

NORTHERN NEWS

Eastern Arctic fisheries investigations, 1947-55

During the summer of 1947, as part of a program for the development of arctic marine resources, the Fisheries Research Board of Canada began preliminary investigations in Ungava Bay. Serious nutritional deficiencies had been reported amongst the native inhabitants of the area, and it was hoped that some marine resources would be discovered that they could use themselves to raise their standard of living. The first season's work indicated that a cod fishery might be possible at Port Burwell, in the northeast of Ungava Bay, but it was clear that further investigations were necessary and that they would require the services of a properly equipped research vessel. Accordingly, in 1948, the *Calanus*, a diesel-powered ketch, was designed and built for the Fisheries Research Board of Canada at Mahone Bay, Nova Scotia;¹ she was launched in August, and made her maiden voyage to Fort Chimo, Ungava Bay, which was to be her base for the next few years.

In the summer months of 1949 and 1950 the *Calanus* collected data fundamental to the study of the physical and biological oceanography of Ungava Bay. The results of this research show several good possibilities for exploitation of the natural resources. The Atlantic cod (*Gadus callarias*) is sufficiently plentiful at Port Burwell to form the basis of a good local, native fishery, whilst the Greenland shark (*Somniosus microcephalus*), though only seen in small numbers, might be hunted profitably in the fall. The development of these resources would involve the provision of financial assistance to the fishery and suitable education of the native population.²

¹Dunbar, M. J. 1949. "*Calanus*, new arctic research vessel". *Arctic*, Vol. 2, pp. 56-7.

²Dunbar, M. J. 1952. "The Ungava Bay problem". *Arctic*, Vol. 5, pp. 4-16.

In 1951 the *Calanus* began research in east Hudson Strait, and the waters of southeast Baffin Island. Trawling and long-line fishing in Frobisher Bay yielded poor results; no sharks were encountered. Studies were carried out on the arctic char (*Salvelinus alpinus*), which was abundant at the head of the bay and in the Sylvia Grinnell River.

Investigations were continued in Frobisher Bay during the summer of 1952, and a study of Cumberland Sound was begun. Unfortunately serious engine trouble reduced the efficiency of the *Calanus* and the program of biological and hydrographical work was not completed. So that she might make an early start in the following summer, the ship was wintered that year at Churchill.

The study of seals and walrus formed the main part of the field work in the 1953 season, and the fine weather also allowed a full program of hydrographic work to be done in western Hudson Strait and northern Hudson Bay. Seals were especially numerous along the south side of Foxe Peninsula. Walrus were found in moderate numbers around northern Coats Island, and at Seahorse Point, Southampton Island; the estimated total for the northern Hudson Bay herd was between two and three thousand adults and young.

In July and August 1954 work was continued on the walrus census and general marine biology associated with the walrus study; this included quantitative and qualitative plankton hauling, bottom sampling, hydrographic work and experiments on the measurement of productivity in the waters between Coral Harbour, Southampton Island, and Coats Island. As the migration of walrus presents a fundamental research problem, tagging experiments were carried out at Coats Island during late July and early August. Simultaneously, another tagging program was being carried out by the

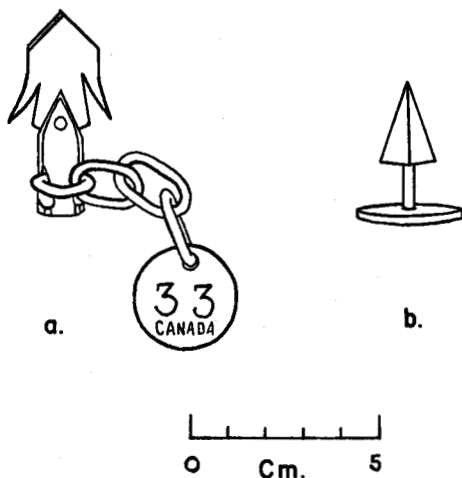


Fig. 1. Tags used in walrus survey.

Canadian Wildlife Service at Bencas Island (northeast of Coats Island) and in the vicinity Seahorse Point.

