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Thirty-ninth Meeting of the Arctic Circle

The thirty-ninth meeting of the Arctic Circle was held in the 1st Corps Troops R.C.A.S.C. Mess, 278 Sparks Street, on Wednesday December 3. The President, Inspector Henry Larsen, was in the Chair and introduced the speaker, Lt.Col. J.O. Fletcher, U.S.A.F. Colonel Fletcher showed two films of the setting up of the U.S.A.F. research station on the ice island T3 and described the scientific programme on the island. A brief account of this work is included in this number.

Annual General Meeting

The Annual General Meeting of the Arctic Circle was held in the 1st Corps Troops R.C.A.S.C. Mess, 278 Sparks Street, on Wednesday 7 January 1953. The President, Inspector Henry Larsen, was in the Chair and opened the meeting by calling on the Treasurer, Mr. J. Cantley, to read the financial statement, which was then approved by the members. The Treasurer pointed out that there was a deficit of $79.00 during the year; this was partly due to increased costs of mailing and producing the Circular but was to some extent offset by large stocks of envelopes and paper. As there were still funds in hand from previous years it was decided that membership fees should not be raised. Membership has continued to increase slightly and at the start of the sixth year of the Club's existence there were 173 Ottawa members and 291 out-of-town members, making a total of 464 compared with 461 at the Annual General Meeting in 1951.

The President then asked the meeting to vote for Officers and Committee members. In accordance with the Constitution the following members of the Committee resigned: Dr. Y.O. Fortier, Dr. George Hooper, and Mr. A.E. Porsild. F/L Scott Alexander, who had been posted to Edmonton, also resigned. To fill these vacancies, the Committee proposed the following members: The Rev. Father Gontran Laviolette, O.M.I., Dr. C.S. Lord, Dr. D.C. Rose, and Mr. W.B. Smith, who were elected unanimously. Following the meeting the Treasurer, Mr. James Cantley, resigned and Mrs. A.G. Sangster was appointed to succeed him. The Officers and Committee members for 1953 are as follows:

President:	Inspector Henry Larsen, R.C.M.P.
Vice-President:	Mr. A.D. McLean
Secretary:	Mr. A. Stevenson
Publications Secretary:	Mr. S.J. Murphy
Treasurer:	Mrs. A.G. Sangster
Editor:	Mrs. G.W. Rowley

Committee members

Mr. D'Arcy Charles
Mr. Gordon Corcoran
Mr. Frank Davies
Miss Moira Dunbar
Mr. T.H. Manning
Rev. Father Gontran Laviolette, O.M.I.
Dr. C.S. Lord
Dr. D.C. Rose
Mr. G.W. Rowley
Lt.Col. A.G. Sangster
Dr. V. Solman
Mr. W.B. Smith
Mr. J.A. Warwick
Mr. J.A. Wilson
Mr. J.C. Wyatt

Following the election of Committee members the President thanked the Officers and members of the Committee for their work during the past year. A vote of thanks was proposed to the auditors, Dr. George Hooper and Mr. W.K.W. Baldwin, and the meeting reappointed them for 1953. The President than expressed the gratitude of the Club to Lt.Col. J.R. Chisholm for the use of the R.C.A.S.C. Mess and Major S.A. Jacques for making the arrangements at the Mess, and to the Scott Polar Research Institute for handling the subscriptions from European members.

At the conclusion of the Club business Dr. V. Solman showed the colour film "Arctic Wildlife", which had been taken by members of the Canadian Wildlife Survey.

Ice island T3

On 14 August 1946 what appeared to be a new island in the Polar Basin, nearly 300 miles north of Point Barrow, was picked up on the radar scope of a U.S.A.F. aircraft. Subsequent flights showed that the new island was a huge mass of floating ice, which stood out from the surrounding pack ice by its size, thickness, and strikingly ridged or rolling surface pattern. Since then the U.S.A.F. has followed the drift of three large ice islands in the Polar Basin, known as T1, T2, and T3, which move at an average rate of 1.2 miles a day, and a large number have been found on air photographs of waters of the Canadian Arctic Archipelago. All these ice islands are readily recognizable and maintain their shape for several years. They have been shown to have broken away from a belt of shelf ice, up to 10 miles broad, off the north coast of Ellesmere Island.

During March 1952 the first landing was made on T3, or "Fletcher's Island" as it was known by members of the U.S.A.F. in recognition of Colonel Fletcher's contribution to the study of ice islands. One of the main purposes of occupying an ice island was to establish a meteorological station from which weather data could be sent out at regular intervals. The island T3, the smallest of the three T's, was selected, as it was in the central and least known part of the Polar Basin.

Colonel Fletcher, in his talk to the Circle, described the reconnaissance flight and landing, after which Capt. M. Brinegar, Dr. K. Rodahl, and he himself remained on the island to construct a temporary camp. Late in April Mr. A.P. Crary and Mr. R.D. Cotell, civilian scientists from the U.S.A.F. Cambridge Research Center, and Capt. Paul Green from Alaska Air Command were flown in and Dr. Rodahl and Capt. Brinegar were taken out. In June a complete rawinsonde station was set up and two members of the 7th Weather Group joined the research party, which by December consisted of nine men under the command of Major H.G. Dorsey, Jr. Since that time a continuous programme of observations has been carried out and the U.S.A.F. plans to give facilities for one or two civilian scientists to make special studies.

In addition to the meteorological observations the scientific work has been mainly directed towards studies of the following: the physical structure and movements of the ice island, the movements of the pack ice, and seismic profiles of the ice island and the ocean floor. The following brief account of this work is based on a paper by A.P. Crary, R.D. Cotell, and T.F. Sexton, published in Arctic (Vol. 5, No. 4, December 1952, pp. 211-34).

Approximately seven miles of transit surveys were made across the ice island, which measures roughly 31 miles in circumference and is 5 miles across at its narrowest part. Core holes and test pits were dug in which dirt bands could be studied, and measurements were taken of the amount of thaw. In two of the core holes made before the thaw season fresh water pockets were found which supplied all the water required by the station.

Solar and lunar observations showed that the ice island was tending to drift southwards and westwards rather than eastwards with the Greenland current as had once been suggested. Also it was shown that the movements of the island appeared to be mainly due to wind rather than to ocean currents.

A tentative figure of 160 feet for the thickness of the ice island was given from seismic studies. Much information was also obtained about the floor of the Polar Basin, which proved to be very different from the deep regular basin which had been assumed in the past. The floor was very irregular, the most marked feature being a fault or escarpment with a downthrow of some 3,000 to 5,000 feet to the northeast. Two sea mounts were found, where the level of the ocean floor, in general some 12,300 to 12,800 feet deep, rose to less than 9,500 feet.

In addition to these studies collections of surface dirt and of flora and fauna were made during the melting season and will be examined by carbon 14 analysis for age determinations where possible.

The scientific work carried out on the ice island has already added very considerably to our knowledge of the Polar Basin. It is expected that even more valuable results will be obtained if the ice island should make another circuit of the Basin as now appears probable.

Cosmic ray observations in the Thule area 1952

In August and September 1952 the Office of Naval Research carried out a series of experiments to measure the charge and energy spectrum of the primary cosmic radiation, and the inter-action of this primary radiation with the earth's atmosphere at high altitudes. The measurements were made by carrying instruments and instrumented rockets to high altitudes using large constant level plastic balloons, known as "Skyhooks", launched from the deck of the icebreaker U.S.C.G.C. Eastwind in Baffin Bay in the vicinity of the geomagnetic pole. In this area the earth's magnetic field has a minimum influence on the incoming cosmic ray particles, therefore measurements at very high altitude will give results which are the closest approach that can be obtained to primary cosmic rays uninfluenced by the earth's magnetic field.

The Eastwind had brought the scientific equipment from the U.S. and the group of nine civilian and naval scientists joined the ship at Thule. The experiments were begun on the return journey to Thule from Alert (see Circular, Vol. 5 (1952) p. 67). The weather was a severe handicap. Launching the balloons was possible only because of the ship's ability to create a "no wind" condition by steaming downwind as the balloons were about as high as a 10-storey building. In the severely restricted waters, dotted with iceberts and in some places completely covered with ice, this was a difficult operation and on many days wind or ice prevented launchings. Through the cooperation of Captain O.A. Peterson, U.S.C.G., and the crew of the Eastwind however all fourteen of the scheduled flights were launched.

Two methods of obtaining data were used: balloon-rockets, and balloon-borne neutron counters and nuclear emulsion plates which were parachuted to earth.

The balloon-rocket experiments, under the direction of Dr. James A. Van Allen, Head of the Department of Physics, State University of Iowa, measured the primary cosmic radiation above the earth's atmosphere. Navy "Deacon" rockets were launched suspended beneath the high altitude balloons. These rockets are less than 8 inches in diameter but over 10 feet in length and were fitted with a special nose cone for the experiments. The balloon

lifted the rocket through most of the earth's atmosphere to an altitude where the rocket was fired almost vertically. By using balloons smaller rockets can reach altitudes for which larger more complex rockets were previously required. In these experiments the rocket went up to altitudes of about 40 miles, the greatest height known to have been reached in these latitudes. Each rocket contained either a geiger counter or an ionization chamber to measure the cosmic radiation. The data from the rockets were telemetered back to the Eastwind and it was therefore unnecessary to recover the rockets after flight. The data obtained were in substantial agreement with predictions based on similar measurements at lower latitudes.

The neutron counter experiments, under the direction of Dr. Martin J. Swetnick of New York University, measured the intensity of the neutron component of the cosmic radiation as a function of altitude. These measurements were a continuation of experiments carried out at lower latitudes with the same type of equipment.

Nuclear emulsion plates, which record the passage of the cosmic radiation through the photographic material, were flown to altitudes of about 90,000 feet for the University of Chicago, University of Rochester, University of Minnesota, the Bartol Research Foundation, the Naval Research Laboratory, and the National Institute of Health. One set of equipment landed on Ellesmere Island and another on the Greenland ice cap within about 10 miles of the geomagnetic pole. Snowstorms during late August and early September prevented naval helicopters from recovering the equipment. Dr. Marcel Schein of the University of Chicago offered a reward of $100 for the return of this equipment and there is some hope that it may be recovered by Eskimo during the spring.

The "Skyhooks" were flown by technicians from the Aeronautical Research Laboratory of General Mills, Inc. These balloons were made of polyethelene material one-thousandth of an inch in thickness and were 55 to 100 feet in diameter when fully inflated. As the available area on the flight deck of the Eastwind was only about 60 feet square, and the balloons measured up to 180 feet long when spread out before filling with gas, launching of the balloons required skillful handling and special techniques. This was the first time that these balloons had been launched from so small a ship. The U.S.S. Atka assisted in the programme by tracking the balloons during flight and attempted to recover the scientific instruments when they had come down by parachute. Three PB4Y2 aircraft of U.S. Navy Patrol Squadron 23 based at Thule Air Base followed the balloons in the air and located the places where the equipment descended.

Of the fourteen flights, eight were successful in that the balloons and scientific equipment performed satisfactorily. As far as is known this is the first time that these high level plastic balloons have been launched and that high altitude rocket soundings have been made north of the Arctic Circle.

It is not however the first time cosmic ray measurements have been taken with balloon borne instruments in the Thule area. In 1937 an expedition was organized by J.M. Wordie, one of the main purposes of which was to take cosmic ray measurements at high altitude near the geomagnetic pole. Two British scientists, H. Carmichael and E.G. Dymond, on the Wordie expedition released balloons carrying ionization chambers and counters. Their experiments pioneered this type of work at northern latitudes and were of great value in cosmic ray studies.

The present experiments in the Thule area are part of a broad programme of cosmic radiation investigations being carried out under the Joint Programme of basic research in nuclear physics of the Office of Naval Research and the Atomic Energy Commission. The programme includes a systematic investigation at many locations of all properties of the cosmic radiation at sea level, at mountain, balloon and rocket altitudes.

Tabulation and interpretation of the data will take several months and the scientific significance of the measurements will be reported by the laboratories concerned.

Caribou calving studies, 1951. By John P. Kelsall

A successful investigation was made of caribou calving in the spring of 1951 by members of the Canadian Wildlife Service engaged in the Barren-ground Caribou Study. Attempts made in other years had failed because of inexact knowledge of the date of calving and lack of air service during the period of the break-up.

In May 1951 an extensive and unsuccessful search was carried out by the R.C.A.F., and by bush pilots based at Yellowknife, for a lost Bellanca aircraft and its pilot John Bourassa. The Mammalogist-in-charge of the Barren-ground Caribou Study, John P. Kelsall, and a summer assistant, Nolan G. Perret, took part in the search. From their observations, and from the reports of others engaged in the search it was apparent that an excellent opportunity existed to observe calving caribou in the Bathurst Inlet area. The two investigators took off from Yellowknife on June 2 in a chartered Anson aircraft, which was equipped with wheels because of open water south of the tree-line. The aircraft landed on sea ice near Burnside Harbour and the landing gear was converted to skiis. After six small caches of food, and gasoline for cooking, were placed on lakes in the high country to the west and southwest, the aircraft was refitted with wheels and returned to Yellowknife. The investigators spent some days on the coast and then walked inland in search of the calving caribou. The country was found to be exceedingly rugged with altitudes ranging up to 2,000 feet. Spring break-up was in full progress and it was impossible to reach some of the caches. Wet blizzard conditions prevailed for one three-day period, and the necessity of wading occasional

icy rivers and walking miles around partly thawed lakes led to the conclusion that caribou have their calves at the country's most uncomfortable season for travel.

Over 5,000 caribou, as well as about 500 newborn calves, were observed during the course of the work. The calves were found to be most precocious; some of them could outrun a footsore biologist when less than 24 hours old. A calf had no hesitation in leaping from an ice shelf and following its parent in a short swim when less than 12 hours old. When pressed, it could walk and hop over two miles at the age of 1½ hours. Limited range studies were carried out on the calving areas and observations on early calf mortality, caribou behaviour at calving, and predation were made. Except for caribou, the calving area was found to have a rather limited fauna. Birds and mammals were much less abundant than in the more richly vegetated and more varied coastal areas. Of particular interest was an encounter with a rare barren-ground grizzly only some 20 miles inland from Burnside Harbour. Tracks of a second bear were seen as well.

After returning to Burnside Harbour the investigators waited there until July 2 when a Norseman aircraft came in on pontoons and took them back to Yellowknife.

Biological investigation of the Thelon Game Sanctuary, 1951. By John P. Kelsall

An examination of parts of the Thelon Game Sanctuary and the lower Thelon River was made in the summer of 1951, as part of the continuing Barren-ground Caribou Study (see Circular, Vol. 1 (1948) pp. 77-8 and Vol. 5 (1952) pp. 43-4). Two field men of the Canadian Wildlife Service, John P. Kelsall, Mammalogist-in-charge of the Barren-ground Caribou Study, and Nolan G. Perret, a summer assistant, descended the Thelon River from the Thelon-Hanbury junction to Baker Lake by canoe. This was the first time since C.H.D. Clarke and W.H.B. Hoare descended the river in 1937 that the important muskox areas on the upper part of the river had been investigated.

The party left Yellowknife on July 17, and returned in late August. Transportation to the Thelon-Hanbury junction, and the return from Baker Lake to Yellowknife was by aircraft. On the latter trip areas which had not been reached on the ground were surveyed from the air.

Investigation and observation of the Thelon muskoxen were the chief interests during the trip. In 1937 Clarke[1] reported seeing 65 muskoxen during the course of a canoe trip which was comparable with that made in 1951 by Kelsall and Perret. He estimated the total population of the Sanctuary to be 300 animals. The 1951 party saw 334 muskoxen and estimated

1. Clarke, C.H.D., 1938, 'A biological investigation of the Thelon Game Sanctuary'. Nat. Mus. Can. Bull., No. 96, IV + 135 pp, map.

the population to be a little more than 1,000 animals. Muskoxen were seen from the Thelon-Hanbury junction area to a point only 20 miles above Beverly Lake and evidence of their recent presence was also seen at Aberdeen Lake. From these observations it is believed that the Thelon Game Sanctuary, which was established for the preservation of one of the last known remnants of the mainland muskox herds, is serving its purpose.

