THE

ARCTIC CIRCULAR

VOLUME I 1948

PUBLISHED BY THE ARCTIC CIRCLE

Edited by Diana Rowley

THE ARCTIC CIRCLE, 37 LINDEN TERRACE, OTTAWA

T H E A R C T I C C I R C L E

THE COMMITTEE 1948

President:	A.E. Porsild
Vice-President:	Frank Davies
Secretary:	T.H. Manning
Editor:	Mrs. G.W. Rowley

MEMBERS OF COMMITTEE

F/L J.F. Drake, R.C.A.F.
Dr. T. Freeman
Eric Fry
A.C. Jones
Dr. Trevor Lloyd
W/C K.C. Maclure, R.C.A.F.
R.G. Madill
Mrs. T.H. Manning
Supt. D.J. Martin, R.C.M.P.
G.W. Rowley
W/C R.I. Thomas, R.C.A.F.
L.J. Weeks
J.A. Wilson
B.J. Woodruff
J.G. Wright

C O N T E N T S

NO.1 JANUARY 1948

NO.2 FEBRUARY 1948

NO.7 NOVEMBER 1948

NO.8 DECEMBER 1948

NO.I THE ARCTIC CIRCULAR JAN. 1948

Published by

The Arctic Circle, Ottawa

First Meeting of the Arctic Circle

At the invitation of W/C K. C. Maclure, R.C.A.F., the first meeting of the Arctic Circle was held at 8 o'clock on Monday evening, December 8 at the R.C.A.F. Mess, 158 Gloucester Street. About one hundred attended.

The meeting opened with a short description by F/L A. H. Tinker of the establishment of weather stations at Eureka Sound and Cornwallis Island by Task Force 68. F/L Tinker, who was a Defence Research Board observer on the expedition, illustrated his talk with an excellent kodachrome film he had taken.

After a short interval, the meeting discussed the details of the formation of the club, Mr. T. H. Manning acting as chairman.

Mr. Manning considered that the need for an Arctic club in Ottawa was clearly shown by the excellent attendance.

The meeting agreed by a considerable majority that the club should be called The Arctic Circle.

It had originally been hoped that a subscription of One Dollar would be sufficient. It seemed likely, however, that this would not cover the cost of hiring help to serve refreshments and to clear up after meetings. There was also a possibility that it might sometimes be necessary to rent a meeting place. After considering these points, those present at the meeting were in almost unanimous agreement that the subscription should be Two Dollars for Ottawa members, and One Dollar for out-of-town members, who would seldom be able to attend meetings but who would receive the club announcements and circulars. It was also agreed that the committee should review the subscription rates in the light of the experience of the first few months. It was further decided that those who wished could pay their subscriptions at the end of the meeting. There was a very satisfactory response and $149.00 was collected. Other membership subscriptions have since been received.

The arrangements for the meeting were made by:

Dr. T. Freeman
Dr. Trevor Lloyd
W/C K. C. Maclure
Mr. T. H. Manning
Mrs. T. H. Manning
Mr. Erling Porsild
Mr. G. W. Rowley
Mrs. G. W. Rowley

These arrangements met with the general approval of those present, and it was agreed that the same group should be responsible for planning a second meeting early in January. This group was also appointed to draw up a draft constitution and to receive nominations for the club officers and committee. Possible meeting places for the club were then discussed and it was agreed that meetings must be held at places where ladies and non-commissioned ranks of the armed forces could attend.

It was thought that a mimeographed bulletin, giving news of arctic activities and the plans of members and others, was desirable. Mrs. Graham Rowley, who had previously expressed her willingness to do so, was asked to prepare a bulletin before the next meeting. The members would then be able to discuss the bulletin and suggest improvements.

The meeting expressed their appreciation to W/C Maclure, the President, and Members of the R.C.A.F. Mess for their hospitality.

The meeting closed with refreshments and informal discussion.

Task Force 68

The 1947 summer operation of U.S. Naval Task Force 68 was a continuation of Operation Nanook in 1946, during which a reconnaissance for suitable sites for Canadian Arctic weather stations had been carried out. The main objects of the expedition were first, to install a joint U.S./Canadian weather station at Winter Harbour, Melville Island; second, to supply the weather station at Slidre Fjord, Eureka Sound, which had been established by air in April 1947; and third, to erect an automatic weather station on Beechey Island, off the south-west coast of Devon Island.

The Task Force consisted of three ships: U.S.S. Edisto, 6,000 tons, icebreaker and flagship; U.S.S. Wyandot, 10,000 tons, cargo vessel; and U.S.S. Whitewood, ?,000 tons, wooden-hulled supply vessel. The force left Boston, Mass., on 16 July 1947, and the last ship returned on 25 September 1947.

Melville Island proved inaccessible owing to ice conditions, and after four attempts to reach it, during the second of which Edisto suffered damage to her port propeller, an alternative site for the main weather station was chosen at Resolute Bay, Cornwallis Island. Unloading began on August 30, and when the Task Force sailed on September 16, a permanent camp had been established and an airstrip was well on the way to completion. Materials were left at Resolute Bay for two satellite stations which it is proposed to establish by air in the spring of 1948 on islands farther west.

Supplies for Slidre Fjord were eventually transported by the icebreaker, aftertranshipping from U.S.S. Whitewood, which had been damaged by ice in Norwegian Bay. Thus Edisto became the first ship to make the passage of Hell Gate, Norwegian Bay, and Eureka Sound.

At both these weather stations, half the personnel is Canadian and half U.S. Mr J. D. Cleghorn of Montreal was left in charge of the station at Resolute Bay, and Mr. J. L. Courtenay of St. Johns, Newfoundland, at Slidre Fjord.

Owing to difficulties of refuelling and maintenance, the automatic weather station was established at Dundas Harbour instead of Beechey Island, and will be maintained by the R.C.M.P. This station, which is identical to one established at Thule, Greenland, in 1946, broadcasts meteorological information at six-hourly intervals, and requires no attention beyond refuelling every two months.

U.S.S. Edisto carried a helicopter, which proved invaluable both for ferrying men and materials to and from the ships and for all kinds of reconnaissance. It was particularly useful as an aid to navigation in ice, by scouting ahead to discover the location of ice-fields and the best leads. In effect it was used as a modern and greatly improved version of the "crow's nest".

Several scientists were attached to the Task Force, covering the fields of oceanography, magnetics, hydrography and natural history. F/L G. ". Kusiar, F/L A. H. Tinker, and Major A. Taylor accompanied the force as Defence Research Board observers while the magnetic work was carried out by Mr. Cameron Cumming of the Dominion Observatory.

Canadian Ionospheric Stations

There are some sixty ionospheric stations in operation over the globe; six of these are Canadian and are located at:

Torbay, near St. Johns, Newfoundland
Chelsea, near Ottawa, Ontario
Portage La Prairie, Manitoba
Prince Rupert, British Columbia
Churchill, Manitoba
Clyde Inlet, Baffin Island

They are operated by Signals units of the Services and by the Radio Division of the Department of Transport. The observations and training of personnel are coordinated by the Radio Propagation Laboratory of the Defence Research Board at Ottawa.

Ionospheric stations make the soundings of ionospheric layer heights and electrification necessary for prediction of radio transmission conditions, and can be considered analagous to weather stations in weather forecasting. They also record the Aurora which is caused by ionization in the upper atmosphere. In Canada the zone of Aurora Borealis lies relatively far south and passes right across the country. The ionization conditions associated with this result in more disturbed radio transmission conditions than in any other country. In Asia the auroral zone is some twenty degrees of latitude farther north. The first four Canadian stations listed above cover Canada from east to west at the southern edge of the auroral zone. Churchill is at the maximum and Clyde Inlet on the arctic side of the zone.

The period since May 1947 has been one of very high sunspot activity. It is not only the maximum of the present sunspot cycle (a cycle lasting approximately eleven years), but is a higher maximum than has been known for over 100 years. The observation programme is therefore being expanded to cover this exceptional period. Great increases in electrification of the ionosphere have occurred and there is some evidence that the auror1 zone has temporarily shifted some 300 miles south during the past ten months.

At the Radio Propagation Laboratory in Ottawa experiments in radar detection of rain and snow are proceeding in addition to ionospheric experiments. The staff of the Laboratory includes several members of the Arctic Circle who have worked on ionospheric, auroral, magnetic, and meteorological investigations in northern Canada and the Arctic.

<u>The Mackenzie Delta Reindeer Experiment</u>

Last summer Mr. A. E. Porsild, Chief Botanist of the National Museum of Canada, was asked to report on the progress made in the Canadian Reindeer Industry during the past twelve years. Travelling by air, he made an intensive investigation of the Reindeer Reserve, which covers 7,000 square miles between the Mackenzie Delta and the Anderson River. This area had

originally been chosen as the home of the new industry by Mr. Porsild, after detailed surveys from 1927-30 of suitable grazing in the Mackenzie and Keewatin Districts. At that time Mr. Porsild was in charge of reindeer grazing investigations in the Mackenzie District and of the arrangements for the introduction of domesticated reindeer from Alaska.

The recent investigation substantiated earlier estimates that the reserve will provide adequate grazing indefinitely for a much larger number of reindeer than now herded. At present there are 6,278 reindeer distributed between two Government operated herds, and 4,500 animals have been killed during the past years to supply meat and skins to local natives, schools, and hospitals. A number of young Eskimo have been trained in the handling and care of reindeer though few, so far, seem to want the responsibility of independent ownership.

One reason for the slow progress in the reindeer industry has been the high fur prices in recent years in the Mackenzie Delta. The Eskimo are therefore very prosperous and have not been attracted to the reindeer work. Mr. Porsild believes that, with certain changes in the management, together with a far-reaching educational programme for the younger generation of the Mackenzie Delta natives, the reindeer industry is capable of considerable and sustained progress.

Biting Insects of the Arctic

The Defence Research Board of the Department of National Defence and the Science Service of the Department of Agriculture have joined forces in an attack on the mosquito, blackfly, bulldog and other pests of the arctic summer. The ultimate objective is to provide adequate protection against them for all persons travelling in the north, and to clear them away from the vicinity of inhabited places. The plan of attack is a long-term one and involves both laboratory and field research work on the distribution, ecology, and biology of the insects themselves, the use of insecticides and repellents, and the design of clothing and shelter for the protection of individuals

The first stage of the attack is to assess the scale of the problem. This involves a survey of the distribution and ecology of the insects, and a start was made during the past summer at Churchill and Baker Lake. It is hoped that the summer of 1948 will see at least six survey teams at work at other points in the Arctic, with progressive increase in coverage in succeeding years. Meanwhile it will be appreciated that the enormous extent of the territory involved, and the relative difficulty of access make the collection of data a slow process. Assistance from any source, whether in the form of past records indicating intensity of infestation and dates of occurrence, or in future collecting of specimens

and recording of dates and intensity, would be of great value to the survey. Cooperation of individuals or parties in the testing of new repellents or clothing would also be welcomed.

Dr. Twinn or Dr. Freeman, of Science Service, or Mr. Jones of Defence Research would be glad to hear from anybody interested in this work.

Biological Survey at Baker Lake

Dr. T. N. Freeman of the Science Service of the Department of Agriculture spent last summer at Baker Lake making a biological survey of the area. In particular he carried out a detailed study of the insect life and its associations with plants, animals, and geology. Collections of several thousand insects and about one hundred plants were made. It is hoped that this survey will ultimately form part of a larger project covering the whole of the Canadian Arctic and coordinated with the attack on biting insects. In addition Dr. Freeman made a preliminary investigation of the warble fly population among the caribou. To assist other biologists working in the Canadian Arctic he compiled a list of 200 useful Eskimo words.

Marine Work in Ungava Bay

Max Dunbar and Henry Hildebrand, both of McGill University, spent the summer of 1947 on Ungava Bay waters, the expedition being sent out by the Department of Fisheries. Disquieting reports of malnutrition among the Ungava natives had been received in Ottawa, and a preliminary survey of the marine resources was made in order to find possible means of alleviating the situation.

The party flew to Chimo in mid-June, and field work started on June 23, at the head of the bay. The coastal waters were covered from Payne Bay to Burwell. The physical conditions (temperature, salinity) were found to lie between the arctic waters of Baffin Island and the strongly Atlantic waters of south-west Greenland. Below 150 metres the temperature, however, was very low. Oxygen figures were high as was the biological production, shown in the plankton. Fishing operations were disappointing except in the north-east, where codfish were present in greater numbers than expected, and where young Greenland halibut, found in the cod stomachs, held out the hope of deep water fisheries on a small (native) scale.

As developments in fisheries are already far advanced in Greenland, a young Greenlandic fisherman was flown over, arriving in August, to demonstrate to the Ungava Eskimo the Greenland fishing techniques. This was an innovation in northern work and promises well for the future.

The bottom fauna was investigated with the naturalist's dredge, and the collections of both benthonic and planktonic material were considerable. Hildebrand made a representative collection of the birds of the area.

The field work was finished by the end of August. Josias Vetterlain, the Greenland member, flew back home on September 10. It is planned to continue the work in the northern part of Ungava Bay in 1948, when the possibilities offered by the shark, the halibut and the cod will be estimated more fully.

Dr. Rousseau's work in Eastern Ungava

Last summer Dr. Jacques Rousseau, Director of the Montreal Botanical Garden, travelled the length of the George River in eastern Ungava. Starting from its source, north of Lake Mishikamau, he covered nearly 350 miles by canoe. Dr. Rousseau's main work was botanical and consisted of a taxonomic and biogeographical study of the area. This showed that the limit of the Arctic Region as based on flora is more southerly in this area than expected. Dr. Rousseau brought back an extensive herbarium collection.

In addition Dr. Rousseau studied the geography of the area, collected samples from rock exposures, made ethnological notes on the former Indian population and on those living in adjacent districts, and carried out a partial survey of the animal life. Dr. Rousseau took some 300 still photographs and 500 feet of film.

Botanical Survy of North-western Ungava between Ungava Bay and Hudson Bay

In the summer of 1948 Dr. Jacques Rousseau is planning to cross the inland region between Payne Bay and Kogaluk or Povungnituk. The main object of this expedition is to make a botanical survey but Dr. Rousseau will also bring back data belonging to other fields, as he did on his George River survey last summer.

Dr. Rousseau would appreciate receiving any information about former trips that have been made in this part of the country. His address is Jardin Botanique de Montréal, Montreal, P.Q.

Baker Lake Magnetic Observatory

Mr. J. F. Clarke and his assistant, Mr. W. Hannaford, reached Baker Lake on December 12, where they will establish and maintain a temporary magnetic observatory. The Division of Terrestrial Magnetism of the Dominion Observatory which is responsible for this work plans to keep a permanent staff of two men at Baker Lake.

Student Group at McGill University

Max Dunbar reports that a beginning has been made at McGill towards forming a scientific exploration group. Two preliminary meetings were held in December, with Bruce Fleming as chairman. In January the details of formal campus organization will be settled, and the membership increased, it is hoped, by the addition of both undergraduate and graduate students who were not available for the first meetings, but who are known to have useful experience or interest in the objects of the club. At the time of writing (December 27) officers had not yet been elected and the constitution had not been written. It was, however, decided that the club should not be restricted to the arctic regions in its operations.

The objects, as tentatively mapped out, are threefold: first, to become acquainted with the possibilities and methods of scientific exploration by means of lectures and discussions; second, to keep in touch, through members of the faculty, with government and other organizations requiring student assistants for summer field work; and third, to organize student expeditions. The greatest problem to be faced and solved by the McGill group is the same as that faced by an other such university group: the obtaining of sufficient funds for university expeditions.

Danish Expedition to Peary Land, North Greenland

Count Eigil Knuth, the archaeologist, plans to lead a Danish expedition to Peary Land for two years, from 1948 to 1950. Last summer a preliminary reconnaissance was made by Count Knuth and by Ebbe Munch, who is largely responsible for organizing the expedition. With two ships, S.S. Godthaab and M.S. Gamma, the reconnaissance party established their base at Zachenberg on the east coast of Greenland, opposite Clavering Island. They had hoped to make some 10 to 15 trips to Peary Land by Cataline but bad weather limited them to three return flights. They were however successful in finding a suitable base site for the expedition on Jorgen Brönlunds Fjord, 82°30 N., on the north side of Independence Fjord, south-west Peary Land.

In addition to selecting this site, general supplies and 25,000 litres of gasoline were landed at Zachenberg in order that flights to Peary Land might be made as early as possible this summer. It is planned to leave ten men at Brönlunds Fjord. The following have so far been selected:

Count Eigil Knuth	(Archaeologist)	Torben Wulf (Marine Biologist)
Dr. Troelsen	(Geologist)	A Radio Telegraphist and
Kjeld Holmen	(Botanist)	Meteorlogist will accompany
Palle Johnsen	(Zoologist)	the expedition
Borge Fristrup	(Glaciologist)	

This party hopes to make the following journeys: a sledge trip northwards towards the interior of Peary Land in the winter of 1948-9; a western journey to J.P.Kochs Fjord; an eastern journey along Independence Fjord to the sea, where if possible a subsidiary station will be set up at Kap Eiler Rasmussen or at the mouth of G.B. Schley Fjord; and journeys to the south to map the area between Hagens Fjord and Danmarks Fjord.

On the reconnaissance flights this summer a large ice-free lake was discovered in the unmapped area between Hagens Fjord and Danmarks Fjord, and named 5 Mai Lake. From observations on the flights it has been suggested that with reasonably good weather conditions an ice-breaker should be able to force its way along the east Greenland coast right up to Peary Land.

EDITORIAL NOTE

This first number of the Arctic Circular is largely an experiment and should be considered as a basis for discussion rather than a fixed form. It is longer than was expected and future issues will probably contain only three or four pages. They will be produced whenever there is sufficient material.

The objects are:

1. To provide concise and accurate information on current activities in the Arctic.
2. To assist research by publishing requests for information on particular regions or subjects, and for collection of specimens.

As it is not practicable to cover all the Arctic, the main emphasis will be on activities in the Canadian Arctic. When suitable material of particular interest or importance in other parts of the Arctic is available, it will be included.

If members would make suggestions both as to the form and the subject matter of the bulletin, either at club meetings or by writing to the Editor, it would be of great assistance.

We wish to thank all who have contributed information for this number, and we shall be grateful for material for future issues. This should be sent to the Editor, 37 Linden Terrace, Ottawa.

In the next number of the Circular, it is hoped to include a list of the R.C.M.P. Personnel manning northern posts, notes on supplying Arctic posts after the sinking of the Masconi research facilities at Baker Lake, geological and survey work last summer, and details of the new Government ship for the Eastern Arctic Patrol.

D.R.R.

NO.2 THE ARCTIC CIRCULAR FEB.1948

Published by
The Arctic Circle, Ottawa

Second Meeting of the Arctic Circle

Through the courtesy of the Commanding Officer and the Mess President, the second meeting of the Arctic Circle was held in the 1st. Corps Troops R.C.A.S.C. Mess at 278 Sparks Street, at 8.00 p.m. on Thursday January 15.

In addition to those who had joined the Club following the first meeting, notices had been sent to other Ottawa residents who it was thought might be interested in joining. Mr. T.H. Manning, interim Chairman, was in the Chair. About 120 were present.

By permission of the Commissioner of the R.C.M.P., Sgt. F.S. Farrar showed a most interesting film he had taken while serving as mate on the first voyage of the St. Roch through the Northwest Passage. Sgt. Farrar spoke briefly after the film and offered to answer questions informally later in the evening.

Following a short interval a draft constitution was considered. A few amendments were proposed and the constitution as amended was approved by the meeting.

The form of the Arctic Circular was discussed briefly and it was agreed that the first number met the requirements of the club.

The Officers and Committee Members were then elected as follows:

President:	Mr. A.E. Porsild
Vice-President:	Mr. Frank Davies
Secretary:	Mr. T.H. Manning
Editor:	Mrs. G.W. Rowley

Committee Members:

F/L J.F. Drake, R.C.A.F.
Dr. T. Freeman
Mr. Eric Fry
Mr. A.C. Jones
Dr. Trevor Lloyd
W/C K.C. Maclure, R.C.A.F.
Mr. R.G. Madill
Mrs. T.H. Manning
Supt. D.J. Martin, R.C.M.P.
Mr. G.W. Rowley
W/C R.I. Thomas, R.C.A.F.
Mr. L.J. Weeks
Mr. J.A. Wilson
Mr. B.J. Woodruff
Mr. J.G. Wright

Following the election of Officers Mr. Frank Davies, Vice-President, took the Chair, as Mr. Porsild was absent with a severe cold. Mr. Davies thanked the interim committee who had made the arrangements for the meeting, and announced that future meetings would be called for 8.00 p.m. and that the film or talk would commence promptly at 8.30 p.m.

At the meeting 39 additional members joined the club, making a total of 115 Ottawa and 9 non-resident members.

The new Eastern Arctic Patrol Ship

The Annual Eastern Arctic Patrol was inaugurated in 1922 to supervise the administration of Eskimo affairs, crown lands, wildlife and other resources, scientific and other exploration, and the maintenance of sovereignty in Canada's arctic sector. From 1922 to 1925, the Patrol was carried on the Government-owned C.G.S. Arctic and from 1926 to 1931 the S.S. Beothic was chartered from Job Seal Fisheries for two months each year for this purpose. In 1932, the Patrol was carried under contract by the Hudson's Bay Company on the S.S. Ungava, and this arrangement was continued in succeeding years, using the Hudson's Bay Company's vessel, R.M.S. Nascopie, from 1933 until she was lost off Cape Dorset in 1947.

Early in 1946 a series of discussions took place to formulate plans for the service of Eastern Arctic posts, since it had been intimated by the Hudson's Bay Company that the R.M.S. Nascopie was to be retired in a year or two as, owing to her age, she had become uneconomical to operate. It was at first thought that a single vessel owned either by the Hudson's Bay Company or the Government would serve all purposes. However, a careful canvass of the probable future requirements of all Government Departments having interests in the Eastern Arctic revealed that a single ship, large enough to meet both Government and private requirements, would be uneconomical. The Hudson's Bay Company was, therefore, advised that the Government would build a ship to suit its own needs, and the Company was free to build to suit its own requirements and that of private shippers.

Representatives of the various Government Departments spent several months in planning the specifications for the new vessel, and by the end of 1946 a clear picture was available of the general requirements. Thus plans for the new vessel were well under way long before the Nascopie was wrecked off Cape Dorset on 21 July 1947. In another note in this number details are given of the work of supplying northern posts after the wreck of the Nascopie.

The new government ship will be built and operated by the Department of Transport. During the summer months she will be employed on Eastern Arctic Patrol work, and for the rest of the year she will assist in servicing navigation aids in the lower St. Lawrence and off the Atlantic coast. In addition she will be used as an escort on the St. Lawrence for shipping in the early spring and late fall.

On her yearly voyage to arctic waters the ship will operate under the Officer in Charge of the Eastern Arctic Patrol of the Department of Mines and Resources, who, in his capacity as chief of the expedition, co-ordinates the activities of the various government agencies represented and maintains a general supervision of all phases of administrative activity in the Eastern Arctic. Besides the Officer in Charge and his staff, the vessel will carry inspecting personnel, scientists and medical staff, as well as replacements for the R.C.M.P. detachments, northern hospitals, Department of Transport meteorological and radio stations, and other government posts. Supplies and equipment for these posts will also be carried.

The plans for the new vessel were made by Messrs. German and Milne, of Montreal, in consultation with government officials and experienced arctic navigators. Mr. F.A. Willsher, Chairman of the Board of Steamship Inspection, has been appointed Owner's Representative, charged with supervising the construction of the vessel to meet the requirements of Lloyds Register of Shipping and the Board of Steamship Inspection.

The ship is to be built by the Davie Shipbuilding and Repairing Company of Lauzon, Levis, P.Q., and the contract calls for completion and delivery of the ship in time for the 1949 Eastern Arctic Patrol.

The new vessel is not an icebreaker, but it will be heavily reinforced to withstand heavy ice; the hull will be of mild steel and the construction welded throughout. The design is streamlined and the ship will be exceptionally powerful, developing 4000 h.p. The two "Skinner marine uneflow" steam engines will give a cruising range of 10,000 nautical miles, and a maximum speed of 13½ knots. Steam will be furnished by two oil-fired water tube boilers at a working pressure of 220 pounds per square inch. The ship will be specially insulated for arctic work.

Because of the shallow harbours in many northern outposts the vessel will draw 18 feet only; on which draft she will carry 2,615 deadweight tons. The principal dimensions are: length between perpendiculars 276 feet; moulded breadth 50 feet, and moulded depth 26 feet. The

holds will provide 107,000 cubic feet of space for dry cargo and 3,000 feet of refrigerated space. There is to be a main buoy-handling crane in the centre of the fore-deck, capable of handling 15 tons on the main hook and 4 tons on auxiliary hooks. In addition there are three cargo cranes of 1 ton capacity each.

A most important feature of the new ship is the provision for carrying a helicopter, which will be used both to assist navigation by ice reconnaissance and for emergency landing of personnel and small quantities of urgently required supplies at temporarily inaccessible points. Other navigation aids will include radar, echo sounding and direction finder equipment, as well as gyro compasses.

Accommodation will be provided for 88 passengers, including 30 Eskimo, and 58 crew. A modern hospital is planned, complete with examination room, sick bay, x-ray room and dark room. The hospital will be staffed by medical and dental officers and will provide care and advice to both Eskimo and white patients at all posts of call.

Supply of northern posts after the wreck of "R.M.S. Nascopie"

After the R.M.S. Nascopie was wrecked on a submerged reef at the entrance to Cape Dorset Harbour on 21 July 1947, with the total loss of all freight and supplies on board for northern posts, some hasty emergency planning had to be done for the relief of these posts.

Immediately after the wreck of the vessel, when it became apparent that none of the freight could be salvaged, all Government shippers, missions, and the Hudson's Bay Company duplicated orders to their suppliers for essential materials lost on the ship. These orders were filled promptly and shipped to Montreal and Churchill for loading on relief vessels.

