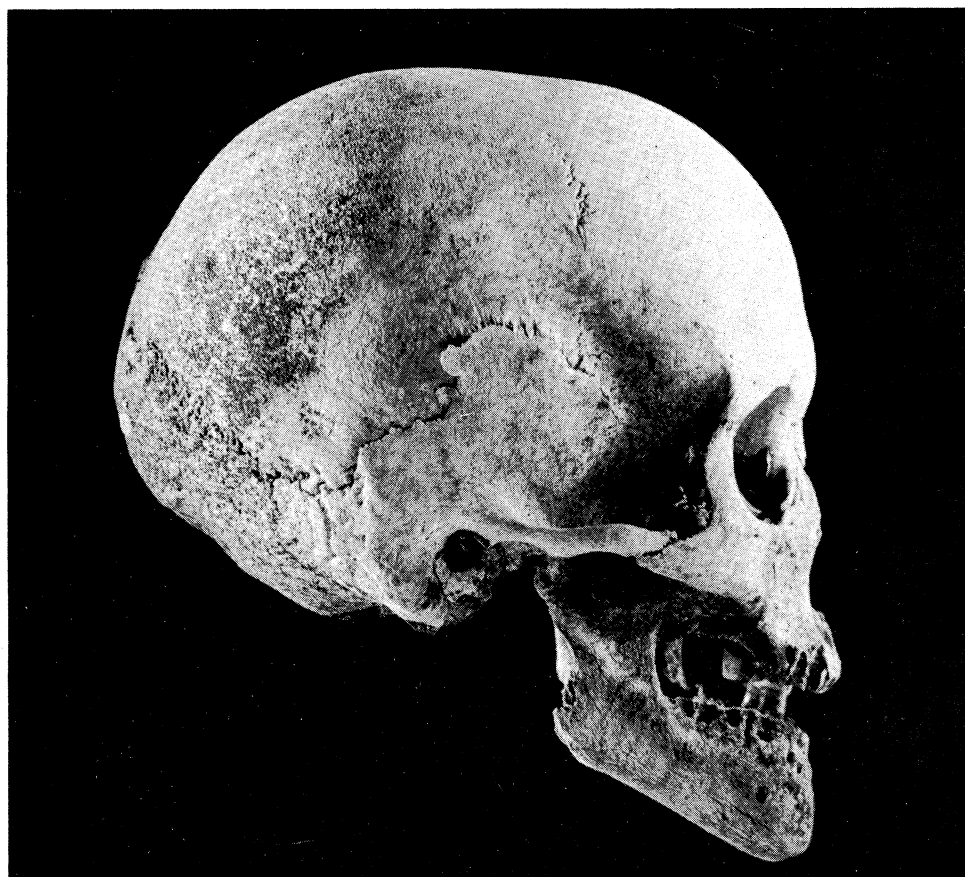


FIG. 43 - Pamiok Island, Tomb No. 1

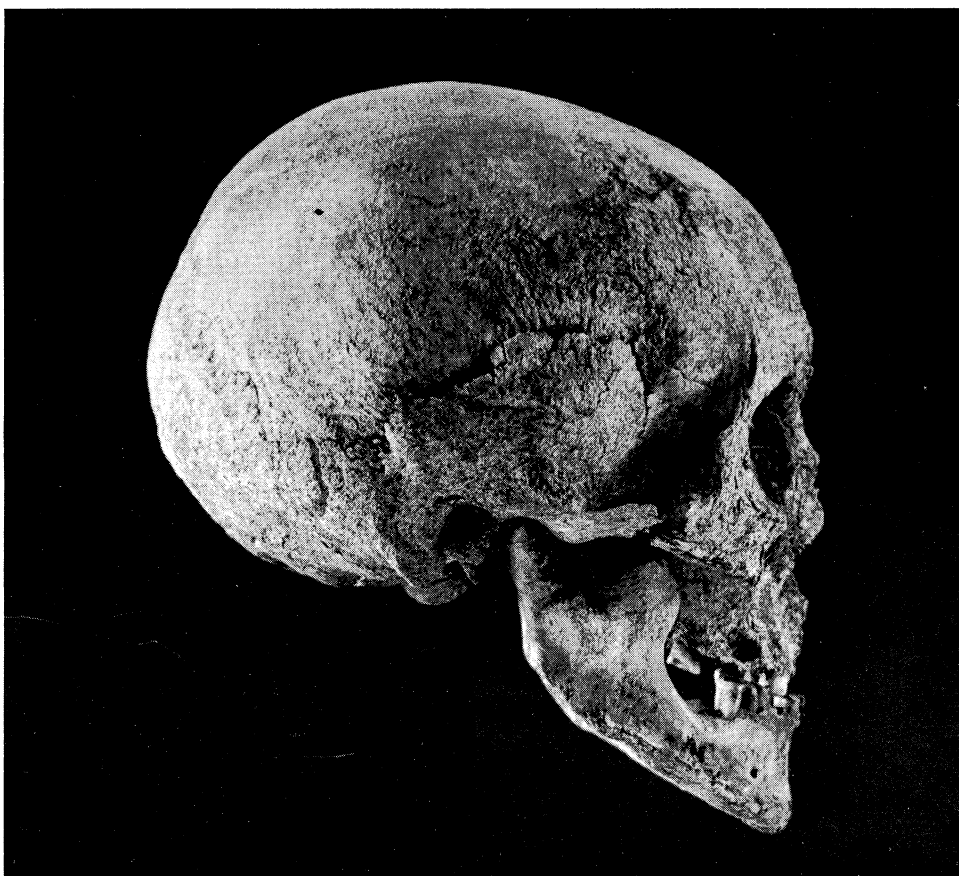
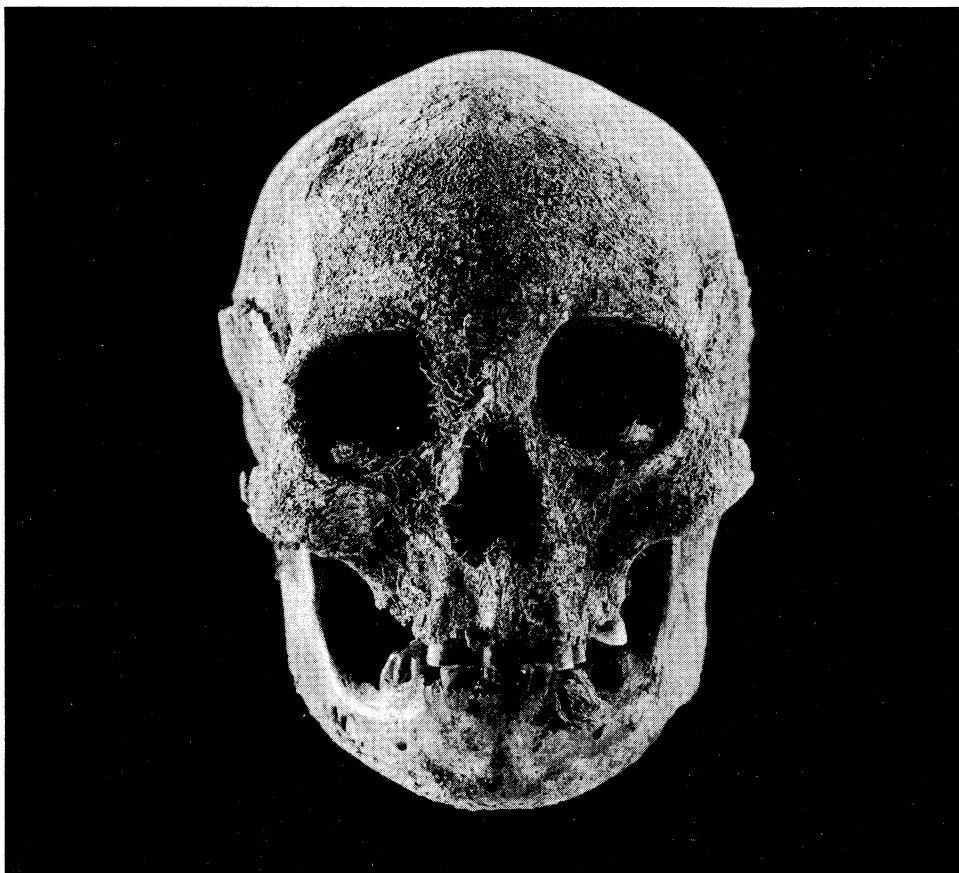