Our observations also fully confirmed Clarke's reports on the excellence and variety of the Thelon's other mammals and birds. Of particular interest was the presence of barren-ground grizzlies and the fact that the river appears to be a major summering area for thousands of Canada geese.

An unusual example of accidental death in caribou was found at the narrows in Aberdeen Lake. Apparently a large herd of the animals had attempted to swim the narrows about a month before our visit. Large numbers had drowned--possibly owing to a high wind arising during the 4½-to 5-mile swim--and between 400 and 450 carcasses were found along the north shore of the narrows. Caribou are commonly known to drown at waterfalls and rapids, and by falling through unsafe ice in spring and autumn, but such large scale drowning is unusual.

Three Eskimo camps were found on the river below Beverly Lake.

The 1952 Eastern Arctic Patrol. By J.G. Cantley

The Department of Transport's vessel C.D. Howe sailed from Montreal on 27 June 1952 on the thirtieth annual Eastern Arctic Patrol, carrying supplies and personnel to northern posts. Heavy ice off Cape Harrison on the Labrador coast damaged the ship's bows so that she had to return from Tuchialik Bay to Quebec and Montreal for repairs. After being greatly delayed by strikes at the shipyard, the ship sailed from Montreal again on July 26. To make up for this delay, Fort Chimo was omitted from the itinerary and was later supplied by the Regina Polaris and the Rupertsland from Churchill. The usual calls were made at Koartak, Sugluk, Ivuyivik, and Port Harrison on the northern Quebec coast and the ship arrived at Churchill on August 7, after working her way through about sixty miles of field ice off the west coast of Hudson Bay.

The Patrol left Churchill on August 15 on the second part of the voyage. Calls were made at Coral Harbour, Cape Dorset, Lake Harbour, Frobisher Bay, Pond Inlet, Craig Harbour, Resolute Bay, Arctic Bay, and Craig Harbour on the way north, and at Pond Inlet, Clyde River, Padloping, Pangnirtung, and Frobisher Bay on the return trip. The ship arrived back at Quebec on September 22. A proposed call at Cape Sabine was cancelled as the work there had already been done by another ship and the call at Thule had to be omitted because of adverse ice and weather conditions encountered off the Greenland coast.

Capt. Chouinard, who had been Master of the C.D. Howe on her previous patrols, was unable to make the trip this year because of ill health. He was relieved by Capt. Paul Fournier, who was formerly first officer. The administrative work of the Patrol was carried out by Arctic Services, Department of Resources and Development, R.E.G. Johnston being in charge from Montreal to Churchill and J.G. Cantley from Churchill to Quebec. Dr. R.N. Simpson, Regional Superintendent of Ontario and Eastern Arctic for the Department of National Health and Welfare, was in charge of the medical work and was assisted by Dr. J.D. Hermann, surgeon, and Dr. R.S. Robertson, dentist. X-ray examinations were made of practically all the Eskimo at the various ports of call. A.R. Rogers and B.B. Hanson, of the Department of Mines and Technical Surveys, carried out extensive hydrographic work both on the ship and by launch while the ship was in ports. The Post Office Department was represented by J.G. Cunningham. Capt. A. Shea, of the Canadian Army made the round trip. K. Wallingford and A.B. Williamson, of the Department of Transport, comprised the helicopter crew. Inspector H.A. Larsen and Sgt. Weston joined the ship at Churchill and inspected the R.C.M. Police detachments on the second half of the voyage. P.A.C. Nichols of the Hudson's Bay Company and the Right Reverend D.B. Marsh, Bishop of the Arctic, were also passengers on this part of the voyage.

Before joining the C.D. Howe at Churchill, Mr. Cantley and Bishop Marsh visited Eskimo Point, Chesterfield Inlet, Tavani, Baker Lake, and Padlei by Arctic Wings aircraft. Dr. Corbett, resident doctor for the Department of National Health and Welfare at Chesterfield Inlet, accompanied the plane to these posts and returned to Chesterfield from Churchill.

By arrangement with the Danish Government and the United Nations Organization, N.O. Christensen was the guest of the Department of Resources and Development on this year's patrol. This afforded an excellent opportunity for Mr. Christensen to obtain first-hand knowledge of conditions in the Canadian Arctic, and also for the Canadian representatives on board the ship to obtain a great deal of information on developments in Greenland. Altogether Mr. Christensen spent about six months in Canada, during which he visited all departments interested in the Arctic and Eskimo affairs.

Mr. and Mrs. Houston, representing the Canadian Handicrafts Guild and working under a grant from the Department of Resources and Development, spent the spring at Fort Chimo and joined the C.D. Howe at Koartak to proceed to Cape Dorset. They took advantage of the opportunity of re-visiting Sugluk, Ivuyivik, and Port Harrison to check the progress being made in handicrafts at these posts. They will make their headquarters at Cape Dorset this winter but expect to travel extensively along the south Baffin Island coast. The Eskimo are taking great interest in the handicrafts project and the results have been very encouraging.

Dr. Y.O. Fortier and Mr. Blackadar, of the Department of Mines and Technical Surveys, visited the C.D. Howe while she was at Cape Dorset. They had been engaged on a geological survey of the south coast of Baffin Island and were then heading up Foxe Channel by Peterhead boat to continue their work there.

The Department of Fisheries M/V Calanus was in Frobisher Bay when the C.D. Howe made her first call there. After proceeding north as far as Pangnirtung the Calanus returned to Churchill where she will be laid up for the winter.

The measles epidemic which struck Ungava Bay in the late winter spread to southern Baffin Island during the spring and to the northern Quebec coast in the late summer. As the C.D. Howe had already proceeded north, Dr. Matteau on the N.B. McLean treated the Eskimo in northern Quebec. Although nearly all the Eskimo in these two areas were affected, there were very few deaths, probably because of the general good health of the people and the comparatively mild weather. The heavy toll in Ungava Bay was caused by pneumonia, following first an influenza epidemic and then the measles outbreak at the coldest time of the year.

Lead-Zinc Mine in Greenland

A Danish company, Nordisk Mineselskab A/S, has been formed to investigate mineral occurrences on the east coast of Greenland, particularly a deposit of lead and zinc in the Mesters Vig area of Kong Oscars Fjord. Initial shares in the company are held by the Danish Government, Danish business men, two Swedish mining companies, and Ventures Limited of Canada. Most of the employees are Danish, although the manager is a Canadian mining engineer and there are a few Swedes. During the summer of 1952 some 2,000 tons of materials and supplies were brought in to build an airstrip suitable for DC4 aircraft, to establish a winter camp at the site of the main mineral discovery, and to do some diamond drilling in investigating a secondary mineral discovery. It was expected that during the winter and spring some 1,000 metres of tunnelling would be done to determine whether the lead and zinc could be mined profitably. During the construction period a crew of 177 were employed on the various projects. Only 40 were expected to remain over the winter.

Subscriptions for 1953

Members are reminded that their subscriptions for 1953 ($2.00 for Ottawa members, or $3.00 for combined membership for husband and wife, and $1.00 for out-of-town members, other than institutions) are payable to the Treasurer, Mrs. A.G. Sangster, 504 Golden Avenue, Ottawa.

Owing to currency regulations it is not always convenient for members of the Arctic Circle residing in Europe to pay their subscriptions to the club in Ottawa direct. Through the courtesy of the Director, the

Scott Polar Research Institute will now receive the subscriptions of members from the United Kingdom and from the Continent of Europe and will transmit them to Canada from time to time. European members should forward their 1953 subscriptions (5/-) to the Director, Scott Polar Research Institute, Cambridge, England and mark them "Arctic Circle Subscription".

Change of Address

Members are earnestly requested to advise the Treasurer, Mrs. A.G. Sangster, 504 Golden Avenue, Ottawa, promptly of any change of address.

Editorial Note

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:

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411 Echo Drive,
Ottawa, Ont.

Authorized as Second Class Mail, Post Office Department, Ottawa

THE ARCTIC CIRCULAR

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Forty-first Meeting of the Arctic Circle

The forty-first meeting of the Arctic Circle was held in the R.C.A.S.C. Mess, 278 Sparks Street, on Wednesday February 4. Mr. Frank Davies was in the Chair and introduced the speaker, Dr. C.S. Lord. Dr. Lord described "Operation Keewatin", the work of a Geological Survey party that carried out a reconnaissance of 57,000 square miles of the District of Keewatin during the summer of 1952, with the aid of helicopters.

The work of the Canadian Hydrographic Service in the north, summer 1952

The two main Hydrographic Service parties in the north during the summer of 1952 worked in Ungava Bay and at Hopedale and Chesterfield Inlet respectively. In addition two hydrographers accompanied the Department of Transport's vessel, C.D. Howe, as in previous years, on the Eastern Arctic Patrol, and obtained considerable hydrographic information of value to the ship and to the Service.

Operations in Ungava Bay. By D'Arcy H. Charles

The recent discovery of important deposits of iron and other minerals in northern Quebec has created a need for adequate charts of areas of Ungava Bay, formerly uncharted, and for suitable ore loading ports. The main project of the Hydrographic survey party in the M.V. Algerine during the 1952 field season was planned to assist in meeting this need and included the following tasks:

1. The close survey of the approaches to, and the mouth of, the Koksoak River at the head of Ungava Bay.

2. The investigation and preliminary survey of Leaf Bay and Leaf Lake as a potential ore loading port.

3. The examination of the west coast of Ungava Bay for other possible ports and harbours.

4. The preliminary examination of Diana Bay, Hudson Strait.

In addition, much valuable information was obtained for use in the "Northern Sailing Directions" and tidal publications, and 21 stations were occupied on passage north from the Strait of Belle Isle to Ungava Bay to obtain other oceanographic data.

Special preparation of the chartered ship M.V. Algerine and the two new 31-foot sounding launches to meet the unusual conditions in Ungava Bay was carried out at Pictou, N.S. Additional equipment was required to solve the problems of exceptional tide ranges and currents, low coastline with off-lying shoals, and tidal flats extending out twenty miles, as well as of ice conditions, and exceptionally high refraction. As an example of these problems, the maximum tide range, as recorded, at the mouth of the Koksoak was 46 feet, and in Leaf Lake it was in excess of 50 feet.

Koksoak River approaches: An approach channel through the shoals and ledges, 4 miles wide and 28 miles long, was sounded by the Algerine, using 22 special buoys moored in transit and tied in to the triangulation net established ashore. Taut wire measuring gear was used to obtain the distances between the buoys. The area from Congnarauya Point, outside the river mouth, to the Narrows, 8 miles upstream, was charted by the survey launches. Fifteen hundred linear miles of soundings were obtained, covering some 250 square miles. The launches worked in currents at times exceeding 10 knots. Two charts of the area will be published as a result of this survey.

Leaf Bay and Leaf Lake: A preliminary survey of this uncharted estuary, 40 miles long, was carried out, and a provisional chart is in preparation. Leaf Lake affords good anchorage and port possibilities, but navigation of the bay is hampered by tidal currents which can exceed 12 knots, and very shallow approaches. Additional survey work and charting should result in the development of this promising harbour, and may reveal tidal ranges greater than in the Bay of Fundy. Other than one small 50-ton schooner and Peterhead boats, no record exists of any ship navigating these waters prior to the Algerine.

Track soundings were plotted up the west coast of Ungava Bay and into Diana Bay at the conclusion of the season. The head of Diana Bay was sounded and tracks plotted on a provisional chart now being completed. The ship left for Pictou on October 10, when ice and snow conditions put an end to successful operations.

Operations at Hopedale and Chesterfield Inlet. By J.E.V. Goodwill

The work of the Hydrographic Service at Hopedale had been started in 1950 with the M.V. Terra Nova under charter. This year it was continued by the M.V. Theron as part of a joint Canadian/United States effort.

The United States survey group with the U.S.S. Tanner was assigned the outer channels from Iron Island Point to seaward, while the Theron operated in the vicinity of Hopedale and in the inner channels to the north and south. Work on this project was carried on from July 3 to 31, and from September 27 to October 10. During this time the 1950 triangulation net was extended northward and southward, and 508 miles of soundings were taken to cover an area of 52 square miles. In addition 30 shoals were examined. As a result of this work a new chart, Hopedale Harbour and Vicinity, will be published at a natural scale of 1:20,000 with Latitude limits 55°22N. and 55°30N., and Longitude limits 60°06W. and 60°16W. An inset will show Hopedale Harbour at a natural scale of 1:10,000. The new chart will add information to provisional chart 4749, Hopedale and Approaches. The summer's work will also make it possible to add an area of 23 square miles surrounding Manuel Island in correct detail to the provisional chart. Apart from some work done by the British Admiralty around Hopedale Harbour in 1897, this was all new charting work.

From Hopedale the Theron party moved to Chesterfield Inlet. A provisional chart 5443, Chesterfield Anchorage, shows a few soundings obtained from ships' tracks, but no accurate charting work had been done in the area. Survey operations were carried on here from August 11 to September 18. A triangulation net was built up from a Geodetic Survey position and a subtense base. Five hundred and thirty five miles of soundings were run on two field sheets to cover an area of 85 square miles. From this survey a chart will be published with Latitude limits 60°15N. and 60°25N., and Longitude limits 90°25W. and 90°55W., and with a large inset of Spurrell Harbour, the Chesterfield anchorage. An accurate chart of the Chesterfield area will be very useful to the Department of Transport, the Department of National Health and Welfare, the Hudson's Bay Company, and various mining companies interested in this area.

While on passage between these survey projects, 29 oceanographic stations were occupied to obtain information for the Atlantic Oceanographic Group, St. Andrews, N.B. and lines of ship soundings were run to secure soundings for chart 5000 of Hudson Bay and Strait, and chart 5450 of Hudson Strait.

A Preliminary Study of the Blue and Lesser Snow Geese on Southampton Island. By Graham Cooch [1].

The breeding grounds of the Blue Goose (Chen caerulescens) were discovered by Dewey Soper of the National Parks Bureau of Canada in 1929. The discovery of this Baffin Island colony was followed a year later by a report by George Miksch Sutton of a colony breeding on the Bay of God's Mercy, Southampton Island. I selected the latter area for the initial

1. This work was made possible by a research grant from the Arctic Institute of North America with funds provided by the U.S. Government.

phase of an intensive study of the life history, management, and taxonomy of the Blue Goose. This area, in addition to being easily accessible, offered an excellent opportunity to study both the Blue and Lesser Snow geese. This was desirable as the taxonomic relationship of the two forms is uncertain.

On 12 May 1952 I was flown from Fort Churchill to Coral Harbour by the R.C.A.F. Two days later the party, consisting of Harry Gibbons of Coral Harbour, his wife and six children and myself, left the Hudson's Bay Company post at Coral Harbour. We travelled by komatik south over the sea ice to Bear Cove, then overland across the base of Cape Low via the valley of Bursting Brook. Because of the early season, the snow was soft and we were forced to travel by night. However, the proposed campsite at the mouth of the Boas River was reached on May 18. The two eldest Gibbon boys returned to Coral Harbour with the extra komatiks on May 22 and a permanent camp was set up five miles west of the original site. We remained in the area until August 5 when we were evacuated by Peterhead boat. This trip took two days of continuous sailing, coasting around Cape Low, then north into South Bay. Coral Harbour was reached on August 7 and R.C.A.F. transportation was available the next day for Fort Churchill.

The 1952 breeding season was one of the earliest on record. Few birds had arrived before May 18, but they did arrive in large numbers on June 1. Most of these birds were already paired and many were in an advanced laying condition. The first nests were found on June 3, but the majority of the nesting did not start until June 6. The last new nest was found on June 14. Few suitable nesting sites were available at this time and subsequent investigations indicated that the land exposed in the first week of nesting determined the distribution of nests. The birds were forced to nest in very dense groups. One study area of 250 acres yielded 496 nests which were used as a control in subsequent studies.

A study was made of the ratio of Snow to Blue Geese in the area. This was carried out in two ways: (a) flock counts were made as the birds were arriving, and (b) nesting observations were carried out on the 250-acre study area. It was found that the ratio of Snow to Blue was 4:1. This was a significant change from the data gathered by Manning (1934) and Bray (1936), who reported a ratio of 1.9:1. This shift adds weight to the theory that the Blue is either a recent mutation from the Snow or that the dominance of this form has only recently begun to assert itself. Other work seems to indicate that the proportions of the population of these geese migrating through James Bay have also undergone a similar change within recorded history.

