

University of Colorado: 1969 Summer Field Season in East Baffin Island

For the second year running, the University of Colorado's Institute of Arctic and Alpine Research (INSTAAR) and associated Departments (Biology, Geology, Geography and Anthropology) carried out a multidisciplinary research project in the region of Broughton Island, east Baffin Island (c 67°30'N.). During the 1968 summer, the late glacial chronology and uplift at the head of Quajon and Narpaing fiords had been studied. An Austrian storage gauge was installed to estimate winter precipitation.

Twelve individuals were involved in the 1969 summer program — this included 3 faculty members, 4 graduate students, 4 undergraduates and Mr. K. Dudley, author and teacher (Toronto). The programs were as follows:

LATE GLACIAL CHRONOLOGY AND RECENT CRUSTAL MOVEMENTS

Variations in the marine limit from the head to the mouth of Quajon Fiord were studied. Limits varied from about 30 to 90 m.a.s.l. The upper level of glaciation was traced through examination of variation in rock weathering with elevation. Numerous collections were made of marine shells that will help elucidate the pattern of recent crustal movements and the late glacial chronology. Two peat monoliths were collected and will be analysed for pollen changes with time. Lichens were measured on "recent" moraines and growth rate stations were established. The area south of Broughton Island to Canso Channel and Maktak Fiord was studied. Marine limits were extremely low or absent. Recent submergence is evident and the Eskimo name for the region "Quivituq" supports this as numerous examples were noted of Eskimo sites being eroded by wave action. A reconnaissance survey was made of outer and mid-Narpaing Fiord. Deposits correlative with a major corrie readvance were examined and material collected for C¹⁴ dating.

This work was supported by a grant from the National Science Foundation GA 10992 and from the University of Colorado's Council on Research and Creative Work.

LATE GLACIAL CHRONOLOGY AND RECENT CRUSTAL MOVEMENTS IN THE BROUGHTON IS. AREA

Studies of deposits and features on Broughton Island and the adjacent mainland were continued. The marine strata on the east coast of the island were revisited and additional fos-

sils collected for C¹⁴ dating and palaeoecological studies. Casts of marine worms were found in the deposits. Marine limits are low (about 7 m.a.s.l.) or else at present sea level. Deep weathering pits suggest that the coastal Mountains (that rise to c 950 m.a.s.l.) were not glaciated during the last main glacial period (25,000 BP?).

The studies were aided by a grant from the Geological Society of America, an equipment loan from the Geological Survey of Canada and Polar Continental Shelf, and a grant from the Graduate School, University of Colorado.

GLACIOLOGY AND CLIMATOLOGY

A late break-up initially delayed this program. Three additional storage gauges were installed between the heads of Quajon and Narpaing fiords. Two storage units are located on "recent" glacial moraines in north-facing corries, whereas the other two are located on "old" corrie moraines in the south-facing corrie basins. Precipitation measured at one gauge for the 1968-69 winter season amounted to 30 cm. The very hot weather of July/August resulted in the total melt of the 1968/69 snow pack. Short wave radiation measurements were initiated and stakes drilled into the upper ice patches.

This research is supported by grant no. DA-ARO-D-31-124-G1163.

ARCHAEOLOGY

Little information was available on the location or number of sites in the Broughton Island area prior to the 1969 field survey. The summer was primarily directed towards data-gathering on the location of significant sites. Informants were used and proved most useful. Additional sites were located during extensive field surveys south of Canso Channel and Maktak Fiord and north of Kivitoo, Quajon and Narpaing fiords. Artifacts were collected where possible and are now being catalogued at the National Museum of Canada. One stratified site was located on Idjuniving Island near the base of a 30 cm. peat deposit. A sample from the occupation layer is now being dated.

The research was supported by a grant from the National Geographic Society. Permission to excavate was given by the Canadian authorities.

AQUATIC BIOLOGY

The purpose of the program was to gather preliminary biological information about the lakes, ponds, and fiords. There are considerable differences in the geological history of the lakes and ponds of this region, viz., some are recently confluent with the sea, others are more remotely confluent, and still others were never inundated by sea waters. The general limits of

the region under investigation encompass the islands, shore, and inland fiord areas from Padloping Island to Narpaing Fiord. Lakes and ponds in the Frobisher Bay environs, for which there is little information, were also examined.

Benthic, aufwuchs, and plankton samples were made at selected aquatic locations in the summer of 1969. Some water and substrata samples were taken. Repeat samples were taken at certain sites. These are being analysed for faunal composition, particle size, organic composition and total solids. Attention has been, and will continue to be, directed towards interpreting community structure, population cycles, reproductive variability (e.g., amounts of asexual reproduction), and longevity and growth of organisms in both lakes and ponds and in surrounding oceanic waters.

Future explorations will include more complete sampling (continuation of this summer's activities), bathymetric measurements, bottom cores, community studies, and estimates of the nature and effect of allochthonous tundra materials on the development of deep lake benthic populations. The latter is of particular interest where the near shore fauna is poorly developed (usual in Arctic lakes), because of extended seasonal ice abrasion of shoreward habitats.

The research was supported by a grant from the University of Colorado's Council on Research and Creative Work.

PLANT ECOLOGY

A survey was taken of the distribution of tundra plant communities as related to landform age, development of polar soils, and microtopography. Collections were made of grass species for cytotaxonomic studies and major cryptogams (lichens, mosses). Soil samples from land surfaces aged by lichenometry were collected for mineralogical and weathering analyses.

PLANS FOR THE 1970 SUMMER

The main base of operations for 1970 will be Narpaing Fiord. An intensive program will be undertaken in the glacierized and non-glacierized corrie basins, involving their heat and water balances as well as their glacial histories. Postglacial uplift and late glacial chronology of the fiord will be studied and a reconnaissance survey made of Okoa Bay and Nedlukseak Fiord. The "neoglacial" history of the mountain ice caps and glaciers lying seaward of the Penny Ice Cap will be studied and related to sea level changes.

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The Hearne Medallion

On the left is a photograph of one in a series of commemorative medallions struck by the Sherritt Mint at Fort Saskatchewan, Alberta. The verso shows in map form the presumed tracks of young Samuel Hearne's journeys from Churchill towards Coppermine.

Since the Hearne medallion was produced, three more in the series have been minted. Another of particular interest is the Official Centennial Medallion produced for the Government of the Northwest Territories.

The Hearne Medallion may be ordered from the Sherritt Mint in nickel, silver or gold, and that of the Northwest Territories is available in nickel, aluminum, bronze, and silver; the true diameter in all cases is 32 mm. (1.26 inches).

Editor's Note

Neither this issue of the journal nor the June issue would be published with so short a delay were it not for Patrick D. Baird who carried on during my convalescence after an eye operation; I am most grateful for his help.

Colonel Baird has always been closely associated with the Institute and was one of its Founders; he was Director of the Montreal Office from 1947 to 1954.

Anna P. B. Monson