For the northern trip to Baffin Island the Hudson's Bay Company chartered the North Pioneer, a vessel of about 1400 tons, from the Clarke Steamship Company. This vessel sailed from Montreal on August 16 with freight and relieving personnel for the northern Baffin Island posts. Owing to limited passenger accommodation, she carried only two Ottawa officials: Dr. H.W. Lewis, Indian Health Services, as medical officer, and Mr. Alex Stevenson of Northwest Territories and Yukon Services, who, in addition to acting for his own Division and looking after Family Allowances, also represented the Postal Services in charge of mail. Captain James Waters, late of the Nascopie, was master of the North Pioneer on this voyage, assisted by

Len Adey, first mate of the Nascopie. The vessel, not being strengthened for ice, had on occasion to depart a long way from her course to avoid ice fields. However she made successful calls at River Clyde, Dundas Harbour, Arctic Bay, Pond Inlet, and Pangnirtung, returning to Montreal on September 27.

Within Hudson Bay, where the shipping position was further aggravated by the loss of the small Hudson's Bay Company's schooner Neophyte near Fort Severn, a schooner M.S. Blackmore, chartered by the Hudson's Bay Company, carried supplies from Montreal to Ungava Bay, and reloading at Churchill, made trips to Chesterfield, Baker Lake, and Southampton Island. The Company also chartered another schooner, M.S. Earl Trader, operating out of Churchill, which called at Port Harrison, Povungnituk, Cape Smith, Wolstenholme and Sugluk. Their own schooner, the small Fort Severn, working out of Churchill, as in previous years called at points on the west coast of Hudson Bay.

The R.C. Missions were not greatly affected by the sinking of the Nascopie as the bulk of their freight was on their new ship, Regina Polaris, which carried supplies to all R.C. Mission posts in Hudson Strait and Bay, and successfully reached Igloolik, which had not been served by ship for several years.

In order to expedite the transfer of personnel, made difficult by the numerous small schooners used, the R.C.A.F. provided a Canso plane which, operating out of Churchill, exchanged R.C.M.P., Radio and Meterological Service personnel at Southampton Island, Pangnirtung, River Clyde, Pond Inlet, and Dundas Harbour. The Hudson's Bay Company also used a Canso for inspection purposes and the movement of personnel on the east coast of Hudson Bay, Hudson Strait, and at River Clyde and Pangnirtung.

Thus though some valuable equipment was lost and not replaced, all essential items such as food, fuel, and medical supplies were re-ordered, and reached their destination by various means. No hardship resulted at any post through the wreck of the Nascopie.

Operation Canon

On Sept 24 Canon John H. Turner, returning from hunting to his mission in Moffet Inlet, Admiralty Inlet, Baffin Island, tripped and accidentally shot himself in the head. When this news was received through the D.O.T. wireless station at Arctic Bay, the possibilities of sending help were considered at National Defence Headquarters. Unfortunately the accident had taken place

at "freeze-up" when flying conditions are particularly difficult. Air temperatures below freezing made it impossible to send a float plane owing to the problem of icing on landing and take off, while the ice on lakes was not yet sufficiently thick for aircraft to land on wheels or skis. The only possible course was to drop supplies and medical assistance by parachute to care for the patient until such time as a plane could land to evacuate him to hospital. It was therefore decided that the R.C.A.F. and the Canadian Army would combine in this joint operation, the R.C.A.F. being responsible for the flying and the army for the parachute team.

For parachute operations information on terrain is of great importance, but little was known about this area. Luckily it was possible to get in touch with the Rev. Maurice Flint, who had spent some months with Canon Turner at his mission and had a number of photographs and a sketch-map of the mission area made by Canon Turner himself several years previously. These were used to brief the parachute team, which consisted of Capt. L.G. D'Artois, commander, Capt. R.W. Willoughby, medical officer, and Sgts. H.C. Cook and W.W. Judd, signallers.

The photographs showed that the team had three choices. They could drop into the sea, they could drop on to a rugged shoreline marked by rocky cliffs, or they could seek a more level area inland as near as possible to the mission. The first would soon prove fatal at a temperature of 29°F.; the second, unless by extreme good fortune they landed on a narrow spit near the mission, would be almost certain to result in loss of life and destruction of equipment; only the third seemed possible and it would probably mean both a long trek over unknown country immediately after dropping and a difficult problem of transporting equipment overland to the mission.

The parachute team, with Maj. G.A. Flint in charge of jumping, left Rivers, Manitoba on October 2 in an R.C.A.F. Dakota, the crew consisting of: F/O R.C. Race, captain, F/O K.O. Moore, co-pilot, F/O C.C. McMillan, navigator, F/L A.B. Morabito, wireless operator and Cpl. J.P. Rae, crewman.

At Churchill additional equipment was loaded and the party reached Coral Harbour, Southampton Island on October 3.

Next day the aircraft took off in fairly good weather on the final stage of the journey, but there was fog in Moffet Inlet and 45 minutes were spent in finding the mission. Owing to this delay and the limited endurance of the aircraft an immediate reconnaissance was necessary for a dropping zone. A small lake 250 yards long by 100

yards wide, some five or six miles from the mission, was selected. The jump was successful and the aircraft returned to Coral Harbour, landing safely despite closing weather conditions, failing light, and a 50-mile-an-hour crosswind.

At Moffet Inlet, the three chief problems were care of the patient, establishment of wireless communication, and reconnaissance for a suitable landing strip.

After the patient had been examined, it was decided to try to move him by boat to the settlement at Arctic Bay, some 70 miles farther north, where better facilities were available and whence he could be more easily evacuated by air. The attempt was made on October 10 but ice conditions prevented much progress and the party was forced to return the next day. From then on the patient remained at the mission under the care of Capt. Willoughby and Mrs. Turner, and Mr. John Cormac of the Hudson's Bay Company, who had been helping Mrs. Turner up to this time, was able to return to his post at Arctic Bay.

Though two wireless sets had been dropped with the parachute team, the high power one had been damaged on landing and the other, a portable set, could only handle short range ground to air communication. As no word was received from Moffet Inlet the Dakota returned on October 8, dropped more supplies and learned of the failure of the wireless. On October 17 another wireless set was dropped by parachute but it landed on thin sea-ice and was damaged by salt water. The next day, however, wireless contact was made with Arctic Bay, using an improvised set made from serviceable parts of the original equipment. This proved invaluable during a further supply drop on October 24 and for making arrangements for the final evacuation.

Meanwhile Capt. D'Artois covered some 300 miles by foot and dog-team searching for a landing strip, and on November 2 discovered a suitable lake 23 miles south of the mission. The ice was already thick enough for a Dakota to land, but bad weather held up flying operations, an unsuccessful attempt being made on November 17.

On November 21 the Dakota landed successfully on the lake in difficult conditions. In a temperature of -24°F. Canon Turner was carried the 23 miles by a fast dog-team in the excellent time of 3½ hours. Take-off was delayed 5 hours by bad weather, the aircraft then returning via Coral Harbour to Winnipeg where Canon Turner, his wife and two children and an Eskimo girl arrived safely on November 22.

Apart from the U.S.A.A.F. operation in November 1943 when Major J.F. Stanmore-Fletcher dropped near Fort Ross to make arrangements for the evacuation of Mr. W.A. Heslop and his wife by air from the Hudson's Bay Company post, this is believed to be the only occasion when parachute jumping has been employed in the Canadian Arctic.

Canon John Turner

In the death of Canon John H. Turner at Winnipeg on 9 December, 1947, Canada lost one of the most remarkable arctic travellers of all time. Canon Turner's parish covered the whole of the Eastern Canadian Arctic from Repulse Bay north with the exception of the southern half of Baffin Island. For many of the eighteen years he spent in the Arctic he was the only Anglican missionary in this enormous area and he considered it his duty to visit every Eskimo family as often as possible. In doing this he carried out journeys which have seldom been equalled, though to him travelling was a means and not an end.

Canon Turner spent much of the summer and fall every year hunting for dog-food in preperation for his winter and spring journeys. He travelled by sledge, driving his own team of dogs which he bred and trained himself. On long journeys he would usually be accompanied by an Eskimo for part or all the distance to help in carrying the heavy weight of dog-food, but he often travelled alone. When dog-food ran short he stopped to hunt until he had enough to continue on his way. In this manner he travelled from his missions at Pond Inlet and Moffet Inlet as far as King William Island, Repulse Bay and Pangnirtung.

He adopted Eskimo methods of travelling, building a snow house every night except when, pressed for time, he slept in the open beside his sledge. He regularly crossed on the moving ice of Prince Regent Inlet between Baffin Island and Somerset Island and he experienced all types of conditions from the good sea-ice of Admiralty Inlet to the soft snow of Home Bay. On one journey overland from Navy Board Inlet to Arctic Bay he could count his previous six camps from the roof of his snow-house. Many of his travels led through regions never before seen by a white man and he had an excellent memory for country, being able to follow overland routes he had crossed only once previously.

Seldom has a man, faced with such a tremendous task, carried it out so completely and he will be widely mourned and long remembered in the Canadian Arctic.

Queen's University Expedition to Southampton Island

The Queen's University Arctic Expedition which went to Southampton Island, in the summer of 1947 observed the

morbidity of various diseases among the Eskimo, studied their nutritional habits and status, and carried out certain dietary experiments concerned with the tolerance of the Eskimo for pemmican, and the development of acidosis while on a high fat diet and during starvation. The party was made up of Dr. Malcolm Brown, Associate Professor of Medicine, Dr. R.G. Sinclair, Professor of Biochemistry, Dr. L.B. Cronk and Mr. George Clark, and was flown to its destination in planes of the R.C.A.F. by way of Winnipeg and Churchill.

It was found possible to reach and examine medically eighty per cent of the native population of Southampton Island. They were brought by boat to the clinic established by the expedition at Coral Harbour where they were given a thorough medical examination and samples of blood and urine were collected. The results show that the chief causes of illness are respiratory tract infections and tuberculosis and these would also appear to be the chief causes of death. An interesting observation was the discovery that a third of those examined had livers which were considerably enlarged by ordinary standards. Specimens of liver obtained from two subjects showed that the enlargement was due to the presence of large amounts of fat, and further work is being done on this problem which is of considerable interest.

Evidence of serious nutritional deficiencies was widespread. Many of the children were underweight, some almost emaciated, and at all ages findings suggestive of riboflavin and ascorbic acid deficiencies were common. Determination of the blood ascorbic acid level confirmed the clinical conclusions with regard to ascorbic acid deficiency. Studies of excreta which were carried out in association with Dr. E.E. Kuitunen of the University of Toronto, showed a high incidence of intestinal parasitic infection.

A small representative group of Eskimos was selected to determine average daily food intake, tolerance for pemmican, and the rate at which they develop acidosis during starvation. In contrast with Canadian and American soldiers, the Eskimos could eat large amounts of pemmican without developing more than a mild acidosis. The acidosis became pronounced during starvation.

Much of the work of the party remains to be done. Large numbers of specimens of blood were brought back in a frozen state and are now being analysed in the Department of Biochemistry at Queen's University. The results of these analyses will provide further information concerning fat metabolism of the Eskimo and his nutritional requirements.

New hospital at Moose Factory

The Government hopes to begin work this spring on a new hospital at Moose Factory, the Indian settlement on an island near the mouth of the Moose River, James Bay. Owing to difficulties of transport it is unlikely that the new hospital will be completed before 1950. A start will be made this winter shipping materials by rail to Moosonee and moving them across the ice to Moose Factory. The hospital will have 135 beds, and will include a tuberculosis wing. It is estimated that the building and equipment will cost over $1 M.

The new hospital will serve the James Bay region and the southern part of Hudson Bay. The problem of tuberculosis is extremely serious among the 5,000 Indians and Eskimos in this area. The Anglican mission hospital at Moose Factory and the Roman Catholic mission hospital at Moosonee will continue to operate and it is expected that all three hospitals will be fully extended. At present there is only one doctor and a nurse at Moose Factory, but when the hospital is completed there will be a resident staff of at least three doctors and several nurses.

R.C.M.P. personnel in Eastern Arctic Detachments

Lake Harbour, N.W.T.	Cst. J.A. L. D'Aoust
	Cst. J.E. Decker
Frobisher Bay, N.W.T.	Cst. C.H. Jack
Pangnirtung, N.W.T.	Cst. E.J. Andrews
	Cst. G.C. Barr
Pond Inlet, N.W.T.	Cst. J.W. Gourlay
	Cst. F.W. Fiesoler
Dundas Harbour, N.W.T.	Cst. J.H. Biensch
	Cst. D.M. Nelson
Resolute Bay, N.W.T.	Cst. H.H. Aime
Chesterfield Inlet, N.W.T.	Sgt. R.W. Hamilton (Mrs. Hamilton and daughter)
Baker Lake, N.W.T.	Cpl. D.P. McLaughlan (Mrs. McLaughlan and daughter)
Eskimo Point, N.W.T.	Cst. R.J.J. Ball
Fort Chimo, P.Q.	Cst. C.K. McLean
Port Harrison, P.Q.	Cpl. W.J.G. Stewart (Mrs. Stewart and daughter)

The Arctic Institute of North America

The Arctic Institute is sending out invitations for Associate Membership, and several members of the Arctic Circle have already received their copies. In the next number we hope to give details of this membership programme.

VOL.I NO.3 THE ARCTIC CIRCULAR MARCH 1948

Published by
The Arctic Circle, Ottawa

Third Meeting of the Arctic Circle

The Third Meeting of the Arctic Circle was held in the 1st. Corps Troops R.C.A.S.C. Mess at 278 Sparks Street, on Monday February 16. The President, Mr. A.E. Porsild, was in the Chair.

Mr. R. Glenn Madill gave a brief account of the history of the search for the north magnetic pole, and F/L J.F. Drake described Operation Polco, an account of which is given in this number of the Arctic Circular.

At a recent committee meeting, the use of badges carrying the wearer's name had been discussed. No decision having been reached, the question was considered at this meeting. A proposal was made to let the matter drop, and approved by an almost unanimous vote of the members present.

Mr. W.K.W. Baldwin and Dr. George Hooper were elected auditors for the present year.

Operation Polco

On 19 July 1947 a Canso aircraft left Rockcliffe airport for magnetic work in the arctic. Operation Polco was a joint expedition of the R.C.A.F. and the Division of Terrestrial Magnetism of the Dominion Observatory. It was hoped to make magnetic observations and astronomical fixes at 14 stations to assist in re-positioning the North Magnetic Pole. The aircraft was attached to 413 Photo Squadron, Rockcliffe, and the crew of eight were supplied by 9(T) Group, Rockcliffe, with F/L J.F. Drake as pilot. The two geophysicists of the Dominion Observatory were Mr. P.H. Serson and Mr. J.F. Clarke. Four other scientists accompanied the expedition. Two geologists, Dr. Y.O. Fortier and his assistant Mr. R.R. Steacy, from the Geological Survey, were to have been left at Pond Inlet to obtain mining information, but their plan was upset by the loss of the Nascopie, and they therefore remained with the Canso party, making geological observations at all points visited. At Cambridge Bay Dr. M. Polunin, from the McGill Botanical Department, and Mr. J.L. Robinson, a geographer from the Department of Mines and Resources, joined the expedition.

Owing to bad ice and weather conditions, particularly fog over Bathurst Inlet and Prince of Wales Island, observations at only 9 out of the 14 stations were completed. These were Aberdeen Lake, N.W.T., 64°37'N., 99°34'W.; Jolly Lake, N.W.T., 64°07'N., 112°07'W.; Point Lake, N.W.T., 65°21'N., 113°45'W.; Yellowknife, N.W.T., 62°28'N., 114°20'W.; Greely Haven, north-east coast Victoria Island, 71°56'N., 104°40'W.; Wellesmard Bay, Prince of Wales Island, 71°51'N., 98°18'W.; Allen Lake, Prince of Wales Island, 73°31'N., 98°26'W.; Tasekyoak Lake, King William Island, 68°53'N., 96°38'W.; and Agnew River, Boothia Peninsula, 70°40'N., 92°08'W. At Allen Lake readings gave a dip of 89°56', showing that at that moment the magnetic pole area lay some 10 miles to the south-west of the station.

Leaving Rockcliffe on 19 July 1947 the Canso stayed overnight at Kapuskasing, and proceeded to Churchill the following day. On July 21, after dropping mail at Baker Lake, they flew to Aberdeen Lake where a suitable landing was found. The magnetic observers completed their work while the plane went back to Churchill for more gas, returning the next day. The following day they proceeded to Yellowknife as they were unable to find a landing on Aylmer Lake, which was partly frozen, or on Mackay or Courageous Lakes. Leaving the magnetic personnel behind at Yellowknife the aircraft went to Edmonton for repairs returning on July 29. The following day, July 30, as Bathurst Inlet, where they hoped to make magnetic observations, was hidden by fog, they continued to Cambridge Bay. July 31 was spent in finding a suitable beach for the Canso and rescuing it when the Hudson's Bay Company's buoy, to which it was moored, dragged in a gale of 45-50 m.p.h. It is interesting to note that the Eskimo were reported seeing very small white caribou, some 3 - 4 feet high, on the north-east coast of Victoria Island. On August 1 course was set for Denmark Bay and from there the coast of Victoria Island was followed to Greely Haven. The Haven was ice-free although the coast was still ice-bound and no landing was made. Soon the pack started moving in rapidly and the Canso was forced to leave before all the magnetic observations were completed. Course was set for Denmark Bay, which was ice-free, and then across to Collinson Inlet on King William Island. As the inlet was ice-bound they proceeded inland and were fortunate in finding a possible landing on a large lake called by the Eskimo Tasekyoak (Big Lake) in the south-west of the island. After carrying out magnetic observations the party left on August 3 for Gjoa Haven. Here ice prevented landing and they returned to Cambridge Bay where the magnetic party completed their observations. As supplies were running low the aircraft left for Yellowknife on August 4. Bad weather prevented a plan to leave the magnetic party at Point Lake on the way. At Yellowknife it was found that the hull had been damaged in the rapid take-off at Greely Haven, and the aircraft had to proceed to Calgary for repairs. Late in the evening of August 8 they returned to Cambridge Bay. On August 12, after waiting for weather, the Canso left for Prince of Wales Island where it was hoped

at magnetic observations could be made in the vicinity of
pe Swinburne, the most southernmost point. But ice made
is impossible and course was set for Guillemard Bay on the
st coast. Here the inner reaches were found to be deep
d clear, the ice having banked up against small islands
the shallow entrance of the bay. A landing was made
4, with the magnetic work completed, they left early on
gust 13 for the north end of the island. A long range
hills was observed to the north, and some marked raised
aches, but fog was general. As the ice in Baring Channel
s unbroken they altered course for Prescott Island off
e east coast, but again finding ice they returned to
mbridge Bay. Fog prevented another attempt to land on
ince of Wales Island on August 14 and after flying over
manney Bay and the north end of the island course was set
Point Davidson on Boothia Peninsula. Coast crowling,
sley Bay was reconnoitred for a landing on the return flight;
appeared that the north arm of this v-shaped bay would be
itable. Crossing Boothia Peninsula to Eclipse Harbour the
untry appeared very rocky with deeply entrenched streams.
e relief gets higher nearer the east coast and hills reach
to 2-3,000 feet. A landing was made on the Agnew River close
the east coast and magnetic observations made. On their
turn ice had drifted into Pasley Bay so they continued to
mbridge Bay. On August 18 and 21 fog prevented attempts to
nd on Prince of Wales Island. However on August 22, in spite
severe snowstorms, they succeeded in landing on Allen Lake,
ich they named for the co-pilot, in the north of Prince of
les Island. The most important magnetic observations were
rried out here. On August 23 they left for Somerset Island
t were forced by bad weather to return to Cambridge Bay,
re the weather continued unfavourable for two nights.
ead was now essential as it was estimated that freeze-up
ght start in one week. On August 26 they again left for
merset Island. Flying up Franklin Sound the Tasmania
lands appeared rugged and about 300 feet high, but most of
e coast was hidden by fog. Crossing Boothia Peninsula they
ached Brantford Bay, which seemed to be very poorly mapped,
d found it clear of ice except for scattered pans. Fort
ean was hidden in fog so the plane skirted the coast passing
er Hazard Inlet. Course was set for Stanwell Fletcher Lake,
t as no suitable landing could be found they returned to the
rt Ross area. New ice was already forming on some of the
kes and conditions generally were unsuitable for landing
after flying down the coast the plane returned to Cambridge
y. On August 27 icing and cloud prevented an attempt to
nd at Bathurst Inlet and the plane continued to Yellowknife.
August 29 Bathurst was hidden by fog so they returned to
int Lake where they landed for magnetic observations. Leaving
ere on August 30 they continued to Yellowknife after flying
er Bathurst Inlet. The next day they reconnoitred Courageous
ke for a landing; there was deep water but no beach so the
ane returned to Yellowknife. On September 2 another attempt
s made to land at Bathurst Inlet without success and Regan
ke was reconnoitred on the flight back to Yellowknife. On

September 3 Bathurst Inlet was again hidden by fog and course was altered to Jolly Lake where an ideal camp site was found. After magnetic observations the plane returned to Yellowknife. On September 4 the seventh and last attempt was made to land at Bathurst Inlet but finding fog again the station was abandoned and the plane returned to Yellowknife, continuing to Edmonton the following day. On September 10 the Canso left Edmonton, landed at Winnipeg and then continued on to Uplands, arriving at 19.55 hours, having completed Operation Polco.

East Coast of James Bay and Hudson Bay

A joint party sponsored by the National Museum of Canada and the Arctic Institute of North America made the trip from Moosonee to Port Harrison during the summer of 1947.

Variety was the chief mark of this field party. Four members were botanists of different sorts. Dr. I. Hustich from the University of Helsinki, Finland, was particularly interested in forest botany - the tree limits and tree ring analysis of growth. His confrere, Dr. R. Tuomikoski, was concerned with his specialty of mosses, having also an interest in bog plants. The National Museum members were F.K.W. Baldwin from the National Herbarium and Mr. James Lucyniak, a Canadian expert on mosses from the Montreal Botanical Gardens. In addition, Dr. E.H. Kranck, a geologist from the University of Neuchatel, Switzerland, accompanied the party to continue his studies in Pre-Cambrian geology. Both Dr. Hustich and Dr. Kranck had previously visited Canada separately, and also together just before the war on a trip up the coast of Labrador by boat. Coastwise travel by canoe was a new experience, however, for all the party.

There were many advantages in the mixed composition of the group although it did complicate arrangements. The various languages came to the fore on the occasion of Mr. Wm Soper's birthday party at Fort George. The birthday coincided with his retirement as manager of the Hudson's Bay Company's post. The field party presented him with some refreshment for celebration together with speeches in Finnish; Swedish, French, Ukrainian, and English. It is believed that the reply was in Cree.

After a rendezvous at Moose Factory on June 26, the party travelled by schooner on July 5 - 6 to Rupert House which is the centre of the beaver management scheme started by the late Mr. Watt. In fifteen years the success of this enterprise has made the Rupert House Indians "the aristocrats of the Bay". It is hoped that similar success will be achieved on the newer beaver reserves now extending all around James Bay.

From Rupert House around stormy Cape Jones to Manitounuk Sound the party travelled in two 22-foot canoes equipped with

outboard motors, plus a 19-foot canoe for short excursions up the rivers. Guides were obtained locally on the advice of Mr. R.M. Duncan, manager of Moose Factory, one of the most experienced travellers in the James Bay section.

On August 11 the party took the opportunity of flying from Great Whale River to Port Harrison in a plane which had been supplying lead mining prospectors south of Richmond Gulf. Dr. Kranck stayed for two weeks at Port Harrison before coming out again by air. Meanwhile, after a few hours of hurried botanizing, the remainder of the party returned in the same plane. At Great Whale River the botanists settled down for more intensive investigations. On August 28 the last of the party came out on the northernmost trip of the Fort Charles. Skipper Charlie Barbour had managed to make short calls at Richmond Gulf and the Belcher Islands despite tough weather and an unsuccessful attempt in 1946.

The distance travelled by canoe was about 400 miles between Rupert House and Manitounuk Sound. The flight to Port Harrison added another 230 air-miles farther north from Great Whale River, making 460 miles for the round trip. The boat trips from Moose Factory to Rupert House, and return from Great Whale River to Moose Factory amounted to 450 miles. The total distance travelled in James Bay and Hudson Bay was over 1300 miles.

The James Bay area seethed with scientists during the summer. This party crossed the paths of doctors, anthropologists, archaeologists, geodetic surveyors, mining engineers and wild life experts.

The party was lucky in weather, in timing for ice conditions and flowering periods, as well as in freedom from accidents or loss. Over 5,000 sheets representing nearly 300 species of vascular plants were collected, together with observations on a number of ecological subjects. For probably the first time in this area, a large collection of mosses was made by competent bryologists. The mosses amounted to about 5,000 samples of over 250 species. The material gives a clear picture of the differences between the more arctic flora of the islands and coast and the interior as seen from the trips up the rivers. The contrast is also apparent between the flora of the mainland around the southern portion of James Bay and the rocky eastern coast of Hudson Bay. It would be of great interest to have further information on the inland area which has remained so long unknown; only the coast has been much travelled.

W.K.W. Baldwin

Geodetic Field Parties, 1947

During the summer of 1947, eight parties from the Geodetic Service (now the Geodetic Survey) of Canada were

gaged in locating astronomical control points for the rial photographic mapping of northern Canada. As in preding years, this work was done in close cooperation with e Royal Canadian Air Force.

E.J. Woodruff was in charge of six parties working tween the MacKenzie River, Victoria Island, and Great Bear ke. In this region the lakes were not entirely free of e until July 30, and in August almost continuous bad ather hampered both flying and observing. Between August and the end of the month when the field work ended, freezg temperatures and snowstorms were encountered.

The operations extended over an area of 105,000 square les, but because of the adverse conditions only twenty-two sitions, or a quarter of those required, were established.