FIG. 44 - Pamiok Island, Tomb No. 3

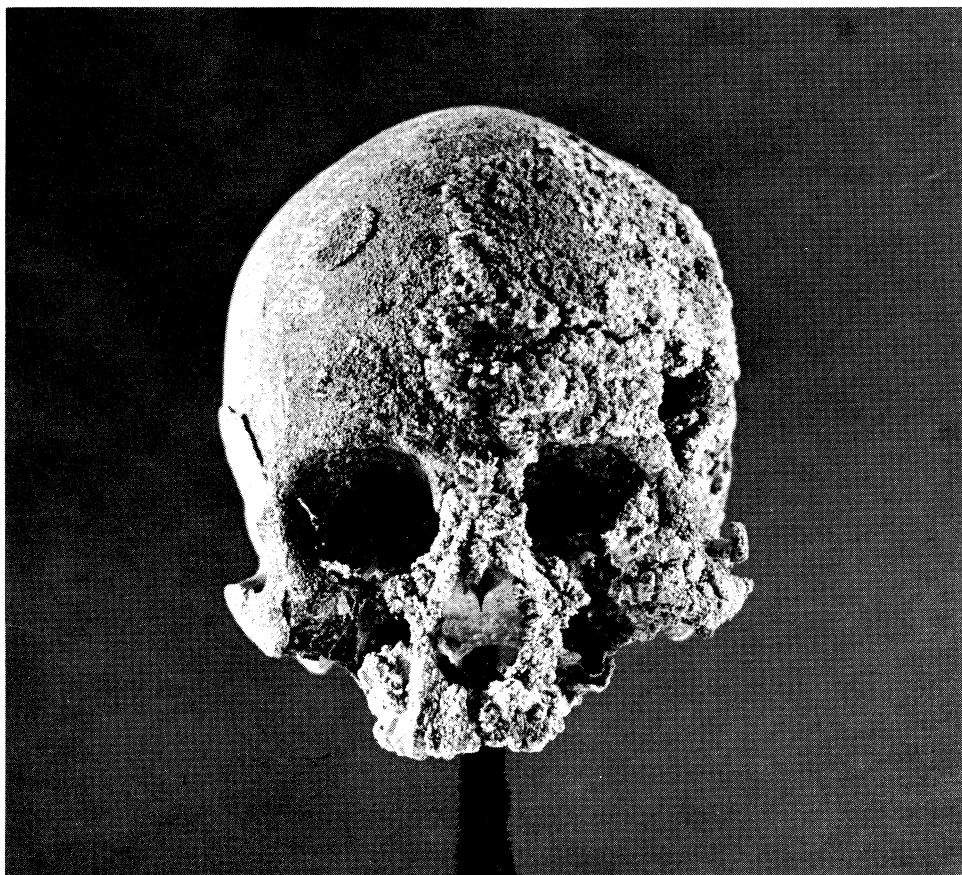


FIG. 45 - Pamiok Island, Tomb No. 2

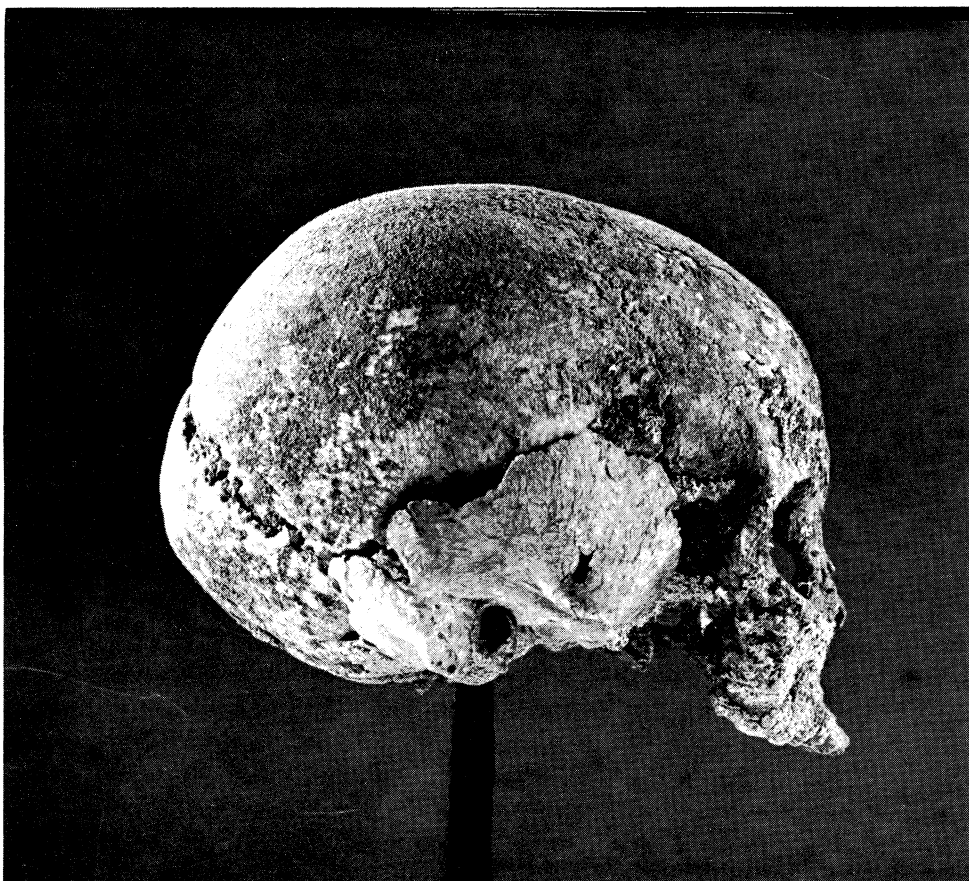


FIG. 46 - Pamiok Island, Tomb No. 5

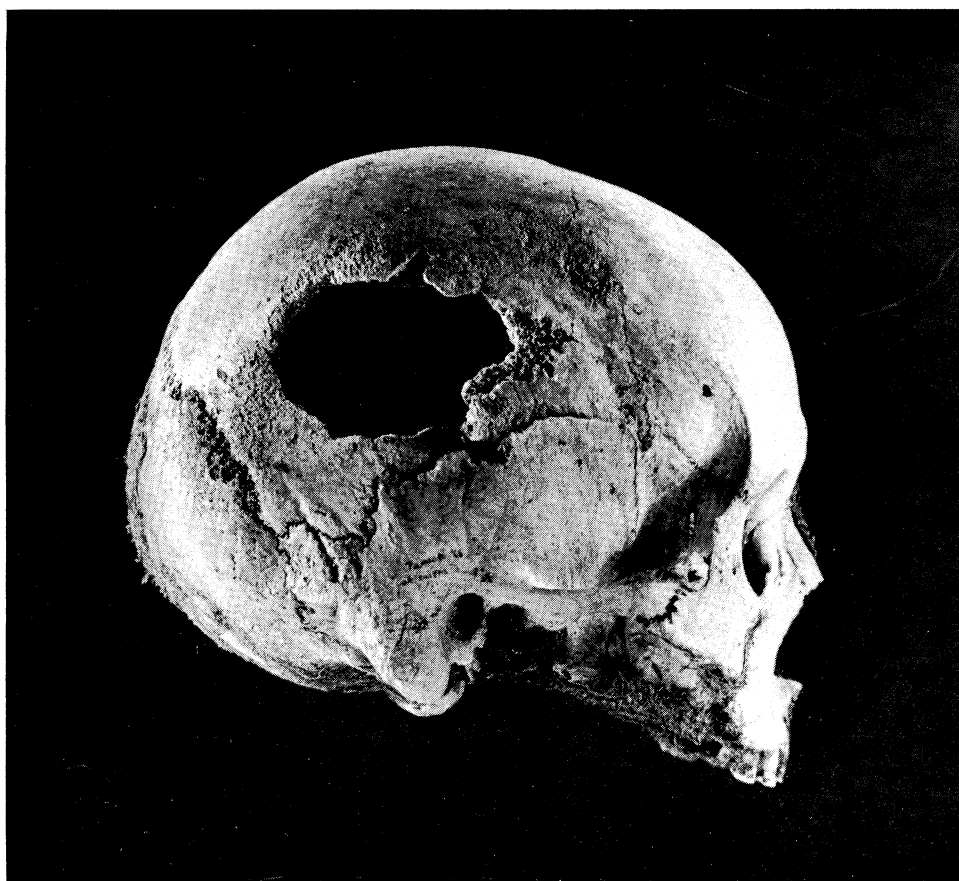


FIG. 47 - Pamiok Island, near three cairns.

DISCUSSION

Although the major objective and purpose in our season's work was the finding and identification of specific sites or features that could be assigned to the Norse culture, we inevitably encountered many remains that pertain to other cultures and times. So long as these were surface indications and isolated occurrences, the problem was simply one of recording and describing them. But there were major exceptions.

DORSET

In our excavations, especially in those situations that ought to have been Norse and Norse alone, we encountered evidences of other cultures, opening up an unexpected field of investigation. Some of the traces were easily assignable to one culture or another, even though the resulting picture might be contrary to the popularly and widely accepted view of what took place in northern developments.

Thus, in the excavation of Longhouse No. 1 and the testing of Longhouse No. 2 on Pamiok Island, we encountered ample evidence within the houses of what must be considered as unmistakably Dorset. As seen in the illustrations, there are many specimens and traits that can be regarded as identifiers. Yet we must realize that identification hinges less upon these than upon the general character of the total associated assemblage, as laid down in the Arctic literature : the tools are small and delicate, the stone working is well controlled, and the product certainly satisfies the statement of Collins (1953 : 32) that "they were expert flint chippers..." We could have wished for a few identifying harpoon points in direct association, however, and can only hope that these will turn up in future work.

It has been said unequivocally (Taylor, 1959a : 38) that "the Dorset culture was an Eskimo culture..." In the total absence of a single human bone that can justifiably be attributed to the Dorset culture after all the long years of searching and digging since 1925, insofar as can be determined from the existing literature, I think it is quite premature to make such an assertion. The entire question that has been raised again and again by competent persons concerning possible Amerindian origins to the south must be gone into with the utmost degree of thoroughness. We should not be guided by what is or is not the popular or "generally accepted" view at the moment.

In previous works (Lee 1966b and 1967b) we have shown the astonishing confusion that exists in professional circles with regard to what is and what is not Dorset. From a sound and thoroughly scientific and simple beginning in 1925, with the initial identification by Jenness, the concept of the Dorset culture has expanded and become all-inclusive, to the point where I could not -too-facetiously suggest (Lee, 1966c : 54) that a Model T, abandoned to rust on the tundra, might well become known as a Dorset artifact. Indeed, it has come to my attention recently that one authority is already suggesting a Dorset origin for the two "beehive" stone dwellings at Deception Bay (Lee, 1967a : 14) on Hudson Strait ! In the light of these circumstances, we share the view of Rudenko (1961 : 15) that "the origin and content of the Dorset culture... are not clear".

With these qualifications in mind, then, we turn to a consideration of whether a Dorset occupation of a Norse longhouse is a reasonable proposition.