The first tag used by the Wildlife Service was a stainless steel copy of the Eskimo seal harpoon head. This was modified in the field as the chain prevented the head from penetrating deeply enough into the skin for it to turn and hold fast. The new tag was smaller, and did not rotate but merely penetrated the skin layer, sticking in the epidermis when the harpoon shaft was withdrawn (Fig. 1a). Thirty animals were marked, and three recoveries were made in the fall. One tag had been rubbed off and was found on Coats Island; the other two were taken by natives during the fall hunt. Eskimo opinion was that tagged walrus might become "sick", and it was felt that a smaller and less harmful tag would be better.

The *Calanus* tag is shown in Fig. 1b, and only simple modifications were necessary in the light of field experience. The original conical head was ground to pyramidal shape to provide four cutting edges for easier penetration of the epidermis. The Eskimo consider that this tag should work well and be unharmed to the walrus. Twenty-three animals were tagged, but no recoveries have been made as yet. Tags were kept sterile in absolute alcohol before use, but it has been suggested that in future the use of

an anti-biotic cream would reduce the possibility of infection.

Detailed work on the ringed seal (*Phoca hispida*) was carried out at Cape Dorset, Baffin Island, from February until October 1954 by one member of the staff. He travelled extensively with Eskimo hunters, and a large collection of specimens was obtained. The field work shows that the most important factor determining the distribution of the ringed seal in the arctic zone is the length of the period of ice cover; this, in turn, is directly related to the complexity of the coastline.

At the end of the 1954 season the *Calanus* left Coral Harbour and sailed to Montreal for the first refit since her launching in 1948. The old winches were replaced by new hydraulically operated units, the main deck winch being capable of handling up to two tons, and a gyro-compass and a new radio telephone were installed. The general inspection and overhaul were completed in June 1955, and the *Calanus* was able to leave Montreal for another season of work in the north on June 29.

The journey to Southampton Island was greatly delayed by strong winds and much drift ice, particularly at Nain on the Labrador coast. The *Calanus* eventually reached Coral Harbour on August 15, which left little time for the proposed biological work along the east

coast of Hudson Bay and south to the Belcher Islands. It was, therefore, decided that she should stay at Coats Island and continue the previous year's program of walrus work. Thirty-seven adult animals and two young were marked with the stainless steel tags, and a collection of specimens made. These supplemented the specimens taken by the writer earlier in the year at the floe-edge south of Coral Harbour, and later in the fall at Coats Island.

On September 4 the *Calanus* left for Igloolik by way of Roes Welcome Sound, reaching the north of Foxe Basin with little difficulty. However, in the vicinity of Jens Munk Island she had to wait for ten days before she could navigate through the pack ice and take up her winter quarters in the harbour at Igloolik. During the coming winter the captain and chief scientist will remain on board. They will make regular plankton hauls and hydrographic observations from fixed points on the sea ice, and will collect further data on walrus biology.

The results of all this work can be found in the following publications as a "Calanus" Series in the *Journal of the Fisheries Research Board of Canada*:

- Bousfield, E. L. 1955. "The cirripede Crustacea of the Hudson Strait region, Canadian Eastern Arctic". Vol. 12, No. 5, pp. 762-7.
- Dunbar, M. J. 1954. "The amphipod Crustacea of Ungava Bay, Canadian Eastern Arctic". Vol. 11, No. 6, pp. 709-98.
- Dunbar, M. J. and E. H. Grainger. 1952. "Station list of the "Calanus" expeditions, 1947-50". Vol. 9, No. 2, pp. 65-82.
- Dunbar, M. J. and H. H. Hildebrand. 1952. "Contribution to the study of the fishes of Ungava Bay". Vol. 9, No. 2, pp. 83-128.
- Fontaine, M. 1955. "The planktonic copepods of Ungava Bay". (In press).
- Grainger, E. H. 1953. "On the age, growth, migration, reproductive potential, and feeding habits of the Arctic char (*Salvelinus alpinus*) of Frobisher Bay, Baffin Island". Vol. 10, No. 6, pp. 326-70.
1954. "Station list of the *Calanus* expeditions 1951-52, together with Frobisher Bay Stations, 1948, 1950 and 1951, and Resolution Island Stations, 1950". Vol. 11, No. 1, pp. 98-105.

1954. "Polychaetous annelids of Ungava Bay, Hudson Strait, Frobisher Bay and Cumberland Sound". Vol. 11, No. 5, pp. 507-28.

