

account of the exploration of Hudson Bay and Baffin Bay. Two chapters are used to give an excellent summary of Russian expansion into Siberia, of Bering's voyages, the story of Semen Dezhnev and others, ending with Wrangel's sledge journey.

British exploration in the nineteenth century occupies three chapters, with much of the space given to Franklin's voyages and the Franklin Search. In a discussion of "The Route to the North", the stages by which the open polar sea was reached through Kane Basin and Robeson Channel are described with a fitting tribute to the magnificent work of the Nares Expedition of 1875-76. Other chapters deal with the exploration

of Greenland from Hans Egede in 1721 to Gino Watkins and Courtauld. The last four chapters summarize the search for the Northeast and Northwest Passages; exploration of Jones Sound and Beaufort Sea; Peary's achievement of the Pole, and Flying in the Arctic. The penultimate chapter includes a statement headed "The truth about Cook" which outlines the views of the author as to where Dr. Cook really was when he claimed to be making his remarkable journey to the North Pole.

*To the Arctic!* is well illustrated with photographs and maps. Appendices include a list of the Franklin search parties and a chronology of northern exploration. T.L.L.

### ROSTER OF ARCTIC SPECIALISTS

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The Arctic Institute of North America is compiling a roster of persons with Arctic experience. It is to include scientists, traders, missionaries, administrators, explorers and others with field experience in any part of the Arctic. The Directors of the Project would be glad to receive the names of any persons who should be added to the roster. Information may be addressed to the Director, Arctic Institute Roster, 1530 P Street Northwest, Washington, D.C.

## NORTHERN RESEARCH REPORTS

### Archaeology

In November 1947 the National Museum of Canada set about organizing an international archaeological expedition to excavate some ancient Eskimo ruins near the two weather stations that had been erected that summer in the Canadian Arctic Archipelago, one at Resolute Bay on Cornwallis Island, the other in Slidre Fiord, Eureka Sound, on the west coast of Ellesmere Island. It invited Dr. Henry B. Collins, of the United States National Museum in Washington, to excavate the sites in Resolute Bay; and it asked the National

Museum of Denmark to provide a Danish archaeologist for the excavation of the sites in Slidre Fiord, which lies on an overland route to North Greenland. Furthermore it planned that either its Director, Dr. F. J. Alcock, or the Chief of its Division of Anthropology, Dr. D. Jenness, would visit the two sites while they were being excavated, and that all specimens recovered would ultimately be divided between the three National museums.

Unfortunately the National Museum of Canada was not able to arrange for the transportation of an archaeologist to

Slidre Fiord, and had to give up that part of its program. About the middle of July, however, it did succeed in arranging for Dr. Collins and an assistant from Canada to be flown in to Resolute Bay; and when the airfield there proved to be temporarily inoperative, in having them landed at the Frobisher Bay airport, on Baffin Island, where they happily discovered other ruins that promised a profitable field-season.

Excavations were carried out during July and August at a prehistoric Eskimo site near the mouth of Sylvia Grinnell River at the upper end of Frobisher Bay. The excavations were of significance in revealing evidence of Dorset-Thule relationships in a region previously unknown archaeologically. The site consisted of four semi-subterranean houses built of stones, whale bones and turf. They were oval to rectangular in shape, with a narrow sunken entrance passage. The houses were almost completely covered with a dense growth of moss, willows, grass and other vegetation.

Only Thule material was found inside the houses, while the adjacent middens contained both Thule and Dorset objects, the latter for the most part at deeper levels. This would indicate that Thule culture people were the last occupants of the site but that they had been preceded by Dorset Eskimos who presumably had built the houses. There was no trace of metal. Stone implements, which were abundant, were preponderately Dorset in type, consisting of asymmetrical knife blades, end and side scrapers, harpoon and arrow blades of chipped chert. Very few rubbed slate blades were found. Animal bones from the houses and middens showed that the people had subsisted principally on seal and caribou. Whale, walrus, beluga, birds and fish, and probably also dogs, were of secondary importance as sources of food.

Measurements and physiological observations were also made on a series of living Eskimos—40 males and 40 females, all adults. These Frobisher Eskimos were found to consist of two principal types. The first—the more typical Eskimo—had a wide but relatively low face, low fore-

head, small narrow nose, epicanthic fold, and light skin. The other was more Indian-like, resembling the type which prevails in other parts of the Central Arctic, the distinguishing features being a wide and high face, high and wide forehead, a relatively large and convex nose, large mouth, and dark skin.