We need not be concerned with the beginning date of the Dorset culture, which is variously set around 1,000 to 800 B.C. The closing date touches our problem closely, however, and there are only a few indications in the literature. The youngest figure appearing in print, so far as I know, is made by Taylor in a leaflet of a tent manufacturing company (1959b : 3), where Dorset is said to have "existed in the Canadian eastern Arctic and Greenland roughly... to 1400 A.D." Elsewhere (Taylor, 1959a : 38 and 1964 : 193), the final date, presumably based upon radiocarbon, is put at about A.D. 1350. The belief exists in some quarters, however, that Arctic radiocarbon dates are too young, and these figures should not be accepted with too much confidence.

It was argued by Oleson (1963) that Norse and Dorset people were in contact and that they mixed racially and culturally. Without

going into his arguments and sources, which were briefly outlined in an earlier report (Lee, 1967b : 87), we note the statement of Collins (1953 : 35) that Fischer-Møller's 1942 study of skeletons from the churchyards of the Western Settlement "showed that there had been considerable race mixture between Norsemen and Eskimos". This assumes significance here, of course, only if we accept Taylor's claim that the Dorset people were Eskimos.

Again, Collins has commented (1951b : 446) on the bone carvings of Dorset artists that portray, he said, "two distinctly different types of human faces", one broad and round, with oblique eyes and short wide nose, the other with a long narrow face and long nose. The artists were evidently familiar with the appearance of Norse people.

We have seen, too, the occurrence on the Michéa site at Payne Lake of numerous materials that would normally be called Dorset, in direct association with various objects of bone and antler bearing the marks of metal tools. They do not relate to the fur-trading period.

While no evidence of such mixing was seen on Pamiok Island, the above occurrences appear to provide sufficient grounds for the hypothesis that the Dorset culture could have been on the Ungava Bay coast at a time later than the Norse occupation of Pamiok. As we have shown in this report, the evidence found seems to stand securely in that direction.

The possibility of a still later survival of the Dorset culture in the Pamiok region must also be considered. It is surely significant that in both longhouses examined, and to a less well defined extent in a disturbed tomb-house ring, there was a definite and possibly long-enduring hiatus between the distinctively Dorset materials and the upper level, in which there were still Dorset resemblances. Aside from the near-absence of artifacts and flakes, there was a soil accumulation of an inch or more. Under the circumstances pertaining to the situations of the features involved — the rocky character of the surroundings, the small areas of soil, the lack of any appreciably higher ground in the vicinity — one may conceive of a long time-lapse between occupations.

LATE DORSET ?

The material culture of the upper level in the three situations has a positive, yet not quite satisfying, Dorset flavor. By itself, in

any independent and isolated situation, it would doubtless be pronounced Dorset, in the current archaeological atmosphere. In juxtaposition with the lower and more distinctive Dorset materials, however, one is aware of a difference, and probably a significant difference, in the degree of skill shown in stone working. What this may mean is less clear. A degeneration seems possible, although this is an explanation not highly in favor in anthropological circles. It could represent a shift away from stone working and into the production of perishable tools that have not been preserved in this place. Bone artifacts are almost absent, we may note. Again, it might result from intermixture with peoples less skilled in the use of stone. Such people would be the Thule, of course. They are said to have reached Greenland by about A.D. 1000 (Oleson, let us recall, argued that they are the product of Dorset and Norse mixing, a theory not disproved by any of the arguments or evidence advanced to date). Their arrival in the Ungava Bay region during the latter part of the West Settlement's existence on Greenland is a reasonable assumption.

