

If 5-year running means are used, instead of individual years, the mean deviation drops from 91,980 to 32,690 km.<sup>2</sup>, and the highest quartile from 171,580 to 62,240 km.<sup>2</sup>, in other words, to something rather more than one-third.

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#### PRELIMINARY GEOMORPHOLOGICAL STUDY OF A NEWLY DISCOVERED DORSET CULTURE SITE ON MELVILLE ISLAND, N.W.T.

During the summer of 1962 a Geographical Branch field party carried out geomorphological investigations on Melville Island, in co-operation with the Polar Continental Shelf Project, Department of Mines and Technical Surveys, Ottawa. The party consisted of W. E. S. Henoach of the Geographical Branch, his student assistant J. Chalk (University of British Columbia), and the pilot of the Super Piper Cub, B. Warnock. The main objective of the field work was the study of emerged shore features.

In this paper I list the prehistoric sites on Melville Island recorded by other explorers, describe the newly discovered prehistoric site in McCormick Inlet, give the account of the investigations that were carried out, and summarize their results.

#### Reported campsites on Melville Island

There were no Eskimos living on Melville Island when it was discovered by Parry in 1819 and as far as is known



mosses is influenced by many factors which in the Arctic change rapidly — and an estimate without thorough study will be misleading. It is very likely that the huts were not occupied for a considerable length of time. Samples of bones (WESH-62-4B), wood (WESH-62-12-W) and peat (WESH-62-10P) were collected from significant positions. If they are dated they may throw light on the age of the site.

The ruins indicated near the eastern point of Byam Martin Island were also first described by Parry (ref. 1, p. 61) as follows:

“The remains of Esquimaux habitations were found in four different places. Six of these, which Captain Sabine had an opportunity of examining, and which are situated on a level sandy bank, at the side of a small ravine near the sea, are described by him as consisting of stones rudely placed in a circular, or rather an elliptical form. They were from seven to



Fig. 2. Remains of one of the six dwellings found on the southern shore of Liddon Gulf near Stony Pass. This site was first seen and described by Parry in 1820.

As it appears that local terrain conditions compelled the Eskimos to choose a site on the stony slope of a hill about 10 m. above sea-level, that is comparatively high, its position and age are not likely to be of primary significance in the consideration of the relative land and sea-level changes in the area. For these reasons the samples have not been dated.

ten feet in diameter; the broad, flat sides of the stones standing vertically....”

McMillan (ref. 3, p. 478) reports that this site was later seen by M’Clintock who found there ruins of five or six habitations and on the point bones, antlers and pieces of decayed fir. McMillan writes:

“On the southeast shore of the same island a number of flat stones, among which were the skull of a musk-ox, the jaw bone

of a bear, and the antler of a deer, were found, on a gravel ridge close to the beach. M'Clintock mentions the following on Melville island: The remains of three habitations on a low point on the western side of the entrance to Beverley inlet about which were bones of seal and musk-oxen. About two hours west of Palmer point, two circles of stone almost buried in the soil and covered with moss, near which in a collection of stones were the skulls of two musk-oxen; near Cape Phipps, stones arranged in an elliptical form, 5 feet by 8 feet, and nearly buried in soil."

The ruins of Liddon Gulf were visited also by Stefansson. Of interest are his

### Dorset site at McCormick Inlet

The existence of the site of an old encampment at McCormick Inlet has not been previously reported in the literature. Questioning those who had travelled over Melville Island, the writer learned of the existence of an old encampment from the pilot J. Dirke of J. C. Sproule and Associates.

The camp is located on the shore of a small bay in the southwestern part of McCormick Inlet. The shore is marked



Photo: J. T. Smith. Courtesy of I. C. Sproule and Associates, Calgary, Alta.

**Fig. 3.** The remains of the Dorset dwelling on the south shore of McCormick Inlet. The flagstones occupy the central part of the dwelling. Note the position of the dwelling between raised beaches. In the upper left of the photograph is a mound, light tones, which was probably an outside fireplace.

remarks (ref. 3, p. 344) referring to the site:

"It is clear that Eskimos in the days antedating the fur industry and the support of traders would not by choice have remained in Melville Island long. Coming perhaps from Victoria Land to the south, possibly from the east, they discovered Melville Island (to judge by the ruins) two or three hundred years ago."