Dr. Henry B. Collins was assisted in the work by Mr. Colin L. Thacker of the Division of Biology, National Museum of Canada.

#### *Lake Mistassini, Quebec*

A second archaeological reconnaissance was made to the region of lakes Mistassini and Alanel, Quebec between June 14 and September 25 by Edward S. Rogers and Murray H. Rogers. Financial aid was received from the Robert S. Peabody Foundation for Archaeology, Andover, Mass., and the Viking Fund of New York. The canoe route began at Oskelaneo River, Que. and reached Lake Mistassini by way of lakes Lynxeye, Nemenjish, Obatogamau, Chibougamau and Waconichi. From Mistassini the trip continued northward to Lake Alanel and thence for twenty-five miles up the Temiscamie River to Lake Tournemine. There a few excavations were made to determine the vertical distribution of artifacts on sites located during 1947. The east coast of Lake Alanel was next surveyed as far as the "Long Portage" which was then taken to reach Lake Mistassini. Leaving Lake Obatogamau the party crossed the divide separating the St. Lawrence drainage basin from that of Hudson Bay, to reach Lake Ducharme and continue up the Scatsi River to Lake PotrinCourte and so back to Gouin Reservoir and the Hudson's Bay Company post at Oskelaneo River.

Over eight hundred artifacts were collected. The majority of the knives, spears, scrapers and axes were percussion chipped from quartz, while a few were made from flint. A number of prehistoric sites were located along the seven hundred miles of route traversed northward from Gouin Reservoir. Geographical notes were compiled throughout the journey.

### Aerobiology\*

Prof. Nicholas Polunin, MacDonald Professor of Botany, McGill University, Montreal, returned late in September 1948 from an extensive series of flights northward from Alaska. His main purpose was to gather spore specimens in a special device designed in collaboration with scientists of the United States government. Prof. Polunin returned with about 80 glass plates which had been exposed at various heights on flights which included one over the north geographical pole. He reported that the work done so far, in cooperation with Dr. S. M. Pady and Dr. C. D. Kelly also of McGill University, had indicated a previously unsuspected abundance of bacteria, mould, yeast, pollen and other living botanical particles in the air over the arctic regions. Stem and leaf rusts of wheat and foot-rot of rye and barley were found in 1947 over the arctic islands near the north magnetic pole.

The apparatus used to collect spore specimens is fitted into the nose of the aircraft so that any organisms in the air coming in contact with it become fixed to a plate treated with a special silicone smear which remains sticky even at temperatures as low as  $-90^{\circ}$  F. On the most recent flight the temperature at 25,000 feet above the north pole was found to be  $-48^{\circ}$  F. while not long before, near sea level it had been slightly below freezing point. The apparatus used during summer flights for gathering spores is being modified for use on a winter flight early in 1949, so that plates may be exposed without "depressurizing" the aircraft.

\*See also "Aerobiological investigations in the Canadian arctic and subarctic" in *Arctic* Vol. 1, No. 1, pp. 60-61, Spring 1948 and "Arctic aerobiology. Preliminary report on Fungi and Bacteria isolated from the air in 1947" *Nature* Vol. 162, pp. 879-881, Sept. 4, 1948.

### Botany

#### *By Canoe Across the Ungava Peninsula Via the Kogaluk and Payne Rivers*

Report supplied by Dr. Jacques Rousseau

Professor M. L. Fernald's ideas on the persistence of plants in unglaciated areas in northeastern America have for the last twenty years been a storm centre in American phytogeography. As far as Quebec was concerned, the discussion

was limited mainly to the Gaspé peninsula and other arctic or subarctic habitats which are found in the Gulf of St. Lawrence region.

The need to study the hypothesis in the light of new facts became apparent. Hence surveys in the interior of Anticosti island, which, was supposed to have escaped glaciation, were made in 1940 and 1942. The great unknown, however, being the interior of the Ungava peninsula, and northern Quebec in general, I decided to give my attention to this problem. To fulfill the plan, three different areas were studied in succession 1) from 1944 to the spring of 1947, the subarctic forests in the limestone area of Lake Mistassini; 2) in the summer of 1947, a survey of George River<sup>1</sup>,—which, flowing from the height of the land, north of Lake Michikamau on the Quebec-Labrador boundary, provides a good cross section of the vegetation from the subarctic forest to the arctic barren land; 3) finally, this year a sector of the Ungava peninsula north of the timber line, between Hudson Bay and Ungava Bay via the Kogaluk and Payne rivers<sup>2</sup>.