THULE

The presence of Thule peoples on Pamiok is reasonably well shown by the soapstone vessels and other drilled objects, and would be anticipated in any case from the occurrence of a sizeable Thule site just a few miles to the north. Yet the indications are not very strong. The best evidence of possible mixing is seen in the case of the disturbed tomb-house ring, where thick soapstone vessel fragments and coarse flakes of a stone not favored here by the Dorset people occur in apparent association with delicate tools that seem to be Dorset.

TUNNIT

We may briefly consider the Tunnit, since Zachariasi so identified a number of Pamiok tombs. How much emphasis should be placed on the various legends is a question. Some have been willing to accept as fact the Eskimo's Tunnit designation of certain Dorset remains, which means, if true, that the Eskimo is telling us with a remarkably high degree of accuracy about a culture that, so say the northern experts, had vanished or been absorbed by A.D. 1350. Against this we must weigh the opinion of Jenness (1923 : 544) that "the Eskimos as a race have very short memories, and their traditions never carry us very far back into the mists of the past".

Mr. Farley Mowat has shown me information that seems to leave no doubt that in at least two instances a people other than Thule or Norse were meant in the application of the term Tunnit. I share his view that to jump from this to the conclusion that Dorset and only Dorset was meant in every case is quite unjustified. In Ungava, if they were, we would have the astonishing circumstance of the retention of detailed legends concerning a native people but almost nothing about the Norse and their unusual activities, or about the Thule people.

I think it more probable that the term Tunnit has come to be applied to almost any structure that is made up of large stones, in keeping with the legendary picture of the Tunnit as a powerful race of giants who could pick up stones too heavy for the Eskimo to lift, stones that in their turn might have given rise to some of the legends. Against this view is the performance of Zachariasi, almost certainly an unusually intelligent Eskimo with a keen interest in the cultural remains along the coast where he had spent his life. For some ancient structures he said "White man, not Eskimo"; for others he said "Tunnit"; and for still others he said "I don't know".

Turning now to our principal point of interest, the Norse people and developments, we must consider briefly the final stages of the West Settlement, a Christian community of farms and churches in Greenland. Toward the end of its existence it has long been cut off from contact with Europe. Under these circumstances, had with a worsening climate, it has been postulated (Taylor, 1965 : 11) that the settlement was squeezed out of existence. But the Eastern Settlement curiously, did not succumb until long after. To explain this discrepancy, a further postulation has the West Settlement being destroyed by southward-pressing natives. Archaeological findings (Nørlund, 1936) seem not to bear out such a period of violence, however, and I am under the impression that not a single slain Norseman has yet been found.

It has been suggested that the people of the West Settlement were forced, more and more, to turn their attention to hunting and fishing, rather than farming, and that considerable mixing with natives took place. Oleson (1963 : 203, Appendix B), unlike most writers, took the additional view that there had been an emigration en masse to the Canadian Arctic, and our findings at Payne Lake, Ungava, have done much to lend substance to his opinion.

Whatever did happen and whatever the causes, it is known (Nørlund, 1936) that when the Norwegian priest Ivar Bardarson set out

from the East Settlement in A. D. 1342 to discover what had happened to the people of the West, he found no human being there, but only wild cattle and sheep. The people had vanished without a trace.

Returning to Oleson's concept of an en masse emigration to the Canadian Arctic, we may ask whether the proposal is reasonable. That the Norse knew about America and Vinland is now accepted as fact. But are these records complete or even reasonably complete ? Did the Norse seamen, having found Vinland, go always to Vinland and nowhere but to Vinland ? Surely not ! With the knowledge of the forests of Markland, the people of a land lacking in building timber and fuel must have gone to those shores as a routine and commonplace procedure, within the limits of the shipping available. We may recall the comment of Leif, as recorded in Flatey Book, p. 55, that a ship was to go first for the load of wood left on a skerry by the rescued leader, Thorér. The implication is that the wood was sufficiently precious to warrant immediate steps for its salvage, but not so unusual as to call for comment on its origin. Almost certainly this load of wood was from the American shores.

But there is another point to consider, as raised by Mowat (1965 : 466). Bjarni, apparently the first Norseman to see America, appears to have reached the mouth of Hudson Strait. The Thorwald Eriksson-Thorfinn Karlsefni expedition crossed its mouth. Did curiosity prompt no one, in three-and-a-half centuries, to enter this Strait ?

To continue in this direction, various accounts in the less-well-known sagas appear to be describing phenomena of Ungava Bay. In the Saga of Arrow-Odd, which I feel sure has been correctly interpreted by Mowat, we find mention of the house of one Ogmund, in (or at ?) a fjord called Skuggi. When seen by the pursuers of Ogmund, the description is of a fortified place that seemed very strongly built. I think serious consideration should be given to the question of whether Pamiok may be in fact Ogmund's place at Skuggifjord. It is situated almost at the beginning of the Arnaud Estuary, a feature that is an acceptable fjord. Although other longhouses are reported farther north, they are on islands or features other than fjords.

As for the fortification, Longhouse No. 2, with its massive stone and earth walls, might have given that impression, although, as pointed out earlier, it was poorly positioned for defense.

Mowat states that the existing recension of the Saga of Arrow-Odd was committed to parchment in the thirteenth or fourteenth

century, but is evidently of considerably greater antiquity. In that case, if the Pamiok settlement were Skuggifjord, it would be too old, on the face of things, to have been built up during a final and mass exodus from Greenland. It could have served as an earlier source of information about such matters as fishing, sealing, and caribou migrations. At the same time, no one can say, either from the sagas or from the present archaeological evidence, how long Skuggifjord lasted. It might have been an intermittent occupation, perhaps involving other sites to the north, over a very long period of time. It could even have served as a stopping place for peoples intending to go into the interior, if the buildings were still intact, around A. D. 1340.

That there was such a movement, although on no such scale as envisioned by Oleson, is abundantly clear from the evidence at Payne Lake. As was revealed by excavations and other observations there, a European-style village stood on the south shore (Lee 1967b). There are at least 7 rectangular stone foundations there, in addition to a larger feature that seems to have been a community meeting place, although constructed in the form of a church. There are several other features that, pending excavation, might be the result of later Eskimo activities. Two features, however, are surely part of the original village. One is a long, carefully built stone dam that still holds water. The other, conspicuously European, is a sort of low causeway across a shallow stream bed. Its width of 8 feet, together with the absence of any reason or need for it other than that proposed here, makes it highly probable that it was built for the purpose of moving a heavily loaded wheeled vehicle over the slight obstacle of the drainage channel.

The village at Payne Lake was clearly intended to have some degree of permanency. My impression, based upon the occurrence of the church-like structure and upon the fact of the astonishingly clean floors, is that very little if any mixing with the natives had yet taken place for this particular group.

SHIPS

From the fact that the Norse could and did reach Vinland, wherever it was on the American shore, we have come to admit that they had the necessary ships for such a voyage. I think that few of us realize, however, the size and capacity of the ships available in early times. Even for the 7th Century, according to De Costa (1901 : 43, note 1), one vessel was 72 feet long and 9 feet wide amidships, while another was 42 feet long, equipped with two spars 24 feet high.