1955. "Echinoderms of Ungava Bay, Hudson Strait, Frobisher Bay and Cumberland Sound". (In press).

1955. "Station lists of the *Calanus* expeditions, 1954-55". (In press).

A. W. MANSFIELD

The Beaver Index

The Hudson's Bay Company first published *The Beaver, Magazine of the North* in 1920 as a journal "Devoted to the interests of those who serve the Hudson's Bay Company", but since that time it has become one of the most widely read magazines on the north. Imaginative editing, particularly by Clifford Wilson the present editor, has produced a magazine full of interesting and informative articles on travel, exploration, pioneer activities, and trade in the Canadian north, many of them beautifully illustrated. This wealth of information has been made more readily accessible by the publication, early this year, of the Index covering issues from October 1920 to March 1954. The entries are arranged alphabetically under author, title, and subject, and the excellent illustrations are also indicated. The Index is 63 pages long, and is the same size as the magazine. It is to be hoped that in the future the Index to *The Beaver* will be published more frequently.

Scientific work at the Danish Arctic Station, summer 1954

In summer 1954, during his first year as scientific leader of the Danish Arctic Station at Godhavn, west Greenland, Ulrick Røen began two parallel studies. First, he studied the biology and ecology of arctic entomostracan fauna. About fifty large and small freshwater areas, and some brackish water areas near Godhavn, in Disko Fjord, around Jakobs-havn, and at the head of Disko Bugt were investigated as regularly as weather and transport conditions permitted. Measurements were made of water temperature, conductivity, pH factor, colour, oxygen content, and NaCl, Fe⁺⁺, and

Fe+++ content. It is hoped that further factors may soon be measured with the newly installed electrical equipment. In addition to these chemical and physical measurements, quantitative and qualitative collections were made of Entomostraca, and representative collections were made of Rotifera, Hydrachnidae, Diptera, Tardigrada, and Nematoda.

Second, Røen studied the ecology of arctic lakes. Limnological-hydrographical investigations combined with quantitative and qualitative bottom samples and plankton samples were made in two large lakes, "Mellemsø" in Disko Fjord, and Taserssuaq at Atâ on the west side of Arveprinsens Ejland. During the summer a complete survey was made of "Mellemsø", and a series of temperature and oxygen measurements taken.

Several scientists visited the station to carry out field work. Dr. Finn Salomonson and Mr. Sigurd Bruun travelled through the fiord system between Egedesminde and Holsteinsborg in the station's motor boat, *Holck*, to ring breeding birds: Dr. Axel M. Hemmingsson studied Tipulidae in the immediate neighbourhood of the Arctic Station, and also near Disko Fjord.

Seminar on arctic meteorology, McGill University

The McGill Geography Summer School was held at Stanstead College, Stanstead, Que., from 26 June to 6 August 1955. This year the special arctic program included a ten-day seminar on arctic meteorology, under the chairmanship of Professor F. K. Hare, which was organized by the McGill Arctic Meteorology Research Group, and was sup-

ported in part by the Geophysics Research Directorate, U.S. Air Force Cambridge Research Center. Thirty meteorologists took part, including representatives from the U.S. services, the Canadian Department of Transport, and several universities. All those attending were either active in northern meteorological research or were forecasters with arctic experience.

The seminar covered most aspects of polar meteorology and special stress was laid on the International Geophysical Year program for polar regions. Dr. Svenn Orvig, Director of the Arctic Institute's Montreal Office, helped organize the program and spoke on glacial meteorological research. Dr. Warren Godson, Superintendent, Atmospheric Research, Meteorological Division, Department of Transport, presented four papers. Guest speakers included Dr. Richard Reed, Department of Meteorology, University of Washington, and Dr. Millett Morgan, Dartmouth College, Chairman of the U.S. Ionospheric Panel for the forthcoming International Geophysical Year, and many other participants also presented informal papers. At the final session, suggestions were gathered for future research. These suggestions, and a selection of the informal papers presented will be published by the McGill Arctic Meteorology Research Group.

Errata, Vol. 8, No. 1

Page 53, Fig. 4. The caption should read
*Sea otter eating while swimming on
back in holding tank.*

Page 75, caption. For *Kista Dan* read
Magga Dan.