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The attention of readers is drawn to an error in page numbering in issue No. 1 of this Volume (XXIII). The obituary of the late Eric Fry is contained on pages 39 & 41; that of the late Paddy Hamilton on pages 40 & 42.

THE ARCTIC CIRCULAR

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In order to bring the Arctic Circular up to date as quickly as possible, and to facilitate the selection of material, the next few numbers will not be restricted to any one year, but will contain items of interest covering the period 1973 to 1975 inclusive.

A Bone Tool Found with Ice Age Mammal Remains near Dawson City, Yukon Territory *

by

C.R. Harington

National Museum of Natural Sciences
National Museums of Canada
Ottawa, Ontario

On August 15, 1973 I visited the placer mining operation of John Ericson and Herman Liedtke on Hunker Creek (approximately 63°55'N, 138°52'W) near Dawson City (Figure 1). Many Pleistocene mammal bones had been collected there during the summer by Liedtke, who kindly donated to the National Museums of Canada those specimens which I considered to be of greatest scientific importance.

While sorting out the fossils from the site, I noticed a large bullet-shaped piece of caribou antler (129 mm long x 39 mm in maximum diameter) that appeared to have been purposefully shaped for use as a punch (Figure 2). Comparisons with other ice age caribou antlers from the Yukon in the National Museum of Natural Sciences collections indicate that the artifact may have been derived from part of the antler beam above the bez tine. It is stained a buff colour and has a slightly roughened surface. The fine spongy bone core of the specimen is about 21 mm in diameter, while the harder rind of the antler reaches a maximum thickness of about 11 mm. A few thin cracks radiate from the core and appear to have occurred recently -- possibly in the process of drying following excavation. A piece (30 mm long x 13 mm wide x about 3 mm thick) had evidently been struck from the upper edge of the artifact after it was made (Figure 2), and suggests that a hammerstone or mallet of some kind was used on the broad upper surface, while the point was applied to a chert or obsidian core so that flakes could be struck from it. This technique, sometimes called indirect percussion, is known to have been used by American Indians to produce stone blades (Bordes 1969, p. 45). The upper striking surface of the specimen bevels backward and outward about 5° to 10° from the horizontal. Its tip is not quite central, but is formed from the hard rind of the antler; the softer spongy bone of the core had been eroded, or worn away, slightly behind the tip. I cannot see traces of working on the specimen because the surface seems to have been pitted by chemical weathering.

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* Ms. received January, 1975.

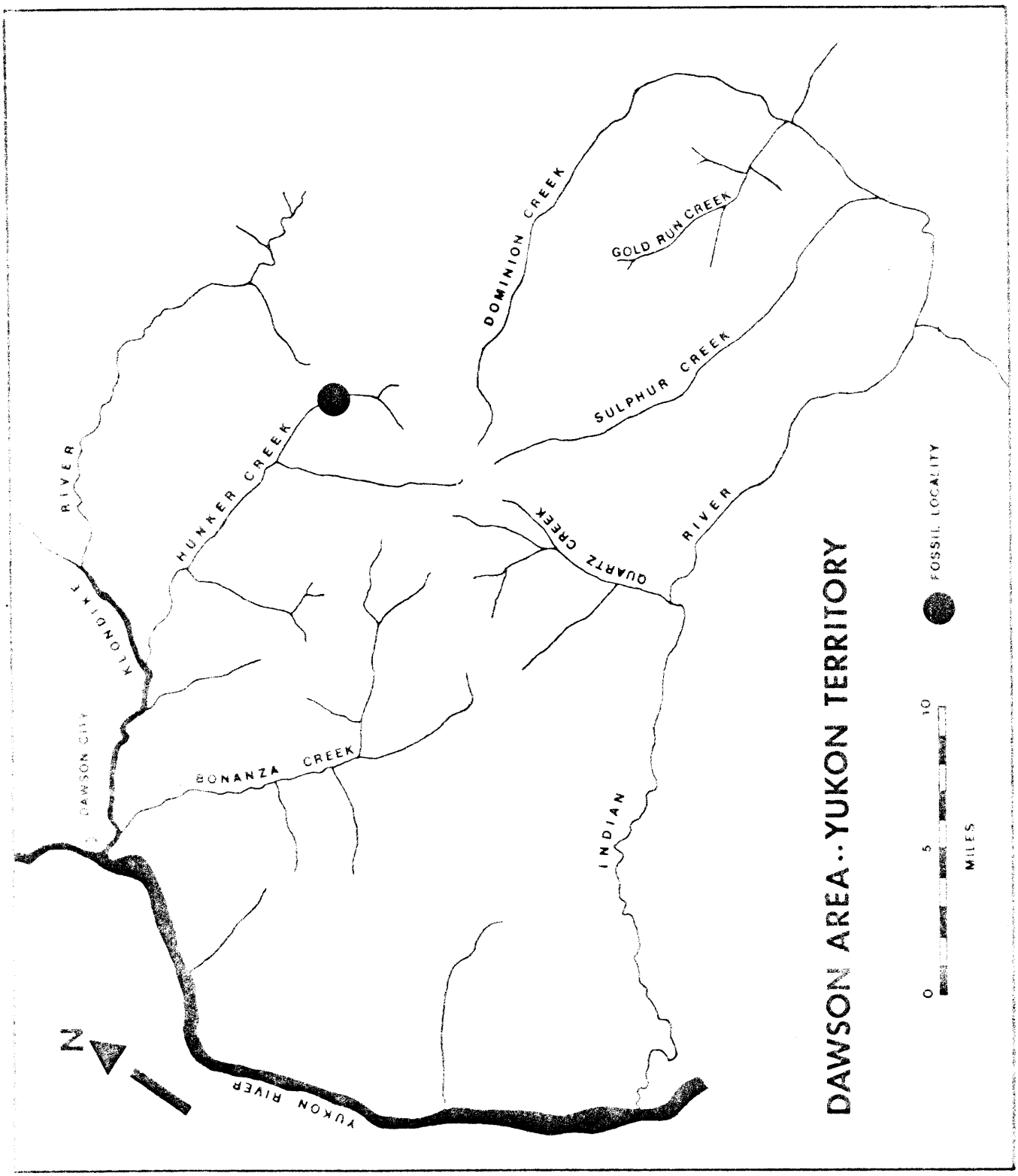

Figure 1 Location of fossil site

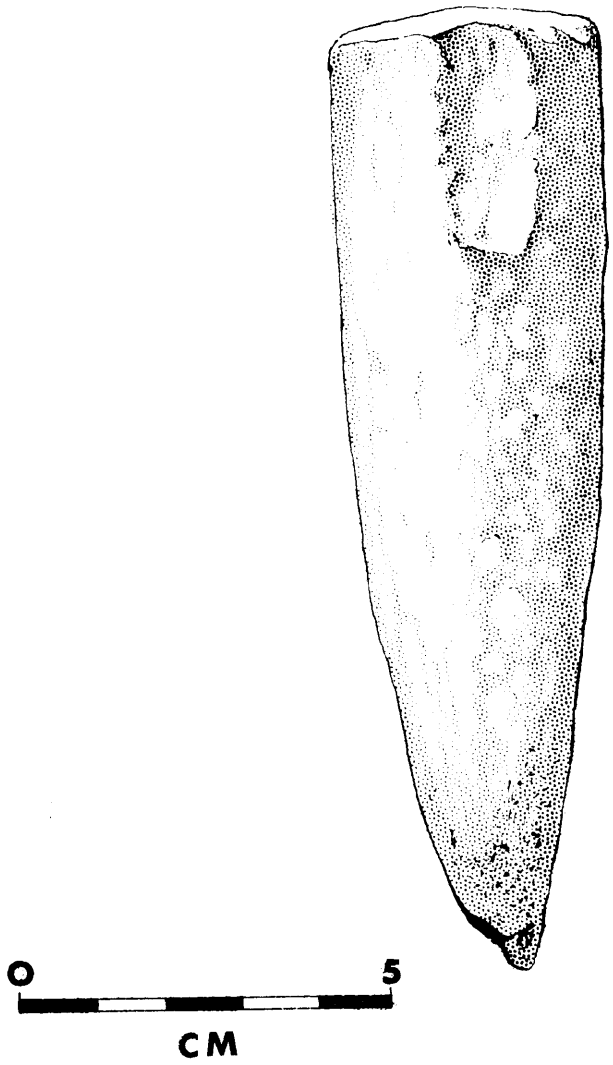

Figure 2 Shaped piece of caribou antler

From a stratigraphic viewpoint, there is a great thickness of "muck" (loess or reworked loess containing organic matter) above the gold-bearing gravel on the downstream side of Ericson's excavation. Ericson said that most of the bone came from near the interface of the muck and gold-bearing gravel, but that rarely were bones found higher up in the "muck", which supports previous observations (Harington and Clulow 1973, Fig. 2). Specimens representing large-horned bison (Bison crassicornis), woolly mammoth (Mammuthus primigenius), Yukon wild ass (Equus (Asinus) lambei) and caribou (Rangifer tarandus) were most common at the site. A partial mandible with teeth of the extinct muskox (Symbos cavifrons), most of the ulna of an American lion (Ranthere leo atrox) and part of a wolf (Canis lupus) mandible have also been identified from the locality. All but the caribou and wolf are extinct. Six radiocarbon dates (I-3569-71, 3575, 4225, 4226) on mammal bone from five different localities in the Dawson City area range in age from approximately 15,000 to 32,000 years B.P.; the average being about 24,600 years B.P. A radiocarbon date on Alaskan bison (Bison alaskensis) horncore has yielded a date of over 39,000 years B.P. (I-5405). Considering the heavily weathered surface of the antler tool, and the fact that it was found with fossils of extinct ice age mammals, I suspect that it is over 15,000 years old. It has been transferred to the National Museum of Man for study by archaeologists. If no other datable artifacts turn up at the site during the next few years, perhaps some consideration could be given to obtaining a radiocarbon date on the tool after it has been photographed and casts have been made.

To my knowledge, this is the first evidence suggesting the presence of early man in this higher region of the Yukon near the margin of the Wisconsin ice. Artifacts of late Pleistocene age have been reported previously from the lower, more northerly Old Crow Basin of the Yukon Territory (Irving and Harington 1973).

I am grateful to: Messrs. J. Ericson and H. Liedtke for donating many Pleistocene mammal specimens, including the caribou antler artifact, to the National Museums of Canada; Dr. R. Bonnichsen and Dr. R.E. Morlan of the Archaeological Survey of Canada, National Museums of Canada, for confirming my preliminary identification of the caribou antler punch; Charles Douglas of the National Museums of Canada for the figures.

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PROPOSAL TO ESTABLISH SEYMOUR ISLAND, N.W.T. AS A MIGRATORY BIRD SANCTUARY

By

S.D. MacDonald

The Ivory Gull, Pagophila eburnea is a high arctic circumpolar species which breeds only in the high northern latitudes. Its habitat is the region of the ice pack, the edges of permanent ice and open water along the arctic coasts. In winter, some individuals may wander to the northern mainland coasts of Europe, Asia and North America. Although widely distributed, the Ivory Gull is considered rare, and now appears to be much reduced in numbers. The only known nesting colony in Canada is on tiny Seymour Island in the Queen Elizabeth Islands of the Northwest Territories. It has been proposed that this site should be established as a migratory bird sanctuary in order that the colony may be protected.

Seymour Island, located at 76°48'N; 101°16'W, has a total area of three square miles and appears as an extremely small, reef-like projection above the pack ice in the Berkley Group of islands. Helena Island, its nearest neighbour , lies about seven miles southeast and is separated from the north coast of Bathurst Island by Sir William Parker Strait.

Until recently, Seymour Island received little attention. Its small size and its remote location relative to larger, more accessible islands caused it to be passed unnoticed; in fact, many arctic maps do not identify it. In 1971, S.D. MacDonald, National Museum of Natural Sciences, and R.D. Muir, Canadian Wildlife Service, visited the island and discovered it to be the site of an active breeding colony of Ivory Gulls.

The bedrock structure of the island probably is related to the folded sedimentary rocks - limestones, shales, and sandstones - of Silurian to Devonian age that are found on Bathurst Island. The highest point is 91 feet above sea level, and is the site of a triangulation marker. The island is covered by gravel ridges which are ancient beach strand lines, and in the southwest quarter there is a series of small fresh water ponds.

Mosses and lichens compose the bulk of vegetation on Seymour Island, although the overall effect is that of a completely barren landscape. Several species of grasses and sedges are also present, but are inconspicuous among the rocks and dull-coloured mosses and lichens. All vegetation is confined to the depressions between the strand lines of the raised-beach terraces. These low, sheltered places receive the necessary moisture to support plant growth from snow melt and from seepage from the ponds.

Except for a few pairs of King Eiders, Somateria spectabilis, Glaucous Gulls, Larus hyperboreus, and Arctic Terns, Sterna paradisaea, Ivory Gulls are the only other birds known to breed on Seymour Island. Evidence of three transient mammals has also been found - Polar Bear, Ursus maritimus, Peary Caribou, Rangifer tarandus, and Arctic Fox, Alopex lagopus.

Information on the breeding biology of Ivory Gulls is incomplete. The species nests colonially on cliffs, reefs, and isolated islands, including rock-and gravel-covered ice islands. They may also nest on nunataks.

Date of their arrival on the breeding ground in the Canadian Arctic is unknown, but some observations indicate breeding could begin in late May. The nests are bulky and, on Seymour Island, are built of the local vegetation. Other islands, similar in surface appearance, but lacking vegetation, are not occupied by Ivory Gulls. It is possible that the presence of vegetation in adequate quantities is a necessary requirement for nesting One to three eggs are laid and are incubated by both male and female parents. The fully grown young are believed to abandon their natal area in September. Ivory Gulls are often closely associated with polar bears and feed on the remains of seals killed by bears, particularly in winter. So dependant are they upon the bears that their numbers have been much reduced where polar bears have been heavily hunted.

Since 1949, S.D. MacDonald visited all other known nesting places of Ivory Gulls in the Queen Elizabeth Islands and either found them to be completely abandoned with no evidence of recent use, or found the colony reduced to one or two breeding pairs. The total population of Seymour Island was determined to be 150 breeding pairs. Calculations based on numbers seen in the Queen Elizabeth Islands suggest that there may be no more than 2000 Ivory Gulls in Canada and suggests they may be approaching the level of an endangered species.

The known nesting places of these gulls are all in isolated locations. To raise their young successfully, the birds require a remote, undisturbed nesting site and, unlike other gulls, are unable to tolerate any disturbance that frightens both members of the pair away from the nest site, or that frightens the flightless young away from the immediate vicinity of the nest. Low flying planes, both helicopters and fixed wing aircraft, or careless movements of humans near or in the colony, causes utter pandemonium among the adults, which then destroy their eggs and kill their young. In such situations, according to the literature describing egg-collecting forays by humans, the colony may be completely abandoned. All disturbances should be considered serious threats to the colony while the birds are present.

There is no record of archaeological sites on Seymour Island and, aside from the establishment of the triangulation marker in 1961, very few people are known to have visited the island. Recent seismic activity has resulted in at least one seismic hole, and the laying of a cache of five barrels of turbo fuel. No other evidence of human influence has yet been observed.

Considering that Seymour Island, N.W.T. is the site of the only known breeding colony of Ivory Gulls in the Canadian Arctic it should receive special protection. It has, therefore, been proposed that this protection should take the form of the establishment of a Migratory Bird Sanctuary which would include the entire Island surface. In order that no harassment is caused to this rare species and to ensure that its nesting habitat is not damaged or destroyed, the following conditions should be imposed:

- No operations may be conducted within two miles of Seymour Island and aircraft flying in the vicinity must maintain a height of at least 2000 feet between May 7 and September 15;

- Access to Seymour Island should be by permit only;

- Protection should extend throughout the year to preserve the beach strand lines and to prevent contamination, drainage, or deepening of the ponds.

It would be of very great assistance if those who travel the Arctic for any reason would note the location and date of any Ivory Gull sighted. Information regarding any nesting sites would be particularly valuable. Such nest sites could be on cliff edges, low gravel and rocky islands, gravel-covered ice islands, or on nunataks. It would also be useful to note whether the birds seen were adult or immature.

It would be appreciated if anyone having such information would forward it to:

Mr. S.D. MacDonald,
Curator, Vertebrate Ethology,
National Museums of Canada,
National Museum of Natural Sciences,
Ottawa, Ontario K1A 0M8

The Arctic Research Laboratory at Inuvik and Associated Research Activity

by

Richard M. Hill

The Inuvik Research Laboratory located at Inuvik, the administrative centre for the Mackenzie Delta area, has been operated by the Federal Government since 1963 as a service facility to support research and technical programs in the western Arctic.

The community is ideally situated for field research activities in a wide variety of disciplines. The town's position near the northern limit of tree growth has made it home for both Eskimos and Indians, and several socially-oriented projects have been carried out in the delta area. Its situation on the Mackenzie has made it a focal point for studies in the Richardson Mountains and the sedimentary basins of the Cordillera to the west, the Precambrian Shield to the east, the delta and coastlands of the Arctic Ocean to the north, and the Mackenzie Valley to the south. Myriads of freshwater lakes and streams yield varying environments for some investigators, while permafrost and its inherent construction problems have occupied other researchers. The terrain under Inuvik is monitored by instruments installed and studied by the Division of Building Research, National Research Council of Canada, and continuing monthly recordings are made to determine the effect of construction on difficult deltaic permafrost. The recent petroleum discoveries and the possibility of pipeline construction add a new dimension to delta research, and have resulted in considerable activity directed toward understanding the arctic environment and the possibilities of its disruption through uncontrolled industrial activity.

The Research Laboratory, operated by the Department of Indian Affairs and Northern Development, is a service facility for the support of research and technical programs in the western Canadian Arctic. By providing well-equipped facilities for intensive studies, it has been intended to stimulate arctic research among universities, government and industry, and to serve as a base from which extensive field studies can be undertaken. Logistical assistance, working space, technician support and equipment are offered to investigators. All the projects are sponsored by outside agencies, rather than being locally funded.

The laboratory is a new two-storey building, centrally located in Inuvik with ready access to the waterfront, airport and surrounding region. It contains low-temperature rooms and special arctic experimental facilities in addition to general laboratories, photographic dark room, library, office and seminar rooms. Camping outfits and field camps are maintained for investigator use, and minimal temporary sleeping quarters are also available.

The laboratory is operated by a staff of six, who also provide technician service to investigators. This staff prepares reports on request; assembles commonly-used data such as weather records, water-levels, and snow surveys; and, when a project is organized, may carry out the observations, sampling or other required activity on a year-round basis.With such service, a considerable amount of arctic research is now carried on all through the year whereas, previously, it had to be limited to a few months in the summer.

The laboratory facilities are available to investigators in all scientific disciplines. The only stipulation is they must have sufficient support to enable them to reach Inuvik. The expensive air fare to Inuvik has been found a practical means of filtering out casual or unorganized investigators.

Since the laboratory opened in 1963, utilization of its facilities has steadily increased - from 115 investigators working 206 man-months on 69 projects in 1964/65 to 250 people working 600 man-months on 200 projects in 1971/72. The busiest time of the year is the summer when as many as 150 investigators may be working out of the laboratory at one time; the number declines to around 30 during the winter months. Some research workers continue to use the facilities over a number of years, others for only one or two days.

All the facilities are flexible and service-oriented so as to be able to handle changes in the type of research supported. No charges are made for the use of the services. The laboratory's function is to encourage research with a view to improving the conditions and the utilization of the resources of the north.

The Eastern Arctic Research Laboratory at Igloolik

by

G.W. Rowley

A small general purpose scientific laboratory is being built at Igloolik in Foxe Basin by the Department of Indian Affairs and Northern Development. The department is responsible for fostering scientific research in the north, and one of the ways in which it carries out this responsibility is by providing research facilities. The laboratory opened at Inuvik in 1961 has been extensively used and points to the need for similar measure elsewhere in the north.

The Eastern Canadian Arctic has very few scientific facilities and Igloolik's position in the centre of this area was an important factor in determining the location of the new laboratory. The Yukon is another area where research facilities are becoming increasingly necessary and Whitehorse appears the most suitable place for a Yukon laboratory.

The Eastern Arctic Research Laboratory at Igloolik will be at the Eskimo settlement in Turton Bay, an excellent harbour, sheltered from all winds and with sufficient depth for coastal shipping. Normally the ice goes out in the second half of July and the harbour freezes again early in October. The airfield, about a mile from the settlement, is 3500 ft. long and can accommodate DC 3 aircraft. It could be lengthened without difficulty. There are at present two flights a week to Hall Beach and from there to Frobisher. The Anik satellite provides very good quality telecommunications.

Igloolik was first discovered during Parry's "Second Voyage in Search of the Northwest Passage", and he and Lyon wintered there in H.M.S. Fury and Hecla in 1822-23. They both wrote excellent accounts of the Eskimos they met, and these were a very important source for information on the people throughout last century. In 1922-24 Knud Rasmussen's Fifth Thule Expedition worked in Foxe Basin and their reports cover in great detail the material and spiritual culture of the Igloolik Eskimos and the archaeology of the area. Igloolik now has a population of nearly 600. The people there are closely related to the two hundred or so people living at Hall Beach, some forty miles to the south. Detailed physical and medical studies have been made recently of the population of both places, as the area was chosen for the Canadian research on the adaptability of circumpolar peoples carried out under the International Biological Program.

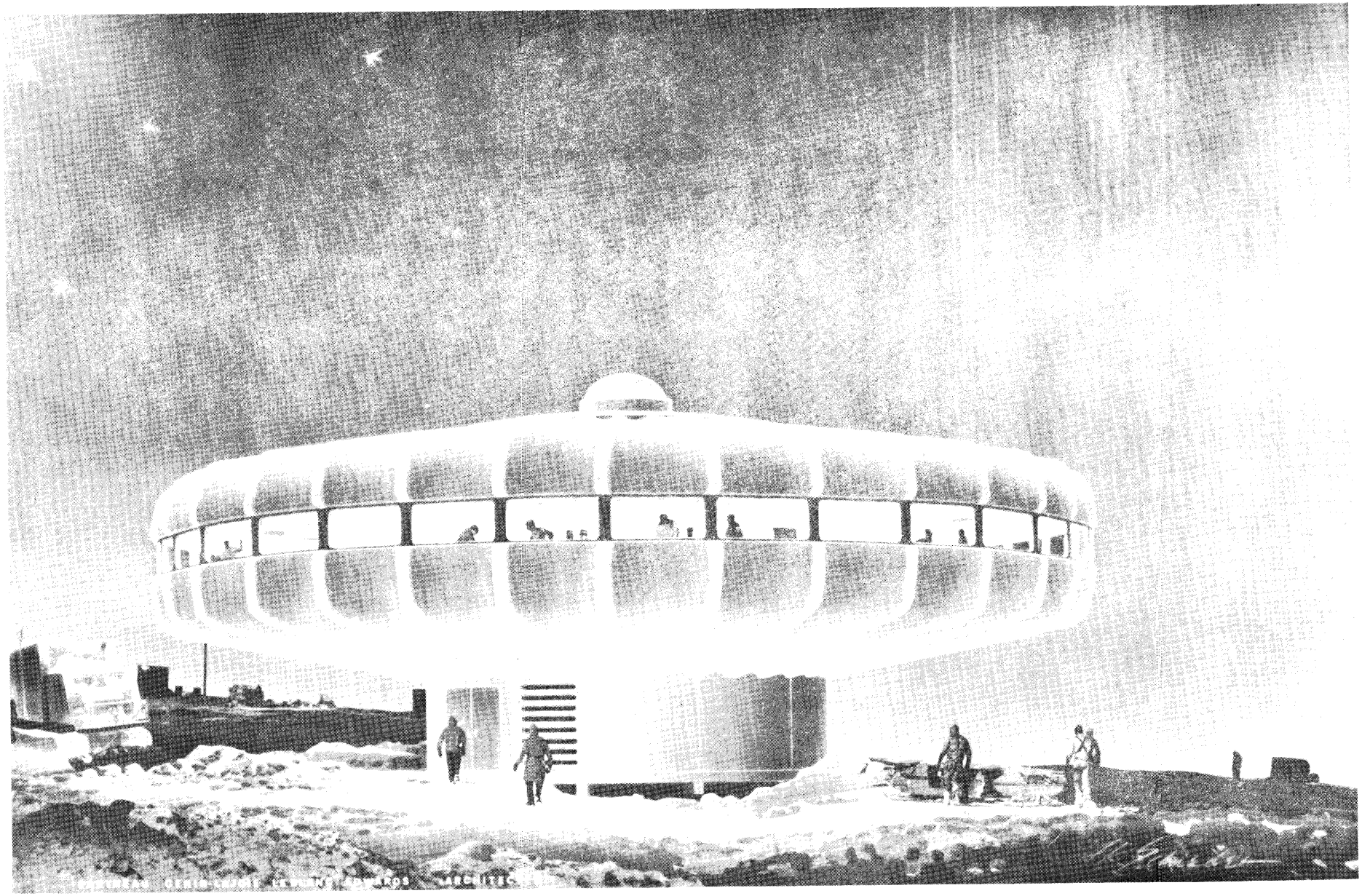
The government has assigned the highest priority to measures to advance the well-being of the native people in the north, and it is hoped that the new laboratory will play an important part in the life of Igloolik. Much of the research will be in the natural sciences, some of which should have direct and some indirect local implications. There should

also be many opportunities for research in the medical and social sciences. Close co-operation with the settlement is a very important objective. Every effort will be made to ensure that the local people take part in research wherever practicable, and that the reasons for and results of research carried out at the laboratory are made known to them. No local person has yet the necessary qualifications to be the scientist responsible for the laboratory, but the Vice-Chairman of the Village Council was a member of the selection board that interviewed candidates for this position. It should be possible to fill all other permanent positions from the local Eskimo population.

There are a number of other factors which make Igloolik a very suitable place for the laboratory. It is close to the border between the crystalline rocks of the Pre-Cambrian Shield and the nearly horizontal limestone stratas of paleozoic age. These have caused the two dominant land forms in the Eastern Arctic, the rugged uplands to the west and the lowlands surrounding Foxe Basin. Field parties operating at the laboratory will therefore be able to work in both areas. Northern Foxe Basin is also of considerable oceanographic interest. The current running through Fury and Hecla Strait keeps wide stretches of water open throughout the winter and helps to give the area an unusually rich marine life. It has always been noted for walrus, and bearded seal and ringed seal are also common, white whale and, in the past few years, narwhal are present in the summer and they may winter in northern Foxe Basin. The Greenland whale was almost exterminated by commercial whaling during the last century but has been seen again occasionally during the past few years. Many archaeological sites of pre- Dorset, Dorset, and Thule each indicate that this comparative richness of renewable resources is long-standing.

There are also encouraging indications of non-renewable resources within 200 to 300 miles of Igloolik. In northern Baffin Island large quantities of exceptionally high grade iron ore have been found at Mary River and there are good prospects of lead/zinc development in Strathcona Sound. Magnetite has been reported at several places in Melville Peninsula. At Rowley Island, about 80 miles east of Igloolik, an exploratory oil well was drilled in 1971.

The consultants for the laboratory are Papineau, Gerin-Lajoie, Leblanc and Edwards of Montreal, who have received an Award of Excellence for the design from the Canadian Architect. The building has a circular plan and consists of a single storey disc in which offices and laboratories are



The Eastern Arctic Research Laboratory at Igloolik

grouped radially around a central conference room. This disc is mounted on a smaller disc which provides access and houses the utilities. The laboratory will be built of fibreglass-reinforced plastic panels insulated with polyurethane foam, mounted on a steel framework which rests on a concrete foundation. The shape and colour will give the building the appearance of a large mushroom. Construction is being carried out as far as possible by local labour under engineering direction from the Department of Indian Affairs and Northern Development.

The foundations for the laboratory were completed in August 1973. Structural steel and most of the panels arrived on the annual sealift in September and the steel was erected within the next month. The outer shell will be completed in the spring of 1974 and if all goes well the laboratory should be ready for operation late that year, or at latest, in 1975.

***

Royal Navy Ellesmere Island Expedition, 1972

The Royal Navy Mountaineering Club, which in 1966 had carried out its first expedition - to East Greenland - made its second expedition in 1972, this time to Northern Ellesmere Island where an unvisited, rugged mountain range rises, with peaks of up to nearly 7,000 feet, between Yelverton Inlet and the Milne Glacier. Finding a leader and members of the Club who not only had the necessary experience and qualifications for such an undertaking but who could also get leave from June to August inclusive was a bit of a problem. It was not until late February, 1972 that the then-Chairman of the Club, Commander Angus B. Erskine, RN, who had already been nine times to the polar regions, found he could be available and took on the responsibility of leader.

That left barely four months in which to find/select personnel and to borrow, purchase or arrange for supplies, equipment and financial backing. Because of the pressure of time, all preparations had to go forward simultaneously without assurance that all preliminaries, authority, and necessary assistance would be forthcoming. In the end everything was completed in time - just. "But", as Commander Erskine remarks in his report, "it was rather like swimming the Channel without knowing whether the French would allow you ashore".

The Air Transport Command agreed to take the party on one of its regular polar navigation training flights, a C-130 flying to Thule and Resolute. From Resolute a Twin Otter fitted with ski-wheels, chartered from Polar Aviation, would take them to northern Ellesmere. And thus, on a budget of £2000 and with approximately 3000 lbs. of food and equipment, the expedition became airborne 27 June. Arriving at Resolute they managed to make link with a Canadian Armed Forces Detachment at South Camp, two miles from the airport. Not only did they report that the atmosphere here was warmly hospitable, but the arrangement was fortunate financially as the so-called hotel, where every guest seemed to be on either a government or oil company expense account, was charging $21/person/day! They took off 30 June but bad weather forced the plane to land them some twenty miles northeast of their objective.

In addition to Commander Erskine, the group included three Naval men: Chief Petty Officer Stephen R. Williams, Petty Officer Kevin A. Mackin, Petty Officer Christopher J. Gibbons; two men from Commando Units: Corporal Roy Pennington and Marine Samuel D. Roberts; and Major Mike J.B. Banks (ret'd), a friend of Commander Erskine's from the Greenland days, who had led his own expeditions to the Karakoram and Mount McKinley and who could act as second-in-command. It was thus a party well-endowed with experience. Furthermore, Dr. Geoffrey Hattersley-Smith, a long-time friend of the leader, and who had had twenty years'

experience on Ellesmere with DRB-sponsored research expeditions, was able to offer valuable advice.