The Gokstad ship (Oxenstierna, 1967 : 75) is 78 feet long, has a mast and also an oak keel in one piece. It has 16 rowing benches for 32 oars, with an estimated carrying capacity of 20 tons. Even vessels such as this were small in comparison with giants constructed for royal use.

But the Greenland trade, it is thought — and therefore the American sailings — was carried on with freighters, called knorr. One of them found on Seeland, as described by Oxenstierna, was 53 feet long and was apparently a fast cargo vessel. Another is almost 65 feet long, with broad beam and stout timbers. Still another appears to be a former dragon ship, later converted into a freighter.

With vessels such as these, or even much smaller, the Ungava colonies become reasonable and the mass emigration possible. The food supplies were there — at Payne Lake, in unlimited quantities — the Norse knew about them, and we may be sure that a hungry and desperate people went to them.

No Norse vessels have turned up in Ungava. That they existed is obvious from the fact of the settlements, as in the case of Vinland. Yet there are other indications. On Pamiok, as earlier pointed out, there is a natural feature that seems almost designed by man for the hauling out of ships, and it is very close to the longhouses. Aerial photography reveals a still more enticing feature in the most logical place for a ship shed to be, although we must again caution that it has not been examined on the ground.

There is still another line of reasoning. From our examination of Longhouse No. 1, and as is quite apparent from the plan (Fig. 27), variations in the widths and thicknesses of the remaining turf walls, in relation to an outcrop on the south and deep soil on the north, must mean that there was a timber construction, probably with small logs and poles set vertically for the walls. Although it has been published in a National Museum Bulletin (Laughlin and Taylor, 1960 : 3) that driftwood was coming down the Payne or other rivers flowing into Ungava Bay from a treeline farther north, it is important here to realize that the treeline is in fact a very long way south of the Payne. No driftwood comes to Pamiok, unless dropped from a passing boat. According to the long-experienced Mr. James Ford, no driftwood has come in at least as far back as 1926, and from this we may reasonably conclude that it has never been a driftwood shore. Whatever wood came to Pamiok had to be brought there by man.

At the moment, pending excavation, we are assuming that post molds will be found around Longhouse No. 1. But there is more direct evidence. In figure 28, in the vicinity of pits 12 to 16, we may see the positions of 6 post molds, two of these being 6 inches in diameter. Post molds mean posts. Their positions are important. They are clustered in haphazard fashion in this one small area alone, without regard to convenient movement about the pits. One is even placed within pit No. 16, showing clearly that the pit was no longer in use. With the posts placed on or near the midline, it is obvious, I think, that they represent a primitive effort to prop up a section of sagging roof. The Norse would have effected proper repairs that would not have interfered with the use of the central food preparation pits. These efforts were performed rather by the people who moved into the house abandoned by the Norse. The artifacts tell us that they were Dorset peoples. They obtained the poles, probably, from another tumbling building, or perhaps from the semi-circular end of this building. They were careless with the placement because they did not need such a large building. Significantly, the house was re-occupied while the roof was still in place — hence within a very few years, in that exposed place.

There is another point of significance. In this case the presence of posts — and long straight posts — is demonstrated. They could have come to Pamiok only by ship. And a ship means Norse occupation, not Dorset.

BEACONS

We have suggested that a distinction would be desirable between beacons and cairns. The latter term would be suitable to indicate those structures, usually piles of rock, that serve to mark the position of some event, such as a camping situation, or the location of a cache. Beacons, on the other hand, would refer rather to those features, usually more carefully built, that serve as a guide for coastal navigation. By extension, we might also include those inland features designed and placed to guide one along a particular route, although we recognize the risk of an overlap with the concept of cairns.

We have described a number of beacons — and for the moment we may include the Hammer of Thor in this category — extending up the Arnaud Estuary and northward along the coast. In the latter situation it is important to realize that they are invariably visible from the sea and generally visible one from another. On the coast they form a

continuous chain that, it seems to me, is designed to lead to the Arnaud Estuary. On present evidence, at any rate, they cease at the south side of that estuary.

They are very carefully built, the stones selected and placed with care. So securely are they constructed that, conceivably, they might stand undamaged for tens of thousands of years. But how old are they ? Although no very satisfactory answer is forthcoming at present, there are several approaches to the problem.

The presence and growth of lichens on the rocks is often used to establish an approximate age for cultural features. For instance, Hensch (1964 : 123), on this basis, sets an age of several hundred years for some particular objects. But there is surely need here for extreme caution. Aside from all of the considerations of temperatures, amounts of rain and sunlight received, moisture content of the atmosphere, wind direction, and surrounding topography, we must always remember that the lichens may have been in place — and perhaps dead for a century or so — before the particular rock was moved.

There are exceptions to the latter situation, and we see them in some of the beacons, where lichen growths have cemented or sealed the rocks together, even covering cracks of two or three inches in width. These can only have come after the beacons were built. But the other cautionary points remain in force. One is led to say, "They must be very old, more than a century or two". But in fact, we know of cases where heavy lichen growths have apparently developed on stone features that were erected only a generation or two ago.

It is tempting to think that whalers might have set up the beacons. According to Stevenson (1965 : 5), whalers made the first commercial contacts with Eskimos, and whale products were more valuable than white foxes in the 18th and 19th Centuries. We might argue that this is far enough back to be beyond the memories and legends of the Eskimo. Let us recall, however, that no such stand is taken when the legends are supposed to apply to the much older Dorset people, presumably vanished for some 600 years. Perhaps an opinion by Mr. Farley Mowat, who has seen several of the beacons and the pertinent coast, will help to clarify the situation. He regards the coast as quite unsuitable for whaling, with its innumerable rocky islands, vast stretches of rocks submerged only at high tide, and shoals. Certainly the possibilities for a whale to become stranded, or a ship to strike a rock, are astronomical in number. But even if these were not valid

objections, we would be hard put to explain the beacons on the Arnaud River, out of sight of navigable water.

Again, it is difficult to accept these structures as the product of modern Europeans. The Arctic, by now, is plentifully supplied with cairns, many of them intended as permanent markers. Numerous photographs of them occur in the literature. A brief examination of only a few (Mathiassen, 1936a, Fig. 26; Rasmussen, 1915, Fig. 20; Bernier, 1909, several; or Koch, 1927, Fig. 22) will serve to show that these are almost invariably pyramids or cones of loosely piled stones, generally with slopes of about 45 degrees. Even where considerable effort has been made to attain greater height (see Koch, 1927, Fig. 41), there is still the almost total lack of dry masonry skill so conspicuously shown in the Ungava beacons. These, whether high or low, are almost perfect cylinders in most cases. Several of them — and this must be significant — are about 9 feet 4 inches high.

There are other types of cairns found in various parts of the Arctic. Sometimes these are attributable to a particular group, as in the case of the Sadlermiut. Mr. W.G. McKenzie of London, Ontario, has kindly supplied a good photograph of some of a group of 15 peculiar cairns occurring 40 miles inland on King William Island. Whatever their significance and origin, they are not to be confused with the Ungava beacons.

That the Norsemen did raise beacons or cairns, on at least one occasion, is recorded in the form of a rune stone, discovered far to the north on an island along the coast of Greenland, in 1824, north of Upernivik (Hovgaard, 1914 : 39), in latitude 72°55'. It states that "Erling Sigvatsson and Bjarne Thordarson and Endride Oddson built these (or this) beacon (s)...". The stone was found near the ruins of some beacons. Perhaps because of this, I have been urged by some to tear down the Ungava beacons. To this I am most strongly opposed. There is nothing to indicate that anything should be expected in the interior. Indeed, in some instances, there is no interior other than the cracks between very large stones, and these can be examined at will without disturbing anything. It is evident, however, that a few beacons have been pulled down by persons hoping to find something, one of these being near the outlet of the Arnaud Estuary.