Much has been made of the fact that these forms, although cross-mating freely, do not do so at random. The following data were gathered on the study area. Although the Snows outnumbered the Blues by 4:1, nests

were located in the following frequency: Snow X Snow 72, Blue X Blue 11, and Blue X Snow 17. This does not submit to the chi-square test for randomness. However, recent behaviour studies, especially by Lorenz (1935) and Fabricius (1950) offer an explanation as to the reason why random mating may not be expected. The theory is that imprinting[1] of the young with the parental form would cause the goslings to be selective when searching for a mate, thus the Blue geese would seek out other Blues, the same holding true for Snows. The progeny of mixed pairs would have a better chance of mating with a bird of the other form.

The manner in which the spring break-up occurs is of utmost importance in any consideration of the breeding success of the birds. The habitat is extremely flat; low hummocks, one or two feet high, are the only prominences which break the monotony. During the spring run-off the shallow Boas River is clogged with ice which is still frozen to the river bed; thus the water is free to spread widely over the area and if nesting has started may wipe out many nests. A flash flood later in the season would be disastrous. Such an event seems to have occurred in the 1951 season; 1952 on the other hand may well be regarded as optimum.

2,963 nests were examined to determine the relative clutch sizes of the two forms. No significant difference was noted, the average clutch being 4.5 eggs per nest. Data were also gathered on the degree of predation by gulls and jaegers, as well as other sources of nesting loss. It was found that in the 1952 breeding season only 6.85 per cent of the total number of eggs laid on the study area were destroyed.

Incubation data were gathered on 200 nests. The incubation period was found to be 22 or 23 days. This agrees with the observations of Manning (1942). The time required for all members of any given clutch to hatch was variable. In some of the larger clutches intervals of more than 24 hours were required before all the goslings were free from the shell. The nest site was deserted immediately after the young were strong enough to walk.

Studies were made on the growth rate of the goslings. Weighing but 4 ozs. at birth, they attained an average weight of 3.6 lbs. in a little less than 5 weeks. It was of interest to note that the post-nuptial moult of the adults was so timed that both the young birds and their parents started to fly at the same time. This explains how the family groups are able to stay together for a longer time than is the case with most other Anatidae.

1. Imprinting is the term used to describe the extreme receptiveness of the young to the first living form that it sees on hatching.

As planned, 5,000 geese were banded. Four thousand of these were in the downy young stage, and constitute the largest sample of young geese ever banded in the Canadian Arctic. These birds will be extremely useful for studies in 1953, as a marked population of known age exists. Thus data will be available on the minimum breeding age and the stage of the moult into the adult plumage. At present it is believed that no Blue Geese breed before their third year. However, the number banded to date has been small and the conclusions may not be entirely valid.

Banding recoveries to date indicate that the Southampton population does not migrate through James Bay. On the contrary the flight appears to strike the Hudson Bay coast in the vicinity of Fort Severn and Weenusk. Similar results were indicated by the birds banded by Manning (1942) in 1934. Furthermore, throughout the entire flight to the Gulf coast wintering grounds these birds followed a route at least two or three hundred miles to the west of what is normally considered to be the fall migration route of the Blue Goose. Only 6 out of 114 bands reported to date from the Gulf coast area were not from Texas. Thus it would appear that the Southampton birds are constant in their habits and do not overlap extensively with the range of the Baffin Island population.

This study was made profitable through the help of many persons and organizations. A few of these to whom I should like to express my appreciation are: The R.C.A.F. and members of the transport squadron who flew me to Coral Harbour, officials of the Hudson's Bay Company, both at the posts and the Winnipeg office, and the personnel of the Defence Research Northern Laboratory, Fort Churchill, for their kindness when I was "weathered in". The advice and cooperation of T.H. Manning and Graham W. Rowley of Ottawa helped greatly in making the expedition a success.

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Report of cancer in a captive Varying Lemming, Dicrostonyx groenlandicus groenlandicus (Traill)

In December 1951 Mr. T.H. Manning noticed that one of his Varying Lemmings, born and kept in captivity in Ottawa, had developed a large growth. The animal died shortly afterwards, and in January 1953 Dr. P.J.G. Plummer of the Animal Disease Research Institute of the Department of Agriculture made a postmortem examination.

On the ventral lateral surface he found four large tumorous masses in the subcutaneous region. Two of these were on either side of the neck, slightly below the thyroid gland. They tended to be spherical in shape, the one on the left side measured 1 by 1.8 cm. in its greatest measurements and the other was 2 cm. in diameter. The growth on the left side appeared to continue posteriorly and join with a cauliflower-like growth 2.5 cm. in diameter. The fourth tumour was located in the groin of the right side, it was spherical in shape, and 2 cm. in diameter. All internal organs were normal.

The microscopic picture of the two anterior tumours and the one in the groin was essentially similar. The tumour cells were epithelial in origin and they tended to form elongated acinar structures. The cauliflower-like tumour was entirely different, it was composed of numerous very large giant cells, epithelioid cells and fibroblasts. In other words, this was a granulomatous-like reaction resembling that found in tuberculosis. There was, however, an entire absence of caseation necrosis and thus the picture was that of Boeck's sarcoid, although small acid-fast cells were found in the cytoplasm of some giant cells. The histological picture of the other three tumours was that of a carcinoma, probably of cutaneous glandular origin since metastasis had not occurred in the internal organs.

This is believed to be the first reported case of cancer in a lemming. However, there is no reason to suppose that it is particularly rare in these mammals and it may also be expected to occur in the wild population.

A new approach to sled design. By Lt.Col. A.G. Sangster

Since 1945 the Canadian Army training programme has taken increasing numbers of soldiers into the hostile environment of the Canadian winter. This has called for the transportation of personnel, supplies and special equipment over trackless snow covered country. So far the most practical means of oversnow transportation has been the use of sled trains hauled by either tractors or snowmobiles.

The conventional type of commercial bobsled has many undesirable features in this application where much of the equipment carried is of a delicate nature and susceptible to damage through rough handling.

The stability of the conventional bobsled is very sensitive to distribution of load and in rough country sleds frequently overturn spilling the load and damaging both the load and the sled. Damage can also occur to the cargo and sled from the repetitive shock loads imposed by an unsprung sled structure. The conventional, massive, bunk and bench design makes the basic sled heavy, with the result that the payload is only 60 per cent of the gross weight in the case of a 2-ton cargo sled.

The steering geometry currently in use is inefficient, depending for its operation on loose fits, slack chains, and skidding the runners. As a result, bobsleds become damaged in use when many short radius turns are made.

As many man hours have been spent both on the trail and in workshops repairing damaged sleds, Canadian Army Development Engineers decided to approach the problem of sled design from a more scientific viewpoint. The use of wood for the load-carrying members was ruled out because of bulk, weight, and the economics of supply. Ferrous alloys were kept to a minimum because of weight. Light alloys were selected because of their attractive strength/weight ratio and consistent physical properties.

To increase the reliability and reduce the possibility of damage to cargo a sprung suspension was selected. To reduce the drawbar pull requirement with its attendant fuel economy factor an efficient steering geometry was designed. The load rating of the experimental sled was selected as two tons to be within the towing limitations of existing snowmobiles.

The final prototype has an unladen weight of 1,364 lbs and a 4,000-lb payload. The unsprung weight is only 5 per cent of the gross weight of the loaded sled and the payload is 75 per cent of the gross weight.

The drawbar is made of 24 ST aluminum with a towing eye secured by a shear pin stressed to fail at 8,000 lbs pull. A goose neck coupling at the sled end of the drawbar permits the drawbar to articulate about a horizontal axis and pivot about a vertical axis. This goose neck controls the steering geometry, turning all four runners as the position of the drawbar is varied. The steering might be classed as a double Ackerman, all runners being tangent at all times to circles about a common centre.

The steering control linkage consists of light alloy tubes with adjustable clevises on either end, the entire linkage operating in tension at all times. Each individual suspension unit is carried on tapered roller bearings and incorporates a cast aluminum body, a coil spring in compression

and a tubular hydraulic shock absorber located coaxially in the coil spring. The runner is fastened to the foot of this suspension system and is free to articulate about a horizontal pin and act as a walking beam. Runners are reversible, symmetrical, and interchangeable between stations. They have a Vee section and are swept up at each end. They are made of 24 ST aluminum with a steel keel which provides a wearing surface as well as guiding.

The suspension units are carried on transverse beams located near the front and rear of the sled. The drawbar pull is carried from the goose neck of the drawbar to the towing hook at the rear of the sled through a light alloy H extrusion. The transverse members carrying the suspension units are formed so that the H section sits on top of them at the centre, the outer ends being level with the top of the H section. This forms the basis of the floor structure. The floor is carried on a light alloy structural grid built about these three main members.

The platform is assembled by riveting and a plywood floor is bolted onto the sub-frame. Longitudinal hardwood wear strips with metal on the wearing face, complete the floor assembly. Stake pockets bolted to the outer members of the sub-structure permit the platform to accept a range of super-structure types depending on the load requirement. A structural factor of safety of three or more was used throughout this design.

Critical loadings on stressed components are as follows:

Drawbar	60,000 lbs tension (Calculated)
Steering rods	20,000 lbs tension (Calculated)
Towing eye shear pin	8,000 lbs shear (Calculated)
Runner supported at ends only	3,000 lbs (Confirmed by test)

Suspension factors as follows:

Dynamic coefficient	2
Maximum deflection from static loading position	4 ins.
Maximum rebound from static loading position	3 ins.

Some of the components may appear to be over-designed for strength. However, in many cases physical dimensions are controlled by the requirement for rigidity or fabrication techniques, analysis showing that in one component the safety factor runs as high as 27. One advantage of this feature is that in scaling up for larger sizes of sleds a number of components will be interchangeable so that, for example, the suspension assembly castings will also fit a 4-ton sled.

An interesting feature of this design project is that manufacturing drawings were completed from the basic engineering on paper. The only changes made in actual production were substitutions of alternative materials because of availability and some minor changes such as rivet locations which were altered to facilitate production techniques.

On actual load test only two minor components required modification. At first glance the appearance of this sled may not be too prepossessing, however, the performance is spectacular. In the deliberate trial abuse of the test runs the sled was taken over snow banks and turns not encountered in normal use.

The action of the suspension and the floating runner give an unusually smooth ride and keep the platform level over all but the most severe obstacles. Executing a series of sharp S turns in succession the track left by the sled runners followed the trail of the towing vehicle almost exactly and there was no noticeable evidence of side slip or scuffing of the runners.

The stability base of the sled is the full width of the runner track as opposed to the width of contact between bench and bunk in the case of the conventional sled. Taking into consideration the platform height and the height of the respective stability bases, the new sled can accept a load three times as high as the conventional sled.

Address by the Honourable Robert H. Winters

On 19 January 1953 the Honourable Robert H. Winters, Minister of Resources and Development, addressed the Annual Convention of the Canadian Construction Association at Montreal on "The Eskimos: A Canadian Human Resource". It is of interest to note that this is the first speech to be given on the Eskimo by a member of the Cabinet. Among other things, Mr. Winters referred to the recent conference held in Ottawa to discuss the welfare of the Eskimo (see Circular, Vol. 5 (1952) pp. 41, 63), the establishment of the Eskimo Research Unit (see Circular, Vol. 5 (1952) p. 65) and the steps being taken to safeguard the health and improve the education of the Eskimo. He paid tribute to the Eskimo's engineering ingenuity and native intelligence and said the government would do all it could "to help them integrate themselves into the Canadian economy and to overcome those problems which face them...".

Arctic Seminar at Dartmouth College

It has been announced that Dartmouth College is now offering, on an experimental basis, an interdivisional seminar on the Arctic. Students in the seminar will study Arctic environment, together with the relation of this environment to native cultures, exploration, and recent development.

The seminar will be directed by a committee appointed by the Dean of the Faculty in consultation with the divisional chairmen. Only students with suitable academic backgrounds or special qualifications will be accepted. In addition to participating in seminar discussions, each student will be required to write a research paper, using the resources of the Baker and Stefansson libraries.

Subscriptions for 1953

Members are reminded that their subscriptions for 1953 ($2.00 for Ottawa members, or $3.00 for combined membership for husband and wife, and $1.00 for out-of-town members, other than institutions) are payable to the Treasurer, Mrs. A.G. Sangster, 504 Golden Avenue, Ottawa.

Owing to currency regulations it is not always convenient for members of the Arctic Circle residing in Europe to pay their subscriptions to the club in Ottawa direct. Through the courtesy of the Director, the Scott Polar Research Institute will now receive the subscriptions of members from the United Kingdom and from the Continent of Europe and will transmit them to Canada from time to time. European members should forward their 1953 subscriptions (5/-) to the Director, Scott Polar Research Institute, Cambridge, England and mark them "Arctic Circle Subscriptions".

Change of Address

Members are earnestly requested to advise the Treasurer, Mrs. A.G. Sangster, 504 Golden Avenue, Ottawa, promptly of any change of address.

Editorial Note

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:

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411 Echo Drive,
Ottawa, Ont.

Authorized as Second Class Mail, Post Office Department, Ottawa

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Forty-second Meeting of the Arctic Circle

The forty-second meeting of the Arctic Circle was held in the 1st Corps Troops R.C.A.S.C. Mess, 278 Sparks Street, on Wednesday March 4. The President, Inspector Henry Larsen, was in the Chair and called on Mr. G.W. Rowley to introduce the speakers. Representatives of government departments gave a brief outline of the projects their departments proposed to carry out in northern Canada during 1953. The following took part in the Meeting, and spoke in the order listed:- Mines and Technical Surveys: Geological Survey, Dr. C.S. Lord and Dr. H. Bostock; Hydrographic Survey, Mr. D'A. Charles; Geodetic Survey, Mr. W. Forrester; Dominion Observatory, Mr. J. Clark. National Health and Welfare: Indian Health Service, Dr. P.E. Moore. Resources and Development: Northern Administration, Mr. J.G. Wright; Wildlife Service, Col. J. Richards; National Museum, Mr. A.E. Porsild. Royal Canadian Mounted Police, "G" Division, Inspector Henry Larsen. Transport, Information Bureau, Mr. W.H. van Allen; Meteorological Service, Mr. L.T. Campbell; Telecommunications Division, Mr. W.B. Smith. National Research Council: Building Research, Mr. J.A. Pihlainen. Agriculture: Science Service, Mr. D. Peterson. National Defence: Defence Research Board, Mr. G.W. Rowley. Mrs. G.W. Rowley also mentioned some of the parties being sent north by the Arctic Institute of North America.

Forty-third Meeting of the Arctic Circle

The forty-third meeting of the Arctic Circle was held in the 1st Corps Troops R.C.A.S.C. Mess, 278 Sparks Street, on Wednesday April 1. The President, Inspector Henry Larsen, was in the Chair and introduced the speaker Mr. T.H. Manning. Mr. Manning described the work of the Banks Island Expedition of 1952, and illustrated his talk with kodachrome slides. An account of this expedition is included in this number of the Circular.

Forty-fourth Meeting of the Arctic Circle

The forty-fourth meeting of the Arctic Circle was held in the 1st Corps Troops R.C.A.S.C. Mess, 278 Sparks Street, on Wednesday May 6. In the absence of the President and Vice-President, Mr. J.C. Wyatt was in the Chair and introduced the speaker, Miss Ethel G. Graham of the International Grenfell Association. Miss Graham spoke of her work as a Grenfell Mission nurse among the people of Labrador and northern Newfoundland. By courtesy of Imperial Oil, Ltd., the film "Newfoundland Scene" was shown.

An attempt to circumnavigate Banks Island by canoe in 1952.