The aims of the expedition and its scientific projects were:

Aims

- To explore unclimbed mountains in northwest Ellesmere Island, particularly the range between Milne Glacier/Fiord and Yelverton Inlet.

- To give wider experience to young officers and ratings of travelling in a remote part of the Arctic with a view to their leadership of future expeditions, and to the prospering of adventure training in the Services.

- To undertake limited scientific observations.

- To make a short film for public relations purposes.

Scientific Projects

- Zoological, and in particular, ornithological observations were to be made.

- Geological specimens were to be collected from representative outcrops throughout the area.

- A botanical collection was to be made in "Purple Valley".

- The small low-lying ice-free valley in position 82°29'N 81°W, lying between Milne Fiord and Yelverton Inlet, was to be visited. Because of the profusion of purple saxifrage it was called "Purple Valley" by the expedition, although the name is not official.

- It was intended to re-measure some glaciological stakes placed in the ice on the western ice cap the previous year by a DRB party.

- A search was to be carried out for paleo-Eskimo remains, particularly pre-Dorset.

- It was hoped to bring back pieces of driftwood found on the shores of Milne Fiord or Yelverton Inlet in order to have them radio-carbon dated, thus giving a clue to the minimum age of the ice shelf.

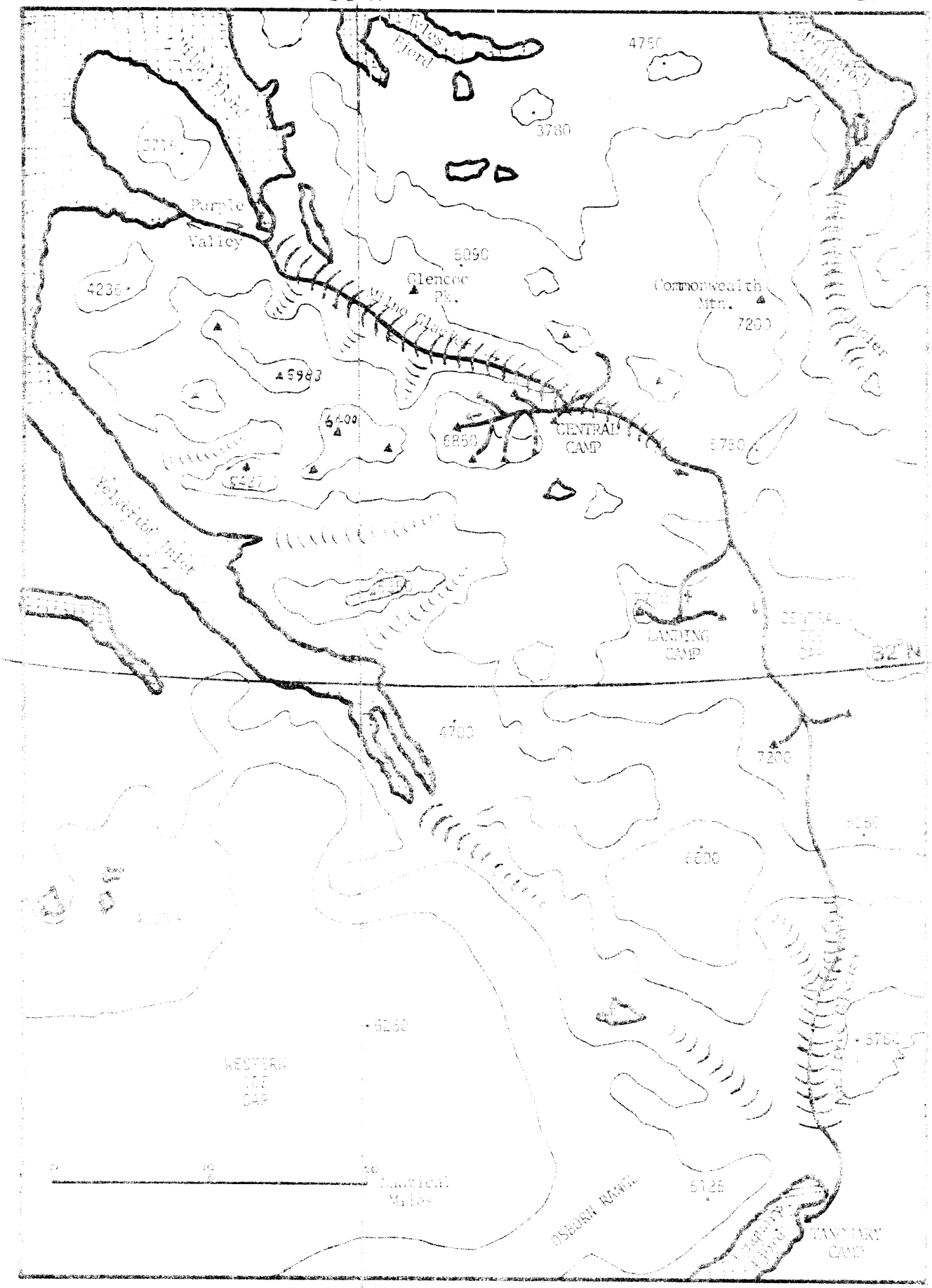
The first four scientific projects were successfully carried out. Measurement of the glaciological stakes was not possible in the time available because the plane could not land in that area to pick up the party. Due to unusually heavy snowfall at sea level, no traces of paleo-Eskimo remains and no driftwood were seen. A last-minute plan to carry out a topographical survey triangulation had to be adandoned because of the party having to land initially some twenty miles short of their central camp. As Commander Erskine recounts, when the plane took off and headed south, "Suddenly it was very quiet and still and cold. We were on our own".

This was a mountaineering group and climbing was naturally a main priority. In spite of the fact that for 50% of the climbing time they were weather-bound, they managed to make first ascents of thirteen peaks, including the highest mountain between Milne Glacier and Yelverton Inlet, as well as making a second ascent of the peak climbed by the RAF party in 1967 and for which the name "Mount Vanier" had been proposed. Names were submitted for consideration to the Canadian Board on Geographic Names for all new peaks climbed.

Weather in the summer season of 1972 was unfavourable: 1.78" precipitation as against "normal" precipitation of 0.71"; 35.3°F mean daily temperature as against "normal" temperature of 39.0°F; 234 hours of bright sunshine as against a "normal" of 314 hours. The snow line was down to less than 1000 feet above sea level in most areas north of Tanquary Fiord.

In seven weeks, despite the weather and the fact of being landed in the wrong place, the group succeeded in a highly creditable amount of climbing and made the first-ever crossing from Milne Fiord to Tanquary Fiord. They visited "Purple Valley" which, though covered in the low snow-free spots by purple saxifrage, arctic willow and mosses and a few other scattered arctic flowers, was still mainly under snow; even so, a botanical collection and ornithological observations were made.

The list of mammals seen on the expedition include Arctic hare, Arctic fox, Arctic wolf, and muskox, especially one angry solitary bull who charged two fleeing members of the party. Although they were convinced he could have caught them, he stopped about 30 metres off, tore up the ground with his ferocious curved horns and seemed satisfied at having half-scared them to death. No lemmings were seen at any time, an ecological catastrophe in this part of the world. This, together with the bad weather, is thought to account for the fact there was no evidence of either bird or mammal breeding in the area in 1972.



Travel routes of the Royal Navy Ellesmere Expedition, 1972

In its Ellesmere journeyings, the party had travelled some 250 miles, in the course of which they had carried out a reconnaissance of the complete length of Milne Glacier and part of the mountain range to the south of it, and had brought back geological specimens which were passed to Geoff Hattersley-Smith for transfer to Bob Christie of the Geological Survey of Canada for identification. The six-days wait at Tanquary Fiord were made most enjoyable by the unexpected helicopter arrival of old friends Geoff Hattersley-Smith and Harold Serson. Geoff gave them a guided tour of the area and its principal features of interest. On 13 August a Bradley Air Services DC 3 landed to collect them, and on 16 August another RAF C-130 landed them in England.

In summing up the summer's achievements, Commander Erskine concluded, "Above all, we had enjoyed ourselves in the process of learning a great deal about the problems of living and mountain-climbing in the high Arctic".

OIL AND GAS ACTIVITIES, 1973

(Summary from activities report of Department of Indian and Northern Affairs)

Permits and Leases

Land activities in 1973 were characterized by a degree of stability in total permit and lease holdings. Applications for permits were received for some 67 million acres in the Wollaston and Victoria straits basins, for offshore areas in Baffin Bay, and along the periphery of the polar ice in the western Arctic Islands. Because of the review of Regulations currently underway, no permits have been granted since March 21 1972. The issuance of leases was delayed during negotiations between the federal government and the Maritime Provinces regarding administration of east coast offshore lands. During the year, about 230 lease applications were received, covering an area of 1.5 million acres and extending from Norman Wells to King Christian Island. Applications for which permits have not been issued now total 108 million acres; 4,200,000 acres in leases are pending.

Permits were surrendered or cancelled along the edges of many geological basins on the mainland and in the Arctic Islands. Significant numbers of permits were also surrendered in the Yukon and along the eastern periphery of the Mackenzie Valley Basin. Leases were surrendered also in the southern parts of the Northwest Territories.

There was an overall decrease of 8 per cent in permit acreage in 1973, due principally to maturity of the permits in the Yukon and southern Northwest Territories. Permits issued for the High Arctic in 1969 reached the end of their second period in 1973, most of these being in the more remote and difficult areas of the region. Evidence of the industry's high degree of optimism is shown by the fact that most of these permits were maintained in good standing to the end of their initial term. Approximately 125 million acres of permits issued in 1968 will require further expenditure commitments of $25 million during 1974. The permits issued in 1970 (24.5 million acres) will also require further commitments in 1974. In all, about 25 per cent of the holdings will be examined during 1974.

No public offerings of Oil and Gas Rights were made in 1973. The last invitation to tender on Crown Reserve Lands was made in January, 1969.

Oil and Gas discoveries (see map Figure 1)

During 1973 the following gas and oil discoveries were recorded from the Mackenzie Delta area, the southern Northwest Territories, and the Arctic Islands.

	Gas	Oil	Company
Mackenzie Delta	Reindeer F-36 Titatik K-26 Ya-Ya P-53 Parsons N-10 (gas & condensate)		Gulf Mobil
	.....		
	Taglee F-43	Ivik J-26 Ivik K-54	Imperial Oil
	.....		
	Kugpik O-13 Niglintgak	Kugpil O-13	Shell Oil
	.....		
Southern N.W.T.	Tathline N-18		Pacific Oil
	.....		
Arctic Islands	Hecla I-69* Thor H-28		PanArctic et al
	.....		
	Wallis K-62		Dome Petroleum

Reserves

Oil - The geological basins of the District of Mackenzie, N.W.T., and of the Yukon are only in initial stages of exploration and estimates of reserves of oil and gas would therefore have only limited meaning. Norman Wells is the sole field producing oil at present. Discovered in 1920, it now has 59 wells capable of production, 43 of which are producing regularly. Intensive commercial development did not take place at Norman Wells until during World War II. In 1973 oil was produced at an average rate of 2802 barrels daily. It is refined locally at the Imperial Oil-operated refinery, the only operating refinery North of 60.

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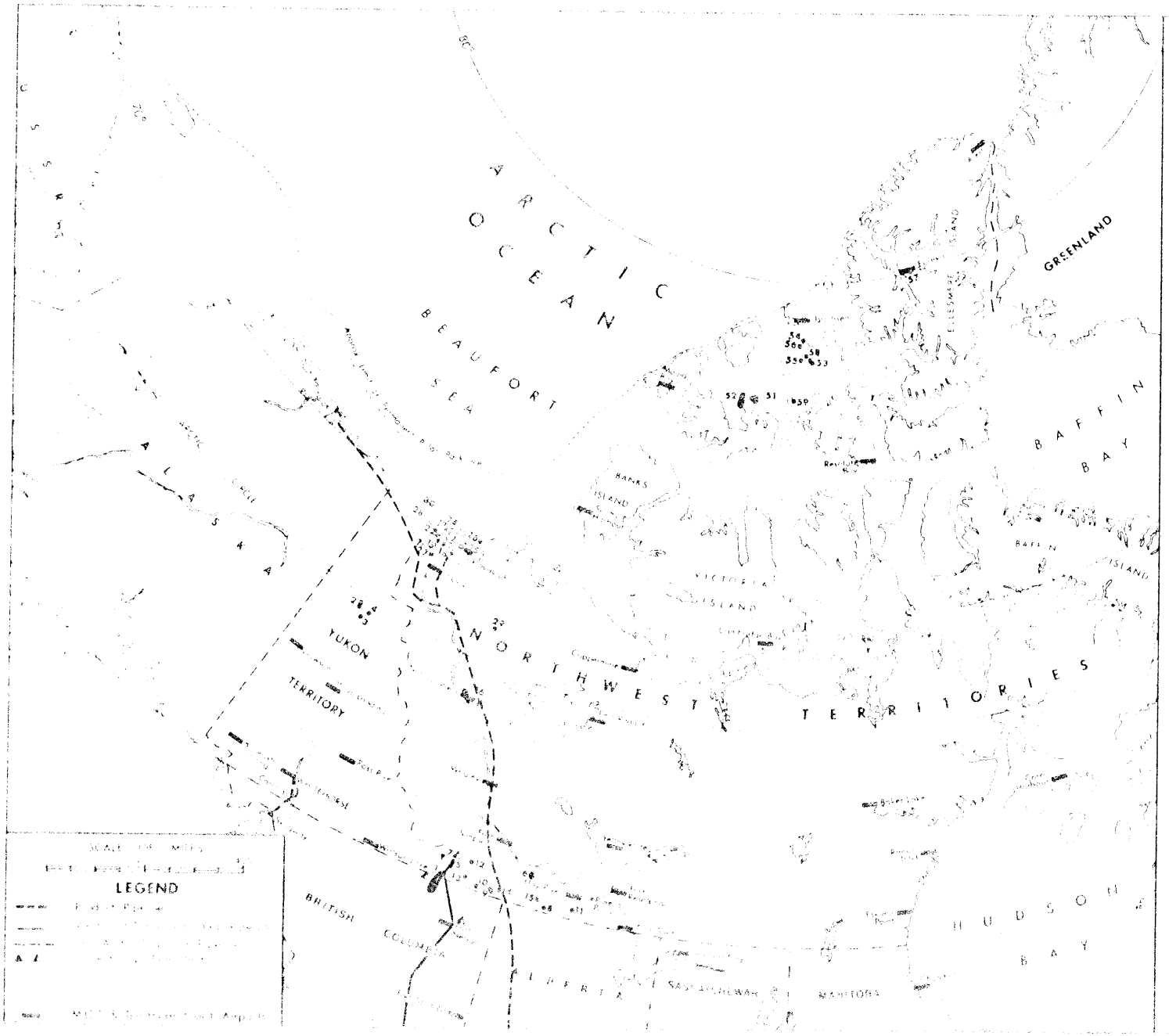
* It will be remembered that, in this area, Panarctic et al discovered oil at Thor P-38 in 1972.



OIL AND GAS FIELDS AND DISCOVERIES

(Gas Finds Unless Otherwise Noted)

YUKON TERRITORY

1. Beaver River Gas Field
2. Chance Gas Field
3. Socony Mobil et al Blackie No 1
4. Socony Mobil et al Birch YT B-34

NORTHWEST TERRITORIES

5. Pointed Mountain Gas Field
6. Rabbit Lake Gas Field
7. CPOG et al LaBiche F-08
8. H.B. Cameron Hill A-05
9. S Island River Gas Field
10. Home Signal Celibeta H-78
11. Shell H.B. Grumbler G-63
12. Sun Netla C-07
13. Texaco Bovie Lake J-72
14. Union Pan Am Trainer Lake C-39
15. Pacific Amoco Tatkina N-18
16. Norman Wells Oil Field (Oil)
17. Taglu Gas Field
18. Parsons Gas Field
19. Gulf Imperial Shell Titalik K-26
20. Gulf Imperial Shell Reindeer F-36
21. Gulf Mobil Ya Ya P-53 and A-28 Gas Pools
22. Shell Niglintgak H-30 and M-19 (Oil)
23. Imperial IOE Mallik L-38
24. Imperial Ivik J-26 (Oil)
25. IOE Mayogak J-17 (Oil)
26. IOE Atkinson H-25 (Oil)
27. Shell Kugpik O-13 (Oil)
28. Imp Adgo F-28 (Oil)
29. Ashland Tedji Lake F-24
30. Shell Kumak J-06 (Oil)

ARCTIC ISLANDS

51. Drake Point Gas Field
52. Hecla Gas Field
53. King Christian Gas Field
54. Panarctic Tennecy et al Kristoffer Bay B-66
55. Dome Arctic Ventures Wallis K-62
56. Thor Gas Field
57. Panarctic Romulus (Oil)
58. Dome Sutherland O-23
59. Panarctic Bent Horn N-72 (Oil)

FIGURE 1

For the Northwest Territories as a whole - including both the mainland and the Arctic Islands, the estimates of the Canadian Petroleum Association for 1973 indicated proven crude oil reserves at 41,895,000 bbls., and probable crude oil reserves at 71,895,000 bbls.

Gas - Gas is produced from the Pointed Mountain field just north of the B.C./N.W.T. boundary, in southwestern District of Mackenzie, between the Liard River and the N.W.T./Yukon boundary. The present average daily production from this field is 93,086,000 cubic feet. The gas is piped to the Clarke Lake gas plant in British Columbia. Part of the Beaver River field lying southwest of Pointed Mountain, is in the Yukon, and gas from this field is also piped to Clarke Lake.

The Canadian Petroleum Association gives the following estimates for gas reserves from the entire Northwest Territories:

remaining marketable natural gas reserves	886,239 MMCF
probable natural gas reserves	1,153,781 MMCF

Exploration expenditures

Expenditures on oil and gas exploration are estimated to have exceeded $250 million in 1973, an increase of $12 million over 1972. Exploratory and development drilling increased to $173 million (up 23 per cent over 1972), while total geological and geophysical expenditures remained the same at approximately $85 million. Expenditures for exploration drilling and seismic exploration thus exceeded similar work in each province and in the combined Atlantic and Pacific offshore areas.

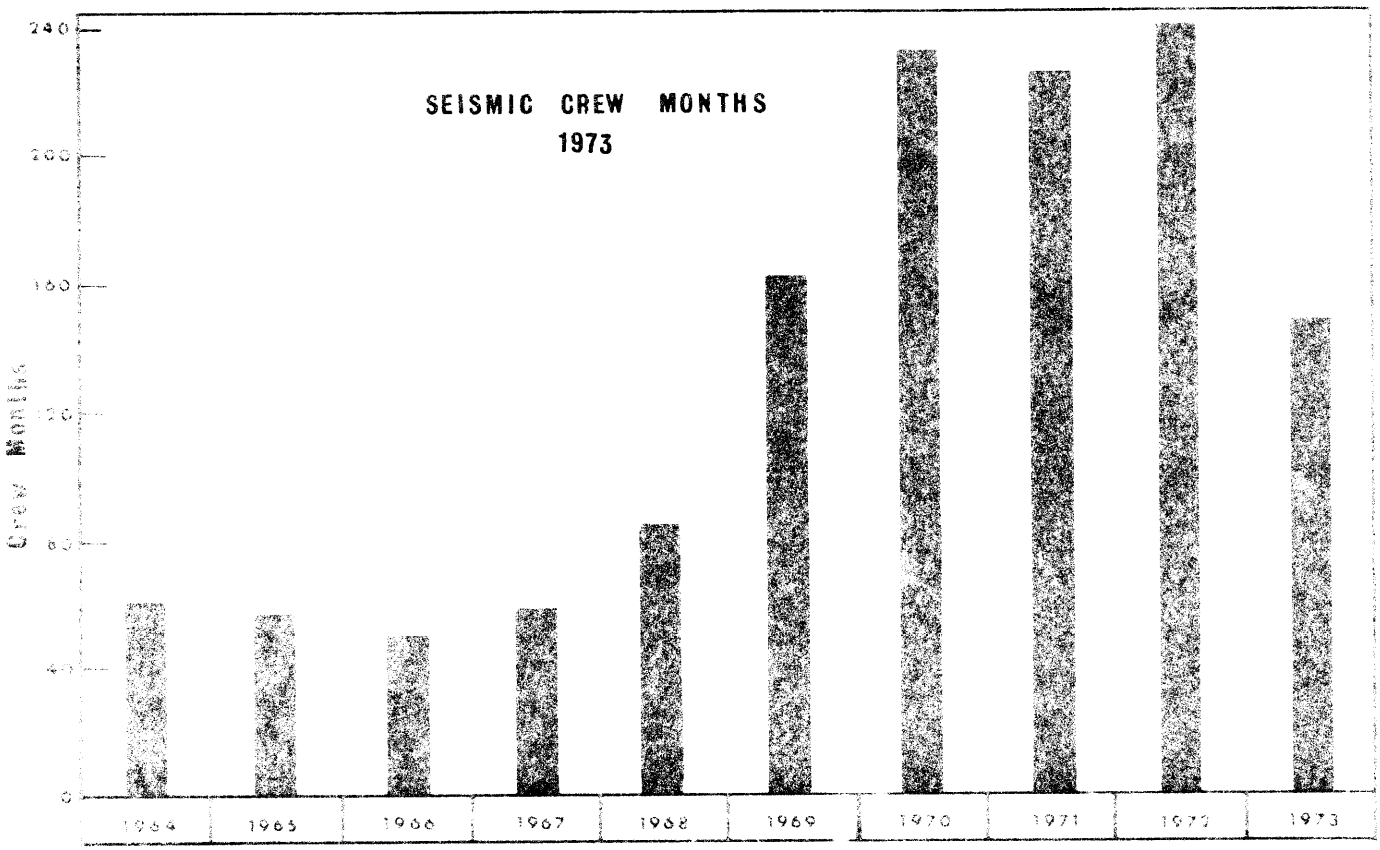
Expenditures are estimated to have increased by 32 per cent in 1972 and by 5 per cent in 1973. Indications in early 1974 were that expenditures for that year would remain about the same as in 1973. By 1975, expenditures related to oil and gas activity should reach $300 million per year if leases and permits are issued for areas under application. With the advent of development drilling in the Mackenzie Delta and with possible construction of the Mackenzie Valley Pipeline, expenditures in the late 70's may exceed $1 billion per year.

Operations

Surface geological and photogeological surveys by the Industry decreased by about 50 per cent in 1973, while seismic crew months (Figure 2)

decreased approximately 30 per cent to a total of 158 crew months, including 20 marine seismic programs in the Mackenzie Delta / Beaufort Sea, and the Baffin Bay/Davis Strait area. Seismic crew months are an excellent barometer of the magnitude of the drilling activity for the next year. This would therefore seem to indicate a significant decrease in drilling activities in 1974.

Fig. 2



Seismic activity on land was general over many of the geological basins in the north. Marine seismic operations, however, encountered severe ice conditions in the Arctic Islands and most of the programs had to be reduced. One marine seismic survey was undertaken in the geological area designated as the Sverdrup Basin, others were concentrated in the Lancaster Sound and Davis Strait areas. Considerable marine seismic work was carried out in Mackenzie Delta, Beaufort Sea and adjacent marine areas.

Seismic drilling operations were concentrated in four areas: Eagle Plain, Yukon Territory; Mackenzie Delta/Tuktoyaktuk areas; Peel Plateau; Arctic Islands (specifically the Sverdrup Basin).

Land drilling activities

The number of wells drilled North of 60 increased from 71 in 1972 to 83 in 1973 and the total footage drilled in 1973 increased by 12 per cent over that of 1972. (See figures 3 and 4 showing the number of wells drilled and the total depth drilled for the period 1963-73).

The 1973 footage increased to five times the 1968 total. This is reflected in the nearly 20-fold increase in drilling expenditures during the same interval. This large expenditure increase is attributable to the high cost of well drilling on the Arctic Islands and in the Mackenzie Delta and, of the wells drilled, one-half were in such frontier areas.

Approximately 92 per cent of the land footage drilled in 1973 was exploratory drilling, with eight of the wells reporting discoveries of oil and gas. Six gas development wells were drilled during 1973. Of these five were suspended: two in the Arctic Islands, one in the extreme southern part of the N.W.T., and two in the Mackenzie Delta. The other was completed as a gas producer in the Pointed Mountain Gas Field.

Offshore drilling activities

In the shallow waters of southern Beaufort Sea off Richards Island, Imperial Oil built an island which it named Immerk. A dredge barge was used to build this island which was constructed from bottom sediments. An exploratory well was successfully drilled, the first well on a man-made island in Canada. The well was abandoned at a depth of 8,883 feet when abnormally high formation pressures were encountered. Approval was granted and construction was completed on a second such island (Adgo) in the same general area, with drilling operations being initiated during December, 1973. At least five more wells are expected to be drilled by Imperial Oil from man-made islands during the 1974 season. Island construction techniques have now been developed to the extent that considerable island drilling activity is anticipated in the future.

Fig. 3

WELLS DRILLED

YUKON TERRITORY - NORTHWEST TERRITORIES

Number of Wells Drilled to end 1973, 734

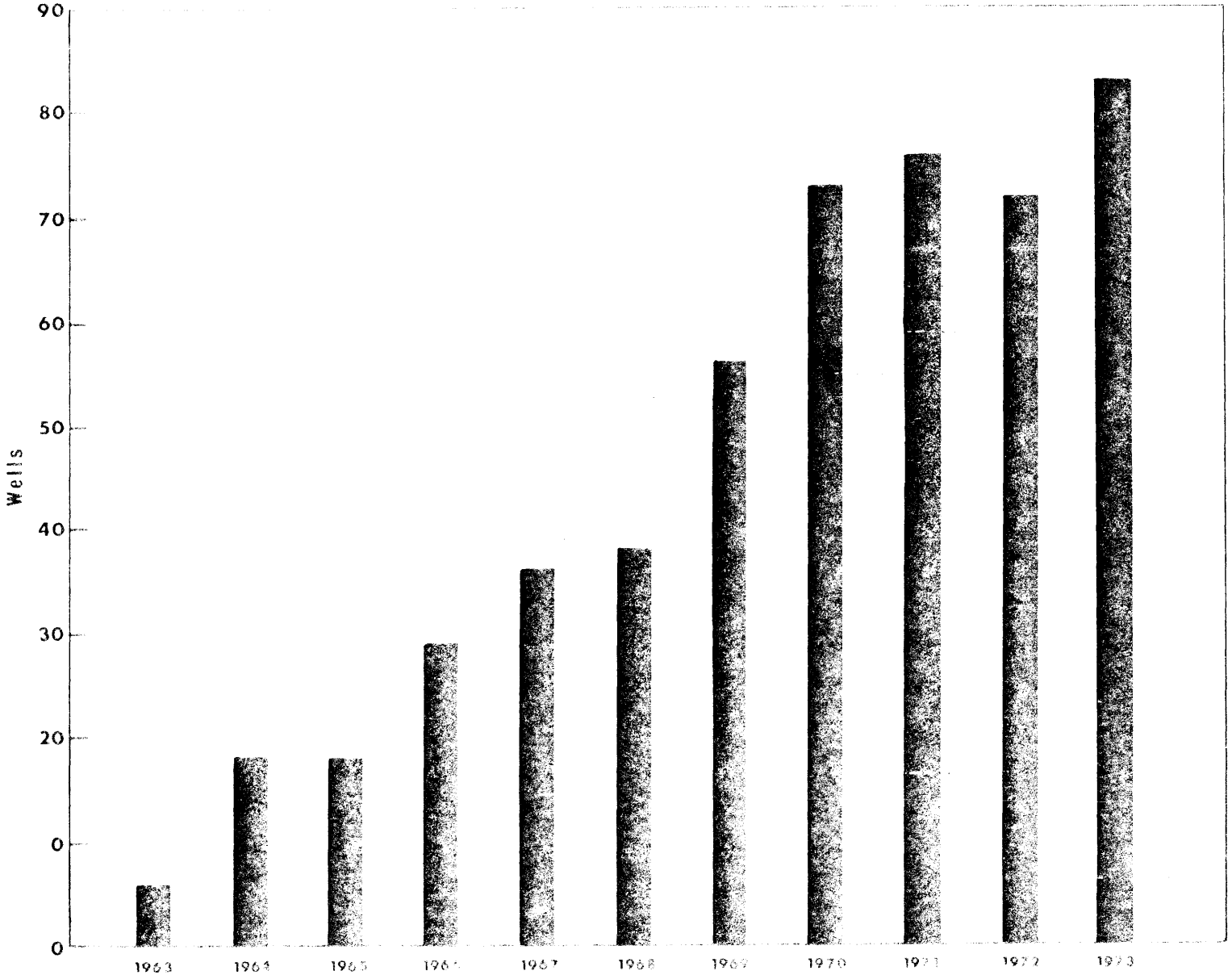
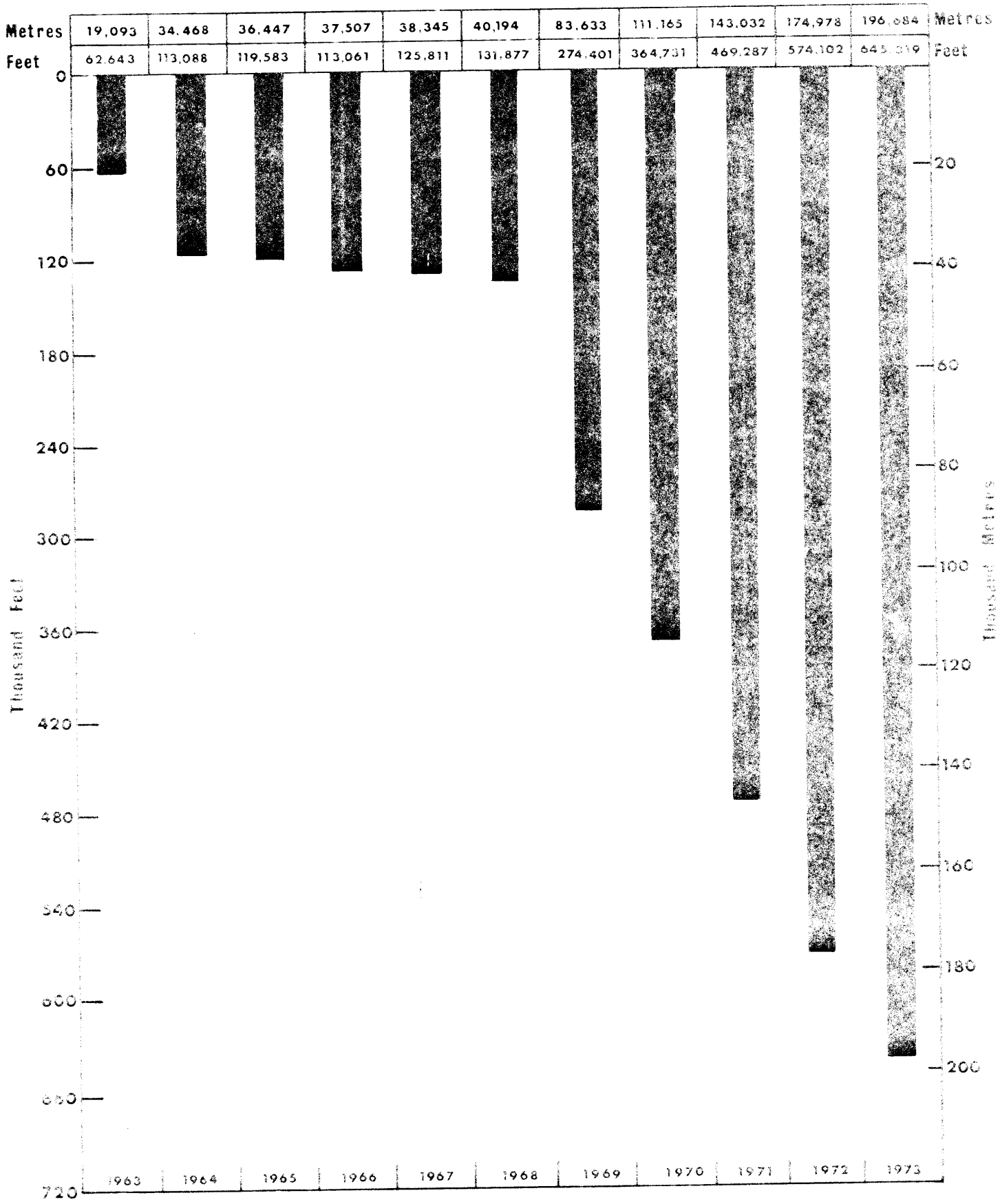


Fig. 4

DEPTH DRILLED

YUKON TERRITORY AND NORTHWEST TERRITORIES



However, the Department of Indian and Northern Affairs has indicated that offshore drilling in the Beaufort Sea will not be allowed to start before the summer of 1976, so that at least two full years of environmental studies can be completed by industry and government. The oil industry has tentatively agreed to fund up to $4.1 million for the "priority" environmental studies that must be done during this two-year period.