We have still another approach to the question of age of the beacons. Zachariasi, himself in his 60's, can remember the two beacons and the Hammer of Thor up the estuary, from his earliest boy-

hood. His father and his grandfather knew of them. On one occasion he told me, through an interpreter, that his grandfather's grandfather knew them, and through him it was known that they were built by white men who came before the Eskimo. He was firm in his belief that there had once been "writing" on them and that his grandfather had seen this. We searched carefully, as have others, but could find no trace.

Already, it has been suggested that the coastal beacons, sometimes occurring in pairs or in threes, were set up as a means of guiding vessels to and into the Arnaud Estuary. By sailing inland, the Hammer of Thor would come in view. To Norse sailors, if indeed it were set up by their kinsmen, it would carry profound meaning and certainly would tell them to continue inland.

Arriving at the foot of the first rapids on the Arnaud River, they would have to disembark or proceed by smaller craft. Upon rounding a bend they would at once see the two large and conspicuous beacons on the river bank. They would know from these that their people had gone on upriver. Would not those people want it known, with their older members still recalling the vessels from Europe and Iceland, and perhaps cherishing the hope that someone would one day come looking for them ?

The trail does not end there. Although he had never seen them, Zacharias had been told of other markers up the river, too tall for a man of his stature to reach the top. These he distinguished clearly from cairns up the river, some of which were of greater diameter at the top than the bottom. .

One of the markers was said to be near the point, on the difficult north-south canyon of the Arnaud, at which Eskimos formerly left the river to cut across country to Payne Lake. To date I have found no white man who has been over this route.

At Payne Lake, near the crossing point for the great caribou migrations, as we have seen, a substantial European village once stood. It serves to complete a chain of physical and visible evidence that would place the Norsemen in the very heart of Ungava Peninsula.

Most regrettably, we have not yet found an opportunity to explore more than a few miles westward along the 55-mile length of Payne Lake. If the west end were also a great caribou passing place, as seems probable, it is reasonable to expect further discoveries there.

Through the courtesy of Mr. Mowat, we have learned of the existence of two beacons, one of them pulled down by curiosity seekers in the vicinity of Povungnituk, on the east shore of Hudson Bay. The descriptions apparently apply to features very much like the cylindrical beacons of Ungava Bay. Our first hasty assessment that they probably represented Norse sailings into Hudson Bay was rudely jolted upon learning from Dr. Jacques Rousseau that other stone erections stood along the portage route from Payne Lake to the Kogaluk River, a major stream that emerges only a few miles south of Povungnituk, and the route taken by Dr. Rousseau in his historic 1948 crossing of the Peninsula (Rousseau 1948 and 1949).

Most of these markers were low and in various forms, sometimes suggestive of animals. Many were probably set up by Eskimos coming to Payne Lake for the caribou. But one, as shown in a photograph (Fig. 42), seems to be a smaller version of the second Payne River beacon (Fig. 5 B). It stood just at the head of the Kogaluk River. Taken in conjunction with the presence of beacons near Povungnituk, serious consideration has to be given to it, for it is probable that stones available in any particular place were not always suited to the building of cylindrical beacons.

Dr. Rousseau also saw other cairns or beacons downriver, particularly in the vicinity of the mouth of the Kogaluk River, but was too far from them to record details.

EIDER DUCK SHELTERS

Mention has been made of certain small stone arrangements called Eider duck shelters. These are simply made, usually of only three slabs of stone. The two end pieces are set on edge, perhaps 18 inches apart, and a covering slab is placed over them. The front is left open and the rear is protected by building the structure up against the side of an outcrop or a boulder. Controversy rages over whether these have any possible connection with the Norse or are Eskimo, and whether they are duck shelters at all or are simply Eskimo cooking devices. I think that the Ungava Bay evidence can help to clarify the question and that it may point significantly to the Norse. First, I (and others) have seen some devices being used as nesting places by Eider ducks. Secondly — and conspicuously — apart from the absence of any indication of fire, the shelters are all situated close to the shoreline and, in all cases recorded, on small, rocky islands (a single exception was noted at Deception Bay, Lee 1967a,

Fig. 7 B, but there is no assurance that it is a duck nest, and much against it). Eskimo cooking devices are obviously not thus restricted in their place of occurrence.

Oleson (1963 : 41), intent upon proving the westward expansion of the Norse, took the view that they were indeed Norse duck shelters and dismissed with contempt any contrary opinion (see his Note 11 for Chapter 12). He gave several locations on islands far to the north, describing the shelters as numerous in one case. Curiously, he apparently knew nothing of the work of Mr. Robert Williamson in the Payne Bay area, a man whose studies and experience in this problem surely qualify him as an authority. My information in this respect comes largely through the courtesy of Mr. Farley Mowat, although Mr. James Ford also contributed valued reports.

Mr. Williamson was employed many years ago to study the problem of duck shelters with respect to saving the valuable Eider, whose numbers were diminishing seriously. A fellow investigator brought back details of the ancient Scandinavian shelters in Iceland, where they are still in use, but when they attempted to show Eskimos how to build them, they were told that there were lots of the shelters on the islands already. Some 4 or 5 of these on 4 different islands were examined by Mr. Williamson. In a later visit to Iceland he found that they were identical with the ancient Scandinavian structures. It was his opinion that the Payne Bay shelters had a similar origin.

The shelters, of course, serve to prevent the Eider down from being blown away by the wind. They also help to preserve eggs and young from the gulls. The ducks return to the same colonies year after year.

It is of interest and most pertinent to note the reaction of the Eskimos to the device. They were amused. So far as they could see, there were plenty of Eider ducks, so the shelters were unnecessary. Nevertheless, as we have seen, they did build some very crude shelters, in response to the efforts of Mr. Williamson and his colleagues, a fact confirmed on the spot by Zachariasi.

Until recently, the Eskimos were apparently little interested in Eider down, as such, but used the entire skin of the bird for clothing. Far from trying to protect the ducks, they went on a happy binge of duck eggs each spring. There is nothing whatever to connect the ancient Payne Bay shelters with Eskimo custom. In contrast, it was a known Norse custom. The significance of this is clear.

Although the ancient shelters are best known in the Payne Bay area, Mr. Ford states that they occur all the way from the mouth of the Koksoak to Wakeham Bay. Present indications are that much of this stretch also involves the large rectangular house foundations, in some cases partitioned, and the distinctive beacons.

FOX TRAPS

The argument was raised by Oleson (1963) that the fox trap, and particularly the dome or beehive-shaped structure, was indicative of Norse contacts. We have seen that one occurs on Pamiok Island, close to Norse features, but there is every reason to believe that it is purely Eskimo. Further, a similar structure at Leaf Bay is known to have been built and used by an Eskimo.

The various accounts of these domes provided by explorers show that some, at least, were being used for other purposes, such as meat storage. There is little to indicate by whom the traps were built, however, and the possibility is ever present that they were merely being used again by later peoples. They are reported on many of the Arctic islands. Certainly they are present in Greenland, both on the southeast coast (Thomsen, 1928) and on the northeast coast (Thostrup, 1917 : 233, Fig. 26). Interestingly, for the Ungava Peninsula and Bay, Mr. Ford reports that they occur only between Leaf River and Dry Bay, an area conspicuous for its Norse features.