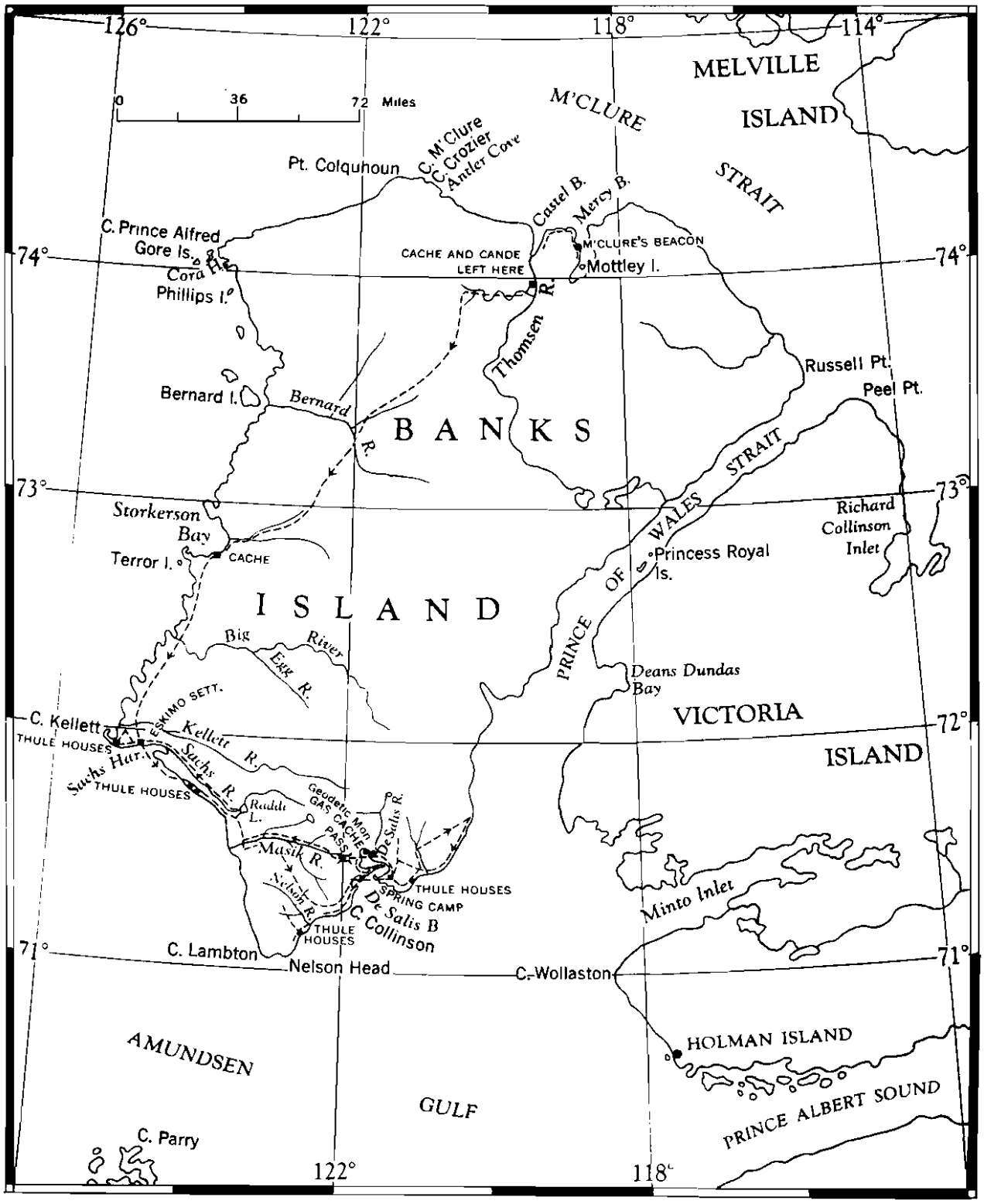
By A.H. Macpherson

Early in 1952 an expedition was planned by the Defence Research Board to report on harbours in Banks Island suitable for the use of small vessels doing hydrographic work. It was decided to do this by circumnavigating the island by canoe. Secondary aims were to collect specimens of birds, mammals, and plants, and of fossils for use in determining the age of the rocks, to excavate archaeological sites, and to take tide readings and ice observations.

On May 7 T.H. Manning and the writer, as assistant, left Edmonton for Cambridge Bay, in an R.C.A.F. Dakota aircraft piloted by F/O J.W. Tims, arriving the same evening. Our supplies consisted of over a thousand pounds of scientific and other equipment, about the same quantity of food, a 270-pound, 22-foot Peterborough canoe, and seventy gallons of gas and oil for our two five-horse-power Johnson outboard motors. We left Cambridge Bay on May 10 and landed on the sea ice in the eastern lagoon of De Salis Bay, southeastern Banks Island. Few of the snowdrifts on the lagoon were over a foot deep, and we made a good landing.

The following day we made a small komatik from a tide-gauge to carry driftwood for fuel from the outer spit. The weather was quite cool, so that except at midday we were able to use mud on the komatik runners. On the 15th we made a trip to the west side of the bay, hauling the sled with our gear. At the head of the bay we examined an R.C.A.F. gas cache, which we later hoped to use, and after leaving two food caches along the coast we arrived back on the evening of the 17th. Another sled trip was made from the 23rd to 25th, in the course of which we visited Cape Collinson and shot a large ringed seal. Caribou were first seen on June 8, and a buck was collected on the 11th.

By June 16 most of the land was bare, and we set off carrying rucksacks for Sachs Harbour. We crossed the bay and walked over Masik Pass to the coastal plain, which we followed to the settlement, located about twelve miles east of Cape Kellett, the southwest tip of the island, arriving there late on June 21. The Eskimo were very surprised


126°
122°
118°
114°
MELVILLE
ISLAND
0 36 72 Miles
M'CLURE
STRAIT
C. M'Clure
C. Crozier
Antler Cove
Pt. Colquhoun
Castel B.
Mercy B.
C. Prince Alfred
Gore Is.
Cora H.
Phillips I.
74°
CACHE AND CANDE LEFT HERE
M'CLURE'S BEACON
Mottley I.
Thomsen R.
Russell Pt.
Peel Pt.
Bernard I.
Bernard R.
BANKS
ISLAND
73°
WALES
STRAIT
Storkerson Bay
Terror I.
CACHE
Princess Royal Is.
Richard Collinson Inlet
PRINCE OF
Big River
Egg R.
Deans Dundas Bay
VICTORIA
ISLAND
72°
C. Kellett
ESKIMO SETT.
THULE HOUSES
Kellett R.
Sachs R.
Sachs Har.
THULE HOUSES
Ruddi L.
Geodetic Mon
GAS CACHE
De Salis R.
Masik R.
PASS
Nelson R.
SPRING CAMP
THULE HOUSES
C. Collinson
De Salis B
THULE HOUSES
Minto Inlet
71°
C. Lambton
Nelson Head
C. Wollaston
HOLMAN ISLAND
AMUNDSEN
GULF
PRINCE ALBERT SOUND
C. Parry
122°
118°

to have visitors. They gave us a meal and talked to us for a long time in Fred Carpenter's house, where we afterwards slept.

Towards the end of the navigation season these people come up to Banks Island in boats of various sizes and degrees of seaworthiness, the largest being Carpenter's North Star. They spend the winter trapping foxes, and leave for Tuktoyaktuk as soon as the ice is gone. There were only four families there at the time of our visit, and as the island has a large fox population they were very well off in spite of the low price of fox-skins. The following afternoon two of the men gave us a lift on their sledges along the rotten coast ice on our way back to De Salis Bay, but large patches of open water forced them to stop after about six miles.

Along this coast, as shown by the number of plants blossoming and the state of the ice, the season was much farther advanced than in the De Salis Bay region. On the return trip we crossed the Masik River at a much braided place and climbed the Durham Heights plateau, coming out to the sea north of Cape Collinson. We reached our lagoon on June 29, having covered 180 miles in fourteen days, not counting numerous small detours, and had collected a number of specimens and taken notes and photographs as a record of the country.

Our first plan had been to go north at the first opportunity, but, finding that the south and southwest coasts were much more open than the east coast, we decided instead to go clockwise around the island. We set off on July 4. The ice was considerably broken up inshore, but required constant cutting and pushing, and in the first two days we made only four miles. We were then forced to stay at the head of the bay and in the large lagoon until July 19. While waiting we loaded the canoe more compactly, collected specimens, examined the area, and made a three-day trip to excavate some Eskimo houses, which proved to be of Thule culture, about ten miles away. On July 19 large lakes had formed in the tide-cracks, and the ice had stopped pressing into shore. We packed up and travelled a few miles, finding next day that the ice was much looser. By 2 a.m. on July 21 we were about eight miles short of Nelson Head, a great and impressive banded quartzite and basalt cliff, one thousand feet in height, that forms the southeast extremity of the island. A high wind and stormy weather with a little snow prevented us from leaving for six days, but we were busy making emergency repairs to the tent, which was badly ripped by the gale, and excavating some old Eskimo houses. A young bear showed considerable interest in our camp here, paying us several visits and, while we were out, climbed aboard our canoe, which was anchored in a small creek. The canoe fortunately did not tip over, but the tarpaulin covering suffered some damage from claws and teeth.

We were able to leave again on July 27, after digging a channel through the beach which the storm waves had built at the mouth of our creek. We rounded Nelson Head in a stiff breeze, which increased until it became too high for travelling, and forced us to anchor off a

partially sheltered beach for a while. As the wind showed no sign of slackening off we turned back and camped at a more sheltered beach until the following evening. This time our rounding of Nelson Head was less eventful and we ran along the coast to Sachs Harbour arriving on the morning of the 29th; on the way we saw a large number of bears. The breakers over the harbour bar were quite high, and we nearly came to grief when a wave swamped our engine, but fortunately we dried it in time to cope with the breakers. We had to unload in the surf on the beach, and were afterwards glad of Carpenter's house. The Eskimo were all at Tuk, but Carpenter had offered us the use of his house, and had left us a welcoming letter. We had a short sleep there, and then devoted our time to unpacking and repacking specimens, repairing and strengthening our damaged tent, and sorting out food and equipment, which took us until midnight on July 31. We left immediately in order to round Cape Kellett before the wind changed or rose. There was a fairly heavy sea off the cape, and the Defence Research Board's ship Cancolim II[1] was drifting a mile or so offshore. We twice swamped our engine and had to make for shore to dry it and rig up a baffle to keep the waves out before we rounded the cape, after which we had a wet run in to the western coast.

We continued up the coast when weather permitted, and examined each possible harbour, sounding by pole and line over the bar and around the anchorage. There were scattered signs of winter habitation along the coast, and near the remains of a tent we picked up some rotten caribou and fox heads, which we cleaned for specimens. We entered Storkerson Bay on August 3 and were held there by weather until the afternoon of August 6. Most of our time here was spent in hunting and walking. Flightless snow geese were abundant, and we were fortunate in shooting a fine buck caribou in good summer pellage and with a little fat. We were very pleased with it as we had been getting short of meat, and were now able to leave a small food cache in case we lost the canoe with all supplies. The cache consisted of a gallon of gasoline, two tins of bacon, four pounds of jam, and some biscuits - all of which we were glad of later.

We ran into ice before leaving Storkerson Bay and were several times held up by it, with or without thick fog, on the way north to the Gore Islands near Cape Prince Alfred, the northwest extremity of the island. In a harbour near the cape we were surprised to find a 40-foot boat on the beach, the Cora, and the remains of a winter camp, which we afterwards learned were left by two white trappers who about 1937 all but lost their lives in an attempt to reach the Dealy Island cache left by Franklin Search vessels.

1. For an account of the Defence Research Board's expedition in the Cancolim in 1951, see Arctic Circular, Vol. 5 (1952) pp. 13-17.

As we approached the cape we could see great pressure ridges rising above the land, and, as we rounded it, we were struck by the comparative heaviness of the ice, which was higher than any we had seen before. It formed an almost continuous barrier along the north shore, preventing access to the land sometimes for miles at a stretch. Where the water was shallow in shore the ice grounded some distance out, and was later pushed in, forming great mud hummocks rising to or near to the surface in up to three fathoms of water. These with small drifting pieces of ice made working the canoe inside the ice barrier slow hard work, and wherever possible we went outside it.

We examined two harbours, both filled with loose ice, a short distance east of Cape Prince Alfred and continued eastward to Point Colquhoun, where we camped. At the end of this point we saw an exposure of solid rock, the first since leaving the southwest coast. We made a short stop at Cape M'Clure, an imposing almost vertical 500-foot cliff, and found some fossils in a nearby outcrop. The next headland, Cape Crozier, was impressive from the west, but its northern face was largely masked by high ice and scree. In these waters we saw two schools of white whales making their way westward along the shore, and we hoped that their appearance meant open water to the east. Although they show extraordinary skill in avoiding small pans, they could hardly travel very far under a continuous sheet of floe ice.

Our next camp was at a small bay eight miles southeast of Cape Crozier. During the night the ice came in, and we were held up for four days. There were very few birds and no mammals to collect close to camp, and we could not travel far afield in case the ice moved out; but we found a fossiliferous outcrop and spent our time collecting fossils and plants. We also noticed some small pieces of coal in a gully near the shore, and as we had no driftwood we burnt it in our stove. On August 18 the ice loosened and we made a good run down to Castel Bay, landing occasionally to survey the ice conditions ahead. At one of our stopping places we found a coal seam about ten feet thick in a gully. It was the best coal we had seen, and burnt well in an open fire. We landed on the west coast of Castel Bay, moving across next day to the northeast point. Here we found a surprising amount of driftwood, consisting in part of oak and mahogany, probably from M'Clure's ship the Investigator, abandoned in 1853 in Mercy Bay.

On August 20 the high land was covered with snow and the following day we walked over to M'Clure's beacon and cache in Mercy Bay. The bay and the strait to the north were entirely filled with ice as far as we could see. M'Clure's provision cache consisted mainly of splintered wood, a heap of coal, and a few rusty pieces of iron. There were, however, some fairly sound oak barrel staves, some of which we carried back to our camp.

From then until we left Castel Bay the land was never free of snow and young ice was forming continually between the hummocks inshore. We stayed until August 29 hunting hares and ptarmigan and trapping a few foxes. On the 29th we ran up Castel Bay and entered the Thomsen River, travelling upstream for some twelve miles, until it became too shallow for us to proceed farther. At this spot there was a high bank suitable for caching equipment for the winter, so we unloaded and camped. The following morning the river was frozen over and it was snowing hard; we therefore decided that instead of backpacking our supplies to Sachs Harbour we would build a sled, which would allow us to carry such comforts as our gasoline stove and a gallon of fuel. We used a pair of canoe thwarts for runners and M'Clure's barrel staves as shoeing for our sled. On September 2 we left our cache making for Storkerson Bay and Sachs Harbour.

On the first day out we saw a muskox, the first recorded on the island since they were supposedly exterminated in 1911. Caribou were noted almost every day, and on the flat land of the interior there were large numbers. A pair of wolves followed us for a short distance, and we saw several foxes. We shot eight ptarmigan in the nine days to Storkerson Bay, and these were a welcome addition to our daily ration of half a pound of bacon, half a pound of biscuit, and half a pound of chocolate each. We could, of course, have shot caribou in an emergency, but did not do so since we could carry very little meat on the sled and could not preserve the animals for specimens.

We reached Storkerson Bay on the evening of September 10. It had snowed every day since leaving our canoe, and often we had a heavy ground-drift as well. We carried a sail but had used it only the first day - after that we had head winds all the time. Our main annoyance on the way down was being unable to dry footgear, which we had to wring out at night and keep from freezing while we slept. The heavy snow cover and high sun gave Manning an attack of snow-blindness, after which we wore eye-shades made from mosquito-netting cut from our two-man mountain tent.

At Storkerson Bay we felt for the first time that we could afford enough gas to heat the tent and dry our clothes in the evening. Next morning we reached our food cache, where we immediately demolished most of our four pounds of jam and a few biscuits, shortly afterwards suffering from leg-cramps.