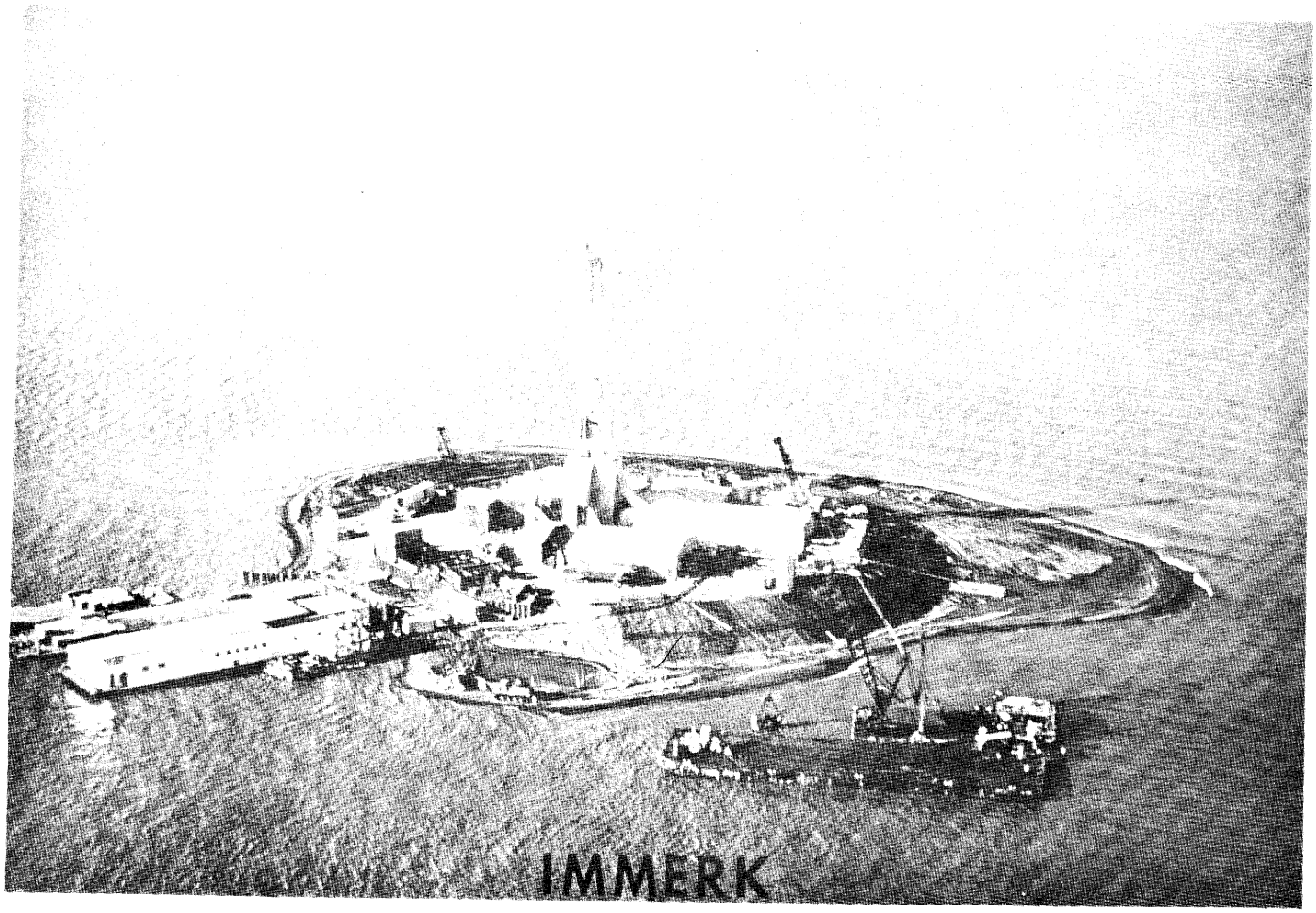
During 1973 proposals for two offshore drilling programs in the Beaufort Sea, utilizing floating ice-strengthened vessels, were assessed and granted Approval in Principle to enable sponsors to proceed with design and construction of the drilling units and to make contractual commitments for these systems. The actual drilling operations will not commence before 1976. Three other such offshore drilling proposals were co-ordinated or received during 1973 - two were additional proposals for drilling in the Beaufort Sea and the other for drilling in the Lancaster Sound area. These proposals are being evaluated by drilling engineers and land-use officials.

A novel drilling system was assessed for Panarctic Oils Limited and granted Approval in Principle during the year. The system incorporates a conventional land drilling rig in conjunction with some offshore equipment, and includes a sea-floor blowout-preventor and a marine riser. The drilling rig will be installed on a specially designed ice platform to be constructed by freezing layers of sea water on the natural ice surface. The proposed drilling site is in the Hecla area where sufficient geological data have been obtained to ensure the safety of the operation.

Oil and Gas Drilling and Production Regulations

A joint project was initiated by the Department of Indian and Northern Affairs and the Department of Energy, Mines and Resources to up-date the Canada Oil and Gas Drilling and Production Regulations. Sections of the regulations pertaining to the drilling of both onshore and offshore wells have now been completed in draft form and at the end of 1973 preparations were being made to have these sections ready for review by industry.

The drafting of sections of the regulations pertaining to production, pipelines, processing plants and related facilities were initiated in late 1973. It is anticipated that the sections of the Canada Oil and Gas Drilling and Production Regulations pertaining to drilling will be promulgated in late 1974, and those sections pertaining to production, pipelines, processing plants and related facilities early in 1975.



First Well to be Drilled on Man Made Island in offshore Canada

Research Projects

Arctic Gas Pipeline Group - feasibility studies. A group composed of Panarctic Oils Ltd., TransCanada Pipelines Ltd., Canadian Pacific Investments Ltd., and Tenneco Oil and Minerals Ltd., announced an agreement in 1972 for research investigations and the planning of a national gas pipeline from the Canadian Arctic Islands to the mainland - work on this project was begun in 1973. The undertaking will be known as the Polar Gas Project. TransCanada Pipelines Ltd. will manage the project and the expertise will be provided by the staff of the participating companies. The four companies bring to the group a wealth of knowledge and experience in gas pipeline transmission, in transportation in general and in arctic operations. The research, operation and planning began with the preliminary route reconnaissance survey carried out in 1973 under the direction of Panarctic. Two routes were surveyed. Both would cross Barrow Strait and continue down Boothia Peninsula, one proceeding south along the west side of Hudson Bay, the other along the east side. The work involved environmental studies conducted by consultants, as well as engineering work such as ice investigations, aerial photography, on-the-ground surveys, soil samplings, permafrost evaluation and mapping. Special efforts were devoted to marine surveys of Arctic Islands' water crossings, including studies of necessary equipment required to construct such installations.

Large scale environmental and ecological studies were also carried out by Gas Arctic Systems along the Mackenzie Valley corridor. The application to construct the pipeline there was made in early 1974.

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NEWS ITEMS

Canada and Denmark Conclude Continental Shelf Agreement, 1973

The Governments of Canada and Denmark have concluded an agreement concerning their territorial limits on the continental shelf between Greenland and Canada.

This is the first continental shelf agreement that Canada has concluded with a neighbour. By this agreement, the two countries have agreed on a dividing line up to which either party can extend its sovereign rights for the purpose of exploration and exploitation of the natural resources of the continental shelf between the Canadian Arctic Islands and Greenland. This is in accordance with the 1958 United Nations Convention on the Continental Shelf.

The dividing line, some 1,430 nautical miles in length, is the longest continental shelf delimitation in the world. It has been determined on the basis of the principle of equidistance, incorporating certain adjustments necessary to arrive at a mutually agreeable and equitable solution.

The agreement also provides for co-operation between Canada and Denmark in obtaining and improving hydrographic and geodetic knowledge necessary for more precise charting and mapping of the region covered by the agreement.

Such an agreement was necessary before any exploration of oil and gas possibilities in the Baffin Bay/Davis Strait Basin could be commenced with reasonable assurance that no territorial rights of either country would be infringed. In its Oil and Gas Activities, 1973, the Department of Indian and Northern Affairs indicates that

> Baffin Bay/Davis Strait Basin has been explored to date only by regional geophysical surveys. Several theories to explain its origin have been advanced; a widely accepted one involves continental drift by which Greenland and the Baffin land mass rotated apart from a pivotal point to the northwest. Geophysical surveys have demonstrated that the basin is underlain by oceanic crust, that no mid-basin ridge has been found, and that as much as 25,000 feet of semi-consolidated clastics are present. Sediments thin to zero in near-shore areas and on the Davis Strait Sill. Rocks outcropping around the basin margins are predominantly Precambrian. Major centres of deposition are the Thule Basin, the Lancaster Delta and the Cumberland Delta. The Central portion of the basin is underlain by up to 20,000 feet of flat-lying, relatively undisturbed sediments. Lancaster Sound and Jones Sound are structurally controlled grabens in which thick deltaic clastics accumulated. The sediment source area was

to the west and a major Tertiary drainage system transported the sediments to the Baffin Basin. The large volume of geologically young sediments and the presence of favourable trapping conditions for hydrocarbons make this a hopeful area for possible future hydrocarbon production.

***

Upgrading of Arctic Air Navigational Facilities

A $3.7 million program to expand and upgrade air navigation facilities in the Canadian Arctic has been set up by the federal Ministry of Transport in response to requests from carriers in the Yukon and Northwest Territories.

Very high frequency omni-range and distance-measuring equipment (VOR/DME) will be installed at Yellowknife, Resolute Bay, Whitehorse, Frobisher Bay and Cambridge Bay. Construction of VOR/DME facilities at Fort Simpson, Norman Wells, Inuvik and Watson Lake was planned for the summer of 1973.

Environmental testing of a developmental VOR/DME package designed for Arctic conditions was to begin after installation in March at Cambridge Bay. The VOR/DME pinpoints an aircraft along a line in any direction from the station, and with distance measuring equipment the pilot can determine how far he is from the station.

***

Data gathering program for weather and ice forecasting in Beaufort Sea.

During 1973, an ice, weather, sea state, and data gathering and processing program was initiated by the Arctic Petroleum Operators' Association (APOA). The objective of the program is to predict ice movements and coverage, to gather information on micro-weather and on the sea state, and to develop techniques for accurate prediction of the position of the ice relative to rig locations in Beaufort Sea. The total cost of this program is estimated at $550,000.

***

"Auyuittuq" selected as name for Baffin Island National Park

In February, 1972 it was announced that 8,300-square miles on Cumberland Peninsula were being designated as a National Park. A search was made for an Inuit name that would reflect the nature of the park and, in February, 1975 it was announced that the name Auyuittuq had been chosen.

Auyuittuq - pronounced Ow-you-e-took - means "Land of the Big Ice" or, literally, "the place which does not melt ". The name, selected after consultation with area communities, is considered admirably suitable as the park is a glaciated area dominated by the 2,000-square-mile Penny Ice Cap. It is also noted for its spectacular mountain scenery and beautiful fjords.

More than 400 visitors visited the park in 1974, almost three times as many as in the previous year. Many of these were hikers or mountain climbers from around the world.

Pangnirtung, the park's headquarters is located near its southwest bounday, and is accessible by scheduled airline from Montreal via Frobisher Bay.

A guide book to the park is being prepared by Pat D. Baird of Ottawa, Peter Schlederman of the University of Calgary, and Gifford Miller of the University of Colorado.

***

Changes in the Customs Act

As of June 1st, 1975, Bill S-4, an Act to amend the Customs Act, has been proclaimed to come into force. This act will bring the Customs Act permanently into line with the Territorial Sea and Fishing Zones Act. This alignment will extend the jurisdiction of Canadian Customs from the present limit of three nautical miles from the low water line, the internal waters or other baselines established along the coasts of Canada to the outer limit of the territorial sea of Canada, which presently is twelve nautical miles from the low water line, the internal waters or other baselines established along the coasts. In addition, Customs jurisdiction will extend throughout the Gulf of St. Lawrence as far seaward as twelve nautical miles beyond the fisheries closing lines drawn across the Strait of Belle Isle and across Cabot Strait. Accordingly Customs treatment of seismic survey vessels and exploration equipment will be extended from its present three nautical-mile limit to the new twelve nautical-mile limit These regulations will, of course, also apply in Canadian Arctic Waters.

CBC NORTHERN SERVICE RELEASES

Aimo Nookiguak appointed Station Manager at Frobisher Bay

The Director of the CBC Northern and Armed Forces Services, announced the appointment of Aimo Nookiguak as Station Manager at CFFB Frobisher Bay, Northwest Territories, effective February 3rd, 1975.

Aimo Nookiguak is well-known to northern shortwave listeners as the host of the phone-in show "Ishumavut", and to northern TV viewers as one of the hosts of "Tarqravut".

Aimo Nookiguak was born 28 July, 1947, near Cape Dyer in the Northwest Territories. His family moved first to Padloping Island and, later, to Broughton Island where his father was employed on the DEW Line and where Aimo received most of his schooling. He knows the north country particularly well as a result of a trip he took aboard the resupply vessel, "C.D. Howe" in 1964, when he was employed by the Department of Health and Welfare as an interpreter. After the voyage, he continued his schooling at Fort Churchill, Manitoba.

From 1967 to 1971, he worked on the DEW Line at Cape Dyer as a heavy equipment operator. From January to May, 1971, he took a training course in heavy-duty mechanics at Fort Smith, N.W.T., and remained there for two more months as an assistant heavy-equipment instructor.

In June, 1971, he returned to the DEW Line for two months at Cape Dyer and then joined the Ministry of Transport at Frobisher Airport in September 1971 as an equipment operator on the runway. He held this position until December 18, 1972, when he joined the CBC as an Announcer/Operator at Frobisher Bay.

He joined the staff of the CBC Northern Service, Montreal, in July 1973 as an Announcer/Producer where, in company with various staff and free-lance Inuit broadcasters, he took an active part in the daily production of news and special-affairs programming of interest to native peoples.

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Patrick Thomas Reilly appointed Area Manager, Mackenzie District

In December, 1974, Patrick Thomas Reilly was appointed Area Manager, Mackenzie District (Station CFYK, Yellowknife), by the Director of the CBC Northern and Armed Forces Services.

Patrick Reilly was born March 30, 1947, in Edmonton, Alberta. He received his early schooling in Edmonton and, later, high-school courses in Yellowknife, Northwest Territories, and a course in psychology at the University of Saskatchewan.

He joined the CBC Northern Service on February 14, 1966, as an Announcer/Operator at CFYK Yellowknife. It was there that he became interested in native broadcasting while reporting to "Indian Magazine" (now "Our Native Land") and recording interviews for use on local radio.

Following a summer-relief Announcer/Operator job from May to September in 1968, at CBK Regina, he was permanently appointed to that station.

"North Country Fair" was one of the programs he became involved in at CBK. This program features interviews, short documentaries and open-line shows with people from government, the law and other institutions. It has been considered as contributing to the development of the native peoples' control of their own destiny, beginning with an interest in broadcasting. None of the hosts of this program had any appreciable broadcasting experience prior to joining the program and were chosen on the basis of how they could best represent native people in the province. In a modified sense, this was Mr. Reilly's first venture into "community radio" and it led to the next stage of his career.

Appointed Manager of CFFB Frobisher Bay in July 1972, Mr. Reilly's interest in native programming and recruitment was further evidenced when he increased the ratio of Inuit announcer/operators from one to three and initiated an Inuktitut news-gathering project to replace the previous practice by which CFFB's local Inuktitut newscasts were translations of news already gathered and prepared by an English Announcer/Operator. The lack of native people qualified for this work, however, prevented the recruitment of a suitable announcer/operator for the programs. Although shelved for the moment, the project may be attempted again if staff development permits.

In general, CFFB's News Service has profited greatly by Mr. Reilly's guidance. Much of CBC's general type of news presentation is out of context for many northern listeners, especially for native peoples trying to cope with a new language. His innovations have changed the news-vocabulary format so as to make CFFB's English News more useful to a greater number of listners.

The wide variety of his CBC experience should assist him in meeting the demands which will entail the next six years' programs at Yellowknife.

***

Mackenzie Valley Pipelines Inquiry - CBC Northern Service Coverage

The CBC Northern Service has undertaken to provide extensive coverage of the Mackenzie Valley Pipeline Inquiry Hearings, beginning March 3, 1975, at Yellowknife in the Northwest Territories.

As full coverage of the Hearings as possible, from beginning to end, in seven native languages and dialects as well as in English, on both radio and television throughout the North is planned. They will also be covered for the rest of Canada in English and French.

The CBC regards these Hearings as of major national concern because of the importance of the proposed pipeline to Canada as a whole and, in particular, to the people of the North.

***

Mr. Alfred Tremblay appointed Officer of the Order of Canada

Early in 1973 it was announced that Mr. Alfred Tremblay had been appointed an Officer of the Order of Canada, and he was invested with the Order by the Governor-General at St. Augustine Hospital, near Quebec City, on 3 March 1973.

Mr. Tremblay first went to the north in 1910 as a seaman on CGS Arctic with Captain Bernier. That year the Arctic reached the west coast of Melville Island before wintering in Arctic Bay. In March 1911, Mr. Tremblay made a short journey to Cape Crauford and back with a group of Eskimos.

Following the return of the Arctic to Quebec City, her second officer, Robert Janes, apparently started a rumour that gold had been discovered in Salmon River near Pond Inlet, and this led to a small gold rush, with three ships sailing for Pond Inlet in July 1912. The first to arrive, the Algerine , was caught in the ice and sank. Her crew got away safely and joined the second ship, the Neptune. The combined crews prospected Salmon River for gold without success and concluded that the story was a hoax. The third ship, an old mackerel schooner, the Minnie Maud, carried nine men including her skipper, Captain Bernier, and Alfred Tremblay. She arrived a month after the other ships. When the Neptune sailed south in the fall, the Minnie Maud's party decided to winter with their ship at Pond Inlet, trapping foxes, fishing, and trading with the Eskimos.

On 11 October, Tremblay and G. Wilson, another member of the party, went with a group of Eskimos by sled, via Lancaster Sound to Arctic Bay. From there they made a number of short trips. On 29 January Tremblay, accompanied by a young Eskimo, Peewiktoo, and his wife, Tootillik, set out on a remarkable journey. They sledged south to the head of Admiralty Inlet, then crossed Baffin Island and Fury and Hecla Strait to Igloolik. While their dogs were resting there, Tremblay with a young Eskimo from Igloolik, Takkowa, a son of the well-known leader Ittookasungoon, travelled through Fury and Hecla Strait to Aqu and back, and then visited a camp inland in the middle of Melville Peninsula. On 15 April Tremblay, Peewiktoo, and Tootillik left Igloolik on their return journey to Pond Inlet, accompanying a group of Igloolik Eskimos. This time they crossed Baffin Island further to the east, between Steensby Inlet and Milne Inlet, and must have passed close by the Mary River iron deposits. Tremblay reached Pond Inlet on 10 May, having covered some 2,000 miles during the

winter, mostly through country that was new to white men. Alfred Tremblay's records of his journeys were compiled and translated by A.B. Reader, another member of the expedition, and published by the Arctic Exchange and Publishing Ltd., under the title of "Cruise of the Minnie Maud" (Quebec, 1921).

The Fifth Thule Expedition explored later in the same area, but Dr. T. Matthiassen, who described the geography and history of north Baffin Island in the Expedition's reports, does not appear to have known of the journeys made by Mr. Tremblay who, as a result, missed much of the credit due to him. The members of the Arctic Circle will have great pleasure in learning that his work has now been recognized in such an appropriate way.

G.W. Rowley

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OBITUARIES

Eric S. Fry, OBE, DLS (1890-1973)*

Early in 1973, the Arctic Circle lost one of its most respected and best beloved original members - Eric Stanley Fry. In the words of the Canadian Surveyor (Vol XXVII, June, 1973) he was "one of the grand old-timers of the surveying profession whose career coincided with the greatest period of development in Canada".

Born July 1st, 1890, in Sandbach, England, he came to Canada alone at the age of sixteen and worked at first on a farm near Edmonton, where his elder brother was an architect. His employment for the next four years consisted of a variety of jobs, including driving a team of horses for the Grand Trunk Pacific construction. His long career as surveyor began in 1910 - with Thomas W. Brown, DLS - surveying townsites along the Grand Trunk Pacific Railway. He progressed to instrument man and, in 1913 served with J.W. Pierce, DLS as chainman, surveying townsites in northern Alberta.

In late 1915 he enlisted with the 102nd North British Columbia Battalion and served overseas, both as an active fighter and, at various times, in survey section work with the 11th Infantry Brigade at Ypres, the Somme and Vimy Ridge. He was wounded and invalided home to convalesce in Vancouver. He was employed there for a time as shipyard surveyor and, from 1920-1926 was employed by the old Department of Interior on surveys in British Columbia, at first under John R. Odlum Vicars, DLS and, after 1924 when he, too, qualified as Dominion Land Surveyor, on his own.

From 1926 to 1938 he was on loan to the fledgling RCAF as civilian navigator on photographic mapping flights using, at first, an open cockpit Vickers Vedette flying boat. He surveyed and mapped thousands of square miles of the vast, uninhabited areas of northwestern Canada, including the uranium-rich Great Slave Lake District. These mapping flights were cancelled on the outbreak of World War II and for a time Eric Fry was engaged in ground surveys in Algonquin Park. In 1940 he was loaned to the Department of Indian Affairs for survey work in the Lake Athabaska district of Alberta.

In 1941 he was again on loan to the RCAF for survey and mapping duties along the Labrador coast, with the special assignment to locate, if possible, a site for a large air base. Not only did he find it - at Goose Bay - and survey the area but he succeeded in holding it for Canada in the face of the machinations of an American survey party under (Capt.) Elliott Roosevelt to recommend it to Washington for a United States Air Base. The Canadian base was built in 1942. For the remainder of the War Fry flew with the RCAF and the USAAF on survey and mapping flights over Labrador and Baffin Island. In 1946 he was awarded the OBE in recognition of his war services.

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* Compiled from information supplied by Alex Stevenson and from the Canadian Surveyor, Vol. XXVII, June, 1973, pp. 162-3.

R.W. (Paddy) Hamilton (1898-1974)
(A personal appreciation by Alex Stevenson)

On December 26, 1974, at the age of 76, Robert Warran Hamilton, long time member of the Arctic Circle and former RCMP Sergeant and Arctic veteran died.

"Paddy" as he was known to his many friends was born on November 20, 1898 at Castlefin, Ireland. Before coming to Canada in 1926 he had served four years in the Royal Ulster Special Constabulary. That same year he joined the Royal Canadian Mounted Police.

After training in western Canada he served at Balcarres and Moose Jaw, Saskatchewan, and Toronto and Niagara Falls, Ontario. He then went north in 1928 to start a long association with the Arctic. This was to Dundas Harbour, Devon Island. For 17 of his 27 years of commendable service with the Force, he was stationed at such northern detachments as Bache Peninsula, Craig Harbour, Pangnirtung, Baker Lake and Chesterfield Inlet. He finally served in Ottawa before going to pension on November 30, 1952.

He made many arduous dog team patrols in the days when that was the main means of communication and there was only once a year contact with the outside world by the annual supply vessel. Highlights of Sgt. Hamilton's career in the north include incidents such as having to eke out a meagre existence when he and two other members were stationed at Bache Peninsula. That particular year weather conditions were so severe that the supply ship was unable to reach the Detachment. Through strict rationing of existing supplies, prowess as hunters and fishermen, along with generous helpings of ingenuity and fortitude, they were able to not only survive but to conduct rigorous patrols in search of the missing party headed by Dr. H.K.E. Krueger, a German scientist. The Krueger expedition was never found but not through lack of effort or skill exhibited by the search parties.

On another occasion Paddy found himself, along with two Eskimo Special Constables, suddenly adrift on an ice floe. They spent 10 harrowing hours before the floe came to rest and they were able to scramble off.

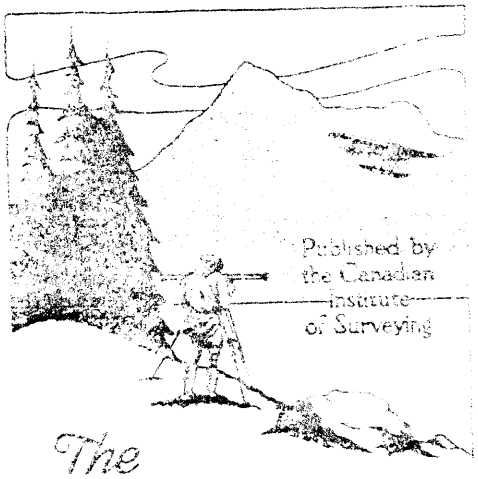
Added to his colourful northern career, Sergeant Hamilton, then lance-corporal, married the former Dorothy Mabel Bochmer of Madison, N.Y., U.S.A. on September 9, 1940. The wedding, with the first Bishop of the Arctic, A.L. Fleming officiating, took place on board R.M.S. Nascopie between Craig Harbour, Ellesmere Island, and Thule, Greenland. It was considered to be the most northerly such ceremony performed on waters of the then-British Empire. The Hamiltons were blessed with two daughters: Sally Ann, born at Pangnirtung, N.W.T., and Dorothy Camille at Ottawa, Ontario.

From 1945 to 1949 he carried out rugged canoe surveys in the Great Slave and Great Bear lakes districts that he had mapped from the air some twenty years earlier. From 1950 to 1955 he went north each summer as a Canadian observer on the U.S. Navy Task Force Summer Supply Mission to establish and supply the Arctic Weather Stations. His duties included the making of base surveys for control of topographic mapping in the far north. During 1954 and 1955 he was Senior Canadian Observer with the Task Force and, in 1954, he took off by helicopter from Eastwind and landed at Alexandria Fiord, Ellesmere Island, to select a site for the RCMP's most northerly detachment. (This post has since been moved to Grise Fiord).

After 31 years of service with the federal government he retired from the Surveys and Mapping Branch in 1955. He continued his interest in surveying work and completed a number of contracts, notably a ten-month contract surveying and selecting sites in the Arctic for the Distant Early Warning stations (DEW Line).

He died at 82 and is survived by his wife - the former Edna Jane Yelland, daughter of a Hudson's Bay factor - two daughters and several grandchildren.

Those who remember the earlier cover of the Canadian Surveyor will be interested to know that it was sketched by the late Billy Moul from a photograph taken in the Kamloops area in 1925 by C.H. Taggart, DLS. The man standing behind the Barr and Stroud military range-finder and looking across the lake toward the mountains was Eric Fry, in army breeches and puttees.



The CANADIAN SURVEYOR

"Paddy" was made Sergeant in 1945. He was presented with the Coronation Medal in 1937 and commended on two other occasions for "Conspicuous Service" and "Devotion to Duty". In recognition of his long service and good conduct he also received the "Force's" Long Service Medal.

A recommendation had gone to the Canadian Permanent Committee on Geographical Names to name a feature on Ellesmere Island to perpetuate "Paddy Hamilton's" name in that region of our north to which he made a great contribution in service to Canada.