The second form of fox trap, the small, enclosed and elongated chamber with a suspended gate attached to bait, also seems to have definite Greenland connections where, according to Birket-Smith (1924 : 351), it is "mentioned from former times and is common everywhere". Like the dome type it is also reported across the Arctic islands.

In Ungava, its distribution is so far recorded, apparently, only from the vicinity of the Payne Bay Post northward along the coast to the outlet from Roberts Lake, and again in the Deception Bay area (Lee 1967a). Almost certainly they will be found throughout the intervening area, however, and perhaps over a much wider territory. Note, that they were entirely absent at the eastern end of Payne Lake, an area holding both modern Eskimo and presumably Norse remains.

The Deception Bay traps, too, were far more elaborate, larger, and somewhat differently constructed. Eventually these differences may come to have meaning.

NORSE ARTIFACTS

The situation, as it now stands, is that after three seasons — actually very short periods in poor weather — spent on three different sites believed to contain Norse remains we have no artifacts that can be positively attributed to the Norse culture and only to the Norse culture. Particularly, one would note the almost total absence of either iron or bronze. The real question, however, is whether we should be expecting these metals and what they would mean if we did find them. There was nothing, so far as one can imagine, to prevent any wandering Eskimo from putting a Norse iron tool in his pouch in Greenland and later losing or abandoning it in Ungava. We are aware, of course, and from various sources, that iron was very scarce in Greenland, and that astonishingly little of it has been found in the archaeological diggings there, considering the amount of work that has been done. Nevertheless, it will be useful to glance at some information supplied by Nørlund (1936) on these matters. He states (p. 72) that iron production in Greenland most likely was very limited and there often was a want of that metal. We get a hint of this from an A. D. 1189 record that a ship from Greenland was "almost solely put together with tree nails and lashings". A little earlier, there is a report that hunters burned a stranded ship they had come upon, and "very carefully picked all the nails out of it" (p. 73).

Again, commenting on discovered tools he says (p. 73), "the objects of iron found in the excavations are not many... It is strange how miserably small the knives and other implements are. Among them are the remains of sickles and small curved knives for harvesting hay. From Brattahlid we have a spear-head, small and very crudely wrought, from another farm in Eriksfjord a good axe-head, but it is of whale bone, not iron — another significant feature". These comments, we must note, were made more than 30 years ago, but my impression is that they are still reasonably applicable. In Ungava, however, there has been only one possibly Norse iron tool, an awl (Lee, 1967b, Fig. 2 : 7), and it was not found in a satisfying situation.

In the line of materials other than iron, we are perhaps not quite so badly off as our opening sentence would suggest. On the Michéa site at Payne Lake, there was a remarkable antler spoon (Lee, 1967b, Fig. 3 : 1), more Norse than Eskimo in character, in addition to certain stone artifacts that could not be found in the literature of the Canadian Arctic. On the nearby Cartier site, definitely a European village, there was a large fragment of a soapstone vessel type that I

do not find duplicated in Eskimo situations (Lee, 1967b, Fig. 9 : 8), but which does occur in the Norse literature. Something quite similar, although with lugs, is noted for the Shetlands (Hamilton, 1956, Pl. 38 : 5 and Fig. 54, although the latter is decorated). Clemmensen (1911 : 332) also illustrates a shallow bowl with lugs and apparently with a basal flange, from the Julianehaab District. More striking, however, is a decorated soapstone bowl illustrated by Nørlund (1930, Fig. 86). In none of these cases do we have the complete identity required, but the strong resemblance is there. There are other indications, which have been discussed in previous reports, to indicate the non-Eskimoan character and circumstances of the various finds.

On Pamiok Island we have a stone culture, thus far poorly represented, that precedes Dorset. It shows no very high degree of flaking skill. It seems unrelated to any cultural assemblage thus far described for the Canadian Arctic. Its significance must be recognized when we recall that in Longhouse No. 1 the material was deposited positively after the house was in use and that, with equal certainty it was deposited at Longhouse No. 2 in such a position that it is covered by the longhouse walls. Further excavation should show whether it was deposited before the house was built or was merely buried later by tumbling walls. Meanwhile we may note that the interior of Longhouse No. 2, in the area tested, was occupied by the Dorset culture.

LONGHOUSES

There are three longhouses on Pamiok. Two of them are identical in size and shape. The third has the same shape but is greatly larger. Significant features are turf or stones-and-turf walls; outcurving sidewalls; rounded ends; partitions; and, in at least two of the dwellings, a central arrangement of pits, presumably for food preparation.

We must concern ourselves with the question of whether any or all of these features are a part of the old Norse culture, and in what combinations they may occur. At the same time, we must anticipate that environmental conditions, especially in terms of building materials, may have been very different. Identities are not necessary.

The outcurving walls and the use of stones and turf for walls are well known features of the Norse longhouses. The literature shows many variations in them, but such is the basic feature. It would be valuable to know if there were any Norse practice that favored a

length of 45 or 46 feet for dwellings or other buildings, as there seems to be in Ungava (1 at Payne Lake, 2 on Pamiok).

With the exception of 6 posts used to sustain a small roof section, it appears that Longhouse No. 1, the only one sufficiently examined, had no central roof supports. As the span was only about 17 feet, there was no need for them. Such was the practise in the Hebrides (Vallhagar, Pt. 2, 1955 : 993). It will be most interesting to see what was done in the far larger structure, Longhouse No. 2.

The rounded ends, as seen at Payne Lake and on all three of the Pamiok longhouses, must have some significance. It could represent an easy solution to enclosing and roofing the sleeping areas. One method would be to simply lean poles against the gable, in tipi fashion. Excavation may be able to settle the point, although the soil is none too well suited to such determinations. Meanwhile, we note that the rounded feature occurs at Jarlshof in the Shetlands (Hamilton, 1956, Fig. 79). A more interesting instance, with rounded turf walls joining the end of a heavy stone and turf foundation in the manner of Longhouse No. 2, is shown by Bruun, 1896, Ruingruppe 6, Nos. 15 and 17. It seems not to have been a common method, but its presence in Greenland is certain.

The partitions of Longhouses 1 and 2 offer a possible indication of age. From Nørlund (1936 : 77) we learn that around A. D. 1100, earlier or later according to place, the old hall type of building went out of use. "Houses retained their long shape, but people started to divide them up into several rooms, at first two only, later into three..." He cautions that there is no need to think that developments proceeded so schematically, however. Significantly, for us, the Pamiok longhouses are divided into three and four rooms. Nørlund states that food was cooked in one room, the eldhus. The second room was the stofa, in which they lived. The third, the skali, was for sleeping. As we have seen, this is exactly the interpretation we have placed upon the features of Longhouse No. 2, although No. 1 has a combined cooking and living arrangement, with sleeping areas at each end.

In the case of Longhouse No. 2, no clear entrance has yet been defined. Almost certainly there was one at each end, however, the traces now inconspicuous because the turf walls at these points are very low. Such was the practice in the later Norse times (Hamilton, 1956 : 103). It is probable that refuse deposits will be found at the

north end, not far from the house, where the vegetation is more lush and of a different character (see Jonsson, 1928 : 380).

At Longhouse No. 1, there were definite breaks in the low turf walls at each end, almost certainly marking the positions of entrances. But there was a third opening into what has been termed here a vestibule. In early Viking times such devices were used, and they marked the main entrance. In this situation, the vestibule led directly into the living and cooking areas. Certainly it would have been the main entrance. The position is exactly the same as that of the entrance to the church-like structure at Payne Lake.