As we travelled south from Storkerson Bay the weather became much milder and the lakes were unsafe to cross. On the 14th we reached the Kellett River valley, where there was no snow, and finished our journey with rucksacks, arriving at Sachs Harbour around noon the following day. Fred Carpenter and others had just arrived, but Angus Elias, the native sent to pick us up, had not yet come in, although he had left first. Our rendezvous date was September 18 and we remained at the settlement until then, but after that we felt

free to walk over to Cape Kellett. We returned in the evening of September 21 to find Angus in harbour. He had been wandering all over Amundsen Gulf with a poor compass, a worse idea of navigation, and an impossible map. On the way back we ran ashore under the cliffs of Baillie Island on the stormy night of the 22nd. Angus was convinced the boat was lost, but Manning rallied the crew, and on the 27th we were again on our way. On the 29th we arrived at Tuk, but the post manager was unable to contact Aklavik on the radio sched, the aircraft at Aklavik were anxious to leave, and the harbour froze next day, so we were forced to remain until November 15 in Tuk, where we spent most of our time trapping small mammals. We then stayed at Aklavik until the 24th, arriving at Norman Wells for the weekly C.P.A. flight on November 26 to Edmonton.

We had not succeeded in circumnavigating the island, but had nevertheless brought back much new and useful information and many specimens. Unfortunately all geological, botanical, and zoological specimens collected after our departure from Sachs Harbour had to be left at our cache near the north coast; but the specimens collected in the early part of the season and later ones from the mainland, with all our notes and observations, are now in Ottawa. The work is being continued and, it is hoped completed, this summer by Manning, who is assisted by Captain I.M. Sparrow, R.E.[1].

The Northern Insect Survey for 1952. By T.N. Freeman

During 1952 the Canada Department of Agriculture sent seven field parties to the following places:

Alaska: Naknek

Northwest Territories: Holman Island, Mould Bay, Coral Harbour

Manitoba: Ft. Churchill

Northern Ontario: Ogoki River

Greenland: Søndre Strømfjord

The main objectives were, except at Ft. Churchill, to continue the studies of the distribution and relative abundance of northern biting flies and other insects. The sites of the 1952 studies make a total

1. On 11 September 1953 T.H. Manning and Captain I.M. Sparrow, R.E., reached Holman Island, after completing the circumnavigation of the island with the canoe left at Thomsen River in 1952. They were able to bring back all specimens left on the north coast the previous year. We hope to include an account of the 1953 journey in a later number of the Circular. (Editor Arctic Circular).

of 46 localities that have been investigated since the Survey was begun in 1947. (See Circular Vol. 1 (1948) pp. 5-6 and 67; Vol. 3 (1950) pp. 55-6; and Vol. 4 (1951) pp. 85-7). These investigations were sponsored by the Defence Research Board, Department of National Defence. The many kindnesses and assistance given by various officers of the United States Air Force and the United States Office of the Surgeon General for Army in making possible the Alaskan and Greenland investigations are gratefully acknowledged.

Mosquitoes and black flies were more numerous in the Naknek region than in any other Alaskan locality visited by the Survey parties to date. The insect fauna is essentially Boreal, with a few Asiatic intrusions, although this locality lies beyond the tree limit. The party made a short reconnaissance trip to Cold Bay at the tip of the Alaskan Peninsula. This was considerably beyond the tree limit but the insects collected were essentially boreal, as in southern Greenland.

The insects at Holman Island are entirely arctic, the fauna being fairly rich for an arctic locality. This may be due to the presence of sedimentary rock formations, which are often associated with a rich insect fauna. This association had been observed previously from similar localities such as Coppermine, Bathurst Inlet, and southern Baffin Island.

The Mould Bay area, although consisting entirely of glaciated sedimentary rock formations, supported a very meagre arctic insect fauna. Apparently the annual mean temperature is too low for much insect development. This locality lies on the northern limit of mosquito distribution and only three mosquitoes were seen during the summer.

The Coral Harbour investigations were a continuation of preliminary studies made in 1948. In both years the mosquitoes were never sufficiently abundant for an application of insect repellent to be necessary. The insects are all arctic ones. The butterflies are numerous and in this locality present some taxonomic difficulties.

The studies conducted at Ft. Churchill represented a departure from the usual Survey objectives. Instead, an ecological study was made to determine the number of different biotopes characteristic of the Arctic and Subarctic, and to ascertain which insect species are indicators of the various biotopes. Various species of butterflies were used as the indicators because of the ease of obtaining field identifications required for the studies. This involved the rearing of several butterfly species and resulted in obtaining immature stages and information on food plants, larval habits, and life-histories that had not been known previously.

The Ogoki River party was designed, in addition to the main objective, to obtain topotypical specimens of species described from the region by Sir Francis Walker about the middle of the last century. Walker's material was collected by several individuals on various missions along one of the historic canoe routes to the west via the Albany River, and sent to the British Museum in London. The insects of this region are entirely boreal and the fauna is considerable.

The Søndre Strømfjord investigations were made to compare the insects of southern Greenland with those of northern Canada. The meagre insect fauna of the region consisted of mixed boreal and arctic components, and even though Greenland lies beyond the northern limit of the forest the insects suggest a climate transitional between the boreal and arctic regions, at least in the vicinity of Søndre Strømfjord.

Eskimo and Loucheux Indians in the Canadian Army.
By The Rev. C.R. Montgomery

During the summer of 1951, when I was Rector of All Saints Cathedral, Aklavik, the economic situation on the registered trap-lines in the Mackenzie Delta was not good. The muskrat was not fetching much more than $1.00, there were no vacant trap-lines for the young men as they grew up and many of them began to consider the necessity of "coming outside" in order to make a living.

One Loucheux Indian boy approached me to help him join the Army. I was able to get him medically examined and interviewed by a visiting Army doctor who was inspecting the R.C.C.S. As a result he and another youth were flown to Edmonton by the Army and accepted as recruits. Privates F.J. Albert and F.J. Francis are now both with the 27th Infantry Brigade in Germany, and have made fine soldiers.

Last summer when I was in England these two young men obtained leave and visited me in Birkenhead. I arranged for them to be received officially by the Mayor of Birkenhead, and they had a wonderful time touring round England. I have never seen them since they left Aklavik for their first adventure into "civilization" and was interested to see that they were not in any way spoiled, but had developed into fine types of self-assured young men.

As a result of these two leaving the area a steady stream of applicants poured in and I was appointed unofficial recruiting officer by the Army authorities in Edmonton. By the end of 1951 about 15 Indians and 6 Eskimo had left the Aklavik area for the Army. The first full-blooded Eskimo, so far as I know, to join the Canadian Army was Ralph Sakvayoak, who was given a tremendous reception by the press at Edmonton as he arrived, at their request, in Eskimo caribou parka and mukluks!

When I left Aklavik in January 1952, Mr. L.A.C.O. Hunt, Administrator at Aklavik, took over my duties of recruiting, and several more young men, who had completed Grade 6 or 7 in the Mission Schools, were sent to the Army in Edmonton. Their future has not been forgotten. After three years in the Army they can return home if they wish and if they had trap-lines registered in their names these will be kept for them until six months after they leave the Army. But I believe that many of them will never return permanently, but having learnt a trade in the Army, will elect to do a further term of Army service, or ply their trade in one of the cities. Mr. Hunt, now at Fort Smith, informs me that recruiting has now stopped, probably because the number of young men in the Aklavik area with the required educational and medical qualifications is limited.

Unusual weather at Port Harrison

The early months of the winter of 1952-3 at Port Harrison were exceptionally warm. Mrs. H.W. Carson, wife of the officer-in-charge of the Department of Transport Radiosonde Station, has sent us the following information.

The month of September in Harrison was very pleasant with calm sunny days. On many days the temperature rose to 60°F and even 65°F above. Usually September and October are months of high winds and blowing snow, but the good weather continued well on into October. About October 17 the weather changed, and turned rainy and cold with night temperatures of 32°F and 34°F.

Usually the first igloos appear in October and the river is passable during the first week in November. This winter the first snow, about six inches, fell in the first week of November, but by the 28th the snow had all melted leaving just a light crust around the dwelling house. It was very pleasant weather for Radiosonde work, but the Eskimo were cold and miserable in their tents. There is little plant material for fuel around Harrison, merely low willow and some moss, and tremendous amounts of these are required to keep a steady fire going. December brought colder weather and snow; the river froze over during the first week and was passable on foot, and the first igloos made their appearance just before Christmas.

January and February at Harrison were normal months with many hours of sunshine, some high winds, and sub-zero weather.

The following figures give the number of hours sunshine and average daily temperature for the winter months of 1952-3.

	September	October	November	December	January	February
Sunshine (hours)	67	58	37	27	120	137
Temperature (daytime average)	50°F	42°	30°	0°	-20°	-30°

The effects of a seal bite at Mould Bay. By S.D. MacDonald

From April to September, 1952, I was engaged in wildlife studies and making biological collections for the National Museum at Mould Bay, Prince Patrick Island.

Among the zoological material desired, seals were especially required from this area. Unfortunately, seals are not common in the vicinity of Mould Bay, and it was not until August 23 that I was able to collect the first one.

This specimen, a Ringed Seal, Phoca hispida Schreber, was a sub-adult female, 38 inches in length and weighing approximately 100 lbs. While attempting to dispatch the wounded animal, I received a bite of a mild nature on my right wrist.

The description of the poisoning which followed is given in detail, because it does not seem to be generally appreciated in northern Canada that seal bites are likely to be dangerous. I have since been told by Mr. A.E. Porsild that in Greenland it is believed that practically all seal bites become infected.

The wound was slight, since only one canine tooth and three premolars punctured the skin. This was on the ventral side of the wrist over the joint. Iodine swabs were used as an antiseptic, and there was no bleeding. On August 28, five days after the accident, the area around the largest puncture became painful and inflamed. Infection advanced quickly, and in twelve hours the wound resembled an ordinary boil. The puncture was closed by the swelling, the immediate area seemed puffy with pus, and the skin had a purplish tone with redness extending up the forearm, accompanied by throbbing.

Hot epsom salt compresses were applied. This accentuated the throbbing and greatly increased the pain and swelling. The local lymph nodes began to be painful, and the joints at wrist and elbow were noticeably stiff. Sulfadiazine was administered because I am allergic to penicillin.

At this point the whole forearm was swollen, and around the puncture wound pus was visible through the skin. A small incision was made and frank pus obtained from the puncture wound. There was purulent drainage for a few days then just slight serous discharge.

On August 29 the pain in the wrist and elbow (at lymph nodes) was much increased and my temperature was 101°. Aureomycin was prescribed in the place of sulfadiazine, and succeeded only in bringing on a violent reaction in the form of nausea and vomiting. Sulfadiazine was continued until September 2 when aureomycin was again used, with the same unfavourable reaction as before. With the continuation of sulfadiazine I experienced a marked general constitutional upset--dizziness, headaches, and profuse perspiring. The

local lesion seemed little changed and the infection appeared to be static. At this time the lymph glands at the elbow were extremely painful and swollen, as were those in the armpit and neck, which probably contributed to a dull aching in the right shoulder.

On September 6 I was evacuated to a hospital in Montreal. Another small incision was made to drain an infection beginning at the site of one of the small punctures. This "new" infection was identical with the original cellulitis. More sulfadiazine was administered.

The same day, on arrival in Ottawa, the wound was treated by Dr. W.H. Caven, who has kindly checked these notes for me. A dressing of Bacitracine was applied, and 500 milligrams of Terramycin prescribed as a first dose, followed by 250 milligrams every six hours for 3 days.

Within 48 hours there was a marked improvement. Cellulitis in the local lesion subsided rapidly, and the throbbing disappeared. Swelling and inflamation quickly retreated but actual healing of the punctures was slow. The soreness and tenderness of the muscles and wrist persisted for several weeks after the wound was completely healed.

It is interesting to speculate whether this infection had any connection with the well known "Sealer's finger" or "Spekk-finger", common in the sealing fields off Newfoundland and elsewhere. However, although some of the symptoms mentioned here are similar, there was frank pus in the wound, which is generally absent in spekk-finger.

Rodahl[1]. points out that it is those workers in the sealing fields who are least careful about personal cleanliness who are most likely to develop spekk-finger. Washing is generally difficult for arctic travellers, but if possible the hands should be cleaned with soap after handling seals, particularly aged ones, and great care should be taken to avoid being bitten by a seal of any age.

Change of Address

Members are earnestly requested to advise the Treasurer, Mrs. A.G. Sangster, 504 Golden Avenue, Ottawa, promptly of any change of address.

1. Arctic, Vol. 5, No. 4 (1952) pp. 235-40

Editorial Note

The Editor much regrets the long delay in publishing this number of the Circular, which was largely due to her absence in England for some months. It is hoped that further numbers for this year, which will include notes on work accomplished during the summer of 1953, will be prepared shortly.

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,
411 Echo Drive,
Ottawa, Ont.

Authorized as Second Class Mail, Post Office Department, Ottawa

THE ARCTIC CIRCULAR

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Ottawa, Ontario

Forty-fifth Meeting of the Arctic Circle

The forty-fifth meeting of the Arctic Circle was held in the 1st Corps Troops R.C.A.S.C. Mess, 278 Sparks Street, on Wednesday October 7. The President, Superintendent Henry Larsen, was in the Chair and introduced the speaker, Mr. Geoffrey Hattersley-Smith. Mr. Hattersley-Smith, of the Defence Research Board, described journeys carried out during the summer in north Ellesmere Island in connection with a reconnaissance of the Ice Shelf. He was accompanied by Mr. R. Blackadar of the Geological Survey.

Special Meeting of the Arctic Circle

A special meeting of the Arctic Circle was held in the 1st Corps Troops R.C.A.S.C. Mess, 278 Sparks Street, on Monday October 19. The President, Superintendent Henry Larsen, was in the Chair and introduced the speaker, Count Eigil Knuth. Count Knuth, leader of the Danish Pearyland Expedition of 1947-50, described the work of the expedition and illustrated his talk with a colour film.

The 1951 Census in the Northwest Territories

The first official census in Canada was taken by Jean Talon, Intendant of New France, in 1666, and records a total of 3,215 persons. Subsequent censuses were taken at fairly frequent intervals, and the present decennial censuses date back to the passing of the British North America Act, which provided for the First Census of Canada to be taken in 1871. By this year the population had grown to 3,689,257 persons and in 1951 it had reached 14,009,429.