Except for a traverse by Robert J. Flaherty<sup>3</sup>, along the Payne and Povungnituk rivers in 1912, no other traverse of the Ungava peninsula north of the timber line had apparently been made. Furthermore, on this summer's trip, only the lowest part of the Payne River touched the route followed by Flaherty.

Planned first as a one man general survey (with emphasis on botany) the purpose of the 1948 trip was gradually widened. I first accepted the suggestion of Mr. Edgar Aubert de la Rüe to accompany me as geologist, and a grant from the Arctic Institute was subsequently obtained to make this possible; Mr. Pierre Gadbois was later added to the party as geographer from the Geographical Bureau of the Dominion Department of Mines and Resources and finally, Mr. Jean Michéa of the National Museum, Ottawa, joined the group as ethnologist and archaeologist. For my own part, outside of planning and leading the expedition, I concentrated principally on the biological (and mainly botanical) aspects of the survey. It is still premature to report on the technical

aspects of our work: each member of the party will later furnish a report on his own activities and observations. Consequently, this note is confined to general observations.

After flying from Montreal airport, by R.C.A.F. to Fort Chimo, a chartered Canso of the Mont-Laurier Aviation Company carried the party of four technicians and four Indian canoers to Povungnituk trading post on the Hudson Bay coast, on the 14th July, 1948. The aircraft carried all equipment including two eighteen foot canoes. Because of a very early break-up the Canso was able to land on Payne Lake where we made a cache, thus simplifying the problem of transportation.

With the assistance of two Eskimos and their nineteen-foot canoe, as well as a collapsible canoe of the kayak type seating two men, the party left the mouth of the Kogaluk River on July 17th and followed its course until the 27th. Then began a four-day portage of over twenty miles. The area crossed consisted of low hills cut by small brooks and lakes, lying between the drainage basins of the Kogaluk and Payne. The first part of the portage over, the Eskimos returned to their base with their canoe, as had been agreed upon, the three other canoes now being sufficient to carry the remainder of the load.

Reaching the cache on Payne Lake on August 2nd, the party followed the Payne River until the 12th, when the canoeing ended at the Payne Bay trading post on Ungava Bay. A whole week was spent there surveying the surrounding territory.

The two rivers, Kogaluk and Payne, present widely different aspects. As an Indian guide told me one day, "Rivers are like women, each one has her own character, and we sense it in the early days following the first meeting". The Kogaluk consists of a chain of lakes separated by low falls. The Payne, on the contrary, is a swift river (although not as rapid as the George River), without falls and with very few portages: as there is sufficient water, one can "shoot" nearly all the rapids when going with the current. An outboard engine may be used on both rivers, but, because so little

was known of the territory it seemed preferable to reduce the weight of all equipment and to avoid having to portage motor and gasoline. Moreover, such travelling gives one more opportunity to collect biological and geological specimens, since the shores are more easily followed closely.

A striking feature on the whole trip was the almost complete absence of caribou. From the Hudson Bay coast to the centre, not a single fresh track was seen. Old caribou trails only were encountered and moreover, as viewed from the air, these were very rare. From Payne Lake to the Ungava Bay coast, caribou trails were more frequent, though fresh tracks were seldom seen. Only three caribous were spied by the party. Nevertheless, as one would easily surmise, grazing possibilities are very good. The dominant wild life in the interior as far as we could judge, considered from the economic point of view, consists mainly of gray trout, Canada goose and lemming. The extreme abundance of the latter this year is an indication of abundance of white foxes for next year.

It may be a surprise to some to learn that we employed as canoe men, Indians who had never travelled in such country and who were in an area far removed from their own, the subarctic forest north of Seven Islands on the St. Lawrence. This was done because Indians are unsurpassed in canoeing and portaging. They are inland people while the Quebec Eskimos are coastal, and travel in the interior only occasionally for hunting purposes and then by komatik in early winter. Eskimos are unaccustomed to portages and to travelling by canoe on rivers. In less than a day, the Indian canoers from the "bush" had adapted themselves to the tundra and the camp fires of green willows. Even if they were in a country entirely unknown to them they found their way across the barren land more easily than did the Eskimos. When travelling in the interior the Eskimo relies generally on his cairns to guide him; the Indian, on the contrary, relies on the sun. After leaving the Kogaluk River and travelling for four days while crossing the valleys

between this river and the Payne, with vision limited because of low hills, we went directly to our cache and lost no time searching for it.

