



Slit sun-goggles fashioned from whale bone.

Ophthalmology in the Canadian North

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What did the young mother do when the dog attacked her child leaving toothmarks on and around the eye? What could be done — when the animal was a sled-dog, and the mother and child were Eskimos on Baffin Island, with its bone-chilling wind blowing fifty below, and its sparse population scattered like peppery specks on the vast unmoving landscape? Stoic acceptance. Resignation. These were the traditional responses.

Early medical care was provided in the North by missionaries, Hudson's Bay traders, and surgeons on whalers or exploration ships. In later years a doctor might be found on the Hudson's Bay supply ship, *Nascopie*. A team of medical men travelled regularly on the Canadian Department of Transport ship, *C.D. Howe*. These visits, however, occurred only in the brief open-water season of the summer months. The opening of the Arctic to the white man was accelerated by the DEW line construction in the early 1950's, and this was paralleled by increased commitment for medical care. Today most Eskimos are within reach of a nursing station, whence a patient may be evacuated to one of six modern hospitals in the Canadian North. If specialist care is necessary, the patient is flown south to a university hospital.

The present Northern Health Service of the Canadian Government was inaugurated in 1955 and expansion was rapid. Besides the six hospitals strung across the North, to serve the 50,000 residents there are 40 nursing stations, 11 health centres, 19 dispensaries, several one-nurse trailer nursing stations set down in otherwise inaccessible places by Hercules aircraft, and for the individual family group in isolation there is the "Eskimo Family Medicine Pack". This kit contains antibiotic tablets and pediatric preparations, skin and eye ointments and assorted dressings, together with an illustrated booklet printed in English and in Eskimo syllabics, which gives simple illustrations on the use of the contents. The nursing stations are the backbone of the Health Service. The girls who staff these stations bear tremendous responsibility and are the real heroines of northern medicine.

The question arose in the late 1960's whether a central eye hospital was needed in the north, and a decision was taken to survey ophthalmological needs. In 1970 and 1971, with Canadian Government sponsorship, three Canadian universities took part in a widespread survey, sending teams to examine whole populations of selected settlements. A total of 4,450 people were examined, McGill being responsible for the East Baffin Zone. Out of this survey came much interesting data. No eye hospital was deemed necessary, and the data obtain-

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FIG. 1. Without a common language, vision is tested with the "Illiterate E".

ed became even more interesting when pooled with that of the other countries responsible for northern peoples. In June 1972 an Arctic Symposium was featured at the 35th annual meeting of the Canadian Ophthalmological Society. Participants included representatives from Denmark, Finland, Great Britain, the World Health Organization, and the Ministry of Health for Canada.

In September 1970 the first "service" trip was made to the Baffin Zone. Teams of ophthalmologists from the McGill Hospitals now visit regularly the twelve settlements in this Zone. The teams, usually of two, touring from ten days to two weeks, three times a year, see an average yearly total of 750 patients. Before their arrival the settlement nurse has done a preliminary screening of eye and visual problems. Clinics are usually set up in the schools, which are well-equipped modern buildings, with a large captive "patient load" nearby. Clinic hours may run as late as 11 p.m. or midnight, in order to accommodate the older patients, who prefer evening hours — or perhaps in order to race the threatening weather which may delay plane take-off for the return trip.

On these tours a variety of eye problems is found. Snow-blindness is a dramatic term which jumps to the layman's mind when there is mention of eye problems in the North. In actual fact, while this condition is of extreme discomfort to the patient, it is transitory. It comes about because of the long hours during which sunlight is blindingly reflected off the snow in a land where, at times, a day may last twenty-three hours and a night only one. Over the years the Eskimo has learned to exclude most of the offending ultraviolet light by means of slit goggles made from sealskin, bone or driftwood.