I first met "Paddy" in 1935 when as a young Hudson's Bay Company apprentice I was aboard the Nascopie as she was repelled by ice trying to enter Craig Harbour. Awaiting the movement of the ice Paddy and another Constable and two Eskimo companions dragged a canoe across the ice to the vessel. They had to put it in the water every so often to bridge the open leads. Well do I recall his rich Irish accent and the twinkle in his eye which he always retained.

I am sure Arctic Circle members join me in offering profound sympathy to his wife Dorothy and daughters Sally and Dorothy. His strong personality and legendary northern figure will be remembered and honoured not only by Arctic Circle members, but by all who knew him.

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A Thumbnail Sketch of the Community of Inuvik

by

Richard M. Hill

"This was the first community north of the Arctic Circle built to provide the normal facilities of a Canadian town. It was designed not only as a base for development and administration but as a centre to bring education, medical care and new opportunity to the people of the Western Arctic" - June 21, 1961 (engraved on Inuvik's official opening monument).

Although Alexander Mackenzie paddled by the site of Inuvik in 1789, the area was seldom visited until 1954 when a decision was made to relocate and enlarge the school, hospital, airport and administration facilities of Aklavik. After an extensive reconnaissance of the entire delta area for a townsite, an engineering team recommended a location on the East Channel of the Mackenzie River and designated it "East Three". Then, in a frenzy of activity, Canada's first truly modern Arctic town emerged after a construction period of six years.

Inuvik, which in Eskimo means "The Place of Man", is now the focal point for all people living in the western Canadian Arctic. One hundred kilometres (60 miles) to the north is the Arctic Ocean, and 200 km (125 miles) to the south is the Arctic Circle. To the west, across the labyrinth of channels and islands of the Mackenzie River Delta, are the rugged Richardson Mountains, while the rolling barren grounds stretch eastward to the Pre-Cambrian Shield.

By air, Inuvik is 725 km (450 miles) from Fairbanks, 1,100 km (675 miles) from Yellowknife, 1,925 km (1,200 miles) from Edmonton, and 2,100 km (1,300 miles) from Churchill. On the world air map, Inuvik is centrally located between New York and Tokyo, Los Angeles and Moscow, Honolulu and London.

Lying within the northernmost reaches of the tree line, the town has a combined arctic and subarctic environment. The summers are short and warm, and the long, cold winters generally extend from mid-September through mid-May. The average temperature in July is around 18°C (65°F), although temperatures as high as 31.6°C (89°F) have been recorded at Inuvik Airport. The lowest temperature on record is -56.6°C (-70°F), but since the air is dry and there is little wind at the low temperatures, the winters are not unpleasant. Beneath Inuvik the soils are frozen to a depth of 300 metres (1,000 feet), and the presence of 'permafrost' is the reason for the piles beneath most buildings.

In January 1971, Inuvik recorded a population of 3,500 people. This figure includes 1,300 in the East End (federal housing and private), 1,300 in the West End, 500 in the school hostels, and 400 in the central, institutional and commercial areas. Of the total population, approximately 30% have Eskimo status and 10% have Indian status.

A large powerhouse by the river provides the heating and electrical requirements for the community, with an above-ground, metal-clad 'utilidor' system carrying water, sewers and heating pipes throughout the serviced area.

Retail stores stock the same merchandise one would find in stores in any other town of comparable size in Canada. There are restaurants, a movie theatre, a public library, a weekly newspaper, a taxi service, a hockey arena, a curling rink, a Canadian Legion Hall, a liquor store and three fully-licensed hotels. The R.C.M.P. headquarters for the Mackenzie Delta region is also located here. The CBC operates a 1,000-watt radio station (CHAK) and a television station. Complete local and long distance telephone service is provided by Canadian National Telecommunications. The Inuvik General Hospital is a 100-bed facility, complete with operating rooms, drug dispensary, dental and public health services.

Inuvik's modern primary school, named after the famous explorer Sir Alexander Mackenzie, has an enrolment of 750 students, while the new 20-classroom Samuel Hearne High School, opened in 1968, has an enrolment of 450 students.

A 1,800 metre (6,000 feet) all-weather landing strip is operated by the Ministry of Transport and several charter airplane and helicopter services operate in and out of this base. Pacific Western Airlines has daily flights from Edmonton to Inuvik, with services to intermediate points. International Jet Air operates five flights a week to and from Whitehorse. Northward Airlines connects twice a week to Whitehorse, via Old Crow and Dawson, and once a week to Sachs Harbour via Tuktoyaktuk. There are also daily flights from Inuvik to most of the delta communities.

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ARCTIC ANECDOTES

IMPROVISING A TRADING POST

by

Al Copland

During the early nineteen twenties in the Eastern Arctic, it was no uncommon thing to be ordered to establish a trading post on short notice. There never were plans to work to and every man was expected to be a carpenter and able to judge the size and kind of a building which the lumber supplied would allow.

In the summer of 1924 several Eskimo families arrived at Chesterfield Inlet from Southampton Island where they had spent the winter. They wanted the assurance that the Hudson's Bay Company would build a trading post on the large island, before they would decide to return.

We had no spare outfit at Chesterfield and no new lumber, or was there any coming in on the Nascopie. But the company had given its word so we piled in and demolished a building that had belonged to a rival company now out of business. We had no time to take the nails out of the lumber, let alone tie it into bundles before we were on board the schooner Fort Chesterfield bound for Coral Harbour.

Though we gave the skipper the courtesy title of Captain, he was by no means a qualified Master, but he could handle a vessel. His greatest fault as a navigator, however, was that he never knew where the vessel was unless he was within sight of land and prominent landmarks. This routine would be impossible on the voyage we were embarking upon, since we would have to lose sight of land before we picked up Cape Low on Southampton Island.

As we left the harbour under power, the skipper took a long, last look at the land now fast disappearing over our stern. First the Post-Manager disappeared into a bunk. The company Director of Transport, on an alleged Sabbatical Year in the Arctic, wisely refrained from showing his knowledge of navigation and also disappeared below, leaving the skipper to his own method of reckoning and crude navigation.

Apart from the skipper and his white, bespectacled engineer, the remainder of the crew were Eskimo. By the time I ventured below for my first meal the weather had worsened with a cross sea running. The grinning cook set before me an enamel plate on which rested a huge slice of fat ham and two fried eggs - the last things in the world I wanted and there they were in front of me! Across the table the magnified eyes of the engineer peered at me through thick lenses . Carefully, and I thought with some relish, he

cut a generous slice of ham and smeared it with egg yolk. I closed my eyes for a moment and swallowed hard. My blurred vision then saw hazy cameras and oilskin coats swinging outward at an absurd angle as the vessel described one arc after another. By now there was cold perspiration on my forehead and I made for the companionway and stumbled out on deck.

The deck seemed the safest place until darkness forced me again below where I tumbled into a bunk which I shared with a burlapped case of Scotch Whisky. Now that the sails were up and we were running along with a quartering wind, it was quite easy to sleep.

When I came on deck in the morning, there seemed to be anxious men running up and down ratlines and scanning the horizon. We feared we have missed Southampton Island! Losing an island almost the size of Ireland does seem strange, but the south end of Southampton Island is largely limestone prairie, flate and featureless. But by noon the sky cleared and we found that we had rounded Cape Low more by luck than good management and were now within sight of Walrus Island. Pupic, the long-haired mate, bared his teeth in a grin and pointed ashore. He had seen walrus. On our port side as we sailed up into South Bay, the surf was breaking on the rocky shore of Walrus Island. Herds of walrus bobbed in the water and others basked in the sunshine on the bare, rocky island. Ahead lay Coral Harbour. As we came closer in toward Guard Rock and began to sound, quite large pieces of pink coral came up, stuck to the tallow plug on the bottom of the sounding lead.

No one knew anything about the country, in particular the coastline, so we rowed around in two dories until a suitable location was found for our improvised trading post. The meagre supplies scrounged diligently at Chesterfield Inlet were stowed under one tarpaulin, but the coal was dumped close to the beach at high tide until we could get help to retrieve it.

We had got no further than laying down squared timbers for a foundation, than the schooner departed. She must have been sighted because in a short time white sails were seen beating up the bay against a brisk wind and soon our Eskimo friends arrived and pitched their tents on the beach. As the small building took shape, there were times we wondered if there would be enough lumber to divide our tiny living quarters from the store. In any case, it seemed we were in for a hard winter in restricted quarters.

The immediate area abounded in wild life, especially eider duck, swans, cygnets and the shrill-calling loon. One of the men was appointed hunter since it was possible to walk a short distance inland for a caribou. It was pleasant to sit outside the tent in the evening dusk and look down on the Eskimo encampment. Long moving shadows on the canvas walls told of

the preparations for the nightly drum dance. Soon the boom of the drum and the chanting voice of the hunter reached us. But we were not long going to enjoy the idyllic life and primitive pleasures, and the carefree happiness that has to be experienced to be appreciated.

Far out on the horizon, looming like a mirage, was a steamship. Who could it be? Opposition traders who would put our little effort to shame? Within an hour another Hudson's Bay Company supply ship Bay Eskimo had dropped anchor. On board were Eskimo families from Baffin Island and Coats Island which had been abandoned. In those days communications were practically non-existent, so that the snap decision to establish a small trading post on Southampton Island came as a surprise to the newcomers.

The new people brought kayaks and all the paraphernalia of a completely seafaring people, something our small band of Eskimo had not seen since the whaling days. Timidly at first members of the two culturally different groups approached each other but soon warm friendships began to develop. Fortunately the large island had game in abundance, enough to support both groups without any friction developing over hunting territory.

As for me, the welcome sight of a large prefabricated bungalow coming ashore in sections removed any fears that my first winter on the island would be a tough one. The small building became a store, for which it was much better suited, and our tiny, improvised trading-post became part of a larger and more efficient one.

A MISUNDERSTANDING WITH THE DOGS

by

Geoffrey Hattersley-Smith

We were camped at about 6,000 feet on the ice cap north of Lake Hazen in northern Ellesmere Island, and it was the middle of June 1961 during the long Arctic day that lasts there from early April until early September. There were four of us in the party. Brian Sagar was conducting a meteorological program, while Uwe Embacher and I were making glaciological studies, with Stephen Windisch helping us for a few weeks. We had just returned from a glaciological traverse by dog team westward along the ice cap, and on the way had made the first ascent of Mount Whisler (8,410 feet), the second highest mountain in the Arctic Islands. Now it was time for Windisch to return to Hazen Camp where he had other work to do.

Leaving Sagar to continue his work on the ice cap, we other three hitched up the dogs early one morning and set off at a great pace down to the Gilman Glacier, all of us riding the sled. We planned to camp off the glacier that evening; next day Embacher and I would see Windisch on his way to the lake shore where Ian Jackson from Hazen Camp would meet him by tractor.

We made excellent time down the glacier and, stopping only once to clear the traces, in three hours covered the twenty-five miles to the ice ramp where we usually came off the glacier, thus avoiding the vertical cliffs that guard most of the terminal part. A few hundred yards from the ramp we unhitched our ten dogs and anchored the sled. We now put packs on five of the dogs, so that they could carry their food, a small tent and a few other things off the glacier, leaving us with only our sleeping bags to carry. Each of us holding three or four dogs on lines, we led them down. It was always a risk to let the dogs run free because of the chance of their going after wildlife. But on the rocks beside the glacier on this occasion the dogs were going along so demurely that I made the fatal mistake of taking off the lines. Five minutes later two Arctic hare appeared over the brow of the slope a few yards above us. Nine of the dogs dashed after them; one only, a red dog, for some unknown reason elected to stay with us and we soon had a line tied to him. To call after the dogs was a waste of breath - they were gone in no time up the Dryas Valley after the hares which they couldn't hope to catch. There was nothing else for us to do except cover the two miles to our cache beneath the terminal ice cliffs, make camp as we had planned, and hope that the dogs would tire of the chase and follow us.

The pyramid tent from the cache was soon pitched and supper eaten, but there was no sign of the dogs. Taking our one red dog with us, we went up the Dryas Valley, picking up the tracks from where the dogs had left us. It was now snowing lightly, and the landscape wore a grey and dismal look. But from the top of a knoll I was able to pick out nine shapes on the next knoll a mile away. There were our dogs, until the field glasses revealed the shapes as nine muskoxen and the dog tracks as continuing far on up the valley! By 2.30 a.m. we decided to call it a day and returned dispirited to camp, hoping that the dogs would return to us in the morning. We had spoken to Jackson at Hazen Camp by field radio earlier in the evening and had arranged a radio schedule for the morning. I regret to say that he found our problem with the dogs highly amusing!

Although there was still no sign of the dogs in the morning, we decided that Windisch must be on his way to Lake Hazen and asked Jackson to meet him at the shore. Embacher and I then accompanied him for about seven miles towards the lake, and in the afternoon made another abortive trip up the Dryas Valley. Back at camp in the evening, I was beginning to wonder rather desperately how our ridiculous situation could be resolved. Should we call up our light aircraft from Resolute and ask the pilot to look for the dogs? That would surely be too ignominious and also expensive. While pondering the problem, I picked up from the books in the old cache left over from the IGY expedition a copy of Cherry Garrard's "The Worst Journey in the World", and drew some comfort from reading of others who had been in predicaments far worse than ours.

After a night's sleep we went up the Dryas Valley again in the morning of another grey day. We followed the dog tracks so far, then lost them. On the way back I got out the field glasses and scanned the lower reaches of the glacier. There was the sled all right about two miles away, but what were those dark specks near it? The bare rough ice of the lower glacier looks dark in places under certain lights and at certain angles. But there seemed to be an unnaturally large number of dark objects clustered around the sled. We hurried up to the ice ramp and, as we neared the sled, there sure enough were our nine missing dogs. They stood up and stretched themselves as much as to say, "Where have you stupid people been all this time?" Even I who had been threatening them with dire punishment for the past two days could only feel relieved and happy to see them. We soon had them gathered up on their sealskin traces and trotting down to camp with us. Two of them were still wearing packs containing their food - a wise precaution of theirs as we had no dog food at the ice cliff camp. But the tent, Brian Sagar's mail and a few other things were lost in the three packs that were missing somewhere in the Dryas Valley. Next morning we could start back to the ice cap where Sagar would be wondering what had happened to us, since we had left him without a radio.

After an early breakfast we were on our way up the rocks beside the glacier to the sled, and within two hours had hitched up the dogs and were heading up-glacier. It was a much slower trip than coming down for we had nearly 5,000 feet to climb. Near the top of the glacier the weather which had been threatening broke on us, and we were soon driving into a half blizzard that caused us to miss the trail in an area of crevasses and meltwater lakes. Safely through this area, we gave the dogs their head because it was hard for us to find the camp in nearly whiteout conditions. But the dogs knew the way, and after nine hours on the trail we reached the camp, which was good going under the circumstances. We were lucky that the blizzard did not fully develop, as we were now without our small emergency tent.

Sagar was sitting imperturbably in his tent and didn't hear us returning in the storm. After picketing and feeding the dogs, we were soon inside with him and eating the supper that he prepared. It was an occasion to round off the meal with Guinness served at exactly the right temperature of 55^{O}F, according to a custom that we kept with our small supply. It had all ended better than had seemed possible two days ago, except for Sagar who had lost all his outgoing mail in the Dryas Valley where it still lies!

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BOOK REVIEW

NORTH OF LATITUDE EIGHTY*

The Defence Research Board in Ellesmere Island

by

Geoffrey Hattersley-Smith, F.R.S.C.

(published by the Defence Research Board, 1974, and available through Information Canada bookshops; 121 pages, 3 maps, 40 photographs, selected bibliography and glossary of snow and ice terms; price $6.75)

This book is a record of the exploration, scientific discovery and research activities carried out under the auspices of the Defence Research Board (DRB) on Ellesmere Island during the eighteen years 1953 to 1970.

The author, Dr. Hattersley-Smith, holds a doctorate degree in geology from Oxford and has been awarded the Royal Geographical Society Founder's Medal for his glaciological investigations in the Canadian Arctic. No one is more qualified to report on DRB's scientific work on Ellesmere Island for, during the more than twenty years he served with the Board, Dr. Hattersley-Smith was directly involved in its research work in this region and usually led the expeditions.

In the Foreword, Dr. O.M. Solandt, who was Chairman, DRB, when these Arctic operations were begun, points out that some background in the art and science of Arctic travel and exploration - as well as an understanding of the author's art of understatement - is almost a necessity if the reader is to appreciate fully the fact that this report is an account of some of the most venturesome and successful exploits in modern arctic travel and research. It becomes evident as one reads that the author is a master of the ways and means of arctic travel, exploration and research and that his book, while bearing testimony to his modesty, certainly never overstates, or even fully presents, the tremendous vitality and endurance that made him a leader in his field.

The report begins with an historical review of the exploration of northern Ellesmere Island, an area which until recently had only been traversed by non-Canadian expeditions. Recorded sightings of northern Ellesmere Island only go back a little over 100 years ago - possibly to I.I. Hayes in 1861 or to C.F. Hall in 1871, both searching for the lost Franklin Expedition. Modern exploration on the ground did not really commence until after World War II.

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* Summarized from reviews written independently by Brigadier-General Keith R. Greenaway (Ret'd) and Colonel Malcolm C. Sutherland Brown, F.R.C.G.S., former Chief Engineer Alaska Highway and former Director, Military Survey and Mapping. Col. Sutherland-Brown is a Director of the Royal Canadian Geographical Society).

Chapters 2 to 5 inclusive contain general descriptions of DRB programs, each chapter covering a specific phase or period - Ice Shelf Operations, Hazen (1957-58), Hazen (1959-61) and Tanquary. The importance of logistics in northern scientific work is stressed in a special chapter in which the author outlines the evolution of transport support and communication during the years covered by the report. The section on dog teams and snowmobiles is most informative, providing the insight into the role played by each under differing conditions. For those interested only in the scientific results of these expeditions, this information is presented in a separate chapter. The glaciological and oceanographical findings, DRB's prime interest in mounting these operations, are given in detail. Anyone wishing more detail or information on any of the other scientific fields involved should consult the excellent Selected Bibliography where other reports associated with work of the expeditions are listed.

North of Latitude Eighty is not an involved scientific report but rather a very readable authoritative account of the effort that must go into scientific research in polar regions if it is to be successful. Reference is made to the many scientific disciplines and trained personnel that contributed to the gathering and evaluating of the data.

In addition to travel and observations on land, the author indicates how this work was tied in with the International Geophysical Year (1957-58), discusses the formation of the famous north polar "ice islands", tells of the discovery of salt water thousands of years old in the lower levels of present-day freshwater lakes, records the exploring of glacial lakes and the surge of a glacier - in word and picture. Even prior to the operations discussed in this report, he had pioneered research on "ice islands" from the time they were first identified.

In the closing chapter, "Retrospect and Prospect", the author suggests it would be well for Canada to invest more heavily in arctic scientific activities as the cheapest and most effective means of asserting and demonstrating this country's sovereignty over the Arctic Islands. Further, the knowledge acquired through such activities would greatly assist in guiding northern progress since the evolution of arctic development is still at the scientific investigation and inventory-taking stage. In the field of northern research Canada has a chance for real world leadership and we would be well advised to take Dr. Rittersley-Smith's advice.

The clear, direct, delightful simplicity of the author's style is a joy to read in scientific writings and yet another indication of his all-round competence. Some regrets have, however, been expressed by readers regarding details of the publishing: the 1:1,000,000 map in the back pocket which

fails to show the frequently mentioned Mount Oxford although it does help in identifying features, in giving some idea of the terrain and in helping to identify and follow the routes taken by the various parties; the caption to the fourth figure (in Chapter II) which mentions only Cape Columbia though Stubbs Point and Cape Aldrich are the most prominent features in the photograph. Then, too, there is the regret there could not have been more of the superb colour photographs and the wish that the cover could have been of a more permanent material.

But these are very minor failings, and there is no doubt the work described will serve as the broad, scientific base from which future research in Canada's far north will be continued in future years. It is gratifying to see such a review of Canada's Arctic research in print. The Defence Research Board is to be congratulated for its foresight and initiative in launching such operations, and Dr. Hattersley-Smith is equally to be congratulated for leading the field work and recording the results in such a readable manner. North of Latitude Eighty is good reading for all interested in the north.

Arctic Circle correspondence - Correspondence should be addressed to the officer concerned,

c/o The Arctic Circle,
Box 2068, Postal Station D,
Ottawa, Ontario
K1P 5W3

Arctic Circle Meetings

The regular meetings of the Arctic Circle are held on the second Thursday of every month at 8.30 p.m. at Faculty Club, Carleton University, Ottawa.

Out-of-town members who wish to receive notices of these meetings and, thereby, be informed in advance regarding the guest speakers and the topics to be discussed, should address their requests to the Secretary, Mr. David Terroux.

The Arctic Circular

The Arctic Circular is published three times a year - oftener if the amount of material received permits. Correspondence, papers and reports are welcomed from all members, from persons living in the north, or from anyone having information on general northern activities, research and travel, or on technological, industrial or social developments. Contributions and correspondence should be addressed to the Editor, Mrs. Margaret Montgomery Larnder.

Back issues of the Arctic Circular are available, single copies at $0.50 and complete sets (Volumes I to XX) $100.00. Requests should be addressed to the Secretary.

Membership dues

Dues are payable as of 1 January. New members joining the Arctic Circle in the Fall or at any time during the period between the last meeting in the Spring and the first meeting in the Fall (usually May-October) will be considered paid-up members for the following year. The dues are:

$7.00 for in-town members and families
$3.00 for out-of-town members and for students
$5.00 for libraries and institutions

THE ARCTIC CIRCULAR

VOL. XXIII No. 2 Published by the Arctic Circle Ottawa 1973-75

SUMMARY OF MEETINGS OF THE ARCTIC CIRCLE, 1973-1974

1973 - Meetings during this year were held at the University Club of Ottawa, 251 Cooper Street.

204th meeting of the Arctic Circle, Tuesday, 9 January, 1973. At this, the Annual General Meeting, Minutes of the 1972 Annual General Meeting were read and adopted, the financial report was submitted by the treasurer and adopted, subject to auditing. The secretary reported that the revised membership lists showed 160 Ottawa members, 193 out-of-town members and 95 libraries and other institutions subscribing to the Arctic Circular. The editor reported that Volume XXII, Number 1 of the Arctic Circular had been published, Number 2 was being typed and Number 3 was in preparation. The report of the Nominating Committee was presented by Bob Blackadar and accepted unanimously on a motion by Graham Rowley, seconded by Frank Davies. The outgoing President, Brigadier-General Keith R. Greenaway, and the outgoing members of the Committee, Douglas Hodgson and Don McAllister, were thanked for their services.

The new executive is:

President	-- Alex Stevenson
Vice-President	-- Stan A. Kanik
Immediate Past President	- Keith R. Greenaway
Secretary	- Keith C. Arnold
Treasurer	- Mary Craig
Editor	-- Margaret Montgomery Larnder
Publications Secretary	- Mary Murphy

The members of the Committee are:

Andrew Cowan	C.R. (Dick) Harington
Thomas Frisch	Olav H. Løken
David A. Gill	Jogmohan Singh Maini

Following the adjournment of the business meeting, a National Film Board film entitled "Yesterday and Today - the Netsilik Eskimos" was shown.

205th meeting of the Arctic Circle, Tuesday, 13 February, 1973. The speaker at this meeting was Mr. Hubert Schuurman, Research Officer with the Northern Service and Research Division of the Department of Indian Affairs and Northern Development. Mr. Schuurman has had experience as a Northern Service Officer in the Canadian Arctic and with that background, spent one year in Greenland, beginning a series of exchanges between northern officials of the two countries. He made a survey of the new programs being introduced in Greenland, and of the means used by the Danish government to implement them. It is realized on both sides that the educational findings of these exchanges can be mutually very valuable.

Mr. Schuurman outlined, by discussion illustrated by a series of excellent slides, the administrative and social changes introduced into Greenland since World War II. Previous to that time it had been the government view that if the primitive ways of life in Greenland failed, the economy would fail. For example, importation of coal oil was forbidden on the grounds that the native population would use it and cease the hunt for whales for whale oil. But the war brought changes. First, it brought the Americans, the first "outsiders" to come in any numbers or to stay for any length of time.

Since 1948 when the plans were first initiated, the aim of the Danish government has been to make the country more self-sustaining and to make the communities pay their way to a certain extent. Denmark still invests heavily, paying subsidies for the helicopter service to certain centres (Denmark is only $4\frac{1}{2}$ hours flying time away), for housing, education, social services and so forth. But attempts have been made to cut costs. Many of the small, isolated coastal communities have been closed, especially those in the more northern parts, where the cod fishery has declined because of the cooling of the offshore waters. By persuasion or economic coercion, the residents have been moved to larger centres and modern housing. In fact the towns are gradually taking on a more Danish and less Eskimo character.

It is, however, being a difficult transition period for many. The loss of privacy in the large apartment complexes has led to abandonment of the original design, but the complexities of "urban" living still bother many. Skidoos are still relatively few but motorcycles abound. The fisheries, once carried out by individuals and in canvas covered rowboats, are now on an industrial scale employing large trawlers.

The constitution of 1953 made Greenland a province of Denmark and two Greenlanders sit in the Danish parliament. There is an all-Greenlandic Council which advises on legislation relating to the island, and smaller district councils. Input for all decisions is expected to come from consultation between the administration and the native population, something which has been new and at times a bit disconcerting to both Dane and Eskimo. But the laws and regulations are still passed in Copenhagen and there are murmurings of a desire for home rule - or at least a greater local authority - among the Greenlanders. When Denmark joined the Common Market, Greenland voted 73% against the decision and made it clear she didn't want to open her markets or labour opportunities to German or Italian workers - in fact, was not even too interested in tourism.

One difficulty is that, although there have been schools for about 250 years, most Greenlanders remain uneducated. The drop-out rate has been estimated at as high as 80% and, perhaps because of the severe demands for university entrance under the Danish system, there are only two or three university graduates who are native Greenlanders. This low rate of educated personnel makes difficult the appointment of native Greenlanders to the government administration.

It is, nevertheless, a tribute to the mature outlook of the Greenland Eskimo that although tensions arise in this time of change, they are not allowed to develop into confrontation. For the most part they tend to be settled in a tolerant, objective way that prevents small incidents from developing into large problems.

206th meeting of the Arctic Circle, Tuesday, 13 March, 1973. This meeting took the form of a panel discussion, the Vice-President, Stan Kanik presiding in the absence of the President. The panellists were:

- Mr. Barry Gunn - (of IAND), seconded as consultant to Inuit Tapirisat (National Eskimo Association)

- Dr. Everett B. Peterson - (of Environment Canada), Project Manager, Northern Pipeline Study, Northern Forests Reserve Centre

- Dr. Fred Roots - (of Energy Mines and Resources), Planning and Evaluation.

The topic considered was the "Pace of Northern Development" as set out in the federal government position paper, Northern Objectives, Priorities and Strategies for the 70's. The topic was introduced by Dr. J.S. Maini who pointed out that the way the North is developed will have a profound effect on all aspects of our national life. The three panellists then outlined briefly the thinking of the particular group with which they were working.

Mr. Barry Gunn presented the Inuit viewpoint.

> Their problem is a matter of identity. They are "The People" and are trying to hold on to what is important to them: their land and the ownership of it. They are faced with increasing pressures for change, have become disillusioned with government policy and practice and have lost faith in the government's good intentions. This disillusionment seems to be nearing a peak.
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> To the Inuit the government education policy seems unrelated to what they consider their natural way of life, and its purpose is not always clearly explained. In many communities it has resulted in dislocation between the young - who can speak a foreign language and adapt to foreign ways but have forgotten, lost or discarded old ways and skills and are, often, unemployed - and the old - who tend to be more traditional and who are growing tired and resentful of what is being forced on them.
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> The land problem is central to Inuit thinking; they consider they own it for they were never conquered, never surrendered it, never entered into any agreement regarding it. They are not necessarily opposed to its development but consider they have a right to be involved as participants and not just merely handed a few long-term or temporary jobs. They are not satisfied with a few jobs and a pipeline, they consider they have a right to share in what flows through the pipeline, i.e. royalties, and a say in the pace of development. People, they feel, should come first and they dislike and distrust the pace and direction of present development. They are also aware of the American treatment of the Eskimos of Alaska and feel they are entitled to at least as much consideration and chance for participation as are their western brothers.

Dr. Peterson then presented the following point of view.

> "In considering the pace of development of the North from the point of view of renewable resources, there are several ways the problem could be approached. First, I could present my views as a citizen on the rate at which I think this country should use or sell (or hold in the sub-terranean bank account) the northern hydrocarbon resources, but

I do not think that my invitation to participate in this seminar was for the purpose of expressing my private views. Secondly, I could try to comment on the analytical aspects of the rate of northern development, but this is not my particular field of scientific competence. Thirdly, as a biologist I could more appropriately comment along lines similar to the well-known pleas of scientists who claim that more time is needed for necessary background studies and, therefore, the rate of northern development should be slowed. I will comment briefly on that line of argument, not necessarily to support it exactly as stated but rather to indicate that the circumstances involved are somewhat complex. Finally, I could approach the problem by advancing an ecological viewpoint that, on the surface, would appear to directly oppose ideas that the other three lines of approach would suggest. For example, from an ecological viewpoint, which is by definition long term, it could be argued that the hurried approach to the search for fossil fuels is a blessing in disguise because it would mean that northern hydrocarbon extraction will be a short-lived event of perhaps only two or three decades in what is otherwise a long-term post-glacial, or inter-glacial, evolution of the northern ecosystems. The short, intense production period, so important for maximization of economic benefits, may in the end be best for the northern environment. Perhaps we should be saying, 'If we must have a frontier frenzy, let it be over and out of the way as quickly as possible'. Tempting as I find this argument, one must also consider the need to conserve the petroleum resources of the North for use by future generations in ways not yet imagined. From these differing ways of approaching this question, I would like to comment on one aspect that relates to the third approach. This aspect centres on the circumstances that lead to scientific studies being out of phase with plans for industrial development.

"The main point is that neither the public nor the scientists can define the "desirable rate of northern development" unless the two essential elements - exploration for northern non-renewable resources, and, studies of northern renewable resources - are placed in phase with each other. I am specifically using the example of northern oil and gas development because, except in the Yukon, oil and gas development is, at present, more or less synonymous with northern development in general. Also it is well known that comprehensive environmental studies did not begin in phase with, or in advance of, geophysical exploration in the North.