Traces of ruins of an Eskimo camp near Cape Grassy were spotted from the air by a Canadian Wildlife Service party. Care should be taken that this site is not confused with that of Natkusiak who in 1916 (ref. 3, p. 569) camped near an exposure of coal about 5 miles west of Cape Grassy.

by raised beaches that are well preserved to an altitude of about 15 m. The camp is located on one of the raised beaches only 1.75 m. above high-water mark. The remains of this camp are inconspicuous and can easily be overlooked in the terrain as is evident from Fig. 3.

It was realized that if the camp proved to be ancient it might provide data for the study of the relative land and sea-level changes in the area. If the camp was of recent origin it would not warrant further investigation. It was important to find clues, which would indicate who established the camp, and when and for how long it was occupied.

As none of the members of Belcher's (1852-54) expedition who sledged through the area could have stopped long enough to build such an elaborate camp—the only likely architect and occupant of this dwelling might have been Stefansson's companion Natkusiak who was obliged to spend the summer in the area when their sledge broke (ref. 3, p. 569). There is also the possibility that he reoccupied the prehistoric site, which had obvious advantages of shelter, proximity to water and abundance of game. But the artifacts that were found on the site and the prehistoric character of the camp would not have escaped the attention of such a keen observer as Stefansson, and as he does not mention the site in his writings, it is most likely that his party did not see it.

Examination of lichen on rocks that had obviously been used by the inhabitants of the dwelling also indicated that the objects had remained undisturbed for several hundred years. The ground plan Fig. 4 shows that the dwelling was divided into three parts. The central part, paved with slabs of sandstone, is flanked on both sides by a row of slabs buried in the ground at an inclination shown diagrammatically in Fig. 4. The function of the stones was probably to keep in place the skins that were laid on the ground as bedding in the sleeping quarters on the sides of the central passage.

Of the material used for walls and roof, no traces remained. The walls were probably of skins secured by the sand and gravel that surrounds the dwelling in a small mound about 8 cm. high.

Near the centre of the passage, partly buried, was a post-shaped stone, 15 cm. of which protruded above the surface on the pavement, Fig. 4, g. The function is unknown but it probably helped to support the superstructure of the dwelling. There are traces of two fireplaces in the dwelling. Several small stones, Fig. 4, f, are blackened by smoke and were probably used to confine the fire near the entrance. The main fireplace was located just beyond the centre of the passage. A stone in the shape of

an oval tray 55 by 45 by 8 cm., with a central depression about 5 cm. deep, served as a base. On this were found charred wood, bones, and moss. The wood may have come from the Beaufort Formation and its age therefore would not have given the age of the camp. As the dating of bones is less reliable than that of plants, the moss was separated and its age was determined by the Radiocarbon Dating Laboratory of the Geological Survey of Canada as  $1,150 \pm 160$  years old (GSC - 148).

A sample of dead moss was also taken from underneath the fireplace. It appears that the fireplace stone had been placed on a cover of moss about 2 cm. thick, whereas the ground surrounding the dwelling was almost completely devoid of vegetation in the summer of 1962. The moss has been examined for pollen by Dr. Terasmae of the Geological Survey of Canada but none was found. The age of the sample was determined by Isotopes Incorporated as  $1,740 \pm 190$  years (I-840). In the fireplace was also found a chert that had been chipped by man. An oval flat stone found at the far end of the passage was approximately 45 by 50 by 1 cm., Fig. 4, e. Although irregular in shape it is not an artifact and was probably used as a table. It is a sandstone concretion containing many graptolites. It was partly buried by a 5-cm. layer of sand in which were found fragments of bone and wood (WEH-62-7W); decayed wood was also found under the table slab (WEH-62-14W). The artifacts found on the site are now in the National Museum of Canada. The mound to the left of the dwelling consists of eight stone slabs partly buried in a slanting position in the manner indicated in the sketch Fig. 4, c, and is covered by comparatively rich vegetation. The purpose of this structure is not known, but it may have served as an outside fireplace.