The six observing parties were made up of graduate d undergraduate students temporarily employed by the Geodetic rvice. They were:

Observers		Assistants	
.W. Stock	Toronto	M.R. Binns	Toronto
. Mertens	Toronto	W.J. Fanjoy	McGill
.G. Baker	McGill	H.A. Roach	Queens
.J. Woodruff	Queens	D.O. Fenton	Queens
.G. Ramsey	Manitoba	D.M. Knox	MacDonald College
.C. Rae	McGill	A.J. Shamn	McGill

Besides locating control points, these parties made agnetic, meteorological and botanical observations. Dr. icholas Polunin of the Department of Botany, McGill University, companied the expedition and supervised the botanical work.

Two Geodetic Survey parties worked in James Bay and outhern Hudson Bay. The one in the charge of T.H. Manning ith assistants W. Forrester, D.M. Croal and D. MacKenzie, eft the Moose River on June 2 with three canoes and outboard engines, but owing to the late break-up, they did not each the Albany River until June 17. After that there was o further delay from ice, and the party reached York Factory n August 29, having obtained the eight astronomical control oints required along the coast and on Akimiski Island. agnetic observations were taken at the control points, and otes made on the country and its fauna. Over six hundred ird skins were collected for the National Museum of Canada.

The other James Bay party was in the charge of D.F. ontes with D. Coombes as assistant. They commenced the eason working from a forty-foot boat belonging to the Fort eorge Roman Catholic Mission. Unfortunately this boat, hich was in the charge of a Mission representative and anned by an Indian crew, was wrecked early in the summer n Grey Goose Island. The party was picked up by the Hudson's

Bay Company's M.S. Fort Charles and returned to Moose Factory where commercial air transport was secured for the remainder of the season. Astronomical control stations were established at Rupert House, on two lakes west of northern James Bay, and on the following islands in James Bay: Charlton Island, Walter Island, Weston Island, Bare Island, N. Twin Island, Grey Goose Island and Bear Island. Magnetic observations were made at most of these stations and over a hundred bird skins were collected for the National Museum of Canada.

Canadian Weather Ship H.M.C.S. 'St. Stephen'

Under ICAO agreement, Canada agreed to share the operation of an Ocean Weather Station with the United States. The Station selected was Baker, 56°30N., 51°00W., about half way between Labrador and Greenland. It was decided that Canada's contribution should take the form of one ship manned by the R.C.N., since it was thought at that time that the Station could be kept in continuous operation by two ships only. Opinion is now divided on this matter.

The ship selected for the duty was H.M.C.S. St. Stephen, a frigate, and a veteran of the war. She was brought out of reserve, almost all her armament removed and special equipment fitted, including a lattice mast to support the great weight of the radar heightfinding aerial.

Under the ICAO scheme, weather ships have three functions:

(1) to act as meteorological observing stations
(2) to act as aids to navigation for aircraft
(3) to carry on Search and Rescue activities.

They cruise in an area 210 miles square. The large square is broken down into small ones with 10 mile sides, and each small square is given a pair of identity letters, which are transmitted on an aircraft homing beacon whenever the ship is in that particular square. Any aircraft receiving the beacon signal is therefore aware of the ship's location, and can establish its own position, merely by closing to within radar or visual range of the ship. The ship is also equipped to give radar ranges and bearings to the aircraft, or to take HFDF bearings of the aircraft.

St. Stephen, commended by Lieut. E.M. Chadwick, R.C.N., undertakes a regular programme of weather observing, consisting of eight surface observations, two rawins, and two rawinsondes in each 24 hour period. The results of the observations are radioed ashore and used in compiling weather maps of the area. Their value lies in two things: they permit greatly increased accuracy in short-range forecasts and contribute to general weather forecasts for the Atlantic.

St. Stephen is a small ship for such work, displacing some 2000 tons, with a crew of 107. She carries fuel to allow her to remain at sea for over a month. The meteorological staff consists of five members of the Canadian Meteorological Service of the Department of Transport and two Naval meteorological observers, the latter being non-technical personnel. The special meteorological equipment has been provided by the Department of Transport.

The ship has now made two trips, encountering continuously foul weather on both. Winds of up to 80 miles an hour prevailed, and icing due to freezing spray, was so bad that the ship frequently took on a dangerous list to windward. This ice had to be removed by the good old system: hammer, pick, and elbowgrease, as it formed so fast and so thick that modern de-iceants were ineffective.

The continuous heavy rolling and pitching, combined with the constant effort to keep the ship free of ice and battered equipment in action, makes it almost impossible for the crew to rest. In spite of this morale is very high, and many of the men, who are almost all volunteers, have requested to remain after they would normally be relieved.

The ship's programme calls for 21 days on station. This, with 4½ days each way from harbour to station, means 29 days at sea each trip. On returning to harbour, the ship stays in for twelve days or two weeks, mostly taken up with straightening out dents in time to go to sea again. However every effort is made to grant each man four days leave during this period. In addition, each man, after 187 days on station, is entitled to one week extra leave.

It is not yet known how long the ship itself can continue the present schedule. The constant battering affects the hull and upperworks considerably. It has been necessary to renew guardrails, stanchions, and boats since operations commenced. Ice causes nearly as much damage as the sea, and stanchions, normally about an inch in diameter, have been coated with ice to a depth of nine inches to a foot before disappearing over the side. No light or loose gear can survive.

One of the most difficult problems is to provide suitable protective clothing. Subzero temperature, high wind-chill rate, and masses of flying spray, together with occasional, but wet, waves, make it extremely difficult to design a suit which permits reasonable freedom of movement while still being dry and warm. Nothing so far tried has been completely satisfactory: in the opinion of the ship's company, the R.C.A.F. fleece-lined winter clothing is the best.

The requirements for weather ships conflict somewhat on occasion. For instance, radar is supposed to be employed for tracking and heightfinding on met. balloons, maintaining air search for aircraft, and surface search for shipping and

for the ship's own safety. This would normally require three separate radar sets. However stability factors do not permit such topweight to be fitted in St. Stephen, and she therefore carries a heightfinding radar which also provides surface search, air search facilities being restricted to 25 miles only. She is intended primarily as a weather ship from the meteorological viewpoint, and nothing can be allowed to interfere with this work.

St. Stephen has already had an eventful start to her third trip. On her way to position Baker she rescued the Honduran freighter Everagra on 6 March 1948, which was caught in the ice pack 150 miles east of Halifax.

The Grimshaw-Great Slave Lake Highway

The Grimshaw-Great Slave Lake Highway which will be completed in 1948, will provide a vital new link in the transportation facilities of Canada's Northwest. With its twenty foot wide, gravel, all-weather construction, it will reduce the cost of moving supplies and equipment to the Great Slave Lake area, and may bring many mining enterprises into economic production.

One section, from Grimshaw to Notikewin, about 60 miles, had already been built by the province of Alberta. From Notikewin to the Alberta-Northwest Territories Boundary, about 245 miles, the highway is being built by the province, with the Dominion Government paying up to two-thirds of the cost, and exercising general supervisory control. From the boundary to Lower Hay River Post on Great Slave Lake, the construction is being carried out by contract for the Dominion Government through the Department of Mines and Resources. The total mileage from Grimshaw to Hay River is 386 miles.

There are of course many unusual difficulties in building a highway of this quality in northern latitudes, and in particular the builders of the Dominion section have had to overcome difficult transportation problems in moving heavy equipment to the site, and have had to battle with a relatively new engineering problem in pushing an all-weather highway across a number of permanently frozen areas. Lessons gathered from wartime construction of such roads as the Alaska Highway have been very useful, and the road to Great Slave Lake should stand up better than earlier routes have done. In the Provincial section 45 miles remain to be completed and in the Dominion section 32 miles, and all arrangements have been made to finish the road in the construction season of 1948. It is hoped that the road will be officially opened in August.

Power Plant for Yellowknife

The Snare River Storage and Power Project is being constructed at the present time by the Department of Mines

and Resources. It is located on the Snare River north of Yellowknife, N.W.T. It will provide an initial supply of 8,000 H.P. which will serve the mining interests in the area. Transportation has been one of the major problems, and plans have to be made many months in advance to assure equipment arriving in time to keep up with the construction schedule. Equipment comes by rail to Grimshaw, Alberta, and is brought by truck 386 miles to Hay River on Great Slave Lake following the new road where finished and the tractor trails used during the Canol construction. In summer, shipping facilities by water are available to Frank Channel, 70 miles from Snare, but from this point a plane must be used, or else the equipment must wait until the freeze-up, when it can be pulled in by tractor-train over the winter road. Movement of the heaviest gear is largely confined to winter when it can be transported across the ice on Great Slave Lake from Hay River to Frank Channel, about 200 miles with good ice conditions. Under this winter's schedule over 100 tons of heavy equipment will cross the lake between mid-January and the end of March, during which time ice travel is usually safe. If the transportation schedule is realized, it is expected that power will be supplied from the project by November 1948.

Fisheries research in Ungava

Owing to reports of serious malnutrition among the Ungava natives, the Fisheries Research Board has sent two parties to the region to study possibilities of additional food supplies from fishing. Last summer Max Dunbar and his assistant, Henry Hildebrand, both of McGill University, spent two months making a preliminary survey of the marine resources in Ungava Bay. A short account of their work was given in the first number of the Circular (p.6). On March 2 Henry Hildebrand left Montreal by air for Ungava Bay to study fish in two freshwater lakes in the vicinity of Fort Chimo. Mr. Hildebrand will travel by dogsledge from Fort Chimo and expects to spend two weeks fishing through ice on Lake Mendry and another lake, at present unnamed, to the west of Fort Chimo. Both these lakes drain into the Povungnetuk River. He plans to obtain biological data on the whitefish, arctic char, and lake trout, and to determine the feasibility of more extensive native winter fisheries.

Submarine trials in arctic waters

H.M. Submarine Ambush, commanded by Lieut. A.G. Davies R.N., left Rothesay Bay, Scotland, on February 12 for arctic waters. She will cruise submerged for some weeks in order to test equipment of ship and crew under prolonged low temperatures. A doctor will be carried to observe the reactions of the crew throughout the trials. The Ambush is a sister ship of the Alliance, which recently carried out similar trials in tropical waters.

The Arctic Institute of North America

In the second number of the Arctic Circular we drew attention to the membership campaign of the Arctic Institute of North America, an organization founded in 1944 with the object of encouraging arctic research. The Institute plans to publish a twice-yearly journal, the first number of which will appear in March 1948. The journal and other reports of the Institute will be sent to their Associate Members. Associate Membership of the Institute is open to all and the subscription will be $3.00 yearly. Members of the Arctic Circle, resident in Canada, who are interested in hearing more about the work of the Arctic Institute should write to the Director of the Montreal Office, 805 Sherbrooke Street West. In the United States letters should be addressed to the Director of the New York Office, Audubon Terrace, Broadway at 156th. Street, New York 32.

Page numbers in the Circular

In order to simplify reference to the Circular it has been decided that the numbers published during each year shall form a volume. Pages will be numbered consecutively throughout the volume. The first page of this issue is therefore page 20. The page numbers of the second issue should be amended to read 10 to 19. This amended numbering will be used when a table of contents is prepared at the end of the year.

Hudson's Bay Company Post Managers at Nelson River and Ungava districts, February 1948

Nelson River district		Mail
Caribou, Man.	H. Flett	
Churchill, Man.	F. Brewster	
Gillam, Man.	D.P. Gourlay	
Nelson House, Man.	A. Millar	via Wabowden, Man.
Shamattawa, Man.	L.T. Batchelor	via Ilford, Man.
South Indian Lake, Man.	A.B. McIvor	via Kississing P.O.
Split Lake, Man.	F. Bland	
Wabowden, Man.	J.H. Berg	
York Factory, Man.	T. Retallack	via Gillam, Man.
Baker Lake, N.W.T.	A. Lunan	via Churchill, Man.
Chesterfield Inlet, N.W.T.	D. Drysdale	" " "
Eskimo Point, N.W.T.	C. Russell	" " "
Padlei, N.W.T.	H. Voisey	" " "
Repulse Bay, N.W.T.	R. Foulser	" " "
Tavani, N.W.T.	R. Ploughman	" " "

Ungava district		Mail for all posts
Arctic Bay, N.W.T.	J.G. Cormack	c/o Eastern Arctic
Cape Dorset, N.W.T.	R. Cruickshank	Patrol, R.M.S.,
Cape Smith, N.W.T.	S.A.Sigvaldason	Ottawa, Ontario

Clyde Inlet, N.W.T.	J.K. Hunt
Fort Ross, N.W.T.	J.M. Stanners
Frobisher Bay, N.W.T.	J.A. Ford
Lake Harbour, N.W.T.	J. Bell
Pangnirtung, N.W.T.	R.J. Wiskware
Pond Inlet, N.W.T.	A.T. Swaffield
Southampton Island, N.W.T.	A.R. Scott
Fort Chimo, P.Q.	P.M. Wright
George River, P.Q.	B.M. May
Payne Bay, P.Q.	T. Crawford
Fort Harrison, P.Q.	J.A. Trafford
Povungnituk, P.Q.	W.A. Tolboom
Sugluk, P.Q.	W.A. Buhr

CORRESPONDENCE

The following letter has been received from the Minister of National Defence

Dear Mr. Manning:

On my return to the office on Friday after a few days spent in Washington, I received notice of the second meeting of the Arctic Circle, together with copy of "The Arctic Circular" for January and the proposed constitution. I have read these with interest and I am quite sure that you will have a very beneficial winter and that your meetings will be most educational and informative.

I note that you were electing your officers on Thursday evening. May I take this opportunity of expressing to them and the members of the Arctic Circle, my interest in their organization and to wish them every success in the future.

Yours sincerely,

Brooke Claxton

Ottawa, 17 January 1948

The following paragraph forms part of a letter from the Director of the Scott Polar Research Institute, Cambridge, England

To Mr. Manning:

It is very good news to learn of the "Arctic Circle" which you and others have formed in Canada. I most certainly hope that it prospers and that it will prove successful in every way. It will be a great boon for Arctic people to be given opportunities of meeting one another and this should provide an excellent stimulus for Arctic work.

Lancelot Fleming
Cambridge, 21 February 1948

A third parachute drop

To the Editor of the Arctic Circular:

At the end of the article "Operation Canon" in the second number of the Arctic Circular (p. 8) it was stated that apart from the U.S.A.A.F. drop at Fort Ross, "this is believed to be the only occasion when parachute jumping has been employed in the Canadian Arctic". In fact there was also a drop at Clyde Inlet on the east coast of Baffin Island in 1943.

In November 1943, the cook at the Clyde Inlet Ionospheric Station, Robert Gill, a Newfoundlander, employed by the Carnegie Institute which was at that time running the station, was stricken with what was suspected to be appendicitis. Numerous radio messages to and from Churchill confirmed this belief, but also brought the news that there was no plane available for an emergency operation. Fortunately this message was also passed out on the American radio net and was heard by Major Maunz, a U.S.A.A.F. medical officer.

Major Maunz immediately contacted his friend Colonel Haskell who offered to pilot a plane in if they could raise a volunteer crew and if Major Maunz was willing to parachute down. This was arranged at once and the plane took off. They had hoped that it might be possible to land at Clyde Inlet, but there was insufficient thickness of ice for a safe landing. Therefore Major Maunz dropped by parachute with instructions that on completion of his work he was to hire an Eskimo to guide him to Pangnirtung, 300 miles to the south, where the U.S.A.A.F. would be able to pick him up and return him to his base.

All went well and the operation, which was performed on the kitchen table, was a complete success. However while his patient was convalescing Major Maunz decided to build a snowmobile from an engine belonging to the Hudson's Bay Factor. This engine was large and unwieldy and one day in attempting to move it Major Maunz rolled it onto his foot and broke his ankle. His role reversed from rescuer to one needing rescue, Major Maunz set the cast on his own ankle and remained at Clyde Inlet until the ice was thick enough for a plane to land and take him out.

A year after the Clyde Inlet incident a sailor on board a U.S.N. submarine developed acute appendicitis while 400 miles off the coast of Brazil. Again it was Maunz, by this time Colonel Maunz, who dropped by parachute into the sea beside the submarine in order to perform the operation.

J.A. Warwick
Ottawa, 25 February 1948

VOL.I NO.4 THE ARCTIC CIRCULAR APRIL 1948

Published by
The Arctic Circle, Ottawa

Fourth Meeting of the Arctic Circle

The Fourth Meeting of the Arctic Circle was held in the 1st. Corps Troops R.C.A.S.C. Mess at 278 Sparks Street, on Thursday March 18. The President, Mr. A.E. Porsild, was in the Chair, and introduced the speaker, Lieut.-Colonel Andrew Croft. In 1933-4 Colonel Croft was a member of the British Trans-Greenland Expedition which made a dog-sled journey of 1,200 miles across the ice cap. In 1935-6 he was second in command of the Oxford University Expedition to Spitsbergen. Later he travelled widely in Lapland.

Colonel Croft showed the 16 mm. kodachrome film of Exercise Musk-Ox which he had taken when British Army Observer with the moving force. In his commentary he said that: In his opinion the Exercise had been successful in virtually everything it had set out to achieve. Starting at Churchill, and ending south of the Alaska Highway, it demonstrated that a small force, ably led, suitably equipped, and dependent on air supply, can make a relatively comfortable journey in over-snow vehicles over a wide diversity of terrain. Arctic winter conditions and, much more difficult every phase of the sub-arctic thaw, were encountered and overcome.

Award of Royal Geographical Society's Gold Medal to Mr. T.H. Manning

The King has approved the award of the Patron's Medal of the Royal Geographical Society to Mr. T.H. Manning for his explorations and survey work in the Canadian Arctic, including the mapping of Southampton Island, and the Foxe Basin shores of Baffin Island, and for his successful adaptation of Eskimo methods of travel.

New magnetic stations in the Arctic

The Division of Terrestrial Magnetism, Dominion Observatory, was able to extend its network of magnetic stations north of Lancaster Sound and Barrow Strait during the summer of 1947. This was effected by arrangements made with U.S. Navy Task Force 68 whereby Cameron Cumming, a member

of the Division of Terrestrial Magnetism, accompanied the Force to make magnetic observations at all ports of call.

Complete sets of magnetic measurements comprising declination or variation of the compass, inclination or dip and force were obtained at nine stations, namely, Etah, Greenland; Croker Bay, south Devon Island; Slidre Fiord, northern Ellesmere Island; Goose Fiord, south Ellesmere Island; Port Leopold, northeast Somerset Island; two stations at Resolute Bay, southern Cornwallis Island; Freemans Cove, southeastern Bathurst Island and Peddie Bay, southwestern Bathurst Island.

The results from the Cornwallis and Bathurst Islands stations support those from Prince of Wales Island, obtained on Operation Polco, in indicating the presence of the north magnetic pole in northern Prince of Wales Island.

It is now possible to ascertain the secular change in the magnetic elements in some areas where observations were made by the early explorers in arctic regions. When the results from all recently established stations are analyzed and the secular change established for areas in the arctic islands, all former observations can be corrected to make them applicable to the present era and can thereby be of great value in revising magnetic charts of Arctic regions.

It is of interest to note that west declination in the Goose Fiord area has decreased by 34 degrees 30 minutes and inclination increased by 17 minutes since 1901-02. In the Resolute Bay area inclination has increased by approximately one degree since 1850 and in the northeastern Prince of Wales area west declination has decreased by 33 degrees 30 minutes and inclination increased by 30 minutes since 1851.

The changes in these areas offer concrete evidence to support the opinion held by the Division of Terrestrial Magnetism that the north magnetic pole has moved a considerable distance northward since the determinations of Ross and Amundsen which placed the pole in Boothia Peninsula.

R. Glenn Madill

Canadian Hydrographic Service work on Great Slave Lake, 1947

Charting operations for the benefit of water-borne transportation on the Mackenzie River-Great Slave Lake Route were continued during the season of 1947. Field work was in charge of Mr. R.E. Hanson assisted by Mr. C.H. Martin. The area charted was the 32-mile stretch on the western side of the lake from Slave Point northward, a locality which contains

three harbours of refuge, but about which little was known. In the past, danger of striking uncharted reefs prevented shipping from using these harbours. The season's work was expedited by a new, specially designed hydrographic cruiser, the Rae, in addition to a small survey launch which was used in previous years. The latter boat charted the shallower inshore waters while the Rae sounded the deeper areas offshore.

The work proved that deep water exists both in the harbour approaches and in the protected inside areas. A number of shoals exist, but these dangers can be avoided by a few suitably placed aids-to-navigation. As a result of the work three new navigation charts will be published and large additions will be made to the existing general chart of the southern part of Great Slave Lake. With the aid of these charts shipping, which formerly was obliged to wait at the entrance of Mackenzie River for favourable weather before crossing the open lake, will be able to proceed with the assurance that good anchorage exists near their route, a fact of particular importance to tugs and barges carrying oil from Norman on the Mackenzie River to Yellowknife on Great Slave Lake. It is anticipated that the harbours will also be of great use to the fishing trade which is being developed in this area.

In addition to the regular season's charting, a small area was sounded in Great Bear River at the outlet of Great Bear Lake, to determine whether a navigable six-foot channel led from the deep water of the lake to a wharf about one mile down the river. It was found that the required depths could be obtained by removal of some boulder obstructions.

F.C. Goulding Smith

Joint Meeting of the Polar Societies of the Washington Area

A joint polar meeting was held in Washington D.C. on Wednesday March 3 at the Catholic University. The meeting was sponsored by the American Polar Society with the cooperation of the Arctic Institute of the Catholic University and the Arctic Institute of North America. Dr. Paul Siple, Temporary Chairman, opened the meeting. The first part consisted of ten minute accounts on the current activities of American Societies. Dr. Dana Coman spoke on the American Polar Society and read a note on the Arctic Circle, as it was unfortunately not possible for a member of the Circle to be present; Dr. Henry Collins spoke on the work of the Arctic Institute of North America, and Dr. Hugh O'Neill on the Arctic Institute of the Catholic University. The second part consisted of very

brief accounts of the current activities of foreign countries: Dr. K. Bertrand spoke on European societies, Dr. Coman and Dr. Paul Siple on Russian societies, and Lieut.-Commander Alton Moody on recent activities in the Antarctic. The meeting closed with a showing of coloured slides of the American Arctic by Dr. Hugh O'Neill.

Queen's University Expedition to Southampton Island

We have received news from Dr. Malcolm Brown of his plans for a second expedition from Queen's University to continue the medical studies of the Southampton Island Eskimo started last summer. A brief account of the first expedition was given in the second number of the Circular (page 17 as renumbered).

The main objects this year will be to determine the etiology of the non-specific chest infections which are so prevalent on the island, to study the metabolism of vitamin C and riboflavin, to go further into the interesting matter of the large livers, and to do a more complete survey of the incidence of parasitic infection. This will involve clinical, x-ray, bacteriological, seriological and biochemical work.

The party hopes to arrive on Southampton Island at the beginning of July and stay till the beginning of September with Dr. Bruce Cronk in charge. Dr. Brown himself will not be able to spend more than a short time with the party.

In addition to those scientists who have already been accepted, Dr. Brown hopes to take a psychologist senior enough to do independent work, a botanist, and a radiographer.

Arctic Dog Disease and its relationship to rabies

Epidemics of dog disease have frequently been reported from the Canadian Arctic but little has been known of its nature. Two recent papers by Dr. P.J.G. Plummer of the Division of Animal Pathology of the Department of Agriculture: "Preliminary note on Arctic Dog Disease and its relationship to rabies" and "Further note on Arctic Dog Disease and its relationship to rabies" (Canadian Journal of Comparative Medicine for June and November 1947) are therefore of unusual interest.

When news was received early in 1947 of an outbreak of the disease at Baker Lake, Dr. Plummer flew there and, though the disease had subsided, obtained the frozen carcasses of three dogs and one fox. He also received material from two other sources. Dr. R.M. Shaw of Edmonton sent the brain of a mouse which had died after inoculation with brain tissue from

a wolf. This wolf had bitten a dog at Aklavik and both had subsequently died. Captain George E. Espy of the U.S. Veterinary Corps sent specimens from six dogs which had died at Frobisher Bay.

Dr. Plummer's papers are based on his researches on this material and the information he obtained in the field. He states that "it is believed that in addition to dogs, foxes wolves and possibly lemming are susceptible. The disease is said to occur in cycles of from 7 to 12 years commencing in late autumn or early winter with a tendency to subside in the summer. The cycles coincide with an increase in the populatic of foxes and lemming." In the Baker Lake district there was a severe outbreak of dog disease in 1934 when there was a large fox population and another in 1946-7 when lemmings were numerous.

At the Animal Disease Research Institute at Hull, Quebec, various animals were inoculated intracranially with ground brain tissues from the specimens from Baker Lake and Frobisher Bay, and from the mouse associated with the Aklavik outbreak. In post mortem examinations of the majority of inoculated animals the presence of negri bodies, specific of rabies, was demonstrated.

Dr. Plummer concludes that "The presence of rabies has been established in Baker Lake, Aklavik and Frobisher Bay, areas representative of Eastern, Central and Western parts of the Northwest Territories. It seems reasonable to assume that the disease is spread throughout the Northwest Territories. At least two species of wild animals - the fox and the wolf - are affected, but the incidence among these animals is unknown. This infection of wild animals constitute a reservoir from which dogs and other animals, including man, may be infected, and because control measures cannot be undertaken in wild animals over a vast area they are likely to rema reservoirs of the virus for many years to come. The dogs in the Northwest Territories may be given a considerable degree of protection by vaccination. This will form an important step in protecting human beings against rabies since the latter are most likely to be infected by dogs. The question still remains as to whether Arctic or Northern Dog disease is a combination of a number of different conditions or whethe the virus of rabies is the only cause".

In the records of the Department of National Health and Welfare there is no diagnosed case of rabies among the human population in the Canadian Arctic. It is therefore interesting to note that in conversation with the Eskimo at Baker Lake it was reported that during the last outbreak, a young Eskimo girl had been bitten by a "crazy dog". The girl complained of a stiff neck and sore throat and eventually died. This was very suggestive of rabies but unfortunately the brain could not be obtained for examination.