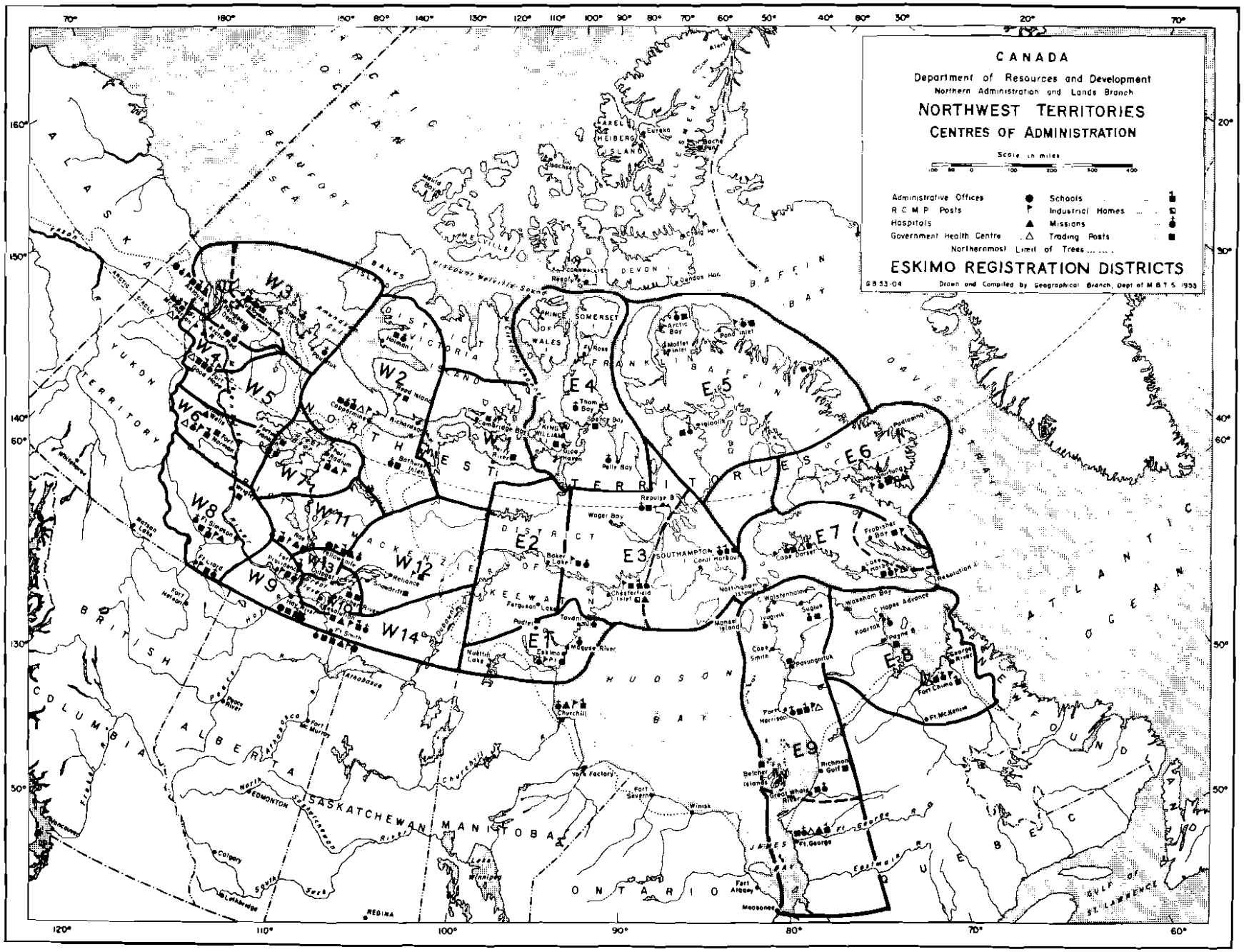
Figures for the population of the Northwest Territories, or, simply, "The Territories" as they were at first called, are given in all the decennial censuses, and a special census of Manitoba and the Northwest Territories was taken in 1886 ("Sixth Census of Canada, 1921", Vol.1, p.ix). At that time the population figures for the

more northerly areas were estimates only, and until 1912 the area of the Northwest Territories was considerably larger than it is to-day, at different periods including Alberta, Saskatchewan, and the Yukon, as well as parts of Quebec, Ontario, and Manitoba.

It was not until 1901 that the first enumeration of "the unorganized Territories of Keewatin, Athabaska, Mackenzie and Yukon was undertaken...". The "Report on the Fourth Census of Canada, 1901", records that "For this service 110 enumerators were employed, with packers and canoemen to help in traversing the country, and wherever people were found - in mining camps, on fishing grounds, at trading posts or mission stations - a record of them by name was made in the usual way. But for greater convenience a special schedule with a limited number of inquiries was used for those Territories. The task was arduous and frequently perilous for the men who were engaged in it, but it is very gratifying to record that neither in those remote regions or elsewhere in the wide Dominion has the taking of the Census been attended with the loss of one life." (Vol.1, Population, p. xiii).

The first figures for the Eskimo population are given in the Census of 1921. Previous to this time both Eskimo and Indians were classed as Indian. In 1921, 3,269 Eskimo were recorded, though a considerable proportion of the population must have been omitted.

The taking of decennial censuses involves a great deal of preparatory work, even in the settled parts of the provinces. In the Northwest Territories and in northern Quebec, the task is much more difficult because of the sparsity of the population, the distances to be covered, and the poor communications. In the District of Mackenzie, the arrangements for the 1951 Census were made by a Census Commissioner appointed at Yellowknife. He in turn appointed enumerators for each area. In other districts the Northern Administration and Lands Branch of the Department of Resources and Development cooperated with the Dominion Bureau of Statistics in appointing enumerators, in sending in the necessary supplies, and in collecting the completed returns. In many cases forms had to be sent in and all preparatory arrangements made a year in advance. The task of documenting a population with a density of only 0.01 per square mile spread over an area of $1\frac{1}{4}$ million square miles is extremely difficult. Yet all returns were completed and sent in to the Bureau of Statistics for tabulation by the autumn of 1951. The official 1951 figures for the population in the Northwest Territories are given at the end of this note, and the totals for the Yukon Territory are also included.


CANADA
Department of Resources and Development
Northern Administration and Lands Branch
NORTHWEST TERRITORIES
CENTRES OF ADMINISTRATION
Scale in miles
Administrative Offices
R C M P Posts
Hospitals
Government Health Centre
Schools
Industrial Homes
Missions
Trading Posts
Northernmost Limit of Trees
ESKIMO REGISTRATION DISTRICTS
G.B.33-04
Drawn and Compiled by Geographical Branch, Dept of M.B.T.S. 1955
ARCTIC OCEAN
BEAUFORT SEA
BAFFIN BAY
DAVIS STRAIT
HUDSON BAY
ATLANTIC OCEAN
YUKON TERRITORY
NORTHWEST TERRITORIES
BRITISH COLUMBIA
ALBERTA
SASKATCHEWAN
MANITOBA
ONTARIO
QUEBEC
NEWFOUNDLAND
W1
W2
W3
W4
W5
W6
W7
W8
W9
W10
W11
W12
W13
W14
E1
E2
E3
E4
E5
E6
E7
E8
E9

The accuracy of the Eskimo census has improved with each decade. In 1941 7,178 Eskimo were recorded[1.], exclusive of Newfoundland-Labrador, which was not part of the Dominion at that time. In 1951 the total Eskimo population, if Newfoundland-Labrador is excluded, was 8,646. This increase of 1,468 in the population should probably be reduced by about 500, as a few isolated groups were known to have been omitted in 1941. With improved means of communication and the fullest cooperation from all organizations in the field, the 1951 figure is believed to be a very accurate record.

Comparisons between the 1941 and 1951 figures for the Eskimo population in the Cambridge Bay, Coppermine, and Pond Inlet districts are complicated by changes in the registration districts, made to agree with changes in the R.C.M.P. patrols. Since 1941 the Spence Bay district has been formed from areas previously included in the Cambridge Bay and Pond Inlet districts. In 1941 Bathurst Inlet was included in the Cambridge Bay figures, in 1951 in the Coppermine, but since 1951 it has been returned to the Cambridge Bay district. The map shows the registration districts at the time of the 1951 Census.

The present Eskimo population is surprisingly youthful. Of the total of 9,493 in 1951, 2,018 were children 5 years of age and under, 1,141 were between 6 and 10 years of age, 1,163 were between 11 and 15, and 1,037 between 16 and 21 years of age. Less than 44 per cent of the total population was over 21 years old, as compared with a figure of 60 per cent for the whole of Canada. Only 483 Eskimo were over 55 years old.

It is reasonable to assume that, with greater security against want and steadily improving medical care, the increase in the Eskimo population will be maintained or accelerated in the next few decades.

1. The 1941 and 1951 figures for the Eskimo population were prepared by the Department of Northern Affairs and National Resources and are the correct final figures. Slight discrepancies between these and the figures as published in the census reports are mainly due to duplication in the enumeration of Eskimo temporarily confined to hospitals in the provinces. In the 1941 Census the total Eskimo population is given as 7,205. The corresponding census figure for 1951, excluding Newfoundland-Labrador, is 8,646, and the total population 9,733.

TOTAL POPULATION - NORTHWEST TERRITORIES, 1951

(figures based on the registration districts as shown on the accompanying map)

	Eskimo	Indians	Others	Total
Eskimo Point (E1)	446	-	38	484
Baker Lake (E2)	413	-	20	433
Chesterfield and Southampton Island (E3)	647	-	125	772
Spence Bay (E4)	462	-	19	481
Pond Inlet (E5)	908	-	32	940
Pangnirtung (E6)	591	-	17	608
Lake Harbour and Frobisher Bay (E7)	1014	-	75	1089
Fort Chimo (E8)	31	-	-	31
Port Harrison (E9)	330	-	2	332
Cambridge Bay (W1)	295	-	11	306
Coppermine (W2)	624	-	31	655
Aklavik (W3)	1080	175	261	1516
Arctic Red River (W4)	-	463	36	499
Fort Good Hope (W5)	-	257	28	285
Fort Norman (W6)	-	270	175	445
Port Radium (W7)	-	35	311	346
Fort Simpson (W8)	-	668	197	865
Fort Providence (W9)	-	470	688	1158
Fort Resolution (W10)	-	277	336	613
Fort Rae (W11)	-	680	151	831
Reliance (W12)	-	62	8	70
Yellowknife (W13)	-	345	2379	2724
Fort Smith (W14)	-	101	341	442
Other Areas	16	-	63	79
	6857	3803	5344	16004

TOTAL POPULATION - YUKON TERRITORY, 1951

Others	7563
Indians	1533
Total	9096

ESKIMO CENSUS ONLY
(figures based on the registration districts as shown on the accompanying map)

NORTHWEST TERRITORIES	1941		1951	
Eskimo Point (E1)	423		446	
Baker Lake (E2)	267		413	
Chesterfield } (E3)	476		427	
Southampton Island }	136		220	
Spence Bay (E4)			462	
Pond Inlet (E5)	798		908	
Pangnirtung (E6)	551		591	
Lake Harbour } (E7)	841		716	
Frobisher Bay }			298	
Fort Chimo (E8)			31	
Port Harrison (E9)			330	
Other Areas (Craig Harbour)			16	
Total - Eastern Arctic		3492		4858
Cambridge Bay (W1)	468		295	
Coppermine (W2)	429		624	
Aklavik (W3)	685		1080	
Total - Western Arctic		1582		1999
TOTAL		5074		6857
QUEBEC				
Fort Chimo (E8)	615		627	
Port Harrison and Moose Factory (E9)	1489		1162	
TOTAL		2104		1789
LABRADOR				
TOTAL		not included		847
TOTAL ESKIMO POPULATION		7178		9493

Population of Eskimo peoples

In the preceding note on "The 1951 Census in the Northwest Territories", figures are given for the Eskimo population in 1941 and 1951 in this area. The following table, which includes figures for Alaska[1], Greenland[2], and the Soviet Arctic[3], may therefore be of interest as it gives some idea of the Eskimo population, including Aleuts and Greenlanders, throughout the world.

	1926	1939	1941	1945	1950	1951
Alaska						
Aleut		5,599			3,892	
Eskimo		15,576			15,882	
Greenland						
Native population			19,360			22,890
Soviet Arctic						
Yuity (Eskimo)	1,293			1,300		
Canada			7,178			9,493[4]
Newfoundland-Labrador				701		

Comparative figures for the age groups of the Eskimo population are not readily available. In Alaska, in 1950, 54 per cent of the total native population (including Indians, Negroes, and Asiatics) was under 20 years of age, and in Greenland, in 1951, 36 per cent of the native population (Greenlander) was under 12 years of age, whereas in Canada, in 1951, 66 per cent of the Eskimo population was under 21 years, and 33 per cent was under 11 years of age.

1. From the 'United States Census of Population, 1950', Vol. 2.

2. From 'Report on Greenland, 1953', published by The Prime Minister's Second Department, Copenhagen, p. 2.

3. From Webster, C.J. "The growth of the Soviet Arctic and Subarctic", Arctic, Vol. 4 (1951) p. 44.

4. Including Labrador-Newfoundland.

Northern activities of the Geodetic Survey, 1953. By J.E.R. Ross

During 1953 the Geodetic Survey of Canada extended shoran trilateration[1] in the Eastern Arctic and Subarctic[2] and began work in the Yukon Territory. In addition, precise astronomical work was continued along the 60th parallel of latitude adjacent to the northern boundary of Saskatchewan.

The extension of the Canadian shoran network is a cooperative undertaking involving the Royal Canadian Air Force, the National Research Council, the Meteorological Service of the Department of Transport, and the Geodetic Survey of the Department of Mines and Technical Surveys.

The 1953 operations in the Eastern Arctic and Subarctic involved the electronic measurement of 85 lines, averaging 220 miles in length, in the shoran network extending northward from the Ungava Peninsula, across Hudson Strait, and over the southerly part of Baffin Island. Early in June the main base of operation was established at Frobisher Bay. Secondary bases were occupied at Goose Bay, Fort Chimo, and Knob Lake.

Because of unfavourable weather conditions, the operation did not attain normal speed until about the first week of July. In addition, floating ice in Hudson Strait and the northern lakes, where aircraft landings were required, resulted in further delays, and a proposed station at Cape Hopes Advance had to be abandoned.

Eastern Baffin Island, with its snow covered mountains and uncertain weather conditions, proved to be a difficult theatre of operation. Icing conditions, even when flying at high altitudes, and the prevalence of fog near the lower levels increased the difficulties of the line-measurement work as well as the logistics of the project.

Two of the highest shoran stations occupied during the summer were in this area in the mountains near Padloping, 2,600 feet, and Clyde, 1,600 feet. Transporting 3,500 lbs. of shoran equipment from sea level to the summits of these rugged icy peaks required a tremendous effort. At both these stations Eskimo labour was used to assist the R.C.A.F. and geodetic crews.

1. In shoran trilateration the survey triangle is obtained from the measurement of the sides by electronic means. In conventional triangulation the angles are measured from the ends of a known base.

2. For an account of this work in 1952 see Circular, Vol. 5 (1952) pp. 62-3.

Surprisingly little wildlife was seen throughout the summer. About the only interesting observation was that of ten groups of caribou, each of about thirty animals, sighted from the air in the vicinity of Gillian Lake, northeastern Foxe Basin.

By mid-August, the work was completed in the Ungava-Baffin Island area and as soon as the transfer of personnel, aircraft, and equipment could be effected, the line-measurement operations were continued across northern Ontario south of Hudson Bay.

The Geodetic Survey personnel engaged on this operation were W.J. Maclean, S.A. Yaskowitch, C.D. McLellan, R.K.C. Johns, and A.S. Grant.

In the Yukon Territory, operations extended from the 60th parallel northward to the Arctic coast, and comprised the selection and preparation of eight shoran stations and the determination of their heights above sea level in preparation for line-measurement work in 1954. The main base was set up at Whitehorse, and an auxiliary base at the intersection of the Arctic Circle and the Porcupine River was used for about one week.

The officer in charge of the Yukon geodetic work was A.C. Hamilton; radio communication between base camps and field stations was maintained by F.H. Hawkins with temporary members of the Geodetic Survey unit and the R.C.A.F.

During the course of the summer's work, the shoran party was visited by J.E.R. Ross, Dominion Geodesist and International Boundary Commissioner. On part of his inspection trip, Mr. Ross was accompanied by S.L. Golan, United States Boundary Commissioner. The inspection party flew from Whitehorse to Aklavik, Aklavik to Demarcation Point on the Arctic coast and back to Aklavik, Aklavik to the Porcupine River shoran camp and thence through Seela Pass to Dawson City, and from Dawson City westward to the 141st meridian which was followed southward as far as the Alaska Highway.

In the south, an astronomical party worked along the 60th parallel of latitude, between the 104th and 110th meridians of west longitude, establishing precise stations for the control of the demarcation of the Northwest Territories-Saskatchewan boundary line.

W.D. Forrester and his assistant, Hugh Sproule, determined the positions of nine stations located at intervals of about 22 miles along the 60th parallel. Beaver aircraft, operated by the Saskatchewan Government Airways and based at Uranium City, were used for transportation. Communication with the base camp was maintained by radio, the survey unit being equipped with a portable transceiver with a power output of about two and a half watts.

In addition to the work of the Geodetic Survey parties, a sun observation was taken by Capt. I.M. Sparrow at the northeast point of Castel Bay, northern Banks Island, while on a Defence Research Board expedition led by T.H. Manning.

Aerial reconnaissance by the Geological Survey of Canada in the Districts of Keewatin and Mackenzie

Aerial reconnaissance with helicopters is an outstanding feature of current plans of the Geological Survey of Canada for the Districts of Keewatin and Mackenzie. This work was started in 1952 as "Operation Keewatin" when helicopters were first used by the Geological Survey in a concerted effort to accelerate the disappointingly slow progress of conventional reconnaissance in the northern Canadian Shield. In that year Dr. C.S. Lord and four staff geologists successfully used two helicopters and a supporting Norseman aircraft to map about 57,000 square miles of southern District of Keewatin in 113 days, and at a cost of about $207,000. The resulting geological maps, at a scale of 1 inch to 8 miles, have already been published, and details of the field methods described[1].