<sup>1</sup>See page 98 for an account of this expedition.

<sup>2</sup>A number of services and organizations have co-operated in making this expedition and that to the George River a success. In the formal reports, due credit will be accorded to all of them. Nevertheless, in this preliminary note, I am happy to cite particularly the Royal Canadian Air Force, Geographical Bureau, National Museum, Defence Research Board, Arctic Institute, Government of the Province of Quebec, City of Montreal and the Hudson's Bay Company.

<sup>3</sup>Flaherty, Robert J. Two traverses across Ungava peninsula. *The Geographical Review* (New York), 6: 116-132. 1918.

## Geology

*Geological survey through the Ungava Peninsula.*

*Report supplied by E. Aubert de LaRüe*

This survey, made during the months of July and August, 1948 thanks to financial aid granted by the Arctic Institute of North America, has permitted a broad study of the geological structure and physiography of the region extending from Hudson Bay to Ungava Bay, and located between 59° 30' and 60° N. lat. The route followed, via Kogaluk River, Payne Lake and the river bearing the same name, measured 350 miles, and was made by canoe with Dr. Jacques Rousseau, Mr. Pierre Gadbois and Mr. Jean Michéa.

The physical formation of the region consists of a plateau, the maximum elevation of which hardly exceeds 600 feet; the altitude of Payne Lake being approximately 440 feet. Very uniform as a whole, the appearance of the plateau, however, presents some aspects which vary quite considerably in its details according to the importance and nature of glacial deposits. The Payne River basin appears more considerably dissected than that of the Kogaluk, and these two large rivers flow quite differently. The Kogaluk flows toward Hudson Bay by a series of steps, creating numerous falls—around twenty—the highest of which is 22 feet. In fact, this river is formed by a series of lakes of which the most important ones number 14. Payne River, on the contrary, flows out of Payne Lake, enters a sunken valley, crosses no lakes, and forms no falls. It presents, however, numerous rapids, and the current is swift.

The formations encountered belong for the most part to the Archaean, except in the East, bordering Ungava Bay and in the lower valley of Payne River, where a belt fifty miles wide corresponds to certain Algonkian strata, of a much more varied but definitely less metamorphic nature. From the mouth of the Kogaluk to the point where the estuary of the Payne begins, there stretches a complex of gneisses and granite. There are also garnet paragneisses, sometimes quite recognizable, and sillimanite paragneisses, often accompanied by banded amphibolite heavily granitized in places and altered to migmatites. The latter, considerably developed, are accompanied by unrestricted and very heterogeneous granitic masses characterized by a texture which is often porphyritic and by the abundance of amphibolite enclaves. Numerous pegmatite dykes and rarer ones of diabase together with some small bodies of gabbros cut this complex. The direction of these formations, which is N-S along Hudson Bay, swerves to NW-SE in the middle and upper valleys of the Kogaluk, as well as in the Payne Lake region, while it is NE-SW in the Payne valley.

The Algonkian complex in the lower valley of the Payne includes quartzite, mica-schists and gneisses in certain places, and various types of metamorphic schists, with a few small bodies of serpentine and gabbro. Tremolite and magnetite quartzitic sandstones cover large surfaces north of Kyak Bay, on Ungava Bay.

Among the economic minerals encountered, related especially to the Algonkian formations, the following should be mentioned: magnetite, chalcopyrite, talc, asbestos and garnet.

The striae observed show an East-West progression of glaciers along the entire valley of the Kogaluk River, while those in the Payne River valley, vary between N 50°E and N 70°E. A few eskers have been encountered more particularly between Tasiat and Payne lakes, and a zone noteworthy for its frequency of drumlins was crossed in the upper valley of the Kogaluk River, between the three Igluluk lakes.

Sea terraces with pleistocene fossils may be seen on the slopes of Hudson

Bay as high up as 100 feet in altitude, while on the slopes of Ungava Bay raised beaches, formed more especially of boulders, and which reveal no fossils, rise in tiers to a height of 250 feet.

Aside from the main route followed, geological observations were made in Povungnituk Bay and around Fort Chimo.