At Payne Lake we saw two types of fireplaces. One was a raised stone platform, set against a wall near a corner. Such a platform is described by Jonsson, 1928, p. 378. The other, aside from its lack of a chimney or any considerable height, very much resembled the layout of a modern fireplace, set partly into the wall and projecting outside. It is interesting to note that Nørlund and Stenberger (1934 : 94) describe an almost identical feature, even to the size, at Bratthlid.

Longhouse No. 1, on Pamiok Island presents a very different fireplace arrangement. Of course, in the absence of much charcoal or ash, a circumstance apparently very different from that of Longhouse No. 2, it is difficult to prove that the pits were fireplaces, some more than others. Yet there are no other fireplaces, and we can be sure that they had some heat, despite the probability that they ate much of their meat raw, made tender by beating.

The use of such small pits is reported by Nørlund (1936 : 79), dating from the 12th or 13th Centuries. He suggested that the Norse had gradually adopted the Eskimo fashion of using seal-oil, both for illumination, for heating, and for cooking purposes.

In Jonsson (1928 : 378), mention is made of the rare occurrence of square sunken stone boxes for fire. These were, apparently, similar to the ember pits described by Nørlund and Stenberger (1934 : 111) for keeping embers aglow overnight. The pit bottom was flagged with a single stone, about 12 inches below the surface of the floor, and had side flags of the same size. Such pits are illustrated by Nørlund.

The three sunken stone boxes in Longhouse No. 1 on Pamiok Island are smaller than most of those pictured or described. They

are, however, larger and more carefully constructed than the ember pit found at L'Anse aux Meadows in Newfoundland (Ingstad, 1964 : 730-31). In that instance it was taken as an unmistakable evidence of the presence of the Norse. "Similar ember pits," he said, "have been excavated at several Greenland farms, including Brattahlid, the homestead of Eric the Red".

CONCLUSIONS

In a previous report concerning the Cartier site at Payne Lake, the suggestion was put forth that the nature of the European, presumably Norse, evidence there demanded the existence of other settlements out along the coast — an intermediate stage in the proposed movement of peoples out of Greenland and into the very centre of the Ungava Peninsula. It was further pointed out that the Payne Lake settlement could not in itself satisfy the circumstances inherent in a possible en masse movement. The site is simply too small to accommodate any very large number of people.

The survey of the coast northward from the Arnaud Estuary has done little to clarify the latter problem. Aside from the possible European site named for Zachariasi, we still have only reports of the large houses with partitions that we had expected to see. We believe that the reports are genuine, both from Eskimos and white people, and a further effort will be made to find them.

What we did find on Pamiok Island is extensive evidence that in my opinion is inescapably Norse. Certainly the ruins of the three longhouses are neither Eskimo nor any of the other non-European cultures identified in the Arctic. I am making a great assumption, of course, that they are not Irish.

Whether the Pamiok settlement represents a staging post for the people en route to Payne Lake is an unanswered question. Logically, they must — for they are conspicuously placed right at the entrance of the estuary leading inland toward Payne Lake. But there are problems. If they stopped to build the structures on Pamiok, why are they all longhouses, whereas the smaller square house assumes prominence inland? In the absence of any datings, we can only speculate. What we cannot know at present is whether or not those buildings

had been standing and occupied, perhaps intermittently, from earlier times. This could well be the Skuggifjord of the Sagas, which evidently lay somewhere in Ungava Bay.

We may, from the evidence, attempt to work out a sequence of events for the European occupation of Pamiok Island. We have paid considerable attention to the circular food storage pits beside Longhouses Nos. 1 and 2. They also exist beside Longhouse No. 3 and were, in fact, the first evidence seen for a dwelling being there.

But there are two other such pits, and they occur on an attractively flat and smooth area of lichens, perhaps about 200 feet to the northeast of Longhouse No. 1. Diligent search at any time of the day and any position of the sun, again and again, failed to reveal any trace of walls or other evidence of any dwelling. It is conceivable, however, that the first people to arrive set up a tent or tents in this best of all locations. Best, that is, save for one factor — the wind. They soon would have learned that more sheltered places should be sought out. We had such a place in setting our camp beside Longhouse No. 1.

When the tents were finally removed, all traces of them, other than the pits, could vanish. Stones left lying about would soon be carried off, if not by the Norse themselves, then by later Eskimos.

The second step, I suggest, was the setting up of Longhouses Nos. 1 and 3 to house their people in a somewhat more permanent, though still not satisfactory, manner. Although stones were used, especially for No. 3, together with turf, quantities of posts or poles were needed for the job — shiploads of such poles. The obvious source for them was the Koksoak, some 120 miles to the southeast.

Being housed in a manner capable of withstanding the winters, the much greater task of constructing the enormous Longhouse No. 2 was undertaken. Again shiploads of logs and poles were needed. Presumably, the framing and roofing of a structure of such size required heavier timbers. If these were eventually used for fuel by later occupants, we can well account for the quantities of charcoal seen in a single small test trench.

With the abandonment of the dwellings by the Norse, Dorset peoples moved in. They must have come quite soon thereafter, if we may judge by the clumsy repair job effected toward the east end of Longhouse No. 1. At the same time the largest building must have been occupied, and apparently it remained in use for a longer time.

Accumulations of debris are thicker, and there appear to be several flagged floors, presumably representing repeat and intermittent occupations.

Then came a lapse, complete abandonment for a time, such that an inch or more of sterile soil accumulated on the floor of Longhouse No. 1. When people again lived there, the old features of the house, the partitions and the central arrangement of pits, had no meaning and perhaps were not even visible. The new people, possibly still Dorset although certainly far less skilled in stone working, had no hesitation in completely re-arranging all stones that could be found. The results were the large stone rings enclosing fireplaces, earlier discussed. At this time, there is no assurance that the house walls were still standing. The probability is that they were not. The spot could have been chosen simply because stones were needed, in particular sizes, for tent rings, fireplaces, and other purposes — and that is where the stones were. Such is the story of the European occupation of Pamiok and the related following events, on present evidence. The many burial vaults, however intriguing, cannot be related at present. The possibilities are legion.

In Westviking (1965 : 471) Mowat, who showed no doubt in his own mind about the Norse character of the great house on Pamiok, said, "No archaeologist has so far cared to speculate in public on the possible origin of the great ruin at Imaha". Although I am far from satisfied with the progress made to date, we may say that we have come a very long way from the position then stated by Mowat.

We are no longer dealing with an isolated find about which to argue the pros and cons. A logical and sensible picture is emerging and a very formidable body of evidence has already accumulated. The area is vast — all the way from near Hudson Strait to the Leaf River, if we may include reports believed to be reliable, and for 140 miles inland, if indeed not all the way across the Peninsula.

The unifying factor is not trait resemblance alone, which is a perfectly acceptable archaeological procedure, but a string of astonishing beacons over much of this distance, the most spectacular being the Hammer of Thor monument on the Payne Estuary. They are probably not datable, but they speak very plainly in the overall picture.

We must anticipate that some will raise the question, "Where are the Norse artifacts of iron?" Ironically, this would be no proof

at all. Any Eskimo could carry a piece of iron anywhere. There will be some difficulty in putting a longhouse in one's pouch.

Yet we must remain flexible in the changing picture as new evidence is found. We have only begun the investigation of this fascinating problem.

19th January '68

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Le C.E.N. publie également des articles, notes et comptes rendus dans diverses revues dont les "Cahiers de géographie de Québec", Université Laval.

Une liste complète des travaux du C.E.N. apparaît dans le document numéro 68 A 4 qu'on peut se procurer au secrétariat du Centre.