"Ecologists' pleas for more time to carry out necessary data collection are well publicized. Surprisingly, we often overlook the fact that the time required to explore and prove up a major oil and gas field in the North is probably not very different than the time required to obtain sound environmental data: the behaviour of rivers and ice, population

changes of wildlife species, responses to surface disturbance, and rates of recovery of various ecosystems. In both cases a decade seems to be a reasonable minimum time requirement. Known sedimentary basins in the North are well covered with exploration permits. These permits would neither have been granted or sought had there not been an underlying assumption that oil and gas finds in excess of a certain threshold amount could be brought to market. If environmental costs are to be a real factor in calculating whether or when such fossil fuels should be removed from the North, then environmental considerations should have been a part of the assumptions and decisions at the time of acreage dispositions. Instead of this, environmental considerations have entered the picture only as we approach the time of commitment for transportation of this resource.

"The weakness of placing a considerable environmental research effort on only the later phases of a proposed development needs no elaboration. Instead, we should seek ways to ensure that necessary background ecological studies take place in phase with the necessary exploration on the part of industry. Regarding the observation that environmental studies did not begin ten years ago when there was a commitment to explore for gas and oil in the North, some will suggest that there was no public environmental awareness at that time. While that may be part of the answer, there is also a lack of advance planning for project-related environmental studies in our research planning organizations. An example will demonstrate this point. Maybin, speaking on behalf of the Canadian Gas Association, has described development of an industry producing synthetic gas from coal in the 1980's. Each individual plant producing such gas would in itself involve a very substantial coal mining venture, because it is expected that a standard size plant would use six million tons of coal per year. This is larger than any single coal mining operation in Canada at present and Maybin judges that there is a prospect for the establishment of a hundred or more such plants in Canada in the next decade. With such advance warning, surely here is an opportunity for the necessary environmental impact studies to be started with a reasonable lead time; yet I am unaware of any moves in this direction. The point is there will be scientists still documenting the actual effects of a gas pipeline from the North, let us say ten years from now, when research planners will suddenly realize that their personnel will then be being asked to begin to predict the environmental consequences of the next phase of probable gas development - the production of synthetic gas from coal reserves.

"This means that we are dealing, at best, with environmental impact prediction and not environmental impact assessment. Actual assessment of the environmental effects of such northern projects can be made only from documentation during construction, operation, and abandonment of the facilities. Therefore, the questions of when or whether northern non-renewable resources should be removed from the

North must be answered, not so much on the basis of scientific investigation but, rather, on political grounds, on grounds of nationalism, on grounds of economics, or on the basis of the personal feelings of large segments of the public. Whatever pace is finally adopted, the need will remain for long-term management of the renewable resources. It is in this context that the current environmental studies will find their greatest application.

"I would like to close by commenting briefly on a distinction, made earlier in this paper, between scientists and the public. When ecological data are gathered to assist in assessment of the side effects of technology, one immediate problem is the current tendency by many people to combine as 'environmental considerations' matters that are moral or political with those that are purely scientific. An example of the moral or political environmental question could be, "What sort of environment do we want?"; an example of the scientific environmental question could be, "How to determine the extent of surface disturbances and the recovery rate of northern ecosystems?" An indication of the importance of this distinction between scientific assessment and public assessment may be drawn from the publicly released priorities for northern development. We are told in these releases that the North will be developed without upsetting natural balances. This is misleading because there are an infinite number of possible "balances of nature", not just one particular balance. If there are disturbances, natural systems will adjust to new values, and these values will represent a new "balance of nature". The new values may be more or less desirable than the old ones, but this depends on the ethical or aesthetic criteria by which they are judged. For this reason, the pace of development in the North is a moral or political question rather than a scientific one. Applying this argument to current work, when a scientist speaks about ruts on the tundra there is no doubt that he is describing a "change" to that ecosystem but it can be debated whether that change is "damage" - if the scientist chooses to define that change as "damage" - rather than leaving that evaluation to society - the least he or she can do is to define "damage" arbitrarily. This shows that it is really up to a much larger segment of society than just the scientists to decide what is the acceptable amount of environmental change that can be tolerated. Scientists alone cannot and should not decide whether or not a particular proposed project should go ahead, nor can they state categorically the rate at which any such development should proceed."

Dr. Roots pointed out that northern development is a very complex problem in that it affects the North - its landscape as well as its residents - but also the south of Canada and its residents. Many consider that, although they are not yet entirely proven, the expected natural resources of the North, especially the hydrocarbons, will soon be required by southern Canada in order to maintain itself and the

country as a whole. The government must decide what is best for the interests of all, the citizens of the south as well as those of the north and of those who have invested not only their money but also their time, energy and lives. The North is an integral part of Canada, not a museum that can be kept isolated. So the decision becomes a political one, one that only the government of Canada can make: how shall the North be integrated into the life of the country as a whole and at what pace, how shall it be subsidized and to what extent, and what shall be its contribution to national wellbeing? Dr. Roots also pointed out that a current for change already exists and cannot be reversed. Except perhaps in a few isolated cases there is no hope of going back and the fait accompli must be accepted. In many areas the life and landscape of the North has already been despoiled and cannot go back to what it was even at the beginning of this century. Sensitivity is required for those who wish to go back to things as they were, for lack of understanding and empathy has left deep wounds. There is anger in many northern communities especially the larger ones. We should strive to avoid the type of trauma that sudden change has brought to Greenland. But while we can learn from the experiences in Greenland and Alaska we have to deal with our particular problem on its own merits -- always remembering that we cannot live history backwards and that the past cannot be the future.

In the lively discussion period that followed the three presentations, Mr. L.A.C.O. Hunt (of IAND), Secretary of the Advisory Committee on Northern Development, acted as mediator. The following are some of the facts or opinions put forward.

- For many native residents of the North, the cultural shock of recent years has been damaging beyond repair and there is no self-evident solution to their problem. The attempts to persuade or force them to learn skills that would permit them to take part in the life of southern Canada have frequently been resented and distrusted. In many cases they have resulted in a disorientation between two worlds.

- There is a tendency in the south to consider the Inuit as incapable of managing their own affairs in the modern world that has invaded their land. They do not feel this. True, they may not tackle the problems in our way but they want an opportunity to handle them in their way.

- They are tired of being "researched" - an indignity they consider has gone on for the last twenty odd years and should stop now. As pointed out at the Mont Gabriel Conference, they want a say in the research that is conducted, no more atrocities to be committed on their privacy. "Let us sponsor you" is now the attitude of many. Such mutterings are to be heard from both the young school-educated Inuit and from the old traditionalists - deep and bitter in the young, less bitter, more resigned in the old.

- Centralization in the North is largely the result of government programs: the northern housing program, the medical and hospital program, the education program and the administrative centralization inherent in the family allowance program. Centralization has made rapid strides over the last twenty-five years but now the reverse trend seems to be gaining increasing appeal. The young particularly, find it hard to fit back, however; and even among those who could adapt there is reluctance to give up such benefits as allowances and medical care.

- Some economic circles are of the opinion that while the demand is still high, we should exploit all the resources of our frontier lands, especially gas and oil, to accumulate as much fluid wealth as possible while there is still time. The premise is, "Dollars in the bank are better than resources in the ground". But the question remains, "Better for whom and for how long?"

- We still have a certain freedom of choice as to the rate at which we develop our northern oil and gas reserves. At the moment the regulations of northern contracts, permits and leases, tie our hands to some degree, but the time limits on these contracts are nearing their termination. However, it remains to be seen how much the pressures both from industry and the public can be controlled in the interests of a fair and reasonable pace of development. Slowing down may involve a high monetary cost in lost markets, closed operations and unemployment. We cannot control the general accelerating demand for hydrocarbons, but there is an inherent dilemma: if we sell too soon, prices may continue to rise and we will have regrets; if we hold off too long, some alternative source of energy may be discovered to reduce the demand. At the present time, we may be able to get much needed money from our reserves to plough back into the economy for future returns and, at the same time, get the customer (i.e. the oil companies) to do the work. Where the interests of the land or the Inuit figure in this is not too clear.

- Oil and gas present very different problems. Oil is a very transportable, mobile package of energy and its markets, too, are mobile and very opportunist - a sort of impulsive, "bonanza" market based on an estimated life of ten to fifteen years. As a result, oil pipeline thinking for the transport of this hydrocarbon from the North is not too well known at present. Gas, on the other hand, is regarded as a constant resource. Gas contracts at fixed prices are long-term agreements, extending pssibly over a 30-year period (based on a 60-year sliding scale supply). Proven resources tend to be used at a calculated rate over a period of years. Last minute decisions are possible in the oil industry, gas people do not work on that principle.

- Although Canada's potential for oil and gas is considered large here, it is not comparable to the really large reserves of the world as a whole.

207th meeting of the Arctic ircle, Tuesday, 10 April, 1973. The speaker on this occasion was Harold Serson of the Earth Sciences Section of the Defence Research Board. His talk was entitled "The development of oceanographic and sea-ice survey techniques for use in the channels surrounding the islands of the Arctic Archipelago". These surveys had been begun as early as 1963 and in the course of his surveys in 1973 Harold Serson travelled some 1350 miles, from Tanquary Fiord to Isachsen. He was at Tanquary Fiord with Geoffrey Hattersley-Smith when the members of the Royal Navy Ellesmere Island Expedition arrived there (Arctic Circular, Vol. XXIII, No. 1, p.19). This very interesting talk was illustrated by the speaker's fine set of slides.

208th meeting of the Arctic Circle, Tuesday, 8 May, 1973. John Robertson of the Robertson Galleries in Ottawa told the audience at this meeting the fascinating tale of the Centennial Exhibition of Eskimo Art that was taken by air on a 4,000 mile tour of the Northwest Territories to be shown at eighteen native settlements. The title of the talk was "Eskimo Sky Museum or the Flying Rock Circus" and a summary is to be found on pages 80 to 85 of this issue of the Circular.

209th meeting of the Arctic Circle, Tuesday, 23 October, 1973. This, the first meeting of the 1973-74 season, was the occasion of the Annual Dinner. In addition to the regular monthly notice, members of the Arctic Circle also received an attractive invitation inserted in a gaily decorated card bearing a design by Ekootak of Holman Island. The meeting was held at the RCAF Officers' Mess, Gloucester Street. Following the dinner, the asembly moved to the Lounge and the commencement of the formal part of the meeting was announced by the now-traditional blowing of the narwhal tusk by Keith Arnold.

As 1973 is the year of the centenary celebrations of the RCMP, it was most appropriate that the speaker on this occasion should be a senior member of that Force, Superintendent W.G. Fraser (retired), of Baddeck, N.S. Alex Stevenson, President of the Circle and an old friend of the speaker, introduced Superintendent Fraser giving a biographical sketch that outlined not only his experience in the Force but his many responsible postings and accumulated honours.

Superintendent Fraser then gave a wide-ranging survey of the growth of the Force and of its ever-changing, ever-widening activities since its inception in 1873. His assured, witty, and very personal presentation was an auspicious start to the new season. He noted that 1973 was not only the centenary of the RCMP but also the bicentenary of the arrival of his ancestors in Canada aboard the "Hector". Also, that 23 October, the date of this meeting, was the anniversary of --

- the date Captain James returned to England in 1632 from his explorations in Hudson and James bays;

- the date in 1819 when Sir John Franklin reached Cumberland House;

- the date in 1823 when Parry and Lyon returned to England from their two-year expedition to the Canadian Arctic.

He then went on to speak of the part the RCMP had played in the development of the Canadian West and particularly in the Arctic - a region he feels we should now integrate more completely into the whole national scheme. Responsibility for our northlands goes back to the Royal Charter of 1763 that conserves Indian hunting rights and is sometimes referred to as the Charter of Indian Rights. The Indians have, in addition, various other treaties with the Crown, the Eskimos none. Aside from the Canadian statute, the Indian Act, - to which only Indians are subject - there was in this country no true Bill of Rights that included native peoples until the passage of the Canadian Bill of Rights in 1960.

The North-West Mounted Police were formed in 1873 as a result of the recommendations of the Adjutant-General of the Canadian Militia, Colonel Robertson Smith. That recommendation was largely prompted by Captain Butler's report on his survey of the west. Many American settlers were coming into the North-West Territories (today's Saskatchewan and Alberta) and annexation talk was widespread. The lawlessness that accompanied this immigration was becoming very alarming - "Fort Whoop-Up" for example - and Butler feared the bright future of this promising land might be jeopardized if law and constituted authority did not precede settlement, or at least accompany it. Butler further recommended that, because the Indians considered the regiment at Fort Garry and the Militia in general as their friends, the new force should wear similar uniforms - red serge. Of the 300 men first sent west, 167 were Canadian, 67 British, 7 American, 4 French, 1 German, and the rest were of various European nationalities. This contingent, known as the "Mounted Rifles", had to travel via Detroit, Chicago and the Dakotas to its destination at Emerson. The Americans of 1873 became so alarmed at a "foreign military force" crossing their territory that the Prime Minister, Sir John A. MacDonald, struck out the term "Rifles" and substituted "Police".

Some of the early duties not only stand out as exceptional today but were considered impossible by observers at the time. For example, in 1879, 23-year old Constable Davis - known as "Peachy" - was detailed to meet the two troops of U.S. cavalry escorting back to Canada a mixed band of Canadian Cree, Stoney and Assinaboine Indians who were considered a nuisance south of the border. The U.S. commander was astounded to meet only one lone constable and is reported to have said, "You haven't a hope

of transferring these Indians to a reservation!" But Davis did just that. That U.S. cavalry officer, by the way, later rose to the rank of General - General John J. Pershing who commanded the United States Expeditionary Force in World War I.

Another equally outstanding incident involved Inspector Walsh who, single-handed, met and directed the Sioux when they crossed into Canada after Custer's last stand. The band included some 500 warriors, 1o,000 womern, 1,400 children and 3,500 horses!

The Force continued to grow and to extend its activities throughout the years of the building of the CPR (1880's), the Riel Rebellions (1883 and 1885), the Yukon Gold Rush (1897) and, finally, in 1903 to the first patrol of the Arctic. In this year a party of North-West Mounted Police went down the Mackenzie to establish a base at Macpherson. The Commander was Superintendent Constantine who had already distinquished himself in service in the Yukon. The group with him consisted of five men, the senior being Sergeant (later Inspector) Fitzgerald who was to perish on the Macpherson-Dawson patrol seven years later. The instructions given the patrol were probably curt and brief - like most of the early ones - partly because of the great confidence placed in its members and, equally probably, because the superiors simply did not know what might be ahead. Fitzgerald, on that first Arctic patrol, travelled overland from Macpherson and reached Herschel Island on 7 August, 1903 - the first member of the Force to reach the Arctic sea.

He managed to establish two sod houses and a storehouse, to get some coal at $20/ton, from S.S. "W. Baylies", and to arrange with a Mr. Whitaker for transportation for himself and two men. He also immediately set about establishing the authority of law and order by sentencing Eskimos found drunk and by breaking every bottle of liquor he could find. By such means he managed to make the point with the Eskimos that they were not to have any liquor deals with the whalers. His report on all this was brief as he had only four sheets of paper and, probably to his intense relief, there was no other paper on the island. "Old Roland", the Eskimo who, as "Young Roland", accompanied him, is still living and the Herschel Island Detachment established by him in 1903 is still operative.* Also in 1903, the first eastern Arctic detachment was established at Fullerton by Sergeant Moodie. Not only did these and later RCMP Arctic detachments bring law and order to northern communities and establish the authority of British North America, but they also brought succour and relief to the native residents in their times of need and famine.

Superintendent Fraser's first introduction to the Arctic was in 1931, just after completion of a short training period and at a time when due to the restrictions imposed on the Force following the Winnipeg riots of

* Detachment still operative but moved to Aklavik in 1922.

1919, morale was at a low ebb and the Force membership down to 800 men. He views the Arctic as a harsh environment that pits man against the elements, throws him on his own inner resources and, almost as a result, has over the ages been a theatre for heroic exploits and daring adventure. He listed over 100 Scandinavian, British, Canadian, and American explorers of Canada's North - including Bernt Belchen who had just died two days earlier (21 October, 1973) - and he outlined briefly the opening up of the North from the days of the Norsemen to the present.

The speaker pointed out that, somewhat unlike the Indians of today, the Indians of earlier years looked on the RCMP officers as true friends. Chief Crowfoot had had nothing but words of praise and confidence, saying, "Police saved my country and people from drink and men who were killing us. Police protected us and kept their word. . ." Of the Eskimos he noted that, since the arrival of the white man they had come to abandon their old natural ways of hunting and housing and their style of living generally. They had become dependent on the whites for guns, axes, knives and, later, for cloth, types of food and, alas, for liquor - for which there has never been any equivalent in their own culture. He admits that the present is an unsettling time for the Eskimo but "we cannot go back, we must take him with us. There must be adjustments, there will be mistakes but all must learn from those mistakes so that the whole is not lost". Having said that, Superintendent Fraser considers the Eskimos are not really the saints they are now purported to be. He had found some lazy, sullen, bad-tempered, uncooperative, all right if let do as they pleased, difficult if crossed - in fact, the services of such could be dispensed with. From his own experience he considered that on patrol they could neither lead nor even retrieve runaway dogs - both had to be done by the whites. Other officers, such as Inspector A.M. Jarvis in 1907 had formed very different and much more favourable opinions of these natives, but his own evaluation based on his own experience was "I have never yet met an Eskimo who was as good as a white".

Superintendent Fraser also referred to several of the remarkable northern patrols carried out by members of the Force, often without the aid of any maps - patrols such as those by Pelletier, McTavish, Joy and Stallworthy.

In conclusion he noted that the Arctic Division of the Force was a purely voluntary unit and, as a result, had attracted a particularly fine type of man to serve in the North. The Force today is what it is because of its members' dedication to duty and to the ideals adopted at its inception.

The speaker was thanked by Scott Alexander, a long-time member of the Arctic Circle and an old friend of the speaker from their days together in the Arctic.

210th meeting of the Arctic Circle, Tuesday, 13 November, 1973. The speaker was Dr. David Gray of the National Museum of Natural Sciences who has spent most of his summers since 1968 studying the behaviour of the Bathurst Island muskox herd. He had previously, at the 198th meeting, introduced members of the Arctic Circle to the various aspects of his work (Arctic Circular, Vol. XXII, No. 1, p.3) and he now brought them up to date on his more recent observations. Mr. L.A.C.O. Hunt, acting as Chairman in the absence of the President, remarked that Canada is just on the verge of giving a herd of muskoxen to the USSR and there was speculation as to whether we might receive a sabre-tooth tiger in return!

Dr. Gray entitled his talk "Muskox and Man on Bathurst Island" and used a movie of muskox behaviour as the main thread of his remarks. In their wanderings the animals seemed at first to show little evidence of formal leadership, anyone could lead, a cow or a bull. But gradually it appeared that the real leader of the group was an older bull, a dominant character. Head-hitting which seems to be provoked by any number of circumstances was one behavioural characteristic that interested the researchers. Now that the Bathurst Island herd is breeding again (30% increase in numbers of calves in 1972), it was possible to watch the calves and their relation to the herd and to notice that they, like the adults, always feed on the move. The existence of solitary bulls in the area was somewhat of a puzzle - how came they to be solitary, driven out or just wandered off?

Muskox do not appear to breed on the whole island but mainly near Bracebridge Inlet although they may cross the ice and emigrate to other islands. They can, for short distances, travel faster than a man can run, as was discovered when the scientists started tagging them. To do this the scientists had to split the herd by use of helicopters and drug-dart the animals to temporarily immobilize them. They also marked animals by paint sprayed from the helicopter in cases where the herd stuck together. Remains of a ruined Eskimo settlement of Thule culture in the area indicated that man and muskox had long been in contact.

The two great enemies of the muskox - aside from man - appear to be wolves and starvation; the latter seemed to have hit the herd severely in the hard winter of 1968. Overpopulation at that time may have added to the hardship.

Noise bothers them, sometimes to the point of stampede. Therefore skidoos, planes, machinery of all kinds, can upset them as much or even more than wolf howling and tends keep them on the move, sometimes to the point of exhaustion. The size of any given herd could vary from location to location and also in time.

Environmental desecration resulting from surveys, drilling, military presence, etc. is being cleaned up on the island and with the herd now able to re-establish its numbers, the question of culling must be considered. There is also interest in Alberta in the idea of muskox ranching, for the animals seem to do well in game farms. However, it costs about $3,000 per animal to catch them in the first place.

Although they look like bison, muskoxen are related to goats and the question of whether or not they compete for the same foods as caribou is not entirely resolved. Although they may rest lying down, it appears they must be upright to ruminate. The longest reliable recorded age - determined from an animal that appears to have fallen off a cliff in its prime - was estimated at 23 years. Thus the life span may be about 25 to 30 years.

Questions have been raised as to whether or not a profitable wool gathering industry or a tourist industry based on the muskox could be developed to aid northern native residents. So far the answers seem to be negative.

211th meeting of the Arctic Circle, Tuesday, 11 December, 1973. The speaker at this meeting was Mr. Norman Hallendy of the Concept Group of the Central Mortgage and Housing Corporation. He took as his subject "The importance of visual documentation of the North".

Mr. Hallendy's experience in the Canadian Arctic extends over some twenty years - back to 1950 when he was engaged in geological exploration in what was known then as Ungava and now as Nouveau Québec. Later, as a member of the Industrial Division of the Department of Northern Affairs and National Resources he spent some time in southwestern Baffin Island aiding and encouraging the local Inuit in developing and widening the scope of their distinctive graphic arts and in the development of a commercial char fishery. During Paramount's filming of "White Dawn" he managed to photograph some of the older Inuit from Cape Dorset wearing the old style hunting clothes and engaged in the work and recreations typical of their way of life half a century ago. This provides a valuable visual record of the Thule culture of yesteryear.

Mr. Hallendy feels very strongly that in the changing world of Canada's North and especially in the fast-changing world of the Inuit, such records are extremely valuable and should be gathered and preserved at every opportunity while there is still time. He also emphasized how very desirable it could be to bring vividly to the youth of this country a personal picture of Canada's "pioneer North" not only by the written word and by pictures or films, but also by personal contact with those

who have travelled the North and lived there before the present era of change. The Arctic Circle has many members who knew the North in the days before oil rigs, or travel by plane, helicopter or snow-mobile. Mr. Hallendy would like to see people with such experience go out into the schools and share their experiences with today's students and youth groups. Their presence, discussions, reminiscences and pictures could give a sense of intimacy and life to what so often remains dull and distant between the pages of a book. He himself has done just that - and has found it a most rewarding experience.

1974 - January to May the meetings of the Arctic Circle were held at the University Club of Ottawa, 251 Cooper Street. October, November and December the meetings were held at the Carleton University Faculty Club.

212th meeting of the Arctic Circle, Tuesday, 8 January, 1974. This was the occasion of the Annual General Meeting. Minutes of the Annual General Meeting of 1973 were read and approved. The Treasurer's report was presented and approved, subject to audit. Note was made of the fact that costs for the Arctic Circular for 1973 had amounted to approximately $380.00, about 30¢ per copy, and that complete sets (Volumes I to XX) were available at $100.00 per set. In spite of an excellent buffet and an outstanding speaker, the Annual Dinner in October 1973 had been poorly attended. It was therefore suggested that the next Annual Dinner he held later in the season; March was the month suggested, making the meeting in March 1975 the date of the next Annual Dinner. It was also suggested that northern native foods be served if at all possible and that there be merely a short after-dinner speech rather than a formal address.

The Arctic Circular was admittedly behind schedule but it was pointed out one issue was ready for typing and another is in preparation. It was suggested that the issues should be smaller but appear more frequently.

The Nominating Committee presented its suggested slate of officers for the coming year and proposed a vote of thanks to the outgoing members of the Executive and Committee for their service to the Club. These members were:

Stan A. Kanik - Vice-President
Keith C. Arnold - Secretary
C.R. (Dick) Harington - Member of the Committee

The new slate of officers, approved unanimously by the meeting, is:

President	-	Alex Stevenson
Vice-President	-	David A.W. Judd
Immediate Past President	-	Keith R. Greenaway
Secretary	-	A.C. David Terroux
Treasurer	-	Mary Craig
Editor	-	Margaret Montgomery Larnder
Publications Secretary	-	Mary Murphy

Committee Members

Colonel Pat D. Baird
Andrew Cowan
I.Moira Dunbar
Thomas Frisch
J. Barry Gunn
Olav H. Løken
Jogmohan Singh Maini

213th meeting of the Arctic Circle, Tuesday, 12 February, 1974. The speaker was Helga Goetz of the Eskimo Art Section of the Territorial and Social Development Branch of the Department of Indian and Northern Affairs. Ms. Goetz, who holds an M.A. degree in Art History from the University of Washington at Seattle, spent some time as a teacher at Goose Bay, then joined the Museum of Man in Ottawa and finally transferred to her present position in November, 1973. The subject of her talk was "Eskimo Art: the changing scene from the Art of a people to the Art of an Individual". A brief outline of some of her views appears on page 85 of this issue of the Circular.

214th meeting of the Arctic Circle, Tuesday, 12 March, 1974. This meeting was devoted to the showing of several carefully chosen new films showing various aspects of Arctic life and present day development.

215th meeting of the Arctic Circle, Tuesday, 9 April, 1974. The speaker at this meeting was L.A.C.O. Hunt, Secretary of the Advisory Committee (IAND) who gave a lively narrative of his most recent trip to the Antarctic. His illustrated talk was entitled "The Antarctic Revisited" and was in its way a sequel to his earlier talk at the 183rd meeting of the Circle (Arctic Circular, Vol. XX, No. 2, p.21).

On this occasion Mr. Hunt was a guest of the Argentine government and, after a few days of pleasant delay at Buenos Aires, resulting from the fact it was carnival time there and no one would think of leaving the city then, the official party set out. They stopped briefly at Terra del Fuego where Argentinian and Chilean bases keep close watch on each other across the boundary strait. From there their ship crossed the rough waters of Drake Strait to sail south along the west coast of Antarctica visiting the Argentine "research" stations located there. These stations are, in theory, established solely in the interests of scientific research and the findings are shared with all nations. They are, however, also considered to serve the ulterior purpose of giving the sponsoring countries a territorial claim in the Antarctic once the 30-year ban on "annexation" expires.

As it was the approach of winter many of these stations were already closed or reduced to skeleton staff. At the most southerly Argentinian station, Amirante Brown in the South Shetland Islands, a memorial plaque was unveiled and a mass, the last mass of the year, said. High winds and rough seas made landing impossible at some of the posts along the rocky and generally spectacular coast although they did not prevent the speaker from getting photographs. Because of the lateness of the season relatively little wildlife was seen.

216th meeting of the Arctic Circle, Tuesday, 14 May, 1974.
Mr. Graham Rowley gave an illustrated account of his 1973 visit to Siberia to attend the Second International Permafrost Conference at Yakutsk.

Mr. Rowley had visited Yakutsk in 1965 with the Minister of Indian Affairs and Northern Development, and this second visit gave him an opportunity to assess the changes that had taken place since then. He and Mr. Alex Stevenson decided to go to Yakutsk from the east via the Trans-Siberian Railway. They flew first to Tokyo and then to Niigata on the northwest coast of Japan and from there to Khaborovsk on the Trans-Siberian Railway. A day later they boarded the train which took them to Irkutsk in three interesting days,first through gradually rising country reminiscent of the interior of northern British Columbia and then around Lake Baikal to Irkutsk. The last stage of the journey was by air to Yakutsk where they met several other members of the Arctic Circle who were attending the Conference but had approached Yakutsk from different directions. Most had come through Moscow by air but Dr. Roger Brown and Mr. Hank Johnson had travelled by rail through China to Irkutsk.

The Conference began on 16 July and lasted a week, ending with two days of visits by bus to a number of permafrost features on the right bank of the Lena, and followed by a choice of excursions. Mr. Rowley and Mr. Stevenson were members of the smallest party, which spent several days in northeast Yakutia, an area that has seen very few western visitors. They flew first to Teplyy Klyuchan on the Magadan Highway and then to Ust Nera, from where they went by road to the small gold-mining settlement of Marshalskiy, and by helicopter to the great areas of ice that remain throughout the summer in the Moma River basin. The next flight was to Tomtor, an airfield on the chain built during the War for the delivery of fighter aircraft from America, and then by road to Oimyakon, the cold Pole of the Northern Hemisphere, with an extreme temperature range from 40°C to -70°C - or two hundred degrees Fahrenheit. They then returned to Yakutsk for a flight via Krasnoyarsk to Moscow and home.

217th meeting of the Arctic Circle, Thursday, 10 October, 1974. This was the first meeting of the 1974-75 season and also the first to be held at the Club's new and more spacious location - the Faculty Room at Carleton University. As a result of this move it was found necessary to change the day of the meetings from the second Tuesday to the second Thursday of each month.

The speaker was Tagak Curley, founding President and still an active advisor of Inuit Tapirisat (the Eskimo Brotherhood of Canada). This Association was founded (1971) to serve the needs of the Inuit, to provide an organization that could speak for their interests and aspirations and to serve as a focal point for their cultural identity and the expression of their cultural heritage.

Tagak Curley was born on Southampton Island, N.W.T.m and grew up there in close contact with the Inuit hunting and trapping society, but he also attended school. He later took upgrading courses in Ottawa and has experience in several positions with the federal government:

- heavy equipment operator for Department of Transport on Southampton Island;

- government manager of the settlement of Repulse Bay;

- employment on adult education programs throughout the Arctic by the Department of Indian and Northern Affairs.

He was closely associated with the Indian-Eskimo Association and, when the independent Inuit Brotherhood was formed, he was elected its first president (August, 1971). His English is excellent and, of course he speaks the Eskimo language fluently. He is, therefore, one of that

generation of young Eskimos with a foot in two worlds: the white man's world of education, centralization, urbanization and modern skills; and the Inuit world of nature, family and long tradition of skills and folk-memory. This year (1974) he resigned the presidency of Inuit Tapirisat to return to the North with the hopes, as he told the Circle audience, of becoming an example and inspiration to the youth and children of the Arctic, showing them that being trained and educated by the white man does not mean they should forget or look down on their ancient ways and skills. He deplores the influence of the government education system that so effectively separates the children from their parents during much of the year. He regrets to see the youngsters deprived of the treasured experiences he enjoyed - hunting, fishing, and trapping with his father, and being part of a community where irreconcilable differences of outlook and orientation had not divided the generations. He feels his experiences in both the white and Eskimo worlds can help others of his race in this time of rapid change to appreciate themselves as a people and to evaluate the advantages and disadvantages of both worlds.