Although "Operation Keewatin" was supplied entirely by airlift, it was decided that future operations, if maximum economy is to be attained, should be supplied by boat so far as practicable. This involves shipments a year in advance of requirements. Accordingly, reconnaissance was not undertaken during 1953, but plans and preparations were made for "Operation Baker, 1954" and "Operation Thelon, 1955", the former to map central District of Keewatin, and the latter to explore most of the geologically unmapped area of eastern District of Mackenzie south of about the 65th parallel. Thus, during 1953, in preparation for "Operation Baker, 1954", about 100 tons of aviation gasoline and oil were delivered to Baker Lake by boat; a contract was signed for next year's use of two helicopters and a Norseman aircraft; and various preliminary arrangements were made during an aerial tour of the reconnaissance area in August. The geologist in charge of the 1954 reconnaissance will be Dr. G.M. Wright, operations officer of the 1952 project.

Supplies for "Operation Thelon, 1955" are expected to be shipped to Fort Reliance during 1954.

1. Lord, C.S. "Geological notes on southern District of Keewatin, Northwest Territories", Geol. Surv. Can. Paper 53-22 (1953) 11 pp. With accompanying geological maps.

   "Operation Keewatin, 1952: a geological reconnaissance by helicopter". Can. Inst. Min. Met. Bull. Vol. 46, No. 492 (1953) pp. 224-33.

Annual R.C.M.P. walrus hunt in the vicinity of Coats Island, 1952

Walrus hunting in the Eastern Arctic is carefully controlled, and all walrus taken must be reported to the R.C.M.P. Single Eskimo and half-breed hunters are allowed to take four walrus during the year and those with dependents, seven. Other hunters must obtain a licence. Nottingham, Salisbury, and Walrus islands are protected areas and only one supervised hunt is allowed at each of these islands during the year. The following account of a hunt on Walrus Island is based on the official R.C.M.P. patrol report.

On 9 September 1952 Constable W.A. Ripley, with Special Constable J. Gibbons and the Eskimo Karetak, left Eskimo Point in the police power boat on the annual walrus hunt. That evening they anchored at the camp of the Eskimo Shavigatta, who was to accompany the party, and continued to Marble Island the following day. They reached Chesterfield on September 11, where they learnt from Constable C.E. Boone, who had just returned from White Island in the Nauja, that there were no walrus on that island. On the 12th the party reached Depot Island, where they were held up by engine trouble until September 21.

An early start was made that day going east-south-east to Cape Kendall on Southampton Island, where they anchored for the night, about two miles from shore. The weather continued poor and heavy snow and fog delayed the party off Cape Low until the morning of the 23rd. On their way across to Walrus Island the following day they sighted one walrus on the ice and later killed one. They reached the island on the 25th, but finding no walrus continued to Coats Island. On the 27th, in cold weather with a high west wind and occasional snow, they visited Bencas and "Covered" islands, but the walrus had apparently all left to go to the ice pack. As the sea continued rough and the weather poor the party remained at Bencas Island until October 1 except for a short trip along the coast of Coats Island on the 29th.

On October 1 the party returned to Walrus Island, which they found completely covered with walrus, and estimated the herd as roughly numbering somewhere between 5,000 and 10,000. Seven walrus were secured, of which four were cut up and loaded that day. The following day was spent cutting up walrus, and two more were obtained, but one had later to be abandoned owing to the high wind and waves, which also held the party at Walrus Island until October 7.

On the way south a good run was made for the first two days and the night of the 9th was spent at Marble Island. The weather again turned poor and the party anchored off Dunne Fox Island. The following day a small herd of walrus was seen at one end of "Little Walrus Island" and Shavigatta's camp was reached on the evening of October 11. The rest of the party returned to Eskimo Point on October 12, having secured nine walrus for use as dog food. Five were retained as the detachment's share and the two Eskimo, Karetak and Shavigatta, each received two.

Eskimo representation at the Coronation Naval Review

This past summer two Eskimo, Thomas Aneroluk and Simonee, representing Canada's most northern citizens, accompanied the new Department of Transport's ice-breaker, the C.G.S. d'Iberville, to the Coronation Naval Review at Spithead. From the deck of the d'Iberville they had an excellent view of the ceremony and saw Her Majesty Queen Elizabeth, accompanied by H.R.H. The Duke of Edinburgh, review the Fleet. After the Naval Review they were able to visit London, Paris, and Le Havre.

Thomas Aneroluk, twenty-six years of age, is from Coppermine in the Western Arctic. While a patient for a number of years in the Charles Camsell Hospital in Edmonton, he completed his Grade 12 education. Prevented by his illness from returning to the old life of a hunter and trapper, he is at present studying in Calgary and hopes to return to the north as a radio-operator.

Simonee, twenty years of age, is from Frobisher Bay, Baffin Island, in the Eastern Arctic. He has been employed at the Frobisher Bay air base for the last few years as a carpenter, and has now returned to his home.

R.C.A.F. fall re-supply mission

The fall re-supply mission to the Joint Arctic Weather Stations was successfully completed by the R.C.A.F. during the latter half of October. The task this year was carried out jointly by 426 Squadron from Dorval, which is equipped with North Star aircraft, and 435 Squadron from Edmonton, flying C-119, or "flying box-car" aircraft. This was the first year on which the C-119 aircraft have been employed on this work.

Fourth Alaskan Science Conference. By Moira Dunbar

The Fourth Alaskan Science Conference took place in Juneau from September 28 to October 3, under the auspices of the Alaskan Division of the A.A.A.S. This was the first of the series to be held in the capital, the others having been in Washington in 1950 and in Mount McKinley National Park in 1951 and 1952.

This year the stress was strongly on Alaskan development in agriculture, fisheries, and forestry. Engineering and public health were also well covered. This tendency to become more local in scope has been increasingly evident ever since the first conference, which

was of very wide scientific interest and application. It was further emphasized this year by the location of the conference in the Territorial capital, and by the fact that owing to travel difficulties fewer delegates from organizations outside Alaska were present. There were however a number of interesting papers in the field of pure science, in physics, biology, ethnology, and geology. Two papers by Canadians were read, one by R.H. Spilsbury of the British Columbia Forest Service on the ecology of site-types in British Columbia, and one by Philip O. Ripley of the Central Experimental Farm, Ottawa, on feed and forage problems in subarctic Canada. The opening address was given by Sir Charles Normand of Oxford University, on ozone and upper air conditions.

A very successful feature of the conference was an Alaskan seafood dinner which included an enormous king crab and pickled kelp. Two geological field trips were held at the end of the conference. It is planned to hold next year's conference in Anchorage.

Subscriptions for 1954

Members are reminded that their subscriptions for 1954 ($2.00 for Ottawa members, or $3.00 for combined membership for husband and wife, and $1.00 for out-of-town members, other than institutions) are due on January 1, and are payable to the Treasurer, Mrs. A.G. Sangster, 504 Golden Avenue.

Owing to currency regulations it is not always convenient for members of the Arctic Circle residing in Europe to pay their subscriptions to the club in Ottawa direct. Through the courtesy of the Director, the Scott Polar Research Institute will now receive the subscriptions of members from the United Kingdom and from the Continent of Europe and will transmit them to Canada from time to time. European members should forward their 1954 subscriptions (5/-) to the Director, Scott Polar Research Institute, Cambridge, England and mark them "Arctic Circle Subscription".

Change of Address

Members are earnestly requested to advise the Treasurer, Mrs. A.G. Sangster, 504 Golden Avenue, Ottawa, promptly of any change of address.

Editorial Note

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:

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411 Echo Drive,
Ottawa, Ont.

Authorized as Second Class Mail, Post Office Department, Ottawa

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Forty-sixth Meeting of the Arctic Circle

The forty-sixth meeting of the Arctic Circle was held in the 1st Corps Troops R.C.A.S.C. Mess, 278 Sparks Street, on Wednesday November 4. The President, Superintendent Henry Larsen, was in the Chair and introduced the speaker, Captain W.W. Ker, R.E. Captain Ker spoke on "Experiences of Army Survey in the north" and illustrated his lecture with a film.

Army Survey operations in the north

Since 1945 considerable work has been done by the Army, as a part of the Coordinated Defence Mapping Plan, towards provision of complete map coverage of northern Canada on a scale of 1:250,000.

A major operation during 1953 was the flying of shoran-controlled photography, under contract by Spartan Air Services, of 130,000 square miles of territory north of Great Slave Lake. Aircraft were based at Yellowknife and the shoran network, established by the Geodetic Survey in 1950-1 (Circular, Vol. 5 (1952) pp. 5-8), was used to fix the aircraft's position at the instant of taking each photograph. Flight lines were run 15 miles apart in north-south and east-west directions to form a control grid for mapping from vertical air photographs. This work was a continuation of shoran-controlled photography carried out in 1952 and the method has proved capable of providing adequate horizontal control which would otherwise have required extensive ground control surveys taking several years.

Vertical control in the same area was supplied by altimeter elevations based on levelling carried out during the preceding winter. In the summer months an Army Survey party using a helicopter made over 3,500 landings on lakes and muskeg to obtain altimeter elevations for contouring. In this way, vertical control was provided over 330,000 square miles north of Great Slave Lake. Float planes supplied aviation gasoline from Yellowknife and moved the party when required.

For mapping on a scale of 1:250,000, vertical control cannot be carried with sufficient accuracy by altimeter elevations alone over distances greater than 60 miles, and the basic vertical control for this survey was provided by a level line which was run 240 miles from a known elevation at Great Slave Lake to Great Bear Lake, and thence to the Mackenzie River at Fort Norman. The elevation of Great Slave Lake had previously been determined by the Geodetic Survey at Hay River.

The winter levelling was carried out by Captain W.W. Ker and Sgt. P.P. Kozak of the Army Survey Establishment, employing four local Indians with their dog teams from Fort Rae.

Levelling was commenced at water level of Great Slave Lake near Fort Rae; two instruments were used to carry two independent lines which tied in and checked at intervals. The Indians acted as rod men as well as dog-team drivers, and between four and twelve miles were made good each day. To carry the elevation across lakes the water level at each end of the lake, where it rose in a hole cut in the ice, was assumed to be the same. Supplies were flown in every ten days from Yellowknife by ski-equipped Beaver aircraft.

Great Bear Lake was found to be less than one foot lower than Great Slave Lake, which is 513 feet above mean sea level, and roughly 120 feet higher than the previously accepted elevation, thus correcting the sounding which suggested that the bottom was below mean sea level.

Migration of Eskimo to the far northern islands

During the summer of 1953 the Department of Resources and Development and the R.C.M.P. arranged for ten Eskimo families to move to the far northern islands. The transfer was organized by the Department and the R.C.M.P. will be responsible for the natives in their new homes.

This migration is regarded as an experiment to see if the Eskimo can successfully repopulate regions which at one time supported a native population, and which, from wildlife reports, could today support many Eskimo. Prior to this move there were no Canadian Eskimo in the islands north of Lancaster Sound, with the exception of one or two families employed by the R.C.M.P. at Craig Harbour. From time to time, however, Greenlanders had made hunting trips along the east coast of Ellesmere Island, where the hunting was reported to be excellent.

Seven of the families came from the Port Harrison area where hunting has not been good in recent years. Three were from Pond Inlet. The latter are more accustomed to the conditions in the northern islands, and, in particular, to a dark winter period. It was therefore arranged that one Pond Inlet family would accompany each group from Port Harrison.

The original plan was that the party would divide into three groups, which would be landed at Resolute Bay, on Cornwallis Island, and at Craig Harbour and Alexandra Fiord in Ellesmere Island. Because of difficulties with ice conditions the group intended for Alexandra Fiord also remained at Craig Harbour.

The seven Port Harrison families, consisting of 11 hunters, and 24 women and children, with their dogs and household effects, were picked up by the C.D. Howe on July 28. During the week the vessel spent loading at Churchill the Eskimo camped near the old Fort Prince of Wales and spent the time in hunting. They were joined by the Pond Inlet group of 4 hunters and 12 women and children, also complete with all household effects, on August 28.

Six Eskimo families, consisting of 10 hunters, and 20 women and children, were left at Craig Harbour when the C.D. Howe reached the post on August 29. The remaining four families of 5 hunters, and 16 women and children, were transferred to the Department of Transport's icebreaker d'Iberville, which reached Resolute Bay on September 6. Including two Special Constables with their families, there are now 44 Eskimo residents at Craig Harbour. At Alexandra Fiord, to the north, there is one Special Constable and his family of 8 in all. At each of these posts and at Resolute Bay there is an R.C.M.P. Constable in charge.

The supplies required for the Eskimo who have moved north were obtained from the Eskimo Loan Fund. Loans were made to a leading Eskimo at each place, who will act as trader and will in time repay the loan.

Epidemics in the Eastern Arctic during 1953. By R.N. Simpson

In the latter part of January an epidemic of influenza occurred at Frobisher Bay among both white and Eskimo residents. The disease was more severe among the Eskimo, who were all affected. Fortunately, the Eskimo received excellent care from the medical orderly at the Air Base, and there were no deaths. The base was put under quarantine from February 6 to March 31.

In mid-February an epidemic of influenza occurred in the Fort Chimo area. The morbidity was high and in many cases the disease was complicated by pneumonia, which however responded well to penicillin. Owing to the scattered nature of the camps it was difficult to find and to treat all the sick. There were 4 deaths among the Eskimo. The Indians were also affected, and as there were a number of terminal cases of tuberculosis in their camps the number of deaths was greater than among the Eskimo.

On May 11 a commercial Norseman aircraft from Churchill arrived at Pangnirtung after visiting Chesterfield and Igloolik. By May 20 the entire native population at Pangnirtung was prostrated with influenza. The epidemic spread to the outlying camps and many of the natives came to the Pangnirtung Hospital for treatment - a number being very seriously ill. There were 12 cases of broncho pneumonia, with one death, 49 cases of lobar pneumonia, 14 cases of otitis media, and 6 cases of empyema.

There were two outbreaks of sickness in the Cape Dorset area during May. The first was an attack of influenza which affected some of the camps, but was not very virulent and there were no deaths. At the end of May there was a more serious outbreak of trichinosis, confined to one of the camps.

On May 31 the nurse at Cape Dorset, Miss R. Horley, was returning to the settlement from one of the camps, when she was stopped by an Eskimo who told her that all the members of his camp were very ill. The nurse accompanied him and learned that the Eskimo had recently killed two walrus, one of which was poorly nourished. All those who had eaten raw walrus meat had since been ill with nausea, vomiting, and diarrhoea and were very weak. They developed a macular papular rash over the entire body and, later, severe muscular pain on movement, particularly in the elbow and knee joints, and also on breathing. Oedema of the eyelids, cheeks, abdomen, hands, wrists, and feet developed during the third week, and the eyes became painful on movement. The patients also had intermittent fever and cardiac irregularities.

Dr. J.R. Judge of Pangnirtung advised Miss Horley by radio as to the treatment and specimens were sent to Dr. E. Kuitunen, who was at Churchill. She was able to confirm the diagnosis of trichinosis. The nurse began treatment of the Eskimo in their tents, and with the help of Mr. and Mrs. R. Knight of the Hudson's Bay Company and their native servants, the most seriously ill were given plasma and intravenous glucose, penicillin, and sulfaguanadine. As soon as the patients could be moved they were taken to the settlement at Cape Dorset. The school was used as a hospital and the treatment was continued, including vitamin pills. The Eskimo of the other camps, none of whom was affected, provided fresh seal meat for the patients.

In mid-August, when Dr. G.S. Williamson and I arrived at Cape Dorset with the C.D. Howe, we examined all the patients and they were progressing favourably.

In the latter part of August when the C.D. Howe reached Pangnirtung we found that a second wave of influenza was occurring in that settlement. This was not so severe as the first. We visited the hospital and all the tents with Dr. Judge, treating the patients with penicillin. They were all improving when we left the settlement.