Keewatin and northern Manitoba, 1947

On May 30, in company with Dr. F. Harper, I flew to Nueltin Lake, which lies half inside Manitoba and half inside Keewatin. We made a ski-landing on a bay at the northwest end of the lake and camped in buildings belonging to Charles Schweder, the only resident on the lake. Harper remained here all summer, but in the last week of June, with Charles Schweder, I travelled south to Brochet on Reindeer Lake.

The trip was made by 18-foot canoe without benefit of motor, though we carried one along - of vintage 1921 - in the hope that we might meet someone who would donate a gallon of gas. Our route lay through Nueltin Lake, then up the Kasmere River to the height of land between it and the Cochrane River; from there a series of twenty portages took us to the Cochrane River, which we followed to Reindeer Lake. This part of the trip took ten days, but with the exception of a few Chipewyans we met no one en route. On July 18, with 1600 lbs. freight in our canoe we started back for Nueltin Lake, retracing our original route, and arrived back at the Schweder camp on August 4.

During this trip we did some very rough mapping, filling in ground data on the 8-mile Surveys map of the area, and we also did as much biological work as we had time for, making collections of invertebrates and observations on vertebrates.

Early in August, Schweder and I moved out into the barrens to the north of Nueltin Lake. We travelled on foot with a string of five dogs, each of which pulled a "summer sled" or miniature travois. We contacted the few remaining Upper Kazan Caribou Eskimo and then made our way back to Nueltin Lake.

On August 15 we set off again, by canoe, to try and make our way to Churchill via "Big River", (the Thlewiaza of the map). We had no maps with us and no information on the route, but were able to find our way without much trouble. On August 25 we arrived at George Lush's cabin at the mouth of Big River, a little breathless after a spectacular run down the river, which is in fact one long rapid with a few little lakes strung along it. From Big River we went north to Eskimo Point, looking for gas for our antique engine, but we got caught in an early September gale and lost our relish for deep-sea cruising. From Eskimo Point we returned to Churchill by air.

During the summer about 100 fish, bird, and mammal specimens were taken, and much data accumulated on the caribou. Our mapping efforts were weak but we did map the north end of Nueltin and found the total length of the lake to be about 130 miles.

A total of 1100 miles was traversed by canoe, dog-team, and on foot, and everything that has been said about mosquitoes and flies on the barrens in summer is, in my opinion, an understatement.

F.M. Mowat

Baffin Island Mercy Flights

During the past two months there have been two flights to Baffin Island to evacuate sick persons. They were to Clyde River on the east coast of Baffin Island and Arctic Bay, Admiralty Inlet, and were known as Operation Clyde River and Operation Dodds respectively. Compared with Operation Canon which occured at the difficult time of freeze-up both flights were straightforward, as it was possible in each case to land on the sea ice.

On February 17 news was received that Mrs. Hunt, the wife of the Hudson's Bay Company's Post Manager at Clyde River, was seriously ill. This news was passed to the Rescue Coordination Centre at Halifax, one of five such centres across the country. As there was no R.C.A.F. ski-equipped plane readily available, the Americans stationed at Goose Bay agreed to send a plane. The U.S.A.A.F. ski-equipped Dakota left Goose Bay on February 19, arriving safely at Frobisher. Owing to bad weather the plane was unable to take off for Clyde River until February 25 when the patient was success-fully picked up and taken back to Goose Bay the same day. The following day Mrs. Hunt was flown to Montreal by the R.C.A.F.

The second flight was in order to evacuate Mrs. S. Dodds, wife of the meteorological officer, who had been ill for four months. It was carried out by an R.C.A.F. Dakota piloted by F/O Bob Race who had evacuated Canon Turner from Moffet Inlet south of Arctic Bay in November. The plane left Winnipeg on March 22 for Churchill. The next day they continued to Coral Harbour where they remained overnight, taking off on March 24 for Arctic Bay. Bad weather however forced the plane to return and it was not until March 27 that a successful landing was made at Arctic Bay. In addition to Mrs. Dodds, a sick Eskimo, Akemallie, was taken aboard the plane which returned direct to Churchill. After an overnight stop the plane took off for Winnipeg, picking up at The Pas a third patient, the 2-day-old son of Lieut. and Mrs. S. Martin, stationed at Churchill, who had been flown down to The Pas by Norseman. The plane arrived safely on March 29 and all patients were admitted to Winnipeg hospital, little the worse for the journey.

Development of the snowmobile

The lessons learned on Exercise Musk-Ox indicated a development trend for northern vehicles. As was obvious from the latter part of the journey, Penguin Mark I was capable of traversing arctic terrain either frozen or thawed. This snowmobile was still an experimental type of vehicle and there were many undesirable design features and shortcomings in performance.

National Defence Headquarters has recently released information and photographs of their newest vehicle, Penguin II. This vehicle, while it incorporates many design changes, is a logical development from Penguin I as used on Musk-Ox and is still in the experimental class.

The main features are improved mechanical reliability and increased personel comfort and weather protection. Penguin Mark II is wireless-equipped and carries five persons with their essential personal survival equipment. It is heated and weatherproofed and, as a safety measure, it will float in water. It is capable of towing heavy loads and in spite of its great weight the wide tracks permit it to travel over places where a man without snowshoes would sink in snow or mud. It is hoped that the development progress made by the Canadian Army in this field will stimulate commercial development of arctic type vehicles.

McClintock's telescope and books

A few years ago a brass telescope and some books came into my possession. They had belonged to Captain Leopold McClintock and had been used by him on the famous voyage of the Fox, 1857-59, when the fate of the Franklin expedition was finally discovered.

After the return of the expedition McClintock gave the telescope and three books to the Dane, Carl Petersen, who had served on the expedition as interpreter and dog driver. In Petersen's memoirs, "Den sidste Franklin Expedition med Fox, Capt. McClintock", (Copenhagen, 1860) the good quality of the telescope is often mentioned.

From Carl Petersen (1813-1874) these possessions passed to his son, Pavia Petersen (1841-1882) who was surveyor and topographer in the Royal Danish Staff; and in turn they went to his son, Carl Petersen Jr. (1874-1923) who was Professor of Architecture at the Royal Academy of Arts in Copenhagen. Carl Petersen Jr. gave the McClintock possessions to his life-long friend, my father, Dr. Morten P. Porsild, then Director of the Danish Arctic Station at Disko, Greenland, who gave them to me in 1937.

The telescope is a plain 3-extension telescope, 25 inches long, with a 1¾-inch front lens. Although much worn from long usage, it is still a pretty fair instrument.

The three books are: Franklin's "Narrative of a Journey to the shores of the Polar Sea, in the years 1819,20,21, and 22" (London, 1823) and "Narrative of a second expedition etc. 1825, 1826, and 1827" (London, 1828) and a copy of W.E. Parry's "Journal of a second voyage for the discovery of a Northwest Passage from the Atlantic to the Pacific; performed in the years 1821-22-23, in his Majesty's Ships Fury and Hecla" (London, 1824). All three volumes have seen much use and, after most of the original covers had worn off, were bound in heavy canvass. Inserted into one of the Franklin volumes is a "Supplement to Saturday Magazine, December, 1833" with an article entitled, "A further account of the Arctic Regions", which gives the story of "Captain Franklin's First and Second Journies", "Beechey's Voyage", and the "Last voyage of Captain Ross".

Unfortunately neither the telescope nor any of the three volumes are inscribed by McClintock or by the succeeding owners. At my request my father attached a signed and sealed document to the telescope, giving its history as related to him by Carl Petersen Jr.

A.E. Porsild

Plans for an icebreaker for the Royal Canadian Navy

On March 25 the Minister of National Defence announced that construction of a large modern icebreaker for the Royal Canadian Navy had been approved, and that preliminary planning had already started.

Russian medical research expedition

It has been reported that a Russian medical research expedition is now in the field. The expedition left Archangel by air for Nar'yan-Mar in the Pechora delta region.

Department of Transport personnel at arctic stations, March 1948

Meteorological personnel

Aklavik, N.W.T.	Arctic Bay, N.W.T.
G.M. Chapman	S.H. Dodds
Mrs. Chapman	F.E. Kerbrat
P. Chorney	A.H. Pearce

Cambridge Bay, N.W.T.

J.R. Clark

Coppermine, N.W.T.

R.M. Clupa
W.A. Craigie

Eureka Sound, N.W.T.

J.L. Courtenay
C.M. Dean
D.C. Hatfield

Fort Simpson, N.W.T.

M.H. Wilson
V. Draginiuk

Fort Smith, N.W.T.

H.W. Carson
T.P. Gannon
R. Jones
H.J. McCabe
T.G. Richmond
F. Souder
R.P. Woyartka

Great Whale River, P.Q.

E.B. Davidson

Norman Wells, N.W.T.

W.E. Stewart
Mrs. Stewart
J.W. Clark
H.R. Haller

Resolute Bay, N.W.T.

G. Beauchamp
N.H. Hulse
R.W. Rae
G.A. Wright
A. Yurchyshyn

Southampton Island

A.R. Hughes
J.D. Hincheliffe

Radio personnel

Cape Hopes Advance, P.Q.

J.K. Koehler
H.B. Sabean
J.M. Chevron
D.L. Labrash (Cook, housekeeper)

Chesterfield Inlet, N.W.T.

E.P. Doyle
L.V. Decloux
G.A. Parkinson
E.J. Fenton
Mrs. Doyle (Cook, housekeeper)

Clyde River, N.W.T.

N. Whitaker
A.B. Neill
E.J. McCrae
A. Perrin

Fort McKenzie, P.Q.

J.R.R. Valiquette
S.W. Childerhouse
W.K. Lank
J.P. Greene

Nottingham Island, N.W.T.

A.W. Wilson
S.L. Cairns
D.D. Maclean
W. Shackleton
J. Bock (Cook)

Resolution Island, N.W.T.

J.A.R. Geddes
J.A. Weir
R.W. McWilliams
J.R. Summers (Cook)

Southampton Island, N.W.T.	Yellowknife, N.W.T.
W.G. Baker	D.G. Mackenzie
M. Pal	C.D. Fisher
J.E.L. Cooper	A.T. Ferguson
	H.E. Cook
	J.R. Bryson

Note: At Churchill there are some 60 D.O.T. personnel but it is not practicable to give a list owing to constant changes.

Editorial Note

The Editor would welcome contributions from those who are at present in the Arctic or have information about work in the Arctic, either in the form of correspondence or of notes. It is hoped that it may be possible in the future to include news from northern posts. All material for the Circular should be sent to:

Mrs. Graham Rowley,
Editor Arctic Circular,
411 Echo Drive,
Ottawa.

CORRESPONDENCE

The following paragraph forms part of a letter from the Director and Secretary of the Royal Geographical Society:

To the Editor:

I should be very glad if you would convey to the Club the best wishes for its prosperity from the President and Council of the Royal Geographical Society and from myself.

L.P. Kirwan

VOL.I NO.5 THE ARCTIC CIRCULAR MAY 1948

Published by
The Arctic Circle, Ottawa

Fifth Meeting of the Arctic Circle

The Fifth Meeting of the Arctic Circle was held in the 1st. Corps Troops R.C.A.S.C. Mess at 278 Sparks Street, on Tuesday April 13. The President, Mr. A.E. Porsild, was in the Chair, and introduced the speaker Dr. Hugh M. Raup, Associate Professor of Plant Geography and Director of the Harvard Forest. Dr. Raup described a joint botanical, geological, and archaeological investigation carried out along the Alaska Highway in the field seasons of 1943 and 44. Following a brief account of the geography of the Highway, with notes on its scenery and travel conditions, the speaker discussed a series of problems in the light of the three sciences represented in the field. The development and distribution of forests and other types of vegetation were seen not only as objects of investigation in themselves but also as reflections of the development of post-glacial climates, soils, and surfaces. In turn, the appearance and growth of human culture in the region must have been dependent upon the appearance of vegetation and the game animals that fed upon it; and the continuity and development of this culture must have been conditioned by changes of climate, vegetation, and soils.

While in Ottawa Dr. Raup made preparations for an expedition to the Kluane Lake region of the Yukon in the summer of 1948. In this he is collaborating with Mr. Frederick Johnson, Curator of the Peabody Foundation for Archaeology at Andover, Mass. The expedition will continue the investigations begun in 1943 and 44.

New arctic weather stations

Two new Canadian-United States arctic weather stations are being established from Resolute Bay, Cornwallis Island. Both are in the extreme west of the Arctic Archipelago, one at Mould Bay in the southeast of Prince Patrick Island and the other on the south coast of Isachsen Peninsula, Ellef Ringnes Island. A small airstrip for supply purposes will be constructed during the summer at each station.

Both islands are very remote and have been visited only rarely. The southeast coast of Prince Patrick Island was

mapped by McClintock in 1852 and has probably not been visited since except by Sir Hubert Wilkins, who made a water landing in 1937 during the search for the missing Soviet flier, Levanevsky.

Isachsen Land was discovered by Sverdrup's expedition in 1900 and has since been visited only by Stefansson, in 1916 and 1917.

In addition to frequent surface weather reports, both new stations will take radiosonde observations twice a day of pressure, temperature, and humidity, up to approximately 50,000 ft. Weather reports transmitted every six hours to the main centre at Edmonton are already being included in the international exchange of weather information. It is anticipated that reports from these little-known areas will be of the greatest value to meteorologists in the investigation of the general circulation of the atmosphere and in long-range weather forecasting.

The staffs at Prince Patrick Island and Isachsen Peninsula consist in each case of six men, including a cook. The officers-in-charge are: Mr. R. Jones, of Swift Current, Saskatchewan, at Isachsen, and Mr. P. Chorney, of Port Arthur, Ontario, at Prince Patrick.

"Ptarmigan" weather reconnaissance flights to North Pole

For well over a year now the U.S.A.F. has been conducting regular weather reconnaissance flights between Fairbanks, Alaska, and the North Pole. The original route, called "Ptarmigan", was from Ladd Field at Fairbanks, to the North Pole and return, via Point Barrow. With the approval of the Canadian Government the route was revised to that currently flown, which is known as "Ptarmigan B", or "Ptarmigan Baker": Ladd Field -- Point Barrow -- Prince Patrick Island -- Aklavik -- Ladd Field. This route is flown in a clockwise or anti-clockwise direction, depending upon the weather situation, tail-winds naturally being preferred.

Through the courtesy of the U.S.A.F., it was the writer's privilege to be carried as an observer on one of these flights, which took place January 28 - 29, 1948. The following notes regarding the procedure followed may be of interest to members of the Arctic Circle.

The reconnaissance flights are carried out by "A" Flight of No. 375 Reconnaissance Squadron (VLR) Weather, based at Ladd Field. "B" Flight, stationed at Anchorage, Alaska, is responsible for daily "Stork Baker" weather flights between Anchorage and Fairfield, near San Francisco, California. The squadron's aircraft are B29's stripped of armament (including

turrets) and with extra fuel tanks installed in the bomb bays.

As well as the normal B29 aircrew complament of pilots, navigator, wireless operator, flight engineer and flight mechanics, an extra navigator (and sometimes a third) is carried because of the many astronomical observations required in present day polar navigation, and one or more radar operators to watch the search radar P.P.I. (Plan Position Indicator). Probably the busiest crew member of the lot, however, is the meteorologist, who sits in the nose of the aircraft, in the old bomb-aimer's position.

The meteorologist is a qualified forecaster, who has been specially trained as an observer for these missions. Several hours before take-off, while some of the rest of the crew are still in bed, he is in the Squadron Met. office, drawing up the synoptic charts for the flight. He takes copies of the surface and 700 mb. charts with him in the air and amends them from actual observations. The effect on the rest of the crew is a far greater confidence in their knowledge of the weather ahead than is true on other aircraft operations, however good the forecast. It also produces a most comfortable feeling in the passenger, especially on routes such as "Ptarmigan's".

The time of take-off, and the route to be followed (i.e. either clockwise or anti-clockwise) will have been determined by the navigators some twelve hours or more before, partly as a result of forecasted winds and weather, but also on the amount of daylight, twilight, or full night there will be along the route. Since astronomical observations are relied on as a direction reference and for position fixing when over the Polar Sea, favourable conditions for observing sun, moon, planets, or stars, are most important. Radar map-reading, though difficult at times with icebound snow-covered coasts, is possible during part of the route. But over the ice-covered ocean, all the radar officer can do is watch the bright and dark patches (from pressure ridges and open leads) cross his scope, so obtaining the aircraft's drift and ground speed, but not its direction or position.

Although weather soundings from the 700 mb. level to 500 ft. are made on the "Stork Baker" run, the "Ptarmigan" aircraft stay as close as possible to the former height (approximately 10,000 ft.) over the whole route. On the run to the coast the meteorologist gets all his gear in order. Surrounding him are his various instruments, wet and dry bulb thermometers, airspeed indicator, pressure and radar altimeters, and an automatic instrument known as an aerograph which records temperature, humidity, pressure, and airspeed. A transparent plastic chart table is fitted so as not to obscure his vision of clouds, etc.

As the coast is crossed near Point Barrow or Aklavik, the radar and pressure altimeters are read, and the latter adjusted to correspond with the ground station's radiosonde observations. From then on, meteorological observations are made every half-hour, the navigator supplying the aircraft's latitude and longitude. Observations include temperature, humidity, pressure, height of 700 mb. level, wind velocity (from navigator), amount and type of cloud with height of bases and tops where possible, turbulence, precipitation, icing, visibility, and miscellaneous weather phenomena such as condensation trails, state of sea or sea-ice, haloes, coronae and electrical phenomena.

Immediately each series of observations is concluded it is coded by international code into message form and radioed to Ladd Field or an intermediate station. From there the data is relayed to central weather offices at Washington, Toronto, and so on, to appear soon after on the synoptic charts of widely scattered weather offices, as neat little symbols, about 100 miles apart, all the way from Alaska to the Pole.

Each of these flights lasts about 17 hours -- in the summer in continuous daylight and in the winter in almost complete night -- and requires several thousands of gallons of gasoline as well as many man-hours of work. But they help to fill in a very large gap in our northern weather reporting network. Up to the present the frequency of the "Ptarmigan" flights has not been much greater than once per week. The ultimate aim, however, is for one per day, or at least at a sufficiently short interval for individual arctic weather systems to be watched continuously, and long range forecasting for the more populated latitudes of North America, and the North Atlantic routes, thereby improved.

K.C. Maclure, W/C

Archaeological and ethnological investigations

Dr. Douglas Leechman, who left Ottawa on May 11, plans to spend some four months in north-west British Columbia and the adjoining areas of Alaska and the Yukon on an archaeological reconnaissance. His principal aim is to find evidence regarding the routes of migration from Siberia into North America.

Dr. Leechman will also assist Miss Catherine McClellan and Miss Dorothy Ranier from Berkeley, California, who are working along the Yukon part of the Alaska Highway. They are studying the problems of acculturation between the interior Kutchin Indians and the coast-dwelling Tlinkits.

Indian and Eskimo Health Services

At the meeting of the Northwest Territories Council on April 28, Dr. W.L. Falconer, Assistant Director of Indian Health Services, Department of National Health and Welfare, described plans for extending health services to the Indians and Eskimo of the Northwest Territories.

Four new nursing stations are to be built at Coppermine, Fort McPherson, Good Hope, and Fort Norman this year. These stations will supply health services to Indians and Eskimo in the area, including dispensing drugs, and the treatment of ailments which do not require hospitalization. Each station will be in the charge of a qualified resident nurse. One or two beds will be available for emergency cases, and the stations will serve as centres for clinics or x-ray surveys to be held during periodic visits by the Departmental medical officer in that area.

A mobile x-ray unit has been sent to the Mackenzie River area and, where possible, tuberculosis surveys are being carried out. Indian Health Services is willing to extend these x-ray services to the non-Indian population as well. In the Northwest Territories the professional services of Departmental Medical Officers are given without charge to the patient.

In Manitoba tuberculosis surveys carried out during 1947 resulted in almost half of the Indian population being x-rayed. Plans are under way to x-ray the remainder this year. Another survey was also made in the James Bay District. Although the Indians form only 1 per cent of the Canadian population it is estimated that they account for 10 per cent of the tuberculosis. The gradual opening of the Brandon Sanitorium has recently made about 220 additional beds available for Indian patients and it is expected that the Clearwater Lake Indian Hospital, The Pas, will be completed within the next few months. The latter will provide a hundred beds. Mention should also be made of the new hospital at Moose Factory, a detailed account of which was given in the second number of the Circular (p. 19 as renumbered).

Closing of the Hudson's Bay Company's post at Fort Ross

The Hudson's Bay Company closed their post at Fort Ross on Somerset Island during March of this year. The post was established by the Nascopie in 1937 and has always been difficult to supply owing to ice conditions in Prince Regent Inlet. Even before the loss of the Nascopie, which further complicated the supply position, the H.B.C. had decided to close the post. The Post Manager, Mr. J. Stanners, came out by dog team to King William Island and then on to Cambridge

Bay where he was flown out to Yellowknife. The clerk at Fort Ross went to Arctic Bay by dog team.

The H.B.C. plans to open a new post in the summer of 1949 at Spence Bay, on the west coast of Boothia Isthmus, to take the place of Fort Ross. Building materials will be taken in on the Nigalik from Tuktuk this summer. In the meantime the Eskimo who have previously traded at Fort Ross will probably use the Company's post at Gjoa Haven, King William Island, or that at Arctic Bay.

Supply of northern posts

The loss of the R.M.S. "Nascopie" has seriously complicated the supplying of Eastern Arctic posts, the changing of personnel at the posts, medical service to the native population, and the inspection of government interests. In the absence of any suitable large ship pending the completion of the new government vessel, this work will, of necessity, have to be done piecemeal by a number of small ships visiting different areas. Five or possibly six small vessels, averaging about four hundred tons each, are likely to be used, but the planning of their itineraries is not yet complete.

R.C.A.F. aerial photo operations

The R.C.A.F. Photographic Survey commitment for 1947 was the largest undertaken up to the present time. It involved roughly 300,000 square miles of tri-camera and 200,000 square miles of vertical photography and stretched across Canada from Fort Chimo in the east to Penticton in the west. The actual coverage achieved was about 402,000 square miles.

Tri-camera survey photographs are used by the Surveys and Mapping Bureau of the Department of Mines and Resources to produce aeronautical charts and may be considered as a preliminary survey in as much as it is generally necessary to follow up with vertical photography for detailed mapping and analysis. For the tri-camera operations two Mitchell and one Lancaster aircraft of 413 Squadron R.C.A.F. were employed. In about 2½ months these three aircraft succeeded in photographing some 194,000 square miles of Northern Ontario and some 98,000 square miles west of Hudson Bay, nearly 1/12th of the total area of Canada. In doing this a lineer distance of over 18,000 miles was flown on photo lines to which should be added about 25% for attempted photo flights and 10% for flying to and from the operational areas. Kapuskasing and Armstrong were used as bases for the Northern Ontario work and Churchill for that west of Hudson Bay.

Closely allied to the photo operations, and transported and maintained by another detachment of 413 Squadron, were

the Geodetic Survey parties under B.J. Woodruff. Two Canso amphibious aircraft and four Norsemen on floats were supplied for this work, an account of which appeared in the third issue of the Circular (pages 24 and 25).

The vertical photography programme was undertaken by twelve Dakota aircraft from 414 Squadron and one Mitchell from 413 Squadron. (The Mitchell was lost in October while on a reconnaissance flight from Calgary to Penticton). Results in the field were not so successful as those of the tri-camera operations. The bulk of the area to be photographed centred around the Mackenzie river basin and Yukon Territory where the weather was the poorest in years. In spite of extending the season until October, only 125,000 square miles of new coverage and 25,000 square miles of the previous season's programme were accomplished. This entailed flying over 52,000 linear miles as against 19,000 linear miles for the much larger area covered by the tri-camera work.

The vertical photography detachments used more bases than those on tri-camera. Starting in the "banana belt" in the early summer, they pushed north with the break-up and returned when the weather chased them south. The bases used were: The Pas, Man., Calgary, Alta., Edmonton, Alta., Penticton, B.C., Prince George, B.C., Whitehorse, Y.T., Yellowknife, N.W.T., Norman Wells, N.W.T., Churchill, Man., Fort Chimo, P.Q., and Goose Bay, Labrador. Since it was necessary to drop in at Sea Island, B.C., for parts during the summer, it might be said that the continent was spanned by the photo squadrons in 1947.

It is hard to appreciate what is involved in carrying out present-day operations north of rail head. To arrive at some idea of the scale on which the R.C.A.F. is now operating, the following figures for both photo squadrons are given: 6,109 hours flying time, 63,200 linear miles flown, 336,358 gallons of gasoline and 3,270 gallons of oil used, 78,000 lb of rations flown into bases along the Mackenzie. Behind this tremendous effort are the supply and organization tasks which make such operations possible, and the vital close-knit co-operation between the various branches using air photographs. The field work is only the beginning. The Photo Establishment at Rockcliffe processes exposed film and produces prints to meet the exacting requirements of the photogrammetist for plotting the photos and producing the maps. To complete the 1947 work this establishment produced 590,000 prints for use by various survey agencies.

This year the programme is even larger. It is hoped to cover about 550,000 square miles of territory, and two squadrons and 250 men are involved. Four new Lancasters have been added to 413 Squadron and will eventually replace the smaller Mitchells for long-range flying.

The work is divided into two areas. The 12 Dakotas of 414 Squadron will do vertical work in the northwest, operating from Calgary, Alta., Whitehorse, Y.T., Watson Lake, Y.T., Fort Nelson, B.C., Norman Wells, N.W.T., Edmonton, Alta., Yellowknife, N.W.T., The Pas, Man., and Prince George, B.C. One detachment will move east to Bagotville, P.Q. about July 1. It is hoped that this squadron will cover about 250,000 square miles in all.