218th meeting of the Arctic Circle, Thursday, 14 November, 1974. The speaker on this occasion was Peter MacKinnon who, with three colleagues, had travelled 1500 miles by snowmobile across both land and ice areas of Devon, Ellesmere, Axel Heiberg and Meighen islands in the spring of 1974. The title of his illustrated talk was "Ice Caps, Sea Ice and Snowmobiles". The purpose of the expedition was to collect snow and ice samples for glaciological research. The excellent slides made along the route formed the main thread of the talk and gave, not only some superb shots of the island scenery in that sector of the Archipelago, but also demonstrated some of the advantages, disadvantages and occasional misadventures that may be experienced with snowmobile travel over such terrain and in isolated areas at that time of year.

219th meeting of the Arctic Circle, Thursday, 12 December, 1974. At this meeting Eric H. Mitchell spoke on "Antarctic Whaling in the Forties" and gave a very enjoyable, relaxed and frequently amusing picture of the hard and energetic life on an Antarctic whaling station during the active season. Mr. Mitchell was one of the small group that wintered-over and awaited the return of the whalers the following spring. He vividly described the whaling itself, the hard work ashore at the flenzing stations, the long hours and the differences between the various nationalities and their types of establishments. His contacts were mainly with those whalers who came, like so many of their counterparts on the Arctic, from around Leith and the northern coastal areas of England.

In addition to his time in the Antarctic, Mr. Mitchell has had considerable experience in the Arctic. He was for fourteen years a post manager with the Hudson's Bay Company. After one year with that Company's Winnipeg office he came to Ottawa (1965) as president and general manager of Canadian Arctic Producers, a position he held until 1974. His fluency in the Inuit language enabled him to develop training programs in business management and industrial development that could be adapted for and directed to native northern groups.

SUMMARY OF OIL AND GAS ACTIVITIES NORTH OF 60° (1974)

Throughout 1974, oil and gas exploration, research and development continued in that vast and geologically varied area of nearly a million and a half square miles that comprises Canada North of 60. As exploration there is in its initial stages, no realistic estimates of probable reserves can be given at this time, although some new oil and gas discoveries were made in the Mackenzie Delta and new gas finds were recorded from the Arctic Islands and from the Colville Lake area of the Mainland. The gas presently being produced in the Pointed Mountain and Beaver River areas of the Yukon and the Northwest Territories is being processed through the Clarke Lake facilities in British Columbia. Local crude oil is refined at the Imperial Oil refinery at Norman Wells, the only Canadian refinery North of 60.

No sales of Crown Lands have been held since 1969. The inventory of permits and leases remained fairly stable on the whole in 1974, with a slight drop due to the maturing of permits. Although applications for permits and leases continued to be submitted, none has been approved pending the promulgation of the new regulations.

Revenues accruing to the federal government from oil and gas permits and leases showed a decline -- from $6.6 million in 1973 to $5.6 million in 1974 - but it is expected this may be offset by renewed activity in 1975. Expenditures by the industry on exploration and drilling fell slightly - from about $250 million in 1973 to approximately $240 million in 1974. With the expected issuing of additional permits and leases it is anticipated that industry expenditures will increase considerably in 1975 and, with possible pipeline development, may exceed one billion dollars annually by the late 70's.

Drilling continued in 1974 both offshore and onshore, onshore being naturally the more active. Fewer wells were drilled than in 1973 (60 as against 83) but as many of these were taken to greater depths, the decrease in "depth drilled" was relatively less than the decrease in "wells drilled". Expenditures, however, were higher relatively because much of this work was carried out in the Mackenzie Delta and the Arctic Islands where drilling costs are highest. Experiments and proposals made last year - including creation of man-made drilling islands, offshore drilling vessels and methods of providing stable drilling platforms on ice - were either continued, given approval in principle or were in the process of evaluation.

Geological, photogeological and seismic surveys continued, but all recorded decreased activity. Seismic surveys were carried out both on land and over water and ice. Geophysical Service Inc. tested an experimental new concept for operations on ice-covered water areas for Panarctic Oils Ltd. The decrease in seismic surveying activity in 1974

forecasts a probable reduction in drilling activity in 1975 for these two activities are closely correlated.

Early in 1974, Canada Arctic Gas Pipeline Ltd. made application in Canada and the United States for authority to build a gas pipeline from the Alaska North Slope and the Mackenzie Delta through the Mackenzie Valley to Alberta. Consideration is now being given this application and its accompanying estimate of costs and materials. At the same time, Panarctic Oils Ltd. is continuing research and feasibility studies on the possible construction of a gas pipeline from the Arctic Islands that would cross Barrow Strait and terminate on either the east of west shore of Hudson Bay.

A large number of participation and research projects are currently in progress. They include geophysical and geological surveys, land-use evaluation and environmental studies. The program of data gathering and processing of ice, weather and sea state statistics, begun in 1974, has been completed.

An experiment, involving Bell Canada, Telesat (ANIK 1 channel), CN Telecommunications and the Alberta Government Telephones, and aimed at providing a voice, facsimile and teletype data link between Rae Point and the Calgary Office of Panarctic Oils Ltd., is at present underway.

ESKIMO ART - EXHIBITIONS AND OPINIONS

SCULPTURE/INUIT

Sculpture of the Inuit - Masterworks of the Canadian Arctic. This exhibition of carvings, best known by its abbreviated title of Sculpture/Inuit, comprised 405 pieces that ranged in time from about 700 B.C. up to the present, and varied in size from tiny, ancient pieces that could have been carried in the "pocket" of a nomad Inuit to huge modern pieces - one in whalebone (d. 1969) measured 62 x 67 x 17 cm. and another in green stone from Cape Dorset measuring 41 x 70 x 17 cm. It took nine years of preparation and planning to mount this exhibition which toured in turn Vancouver, Paris, Copenhagen, London, Moscow, Leningrad, Philadelphia, Montreal, and, finally in May-June 1973,Ottawa, where it was opened by the Prime Minister with 15 outstanding Inuit artists present as guests of honour. The inspiration came from Mrs. Doris Shadbolt, curator of the Vancouver Art Gallery and a member of the Canadian Eskimo Arts Council which organized it with the co-operation of the Department of Indian Affairs and Northern Development, the Department of External Affairs, the National Museums of Canada (Museum of Man), the Canada Council and the Government of the Northwest Territories. The Department of National Defence provided transportation. The exhibition has been seen by literally hundreds of thousands of people, 49,000 in Ottawa alone.

The collection includes group pieces and represents works by 117 artists and from 24 northern communities. It covers the expression of Eskimo sculpture and carvings over nearly 20 centuries - comprising prehistoric pieces, historic pieces (mainly nineteenth century discoveries made by whalers and traders) and, finally, modern pieces created as late as the twentieth century - mainly between 1950 and 1970 but with a number of pieces dating back to 1920 or earlier.

In opening the exhibition in Ottawa, the final stop on its successful tour, the Prime Minister said -

> ". . . . from its colour, its beauty, its feel, I think we are all aware of the paradox of making speeches here to declare this exhibition open. The incongruity of it is even greater if we think of the other paradoxes connected with this exhibition. I am told it is the largest exhibition of Canadian fine arts ever shown abroad; it was seen by literally hundreds of thousands of people in the many capitals of the world, and yet it is the product of one of Canada's smallest cultural minorities. It is an exhibition which goes back, I am told, through some of its pieces for thousands of years, much before the idea of Canada had probably been conceived in the mind of God, and yet we are known in many lands by this particular form of art."

In conjunction with the exhibition there was a bilingual catalogue containing black and white reproductions of every piece as well as colour plates of 12 of them. The Foreword, by George Elliott, Chairman of the Canadian Eskimo Arts Council, appears in English, French, Eskimo (syllabics) and Eskimo (ordinary type). It also includes monographs by:

William E. Taylor, Jr. - "Taisumanialuk - prehistoric Eskimo art"
George Swinton - "Contemporary Canadian Eskimo Sculpture"
James Houston - "To find life in the stone".

The following summarized extracts from the Foreword direct the thoughts of the viewers toward appreciation of the exhibits.

"The exhibition would be for people in other countries who are accustomed to seeing, owning and living with the art of the great cultures of the world. It would give the artists of the Canadian Arctic that world recognition which is always drawn - inexorably and magically - to the creators of the non-verbal parts of our aesthetic environment."

This exhibition "embraces historical, archaeological, anthropological, and aesthetic values . . . a full and definitive recognition of the culture of the Inuit - a people who had, down through the centuries, developed techniques of getting food, clothing, shelter and warmth from the mammals of the Arctic waters and from the birds and animals of the barren lands. . ."

"The long arctic winter nights, the life of the isolated nomadic family, gave rise to a rich culture, essentially oral and full of myths and legends from long ago, as well as fabled and surprising events of the recent past. And it was in three dimensions because there is no tradition of flat art in the North, no books, no television screens, no paintings in the European tradition. . ."

"Here then is a cultural expression of the Inuit from the days before the white man went north of the 60th parallel; from the times of the earliest transactions between the People and the white man; and from today, a genuinely exciting time, because the artist in the Arctic gives to his people vigorous artistic expressions of a life of spirits and mythology, a life of the hunt for animals, a life of rare, precious family cohesion. . ."

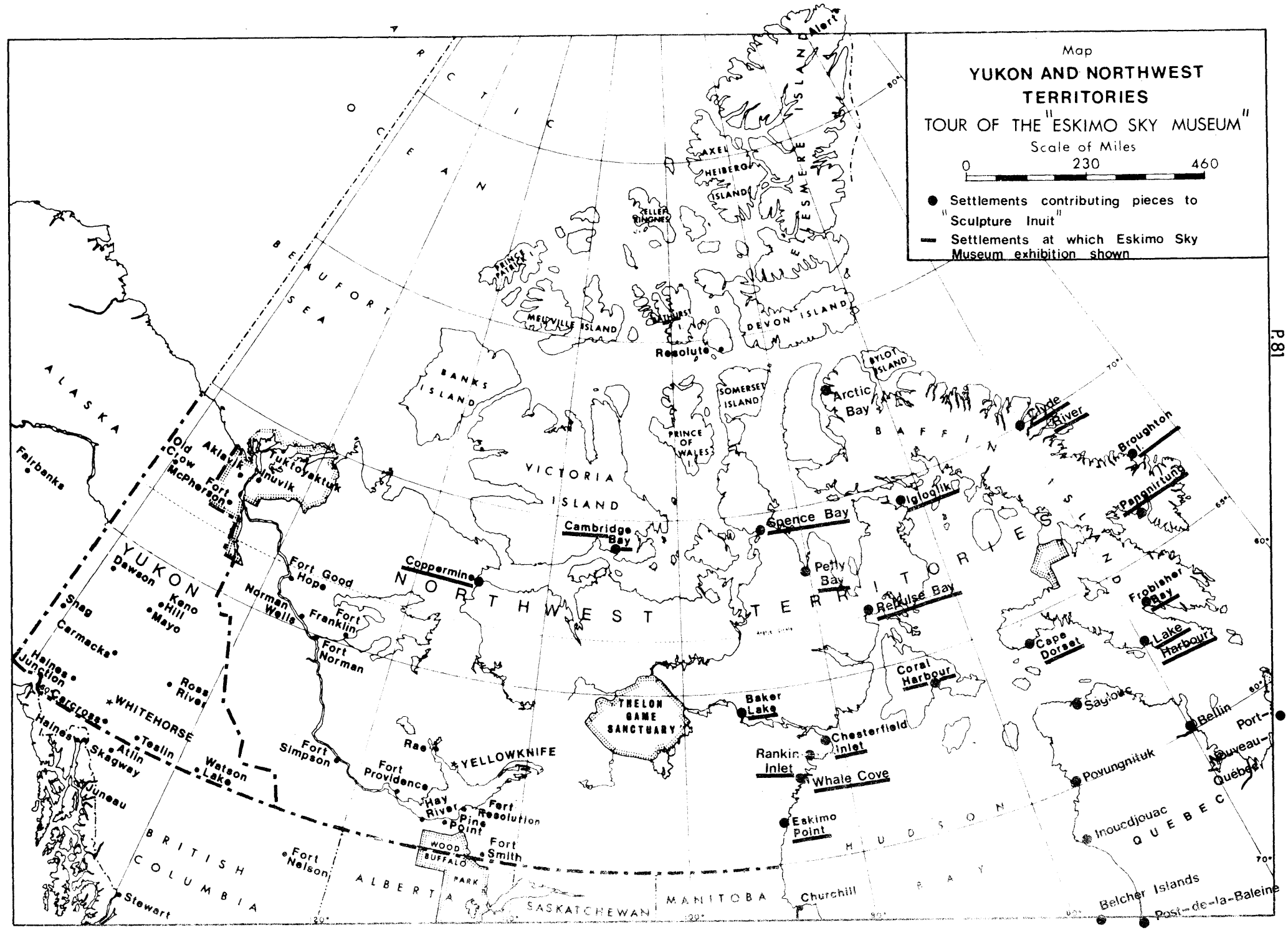
"The Arctic artist" is an artist of the world with his confident comprehension of volumes, inventiveness, feeling. All along he has been using the language of art that is universal. . . that can bind cultures together, that can preserve a culture. . . that can strengthen a multi-cultural society without weakening or emboldening one of its members.

"So with our eyes we listen. . . listen carefully. To do otherwise - to be indifferent - is the greatest betrayal of one person by another, of one culture by another."

ESKIMO SKY MUSEUM

At the meeting of the Arctic Circle in May, 1973, Mr. John Robertson of Robertson Galleries in Ottawa, described another exhibition of Eskimo Art, this time taking Eskimo art to the Eskimos. The following is a summary of his address, which he entitled "The Eskimo Sky Museum" but which was irreverantly referred to by those involved as "Stu's Flying Rock Circus" in recognition of the aid and enthusiasm, both moral and financial, with which the Commissioner of the Northwest Territories - Stuart Hodgson - and the Northwest Territories Council itself, had supported the venture.

As early as 1969 it was suggested at a meeting of the Canadian Eskimo Arts Council held in Yellowknife, that it might be interesting to arrange a competition among the carvers of the Northwest Territories. The Government of the Northwest Territories supported the idea and John Robertson was appointed Chairman of the Exhibition Committee - which as he said, meant that he did the work! Posters were sent out to all settlements in the North in whatever language or languages seemed most suitable (syllabics, English, French) and to all persons - priest, government official, school teacher, etc. - who seemed best able to spread the news and make the collections. The National Museums of Canada offered substantial awards and the selection of winning pieces was made at certain key points in the North in order to give as many Eskimos as possible a sense of involvement. The selection committee consisted of James Houston, Jean Noël Poliquin (the noted Montreal sculptor), and John Robertson. There were 287 entries, from which 77 pieces were selected and put on display in Yellowknife at the time of the Royal Visit. The ugly Yellowknife school gymnasium was transformed into an impressive art gallery by Bob Hume, the gifted installationist from the Art Gallery of Toronto, and the exhibition was opened when the Queen arrived.


Map
YUKON AND NORTHWEST TERRITORIES
TOUR OF THE "ESKIMO SKY MUSEUM"
Scale of Miles
0 230 460
Settlements contributing pieces to "Sculpture Inuit"
Settlements at which Eskimo Sky Museum exhibition shown
ARCTIC OCEAN
BEAUFORT SEA
ALASKA
YUKON
NORTHWEST TERRITORIES
BRITISH COLUMBIA
ALBERTA
SASKATCHEWAN
MANITOBA
QUEBEC
HUDSON BAY
Alert
Axel Heiberg Island
Ellesmere Island
Prince Patrick
Melville Island
Bathurst I.
Devon Island
Resolute
Banks Island
Victoria Island
Prince of Wales
Somerset Island
Bylot Island
Arctic Bay
Clyde River
Broughton I.
Pangnirtung
Iglooliik
Spence Bay
Cambridge Bay
Coppermine
Fort Good Hope
Norman Wells
Fort Franklin
Fort Norman
Petty Bay
Repulse Bay
Frobisher Bay
Lake Harbour
Cape Dorset
Coral Harbour
Baker Lake
Thelon Game Sanctuary
Chesterfield Inlet
Rankin Inlet
Whale Cove
Eskimo Point
Churchill
Sayisoc
Bellin
Port-Nouveau-Québec
Povungnituk
Inoucdjouac
Belcher Islands
Post-de-la-Baleine
Old Crow
Aklavik
Inuvik
Tuktoyaktuk
Fort McPherson
Fairbanks
Dawson
Keno Hill
Mayo
Shag
Carmacks
Haines Junction
Carcross
Ross River
WHITEHORSE
Teslin
Atlin
Skagway
Haines
Watson Lake
Juneau
Stewart
Fort Simpson
Rae
YELLOWKNIFE
Fort Providence
Hay River
Pine Point
Fort Resolution
Fort Smith
Wood Buffalo Park
Fort Nelson

The suggestion was then made that, really, the exhibition should be seen by the Eskimos and as it was not possible to bring all the Eskimos to Yellowknife, plans were made to take at least part of the exhibition to as many Eskimos as possible. A Bristol Freighter was chartered, 38 pieces, roughly half the original exhibit, were selected and flown approximately 4000 miles and displayed in 18 Arctic settlements. Only settlements that could accommodate the Bristol Freighter both weatherwise and with lengthy runways could be visited, so this meant that all the small settlements as well as Dorset, Pond Inlet and Arctic Bay had to be dropped from the itinerary. Even at that. there were some tense moments. Robertson recounts that, at Pangnirtung "the pilot said he didn't think he could land there because he needed 3000 feet and he thought the runway was only 2600 feet - so he landed in 2500 feet! It was quite an interesting landing. . .". Then, over the ice cap to Broughton - where the arrival on a Sunday morning just as Church service was about to start caused no little consternation. Church service was apparently reduced to the taking of the collection, but the local missionary surely must have felt some vindication when high winds along the coast prevented the exhibition from taking off until the next day.

The exhibition started from Churchill and the settlements visited included Eskimo Point, Whale Cove, Rankin, Chesterfield Inlet, Baker Lake, Repulse Bay, Coral Harbour, Frobisher, Lake Harbour, Pangnirtung, Broughton, Clyde River, Igloolik, Pelly Bay and Spence Bay (where a blizzard detained them for two days), an unscheduled stop in reply to a radio request while the plane was in the air to show the collection to school children at Cambridge Bay where the stop had originally been intended for refuelling only. Then on to Coppermine and Yellowknife. The whole tour took eleven days during which they were airborne at least part of nine and a half of those days.

The exhibition never left the aeroplane. The 38 pieces of sculpture, packed in styrofoam and in the wooden boxes -- whose tops were covered with the white duffel so as to serve as display stands - travelled, together with two generators for demountable fluorescent light, two Herman Nelson heaters, curtains and carpets for the display, chains, ropes. ladders, tool kits, sleeping bags, 10 barrels of aviation gas, the crew and Robertson and his assistant. As Robertson says, "Thank God the air crew were helpful. . . otherwise the effort could not have succeeded!" The first thing at each stop was to unload the 5 barrels of gas carried in the nose - 425 lbs/barrel - then unload the heaters, the generators, the tool boxes, move the boxes of carvings into the central area which was 33 feet long but only 6 feet wide, lay the carpet, hang up the curtains around the sides and front of the interior of the plane, erect the fluorescent lights on 7-foot poles. The first two or three times this performance had all the flavour of a slapstick comedy - hence the

sobriquet "Circus" - but a routine soon developed and at Eskimo Point a record was set: 28 minutes from touch-down to the opening of the exhibition. No time was wasted in the air or in the packing and unpacking but in no case were the spectators hurried. The exhibition stayed as long as there was anyone to see it and it seemed that only the sick failed to come. As soon as the plane landed the queue began to form and waited patiently while the hectic preparations went on inside. At every stop they brought the children, which was splendid, in fact at Coral Harbour they brought several bombardier loads of them from the settlement to the airport.

It is difficult, if not impossible, to estimate the value of such an operation until long after its occurrence. But some impressions were immediately evident. For the first time carvers from the widely separated settlements of the Canadian Arctic saw what carvers in the other settlements were doing. For example: the people of Coppermine were enormously impressed with the size of Dorset carvings, inland areas like Baker Lake were fascinated by whalebone, Eskimo Point artists were impressed by the beauty of Lake Harbour stones and the fact that some carvers polished the stone - which the Eskimo Point artists did not. There were some recorded comments like, "I didn't know Eskimos carved so well", and, "Is that stone?" and "I'm going right home to start carving", and then there was so often just AAhyee (sp ?)" best interpreted as "Wow"!

You felt it was a group of experts looking with very critical eyes at the work of other experts and respecting it. The Eskimo is very independent and while it is unlikely there will be much, if any, copying, the experience must certainly have stimulated the thoughts and creative urges of many an artist. Some people feared it might be dangerous to introduce the idea of competition into the Eskimo outlook, but Robertson pointed out, competition has always existed in the Eskimo evaluation of excellence - the best hunter, for example. "The best carver" will that also confer status in the Eskimo community? Will there develop a sort of fraternity relationship and outlook among these northern artists?

It is hoped that in spite of its restricted budget and the limitations on landings imposed by the size of the plane needed for the exercise that the "Eskimo Sky Museum" operation contributed to the Eskimos' growing appreciation of the intrinsic value of the works of their artists.

The Government of the Northwest Territories purchased the exhibits and they are on display in the Museum at Yellowknife during the summer.

A very lively question period followed Mr. Robertson's address, very definite and often opposite views being freely expressed. One question that came up was whether or not we are harming and exploiting the Eskimo by including his carvings among our marketable art and degrading his work by putting a financial value on it. Robertson's reply was to refer to the Renaissance painters or the English portraitists of the eighteenth century: "exploitation"did not do much harm to their efforts, and even a Rembrandt didn't work for nothing.

In discussing the concern that our stress on the carvings tends to change their way of life, he pointed out their way of life began to change when Martin Frobisher got shot in the backside with an arrow, and continued to change with the arrival of the missionaries and the Hudson's Bay Company. You cannot preserve the culture, we've already changed that, but we can preserve a thread: the heritage and the respect for it. It is a very difficult situation; for better or worse we have made changes. We have established schools and hospitals - and would have been bitterly criticized if we hadn't. But these developments gave a centre and a nucleus so that settlements developed. Whereas 15 or 20 years ago approximately 80% of the people lived on the land, now 90% live in the settlements. And unfortunately, in the settlements too many were reduced to living on welfare. Although some may criticize the "arty crafty" output as being phoney, an unnatural occupation for the native people, actual figures place it higher in real income than hunting or other "native" occupations and, it should be noted, no good carver is on welfare with its consequent loss of independence and dignity. (It was pointed out by a member of the audience that the Eskimos don't leave the land and come to the settlements because they don't like the land but rather because in reality it is our attitudes and actions that are forcing them to do so.)

In discussing whether or not present Eskimo art is "traditional" Robertson agreed it is not but then neither is the modern Eskimo. The nomad carved his pieces small because of his wandering way of life, the artist in the settlement can work on a 65 lb. block if he wishes, just leaving it on his porch until he has finished all the carving. The older generation were unschooled and would, for example, carve a seal from the knowledge gained in the butchering of a seal. Their children are school-educated and not too many of them are all that familiar now with how to butcher a seal. So the carvings they produce express different things or express the old ideas differently. Also, there is a growing tendency to express things more individually and, since about the mid-1960's we have seen the decline of the ethnic term "Eskimo art" and the emergence of an individual Eskimo artist, known by name and recognized by the type and quality of his work.

This lively and informative exchange of views continued for more than an hour and although, as is usual in such cases, few of the previously held strong opinions are likely to have been changed, the evening had proved not only interesting but also thought-provoking.

ASPECTS OF ESKIMO ART TODAY

At the February Meeting (1974) of the Arctic Circle, Helga Goetz of the Social Development Division (IAND) discussed the present state of Eskimo art. The following outlines, in no particular order, some of her views:

- Eskimo art is changing for the simple reason that Eskimo life and outlook is changing. It is in many ways a time of uncertainty and the quality of the art is deteriorating, at least by our standards.

- The same standards are not necessarily accepted by the Eskimos themselves. At a recent exhibition of Inuit art selected, arranged and priced by the members of the native co-operatives, one highly-priced piece seemed so poorly done and clumsy that the whites present questioned its inclusion. The Eskimos were very upset and somewhat annoyed. They recognized it was the best the carver could do, in view of the fact that he was old, ill and blind. That he had done his best made it, in their eyes, a valuable piece.

- Earlier Eskimo art has many similarities with mediaeval European art in that the idea of the artist as a creative genius was unknown and therefore unaccepted by either. The idea of "artist" and "creativity" was introduced into Europe by the men of the Renaissance and to the Eskimo by modern westerners. In both cases, the earlier carvers (or painters) were anonymous workmen, capable of turning their hand successfully to several crafts. Today the Eskimo, like his white counterpart, emerges as an individual with a style of his own.

- Whether or not the Eskimo artist-carver would have status in his community similar, say, to that of the successful hunter, would depend on the community. In Dorset where practically everyone is engaged in some way in art, the successful carver might be more highly regarded, in other communities possibly not.

- The idea that in their nomadic wanderings the Eskimos would naturally carve smaller pieces that they could carry in their parkas and rub from time to time - like a worry stone - is merely a public relations idea. The Eskimos would rather have food in his pocket than any piece of stone, bone or ivory, carved or uncarved. True, when holed up in a blizzard he might carve a comb for his wife, a toy for a child, a piece for a game or even a remembered animal or fish - provided he was lucky enough to have something he could carve. But what he carved was not for transport. The reason today's pieces are larger is that there is more opportunity and demand for such work and they bring in money and what money can provide.

- Eskimos view their art in a different way to white men. To the Eskimo there is the real or tangible thing, be it whale or fish or bear, which can be perfectly and accurately reproduced. Some of their artists, even the most skillful, stop at this point. Then there is the other artistic expression in which the artist adds to, changes or embellishes the object through the medium of his imagination. The craftsmanship may be less perfect but the result may be more appreciated by the Eskimos themselves.

- Native Eskimo art was originally limited to carving and to the exquisite and imaginative stitching used by the women to decorate clothing. Prints and wall hangings have evolved with the suggestion and help of the white man and for his markets, although the indigenous skill and artistry still persists in the stitched wall hangings made by the women.

TWO ESKIMO WALL HANGINGS IN OTTAWA

In 1973 two large wall hangings found their places in Ottawa public buildings. One in vibrant tones of red, yellow, purple, orange and blue on a dark turquoise background represents Eskimo legends and was commissioned by Mr. William Teron for the National Arts Centre where it is to hang permanently on the wall of the grand staircase. It is made of felt, 21 feet by 13 feet and was created in two and one-half months by Jessie Conark who was present at the official reception at which it was accepted by Mr. Francis Mercer, Chairman of the Board of Trustees, on behalf of the National Arts Centre. About seventy Eskimos from various points across the Canadian Arctic were also present for the ceremony.

The other wall hanging, also commissioned by Mr. Teron and accepted in 1972, is in the dining room of the Carleton Towers Hotel. It measures approximately 18 x 20 feet and was created by Mme Silo, an aged Eskimo woman from Eskimo Point. The background is of black felt

onto which have been appliquéd large figures in creamy-beige skin and carved ivory. These figures, some of which are about three feet high represent Eskimos in attitudes of hunting, work and play, as well as the animals familiar to their everyday life: dog, bear, wolf, seal, whale, fish and bird. The arrangement of the figures is random but so artistically done that there is no sense of confusion, rather a strong sense of life and movement. The simple colour scheme, black and cream, creates a dramatic impact.

These two panels are indicative of the well-recognized ability of Eskimo artists to adapt their ancient skills - in this case the fine stitchery of the women - to new and larger uses unknown to their ancestors.

DORIS McCARTHY EXHIBITION

In contrast to the exhibitions of Eskimo art was the small, delightful exhibition of northern paintings by Doris McCarthy on view in February, 1972 at the Robertson Galleries. This was the North, seen in watercolour, oils and acrylic, through western rather than Inuit eyes. It brought home again the realization that what is seen lies very much in the eye of the beholder and that the white man's North is very different from that of the Inuit.

OBITUARY The last note on Eskimo artists is a sad one: as reported in the Ottawa Journal of 22 October, 1974:

> Johnny Ashivak Qarruq, 34 and his wife Doris, 35, died when fire destroyed their two-room home at Spence Bay, 550 miles northeast of Yellowknife. Their bodies were discovered early Saturday, 19 May, 1974. Qarruq, one of Canada's well-known Eskimo carvers had an exhibition of his work in New York in 1974 at which he had been present.

Inuit Land Use and Occupancy Project

Prepared by Milton Freeman, Research Limited, under contract with the Department of Indian and Northern Affairs

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Prices are subject to change without notice.

For all those interested in the people of the Arctic, their culture, their feelings for and use of the land, and their reactions to the white man's culture and the uses to which he wishes to put their land, the recently published report, Inuit Land Use and Occupancy Project, will be priority reading. Prepared under the direction of Dr. Milton Freeman of Memorial University, St. John's, Newfoundland, this study resulted from the proposal made in 1973 by Inuit Tapirisat to the Minister of Indian and Northern Affairs that an authoritative study of Arctic land-use should be made, a study that gave the Inuit viewpoint and involved the Inuit in its compilation. Although white men and the white man's expertise were used to synthesize and present the findings, the Inuit collected and contributed the raw data. More than 175 Inuit interpreters, fieldworkers and interviewers across the Canadian Arctic gathered the information "on location" from the native hunters, fishermen and trappers. The dispatch with which the work was completed could well serve as a model for other research projects - from February 1973 when the proposal was first made to the Minister, to September 1976 when the first copy of the published report was delivered to his office.