More serious eye problems found in the North are, in order of increasing importance: trauma (frequently the result of an alcoholic fray rather than, in this age of the snowmobile, a battle with a husky); scarred cornea due to old tuberculosis, which is now on the wane; glaucoma, the blinding disease; and myopia. The Eskimo is found to be congenitally susceptible to angle closure glaucoma, more so than other races. The disease is found more commonly in Eskimo women than men, and is forty times more prevalent in Eskimo women than in women

of other races. The majority of all eye patients flown to Montreal for medical or surgical treatment are sent because of this type of glaucoma.

Imagine the consternation of one Eskimo woman, who came asking for a pair of glasses, to be told that she needed an operation and should accompany the doctors on their return to Montreal within a few hours. The pressure inside her eye was found to be above normal and, because the disease was diagnosed in its earliest stage, prompt treatment could save her from probable blindness. Her husband, when consulted, was not at all amenable to having his cook away from home for some weeks. Only after lengthy negotiations was a deal arranged. If he would allow his wife to have an operation in Montreal, he could go to Frobisher and get a set of teeth, which he badly needed.

Picture the emotions of this woman who has never travelled far from her familiar island-home north of the Arctic Circle, as she boards the small charter plane with the two doctors, flies over the great white wastes of her homeland and puts down in what must seem to her a sizeable city, Frobisher Bay, a town of some 2,000 inhabitants. She is overwhelmed by crowds of people, confusion in the airport waiting-room, perhaps a visit to the Frobisher Bay Hospital with the doctors, and the trip back to the airport to board a jet for Montreal. Arriving



FIG. 2. The question is, who is examining whom?

there at midnight, she is plunged into a taxi which roars through the night along a highway with streaming lights, brighter than any aurora borealis, rocking from side to side in a frightening ride towards a city of neon light, rushing to a strange hospital to be placed in a hospital bed, put between white sheets surrounded by white busy-ness and brilliant light. All these are very strange experiences, yet the tremendous power of character, of acceptance and adaptation to necessity, will see her through — and she will not go blind as others have.

An important aspect of northern medical service must be education of the people. If, for instance, they learn to recognize early symptoms of glaucoma (usually pain and temporarily diminished vision) and seek immediate help, the settlement nurse may control an attack with drugs for a few weeks, in most cases, until the patient can be flown out for surgery. With regard to education, the Danes, in their glaucoma-prevention programme, set a fine example in Greenland.

Although glaucoma is the blinding and the most dramatic eye disease in the Arctic, the ophthalmologist's principal activity in the North is the prescribing of glasses. The most astonishing evidence to come out of the Ophthalmological Survey was the "epidemic" of myopia in the young. Thirty to thirty-five per cent of all young people between the ages of 15 and 25 were found to be short-sighted and to need glasses, as opposed to nine per cent in those over 25. Perplexing questions present themselves: Why the young? What is different in their life style compared to that of their parents? Has a protective factor been lost to the younger generation, or a virulent factor introduced? What is the influence of schooling, of the change to a white man's diet? All of this may have enormous consequences for us all, if an answer — or answers — can be found.

During the last decade has come the full realization that Arctic medicine is different. In 1967 an international symposium on circumpolar health-related problems was held at the University of Alaska under the joint auspices of the University and the Arctic Institute of North America. Plans were initiated for staging a second conference, for which strong support was soon given by the Scandinavian-North European group. Their initiative led to the organization of the Nordic Council for Arctic Medical Research, with representation from Denmark, Finland, Iceland, Norway and Sweden. The second Symposium was held in June 1971 in the new, modern Medical School of the University of Oulu, Finland, the northernmost medical school in the world. Participants came from thirteen countries and included three representatives from the World Health Organization. The most numerous national groups were those from the U.S.A. (82), Finland (69), Sweden (67), Canada (44), and Denmark (38). Other countries represented were Australia, France, Iceland, Japan, Norway, U.S.S.R., the United Kingdom, and West Germany. In July 1974 the third International Symposium on Circumpolar Health will be held at Yellowknife, N.W.T., and ophthalmologists will be among others to continue discussions on health problems peculiar to the far North.