In the area surrounding the dwelling bones of musk ox and caribou were found. During the visit to the site a large musk ox herd was pasturing nearby. This suggests that the area has always been a good hunting ground, at least during the summer. Pilot Dirke

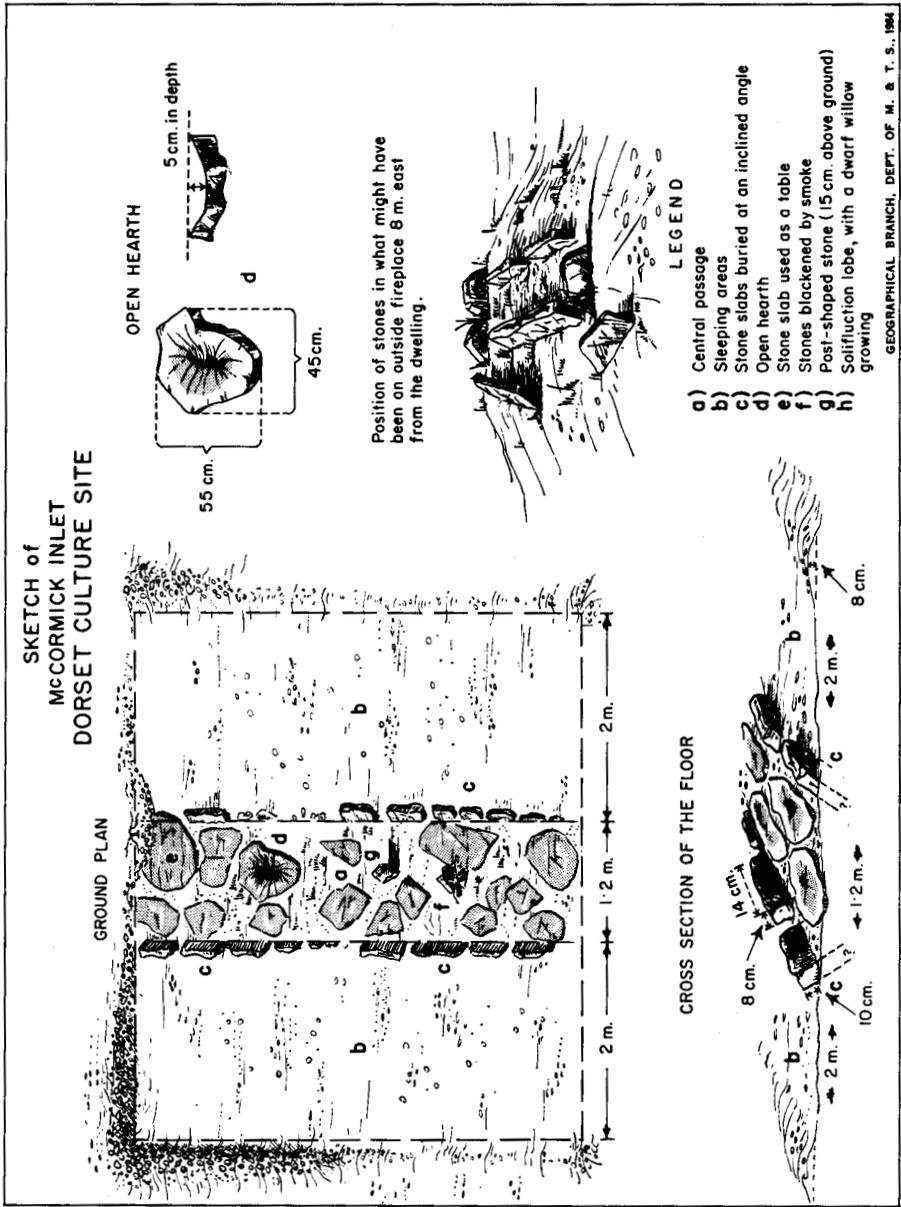


Fig. 4. Sketches of archaeological site at McCormick Inlet.

reports that there are ruins of another dwelling on the shores of the same bay. Unfortunately these ruins could not be located because menacing weather compelled us to leave hurriedly.