The report comprises three volumes, each of which may be purchased separately. Although all are well presented and highly informative, Volume I - Inuit Land Use and Occupancy - will have perhaps the greatest general interest. This contains a brief outline of the facilities and services at each of the major Inuit settlements in the Canadian Arctic, gives an account of the native activities related to the land and shows the extent of territory covered in the course of these activities. One of the interesting points it brings to the reader's attention is that the gentle drift of the Inuit eastward

has not entirely ceased, especially in the Western Arctic. It discusses Inuit customs from the Inuit viewpoint of their usefulness and necessity to survival in a harsh environment, such practices as "wife swapping" which suprised the whites and shocked the missionaries, but which to the Inuit was only an integral part of the much needed protection and extension of "kinship" and had none of the devious moral undertones with which the white man views it. The volume concludes the 50 odd pages of statements by native residents of the North, both young and old, on how they see their land and their relationship to it.

Volume II - Supporting Studies - outlines the method of procedure in processing the date gathered and contains background studies by various researchers (white) into different aspects of Inuit life.

Volume III is an atlas containing 153 maps, showing the location of every Inuit settlement and the extent of its hunting, fishing and trapping activities, as well as the areas covered by the various types of wildlife essential to the native of way of life. For most of the longer-established communities there are two or more such maps showing the change in land-use patterns from one time period to another. This atlas is a valuable contribution toward filling the long-standing need for a detailed authentic land-use map of the Canadian Arctic. Unfortunately, it must in all fairness be mentioned that additional emphasis on proofreading would have been an advantage as a few printing errors have escaped correction - at least in the copy seen by this writer - the most noticeable error being on Map 81 (the Baker Lake area) where land information was printed on the water, and vice versa. But these are, after all, small and correctable errors in an otherwise excellent and most readable piece of research.

The uniqueness of this report lies in its presentation of the Inuit culture as seen by the Inuit themselves and in the participation of both white and Inuit in its preparation.

Arctic Circle correspondence - Correspondence should be addressed to the officer concerned,

c/o The Arctic Circle,
Box 2068, Postal Station D,
Ottawa, Ontario
K1P 5W3

Arctic Circle Meetings

The regular meetings of the Arctic Circle are held on the second Thursday of every month at 8.30 p.m. at Faculty Club, Carleton University, Ottawa.

Out-of-town members who wish to receive notices of these meetings and, thereby, be informed in advance regarding the guest speakers and the topics to be discussed, should address their requests to the Secretary, Mr. A.C David Terroux.

The Arctic Circular

The Arctic Circular is published three times a year - oftener if the amount of material received permits. Correspondence, papers and reports are welcomed from all members, from persons living in the north, or from anyone having information on general northern activities, research and travel, or on technological, industrial or social developments. Contributions and correspondence should be addressed to the Editor, Mrs. Margaret Montgomery Larnder.

Back issues of the Arctic Circular are available, single copies at $0.50 and complete sets (Volumes I to XX) at $100.00. Requests should be addressed to the Secretary.

Membership dues

Dues are payable as of 1 January. New members joining the Arctic Circle in the Fall or at any time during the period between the last meeting in the Spring and the first meeting in the Fall (usually May-October) will be considered paid-up members for the following year. The dues are:

$7.00 for in town members and families
$3.00 for out-of-town members and for students
$5.00 for libraries and institutions.

THE ARCTIC CIRCULAR

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Ottawa

SUMMARY OF ARCTIC CIRCLE MEETINGS, 1975

All meetings this year were held at the Carleton University Faculty Club, January through May on the second Thursday of each month, October, November and December on the second Tuesday.

220th meeting of the Arctic Circle, Thursday, 9 January, 1975. This was the Annual General Meeting. The report of the previous Annual General Meeting (8 January, 1974) was read and adopted. The Treasurer's report was adopted, subject to audit. The Arctic Circular continued to be behind schedule both in issues and indexes. The editor acknowledged this, expressed hopes of catching up during the coming year and, while thanking those who had submitted material to the publication, invited greater participation - in the form of contributions - from the membership as a whole.

The Nominating Committee proposed a slate of officers for the coming year. This proposal was adopted unanimously. The Executive for 1975 will be:

President	- Keith C. Arnold
Vice-President	- David A.W. Judd
Immediate Past President	- Alex Stevenson
Secretary	- A.C. David Terroux
Treasurer	- Mary Craig
Editor, Arctic Circular	- Margaret Montgomery Larnder

The Committee Members will be:

Patrick D. Baird	Maurice H. Haycock
Andrew Cowan	Ian G. Lindsay
Tagak Curley	Eric H. Mitchell
I. Moira Dunbar	John K.B. Robertson
Thomas Frisch	Graham W. Rowley
J. Barry Gunn	Barbara Serson

Following the business meeting, the recently released Imperial Oil film "Edge of Evolution" was shown.

221st meeting of the Arctic Circle, Thursday, 13 February, 1975. Dr. Gerald Holdsworth of the Glaciological Division, Department of the Environment spoke on "The Mount Logan Survey of 1974". In addition to being a glaciologist, Dr. Holdsworth is also an experienced Alpine climber and has had previous experience in the northwest areas of the Cordillera as a member of the Arctic Institute expeditions under Dr. Walter Wood. In June/July, 1973, he was a member of a federal government party that surveyed the main peaks of Mount Logan and established the mountain's greatest elevation as 5951 metres - about 100 metres lower than the previously accepted height. Vertical control was carried to the Northwest Col where the possible site for an ice core is being considered. At the altitude at which the party was working the valleys and lower mountains frequently appear engulfed in a sea of fog, leaving only the summits of Mount Logan and other giants like Mount Vancouver emerging above it like isolated rocky "islets". This, together with the difficulty of accurately interpolating the sea-level base across these rugged distances, contributed to the differences in the estimated height of Mount Logan arrived at by previous surveys. The experienced team on the 1974 expedition was able to use modern techniques, precision instruments, and its estimate of 5950 metres is now accepted as the true height of the mountain - Canada's highest peak.

Dr. Holdsworth illustrated his talk with a series of excellent slides taken on the survey that showed not only the survey camps and ascent routes up the mountain but gave also a good idea of the working and weather conditions encountered. There were also impressive panoramic views of the summits of some of Mount Logan's giant neighbours seen across the ever-present sea of fog. The winds at those altitudes were considered by the speaker to have been the climbers' greatest adversary.

222nd meeting of the Arctic Circle, Thursday, 13 March, 1975. This was the Annual Dinner meeting and was held this year at the usual monthly-meeting location, the Carleton University Faculty Club, instead of at the Gloucester Street RCAF Officers' Mess as in previous years. The dinner was preceded by an informal cocktail hour, with canapés prepared by some of the gourmet cooks that the Circle numbers among its members. The Amabassador of Norway and Mrs. Hedemann were guests of honour. The after-dinner speaker was Dr. Digby McLaren, Director of Canada's oldest scientific establishment, the Geological Survey. He spoke of the Survey's contribution to the exploration and mapping of

the Canadian North by both airborne and ground parties and drew attention to how many of the geologists and glaciologists involved in those surveys were past or present members of the Arctic Circle. In contrast to the delightfully light touch of the speech as a whole, Dr. McLaren ended on a more serious note, pointing out that Canada's future welfare required a stable growth line and that for this all the national energy resources of both the North and the South would be required. It was not a choice between resources but a requirement for everything we have. There are no "acceptable alternatives" to exploitation of northern resources and the development of the North that would accompany it, and all Canadians, southerners as well as northerners, must be prepared for the sacrifice and changes demanded even by the "least unacceptable".

The speaker was introduced by the President, Keith Arnold and thanked by a former President, Moira Dunbar, who was then presented with a recording recently issued by the Scott Polar Research Institute -- tunes from the barrel organ taken by Sir William Parry on his Arctic voyage of 1819-20. Unfortunately, the attempt to play the tunes to the assembled audience was foiled by the failure of the record player. Drawing was made for the "door prize", the winning tickets being held by John McGlynn and Harold Larnder and the prize being the privilege of auditing the 1974 Treasurer's report.*

223rd meeting of the Arctic Circle, Thursday, 17 April, 1975. "Messing about in boats in Arctic Greenland" was the title of Dr. David Bridgwater's talk at this meeting. Dr. Bridgwater, a graduate geologist from Imperial College, London, England, and with a doctorate degree from the University of Copenhagen, is a member of the Grønlands Geologiske Undersølgelse. He is in Canada at present on an exchange program under which Dr. Robert Christie of the Geological Survey of Canada is presently in Greenland. Dr. Bridgwater's talk took the form of an interesting and lighthearted narrative accompanying a series of slides taken at a number of the Greenland ports and fiords he had visited by boat, and included accounts of the various adventures and misadventures experienced along the way.

224th meeting of the Arctic Circle, Thursday, 15 May, 1975. The guest speakers at this meeting were Professor R.W. Lake and Mr. C. Boon of the Canadian Institute of Ground Transport at Queen's University. The topic under discussion was "Transport of Mackenzie Valley oil and gas by Railway: some economic and environmental considerations."

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* This was done at a later date, following dinner at the home of the President.

With the discovery of oil and gas deposits in the Canadian Arctic, especially in the Mackenzie Delta, a major problem now is how these resources are to be transported south to the main consumer areas. Pipelines are widely considered the most efficient and economical means but their construction is being opposed both by environmentalists and native residents of the North on the grounds that they would upset the delicate balance of nature, thus disrupting the native economy, and would dislocate the accepted modes and rhythms of northern life. Resolution of the conflicting claims and requirements must, in the first instance, be made by the federal government and among the studies presently in hand to provide background material for such decisions is the research underway at the Institute at Queen's University. These particular studies have suggested the desirability of transporting the Mackenzie oil and gas supplies southward by rail. The speakers explained this intriguing concept to the meeting, intriguing in view of the economic and operating difficulties the Canadian railways claim to be experiencing at present, and in view also, of their frequent periodic applications to the Board of Transport Commissioners for permission either to raise rates, discontinue or reduce services to many outlying areas, or a combination of both.

Some of the economic and environmental advantages expected from a rail line were outlined. The proposed route would run from Trout River, Alberta, to Enterprize and from there, with three crossings of the Mackenzie River, to Inuvik. It is felt that a rail line would be more compatible with Canada's past experience and expertise as a railway builder than would the construction of a pipeline. Further, they felt, a railway could be operative at about the same date as a pipeline, or earlier, and would make a less disastrous drain on the country's steel supplies and construction capabilities generally. Its maintenance would supply a more continuing source of employment for a greater number of northern native residents and its facilities could also serve to transport the products of any future mineral exploitation or of any agricultural undertakings that may be developed in the more fertile stretches of the Valley by the use of earlier-maturing crops. Statistics regarding costs, capacities, time factors and possible returns in terms of money, service and dependability were presented from the Institute's findings.

Various aspects of the proposal were queried by members of the audience who expressed doubts or disagreement as to the feasibility of building and maintaining a railroad more easily than a pipeline in that region. There were also queries regarding the ease, speed, and safety of transporting oil and gas by rail, and some doubts as to whether construction of rails and fleets of oil and gas tank cars would be a lesser drain than steel pipe on Canada's steel and manpower resources. There was also a feeling among some members of the audience that the

long-held belief in the North - including the Mackenzie Valley - as a vast storehouse of inexhaustible mineral wealth and future agricultural potential was beginning to prove more of a myth than a reality and should be carefully scrutinized before being given much weight in the determining of northern transport facilities.

The proposal, running so contrary to the current acceptance of pipelines for oil and gas transport, provided a challenging address and a lively discussion period.

225th meeting of the Arctic Circle, Tuesday, 14 October, 1975. The Reverend J.A. Davidson of Dominion Chalmers Church, Ottawa, was the speaker at this meeting of the Circle. As Army Chaplain he was stationed at the Churchill Military base in northern Manitoba from 1958 to 1960. There he became intrigued by the ruined remains of Fort Prince of Wales which in his talk he referred to as "The Preposterous Fortress of the North". Built at a time when, to British military architects a fortress was a fortress was a fortress, Fort Prince of Wales would have been considered a suitable defence bastion almost any place in the Empire - anywhere, that is, except on the shores of western Hudson Bay. Construction, begun in 1731, was completed in 1746. It was built by and for the Hudson's Bay Company but why that company went to the labour and expense when unable to provide a sufficient staff of trained personnel to defend it, is puzzling. The French, under La Perouse, sailed into the Bay and laid seige to it in 1782; Samuel Hearne, who was in charge realized the fort had more cannons than he had men to fire them, and to the astonishment of the French, wisely capitulated without a fight.

Mr. Davidson gave a summary of the exploration and history of the west coast of Hudson Bay from the earliest discoveries up to the building and final destruction of the ill-fated Fort. His talk was interspersed with interesting anecdotes from his own personal experience in the area, and with fascinating pieces of information he had unearthed in the course of his research on the fortress - such as the story of the one, lone horse, shipped from England to aid in building the fort, who promptly and sensibly up and died when he saw the herculean tasks he was expected to perform. The discussion which followed this very relaxed and casual talk was also very informal, members of the Circle sharing with the speaker reminiscences of their days and experiences at Fort Churchill.

Mr. Davidson, it should be noted, has written a number of articles on Fort Prince of Wales and has also prepared a brochure for the Department of Indian and Northern Affairs.

226th meeting of the Arctic Circle, Tuesday, 11 November, 1975. The speaker was the well-known Ottawa sculptor, Harold Pfeiffer, a long-time member of the Arctic Circle. His talk on this occasion was entitled "Portraits in Bronze of Eskimos and Indians", and photographs and bronzes around the hall portrayed vividly the artist's skill and range of subjects. Although his work includes bronze portraits of birds and animals, men, women and children of all colours and cultures, and although he has exhibited in Europe, Canada and the United States, Mr. Pfeiffer is best known to Arctic enthusiasts for achievements in recording the features, character, face markings and ethnic types of the native peoples of northern Canada and Greenland. Several of the busts - or photographs of busts - were of persons recognized by many members of the Circle who have had the good fortune to know the northern native settlements and their residents intimately. Mr. Pfeiffer who has visited his subjects in their homes and on home territory, gave a fascinating account of his experiences with some of these people and of his problems in getting them to pose - or pose long enough - for his needs. In addition to being works of art his portraits are true and scientifically accurate records of real people and of true ethnic types - whose purity is increasingly threatened by the white man's invasion of the North in the interests of development. As Keith Arnold, the President, remarked at the end of this talk, it was like having a conducted tour through an art gallery with the artist as guide. The speaker was thanked by another well-known artist with wide experience in the North, Maurice Haycock.

227th meeting of the Arctic Circle, Tuesday, 9 December, 1975. The speakers on this occasion were Lorna and Dick de Blicquy, both experienced pilots, who spoke on "Light Aircraft Operations in the Arctic". Dick de Blicquy served in the North with the RCAF 1952-53 and has been engaged in commercial flying in the North for over twenty years. He is at present a partner in Bradley Air Services Limited, which, in addition to a main base at Carp, Ontario, operates bases at Resolute and Eureka in the Northwest Territories. Lorna de Blicquy, who also has considerable flying experience in the North under both summer and winter conditions, is not only a Director of the Ottawa Flying Club but also a Designated Flight Examiner with the Department of Transport. This lively, informative and entertaining evening of northern flying experiences was illustrated by some excellent slides It was also one of this year's best attended sessions of the Arctic Circle.

Change of Editor - With the resignation of Margaret Larnder, the duties of editor for the Artic Circle have been assumed by Mrs. Nora Muschison (Nora Corley), formerly librarian with the Arctic Institute in Montreal. Margaret Larnder takes this opportunity to thank all those who contributed to or assisted with the Arctic Circular during her term of office - in particular Miss Jessie Miller on whom all the typing devolved.

THE FUTURE OF OIL AND GAS EXPLORATION AND DEVELOPMENT IN THE CANADIAN ARCTIC

Synopsis of an Address
by
Chas. R. Hetherington, President
and Chief Executive Officer

Panarctic Oils Ltd
to the

Third International Conference on
Port and Ocean Engineering Under Arctic Conditions
University of Alaska - August 11 - 15, 1975

The extent to which the Canadian Arctic is developed, and the timing of development will determine the extent to which Canada will remain self-sufficient in energy and the extent to which Canada will have surplus oil and gas available to share with the United States.

Canadian Needs and Their Effects

Canadians are the world's second largest per capita users of energy, with each individual consuming on average the equivalent of 55 barrels of oil per year. This high consumption is the direct result of Canada's climate, widespread population, high standard of living, and historically low prices for energy.

About 65 percent of the energy requirements of Canada are supplied by oil and gas, essentially all of which is produced in Alberta, British Columbia, Saskatchewan and Manitoba, in that order of importance. Remaining reserves in these areas are about 9 billion barrels of oil and 53 trillion cubic feet of gas, which in total equate to about a 15-year remaining supply at today's production rates.

Overall figures like this may be considered to be misleadingly alarming, because as shown in the past, the discovery of new reserves has kept pace with increasing needs. However, this trend is no longer true. For four years now since 1970, the production of oil in Western Canada has exceeded discoveries so that remaining oil reserves are decreasing. Similarly, the production of gas has exceeded reserve additions in two of the last three years and remaining gas reserves are decreasing.

Energy consumption in Canada is growing at a rate which, if left unaltered, will require four times as much energy in the year 2000 as was consumed in 1970. This realization does become alarming when considered in the light of decreasing discoveries of new reserves.

Concerned with the implications of this situation, the National Energy Board of Canada in 1974 undertook a series of public hearings to determine what Canada's position actually was with respect to supply and demand for oil. The Board reached the conclusion that without frontier reserves Canada would become a net importer of oil in 1977 and that even with continued imports into Eastern Canada, a deficiency of supply from indigenous oil to meet the demand of the rest of Canada was indicated in the early 1980's.

In view of this foreseeable deficiency, the Board reviewed the possibility of conserving remaining reserves through reduction or elimination of exports, along with all of the implications of such action. The Board observed that the best protection for Canada in the long run. is obtained from an active and economically healthy industry continually increasing available reserves, and it considered the adverse effect upon the Canadian exploration industry of reducing production which would correspondingly reduce funds available to the oil companies for exploration. The Board concluded that at the point when forecasts show that oil surplusses will disappear in less than 10 years, exports should be phased out over the period of indicated surplusses. Using forecasts available in 1974, and specifically excluding oil supplies in the frontier areas, the Board concluded that oil exports to the United States should be progressively phased out by 1983. The Government of Canada has instituted a policy generally along these lines.

I think Canada's approach to protecting its own domestic oil supplies is generally misunderstood, particularly by Americans who are feeling the impact of export restrictions. Basically, we are only looking after our own oil requirements first, with export restrictions phased over a period up to 10 years to minimize disruptions abroad, and to provide time to arrange alternate supplies.

The National Energy Board formula for determining available exports contemplates that exports can be increased if and when frontier oil, (or for that matter, any new oil reserves) is developed to the extent that Canada once again has surplus oil for a period of ten years into the future. Accordingly, when adequate oil reserves are developed in the Canadian Arctic and can be transported to market, the mechanism has already been set up in Canada to allow exports.

A somewhat similar situation is developing with respect to natural gas. The National Energy Board of Canada held public hearings on gas supply and demand, and their report confirms earlier concerns that natural gas supplies will not be adequate in the near term to meet both the increasing domestic demand and existing export commitments.

The Board recommends efforts to increase short term deliverability, increased pricing toward commodity value with oil, and conservation, and it stated its view that reasonably foreseeable requirements for gas for use in Canada consistent with the pricing, conservation and industrialization policies of Canadian governments must be given priority over existing export commitments.

Here again, when Canadian Arctic gas reserves are developed and made available for market, the mechanism will exist for allowing export of surplus gas just as in the case of oil. But the Board cautions that new exports must be relatively short term and conditional on Canadian needs having continuing priority.

Arctic Development and Potential

The search for oil and gas in Canada's Arctic is centered in two areas, the Mackenzie River Delta and the adjacent offshore Beaufort Sea, and in the Canadian Arctic Islands a thousand miles to the north and east of the Delta. Oil and gas discoveries have been made in both areas.

Arctic Islands: In the Arctic Islands, six large gas fields have been discovered with reserves estimated to be in excess of 13 trillion cubic feet. The largest reserves are located on the Sabine Peninsula of Melville Island in the Hecla and Drake Point fields. Four other gas fields are located on and around Ellef Ringnes Island, at Kristoffer Bay, King Christian Island and Thor Island. The gas wells all have exceptionally high deliverability ranging to over 400 million cubic feet per day Absolute Open Flow capacity.

In discussing Arctic technology, it is interesting to note the offshore drilling methods developed by Panarctic which has made it possible to drill wells today as far as eight miles offshore in water over 400 feet deep, using a modified conventional drilling rig supported on artificially thickened ocean ice. The drilling method is both effective and safe, and makes it possible to drill offshore wells where ice is landfast at a fraction of the cost of any other available means.

All geological evidence in the Arctic Islands indicates favorable prospects for crude oil as well as gas, and there have been several encouraging oil shows. Out of the some 80 wildcats drilled to date, one well on Cameron Island has encountered potentially commercial oil.

A total of 100 wells has been drilled in the Arctic Islands at a total cost including seismic of some $350 million.

The Delta: In the Mackenzie Delta, nine gas fields have been discovered with reserves estimated in the order of six trillion cubic feet. Here, the indications for crude oil are more positive, with at least six oil discoveries. No information is available on oil reserves in the Mackenzie Delta, but there are indications that oil may prove to be more important than gas in this area.

Offshore of the Mackenzie Delta in the Beaufort Sea, seismic surveys indicate favorable prospects for new discoveries. Two successful producing wells have been drilled offshore in the very shallow water from man-made islands which can be constructed by dredging up the ocean floor, or by dumping gravel hauled by truck over the ice. Except for drilling a few wells from such man-made islands, drilling offshore in the Beaufort Sea will not commence until at least 1976 when two offshore drilling ships are scheduled to operate in the area.

A total of 100 wells has been drilled in the Mackenzie Delta-Beaufort Sea area at a cost including seismic, of $400 million.

Arctic Potential: The oil and gas potential of the Canadian Arctic is very large. The oil and gas prospective area of the North Slope of Alaska including the offshore Beaufort Sea is about 160,000 square miles. For comparative purposes, the prospective area of the Canadian Arctic Islands is almost three times as large at 450,000 square miles. The prospective area of the Mackenzie Delta and the offshore Beaufort Sea is some 100,000 square miles.

Estimates of potential oil and gas in each of these areas range over wide limits depending upon the estimator and the basis for the estimate, but most agree that these frontier areas have the potential to produce more oil and gas than the remaining reserves of the United States. (90 billion barrels of oil and 230 trillion cubic feet of gas.) Accordingly, these frontier areas are of genuine interest to all North American consumers.

These potential reserves however are yet to be discovered, and much exploration and billions of dollars must be expended before potentials can be realized and made available to North American consumers. It would be a mistake to take solace in these figures and assume that the Canadian Arctic along with Alaska will provide comfortable supplies of oil and gas for North America.

The public misunderstands these estimates of potential oil and gas reserves in the Arctic, and from this standpoint it is unfortunate that there is so much talk about Arctic potential. A popular belief among the uninformed is that all the oil companies have to do to realize this potential is to go up and drill a well and the oil and gas will be there. An even more popular misunderstanding among the uninformed, is that oil and gas is in fact already available since few people understand the difference between proved reserves and potential reserves. This popular misunderstanding makes it difficult for political leaders to establish an economic climate which will encourage needed exploration for oil and gas.

Factors Affecting Arctic Development

Many factors will affect the pace of development in the Canadian Arctic and the effects of these factors are intertwined. First, there is both political and economic need to maintain and even accelerate oil and gas exploration in the Canadian Arctic. From a political standpoint, it is vitally important to Canada to evaluate the oil and gas potential of the area so that energy policy can be established on a sound basis. If in fact Canada's Arctic contains huge oil and gas reserves, Canadian energy policy is certain to be different than if reserves in the Arctic prove to be minimal.

From an economic standpoint, it is also vitally important to discover and develop new oil and gas reserves required by Canada in the next few years, because present Arctic reserves are not sufficient to support the economic viability of transportation facilities required to bring these remote resources to market. Both Canadian and American markets are remote from the Arctic, and oil and gas must be transported great distances over difficult terrain, where access and logistics are so costly that the required threshold reserve to permit any marketing, is very large.

A threshold reserve of 25 to 30 trillion cubic feet of gas is needed for marketing of Mackenzie Delta gas by pipeline. If Alaskan gas is combined with gas from the Mackenzie Delta as proposed by the Canadian Arctic Gas Pipeline project for transportation through Canada to both the westcoast and eastern United States, there probably is an adequate gas supply. But the Alaskan gas which constitutes the bulk of the reserves may not be available for transportation through Canada.

A competing proposal for marketing Alaskan gas sponsored by El Paso Natural Gas Company proposes to transport Alaskan North Slope gas across Alaska, paralleling the Alyeska oil pipeline to an ice-free port where the gas would be liquefied and transported by LNG tankers to markets in the Pacific northwest and California. The gas reserves in Alaska would appear to be adequate to support this project. El Paso states

that studies establish that gas can be delivered via its project to United States markets through facilities located entirely within the United States at about the same cost as a pipeline system bringing this gas through Canada.

There is no question that Alaskan gas is needed to supplement declining energy supplies in the United States, and El Paso maintains that keeping the gas in the United States would favor the U.S. balance of payments; would eliminate uncertainties in foreign energy sources and could be implemented far sooner than any other plan. El Paso maintains that the transportation of natural gas through Alaska will stimulate the development of Alaska's rich mineral deposits along the pipeline route and adjacent areas with increased employment and tax base within Alaska. Public announcements would seem to indicate that the State of Alaska supports keeping its gas within the State. However one views the El Paso Alaska project, it must be considered a serious competitor to the Canadian Arctic Gas Pipeline System.

If gas from Alaska is not available, there is not sufficient gas in the Mackenzie Delta-Beaufort Sea area to support a pipeline project out of this area alone, either by the Arctic Gas system or by the competing system proposed by Foothills Pipelines. Arising out of the possibility that Alaska gas may not be available for transportation through Canada, a competing project has been proposed by Foothills Pipelines Ltd to take gas only from the Mackenzie Delta-Beaufort Sea area to Canadian markets. Here again, this project suffers from not having sufficient gas reserve in the Mackenzie Delta-Beaufort Sea area to support the economic viability of the extensive pipeline facilities involved.

In the Canadian Arctic Islands, the minimum threshold reserve required to support a gas pipeline outlet to market, is about 20 trillion cubic feet. While over one-half of this reserve has been established, more reserves must be discovered before a pipeline project can be built based on gas from the Arctic Islands alone.

While the immediate objective is to establish enough threshold reserves to permit marketing, the long term objective is to evaluate the oil and gas potential of the Canadian Arctic, and to make these fuel supplies available to meet long term oil and gas requirements. Even this year there will be a net importation of oil to meet Canadian requirements. This deficit will steadily increase through to the early 1980's, which is the earliest that any oil and gas from the frontier areas will be available to offset imports. Thus from a Canadian national standpoint, there is an urgent objective not only to maintain exploration, but to accelerate exploration in the Canadian Arctic.

In order to achieve the objective of adequate exploration and development, it is essential that a favorable economic climate be created by governments.

Costs of exploration in the Canadian Arctic are extremely high because of remoteness, inaccessibility, the difficult terrain and harsh climate. A 10,000 foot well costs from $2 1/2 million to $4 million. A recent dry hole drilled to almost 18,000 feet in the Arctic Islands cost $8 million. Generally speaking, exploration costs are 10 times the cost of operating in established producing areas in North America. It is estimated that upwards of $20 billion will be required over the next 10 years in exploration and development of the Canadian Arctic if development is to proceed at a desirable pace.

Exploration operations have been in progress in the Canadian Arctic on an active basis for seven to eight years, and no one knows yet when Arctic reserves will go into production so that oil and gas companies will have cash flow available for further exploration purposes. At present, funds for exploration in the Canadian Arctic are supplied by invested risk capital, and by cash flow generated from the production of oil and gas in established areas elsewhere.

At the very time when economic incentives to encourage exploration are most needed, political obstacles are discouraging exploration. The Western Provinces unwisely raised royalties to unrealistic levels. The Federal Government in turn changed the taxation structure to disallow lease rentals and royalties as an expense in computing income taxes.

Exploration in Saskatchewan has essentially ceased. Since there is not much gas or oil remaining to be found in Saskatchewan, it would appear that Saskatchewan is more interested in effectively confiscating reserves that have been discovered rather than encouraging exploration which has only a limited potential. In any event, those companies previously receiving cash flow from oil and gas production in Saskatchewan are seriously hurt, and now do not have funds available from this source to invest in Arctic exploration. The situation in British Columbia is not much better.

Alberta, from which the bulk of oil and gas production in Canada is derived, took a more realistic approach and agreed to rebate part of the excess royalty that it collects in order to compensate the oil companies for the excess income tax levied by the Federal Government. While this action provided some relief, the net result has been to reduce funds that otherwise would have been available to oil and gas producing companies for investment in the Arctic. And this reduction of available funds is occurring just at the time that much larger funds are needed for Arctic exploration in the interests of providing oil and gas for future needs.

The Canadian public does not understand the need for adequate earnings and cash flow for the oil and gas industry for reinvestment in exploration to replace our dwindling oil and gas supplies. Accordingly, I have doubts as to whether this anomalous situation can be straightened out at a political level until we are seriously short of oil and gas. It is interesting to note in the report of the National Energy Board to which I have referred previously, that they estimate that in the five years following 1977, Canada will have to import one billion barrels of oil. Curtailments of oil exports this year have resulted in Canada becoming a net importer of oil today, rather than in 1977. When we have to start digging up $12 billion of foreign exchange to pay for this imported oil, I rather suspect that oil and gas companies will be treated more generously, providing they undertake to reinvest in exploration.

Other factors that are deterring Arctic exploration are more of a short term and annoying nature, and are being corrected. The Government of Canada by a sort of forced agreement with the Provinces, regulates the price of oil below world prices, and the price of gas below its oil BTU equivalent. Fortunately, the Federal Government seems to recognize that subsidizing eastern Canadian oil consumers and holding down the price of natural gas contributes to waste rather than conservation in the market place, and also acts to reduce funds available for exploration to find new oil and gas supplies. It is announced Government policy to raise natural gas prices over a period of time to their BTU equivalent with oil. The Government has also indicated its intention to allow crude oil prices to rise toward present world values, also over a period of time, to levels which would support adequate exploration and development of new reserves. But in the meantime, we go on wasting gas and oil at low prices while exploration in the high cost frontier areas is declining for lack of funds.