### Geography

The recently established Geographical Bureau of the Canadian Department of Mines and Resources carried out field work over a wide area of northern Canada during the 1948 field season. Among the projects completed were the following:—

*Study of the hydrography of MacKenzie Waterway and the Western Arctic as far east as Boothia Peninsula.* Mr. J. K. C. Fraser of the University of Toronto recorded changes in the navigable waters of the Mackenzie route, assisted in the resurvey of the harbour at Tuktoyaktuk and visited trading settlements on the mainland coast and the south coast of Victoria Island, making reconnaissance maps of their harbours and recording the best sailing routes. He accompanied the Hudson's Bay Company vessel *Nigalik* to Spence Bay, making a sketch plan of the harbour and the site selected for the trading post which is to replace Fort Ross.

*Physiography of Baker Lake and the Thelon River west to Beverly Lake.* Mr. J. B. Bird of the University of Toronto, accompanied by Mrs. Bird and two students of geography studied the Baker Lake area, and travelled upstream by canoe as far as Beverly Lake, making a reconnaissance survey, and recording the physical geography.

*Operation Magnetic.* Mr. John Carroll of the Topographical Survey and Mr. J. L. Jenness of the Geographical Bureau accompanied the annual magnetic survey to northwestern Canada. They were able to complete thirteen observation points on the mainland, and on several islands as far north as northern Melville Island and as far east as Resolute Bay. The geographical results of the expedition include numerous map changes, accurate astronomical fixes, extensive

notes on ice conditions, terrain and vegetation. The party was in the field for more than two months, transportation being by R.C.A.F. Canso flying boat. The party was unable to complete its northwesternmost points due to clouds and icing which developed at the end of August.

### Task Force 80.

Two geographers—Dr. R. T. Gajda and Mr. T. R. Weir were among the scientists who accompanied Task Force 80 to the Canadian Arctic during July, August and September, 1948. As a result of their work, a considerable number of important changes will be made on Canadian maps, studies of terrain, ice conditions, natural vegetation and geology were also made. When the two geographers were at Resolute Bay having approached it from the east, they met members of the Magnetic party already mentioned, who had arrived from the west. This casual completion of the Northwest Passage, in part by air, is typical of the manner in which travel facilities in the north have improved enormously in recent years.

### Ungava Peninsula.

Mr. Pierre Gadbois of the Geographical Bureau accompanied Dr. Jacques Rousseau on his canoe journey from Hudson Bay to Ungava Bay.

The widespread activities of members of the Geographical Bureau staff in its first season—they were scattered from northern Ellesmere Island to the Mackenzie valley—is an indication of the renewed efforts of Canada to explore its northern territories, following the reduction of such work during the war years.

### Permafrost

Mr. R. A. Hemstock, Edmonton, Alberta, has continued his study of permafrost reported in *Arctic*, Vol. 1, No. 1. His purpose is to gather and compile all available data on permafrost in the Norman Wells area and to continue a study of permafrost and related soil and snow mechanics with a view to improving the present methods of road building, communications and general construction in the arctic and subarctic regions.

Average air temperature readings, air temperature readings under various buildings and readings of soil temperatures have been continued during the summer. When the results are finally complete these recorded temperatures should give much valuable information on the effect of temperature on frozen soil.

Additional measurements to determine the depth of permafrost were carried out. Some difficulty was encountered in getting thermometers to the required depth in old wells which had waxed up a good deal in the permafrost zone. However, results were obtained in two additional wells and although not completely checked, they indicate a varying depth of permafrost. This work will be continued upon the arrival of more suitable thermometers. The foundations of all buildings were checked. All those erected last year are so far holding up well but a distinct settling of the ground underneath heated buildings indicates a recession of the permafrost which although it is not yet serious will become serious if allowed to continue unchecked.

Soil samples were taken in various locations, the samples of permafrost being kept in their frozen condition to be tested in the soil mechanics laboratory at the University of Alberta.

A thorough study was also made of the roads in the area to check on the suitability of the various methods of construction. Profiles of the frost line were obtained to indicate the type of sub-grade encountered in a typical road in the district.

### Entomology

Dr. William Hovanitz, of the Laboratory of Vertebrate Biology, University of Michigan, reports that he spent the latter part of June making population analyses of gene frequencies of the colour phases of arctic *Colias* along the route of the Alaska highway. The earliest species to appear in the area is *C. hecla* which flies at temperatures just above freezing. This species also flies to the north in the arctic islands and Greenland. An amateur collector of Edmonton had taken the species far to the south at Nordegg, Alberta in a bog similar to those of the north. Unfor-

tunately, road conditions made a visit to the place impossible this year. *Colias hecla* was studied in the area from Lake Teslin, Y.T. to the Alaskan border. It is apparently absent in the Tanana river region of Alaska but present in the mountains from the St. Elias range through the Wrangell, Alaska and Chugach ranges. It has been recorded before for the north and west coasts and the Mt. McKinley region of Alaska. The larval food plant has been determined as a bog species of *Hedysarum*; collections were made for further identification. The white female frequency was determined at over 60% white in the Yukon and Alaska territories. *Colias philodice* was studied over the same terrain but was not found to be so specific as to habitat. The white female frequency indicated thus far is nearly 100% white. Of interest is the fact that whites have not been taken in the Edmonton area where the females are 100% coloured. The remainder of the season was spent studying the relationships between the species as they are found on the tongues of tundra which extend south from the true tundra of the north into the mountain ranges southward.