The second area of operations is in the northeast where 413 Squadron, doing mostly tri-camera work, will operate in northern and central Quebec and Baffin Island, with an alternative area west of Hudson Bay in case weather conditions prevent photography of the primary objective. This squadron will be based on Goose Bay, Labrador, Fort Chimo, P.Q., and Frobisher, Baffin Island and has a programme of 300,000 square miles. In addition to the photography, geodetic survey parties will be landed by Canso at 30 points on Baffin Island, Southampton Island, and on Melville and Boothia Peninsulas.

Experiments are now being carried out with Shoran-controlled aerial photography, which may eventually be used in the regular work. This electronic method accurately establishes the position of each aerial photograph and thereby simplifies map-making.

Mercy flight to Cape Hopes Advance

On April 21 a Canso flying boat and a Norseman aircraft flew from Fort Chimo to Cape Hopes Advance to bring a sick Eskimo woman out to hospital. This was an extremely long flight for a Norseman over such country, but there was no other ski-equipped aircraft available. The Canso was sent as an escort in case of emergency. The Norseman, however, landed safely despite a 50-mile-an-hour gale, while the Canso, with a parachutist ready to jump, circled overhead. After the patient had been put aboard, the Norseman was turned head on to the wind by twenty Eskimos and the pilot took off successfully. Both planes flew to Fort Chimo, where three more Eskimo patients were taken aboard. The Norseman developed engine trouble and had to remain overnight at Chimo, but continued the following day to Goose Bay, whence the patients were flown to Halifax in the Canso.

Tractor trains on the Snare River Hydro Project

By arrangement with the Department of Mines and Resources one Officer and two NCOs of the Royal Canadian Army Service Corps were attached to the Snare River Hydro Project, to observe and to assist in the winter freighting for the Project. By agreement the soldiers were subject to the instructions of

Mr. W.G. Stuart, resident engineer, and Mr. A.C. McEachern, construction superintendent.

The army personnel arrived at Snare River on 17 January 1948. On 5 February the Officer and one NCO proceeded with the first tractor train to Frank Channel, a distance of 68 miles to the south, returning with a small load on February 15. Regular runs were initiated from February 16 with two D-7 caterpillar tractors, in almost continuous operation, bringing in from Frank Channel a total of 836 tons of freight, made up of lumber, cement, and construction supplies.

In addition two swings were made into Yellowknife via Frank Channel, a distance of about 150 miles, carrying 325 tons of freight, and one swing into Hay River also via Frank Channel, about 300 miles, carrying 230 tons.

The RCASC personnel were present on the majority of these trips, returning to Army Headquarters on March 29.

Fisheries research in Ungava

Henry Hildebrand, graduate student in Zoology at McGill University, returned to Montreal on April 17th after spending four weeks investigating the fish fauna of several freshwater lakes in the vicinity of Fort Chimo, Quebec.

Investigations were carried out by fishing under the ice with the aid of two Eskimo helpers. Material was gathered relating to the winter biology of the lake trout, whitefish and suckers. Whitefish were obtained ranging from 45 to 50 cm. in length. A notable feature was the apparent scarcity of char.

The Lake Winnipeg jigger for setting nets under the ice was shown to the Eskimos in this region for the first time. They were very enthusiastic about it, and by next year it is expected that they will have made their own and have them in operation.

A small collection of birds was made for the National Museum of Canada in Ottawa.

Fisheries research vessel for the Eastern Arctic of Canada

The marine biological reconnaissance of Ungava Bay (1947) (Circular No.1 p.6) is to be continued and extended. The Fisheries Research Board of Canada proposes to make a thorough oceanographic and biological investigation of much of the eastern arctic area. This work, long needed, will take several years to complete, and requires a special research vessel.

The boat is at present (May 1948) under construction at Mahone Bay, Nova Scotia. She is specially designed to work both at sea and close inshore, and to be drawn up on the shore during the winter. Her principal dimensions will be: length 49 ft 6 inches overall; beam 15 ft; draught 6 ft. Built on the lines of a Scottish yawl or Scandinavian fisherman, she is a double-ender (canoe stern), and very stoutly built. Frames are of oak, 12 inches apart centre to centre, and planking below the water-line is 2-inch yellow birch. She is thus considerably heavier and sturdier than other boats of similar length built in Nova Scotia; she is also of somewhat greater beam. She will carry staysail, mainsail and mizzen, and will be powered with a 77 h.p. heavy duty Diesel engine. Her equipment includes echo sounder, radiophone, winch and gallows frames for otter-trawling and beam-trawling, auxiliary 2.5 kilowatt generator, electric hydrographic winch, and heating throughout. Her below-deck arrangements, reading from stem to stern, is as follows: Forecastle for crew of four Eskimos; laboratory and two-berth cabin; cargo space; engine room; galley and toilet; saloon with berths and two benches.

This vessel, which is to be named Calanus, will be the first boat built specifically for marine research in arctic Canada. In size and purpose she compares with the new Danish research vessel Adolf Jensen, built during the war for the Greenland fisheries research. The present plan is to sail her up to Ungava Bay during the month of July.

M.J. Dunbar

Search for the breeding grounds of the Whooping Crane

The Whooping Crane, one of the most interesting birds in North America, has been in danger of extinction for some time, although protected by law. There are now only 32 Whooping Cranes alive. Two of these are in a zoo at New Orleans; one is a non-migratory individual in the Louisiana marshes; and the remaining birds are on the Aransas Refuge or immediate vicinity on the Texas coast. Last year there were six young produced.

Two American ornithologists plan to search for the breeding grounds of the Whooping Crane this summer. If these could be discovered it might be possible to find the reason for the approaching extinction of the race.

Robert H. Smith of the United States Fish and Wildlife Service and Robert P. Allen of the National Audubon Society plan to leave Regina about June 1 for Aklavik. Flying a Grumman "Widgeon", a small twin-engined amphibian, their route will take them down the Athabaska, Slave and Mackenzie rivers. On the way they will investigate marsh areas.

Using Aklavik as base they will cover the coast between the Alaska boundary and the Anderson river, getting as thorough a coverage as possible in the Mackenzie delta and the Eskimo Lake region. If it is necessary to go east of the Anderson river, gasoline will have to be flown in to some convenient place.

Dr. Hammer's ecological investigations in the Canadian Arctic

Dr. Marie Hammer of Copenhagen is on her way to Aklavik to collect oribatidae and collambola, microscopic mites and insects found in the surface soil. This field of research has barely been touched upon in Canada, and Dr. Hammer wishes to compare the species found here with those of Greenland, where she has herself done considerable work. To collect these tiny insects Dr. Hammer will use a Berlese funnel, an apparatus not before used in Canada. The earth containing the insects is placed on wire mesh on the top of the funnel, which is then subjected to heat or strong light. This causes the insects to go downwards in search of damp darkness and they are collected in alcohol at the foot of the funnel. The same result can be obtained by allowing the earth to dry out, but this of course takes longer. Dr. Hammer has made her own variation of the apparatus, whereby seven funnels can be heated by one flame.

From Aklavik Dr. Hammer will go to Coppermine and later she will visit Churchill and possibly Goose Bay, Labrador. In addition to her own work she will make collections of plants and insects for the Botanical and Zoological Museums in Copenhagen.

Arctic Dog Disease

In connection with the account of Dr. P.J.G. Plummer's recent papers on Arctic Dog Disease and its relation to rabies, given in the fourth number of the Circular (p. 34) the following extract may be of interest. It is taken from the diary of Dr. A.P. Low (F.B. 2484 of the Geological Survey) dated March 9, 1902. We are indebted to the Chief of the Geological Survey for permission to publish it. In 1901 Dr. Low temporarily left the Government service and was employed by a private mining company to report on the ore of the Nastapoka Islands. He spent the winter of 1901-02 at Port Harrison.

"Mar. 9. The last of the northern Eskimos arrived (i.e. at Port Harrison) this week and those from Cape Wolstenholme are not coming this year on account of the dog sickness. We have lost another dog this week. This makes six dead to date. Two died on the packet trip and four at the place here. The disease appears to be a brain trouble with partial paralysis.

The dogs froth at the mouth move the head from side to side with a nervous twitching. The mouth remains open and there is a great difficulty in breathing as if the muscles of throat and lungs were paralysed. Towards the end they are unable to swallow and the jaws appear locked. The disease is not highly contagious or infectious as the dogs mingle freely with the sick and are sometimes even bitten by them without any sign of infection. The disease may come from the foxes as two or three vicious foxes have been killed here and they may communicate the disease by bites or by the flesh being eaten by the dogs." (P.B. 2484 p. 34).

Arctic

We are glad to welcome the first number of Arctic, the journal of the Arctic Institute of North America, which has appeared since the last issue of the Circular. It includes articles on meteorological services in Alaska, Greenland, and arctic Canada, the search for the magnetic pole, international cooperation in arctic research, the Encyclopedia Arctica, and the future development of Greenland, as well as news items and book reviews.

New edition of World Aeronautical Charts

The Aeronautical Chart Service of the U.S. Air Force, Washington, D.C. has just issued a new edition of several sheets of the World Aeronautical Chart series 1:1,000,000, covering a large part of the Canadian Arctic Islands. The maps are dated April 1948 and incorporate extensive revisions based on recent information.

Editorial Note

During the summer months, when so many members are away in the field, the Circular will be published less frequently. We hope to resume issuing regular numbers in the fall. Any contributions for summer numbers should be sent as usual to:

Mrs. Graham Rowley,
Editor Arctic Circular,
411 Echo Drive,
Ottawa.

VOL.I NO.6 THE ARCTIC CIRCULAR AUG 19.

Published by
The Arctic Circle, Ottawa

Sixth Meeting of the Arctic Circle

The Sixth Meeting of the Arctic Circle was held in the 1st. Corps Troops R.C.A.S.C. Mess, 278 Sparks Street, on Tuesday May 25. The Vice-President, Mr. Frank Davies, was in the chair and introduced the speaker, Mr. J.G. Wright.

Mr. Wright, who is Superintendent of the Eastern Arcti and Secretary to the Northwest Territories Council, showed a 16mm. kodachrome film taken during voyages of the R.M.S. Nascopie between 1945 and 1946 by Mr. S.J. Stewart, Mr. Alex Stevenson and himself. The film included views of the Nascopie on the reef off Cape Dorset.

Before the meeting Mr. Davies enquired of the members present whether they would like a meeting of the Arctic Circl during the summer. There was a sufficient show of hands to indicate that this was desired.

The U.S.S.R. N-169 expedition

An interesting experiment in the technique of polar exploration was made by the Russians in 1941, following the success of the North Pole Drifting Station of 1937. A four-engine aircraft made three landings on the ice north of Wrangel Island, staying for four or five days at each camp while observations were made in the fields of hydrology, astronomy, meteorology, actinometry, and magnetism. A small collection of plankton was also made. An account of the expedition was published in 1946 with summaries in English, and it is from this book that the following notes have been taken.

The aircraft, the U.S.S.R. N-169, was ski-equipped and adapted for prolonged cruising without contact with air bases. It was fitted out with complete living quarters, including kitchen, so that the expedition depended on land bases only for fuel. The party consisted of ten men and was led by J.S. Libin, director of the Soviet Arctic Institute. Scientific instruments and equipment of reduced size and weight were carried. The U.S.S.R. N-169 made three separate

flights from Wrangel Island between April 2 and 29, the times and locations of the landings being: 1) April 3, at 81°27'N, 181°15'E; 2) April 13, at 78°31'N, 176°46'E; and 3) April 23, at 79°56'N, 190°05'E. Fifteen days in all were spent on the drifting ice.

The expedition had no previous information about conditions in the area of the contemplated landings, and the pilot had to select the ice-floes with great care. Previous experience had shown that when the sun is shining the shadows of even small hummocks and ridges are visible from above, whereas in dull weather the surface of the pack seems absolutely smooth - all unevennesses become indistinct. Landing in dull weather is therefore a dangerous proceeding. The N-169's third landing was made on a cloudy day, the ice-floe selected proved to be rather rough and the plane skis were slightly damaged. The whole party had to work hard to make a runway. The hard uneven snow surface had to be dug over and smoothed out on an area of 600 x 20 metres. Taking off from such a runway with damaged skis was no light undertaking.

The hydrological programme of the expedition included the taking of soundings and specimens from the ocean floor, the taking of samples for salinity and oxygen tests, and current measurements. Six depth measurements disprove the theory that this region is the deepest part of the polar basin. It is thought that Sir Hubert Wilkins' echo-sounder measurement of 5,440 metres at 77°46'N, 185°E was erroneous, as the maximum depth sounded by the N-169 expedition was 3,370 metres.

The expedition's observations revealed the same three principal water masses as were found in other parts of the basin by the Fram and Sedov expeditions and by the North Pole Station, viz: Polar (surface), Atlantic (intermediate), and deep water. The temperature of the Atlantic waters in the area of observation of the U.S.S.R. N-169 was found to be lower, and that of the deep waters higher than in the region of the Fram and Sedov drifts. This is thought to be due to the progressive intermingling of the Atlantic waters with the underlying deep waters as the former slowly advance from the Greenland Sea into the Pacific part of the polar basin. The temperature of the deep waters is shown to increase slightly in the bottom layer, which accords with the observations of the Fram expedition and the North Pole Station.

Analysis of the drift of the three floes on which the N-169 landed shows that in this region there is the same constant clockwise surface current as was discovered by the Fram and Sedov. The data of temperature and salinity also correspond closely to those determined by Nansen.

Pack ice nowhere formed more than 80 per cent of the surface area. In between were spaces of young ice and even

of open water. At the third point of landing open water constituted 10 per cent of the visible surface of the sea.

One polar bear and the tracks of a fox were seen at the second camp.

Meteorological observations were carried out regularly every three hours at all three camps and included the following elements; Pressure, air temperature, temperature of surface snow, wind velocity and direction, quantity and form of clouds, and visibility. The observations are only of relative value owing to their short duration but are nevertheless interesting. They point to an extreme stability of the arctic anticyclone in April in this part of the polar basin. Comparison of the observations made at the ice camps of the N-169 with those made on Wrangel Island over a series of years leads to the conclusion that the mean pressure for a number of years in the centre of the anticyclone in April is distinctly greater than hitherto believed (by at least 5 millibars compared with the isobar chart compiled by Baur). The results also show the relatively high diurnal variation of air temperature in April, amounting to about 5°C in the area covered by the expedition. This is known to be the time of year of maximum variation in the polar basin. Clear weather or high cloud predominated, and visibility averaged 8/10.

Magnetic observations made it possible to correct the magnetic charts for the central Arctic, and confirmed Weinberg's hypothesis of the existence of a second magnetic pole (the Sedov pole) at 86°N, 178°W and the symmetry of the magnetic field in the Northern Hemisphere.

The most interesting feature of the expedition, however, was its demonstration of a new technique in the use of aircraft in the central Arctic. J.S. Libin, leader of the expedition, says: "It may be said that this method of exploring the central polar basin with the help of aircraft is fully adapted to the carrying out of broadly complex scientific programmes. While the method of drift, such as was employed by the Fram and the North Pole Station, should not be discarded, aircraft will undoubtedly become the chief means of investigating these regions in future. It permits greater freedom in the choice of points of investigation, it is simpler in respect to the organization of stations on the drifting ice, and it has the additional advantage of greater cheapness.

"The method should be employed systematically from year to year, and not only for the exploration of 'blank spots', but also for the making of standard cross-sections of already investigated areas. Drawing on the experience of the U.S.S.R. N-169 expedition, it should be possible considerably to widen our knowledge of the central polar basin in a relatively short time.

"Such expeditions should have more than one plane. Three or four aircraft, based at different points, could in the course of the spring months make a large number of landings on the drifting ice and embrace a considerably larger area than that which the U.S.S.R. N-169 was able to cover."

Operation Cariberg

One of the best ways to study the geography of a country is to look at it from the air. By virtue of his altitude an air observer can see at a glance geographical features and trends which are difficult for a surface traveller even to deduce; by virtue of his speed he can compare areas many miles apart in a fraction of the same number of minutes. Altitude and speed together enable him to view thousands of square miles of territory with his own eyes in a few hours.

For maximum value certain flying conditions must obtain. Good visibility, freedom to change height and course, a plentiful supply of maps, and a knowledge of position at all times are desirable to the airborne student of geography. All of these were present on a recent R.C.A.F. experiment in this educational field, which turned out most satisfactorily. It was named Operation Cariberg, and took place between 11.00 a.m. on Monday May 3 and 3.00 p.m. on Friday May 7. Within that time 7,300 statute miles were traversed, from Labrador to British Columbia, and from the St. Lawrence to Coronation Gulf.

The original and main purpose of the operation was a dual one: to study the annual migration of caribou from the timberline to the barrens, and to observe the amount and state of the ice in Hudson Bay (hence the operation's code name). Since the aircraft chosen for the job was one of the R.C.A.F.'s new four-engine North Stars, it was possible to carry a large number of passengers throughout the operation. The majority of these, although interested in the caribou and ice observations, were chiefly intent on studying the geography of Canada's north. The list of observers included Mr. A.W.F. Banfield, chief mammalogist of the Dominion Wildlife Service, in charge of the caribou study, a number of meteorologists from the Department of Transport Meteorological Service, concerned with the ice observations, officers of the Army, Navy, Air Force, and Defence Research Board, and numerous scientists from universities and government laboratories. The array of talent proved quite bewildering to the lone reporter from the Montreal Standard; geography and geophysics, meteorology and medicine, construction engineering and radio were all represented. The operation's biologist was Dr. Laurence Irving, Director of the U.S. Naval Laboratory at Point Barrow, Alaska.

Although the R.C.A.F. provided a photographer from its Photo Establishment at Rockcliffe, who was kept hard at work throughout most of the flights, the amount of amateur photography was also considerable, the ratio of cameras to observers being at least one to one.

The aircraft and crew came from No. 426 Transport uadron, Dorval. The captain and first pilot was Flight- eutenant J.T. Mills, D.F.C., and the first navigator Flying ficer D.G. Sheridan. A complete ground crew accompanied s aircraft for servicing at overnight stops.

For the first part of the operation the route was the me as that covered three weeks earlier by an R.C.A.F. kota on a similar mission called Operation Ice-Cake. This ute was from Dorval (Rockcliffe on the earlier flight) to puskasing, then north in a straight line over James Bay the Belcher Islands in Hudson Bay, and from the northern- st of these almost due west to Fort Churchill, Manitoba. otographs of the ice were made at regular intervals, and mpared with the observations of three weeks before. The teorologists, one of whom, F.E. Burbridge, had also been observer on the earlier flight, required the data for udies they are making of the influence of Hudson Bay on the imate of Ontario and Quebec. In addition the photographs ll be very useful for correcting ice atlases of North erica. To date there has been very little factual informa- on on the amount of ice in Hudson Bay each winter. Contrary some published maps, it is evident that it freezes over most completely, the only open water being occasional leads varying size which depend on winds, tides, and currents.

At Churchill Mr. Banfield was picked up, and for the xt two days he directed the flights over the Northwest rritories. The caribou observations were part of a much rger investigation now being carried out by the Dominion ldlife Service into the numbers, feeding and migration bits, and general ecology of the caribou. The whole project expected to take two or three years to complete. Mr. nfield had already been photographing caribou in the urchill area, diving low over the herds in a Norseman air- aft. Since the caribou at this time of year were just ming out of the timber on to the barrens, the aircraft's ight plan from Churchill lay approximately along the tree- ne, across the Thelon Game Reserve to Coppermine, and then uth to Yellowknife on Great Slave Lake. From here the air- aft flew on to the R.C.A.F. base at Fort Nelson, B.C.

Contrary to the expectations of many of the passengers, was quite possible not only to photograph the caribou herds to count them visually, even though flying at 200 knots 30 m.p.h.). On this and the following day weather conditions er most of the route permitted good ground observations, and ng stretches were flown at a height of 500 feet above ground. the same time this provided an excellent opportunity for tailed study of the topography and snow cover. Highlights Tuesday's flight were the sighting of ten musk oxen one ur short of Coppermine (65°50'N, 112°05'W) and a few nutes later a lone barren ground grizzly bear.

On the third day the route was from Fort Nelson past south side of Great Slave Lake and over the Wood Buffalo

ark (unfortunately no buffalo were seen) to Dubawnt Lake, hen northeast to Baker Lake, east to Chesterfield Inlet and outh to Port Churchill, the last leg being along the west oast of the Bay for further ice observations. On the two ays spent west of Churchill no large herds of caribou were een, but many small ones scattered all along the tree-line. he total number counted was about 3,000 head.

The fourth day was taken up by ice observations across udson Bay from Churchill to Port Harrison, followed by an xamination of the geological formations, amount of timber, and ondition of the lake ice in northern Quebec and Labrador, the ircraft landing at Goose Bay for the night. On the last day, riday, the programme called for a brief landing at Fort Chimo, ut the first really bad weather of the whole operation pre- ented this. When bad visibility was encountered the first eg was cut short, and the aircraft headed for Rockcliffe. he weather cleared sufficiently for some interesting photo- raphs to be taken of the annual spring break-up of ice on ake and river. Rockcliffe was reached at lunch time, and orval soon after.

Thus concluded what was not only a successful scien- ific mission, but the first long-range operation of an R.C.A.F. orth Star away from regular routes and maintenance bases. he total flying time was 36 hours, and no major maintenance ifficulties were experienced.

The two primary scientific objects of the operation were atisfactorily achieved, but to many of the observers its econdary results were equally important. Inside of four and half days thirty-two people, many of them scientists con- erned with the development of Canada's north, were given a hance to view at first hand a cross-section of our arctic nd sub-arctic regions many thousand square miles in area. t is to be hoped that the R.C.A.F. will be able to continue his most useful contribution towards practical instruction n Canadian geography.

K.C. Maclure

erial navigation in arctic and polar regions

Aerial navigation over arctic and polar regions presents any problems that are not encountered in lower latitudes. areful flight planning is essential, as the following aragraphs will indicate.

The northern regions have long periods of twilight varying with the time of year) in which no astronomical ob- servations for fixing position or ascertaining direction can e made as the stars are too dim and the sun is below the orizon. If the time of take-off is immaterial, it is advisable o plan it so that twilight periods can be avoided or will fall n an area where other navigational aids are available at that

time. It is interesting to note that in the vicinity of 77°20'N an aircraft flying west at approximately 200 knots would remain in the same position relative to the sun. On some of the writer's flights it has been common to encounter 5-hour stretches of unbroken twilight.

The primary difficulties in high latitude flying are maintaining direction and determining course. The course problem arises out of the convergence of the meridians of longitude towards the pole. One glance at a polar projection will reveal that any flight track other than on a north-south heading will cross successive meridians rapidly and at a changing angle. In fast long-range aircraft, therefore, the employment of a grid chart for plotting purposes is a necessity. This has superimposed on it a series of equally-spaced red lines all drawn parallel to the Greenwich-180th meridian. The north pole is ignored as a reference point and all direction is measured clockwise from any line parallel to the 180th meridian. In other words grid north is considered to lie at infinity along the 180th meridian.

The difficulty of maintaining direction is due to the proximity of the magnetic pole. Magnetic compasses cannot be relied upon for the accurate directional indication necessary for precise navigation north and east of a line running through Aklavik, Port Radium, Fort Resolution, and Eskimo Point. A good directional gyro is therefore used to maintain heading. Unfortunately, in their present state of imperfection, airborne gyros are sometimes subject to large and erratic precession which must be determined and frequently checked so that it can be allowed for. The precession rate is determined by taking regular course checks with the astro compass on any heavenly body tabulated in the air almanac. This system of using grid for direction and gyro for heading is known as grid-gyro navigation.

When flying north the navigator finds that it becomes increasingly difficult to establish his position by looking at his maps. There are innumerable small lakes that the most conscientious cartographer could not possibly depict accurately on air navigation maps. There are large areas that are not yet mapped and others that are mapped very inaccurately. Furthermore north of the tree line large sections of the country are flat and low-lying. In winter snow will cover the land and the frozen water like a blanket, so that low-lying coastlines are sometimes impossible to distinguish. The recognizing of terrestrial features becomes a matter of familiarization. From thinking of the Arctic as just an undistinguishable mass of snow and ice the navigator gradually learns that each island and each area has its own characteristics - characteristics which enable him to obtain a rough check on his position by studying the nature of the terrain below.

In the short summer season the Arctic presents a different picture. The islands are comparatively snow-free, and low-lying coastlines are easily seen. To counter balance this

advantage, however, they are frequently obscured by low stratus cloud.

Weather forecasting is very sketchy. The experienced arctic navigator tends to become his own forecaster.

Too often radar does not give much assistance in the way of pin-pointing positions, though it proves useful in determining drifts and ground speeds from unidentified targets. The main drawback to radar is the lack of contrast between sea ice and low-lying coastlines. Often coastlines are not visible on the scope, and returns from pressure ridges and leads in the ice may cause false ones to appear. Even in well mapped areas it takes fair amount of practice to be able to interpret radar returns. In the Arctic, where the mapping is poor, where one rugged fjord looks like the next and low-lying coastlines blend with the frozen water under the same blanket of snow, considerable experience is required before a navigator can use a radar scope as a map-reading aid.

As result of all these shortcomings great dependence must be placed on astronomical navigation, which can be an accurate means of getting from A to B, cloud conditions permitting. Nevertheless it too has its drawbacks. Few aircraft designers consider a navigator when designing aircraft. The astro dome is usually placed in such a position that the navigator has to be a contortionist to use it; after a 20-hour flight he feels more like a pretzel than a biped. Sextants in use today leave much to be desired. The optics and field of view are none too good. They are heavy and it is necessary to keep them sighted on a star or the sun for two minutes to average out inherent errors. Timing must be accurate. Once the sight is taken a series of mathematical tables must be consulted before a position line can be obtained. A skilled navigator takes at least 10 minutes to obtain and plot a 2-star fix, in which time the aircraft has travelled 25 miles or more. Constant practice is needed to maintain accuracy in obtaining sights.