Land regulations and royalty rates on Canadian Federal lands which have been uncertain for some period of time, are now being established. Recently, the Minister of Indian and Northern Affairs announced the principles which will govern the leasing of Federal lands, which he stated are intended to stimulate exploration.

Perhaps in the past, the oil and gas industry did not give proper consideration to environmental and sociological matters, but this is certainly not true today. From my own first hand knowledge, I believe every company operating in the Canadian Arctic is conscious and respectful of the environment. In addition, these companies have progressive programs for the employment and benefit of natives.

Conclusion

In conclusion, I would like to make this observation. When Panarctic first went into the High Arctic, the big question was how to operate successfully in the harsh natural climate. It was hard to foresee a political/economic climate that eight years later would prove far more difficult to overcome. The fact is, that we cannot afford to slow down exploration activity in the frontier areas if we are to discover and bring to market required new energy supplies within an acceptable time frame.

Expedient short term decisions that retard the pace of development, though they may look reasonable today, will certainly affect a broad aspect of Canadian life in the long term. The answer can only be found in more mutual understanding and cooperation between the public and private sector. Hopefully, this better understanding is beginning to come about.

SUMMARY OF OIL AND GAS ACTIVITIES NORTH OF 60° (1975)

Oil and gas exploration and development activities continued throughout 1975 in the sedimentary formations of Canada's vast and geologically complex area North of 60. Oil was found in the Mackenzie Delta and on Cameron Island, and gas discoveries were again made in the Delta and on Melville Island. Because so much of this area still remains to be explored in detail, no meaningful estimate of its oil and gas reserves can be given at present.

Gas from the Pointed Mountain Field in the Northwest Territories and from the Beaver River Field that straddles the Yukon-Northwest Territories boundary continues to be transported to the Clarke Lake gas plant at Fort Nelson, B.C. for processing. A proposal has been submitted for the development of the gas reserves in the Mackenzie Delta and construction of three processing plants there - these developments to be undertaken currently with the building of a Mackenzie Valley Pipeline.

Oil from the Norman Wells Field - at present the only northern oil field in production - is processed locally at the refinery operated by Imperial Oil Limited. This is the only Canadian refinery North of 60 and its facilities have been and will continue to be upgraded to permit the handling of larger amounts of crude and the utilization of heavy ends that previously had to be flared.

A new Management Regime is to be established for all Canada Oil and Gas Lands and until this is approved, no disposal of Crown Lands will be made. No new permits or leases have been granted since 1972, but, under the discretionary renewal provision of the Regulations, a certain acreage was allowed to remain under permit on the basis of intensive drilling and assessment programs. Both the number of permits and the area covered by these declined slightly in 1975 but on the whole the situation remained fairly stable. No sale of oil or gas rights have been authorized since 1969.

A number of new Acts, regulating oil and gas exploration, drilling and development are expected to be passed into law in 1976. They include: The Petroleum and Natural Gas Act; Canada Oil and Gas Geophysical Regulations (to be promulgated under the Canada Oil and Gas Production and Conservation Act); Canada Oil and Gas Drilling Regulations; and Canada Oil and Gas Production Regulations.

The revenues accruing to the Government from oil and gas rights showed a slight increase over the 1974 totals in both the fiscal and calendar year. Expenditures by Industry showed approximately a 17% increase for the same period. However, they are expected to rise appreciably if, as

is anticipated, additional permits and leases are again issued and if the proposed offshore drilling in the Beaufort Sea is authorized.

Drilling operations were again carried out on land although the number and depths of wells drilled declined from the 1974 level. Approximately 75% of the footage drilled was exploratory. Offshore drilling from man-made ice islands was continued in the Archipelago, and, in the shallow waters of the southern Beaufort Sea, drilling operations were successfully carried out from constructed islands. Similar islands are to be constructed in 1976 by both the Sun Company and Imperial Oil Limited, the latter company planning to use a powerful suction barge in these operations. Such island-building is not considered feasible in the deeper waters of the Beaufort Sea - the area considered at present to be a most probable location for major oil and gas discoveries. It is therefore, planned that the exploration drilling there, scheduled to begin in 1976 if authority is granted, will be done from ice-reinforced drillships. Because of the location and the equipment required, these will be the most costly wells ever drilled anywhere. Exploratory samples of the seabed in the area were taken during the summer of 1975.

Although geological, photogeological and seismic surveys continued on land, it was on a decreased scale of activity from that of the previous year. The decrease in seismic surveys is particularly important as it tends to forecast a decrease in drilling activity in 1976. Marine seismic surveys were carried out in Davis Strait, Baffin Bay, Lancaster Sound and the inter-island waters of the Archipelago. To aid future operations, the all weather airstrip at Coppermine was expanded, and a contract was drawn up between the federal government and the Lockheed Aircraft Corporation to have a polar-orbitting satellite in operation by 1978 to provide information on the location of icebergs relative to drilling rigs, and to report on weather, sea conditions, and ice conditions generally.

Applications for permission to build a gas pipeline from the Western Arctic were filed in 1975 by Canadian Arctic Gas Pipeline Ltd. and by Foothills Pipe Lines Ltd. Research is being carried on by the Polar Gas Project in preparation for the filing in 1977 of an application to build a pipeline to transport gas from the Arctic Islands. An application is expected to be submitted in 1977 by the Beaufort-Delta Oil Project Limited for authority to build a feeder and trunk system to carry oil from the Beaufort Sea and Mackenzie Delta should sufficient reserves be discovered there. The first sale of Mackenzie Delta gas has been negotiated by TransCanada PipeLines Limited with Imperial Oil Limited.

In addition to the programs of the Arctic Petroleum Operators Association, approximately fifteen participation and research projects were initiated or continued during 1975.

GLACIOLOGY DIVISION, DEPARTMENT OF ENVIRONMENT -

HIGHLIGHTS OF ACTIVITIES 1973-75

This report covers the highlights of the activities of the Division over the last three years, on a section by section basis. Several changes and reorganization in the group took place during this period and one group, the Floating Ice Section, is no longer part of the Division.

Arctic Hydrology Section

Hydrologic studies under the Mackenzie Valley Pipeline Program dominated the activities of this Section. Under the leadership of D.K. MacKay, the Section was involved in the pipeline program from its inception in 1972 and carried out extensive field surveys in each of the following years until the program ended on March 31, 1975. This involved studies of water balance of several watersheds, (Peter Lake, Boot and Twisty Creeks); ice jamming and scouring along the main stem of the river; river bank erosion, the flow distribution in the channels of the Mackenzie Delta, etc. . . Emphasis was on the geomorphological aspects of the program as most of the straight hydrometric projects were carried out by the Water Survey of Canada, Calgary. It is difficult to assess the impact of our results, but already after the first field season, we concluded that the pipeline should cross the Mackenzie River above the junction of the Liard River. The pipeline company has subsequently accepted this route. Aerial photography has been obtained for several sections of the river and surface velocities have been determined on the basis of false paralaxes.

Closely associated with the studies of the Mackenzie Valley Pipeline Program are the activities prompted by the construction of the Mackenzie Highway. The Section has been reviewing the hydrologic aspect of the highway design packages and has carried out field surveys during two summers to assess the design criteria for culverts.

It has also sponsored a major basin study in the Vendome Fiord area on Ellesmere Island. The field work was done under contract with the Geography Department of McMaster University under Professor B.S. McCann and was initiated in 1972 when it was anticipated that oil and/or gas from the Fosheim Peninsula would be brought out to a shipping terminal at Mackinson Inlet. Such a pipeline would cross several narrow sections of land between the heads of the west coast fiords and the ice cap along the eastern seaboard. Much valuable information was obtained on the hydrologic regime - including soil moisture - of the several basins

draining into the head of the fiord. Of particular interest were the observations on the catastrophic drainage of ice-dammed lakes along the western margin of the ice cap.

Following the completion of the Mackenzie Valley Pipeline Program the Section has participated in hydrologic studies along the proposed pipeline route from the Arctic Islands (Polar Gas). Emphasis has been on Somerset Island and on Lake studies.

Glacier Section

This new Section led by C.S.L. Ommanney is responsible for most of the activities previously covered by the Perennial Snow and Ice Section. These studies, a major program, under the International Hydrological Decade, were completed at the end of 1974. The results from 10 years of mass and energy balance studies on the glaciers in the Cordillera are now being written up. Another major activity under the IHD program was the Glacier Inventory which, unfortunately, has not yet been completed. However, significant progress was made in preparing the glacier maps on which each glacier within a drainage basin has been identified and numbered. This numbering system makes it easy to store and retrieve information about any one of Canada's thousands of named and unnamed glaciers. A total of 66 maps have now been printed or compiled, but about 65 maps remain before all the glacier-covered areas in the country have been covered. It is the intention to publish this map collection as a "Glacier Atlas of Canada" when all the maps have been printed. Excellent progress was made in the inventory work in the St. Elias Range where the Arctic Institute of North America, on a contract basis, carried out the first phase of the inventory.

The establishment of a world centre to compile all the Glacier Inventory information has progressed slowly and, last fall, in order to facilitate its establishment, Canada offered to set up and support such a centre in this country for a limited period. The International Commission of Snow and Ice had not yet responded to this invitation.

Gerry Holdsworth has continued studies on the Barnes Ice Cap where he has completed a detailed investigation on the deformation of the South Dome. Subsequent investigations have focussed on more detailed studies of the surge lobe previously identified near Generator Lake. This work has included studies of flow and temperature distribution in the glacier. Scientists from University of Victoria and University of Minnesota have carried out complementary investigation on the Ice Cap. Studies of iceberg calving have been undertaken in several parts of the Arctic, i.e., on Letfert Glacier, d'Iberville Glacier on Ellesmere Island and also on the Barnes Ice Cap near Generator Lake. This work

has been extensively supported by the joint airphoto operation of this Division and of the Polar Continental Shelf Project (EMR) (See below).

Reconnaissance surveys were carried out near the top of Mount Logan in 1974 and 1975 for the purpose of finding a location where one or more deep ice cores through the ice cap can be obtained for studies of paleoenvironmental conditions. This will be a new development since no deep core has been obtained from the accumulation area of any ice cap lying within the circumpacific area of the northern hemisphere. Snow and ice samples have been collected to 16 meters depth and are presently in Copenhagen for oxygen isotope analysis. We expect the deep drilling to take place in 1977.

As part of the Mount Logan reconnaissance, further surveys were done to determine the exact altitude of Canada's highest mountain. As a result of Dr. Holdsworth's effort the Surveys and Mapping Branch (EMR) has now accepted the figure of 5,951 meters as "the best available figure" for the altitude of the mountain. This figure is very close to the one provided at the end of last century by the U.S. coast and Geodetic Survey and is approximately 100 meters lower than the figure shown on recent maps.

Dr. Holdsworth has made several visits to the Tweedsmuir Glacier following the discovery of its surge in late 1973. Areal as well as terrestrial photogrammetry has been obtained and will be used to study the progress of the surge. A presurge map with 10-meter contours has been published, and several maps showing the development of the surge itself are being prepared. Dr. Holdsworth's forecast on the likely progress of the surge, made after an early visit in late 1973, proved to be correct.

An Arctic air photo operation has been sponsored by Polar Continental Shelf Project and the Glaciology Division since 1971 and Keith Arnold, Dave Sherstone and others, have used the ice reconnaissance aircraft between patrols. Metric photography has been obtained from key areas, notably of calving glaciers, the Mackenzie River and the Mackenzie Delta area. The photography has also been used for wildlife studies, for mapping of historic sites, and for locations where there has been a small demand for photography and where close coordination between the flying and ground observations were required. A total of many thousands of miles were flown over the last three years and all the photography has been incorporated into the National Air Photo Library holdings where it is available for everybody who may want to use it.

During the early phase of the International Hydrological Decade the Division initiated the construction of a shaded relief map over the Peyto Glacier area, largely as an experiment to see what could be done to enhance the value of maps for glaciologists. After several delays this project, coordinated by W.E.S. Henoch, has come to fruition and the final map was printed in late 1975. It will be accompanied by a booklet giving a brief description of the map area and will be available for sale to park visitors some time in early 1976.

Avalanche Research Section

This Section was established in July 1974 with the arrival of Dr. R.I. Perla who has studied avalanches for several years in the United States. The group headquarters is in Calgary and is presently carrying out avalanche research at Sunshine in Banff National Park and also at Rogers Pass in cooperation with National Research Council. Current research projects include studies of avalanche slope stability criteria, the artificial release of avalanches and a study of avalanche impact pressures, the latter a joint project with N.R.C. We are encouraged by having been able to make this contribution to avalanche research in Canada although we are sorry that the current financial situation has frustrated our efforts to establish a Canadian Centre for Avalanche Research as proposed by the National Research Council.

Snow Hydrology and Instrumentation Section

This Section was created in 1975 by an amalgamation of the previous Snow Hydrology and Remote Sensing and Instrumentation sections and is led by Dr. E. Langham. A major achievement of this group has been the development of expertise in gamma ray surveys as a means of obtaining water equivalent data of the snow cover. Harry Loijens started the work in cooperation with the Geological Survey of Canada (GSC) and initial surveys were made over Southern Ontario in the winter of 1973 in a joint effort with GSC, Ontario Water Resources Branch and groups within the Inland Waters Directorate. The experiment was successful and further surveys were made in 1974 and in the winter of 1975 over the Souris River Basin on the Saskatchewan-North Dakota border. Unfortunately, an unusually thin snow cover partly frustrated a fully satisfactory survey in this area. Further development of this technique is now underway and a demonstration project will hopefully be started in the Prairie region and in the Cordillera. It still remains effectively to interface this type of survey with hydrologic forecast models. LANDSAT and NOAA imagery is also used for snow pack assessments.

This Section is also responsible for the continuation of mass balance studies. a program which has now been severely cut back after the termination of the International Hydrological Decade. Considerable

progress has been made in assessing how we can reduce the scale of the field activities, without significant loss of output, and in developing a data bank system for the mass balance data. Gordon Young has been responsible for this work. New projects are now being developed, notably in cooperation with B.C. Hydro which is interested in hydrologic forecasting models that will account for the runoff from melting glacier, particularly in the Bridge River district of the Coastal Mountains.

The instrumentation group has been actively involved in establishing remotely located observation platforms for transmitting hydrometric data via satellite to centres in southern Canada. Initial station networks used the LANDSAT satellite but some stations will be changed to the GOES staellite, i.e. the geostationary satellite located about 23,000 miles above Winnipeg. More recently the group has acquired equipment and expertise in using microprocessors as integral parts of sophisticated data systems. It is anticipated that these processors will find a number of uses in glaciological research.

The snow laboratory at Mer Bleue was in operation during the 3-year period but activities there have recently been scaled down and a new study of snowmelt has been initiated at a field site near Uplands airport.

This Section has also participated very actively in the development of a laser fluorometer for detecting oil spills on water bodies. Harry Gross participated in several tests of the equipment over the Ottawa River, in the Halifax area and in the Caribbean. He has also acted as a consultant for RCA which is assembling and marketing the fluorometer.

Ice Property Section

The activities of this Section, led by Dr. Stephen J. Jones, has centered on the cold room facilities at 562 Booth Street in Ottawa. Dr. Jones has studied dislocations in the molecular structure of ice, using x-ray techniques. More recently, focus has been on studies on dielectric properties of ice in various temperature ranges. This work has been done in cooperation with Dr. Johari and the results have found immediate application in interpretation of echo-sounding data from ice caps and glaciers. The Section has sponsored several radio echo-sounding projects in the Cordillera as well as on Meighen Island and on the Barnes Ice Cap. Various echo-sounders have been used, i.e., the SPRI 30 MHz sounder and the 520 MHz sounder developed by Dr. Goodman. A simplified version of the latter was successfully used for a detailed survey of a section of the Barnes Ice Cap in 1974.

Studies related to oil in ice infested water have been carried out by Dr. Chen at field sites near Ottawa, in Alaska, and in the laboratory. Drs. Adam and Chen joined the Division following a reorganization in early 1975 and they have participated in the Beaufort Sea program, jointly sponsored by Departments of Environment, Indian and Northern Affairs, and a consortium from the oil industry. Their particular interest was in the dispersion of oil spilled under an ice cover, particularly its influence on transmission of light through the ice cover.

Floating Ice Section

This group was involved in numerous projects before it was transferred to the Fisheries and Marine Service following a realignment of reporting lines in early 1975. R. Ramseier participated in the remote sensing program of AIDJEX and took part in the field work in 1975. He also participated in the Bering Sea Project a joint USA/USSR undertaking to study remote sensing techniques and its applicability to oceanography, particularly sea ice research. He also participated with US scientists in the definition of the floating ice element of the SKYLAB space mission and participated in the briefing and debriefing sessions with the astronauts.

Closer to Ottawa, extensive ice surveys were carried out in the St. Lawrence Seaway near Kingston in each of the three winters, partly by field survey crews collecting ground truth data and partly by using remote sensing techniques. A highlight was the development, in co-operation with Communication Research Centre and professors at Carleton University, of a high impulse radar for measuring ice thickness. Laboratory studies of the microwave characteristics of snow and ice were an integral part of this development work. The radar was mounted in a helicopter or hovercraft. Hovercraft were extensively used by this group, essentially as a means of surface transportation, but the experience they gained was useful during the trials the Ministry of Transport carried out at Thunder Bay, Montreal and on Georgian Bay, using hovercraft as ice breakers to clear ice from channels. The group was also involved in the Mackenzie Pipeline Program to invesrigate the movement of oil under an ice cover. Laboratory experiments were carried out in Ottawa and field investigations were made on an opportunity basis whenever oil spills occurred.

Further information about the program of the Division, including an up-to-date bibliography on the studies referred to above can be obtained from:

Glaciology Division,
Inland Waters Directorate,
Environment Canada
Ottawa, Canada K1A 0E7
Tel: 997-2519

Olav H. Løken

CORRECTION

Dr. Legget and the editor of the Arctic Circular express their thanks to Mrs. J.J. Wood of Moosonee for her letter of 24 March, 1975, in which she says,

> "May I draw to your attention a minor error, on page 116, in Vol. XXII, No. 3 -- 1972. The painting "Madonna of the Snows", in the Anglican Cathedral at Aklavik, was done by Miss Violet Teague--who was inspired by Bishop Archibald Fleming, of the Arctic--not Donald Marsh. This painting was unveiled in the summer of 1939 at the consecration of the cathedral by Archibald Owen, Primate of Canada. It was my pleasure to be one of the congregation at the consecration.
>
> For your information, the cathedral was burned to the ground in the winter of '73 /'74--and was in constant use up to that time."

25th Anniversary of JAWS Operations Celebrated

A news item in the 1971 Arctic Circular (Vol. XXI, No. 1, p.39) referred to twenty-five years of joint operation by Canada and the United States of five weather stations in the Canadian Arctic. These stations became an all-Canadian responsibility in 1972 following the phasing-out of American personnel. The following refers to this joint weather program and the pleasant social atmosphere in which it was officially ended.

"On February 19, 1971 in Ottawa, at the annual meeting to plan operations at the Joint Canadian-U.S. Arctic Weather Stations (JAWS), Canadian and U.S. officials celebrated the 25th anniversary of the JAWS program. The Honorable Donald Jamieson, Minister of Transport, hosted the group and gave the principal address at an official luncheon in the Hotel Laurier; in the same evening the U.S. Ambassador, the Honorable Adolph W. Schmidt, reciprocated with a reception at his residence.

The JAWS program began with a meeting in April 1946 under the aegis of the U.S.-Canadian Joint Board of Defense, at which plans were laid for a jointly-operated network of weather stations in the high Arctic. During the ensuing years, airfields, living quarters and scientific facilities have been built and improved to the point where the usefulness of the JAWS has increased far beyond the scientific purposes for which the stations were originally established.

During 1970, and at the initiative of the U.S., it was agreed that U.S. participation in the program would be gradually phased out. The phaseout at Alert took place in October 1970, will take place at Mould Bay and Isachsen in October 1971, and at Eureka and Resolute in October 1972.

The 25th anniversary celebration was attended with many expressions of nostalgia and of satisfaction at the productive and pleasant relationships that have prevailed in the JAWS program for these many years, and sadness that this outstanding example of fruitful international cooperation will be coming to an end. Canadian officials assured their U.S. colleagues that the stations would continue to be available to U.S. scientists for research purposes, and, of course, that scientific data routinely gathered at them would continue to be made available to the world.

D.C. Archibald,
Chief, Basic Weather Division,
Canadian Meteorological Service

and

Vaughan D. Rockney,
Chief, Overseas Operations Division
U.S. National Weather Service"

NATIVE PEOPLES WORKSHOP - A personal evaluation
by Cynthia Ross who attended the sessions

A workshop on the problems of native peoples of Canada was held in Ottawa on November 25, 1972, at the Unitarian Church and included representatives of three major native organizations. The keynote speech, given by Walter Currie, head of the Native Studies Program at Trent University, opened the program, after which those present split up into six workshops (topics: Housing, Economic Development, Communications, Education, Treaty Rights, Law and Civil Rights). Each group included a panel of representatives from each of the three native organizations in Ottawa. At the morning session, the participants attempted to delineate the problems; in the afternoon, they came back to discuss possible solutions. There was a break at noon for lunch, which included native northern foods such as Arctic char and caribou. The break also gave everyone a chance to look at the art display. Just before the afternoon session, a panel presentation was made by James Arvaluk (Inuit Tapirisat), Marie Marulle (National Indian Brotherhood), and Tony Belcourt (Native Council), with Doris Shackleton in the chair. At the end of the day a windup session presented reports on the workshop findings: the challenges issued by the panel, Walter Currie and George Manuel; and the presentation of the first firm result of the day's discussions - a petition to delay development of the James Bay Project.

The original conception of the day as informative and educational originated with the social responsibility committee of the Unitarian Church. Representatives from Inuit Tapirisat, the National Indian Brotherhood, and the Native Council joined in the meetings of this planning committee. These native organizations felt they had had more than enough of talk and wanted action. Members of the committee would have liked action too, but realized that non-native Canadians needed to understand the existing situation, and, above all, the feelings, needs and desires of the native peoples, before they could know how to help.

One problem that surfaced again and again was the lack of a centre for the Indian, Eskimo and Métis in the Ottawa area - so the committee unanimously decided to give any profits from the day to the proposed Ottawa-Hull Native Peoples' Community Centre.

Against the warm background of the rich and appealing art display, the workshop discussions went well, not only in the open encounter of peoples of differing viewpoints but, more important, in bringing out the sometimes wryly humorous, sometimes bitter, reactions of the native peoples to the help offered by whites. This culminated in a blood-rousing challenge from George Manuel, backed by Tony Belcourt and

Walter Currie, to which John Gasson responded with a powerfully understated request that the whites be let know how they could help.

One resolution, arrived at by each of the six sections of the workshop was that the native peoples be supported in their projects rather than having programs imposed on them. This is an attitude we southern or white Canadians can perhaps understand by considering our reaction to Americans trying to do what they wish in our country rather than follow guidelines more acceptable to us.

It seemed to me that one circumstance accentuating the gap in understanding is the fact that Indians, Eskimos and Métis each have their own newspapers, through which they communicate their own news items and opinions to their own peoples, while we get the white man's view through our papers - a paper curtain in effect. Even those of us who may be interested may not become acquainted with the native viewpoint unless we happen to learn about and subscribe to their newspapers. Whites can however be put on their mailing lists, and can also join the Canadian Association in Support of the Native Peoples.

At a meeting on 8 February, 1973, a list of specific recommendations resulting from the workshop was worked over by the Unitarian planning committee, representatives of the native peoples organizations and the Association in Support of the Native Peoples. The findings were summarized into a "Statement of Consensus" for the Unitarian congregations in North America. Major points were the recognition of aboriginal rights, funding for education and housing programs with complete involvement of native peoples, encouragement of a local-hire policy and inservice training where native people are available, and the halting of the James Bay Power Development until a proper and thorough evaluation has been made.

BOOK APPRAISALS

The following recent books are drawn to the attention of interested readers. These appraisals are not reviews, but rather personal impressions of readers experienced in these areas.

PEOPLE FROM OUR SIDE[X]

(A life story with photographs by Peter Pitseolak and oral biography by Dorothy Eber)

Published: Hurtig Publishers, Edmonton. Price: $8.95 paper -$15.50 cloth

PEOPLE FROM OUR SIDE is the life story of a remarkable Inook (Eskimo) who recorded in Eskimo syllabics a way of life in the Cape Dorset region of southern Baffin Island. Written by Peter Pitseolak (meaning "sea pigeon") when he was 71 years of age, the book was built around the manuscript sent to Dorothy Eber of Montreal who had edited the autobiography of another Cape Dorset Pitseolak, the famous Eskimo woman artist whose work illustrated the publication.

On receipt of the material, and having already met Peter Pitseolak on previous visits to Cape Dorset, Dorothy Eber immediately recognized the potential and wealth of information this record, as seen through the eyes of Eskimos, must contain.

With the help of interpreters, taping and interviewing Peter and other relatives of his, Dorothy Eber has produced a memorable book relating to seventy years and beyond as seen from another culture. The introduction states - "This book aims to tell in Peter Pitseolak's written and spoken words how things used to be and also how over one lifetime, the forces of change - the missionaries, the traders, the law, the government, schools and alcohol came to Baffin Island. Naturally, Peter Pitseolak's views are his own and neither his fellow countrymen or the white people who know the North are likely to agree with them all the time." Respecting this, the few errors and the odd confusion of dates and events, in my opinion, take nothing away from the beautifully told story. Peter, like others of his people in transition are often asked for opinions and are faced with the difficulty of comparisons or making a choice of unknowns.

X A vivid social history of the people of Cape Dorset.

In addition to his other artistic talents, Peter Pitseolak was also a photographer. Taking his first picture in the 1930's for a white man who was afraid to approach a polar bear, he became interested in photography and obtained his first camera in 1939. People From Our Side is illustrated by many of Peter's pictures. Although the work of an amateur they nevertheless have captured another era and the last of Inuit camp life, now replaced by urbanization. Families have left the small scattered camps and settled in concentrated communities designed on the model of southern Canadian towns.

With a unique and original touch, Peter Pitseolak's narrative manages to tell the story of himself and his people. Supported by his camera, it is the story of social change as an unusual "Inuukmarik" - a real Innuk or Eskimo - sees it: a lifetime from a nomadic culture to modern society. Not as a philosopher, but rather as a good reporter, he has told it as it was and in so doing, I believe has made a great contribution to our better understanding of Eskimo culture and the forces leading to change in the Canadian Arctic. A leader of his people from a family of leaders - his brother Pootoogooh was probably a more influential person - Pitseolak has recorded his memories of an era now past. It would be interesting if the book were also to be printed in the Inuit language. This might stimulate comment from the Cape Dorset Inuit and possibly lead to others putting down in writing their own thoughts of these times. An excellent book and a rich addition to Canadian writing by a descendant of Canada's first Arctic citizens.

Alex Stevenson

ARCTIC AND ALPINE ENVIRONMENTS

Edited by Jack D. Ives and Roger G. Barry

Methuen 1974 xviii 999p. 47 plates £35 ($99.00 in United States)

It used to be said that geography covered everything you wanted it to cover. The same can now be said of environment - climate, soils, vegetation, animals, archaeology, glaciology - you name it, the environment has it.

"Arctic and Alpine Environments" consists essentially of a number of review articles by various specialists covering some, but by no means all, aspects of this extended concept of environment, and it contains a wealth of information. The major object is to provide a comprehensive statement of present knowledge of arctic and alpine environments. It does not, of course, succeed in such an ambitious undertaking, but it

goes a long way in that direction. It leans heavily on physical geography and ecology, and says comparatively little about the native people. I could, for instance, find no mention of any of the Siberian native peoples in the index or any of the articles I read through.

One problem with this sort of a compendium is that specialists do not always agree. For example, it is confusing to read on page 696 that the "New World was free of hominids before 12000 B.P.", and on page 850 that the American Arctic has supported human occupation "for at least the greater part of the past 30,000 years". Another problem is how to deal with references. Each chapter has its own list of references and this means that many works are listed twice or more. There are over 130 pages of references in the book. It is also alarming to read that the bomber that crashed in 1968 in Bylot Sound released "several thousand kilograms of plutonium" and that clean-up operations had to be carried out when "periodic storms swept the area with temperatures dropping below -60°C." Those who are concerned with nuclear weapons should be particularly careful.

It is, of course, easy to pick out minor faults in almost any book, and the longer the book the easier. But "Arctic and Alpine Environments" has one major fault - its cost. At £35, it is out of the reach of many of those who would like to use it, especially as it will quickly become out-of-date. For £35, the purchaser should get a volume that has very good illustrations. It is difficult, for instance, to realize the full significance of remote sensing in the north without colour plates.

G.W. Rowley.

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Arctic Circle Meetings

The regular meetings of the Arctic Circle are normally held on the second Tuesday of every month at 8.30 p.m. at Faculty Club, Carleton University, Ottawa.

Out-of-town members who wish to receive notices of these meetings and, thereby, be informed in advance regarding the guest speakers and the topics to be discussed, should address their requests to the Secretary, Mr. A.C. David Terroux.

The Arctic Circular

The Arctic Circular is published three times a year, oftener if the amount of material received permits. Correspondence, papers and reports are welcomed from all members, from persons living in the north, or from anyone having information on general northern activities, research and travel, or on technological, industrial or social developments. Contributions and correspondence should be addressed to the incoming Editor, Mrs. Nora Murchison.

Back issues of the Arctic Circular are available, single copies at $0.50 and complete sets (Volumes I to XX) $100.00. Requests should be addressed to the Secretary.

Membership dues

Dues are payable as of 1 January. New members joining the Arctic Circle in the Fall or at any time during the period between the last meeting in the Spring and the first meeting in the Fall (usually May-October) will be considered paid-up members for the following year. The dues are:

$7.00 for in-town members and families
$3.00 for out-of-town members and for students
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