Dr. Hovanitz has drawn maps to show the known distributions of *Colias* species in North America and of the frequencies of the colour phases. All species have the highest frequencies of the white gene (and phenotype) in central Alaska.

### Radio

#### *Mobile Ionospheric Observatory*

Canada's first mobile ionospheric observatory was put into operation on August 23, 1948 by the Defence Research Board on the railroad to Churchill.

The new observatory housed in a converted railway coach, is expected to be a vital link in an international chain of stations supplying information essential to the development of radio communication and radio navigation in the north.

Canada already has a number of ionospheric stations in operation in the north country but this is the first mobile observatory to be used in this important research work. The "lab" will operate under the direction of Mr. J. H. Meek of Defence Research Board headquarters

in Ottawa, and will operate over the Hudson's Bay Railroad between Portage la Prairie and Churchill. One round trip will be made every three months, in each of the four seasons of the year, with week-long stops going and coming at such intermediate points on the rail line as The Pas, Waboden, Pickwitonei, Gillam, Herchmer and Churchill.

The auroral (northern lights) zone, which covers all of northern Canada, is highly suitable for the study of ionospheric conditions because charged particles, emanating from the sun, are deflected closer to earth by the earth's magnetic field in this area. The charged particules come from sun spots which last year reached their highest point in 200 years of recording.

The new mobile ionospheric station will send radio beams as high as 200 miles above the earth. These are reflected by the ionosphere to the point of origin, and from the beams can be deduced required information about conditions in the upper regions. Based on this information, predictions can be made of future radio transmission conditions and selection of suitable frequencies for long distance radio communication is made easier.

The recordings of Canadian stations are coordinated with those of 63 other stations in various parts of the world, and from the mass of information are produced monthly predictions of useful radio frequencies and daily ionospheric storm warnings.

### Zoology

Mr. H. F. Quick, of Colorado A & M College, Fort Collins, Colorado, continued his study of the habits and economics of fur animals as factors of management and conservation. Field work

was curtailed during April in order to do laboratory work. Only a few trips were made for the purposes of studying methods of beaver hunting and obtaining notes on the habits and abundance of animals. An unusual and prolonged break-up resulted in serious delay and limitation of the activities of the beaver hunters. Travel in the bush during this period was not impossible but due to snow conditions was quite difficult. The beaver hunters were idle for about a month during the hiatus between seasons suitable for travel by dog team and by boat. Professor Quick travelled about 200 miles by dog team during April.

The greater part of the period from April 1 to June 30 was spent examining zoological specimens which were procured earlier. Specimens of fur animals examined totalled 223, and altogether more than 500 specimens of animals were examined. Over 3000 raw furs were examined for primeness and quality. Among the materials preserved were 209 fur animals skulls from which sex-age classification studies will be made. Other material also preserved were stomach contents, reproductive organs and endoparasites of the fur bearing species.

In order to evaluate comparatively the conditions of the fur resource a period of three weeks was spent interviewing traders and trappers in the territory adjacent to the Fort Nelson region. This objective was approached by visiting trading posts on the Nelson, Liard and Lower Mackenzie rivers between Fort Nelson and Aklavik. The trip of about 1200 miles was made by river boat. Information was obtained in this manner regarding conditions of fur animal and prey species populations and of trapping and travel techniques.

## NEWS FROM HIGH LATITUDES

### Shipping at Churchill

A record season of grain shipments was reported from Manitoba's arctic seaport Churchill during 1948. The navigation season opened officially on August 8 with the arrival of two steamers from the United Kingdom. A record of 5,250,000 bushels of wheat was reported

to have been exported before the season closed.

Three Canadian naval vessels entered Hudson Strait during the past summer, two of them continuing to Churchill. The third, H.M.C.S. *Magnificent* an aircraft carrier went as far as Wakeham Bay, Que., before returning to Atlantic