Pilots and navigators have the habit of frequently glancing at the sun's position as a rough check on the accuracy of their directional instruments. In the Arctic, especially near the pole, this can cause much confusion. The sun may even be found rising in the west. With this phenomenon added to the use of grid direction an inexperienced air crew can soon become bewildered. On occasions considerable persuasion has been necessary to convince a pilot that he was flying south and not east.

The Arctic, then, is an area where navigation is still an art. The time has not yet come when electronic aids will vie with each other to relegate the navigator's role to that of a twiddler of knobs. It is a navigator's proving ground second to none.

G.J. Sweanor

Denmark's five-year plan for Greenland

In June 1946 a Parliamentary Commission on Greenland reported to the Danish Government, recommending a number of changes in the policy and administration of Greenland. The head of the Greenland Administration in Copenhagen and six representatives of the combined native Greenland Advisory Councils had been called to aid this Commission, but strangely enough no representatives of Greenland's wartime Government.

The report was disappointing to most Greenlanders and Danes in Greenland because it was felt that the Commission had dealt almost entirely in generalities and with small and unimportant matters related to local administration, and that it had deliberately ignored some of the very real changes and developments which had taken place in Greenland during the four years of wartime separation from Denmark. It was charged too that the Commission had carefully avoided the strongly voiced demands for a shift of the executive offices of the administration from Copenhagen to Greenland, and that insufficient consideration had been given to the urgent needs of the Greenland fishing industry. Fishing methods were hopelessly antiquated and the facilities for handling the increased production entirely inadequate to meet strong competition from foreign fishermen.

This summer a select group of representatives of the Danish Parliament was to have visited Greenland, but for various reasons the visit was postponed until next summer. The Prime Minister of Denmark however, Mr. Hans Hedtoft, considered Greenland's problems of sufficient importance to merit a personal visit to the colony, where he planned informal talks with leading Greenlanders and with members of the Greenland Advisory Councils.

On the eve of his departure for Greenland early in July, Mr. Hedtoft gave an interview to representatives of the Danish Press in which he reported on the progress of the five-year plan.

The Prime Minister stated that Greenland could no longer be maintained as a "reservation" for Greenlanders and that the time had come when the island should be opened to private Danish initiative and enterprise. He said that he wanted to discuss this with leading Greenlanders in order to find out how they thought the national resources of Greenland could best be developed with proper safeguarding of native interests. He also mentioned the possibility of Greenland representation to the Danish Parliament, a question which had become an actuality when Denmark joined the United Nations. For over 200 years Greenland has been administered without the need for a penal code, jails or police force. The time had arrived, he said, when the Danish Code of Law might perhaps be introduced, and the colony advanced to the status of a Danish province.

Some of the more important developments in Greenland were contained in a press release dated July 12 of which the following is a brief summary.

During the war two Greenland supply vessels were lost. A modern vessel, the Amdrup, specially constructed for ice navigation, was completed a year ago for service on the east coast. A new and larger steel vessel and a smaller coastwise vessel are now under construction, the latter to be stationed in Greenland, where it will maintain a regular schedule of communication between the west coast towns. In addition to these a number of smaller boats have been sent to Greenland, including four for the use of Greenland medical officers, and no less than 113 fishing boats, besides 72 which are now under construction.

New hospitals are being built at Angmassalik on the east coast and at Upernavik on the west coast, while extensions have been made to the hospitals at Julianehaab and the coal mining town of Kudtligssat. Similar additions are planned for the hospitals at Sukkertoppen and Frederikshaab.

For about a year a special commission has studied Greenland's educational needs and has agreed that Danish should replace Greenlandic Eskimo as the school language in Greenland as soon as possible. Modern schools are planned for three of the largest towns, Egedesminde, Godthaab, and Julianehaab. In addition a highschool for girls will be built at Julianehaab and two domestic science schools, one at Julianehaab and one at Egedesminde. Lack of qualified teachers has long been a serious problem in Greenland; the expansion of the Greenland schools will require a large reinforcement of the present staff of 20 Danish teachers.

The radio station at Godthaab has been modernized, and starting this autumn will re-transmit one and a half hours of daily broadcasts from Danish short-wave stations, consisting of news and educational services in Danish and Eskimo. The Greenland libraries have been supplied with large numbers of new books, and the four Government-operated movie theaters are being supplied with new and suitable films. Further improvements in Greenland include electric power plants in four towns, improved harbours and dock facilities, and a road-building programme which will permit the use of mechanized vehicles for local freighting and distribution.

Several technical boards have been appointed to investigate the possibility of hydro-electrical developments in Greenland, as well as the modernization of the coal mine at Kudtligssat and further improvements in the radio service.

In addition to the Danish meteorological service which existed before the last war, the Americans during the war established 23 weather stations in Greenland. These have now all been taken over by Danish personnel, increasing the total of Danish-operated weather stations in Greenland to no less than 104.

The Greenland fisheries are being rapidly expanded, especially the cod and prawn fisheries. Several new deep-sea prawn-fishing grounds are being developed, and a large, modern cannery has been established at Narssak in south Greenland.

All this has meant a sharp increase in expenditure. The capital expenditure on Greenland in 1939 was 750,000 Kroner ($150,000); this year it has risen to nearly 14,000,000 Kroner ($2,800,000). In 1939 only 9,000 metric tons of supplies and materials were shipped to Greenland; in 1948 the figure had increased to 20,000 tons. Within the same period the staff of the Copenhagen office had increased from 55 to 100.

A.E. Porsild

Biting Insects in the Arctic

The work begun in 1947 by the Defence Research Board and the Department of Agriculture on protection against arctic biting flies (Circular No. 1, p. 5) is being continued on a much larger scale this summer. The mapping of distribution of species, under the control of Dr. T.N. Freeman of the Department of Agriculture, is being carried out by nine survey parties of two or three men each. Areas of operation are the Alaska Highway, Great Bear Lake, the Mackenzie Delta, Southampton Island, Goose Bay, Fort Chimo, Frobisher Bay, Cambridge Bay, and the Quebec-Labrador iron mines. The parties operating in Hudson Bay and eastern regions are being supported by botanists, that phase of the work being directed by Dr. H.A. Senn of the Department of Agriculture.

The life history of the pest species, the use of repellents and protective clothing, and psychological reactions of personnel exposed to prolonged attack, are being studied at the Defence Research Northern Laboratories at Churchill. Both small and large scale area control experiments are being conducted at Churchill, Whitehorse, Watson Lake, and on the Saskatchewan River. The effect of insecticide spraying on fish life is also being studied at Churchill. These phases of the work are being directed by Dr. C.R. Twinn of the Department of Agriculture.

Interest in this branch of entomology in the universities has grown rapidly. In addition to personnel of the Canadian and U.S. Departments of Agriculture and the Defence Research Board, the teams include faculty members and students from the Universities of Alberta, Saskatchewan, Manitoba, Western Ontario, McMaster, Toronto and McGill. Collection of information on the correlation of time emergence, degree of infestation and duration of biting season with variation in climate, has been expanded. This has been made possible by the cooperation of the R.C. Missions, the Hudson's Bay Company, the R.C.M.P., and Army and R.C.A.F. outposts.

Eastern Arctic Patrol

A veritable fleet of small vessels is this summer carrying out the work of the Nascopie in the Eastern Arctic. (Circular No. 5 p. 50). The eastern and northern Baffin Island posts will be supplied by the Clarenville and the Terra Nova, both Newfoundland sealing vessels, while the Eskimo, Earl Trader, Ice Hunter, and Regina Polaris will carry freight to Hudson Bay and Ungava.

The Clarenville, chartered by the Hudson's Bay Company, will call at Clyde, Pond Inlet, and Arctic Bay, also probably at Pangnirtung. The Terra Nova, chartered by the Hudson's Bay Company for the Government, will make a similar run, calling at Clyde, Pond Inlet, Dundas Harbour, and Arctic Bay going north and Pangnirtung coming south.

The R.C. Mission ship Regina Polaris left Montreal on July 10 and will call at posts on the way to Churchill. In addition to mission supplies she is carrying some Government freight. Once in Hudson Bay she will make several trips to posts round the bay, returning to Churchill each time for reloading. She is expected to call at Cape Dorset, Chesterfield, Eskimo Point, Baker Lake, Repulse Bay, Southampton Island, Port Harrison, Cape Smith, Ivugivik, Sugluk, Wakeham Bay, Diana Bay, Payne Bay, Fort Chimo, George River, and Port Burwell.

The 400-ton Eskimo was bought by the H.B.C. last year from the R.C.A.F. Her hull has been reinforced, and she is carrying freight for Lake Harbour, Frobisher Bay and other posts in Hudson Strait and Bay. Captain James Waters, formerly skipper of the Nascopie, is master. The Earl Trader, also operated by the H.B.C., sails from Sydney, N.S., with supplies for Baker Lake; and the Baffin Trading Company's Ice Hunter will visit Ungava Bay posts. The Government icebreaker N.B. McLean will carry supplies from Churchill to Southampton Island.

The annual Government inspection and the movement of personnel are complicated by the shortage of passenger accommodation in these ships. On the far northern run Alex Stevenson will be sole Government representative, travelling in the Terra Nova. The main Government inspection party, headed by S.J. Bailey, together with the medical group and interpreter, will travel in the Regina Polaris. The transfer of D.O.T. and R.C.M.P. personnel is being undertaken by the R.C.A.F.

Task Force 80

Three United States ships left Boston in mid-July to continue to work of resupplying existing weather stations and reconnoitring sites for new ones carried out for the last two years by U.S. Naval Task Force 68 (see Circular No. 1, p. 2).

Two of the ships took part in last year's operation; U.S.S. Edisto, 6,000 tons, icebreaker and flagship; and U.S.S. Wyandot, 10,000 tons, cargo vessel. The third ship, U.S.C.G. Eastwind, is sister ship to the Edisto and replaces the 2,000-ton cargo vessel U.S.S. Whitewood, which was damaged in heavy ice last year. The commander of the force will be Captain George J. Dufek, U.S.N.

The primary purpose of the expedition is to supply the four weather stations at Slidre Fjord, Eureka Sound; Resolute Bay, Cornwallis Island; Mould Bay, Prince Patrick Island; and Isachsen Peninsula, Ellef Ringnes Island (now officially known as Eureka, Resolute, Isachsen, and Mould Bay respectively). Its secondary objective is icebreaker reconnaissance in nearby areas in which the Canadian and U.S. authorities plan to establish two further weather stations in 1949.

The use of helicopters for short-range reconnaissance, which was such a successful feature of last year's operation, is being further extended this summer. Several scientists and observers will accompany the expedition.

R.O.M.Z. expedition to Cape Henrietta Maria

A party of seven men from the Royal Ontario Museum of Zoology will carry out a faunal investigation of Cape Henrietta Maria, Ontario, during July and August 1948. This work is a continuation of the museum's series of faunal surveys in Ontario, instituted in 1923 and now nearing completion. The expedition is made possible by a grant from the Ontario Research Commission.

The party will consist of C.E. Hope (in charge) and T.M. Shortt, ornithologists; R.L. Peterson and L.A. Walden, studying mammals; W. Watson, studying insects; D. Muir, photographer; and G. Brooks, who will act as cook and guide.

The Cape Henrietta Maria region should prove interesting, as it includes a fairly large area above the treeline. This should add a number of arctic species to the fauna of Ontario.

Ungava Caribou

Duncan M. Hodgson, Chairman of the Big Game Committee of the Province of Quebec Association for the Protection of Fish and Game, is planning a trip to George River to collect specimens of Ungava Caribou for Canadian museums. He will at the same time investigate at first hand the scarcity of this animal and gather suggestions for its protection.

Mr. Hodgson, accompanied by Rene Richard, well-known ex-trapper and painter of the North, will fly in to George

River at the end of August. Here they will obtain Eskimo guides and proceed up river in power-canoes supplied by Mr. B.M. May, the Hudson's Bay Company's post manager, returning at the beginning of October. They hope to collect two pairs of caribou, one for the National Museum of Canada and one for McGill University Museum. As far as Mr. Hodgson has been able to ascertain there are at present only four specimens of Ungava Caribou in the museums of the world. These four, which are all immature, were collected by Dr. Doutt on the west side of Hudson Bay in 1945 and are in the Carnegie Museum. The purpose of the present expedition is to ensure that specimens of the Ungava Caribou are available for public exhibition and scientific study, as there is a possibility that it may become extinct.

Mr. Hodgson also hopes to collect a number of birds, small mammals and fish.

Trichinosis from walrus and white whale?

In May 1947 the State Serum Institute of Copenhagen identified a mysterious epidemic in Greenland as trichinosis. The outbreak could clearly not be attributed to the usual cause, i.e. eating raw or underdone pork, and only 32 out of about 300 patients had eaten dog meat within a month of the onset of the disease. It was noticed, however, that in most places the epidemic coincided with the walrus season. Trichinae were not found in any of the samples of walrus meat examined, but the circumstantial evidence against it was very strong. The white whale was also suspect.

Geological reconnaissance in Southampton and Baffin Islands

Dr. W.A. Deer and Mr. C. Brasher, both of St. John's College, Cambridge arrived at Southampton Island by air on 22 July. They hope to continue to Baffin Island in order to carry out a geological reconnaissance. Dr. Deer, who lectures in petrology at Cambridge University, was a member of the Anglo-Danish East Greenland Expedition of 1935-36, under L.R. Wager and A. Courtauld. He is particularly interested in the possibility of finding Tertiary intrusives on the northeast Baffin Island coast analogous to formations in west Greenland.

Book review

TO THE ARCTIC, by Jeannette Mirsky. With an introduction by Viljalmur Stefansson. New York: Alfred A. Knopf, 1948. Published simultaneously in Canada by the Ryerson Press, Toronto. xxi + 334 pages; illustrations and maps. $5.50.

To the Arctic was originally published in 1939 as To the North, but was withdrawn owing to the threat of a libel action by Dr. Frederick A. Cook, well-known for his claim to

have discovered the North Pole. For republication, it has been revised and brought up-to-date.

The book sets out to cover the whole history of arctic exploration and it succeeds in a very creditable way, largely as a result of a skillful grouping of the material. A strictly geographical or chronological treatment has been avoided and the various chapters, dealing with such subjects as the early Dutch voyages, and the Franklin search, are largely self-contained and easy to read. A logical arrangement of the chapters has preserved continuity throughout the book.

The first two chapters, "Arctic Scenery" and "Quest and Conquest" seem the weakest, but they are short and the book rapidly gains the reader's interest. This may be partly due to growing familiarity with the author's flowery style.

My chief criticism is of the treatment of quotations and references. A quotation such as "the corset was an article of faith" does not merit a reference in a book on arctic exploration; both the quotation and the reference would have been better omitted. On the other hand reference to the sources from which the material has been drawn would have been helpful.

With these reservations, however, To the Arctic can be recommended as an interesting, well-balanced and fair account of the history of arctic exploration.

C.W.R.

Operations Polco and Canon

The Air Force Cross has been awarded to F/L J.F. Drake and F/O J.E. Goldsmith, D.F.C., pilot and navigator on Operation Polco (Circular No. 3, p. 20).

Also of interest to members of the Arctic Circle are the following awards to those who took part in Operation Canon (Circular No. 2, p. 14 as renumbered). The George Medal has been awarded to Capt. L.G. D'Artois, D.S.O., commander of the parachute team, and F/O R.C. Race, pilot and captain of the aircraft; the M.B.E. to Capt. R.W. Willoughby, medical officer; the A.F.C. to F/O C.C. McMillan, navigator; the B.E.M. to Sgt. H.C. Cook, signaller; the A.F.M. to Cpl. J.P. Rae, crewman; the King's Commendation for Brave Conduct to Sgt. W.W. Judd, signaller; and the King's Commendation for Valuable Services in the Air to F/L A.B. Morabito, D.F.C., F/O K.O. Moore, D.S.O., co-pilot, Sgt. K.C. Swinford, and Cpl. L.D. Hawkins.

A.E. Porsild

A.E. Porsild, M.B.E., who a year ago was made Hon. Foreign Member of the American Academy of Arts and Sciences,

was recently elected Corresponding Member of Societas pro Fauna et Flora Fennica and also of Societas Zoologica Botanica Fennica Vanamo, both of Helsingfors, Finland.

Development of the snowmobile

In the Montreal Standard of June 12 it was stated under Ottawa Report that classified information relating to the Penguin Mark II snowmobile had been published in the Arctic Circular without clearance by defence authorities. The article referred to appeared on page 41 of the Arctic Circular. In fact the information published in the Circular was unclassified, and had been derived from previously published unrestricted sources. In addition the article in its final form had been referred to the Army Public Relations directorate prior to publication, and was cleared by Major H. Stewart, whose signature approving it for publication appears on the original manuscript.

The Editor of the Standard has been requested to publish a correction.

VOL.I NO.7 THE ARCTIC CIRCULAR NOV.1948

Published by
The Arctic Circle, Ottawa

Seventh Meeting of the Arctic Circle

Through the courtesy of Dr. and Mrs. Diamond Jenness the seventh meeting of the Arctic Circle was held on Friday August 20, in the grounds of their summer cottage on the Gatineau River. Members were invited to bring their wives and families We were fortunate in having one of the hottest days of the summer and a most successful picnic was held. We should like to take this opportunity of thanking Dr. and Mrs. Jenness for their hospitality.

Discovery of two islands in eastern Foxe Basin

"From observations made by Captain Spicer, of Groton, Conn., and information obtained from the Eskimo, we learn that the whole of the eastern part of Fox Basin is extremely shallow and that there are many low islands scattered about in those parts of the sea". Although Boas wrote this statement in an article on the Central Eskimo, published in 1884 (Ann. Rep. Bur. Amer. Eth. vol. 6, 1884-5), information was insufficient for him to show any islands on the accompanying sketch-map. The Spicer Islands in the centre of Foxe Basin were however marked.

Islands on the north shore of Foxe Basin were mapped by the Fifth Thule Expedition between 1922 and 1924. In 1937 R.J.O. Brey and G.W. Rowley of the British Canadian Arctic Expedition discovered the islands on the north-east shore, and T.H. Manning, the leader of this expedition, mapped the Tweedsmuir Islands on the east shore of Foxe Basin in 1938-9. In his account of this journey published in the Geographical Journal (vol. 101, 1943, p. 240) he writes "The behaviour of both ice and tides in Wordie bay suggests the probability of islands farther south than any I have shown on the present map. The first time I was on Parry Point I was almost certain there was land some 30 miles due west. When I was again there however conditions were not favourable for observations."

It was not therefore altogether unexpected when the R.C.A.F. announced that the crew of a Lancaster aircraft from 413 Photo Squadron had discovered two islands, one considerably larger than the other, off the west coast of Baffin

Island, on 21 July 1948. The Pilot was F/L C.D. Barnett and the navigator was F/O A.E. Tomkinson. A nearly complete tri-camera photo coverage of the islands was obtained from 20,000 ft.

What was unexpected was the great size of the islands. The Aeronautical Charting Section of the Department of Mines and Resources has drawn up a preliminary sketch-map of the outline of the islands, and the writer was fortunate in being shown this map and the air photographs on which it was based.

The larger island is approximately 85 miles from north to south and 75 miles from east to west. The position in which it has tentatively been mapped is 67°10 to 68°27 N., and 74°50 to 77°30 W. The smaller island is some 20 miles from north to south and 30 miles from east to west. The approximate position is 67°53 to 68°15 N., and 73°31 to 74°38 W. Those responsible for the plotting emphasize that there is no control for these plots and the islands may well be more to the north as has been suggested by some or farther out to sea as believed by others.

The larger island is roughly rectangular in shape with a regular coastline except for a very large bay on the north coast. The island appears to be low lying and probably of limestone. There are numerous lakes one of which in the central part of the island is some 5 miles long, and has a recognizable drainage system. The outer fringe of the island is swampy, probably mud flats with beaches of disintegrated limestone as the white beaches are very noticeable in the photographs. There are traces of vegetation.

The smaller island appears to be of the same formation as the large island. It also is rectangular and has a large promontory on the north coast. If the plotted position is accurate two of the low lying islands sketched in to the south of the Tweedsmuir Islands may really be slightly higher points on this island.

It is interesting to note that the outline of the north-eastern coast of the larger island as plotted mirrors the outline of a shoal some 5 miles to the north, mapped by Donald B. McMillan in 1922. McMillan did however show a southern limit to this shoal and his ship track, as given to the Hydrographic and Map Service, cuts straight across the larger island. It has also caused a little surprise that no earlier flights which passed near the islands had reported them. But it does appear that they may have been noticed.

On an R.C.A.F. flight to the Spicer Islands for the Geodetic Service, Dr. Nicholas Polunin, Professor of Botany at McGill University who accompanied the flight thought he saw islands to the east of the Spicers. In his forthcoming book 'Arctic Unfolding' he writes, "It is also my impression that there are other low islands yet to be discovered about

the shallow eastern waters of Foxe Basin: indeed I thought I saw several already during this flight, to the east as well as to the north, but owing to the distance or poor visibility could not be sure. And to the north-east of the Spicer Islands we believed we could see (I at least was practically certain) some low brown, probably limestone, land at a considerable distance (but much nearer than the general Baffin coast) that might be Baird Peninsula or, more likely, new islands. With practically no doubt there are at least some substantial shoals in that direction..... I shall not be at all surprised if more low islands are one day mapped in also to the south-east of the Spicers, over towards the Baffin coast but still well separated therefrom. There may even be substantial archipelagoes".

There is always the fascinating speculation when new land is discovered, particularly some 5000 square miles of it, as to whether it is, or has ever been, inhabited. While it is extremely unlikely that there are inhabitants, as the Foxe Basin Eskimo have never mentioned these islands, it is interesting to note Tom Manning's remarks about the Sadleq Island (Bray and Rowley Islands) in the Geographical Journal (vol. 101, pp. 244 and 245) "The Iglulingmiut told Parry (1824, p. 303) of a group of Eskimos, the 'Sead-ler-me-oo' (Sadlermiut) who inhabited an island a great way to the east or north-east of Igloolik, and with whom they had no intercourse.....An independent name group of Eskimos originating from islands so small as the Sadleq Islands leads to the interesting speculation as to the existence of further islands to the south of them. It is of course possible that in 1822 these Sadlermiut were already extinct, or that they were a semi-mythical race. This can now be settled only by archeological exploration".

D.M.R.R.

Fury and Hecla Strait

In a recent joint statement issued by the Canadian and U.S. Governments it was announced that the U.S.S. Edisto and the U.S.C.G. Eastwind, the two icebreakers which had assisted in the supply of the weather stations in the Canadian Arctic, had returned through Fury and Hecla Strait. This is the first time this strait has been navigated except probably by Eskimo boats. It is hoped to publish further details of Task Force 80 in a later number of the Circular.

The R.C.N. Northern Training Cruise

The aircraft carrier HMCS Magnificent and two tribal class destroyers, HMCS Nootka and Haida, left Halifax on September 2 for a training cruise in arctic waters. Observers from the Canadian Army and the R.C.A.F. accompanied the force, as well as Mr. A.A. Onhauser of the Dominion Observatory, who

was to carry out magnetic observations, and Lieut. William Bailey R.C.N., to do oceanographic work.

Sailing north through the Strait of Belle Isle the ships followed the Labrador coast to Hudson Strait. Aerial exercises were carried out by the Sea Furies from the Magnificent both in the Gulf of St. Lawrence and off the Labrador coast where they combined in a realistic battle with land-based planes of the R.C.A.F. Both destroyers also practised fuelling from the Magnificent.

The first port of call, Wakeham Bay, was reached on September 7 and the small community, consisting of a French missionary, Father Schneider, and some 80 Eskimo, was much surprised by the unannounced arrival of the warships. On September 8 the Magnificent sailed for Halifax, the two destroyers remaining one more day at Wakeham Bay. During their stay Surgeon Lieutenant F.C. Jones gave medical aid to the inhabitants and communications personnel repaired Father Schneider's wireless set so that he could resume conversation with Father Mascaret at Ivugivik, 200 miles along the coast.

On September 9 the destroyers proceeded to Eric Cove where magnetic observations were taken and then continued west becoming the first warships of the Royal Canadian Navy to enter Hudson Bay. At Churchill, which was reached on September 11, Capt. Sir Robert Stirling-Hamilton, Senior Naval Adviser to the U.K. High Commissioner, and Capt. B.S. Custer, the U.S. Naval Attache, who had accompanied the cruise so far, left for Ottawa by air. Their adventures on this return trip will be described in a later issue.

The destroyers left Churchill on September 15 for Coral Harbour where they arrived on September 17. Two days were spent here and a number of soundings were taken to improve charts of the harbour. Alan Scott, the H.B.C. Post Manager, was kept busy finding sealskin slippers and walrus tusks as souvenirs for the sailors.

On September 19 the destroyers left Port Burwell where they had a rendezvous with the Canadian Naval auxiliary tanker Dundalk on September 21. Exceptionally fine weather permitted a number of shore observations and harbour soundings to be made, while the fuelling from the tanker was completed in less than one day. After a stay of two days the destroyers returned to Halifax where they arrived on schedule on September 28 after a most successful cruise. On the scientific side a large number of temperature and salinity measurements were taken and at all ports of call magnetic observations were taken at stations previously established by the Dominion Observatory. These points had not been investigated for some time and much significant information was obtained.

The Barren-ground Caribou Investigation

The first explorers of the Arctic tundras of Canada found innumerable herds of caribou which provided shelter, clothing, and food for the native population of Eskimos and Indians. Today the caribou is still the cornerstone of the economy of many areas of northern Canada, providing winter clothing and food for those who live and travel on the barren grounds.

Because of concern for the survival of barren-ground caribou, a resolution recommending an investigation of its present status and utilization was passed at the Eleventh Conference of Provincial and Dominion Wildlife officials, which met in Ottawa early in 1947. As a result of this resolution, the Honourable James A. MacKinnon, Minister of Mines and Resources, with the co-operation of the wildlife authorities of the Prairie Provinces, has undertaken a two-year investigation.

