

on its north slopes. The only real vegetational effect was that produced by some half dozen deciduous trees above a rocky side hill from which the snow had completely melted. Landing was precluded by steep canyon walls. On *Flat Creek*, a tributary of the Charley River, a 20-25-yard-wide snow-free mound gave some suggestion of thermal activity, but no water could be seen draining from it and there was no vegetational effect. It was likewise not possible to positively identify the spring reported to exist near the headwaters of the *Charley River*. A small patch of 6 or 8 deciduous trees on a side hill was seen, but there was no effluence of water and no areas of melted snow. All in all these reported springs in the Yukon-Tanana uplands appear to be of very limited significance.

Although there are no true hot springs on the north slope, a site visited by our colleague, Dr. Brent McCown, in August 1971 is of interest. It was on the *Ivishak River*, north of the Brooks Range, and springs there were easily identified from the air by the presence of large poplars otherwise foreign to the area. The vegetation was striking with regard to the number of species and the amount of growth and reproduction. 18 species were sampled. The area comprised several acres, with one section dominated by 20-foot-high poplars, although most of the ground was covered by low herbs. The water flowed rapidly from the ground in numerous places and eventually coalesced into a small stream. Although the water had a temperature of only 5°C, local pilots reported that the springs remained unfrozen in the winter and attracted large game such as bear and moose. Fish and game biologists have found these springs to be important spots for the rearing of arctic char and grayling.

We have not yet reconnoitered the other hot springs listed by Waring for the Yukon Basin — i.e., those on *Little Minoak Creek*, west and north of *Glacier*, on the *Alatna River*, near the *Innoko River*, near *Iditarod*, near *Whitefish Lake*, near the *Tuluksak River*, and on a tributary of the *Little Melozitna River*.

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University of Colorado 1973 Field Season in Eastern Baffin Island

A total of ten persons, including members of faculty, graduate students and assistants were involved in the 1973 field season of the University of Colorado in both northern and southern Cumberland Peninsula. The major objectives of the research undertaken were: (a) to study the Quaternary geology and geomorphic processes operating within the Baffin Island National Park and on the Peninsula in general; and (b) to study the energy balance and break-up pattern of the Home Bay fast-ice sheet.

Quaternary geology and geomorphic processes

Previous work by members of the University's Institute of Arctic and Alpine Research (INSTAAR) had been concentrated in the northern fiords of Cumberland Peninsula. During the 1973 field season this research was expanded to include significant portions of the southern part of Cumberland Peninsula and of traverses through the main north-south passes of Pangnirtung Pass and the Padle/Kingnait fiords trough. These areas were last studied geomorphologically during the 1952 expedition of the Arctic Institute of North America led by P. D. Baird¹. Field work was also carried out on the Tertiary basalts at Cape Dyer during which particular attention was paid to the weathering of the basalts and the vertical and horizontal extent of active ice during the Quaternary glaciations. The basalts were free from Precambrian erratic rocks from the west, and the maximum extent of glaciation appears to be marked by weathered lateral moraines below the lower DEW Line site. Marine shells were found associated with these tills and will be uranium series dated. Investigations in Pangnirtung Pass and the Kingnait/Padle trough to the east revealed thick deposits of "bedded sands". These deposits, which are probably colluviated loesses, are interbedded with thin organic partings and thicker units of peat. The deposits vary between 0.5 m. and 5 m. in thickness. Buried soils were found underlying late- and possibly mid-Wisconsin moraines in Pangnirtung Pass. These together with samples from the buried sands are in process of being radiocarbon dated. Studies in the diffluent valleys (cols at about 600 m. above sea level) leading from Pangnirtung Pass eastward towards the Padle/Kingnait trough suggested that early Wisconsin ice flowed eastward from the Pangnirtung Pass

but that much of the area was ice-free by late Wisconsin time, and possibly well before that.

Studies were made on the south coast of Cumberland Peninsula, and shorelines and moraines delimited. A traverse was made from the southwestern margin of the Penny Ice Cap south along the Ranger River to Clearwater Fiord. Pronounced weathering breaks occur across specific moraines, and some of the moraines close to the Penny Ice Cap appear surprisingly old.

Climatological studies in relation to fast ice

The study of surface energy budgets of the fast-ice of Home Bay was continued in 1973 when measurements were taken over the period from early spring and through summer break-up and subsequent freeze-up in late autumn. Studies of the fast-ice morphology during the ablation period were carried out from field surveys and satellite imagery. Seasonal variations in temperature, and salinity of the near-surface waters in the vicinity of Broughton Island, were investigated in relation to ice and current conditions. It is expected that further measurements on the ice due to be taken during the 1974 summer season will complete the basis for a description of the annual fast-ice cycle.

A program of meteorological observations was conducted at INSTAAR's Broughton Island base during the summer and autumn months of 1973. In addition to conventional measurements, a continuous record of global and net radiation was obtained which was supplemented by measurements relating to atmospheric transmissivity and the radiative characteristics of clouds. The accumulated results of four summer and two winter seasons' radiation studies are being analysed as the basis for a radiation climatology of the

eastern Baffin Island region.

Studies of the synoptic climatology of the Baffin Island region are proceeding², with climatic data and energy budget parameters incorporated into the basic catalogue of synoptic types.

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Boas Glacier Survey

The Boas Glacier (67°35' N, 65°16' W) was resurveyed for the fifth consecutive summer. The 1973 ablation season was one of net loss of 0.42 m. water in accordance with an apparent pattern of strong mass gains and losses in alternating years. There has been a net gain of 0.40 m. water since August 1969. Long-term monitoring of this glacier seems justified from its already established position as a benchmark glacier for the northeast side of the Cumberland Peninsula.

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