*Geomorphological significance of the position and age of the site*

One of the problems of the study of

emerged features on Melville Island is defining the absolute age of these features and the relation between isostatic movement of the land and eustatic changes of sea-level. To solve these, many samples of terrestrial and marine material were collected and their altitudes precisely determined.

Marine shells can indicate the time

when the land was submerged. The shells found at the altitude of 71.5 m. at Tingmisut Lake show that Melville Island was submerged at least to this level. The radiocarbon age of these shells  $9,075 \pm 275$  (I-730) indicates that this was the oldest postglacial transgression and that at least at that time this part of the island was free of land ice. Radiocarbon dates of younger shell samples found at lower altitudes throw light on the course of the emergence of land since the maximum postglacial transgression, which had been discussed elsewhere.

It is difficult to find in the Arctic features close to sea-level that can be dated to enable reconstruction of the late phases of emergence. For this reason data obtained from the site at McCormick Inlet are of great value. Since it is unlikely that a dwelling would be built much closer to high water than 1.75 m., the present height of the site, it is assumed that the age of the moss collected from under the flagstones provides a good estimate of the positive movement of the land, relative to sea-level during the past  $1,740 \pm 190$  years. The conclusion is that differential movement, if any, has been very slight.

The sample (GSC-148) of burnt moss from the fireplace has an age  $1,150 \pm 160$  years, probably indicating when the fireplace was used for the last time. This is in general agreement with the sample (I-840); both indicate the antiquity of the site. But it should be borne in mind that theoretically the moss might have been brought for kindling of a fire from somewhere else and that it was dead long before it was used for kindling.

Assuming that the true dates of samples (I-840) and (GSC-148) fall within the specified range, the dwelling was probably seasonally occupied between 1,150 and 1,740 years ago. These two results are generally consistent and indicate that the maximum possible amount of land emergence in McCormick Inlet area during the last one and a half millenia was appreciably less than 1.8 m. They also indicate the antiquity of the most northwesterly

Eskimo site so far found in the Canadian Arctic.

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<sup>1</sup>Parry, W. E. 1821. Journal of a voyage for the discovery of a northwest passage from the Atlantic to the Pacific performed in the years 1819-20 in H.M.S. *Hecla* and *Griper*. London: John Murray, 2nd ed., 310 pp.

<sup>2</sup>McMillan, J. G. in J. E. Bernier, Report on the Dominion of Canada Government Expedition to the arctic islands and the Hudson Strait on board the D.G.S. *Arctic* (1908-09). Ottawa: Government Printing Bureau. 1910.

<sup>3</sup>Stefansson, V. 1944. *The friendly Arctic*. New York: Macmillan Co., 784 pp.

#### ARCHAEOLOGY OF THE McCORMICK INLET SITE, MELVILLE ISLAND, N.W.T.

Transportation difficulties during the 1963 field season frustrated my plans to visit the McCormick Inlet site and another of several tent rings at a river mouth 15 miles to the north reported by C. R. Harington of the Canadian Wildlife Service in 1961. The tent rings reported by C. R. Harington are on the west bank of a river mouth at approximately  $76^{\circ}05'N$ .  $112^{\circ}19'W$ . R. Thorsteinsson of the Geological Survey of Canada, told me of a site he had seen in 1958. It was a tent ring of large stones and in the ring lay a tin can containing shoe wax. This is about 1 mile southeast of Harington's find, on the other side of the river, and 1 or 2 miles inland. Thorsteinsson suggested it might have been a Stefansson party camp, perhaps Natkusiak's hunting camp. Consequently one must be all the more grateful for the collection made by Henoch and others at the McCormick Inlet site. The Dorset identity of the site suggested by two radiocarbon dates (see preceding paper) is supported not only by the artifacts found there but also by the architectural features of the dwelling itself.