The field studies are being carried on by the Lands and Development Services Branch of the Department and A.W.F. Banfield, Chief Mammalogist of the Dominion Wildlife Service, has charge of the project, assisted by a scientific advisory committee composed of Dr. H.F. Lewis, (chairman), Dr. Ian McT. Cowan, Dr. C.H.D. Clarke, and A.E. Porsild. The field staff includes A.H. Lawrie and F.M. Mowat, of Toronto, A.L. Wilk, of Camrose, Alberta, and W.A. Fuller, Dominion Wildlife Service Mammalogist at Fort Smith, Northwest Territories.

Mr. Fuller has made several aerial reconnaissance flights and has collected considerable data on migration routes and winter ranges between Great Slave and Athabaska Lakes.

From his base at Churchill, Manitoba, Mr. Banfield carried out aerial reconnaissance during April and May of the northward migration of caribou. A distance of 12,000 miles in northern Manitoba and in Keewatin and Mackenzie Districts of the Northwest Territories was covered, and approximately 36,000 caribou were observed. He took two hundred and seventy-five aerial photographs of herds, from which numbers, sex segregation, and annual increment can be determined.

Late in May, Lawrie and Mowat were flown to a base camp on Nueltin Lake, Keewatin District. During June they collected information on wolf predation through long observation at two wolf dens. In July they moved their camp to Angikuni Lake and from there they travelled by canoe westward to Dubawnt Lake. They collected pathological data from specimens examined and obtained information on the life history of caribou observed along the route.

In July and August, Banfield and Wilk carried out field investigations in the Muskox - Clinton-Colden Lakes area of the Northwest Territories, where much information was obtained

Approximately 12,000 caribou were observed and pathological data were collected from post-mortem examinations. They also witnessed attacks by wolves on the caribou herds.

Arrangements have been made to continue the investigation in northern areas of Manitoba and Saskatchewan, and Lawrie and Mowat will take up winter quarters at Brochet, Manitoba. The southern migration into Manitoba will be observed by Banfield, who will later carry out work in northern Saskatchewan.

A.W.F. Banfield

Ungava Caribou

Duncan M. Hodgson's plans for collecting specimens of the Ungava caribou (Rangifer caboti G.M. Allen), were described in the last number of the Circular (p.69). Mr. Hodgson has now returned from Ungava after a most successful trip.

Accompanied by Rene Richard he left Roberval by Norseman aircraft arriving at George River Post on September 1, having stopped for refuelling at three caches en route. The aircraft then took Mr. Richard, an Eskimo, and a supply of food and gas sixty miles up the George River. Mr. Hodgson, with Bob May, the Hudson's Bay Company manager at George River Post, and a party of eight Eskimo hunters travelled up stream from the post to this cache in three twenty foot canoes powered by 8 h.p. outboard engines. From there they continued through the Bridgeman Mountains to the Pyramid Mountains, Mr. Hodgson succeeding in getting complete specimens of a male and female caribou for both the National Museum and McGill University. In addition to the caribou he collected a number of birds and small mammals. Two black bears were also killed.

The party returned to George River Post on September 16. Mr. Hodgson and Mr. Richard then travelled to Chimo by peterhead boat, arriving there on September 21, and returning to Ottawa by air on September 23 dropping Mr. Richard at Bagotville.

Mr. Hodgson considers that the George River region is the last remaining area where the Ungava caribou is still present in appreciable numbers.

Note: R.M. Anderson ('Catalogue of Canadian recent mammals' National Museum of Canada Bull. 102, 1946) follows A Jacobi ('Das Reintier eine zoologische Monographie der Gattung Rangifer', Leipzig, 1931) in giving full specific rank to this caribou which Jacobi placed in the arctious group, although he considered it and R.pearyi of Ellesmere Island as more closely related to the various forms of reindeer of the Ice Age. Mr. Hodgson's fine specimens together with other skulls recently received by the National Museum will enable a more thorough taxonomic study of this caribou to be made.

Dr. Henry Collins' Archaeological Investigations in Frobisher Bay

Dr. Henry B. Collins of the Smithsonian Institution assisted by Mr. Colin Thacker of the National Museum of Canada spent the greater part of July and August in Frobisher Bay excavating on behalf of the National Museum of Canada.

The site was on the bank of the Sylvia Grinnell river about one mile from the sea and had consisted of four old Eskimo houses. Two of these had been dug during the war, but the specimens obtained had been lost. Dr. Collins excavated the other two houses, which were very overgrown and adjacent midden areas, completing the work before the end of the season. Several very interesting features were revealed. Though the houses were in Frobisher Bay no iron was found and their latest occupation therefore almost certainly predated the Frobisher expeditions of 1576 to 1578, which reported iron in the possession of these Eskimo. When abandoned the houses had been occupied by a people with a typical "Thule" culture. A number of "Cape Dorset" specimens were however also found. In the midden areas outside the houses two definite strata were detected, the Cape Dorset specimens being found for the most part in the lower layer and the Thule specimens in the upper. These excavations are of great archaeological importance in giving definite proof that here, as has been indicated in other parts of the Arctic, the Cape Dorset culture was earlier than the Thule.

Dr. Collins also photographed and measured a large number of local Eskimo.

Operation Magnetic

On July 13, 1948, an R.C.A.F. Canso carrying a joint Mines and Resources-R.C.A.F. party left Rockcliffe Airport, headed for the western islands of the Arctic Archipelago. The main purpose of the trip was to make observations of the strength and direction of the Earth's magnetic field in an area where the only existing magnetic information came from rough compass observations by the original explorers of a hundred years ago. By the end of 1947, the Dominion Observatory had established a fairly adequate network of magnetic stations in the region of the North Magnetic Pole, and the configuration of the magnetic field in that area could be predicted with some confidence. However, there was still a lack of information about the field to the west and north of the Pole.

Captain of the Canso was F/O D.K. Game. The navigator, F/O J.E. Goldsmith, had been navigator on the 1947 Operation Polco. The magnetic observers were P.H. Serson and R.D. Hutchison, of the Dominion Observatory's Magnetic Division. Two members of the Geographical Bureau of the Department of Mines and Resources were included in the party. John Carroll of the Topographical Survey, who was attached to the Geographical

Bureau for the summer, took many aerial photographs, and made accurate observations on the stars to determine the latitude and longitude of the stations. J.L. Jenness made observations of the geology, botany, tides - of the hundred and one subjects that are included in geography.

The aim of the magnetic observers was to obtain a complete set of observations every hour over a period of at least 24 hours at each station, in order to minimize the effects of the large daily variation and magnetic disturbances found in this area and to find out more about these changes. A set of observations includes declination (the angle between True North and Magnetic North), dip (the angle between the direction of the magnetic force and the horizontal), and total force (the strength of the magnetic field). The measurement of these three quantities took about 15 minutes, using an electrical magnetometer designed and built at the Dominion Observatory. In addition, observations of the sun and stars had to be made to determine the direction of True North and the position of the station.

For the first two weeks of the season the aircraft was based on Norman Wells and for the remaining four weeks at Resolute Bay. The Canso and its crew remained with the scientific party while the observations were being carried out. Tents were used as living quarters. No particular discomfort from cold was experienced, but it was noticed that a succession of days of driving rain could make life in the tents rather miserable.

Five of the thirteen stations established were on the mainland. These were Norman Wells, Canso Lake (150 miles north of Norman Wells), and three on the northern coast - Anderson River, Paulatuk and Bathurst Inlet.

Three stations were established on Victoria Island - Baffa Lake on the southwest corner, Richard Collinson Inlet on the northwest and a lake on the northeast arm. Two stations were on Banks Island - DeSalis Bay on the south and Castel Bay. Castel Bay offered the only large stretch of open water along the northern coast, but it is not recommended for future landings as it is too shallow for Canso operations.

On Melville Island Winter Harbour was found to be packed full of ice on August 10 so a landing was made on Liddon Gulf, 40 miles north of Winter Harbour. Here the expedition came close to losing its means of transportation when the bay suddenly filled with ice-floes, apparently against both wind and tide. But the aircraft spent the night protected from the thick ice by the shallow water, sitting on a sandbar where it had become lodged during an attempted take-off. In the morning, at high tide, a narrow lane of open water extended out from the shore. It was not long enough to allow the heavily loaded Canso to take off. However, F/O Game started down this

lane towards the shore, made a right-angle turn, and completed the take-off down a narrow strip of shallow water between the ice and the beach.

Two of the most interesting stations from the viewpoint of the magnetician were Pasley Bay, on the west side of Boothia, and Pell Inlet, northwest Bathurst Island. According to some authorities magnetic poles were to be found at both of these locations. The observations made here confirmed predictions made from 1947 data, and showed no evidence of any poles other than the one on northern Prince of Wales Island.

P.H. Serson

Important lead deposits discovered in East Greenland

On September 16 the Danish Minister of State announced the discovery by the Danish Expedition led by Dr. Lauge Koch of large deposits of lead in East Greenland. The Danish newspaper "Politiken" for September 17 gave further details about these deposits which consist of three very large veins of galena, on the south shore of King Oscars Fjord, approximately 72° North. If the suggested figure of 1 million tons of ore is correct it would make Greenland the third largest lead-owning country in the world.

Dr. Koch reports that the ore deposits are close to the shore-line and easily accessible. In normal ice-years he believes that cargo ships guided by aircraft can enter King Oscars Fjord for a period of two months each summer. Further investigations of the extent of the ore bodies is planned for next summer's expedition with a view to the opening of a mine by the Danish Government.

Dr. Koch also reports that he had discovered traces of uranium, but that it is still too early to estimate the quantities.

A.E.P.

Queen's University Expedition to Southampton Island, 1948

The study of morbidity rates and of the nutritional status of the Eskimo on Southampton Island which was begun last year by Queen's University (Circular No. 2, p.17) was continued from June 30 until September 20 by another Queen's University party led by Dr. L.B. Cronk. The other members of the group were Dr. F. de Sinner, John Green and James Gibbons. Dr. Malcolm Brown accompanied them for the first fortnight of their work.

Particular attention was paid this year to the chest infections which are so common among these people and to parasitic

infections. X-Ray equipment was taken along which permitted radiographic examination of the chest, and sputum was collected, dessicated and stored in the cold according to a method which preserves the organisms in a viable state. It will be some months before the results of the cultures are known, but when these are ready it is hoped that with all the clinical, serological and radiographic data available on this problem it will be possible to say with some precision what is the incidence of pulmonary tuberculosis in this particular group, and what is the chief cause of the severe non-tuberculous chest infections.

The work begun last year on intestinal parasitism has been extended and enlarged to include trichiniasis. Trichiniasis has been reported in Greenland and the results of skin-testing on Southampton Island suggest that it occurs there as well. Serum was obtained for precipitin testing and specimens were collected of the massater, diaphragm and liver of several species of animals. We are awaiting the results of examination of these various specimens with considerable interest for if the presence of trichiniasis is confirmed, a fact of some importance will have been established and a difficult problem in control will have to be faced.

Further observations were made on the incidence of vitamin deficiencies and it was interesting to see last year's figures confirmed by another observer. Saturation tests with ascorbic acid demonstrated again the presence of ascorbic acid deficiency, and similar tests were carried out with riboflavin and niacin. The plants which are the chief source of ascorbic acid for the Eskimo have been identified and collections made for analysis.

The curious matter of enlargement of the liver which was found in such a large group has, of course, continued to attract attention. It seems to have no effect on the general health, and it is not accompanied by biochemically detectable depression of liver function. The sections of liver obtained show increased amounts of fat, but there is no associated change in plasma lipids. There is an association with diet, for, in a group given a daily supplement of 100 grams of casein and 275 grams of sucrose and lactose, the liver returned to what we ordinarily think is the normal size in four weeks. Another group placed on large doses of ascorbic acid and of members of the B group showed no change. It remains an interesting puzzle which requires further work.

Malcolm Brown

Geodetic Survey 1948: Ground control for mapping from air photographs

During the summer of 1948 personnel from the Geodetic Survey of the Department of Mines and Resources, transported by R.C.A.F. aircraft, established control points in Melville Peninsula and northern Baffin Island, obtaining their latitude and longitude by star observations. The expedition, led by Mr. C.A. Corcoran and composed of six parties, completed 22 points.

An advance party was landed at the base of operations at Coral Harbour on Southampton Island on June 22 and the main body of the party arrived there on July 20, The plan was to have two parties, transported by Canso aircraft, establish points in Melville Peninsula and in the interior of northern Baffin Island, while the other four parties, having been landed by air at Arctic Bay, Pond Inlet, Clyde River and Igloolik, would work along the coasts of these areas by native boats. Work in Melville Peninsula commenced on July 21, the lakes in the southern part being completely open at this time and those in the north having a little ice around their edges. Serviceability of aircraft is difficult to maintain under northern conditions and the hazards of landing, with only the limited reconnaissance possible from the air, greatly increase maintenance problems, so that proposed schedules can seldom be followed. The arrival of parties at Pond Inlet, Arctic Bay and Igloolik were delayed and the work in the vicinity of Clyde River was ultimately cancelled for this season, efforts of this party being applied elsewhere.

The amount of work accomplished was almost as much as had been expected although less than had been hoped for. Eight points were established in Melville Peninsula, three in Admiralty Inlet adjacent to Moffet Inlet, five between Navy Board, Pond and Coutts Inlets, two in Gifford Inlet, one on Jens Munk Island and one at Igloolik. Besides the actual geodetic work, birds and botanical specimens were collected for the National Museum and the Department of Agriculture, and tidal information was obtained for the Hydrographic Survey. A large number of photographs were taken for the Geographical Bureau.

The weather in the whole area of Melville Peninsula and Northern Baffin Island during July and up until about August 6 was, from reports and observations, exceptionally fine with light winds, clear skies and warm air. During the balance of August, the time when the boat parties were operating, it remained surprisingly warm but Hudson's Bay Company's men in the area claimed they had seldom known more storms and general cloudiness during that time of year. This, combined with aircraft serviceability problems had a retarding effect on the work.

The members of the Geodetic Survey party are listed below:

University Graduate and Post Graduate

G.A. Corcoran	Ottawa '43	McGill '48
A.J. Shama	McGill '48	
A.E. Weichel	Toronto '49	
W.J. Fanjoy	McGill '48	
G.C. Merrill	McGill '49	
A.A. Johns	Toronto '45	
S.Z. Mack	Toronto '48	Toronto '49
John Woodruff	Queen's '49	
D.M. Knox	McDonald '50	
D.F. Coates	McGill '48	Oxford '50
D.B. Coombs	Western '47	McGill '49
A.C. Rae	McGill '48	
R.P. McArthur	Toronto '49	

Geographical survey of the Middle and Lower Thelon Basins

During the past summer a party, sponsored by the Geographical Bureau of the Department of Mines and Resources, traversed the middle and lower Thelon basins between Baker and Beverly Lakes. The party, consisting of J.B. Bird, Mrs. Bird and two student assistants, W.G. Dean and A. Laycock from the University of Toronto, was asked to make a geographical survey of the area. Attention was to be given to the physiography, particularly evidence of the former extent of Hudson Bay and of ice movement during the last glaciation.

The party left Ottawa by air during the first week in June, the R.C.A.F. planning to land them at Baker Lake before the ice strip broke up. An early thaw, however, delayed them for five weeks in Churchill. After collecting supplies and securing the services of Louis Tapatai, an Eskimo hunter, as interpreter, the party left Baker Lake on July 23 in two canoes and began the slow journey up the lower Thelon. This 55-mile stretch of the river was accomplished in 4½ days against a 6 knot current and with one portage of 1¾ miles.

As the weather was calm throughout the westward journey, it was possible to remain on the little known southern shores

of the three lakes which form the middle Thelon basin. Traverses made on foot to the south showed that the watershed between the Thelon and the Dubawnt, in this area, rises to 800 feet above sea level (provisional). Based on earlier reports, plans had been made to take the lighter canoe up the Tibielik towards the Back River. Owing to the shallow, sandy nature of the Tibielik, this proved impracticable. Farther east, however, a sizable river was seen flowing into Aberdeen Lake which might provide a summer water route to the north.

The most westerly point reached was on Beverly Lake where the fauna and flora were richer than farther east: clumps of white spruce were found, and wolverine, wolves and one barren ground grizzly were seen.

On the return journey along the northern shores of the lakes the weather deteriorated and frequent halts were necessary. The caribou, which had been plentiful throughout the trip, were gathering in herds and moving to the south. Baker Lake Post was reached on September 4 after covering 750 miles by canoe and on foot.

J.B. Bird

Dr. Hammer's ecological investigations in the Canadian Arctic

A note on Dr. Marie Hammer's proposed investigations of oribatidae and collembola in the Canadian Arctic appeared in an earlier number of the Circular (No. 5, p.55). Dr. Hammer has now completed her field work.

She spent the month of June in the Mackenzie Delta, chiefly at the Reindeer Station, because at that time the low alluvial parts are still covered with mud from the recently retreated flood waters. In order to provide representative collections of arctic microfauna from the area she also obtained specimens from various types of vegetation on the high peaks of the Richardson Mountains west of Aklavik.

The first three weeks of July were spent at Coppermine where the microfauna was found to be truly arctic and much less rich than in the wooded Mackenzie Delta. During the last week of July and the early part of August she visited Yellowknife, finding the microfauna surprisingly rich. Finally, late in August she visited Churchill where the microfauna was poor in species, particularly the collambolae.

Opening of the Snare River Power Plant

The Snare River Power Plant was officially opened on Monday October 4 by Mr. J.M. Wardle, Director of Special Projects for the Department of Mines and Resources. This plant,

which had been erected by the Department, will supply an initial 8,350 h.p. for the town of Yellowknife, some 100 miles to the southeast of the dam site, and mining interests in the area. The plant is being operated by the Northwest Territories Power Commission, which was established on September 1 under authority of an Act of Parliament. The current plan for production of additional power when needed is to develop further sites on Snare River between the present dam and Slemon Lake. Survey parties have already investigated likely places with this in view.

Earlier notes in the Circular gave brief accounts of the project (No. 3, p.29) and of the work of tractor trains bringing in supplies during the winter months (No. 5, p.52).

The Polar Record

During the summer the Arctic Circle received a request from the Scott Polar Research Institute at Cambridge, England, for an exchange of their publication, the Polar Record, with the Arctic Circular. The Polar Record, which appears half-yearly, has been published since January 1931. It contains authoritative articles on polar subjects, accounts of expeditions, notes on equipment, and book reviews. In addition there is a comprehensive list of Recent Polar Literature giving titles of books and papers published throughout the world.

We have now received the first exchange number of the Polar Record, published December 1947. Members can borrow it from the Editor who can also give information to those wishing to subscribe. For convenience of members the articles in this number are listed:

Professor Frank Debenham - an appreciation. By Hugh Robert Mill
The R.A.F. Northern Polar Research Flights, 1945. By Wing-Cdr. R.H. Winfield
Exercise Musk-Ox, 1946. By Dr. J.T. Wilson
The Falkland Islands Dependencies Survey, 1946-7. By Surg.-Cdr. E.W. Bingham
The sledge dogs of the Falklands Islands Dependencies Survey, 1945-6. By David James, with comments by Surg.-Cdr. E.W. Bingham
Postal history of the Falklands Islands Dependencies. By Richard W. Bagshawe
Volcano-glaciological investigations in Iceland during the last decade. By Sigurdur Thorarinsson and Steinthor Sigurdsson

Audubon Screen Tour

The Ottawa Field-Naturalists' Club has arranged with the National Audubon Society to show one of the Audubon Screen

Tours in the city this winter. A series of five natural history lectures with colour films describing different parts of Canada will be held at the Glebe Collegiate Auditorium. The last of the series, "Athabaska Sojourn" by Dr. O.S. Pettingill Jr., giving an account of the search for the breeding grounds of the Whooping Crane, will be of interest to members of the Arctic Circle. Tickets and further information about these lectures may be obtained from Dr. C. Frankton, Division of Botany and Plant Pathology at the Central Experimental Farm (3-9341 local 42) or from any member of the Field-Naturalists' Club.

CORRESPONDENCE

The following paragraphs form part of a letter from the Venerable D.B. Marsh, Archdeacon of Aklavik, dated June 8. This letter arrived too late to be included in the summer number of the Circular.

"Thank you so much for the membership slips and the copies of No. I and No. 2 of the Arctic Circular. I hope to get several members for you from here, and will send their names on in due course.

"Aklavik has in common with other parts of the world had a flood, though it did not become serious in the village itself, yet some of the people who live in the delta were flooded out of house and home.

"The expectations of the delta being trapped out, which was forecast by the wild life officials last year, seems to have little or no foundation for this year was another bumper year all over the delta and particularly in those places where rats were short last year."

Donald B. Marsh

VOL.I NO.8 THE ARCTIC CIRCULAR DEC.1948

Published by
The Arctic Circle, Ottawa

Eighth Meeting of the Arctic Circle

The Eighth Meeting of the Arctic Circle was held in the 1st. Corps Troops R.C.A.S.C. Mess at 278 Sparks Street, on Thursday November 4. The President, Mr. A.E. Porsild, was in the Chair, and introduced the speaker, Dr. C.S. Lord.

Dr. C.S. Lord spoke on Mining in the Northwest Territories illustrating his talk with slides and the film "Land for Pioneers", produced by the National Film Board. The following short account gives some of the main points of Dr. Lord's talk.

Mining in the Northwest Territories

Mineral production and exploration within the Northwest Territories is still mainly confined to that part easily accessible from Great Slave and Great Bear Lakes and the Mackenzie River. The main products are gold, uranium and other pitchblende derivatives, and oil. Though gold was reported from the north shore of Great Slave Lake as early as 1898, it was following the discovery of free gold on the west side of Yellowknife Bay by a field party from the Geological Survey of Canada in 1935 that prospectors started staking. The deposits that eventually developed into the famous Eldorado pitchblende mine were recorded by the Geological Survey as early as 1903 but it was not until 1930 that Gilbert Labine staked them. Oil was encountered at Norman Wells in 1920 but steady production was not attained until 1932.

Today there are four producing gold mines in the Northwest Territories. In 1947 they produced some 2,000,000 dollars worth of gold and this figure, though less than 1% of Canada's total production, is rapidly rising and is expected to double for 1948. These four mines are the Con-Rycon mine of Consolidated Mining and Smelting Company, Negus, Giant, and Thompson-Lundmark, all in the Yellowknife area. The Con-Rycon and Negus mines are the oldest gold properties and have been responsible for most of the 20 million dollars of gold so far derived from the area. Underground workings total more than 16 miles and extend to a depth of 2,300 feet.

The most important recent development during the past few years has been the Giant Yellowknife Gold Mines just north of Yellowknife. Extensive diamond drilling carried out a few years ago discovered large quantities of ore and plans were laid for a big mine - one that may well eventually rank with Canada's major producers. Underground work started three years ago.

The Giant system of ore-bearing shear zones is terminated by fault. Detailed geological work by Dr. Neil Campbell indicated that the displacement on this fault was such that the offset part would be found several miles to the south, on the properties of the Con-Rycon and Negus mines. Diamond drilling here in 1946 proved the accuracy of this prediction just as one of these mines was beginning to run short of ore. The fourth gold producer, the Thompson-Lundmark mine, is about thirty miles east of Yellowknife. Its present ore reserves and life expectancy are limited.

Among prospects in an advanced stage of development are the Discovery Yellowknife Gold Mines, 50 miles northeast of Yellowknife, where production is expected to start next summer; North Inca, 150 miles northwest of Yellowknife; and Bulldog Yellowknife Mines in the Barrens 150 miles northeast of the town.

The Eldorado mine at Port Radium was at first important as a major source of radium. The discovery of atomic energy has of course transferred the emphasis to uranium and enormously increased the importance of the mine. The pitchblende, in which both metals are found, occurs in quartz-carbonate-haematite veins in fault zones transecting the Proterozoic sedimentary and volcanic rocks, and is mined in much the same manner as more common minerals. The Eldorado mine is now owned and operated by the Crown.

The war, which retarded the development of the Yellowknife Gold Mines, greatly increased activity at Norman Wells where many new wells were drilled as part of the Canol project. There are now 64 productive wells and estimated recoverable oil reserves of about 36 million barrels. Production last year amounted to nearly 250,000 barrels. The Canol pipe line to Whitehorse has been scrapped and the oil is used for local consumption along the Mackenzie, and by the mines at Yellowknife and Port Radium.

An important possibility is indicated by a concession recently given to the Consolidated Mining and Smelting Company on the lead-zinc deposit at Pine Point on the southwest shore of Great Slave Lake. This deposit, occurring in gently inclined Devonian Presquille dolomite, was first explored some 20 years ago. The successful conclusion of the development programme might well result in a base metal and smelting industry to the great advantage of the Northwest Territories.

The Geological Survey of Canada is concentrating on two scales of geological mapping in the Northwest Territories. Maps on a reconnaissance scale of 4 miles to the inch and providing sufficient detail to guide prospectors to the most likely areas, are given first priority. Much more detailed maps are prepared in areas where ore-bodies or near ore-bodies are already known. In addition to a resident geologist at Yellowknife, seven parties were in the field in that area last summer, and about 48,000 square miles of the Northwest Territories are now covered by regular 4 miles to the inch geological maps. The actual prospecting for minerals is usually left to private enterprise. Known occurrences of ore are in general confined to areas 300 miles east and north of Yellowknife and coincide roughly with the area for which adequate geological and topographical maps are available. The lack of prospects further afield is in part due to the absence of suitable maps.

Task Force 80

Task Force 80 left Boston on July 15 to supply existing weather stations in the Canadian Arctic and to reconnoitre suitable sites for two further stations. It was the third season that this type of work had been carried out by the U.S. Navy. The preliminary reconnaissance in 1946 was known as Operation Nanook. In 1947 Task Force 68 set up the Resolute Bay, Cornwallis Island weather station, erected an automatic weather station at Dundas Harbour, and supplied Slidre Fjord, Eureka Sound, which had been established by air during the spring (see Circular 1, p. 2).