In November, an epidemic of poliomyelitis occurred at Maguse River, west Hudson Bay. There were 11 cases with 3 deaths. One case of severe paralysis was sent to Winnipeg for further treatment; in the other 7 cases there was only minor paralysis. With one doubtful exception, all the natives affected had come from Southampton Island with Harry Gibbons. During the summer this group of 23 Eskimo had travelled over from Coral Harbour by Peterhead boat to live at Maguse River.

It is possible that the disease was brought to Maguse River from either Chesterfield or Eskimo Point as the first case, a 60-year-old man, who was taken ill in mid-October, had been working at these settlements. Both places were exposed to poliomyelitis during the outbreak of 1948-9 and it has been suggested that there might be a carrier in the area. Presumably, during the 1948-9 outbreak the residents of the Maguse River district built up considerable immunity to the disease since, with the one doubtful exception, they were not affected in the present outbreak.

Twenty-five Eskimo were inoculated with Gamma Globulin taken in by Dr. H.V. Johnsen in mid-November, including at least 8 of the Southampton Island group. None of those inoculated contracted the disease.

The National Research Council's Permafrost Research Station at Norman Wells. By J.A. Pihlainen

The Permafrost Research Station of the National Research Council's Division of Building Research was established at Norman Wells during the summer of 1952. Although the ultimate aim is to provide a centre for field investigations of all northern building problems, the principal projects to date have been concerned with permafrost.

Norman Wells, on the Mackenzie River, approximately 900 miles north of Edmonton, is chiefly a refinery town of Imperial Oil Limited and the northern land-based terminus of Canadian Pacific Airlines. Various government agencies such as the Royal Canadian

Corps of Signals, the Department of Transport, and the Royal Canadian Air Force, have personnel stationed there. Norman Wells was selected as the site of the research station partly because of the interest and support of Imperial Oil Limited, partly because of the convenient transportation facilities both by water and by air, the availability of heavy equipment and incidental labour from Imperial Oil Limited, and its position in the centre of Canada's permafrost area.

The Permafrost Research Station occupies two 20-foot x 48-foot prefabricated buildings which are rented from Imperial Oil Limited. One building is used as living quarters for research personnel while the other contains a small but well equipped soil mechanics laboratory, workshop, and office space. The station also has a special, portable power drill rig, designed so that it can be dismantled into small and light components for shipment by small aircraft anywhere in the Northwest Territories. The staff at the station during 1953 consisted of two research officers and a laboratory technician.

The operation of the Permafrost Research Station has been seasonal. Equipment overhauling begins in April and the field season starts in June on arrival of the first boats from Waterways. Field work in the Northwest Territories normally ends in September. Time until October is spent by the staff on work in the vicinity of Norman Wells. The winter months from November to March have been spent in Ottawa on reports and new equipment needs, but in the near future winter projects at Norman Wells will be initiated.

Two broad fields of study with which the station is presently concerned are the development of site selection methods and the compilation of design data on building foundations in permafrost areas. During the summer of 1953 the station made site investigations at Aklavik for the Department of Resources and Development. This type of work will be continued during 1954 when a field crew from the station will form part of the survey team on the re-location of Aklavik. If time permits, it is hoped that tests on pile foundations started in 1953 at Norman Wells can be continued.

Many of the permafrost projects of the Division of Building Research are initiated in close association with both Canadian and United States agencies. With these valuable contacts and its continuing field studies, the Division is endeavouring to keep Canadian builders of the north well informed on developments in permafrost investigation.

Ozone over the North Pole. By D.C. Rose

Ozone in the upper atmosphere has a considerable influence on the heat balance between the earth and outer space. It absorbs a wide band of the sun's spectrum in the ultra-violet making the sky invisible in that region of the spectrum. The ozone is not ordinarily a very stable gas. In the atmosphere it is formed by the action of sunlight on oxygen. Equally it is destroyed by the action of sunlight on the ozone itself. Because of these effects of sunlight there is a considerable variation of the ozone content of the atmosphere at different latitudes, and a seasonal variation increasing in amplitude from the equator to about 65°. What happens in polar regions during the long winter night has been a question for some time. On 27 January 1953, on a flight over the north pole in an R.C.A.F. North Star aircraft, an ultra-violet spectrograph was carried, by means of which an estimate of the amount of ozone could be made. The measurement consisted of taking a series of ultra-violet spectrograms of reflected sunlight from the full moon and comparing these with spectrograms taken with the same instrument at Ottawa and with the moon at the same height above the horizon.

The measurements showed that the quantity of ozone present over the pole was about equal to that over Ottawa. Such a single observation does not give complete information about the formation and decay of ozone as it might have been there since the sun shone on that area during the summer, or it may have been carried there by atmospheric circulation.

It is, however, the first time such a measurement has been made in the polar region and is important in that it shows the presence of a considerable quantity of ozone at that time. The sky is unlikely to be visible in the part of the ultra-violet spectrum absorbed by ozone even during the long arctic night.

The experiment was planned at the National Research Council by A.E. Douglas, G. Herzberg, and D.C. Rose, who wish to express their appreciation to the R.C.A.F. for carrying out the flight and to the Arctic Section of the Defence Research Board for making the arrangements.

The actual measurements were taken by D.C. Rose and C. Merrill from the Defence Research Board. The pilot of the aircraft was S/L C. Torontow, and the navigator was S/L K.R. Greenaway who planned the flight so that the moon was exactly where it was wanted at latitudes between 85° and 90°N.

S.A.S. transpolar flights

The Scandinavian Airlines System has recently been carrying out a series of transpolar test flights with Douglas DC 6B aircraft. Three of the flights went through Thule and one pioneered a route to the south through Churchill and Frobisher. The latter was a delivery flight of the aircraft, "Gorm Viking". The "Gorm Viking" left Los Angeles on 22 January 1954 and touched down at Calgary, Edmonton, Churchill, Frobisher, and Bluie West 8, arriving at Stockholm early on the morning of January 25.

Of the flights through Thule, two were delivery flights in November and December of 1952 from Los Angeles via Edmonton and Thule, one terminating in Copenhagen and the other in Oslo. The third flight was made from Scandinavia via Thule to Tokyo. This was the first commercial flight, and a full pay-load of forty passengers was carried. Each of the previous flights carried S.A.S. personnel and government officials.

The commercial flight left Oslo on 23 June 1952. Captain F. Aschim was in command of the aircraft "Hjalmar Viking" and Einar Pedersen was the navigator. The flight was planned to cruise at a true airspeed of 250 knots at 20,000 feet. As the aircraft approached the east coast of Greenland, the navigator switched from conventional methods of navigation to Grid Navigation, using the Polarpath Gyro to maintain direction. In addition, three standby gyros were carried. Thule was located without difficulty, and though strong head winds were encountered along the route, the flying time from Oslo to Thule was 8 hours and 30 minutes.

After crossing the Canadian Arctic Archipelago, on the second leg of the trip, from Thule to Anchorage, the "Hjalmar Viking" flew across the Beaufort Sea toward Herschel Island. Much to their surprise the crew noted open water for approximately an hour without seeing any ice, but as they approached the continent they spotted heavy pack ice pressed against the coast. They concluded that the open water was due to recent storms. Passing over Fairbanks, the aircraft continued to Anchorage, making this second leg in 7 hours and 50 minutes. Navigation went smoothly all the way - even with their close proximity to the north magnetic pole - throughout, the gyro drift remained negligible.

From Anchorage to Shemya "Hjalmar Viking" followed the normal air route to Japan. After a short refuelling stop at this bleak island, the aircraft continued to Tokyo, landing at Haneda airport on schedule. The flight times for these two legs were: 6 hours and 45 minutes from Anchorage to Shemya, and 8 hours and 10 minutes from Shemya to Tokyo.

Again, with a full pay-load, the "Hjalmar Viking" returned to Scandinavia along the conventional route via Bangkok and Rome, making the complete around-the-world trip in 83 hours and 3 minutes. From Stockholm, where the flight had originated, to Tokyo, via the Northwest Passage, the en route time was 36 hours and 14 minutes, while the en route time for the return trip via Bangkok was 46 hours and 49 minutes.

The equi-time point to Tokyo, on this route, lies in Rome. A traveller bound for Tokyo from Rome, will eventually be able to travel via the Northwest Passage in 44 hours and 30 minutes with 5 ground stops of one hour each included. As an alternative, he could choose the conventional route, via Bangkok, which would also take him 44 hours and 30 minutes, but with 6 ground stops of one hour each. For all travellers from northern Europe, however, the transpolar route would be the shorter.

Eastern Arctic Patrol, 1953

Two vessels were employed on this year's 12,000-mile patrol. The Department of Transport's ship C.D. Howe, Capt. P. Fournier, carried the government, medical, and administrative personnel from Montreal to Craig Harbour, Ellesmere Island, where a rendezvous was held with the Department of Transport's icebreaker, d'Iberville, Capt. C.A. Carron.

This patrol was the maiden arctic voyage of the d'Iberville. The icebreaker left Montreal on July 18 and spent the first part of the patrol dropping ballot boxes for the general election along the Labrador coast. She then continued north to Pond Inlet where a Special Constable and his family were taken on board by helicopter, and to Resolute Bay and Craig Harbour, where cargo was unloaded. At Craig Harbour the R.C.M. Police Special Constable and his family took the place of another Special Constable, who joined the ship, which then proceeded north to Cape Herschel and Alexandra Fiord before returning to Craig Harbour to rendezvous with the C.D. Howe on August 29. At this post the official personnel and a group of Eskimo transferred to the d'Iberville. The vessel reached Resolute Bay on September 6, where the Eskimo were dropped, and then returned south stopping at Arctic Bay, Pond Inlet, and Clyde River on her way to Quebec, where she arrived on September 27.

The C.D. Howe left Montreal on June 27 and visited the Ungava posts. At Fort Chimo five young Eskimo men joined the ship on their way to work at Fort Churchill. At Cape Smith a small party, consisting of Mr. R.E.G. Johnston, Dr. R.N. Simpson, and Mr. P.A.C. Nichols continued to Povungnituk by Peterhead boat, rejoining the C.D. Howe at

Port Harrison. After loading at Churchill the vessel left for the northern islands on August 8. After visiting Coral Harbour and Nottingham Island the ship continued up the Baffin Island coast to Craig Harbour. She returned to Quebec on September 13, stopping at Clyde River and Pangnirtung.

The administrative work of the patrol was carried out by the Arctic Services, Department of Resources and Development, Mr. R.E.G. Johnston being in charge from Montreal to Churchill and Mr. A. Stevenson from Churchill to Quebec. These officers were assisted by Mr. M.L. Manning, one of the few outstanding Eskimo linguists. The officer-in-charge, besides coordinating the work of the patrol, also has such responsibilities as Justice of the Peace, Game Officer, and Officer for Citizenship Matters at the various ports of call. Mr. E.N. Grantham, of the Department of Resources and Development, inspected mission and day schools in the north.

This year a new R.C.M. Police detachment was established at Alexandra Fiord, on Ellesmere Island, at approximately 78°35N., 74°32W., on the opposite side of Buchanan Bay from the old Bache Peninsula post. This new detachment, which was opened by Superintendent Henry Larsen, is the northernmost R.C.M. Police post in the Canadian Arctic.

Ten Eskimo families from areas of Baffin Island and Port Harrison where game has been scarce, were taken north on the patrol to new homes at Craig Harbour and Resolute Bay. This migration was organized by the Department of Resources and Development and the natives will be under the supervision of the R.C.M. Police in their new homes. This migration is described in more detail in a separate note in this issue (see p. 52).

The Department of National Health and Welfare party was headed by Dr. R.N. Simpson, who was assisted by Dr. G.S. Williamson a skin specialist and Mr. J. Maronets, as X-ray technician. The dentist was Dr. R.S. Robertson.

Hydrographic work for the Department of Mines and Technical Surveys was carried out by Capt. R.B. Campbell, assisted by Mr. R. Canton and Mr. J. Decosta. The Post Office Department was represented by Mr. J.G. Cunningham.

Mr. and Mrs. J. Houston, representing the Canadian Handicrafts Guild and working under a grant from the Department of Resources and Development, made the complete trip, checking on the progress being made in handicrafts at the various settlements.

There was the usual exchange of personnel, which included missionaries, members of the Hudson's Bay Company, R.C.M. Police, and Department of Transport radio and meteorological staff. The Hudson's Bay Company's District Manager, Mr. P.A.C. Nichols, carried out inspections of the various Company posts. A number of scientists were also carried on both vessels.

Eskimo identification discs

At the time of the 1941 Census all the Eskimo in the Canadian Arctic were provided with identification discs stamped with a number. Previous to this enumeration was extremely difficult since there was no uniformity of spelling of names and no common use of family surnames.

The identification discs are similar to those used by the Services during the Second World War, and are worn round the neck on a string. On the front there is a crown with the words "Eskimo Identification" printed above and "Canada" below. On the back there is the disc number.

In 1945, with the initiation of Family Allowances for the Eskimo, the north was divided into registration districts. Apart from convenience in handling Family Allowances, it was felt that useful information on movements of the population could be obtained from recording registration districts. Therefore, in 1946, the discs were recalled and new discs, similar to the old, were issued.

Each disc number now consists of two parts. The first letter and figure refer to the registration district, the second figure to the particular Eskimo. Thus Ikey Bolt's number is W2-524, the W2 standing for Western Arctic registration district No.2 - the Coppermine area. Similarly, Tootoo's number is E1-394, the E1 standing for Eastern Arctic registration district 1 - the Eskimo Point area. (For a map of registration districts see Circular, Vol. 6, No. 4 (1953) p. 39).

Since 1946 the registration district given is that of birth, for those born prior to 1946 it is simply the area of residence at that date. All discs are destroyed on death and the number is not re-issued.

Loss of the "Icehunter"

In August 1953 the M.V. Newfoundlander and the M.V. Icehunter, belonging to Bowring Bros. of St. John's, Newfoundland, attempted to reach the settlement of Baker Lake carrying cargo on charter. Both these small cargo vessels of between 2-300 tons, draw about 12 feet fully laden.

At Chesterfield the Newfoundlander picked up the Eskimo pilot and led the way. Unfortunately, the Icehunter, guided by the pilot's assistant, fell behind, and on the morning of August 10 went aground on Bowell Island at the entrance to Baker Lake. The channel at this point is very difficult and at low tide there is only about 8 feet of water. When the tide fell the Icehunter split open and was a total loss. The Newfoundlander reached Baker Lake, discharged her cargo, and then returned for the crew of the Icehunter, who were all taken off safely.

Request for arctic postal information

One of our members, Lieut. G.J. Raymond, U.S.A.F., is making a study of arctic postal history and postmarks. He is searching for envelopes from letters posted in the north, information on past, present, and proposed post offices, photographs of post offices and postmasters, and other related material for his reference collection. Even a single envelope sometimes carries markings which can solve a postal question.

Offers of any of these items would be welcomed by Lieut. Raymond with gratitude and/or suitable remittance, according to the wishes of the sender. It is hoped that the Arctic Circular will soon publish an article on arctic mails, and acknowledgments of contributions will gladly be given. Lieut. Raymond's address is 3715 Alberta St., Houston 21, Texas, U.S.A.

Subscriptions for 1954

Members are reminded that their subscriptions for 1954 ($2.00 for Ottawa members, or $3.00 for combined membership for husband and wife, and $1.00 for out-of-town members, other than institutions) are due on January 1, and are payable to the Treasurer, Mrs. A.G. Sangster, 504 Golden Avenue.

Owing to currency regulations it is not always convenient for members of the Arctic Circle residing in Europe to pay their subscriptions to the club in Ottawa direct. Through the courtesy of the Director, the Scott Polar Research Institute will now receive the subscriptions of members from the United Kingdom and from the Continent of Europe and will transmit them to Canada from time to time. European members should forward their 1954 subscriptions (5/-) to the Director, Scott Polar Research Institute, Cambridge, England and mark them "Arctic Circle Subscription".

Change of Address

Members are earnestly requested to advise the Treasurer, Mrs. A.G. Sangster, 504 Golden Avenue, Ottawa, promptly of any change of address.

Editorial Note

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,
411 Echo Drive,
Ottawa, Ont.

Authorized as Second Class Mail, Post Office Department, Ottawa

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