Task Force 68 and 80 were similar in many respects: the length of time at sea was the same, both leaving in mid July and returning towards the end of September; two of the ships, the icebreaker U.S.S. Edisto and the cargo ship U.S.S. Wyandot were the same, but the 1948 force was strengthened by an additional icebreaker U.S.C.G.C. Eastwind in place of the 2,000 ton cargo ship U.S.S. Whitewood. The success of the helicopter carried on board the Edisto in 1947 led to two helicopters being carried on each of the icebreakers in 1948.

The following account of Task Force 80 is necessarily somewhat incomplete as there is no full official account at present available. Material has been obtained from the releases of the Department of Transport in Ottawa and several reports in the press, particularly that in the New York Times for September 29.

The first site reconnoitred for a new weather station was in the Cape Sheridan area, north-east Ellesmere Island. According to the New York Times: "The route taken north was not unusual....The ships went through Davis Strait into Baffin Bay, then into North Water. From there they entered Smith Sound, which led to Kane Basin and Kennedy Channel, finally into Robeson Channel to Sheridan".

In reconnaissance from Cape Sheridan both icebreakers apparently penetrated a few miles further north under their own power than any other ship in the Western Hemisphere, though it is not clear whether U.S.S. Edisto or U.S.C.G.C. Eastwind should be credited with the present record. The New York Times reports that about this time one of the Edisto's two screws were sheared off and she was caught in the ice which suddenly closed in. She had to sail to Boston for repairs and four weeks elapsed before she rejoined the force.

In the Cape Sheridan area a landing party was marooned when freshening wind moved the pack-ice inshore closing the offshore leads and forcing the icebreakers to move out rapidly. The party was subsequently evacuated one at a time by helicopter. During this operation a bottle containing records of two earlier arctic expeditions was found in a pile of stones near two graves. These were a note left by Commander R.E. Peary U.S.N., in September 1905 and his copy of the note left by Captain G.S. Nares R.N., in July 1876. The text of the latter describes the work of the crew of H.M.S. Alert which wintered off this coast in 1875-6 (82°27N. 61°22W.) and mentions her consort, H.M.S. Discovery, which wintered in Discovery Harbour off the later site of Fort Conger in Lady Franklin Sound. Peary visited the same region in 1905-6 in the Roosevelt and, as is usual among Polar explorers, he opened Nares' cairn, took the original note, left a copy of it in the cairn, and added a record of his own activities. Task Force 80, following this custom, removed both Peary's note and copy and left copies and a note of their own.

During the summer Task Force 80 also supplied the joint Canadian/U.S. weather stations at Slidre Fjord and Resolute Bay. The stations set up by air earlier this year at Mould Bay, Prince Patrick Island and Isachsen Peninsula, Ellef Ringnes Island were apparently not reached as had been hoped (see Circular Nos. 5, p.45 and 6, p.68) but the force was successful in reaching Melville Island where a site for a weather station was reconnoitred. It will be recalled that the station set up at Resolute Bay in 1947 was originally intended for Winter Harbour, Melville Island, but ice conditions and damage to the Edisto prevented the ships reaching so far west.

To many the most interesting news of this expedition is that on completion of their mission the Eastwind and the Edisto returned to the Atlantic coast through Fury and Hecla Strait, between Melville Peninsula and Baffin Island, apparently without difficulty. These ships have therefore made the first recorded passage of this strait, though it is probable that it has been navigated by Eskimo boats. The Eastwind preceded the Edisto by a few days, the latter reaching Boston on September 25.

Operation Attaché

On the morning of September 12, a Beechcraft aircraft (85113) belonging to the U.S. Embassy took off from Churchill for The Pas carrying Captain Benjamin Scott Custer U.S.N., naval attaché to the United States Embassy, Captain Sir Robert Stirling-Hamilton R.N., senior naval adviser to the British High Commissioner in Canada, and Serjeant John Scalise of the U.S. Army. The crew consisted of Lieut. Charles Wilcox U.S.N., pilot, and Chief-Petty Officer Jack M. Kastner, U.S.N.

The aircraft was equipped with wheels and was carrying fuel for five hours. When six hours had elapsed and the aircraft had not arrived at The Pas it was reported overdue and Churchill control flashed this news to the R.C.A.F.'s Rescue Co-ordination Centre at Winnipeg. The resulting search became by far the most extensive in the history of Canadian aviation.

At first it was expected that the missing aircraft would be found on or close to the direct route between Churchill and The Pas and an intensive search was carried out for 90 miles on both sides of the direct route and for 100 miles beyond The Pas. Later the area was enlarged to cover a circle of 265 miles radius centred on The Pas. The search area was broken down into rectangles approximately 40 miles by 20 miles for ease of investigations. The major part of the area was heavily wooded which increased the difficulty of the search, though the searchers were fortunate in experiencing abnormally fine weather for that time of the year.

Advance search headquarters were set up at The Pas, with S/L J. Hudson as local search-coordinator until the arrival of G/C Leigh from Vancouver. Owing to the limited airfield facilities the maximum number of aircraft which could usefully be employed was 36, and many offers of assistance had to be refused. For the first time an airship, loaned by the Coast Guard Service, was used in a search of this kind. Airship XM-1, which was based at Winnipeg, was 300 ft. long and 90 ft. high. It was on its first flight when the search was concluded.

It is impossible in this note to give a picture of the many problems which had to be dealt with behind the scenes. Providing gasoline and maintenance of aircraft were obviously very difficult, much of the gasoline having to be brought in by truck from Winnipeg to The Pas. But many other problems such as getting sufficient maps at short notice, finding accommodation and bedding for the aircrews, some of whom had to sleep in their aircraft, and feeding the aircrews were also hard to solve.

By September 15 reports of aircraft seen on September 12 began coming in from all over the area. These had to be investigated as well as suspicious objects reported by the searchers, but none of them gave a clue to the missing aircraft.

As the search continued without success, hope of finding the party safe receded. On September 20 the Rev. Horsefield broadcast from Flin Flon for assistance from the Indians. The following has been extracted from a literal translation of his broadcast, which was in Cree: "Last Sunday (not indeed yesterday, but the last one) were lost some flyers, who flew up there at Churchill, at The Pas intending to alight... Now I will tell you how it looks, this flying machine. Like white-money (silver) it looks; a star is drawn on either side; two are the wind-turners; and there are wheels that it may land on dry land, it does not alight on the water. And two are the rudders behind. It flew up there at Churchill, at the mouth of the Strangers River (Churchill R.) on Sunday, 8 days ago... And now I would ask you, if you see a flying machine broken; or if you see trees snapped off - perhaps a flying machine did this, you say - search diligently for the flyers if they may be near by; track them if you see their tracks. Try to help them if they are alive. Or, if they are not alive, quickly tell anyone who works for Government - a policeman, a game guardian, a fire warden, or anyone who flies habitually. Because, if they are still alive, probably they are much in want. He will be greatly thanked who finds them."

On September 24 an R.C.A.F. Lancaster reported that they had found the missing aircraft at 57°03N., 105°37W. crash-landed at High Rock Lake, some 245 miles northwest of The Pas. On hearing this news an R.C.A.F. Canso located the survivors on a lake shore some 23 miles to the south of the plane. By a note dropped in a bottle the Canso informed them to continue to a larger lake 4 miles distant, where they met safely and remained overnight.

At first light on the morning of September 25 a Dakota flew to the lake and remained there until the Canso had taken off safely. Both planes returned to The Pas, approximately at 1630 hrs. Leaving behind CPO Kastner, the other survivors continued to Rockcliffe airport, Ottawa, arriving the same evening. Search aircraft dispersed to their home bases and search headquarters was closed down.

On September 26 CPO Kastner returned to the lake where the Canso had landed, reaching the Beachcraft the following day. After collecting baggage and burning the plane and equipment he returned to The Pas, leaving for Rockcliffe on September 29.

The following statistics may be of interest and give some idea of the magnitude of the search.

Maximum number of aircraft in search area 36 (RCAF 23, USAF 4, USCG 4, USN 5)

Total hours flown 1,140½ hrs.

Total mileage flown assuming average of 150 miles per flying hour 171,075

Total amount of gasoline used 139,244 Imp. Gals.

Experiences of the Beechcraft survivors

The search for the missing U.S. Embassy Beechcraft is described elsewhere in this issue. This note deals with the experiences of the party carried in the aircraft.

The Beechcraft took off from Churchill at 8.30 on the morning of September 12, in poor weather, but expecting to fly out of the overcast within 100 miles. After an hour the overcast thickened and it began to snow. Then the radio stopped working so that they could not fly on the Churchill-The Pas beam, while the magnetic compass was also found to be unserviceable. In the bad weather contact flying was impossible: the ground could be seen only occasionally and no landmarks could be picked up. When they were overdue at The Pas they flew in a direction they thought was south towards Winnipeg but a momentary glimpse of the sun showed them that they were completely lost.

As gas was running low they chose a level place and made a belly landing in safety on muskeg. After taking all their gear to higher ground the party made an inventory, and found that the plane's emergency kit was incomplete - there were no axes, no machettes and no emergency rations. The only food consisted of their sandwich lunches, 24 chocolate bars, a box of candy, and a tin of strawberry jam, but they had arms and 100 rounds of ammunition as well as two good knives.

They decided to wait by the aircraft for five clear days in the hope of rescue. A tent was made from spruce boughs and a parachute and the party lived mainly on porcupine, squirrel, mushrooms and blueberries, using a steel helmet as a cooking pot. As they had no cold weather clothing, no emergency rations and only enough ammunition for a month they decided to trek south. The next two days were spent in hunting spruce grouse for the journey. On September 20 the party made final preparations and next day set off south using a small hand compass for direction. The first day they made 15 miles through rough country, but the next day the going became worse. The country was a jungle of fallen and rotten timber criss-crossed at the foot of giant spruce. Each night a strip was torn from the parachute and laid out to show their path to any searching plane.

The fourth day of their journey, when they had covered about 23 miles as the aeroplane flies, they saw an aircraft and fired Verey pistols but it flew on north. The party then built a fire on a ridge and shortly after heard another plane which turned out to be a Canso. The Canso circled for some time and dropped rations and a message telling them to go to a lake four miles away where it could land. The party covered this distance as fast as the difficult going would allow and found the Canso waiting for them on the lake happily ending their twelve days of hardship.

Botanical investigations in Arctic America

Dr. Nicholas Polunin, who has carried out botanical investigations in many areas of the Arctic, came here from England in the summer of 1946 to resume pre-war work, with invitations from McGill University to a Visiting Professorship and from the Arctic Institute of North America to a Research Fellowship. He joined the Geodetic Service party in Ungava, where, during the following weeks, field work was pursued in R.C.A.F. transport. Intensive plant collecting and vegetation survey was carried out at three previously uninvestigated localities in the interior, ranging from Lac Bienville in the south to McGill Lake north of Payne River, and also at Chimo. Reconnaissance flights were made over Hudson Bay, Hudson Strait, and much of the Ungava Peninsula. Later, ground investigations were resumed on Southampton Island where, particularly in the interior, unexpected botanical features were discovered.

After a flight over Melville Peninsula and Foxe Basin work was continued on Christopher Island near the east end of Baker Lake and finally on the way home Dr. Polunin was able to add to his work of 1934 and 1936 at Churchill by further collecting there. From the summer's field work he brought back some 5,000 collection numbers of vascular plants, many cryptogams for determination by various specialists, notes on vegetational surveys and geographical explorations, and a diary which is being published.

Having accepted the Macdonald Chair of Botany at McGill, Prof. Polunin in the summer of 1947 went to the west in R.C.A.F. transport and again at first worked with the Geodetic Service - this time principally from Norman Wells and a base-camp situated to the north-west of Great Bear Lake. Here intensive botanical work was carried out, particularly collecting the flora and surveying the vegetation of mainly sparse subarctic spruce forest. A subsidiary camp was then pitched near the forest-barrens ecotone and trips were made on foot into the forest and northwards to the coast. It was also established that the current maps of this region and particularly the indication of the tree line needed revising. Visits were paid by air to various coastal points northwards to Cape Bathurst, before Prof. Polunin moved to Cambridge Bay, Victoria Island, to join the Polco flights (Circular No. 3, p.20). From Cambridge Bay several interesting reconnaissance flights were made, with a landing in the interior of Prince of Wales Island. There and at Cambridge Bay such floristic collecting and vegetational survey as time allowed were accomplished, before the party went south to Yellowknife, where brief visits were paid to the forest-barrens ecotone at Point Lake and Jolly Lake. On flights northwards to Cape Bathurst and as a transect of some 1500 miles from Somerset Island to Edmonton, Alberta, nutrient Petri plates and vaselined slides were exposed and an unexpected range and abundance of botanical particles were caught.

In 1948 with support from the Defence Research Board Prof. Polunin continued his aero-biological investigations with a team of specialists. Late in August he proceeded by air to Fairbanks, Alaska, where a special flight was made by the U.S.A.F. to enable him to gather samples most of the way up to and from the North Pole, as well as at various altitudes from 3,000 to 25,000 feet in its immediate vicinity. The working out of this material is chiefly under the direction of Drs. S.M. Pady and C.D. Kelly of McGill, and detailed results cannot be expected for some months to come. Further flights are planned for the future. While in Alaska, Prof. Polunin paid visits to certain north coast and other points, collecting plants until the prevailing temperature had fallen to -9°C. and snow covered the ground too thickly: except for those from Barter Island, the specimens have been sent to Prof. Eric Hultén, Stockholm, whose "Flora of Alaska and Yukon", is now nearing completion. During these last three summers Prof. Polunin has also made observations on the crop contents of Rock Ptarmigan across the continent.

Sampling of waterfowl in the Western Arctic

During the past summer Robert H. Smith of the United States Fish and Wildlife Service and Robert P. Allen of the National Audubon Society flew along the arctic coast between Point Barrow, Alaska, and Bathurst Inlet, N.W.T. In all they covered 14,272 miles in a Grumman "Widgeon" plane, which they found very suitable for their work. The purpose of their trip was to sample nesting waterfowl population in some of the more important areas and to search for the nesting grounds of the Whooping Crane. (For a preliminary account see Circular No. 5, p. 54). This waterfowl survey forms part of a general continental survey of breeding grounds being carried out by wildlife authorities. They were not successful in finding the breeding grounds of the Whooping Crane.

Flying at a height of only 100 ft. the two observers counted by species all waterfowl seen in a strip 1/8th. of a mile wide on either side of the plane. By flying these lines at random the observers believed that they were able to obtain a fair representative sample of the area. The density of ducks seen during the summer varied from 56.2 per square mile on the Old Crow flats to only 1.9 per square mile in the inland tundra south of Point Barrow.

The following account of their work is contained in a letter from Mr. Smith to Mr. T.H. Manning: "On the way in we stopped at McMurray, Fort Smith, Hay River, Fort Simpson, Norman Wells and Aklavik. We also visited Old Crow, Y.T., Barter Island and Point Barrow, Alaska, Sawmill Bay, Coppermine, and Yellowknife, N.W.T.

"The areas worked intensively were the Athabaska delta, the parklands adjacent to the Slave River, the Mackenzie delta,

the Arctic Plains north of the Brooks Range in Alaska, the Eskimo Lake region, the lower Anderson River area and the old Crow flats.

"We plan to continue the same work next year, but to extend our surveys east to Perry River and Baker Lake and then return by way of Churchill."

New nursing stations for Indian Health Services

The Department of National Health and Welfare have announced that 14 new nursing stations have just been completed, or are in process of building, for the Indian Health Services, to supplement the 9 stations already operating. There are at present unfilled positions both for graduate and practical nurses interested in northern work. The new stations are at Coppermine, Fort McPherson, Fort Good Hope and Fort Norman in the Northwest Territories; at Saddle Lake and Driftpile in Alberta; at Onion Lake and Lac la Ronge in Saskatchewan; at Nelson House, Oxford House, Cross Lake and Island Lake in Manitoba; and at Lac Seul and Osnaburgh House in northwestern Ontario.

The Indian Health Services have three scales of medical establishment: hospitals, nursing stations and health units. The 19 hospitals range from the large Charles Camsell hospital at Edmonton with 350 beds to that at Maliseet, N.B., with 4 beds. Nursing stations are manned by a graduate nurse, a practical nurse, and a firemen-labourer. The new stations are prefabricated buildings with living quarters for staff and bed space for at least four patients. The 15 health units are staffed by a medical officer and graduate nurse, who are responsible for a large area in which they educate on health matters, treat, and arrange hospitalization for the natives.

Medical establishments already in operation by Indian Health Services are listed below.

Hospitals

Maliseet, N.B. - Tobique Indian Hospital
Manitowaning, Ont. - Manitowaning Indian Hospital
Ohswekan, Ont. - Lady Willingdon Indian Hospital
Port Arthur, Ont. - Squaw Bay Indian Hospital
Brandon, Man. - Brandon Indian Hospital
Norway House, Man. - Norway House Indian Hospital
The Pas, Man. - Clearwater Lake Indian Hospital
Selkirk, Man. - Dynevor Indian Hospital
Hodgson, Man. - Fisher River Indian Hospital
Pine Falls, Man. - Fort Alexander Indian Hospital
Fort Qu'Appelle, Sask. - Fort Qu'Appelle Indian Hospital
Edmonton, Alta. - Charles Camsell Indian Hospital
Gleichen, Alta. - Blackfoot Indian Hospital

Brocket, Alta. - Peigan Indian Hospital
Cardston, Alta. - Blood Indian Hospital
Morley, Alta. - Stoney Indian Hospital
Sardis, B.C. - Coqualeetza Indian Hospital (destroyed by fire Nov. 1948)
Nanaimo, B.C. - Nanaimo Indian Hospital
Prince Rupert, B.C. - Miller Bay Indian Hospital

Nursing Stations

Eskasoni, N.S.
Fort George, Que.
Port Harrison, Que.
Bersimis, Que.
Broadview, Sask.
Gypsumville, Man.
Hobbema, Alta.
Wabasca, Alta.
Port Simpson, B.C.

Health Units

Sydney, N.S.
Caughnawaga, Que.
Moose Factory, Ont.
Muncey, Ont.
Deseronto, Ont.
The Pas, Man.
Prince Albert, Sask.
North Battleford, Sask.
Edmonton, Alta.
Calgary, Alta.
Prince Rupert, B.C.
Williams Lake, B.C.
Duncan, B.C.
Kamloops, B.C.
Vancouver, B.C.

Washington Section of the Institute of Navigation

The Washington Section of the Institute of Navigation and certain polar societies are planning a joint meeting to be held on the evening of January 11th. Most of the evening will be devoted to discussion of three aspects of polar navigation: problems of polar navigation, what has and is being done to solve these problems, and the future of polar navigation. The Chairman of the Section, Alton B. Moodie, has invited any members of the Arctic Circle, who may be in Washington, to attend this meeting.

Further information can be obtained from:

Alton B. Moodie,
c/o U.S. Navy, Hydrographic Office,
Washington 25, D.C.,
U.S.A.

Index

A short Index to Volume 1 has been prepared by Lieut. D.L. Hanington, R.C.N., and will be sent to members early in the New Year.

Subscriptions for 1949

Members are reminded that their subscriptions for 1949 ($2 for Ottawa members and $1 for non-resident members) are due on January 1, and are payable to the Secretary, Mr. T.H. Manning, 37 Linden Terrace, Ottawa. It will be greatly appreciated if members would pay promptly.

Editorial Note

The Editor wishes to thank Miss Moira Dunbar for her assistance with the Circular, in particular for bringing out the summer number while the Editor was in England, and Lieutenant Hanington for preparing the Index.

The Editor would welcome contributions from those who are at present in the Arctic or have information about work in the Arctic. All material for the Circular should be sent to:

Mrs. Graham Rowley,
Editor Arctic Circular,
411 Echo Drive,
Ottawa.

CORRESPONDENCE

Geographical survey of the Middle and Lower Thelon Basins

To the Editor:

The last issue had a most interesting account of the geographical work done in the lower Thelon. Reference is made to a river entering Aberdeen Lake which might serve as a canoe route northward. I recall no sizable stream entering Aberdeen, though there might be one at the west end as big as the Tibielik River, but there is a real river entering Schultz Lake on the north side of the long point. It is, as I recall, the only real head of water entering the Thelon system from the north between the Henbury and Baker Lake.

C.H.D. Clarke
Toronto, 18 November 1948

To the Editor:

Dr. Clarke is correct when he states that a river enters Schultz Lake north of the long point, at Long. 97°15' W (Sheet 66SW and 66SE Aberdeen Lake 8 miles to 1 inch Provisional Edition 1946). It is however very small, 40 yards wide and with an average depth less than 1 foot. Before reaching the inlet of Schultz Lake it flows through three small lakes which

lie in the valley followed by Exercise Muskox in 1946. Between the west end of Beverley Lake and the east end of Schultz Lake there are at least four larger streams entering on the north side.

The Tibielik River enters opposite the Dubawnt. Although it occupies a wide valley, it had in August, 1946, a flow of only 500 cubic feet per second and was on an average about 3 feet deep and frequently not more than one foot. In its middle course the river has cut a gorge 100 feet deep in the sandy till and the bed is choked with sand. On the north shore of Aberdeen Lake a stream, about half the size of the Tibielik, and at least 15 miles long, enters at 99°12' W. Further east at 97°51' W another stream with a flow of 400 cubic feet per second joins Schultz Lake. This stream which was traced for 10 miles and certainly extends further is really a series of long, narrow fault guided lakes joined by stretches of fast flowing water.

The river, to which I referred in the Arctic Circular, Vol. I, No. 7, enters Aberdeen Lake at 98°30' W. Two miles from its mouth it is 80 yards wide and had an estimated flow of 43,000 cubic feet per second or about 1/15 the volume of the Lower Thelon in late August.

J.B. Bird
Toronto, 26 November 1948

OBITUARY

W.H.B. HOARE

An appreciation by C.H.D. Clarke:

To be an "old-timer" it is not necessary to be old. The untimely death of Billy Hoare on August 15, at the age of 58 is a sharp reminder of that, for he was a true pioneer and represented all that is honourable in the phrase.

As a young man in Ottawa, trained as an expert steam-fitter, Billy had been fascinated by missionary accounts of the Arctic. He was a keen supporter of the Church of England Young Peoples and Missionary Societies, and when the Church Mission built a boat to reach the recently discovered Eskimo of Victoria Island and Coronation Gulf, he agreed to be the engineer.

I believe it was in 1912 that he left Ottawa with the boat, the Atkoon, on two flat cars, and put her into the water at Athabaska Landing, where the trip north began in those days. With Indian help she was taken first to Fitzgerald and later to Herschel Island. In 1915 she was taken east and was put into winter quarters on the coast, where she caught fire. Tradition has it that Billy lit a match to see how much gas there was, but, alas for tradition, the motor was a special kerosene model and

there was no gas around. The missionary party had earlier gone on to the Canadian Arctic Expedition quarters at Bernard Harbour and Billy joined them in the spring.

After the Expedition left, the mission stayed on, visited by the R.N.W.M.P. and later joined by traders. Billy and an Eskimo named Amerainuk, who was the man who had killed Street, of the ill-fated Radford and Street expedition, struck up a David-and-Jonathan friendship. With Amerainuk, Billy wandered far to the east doing missionary work. For the most part he was ignorant of his whereabouts at any given time, but was later able to figure out some of the route around King William Island. The indoctrination they gave the Eskimo was recorded by Rasmussen, who never knew the identity of the wandering preacher. When Billy started his association with Amerainuk he knew no Husky. In two years, he became reasonably proficient. I had ample opportunity later to see the adequacy of his knowledge. He also became a seasoned traveller. In 1919 he went outside to enlist not knowing the war was over, and influenced by the death of Girling, his missionary leader, he returned in 1920 taking with him a wife.

At first he went to Herschel, but later became, with Jack Parsons, joint founder of Aklavik, and first post master of the post office there. Parsons wanted to call the place Scenic, the Eskimo name for the point being Sinik, but Billy Hoare insisted on Aklavik, the name for the whole delta. In 1923 he found his "reader's pay" too slim to live on and went outside again. Back in Ottawa he was called to testify before the Reindeer and Musk Ox Commission, where his first hand observations won him a job as one of the N.W.T. Bureau's special investigators. In time this group included Soper, Porsild and Blanchet, as well as Hoare and Burwash.

Billy followed caribou from Coronation Gulf to Great Bear Lake and back and then he crossed and recrossed the barrens between Bathurst Inlet and Ree. When the Thelon Sanctuary was set up he went to report on the musk-oxen, and was back there again in 1931. During his absence from Ottawa the Department of the Interior disintegrated. He was offered a job as game warden in the Thelon Sanctuary. Those who offered it may well have felt that they were saving him something from the wreckage, but he felt differently and refused the favour.

Outside he worked at many things, from steam-fitting around Ottawa to gold-mining in Georgia. At one time he ran a camp on the Ottawa River where boys had a wonderful time pretending they were Eskimo, but the overhead was too big. In 1936 and 1937 he went back to the Thelon with me. Once returned from those trips he never went north again. Eventually he joined the R.C.M.P. as a "special" and was able there to keep track of many a former northerner. Around Ottawa, he was well known for his love of outdoor sports. Hundreds who skied in the Gatineau

Park knew his face even though they did not know his name. He was on his way to a canoe outing when killed.

It was my unique experience to spend many weeks alone with Billy in the North that he knew and loved so well. He was an incomparable raconteur and the well of experience and adventure from which he drew seemed inexhaustible. Years later, when I travelled from Aklavik to Burnside I had a most uncanny feeling of having been over the route before. I have never failed to confirm his accuracy as to event, place, date or person. In animated narration he probably at times added a few degrees of frost but they were not significant to the history.

There was, in fact, to Billy's whole outlook that completely Homeric quality which characterizes the Eskimo. Wherever he was he did his best and then, having done, he accepted cheerfully whatever came his way. Huskies do not often grow old. The first Eskimo I met were five men on the Thelon River. Of the seven of us who were there, only three are left. If Billy had had his last encounter with the Arctic it would have been in keeping, but the irony of sudden death on a country road is something he would have appreciated.

INDEX

A

B

C

D

H

I

J

K

L

M

N

O

P

Q

R

S

T

U

W