ERNMENT

CANADA

STATEMENTS AND SPEECHES

INFORMATION DIVISION
DEPARTMENT OF EXTERNAL AFFAIRS
OTTAWA - CANADA

No. 48/36

"ARMED FORCES IN CHURCHILL"

An address by Hon. Brooke Claxton,
Minister of National Defence, to
Ottawa Rotary Club, June 14, 1948.

There has been so much speculation, a good deal of it quite irresponsible and exaggerated, about our defence activities in the far north that I thought I might take this opportunity of telling you what we are doing there. Pictures have been painted of vast encampments of troops ready to launch a devastating attack at a moment's notice, all equipped with push-buttons.

If this excited view is taken in North America, you can imagine what the Russian writers make of it. In an article "Polar Fever in America", by V. Golant in ZEVEZDA for November 1947, it was said".... Uncle Sam's flyers practice bombing walruses and polar bears . . . enormous military enterprises . . . No small parts of these funds ($12,000,000,000) will be spent for military construction in the Arctic and adjacent regions . . . From 1943-45 huge winter manoeuvres took place in the Arctic regions of Canada in which representatives of the Canadian, English and American armies, navies and air forces took part ...", and so on.

Of course, there is nothing whatever like this; however, I do think that some of the things we are quietly learning about conditions in the Arctic and how to live there are of importance and usefulness to all Canadians. As I recently visited Churchill, and as it is the most interesting of our northern establishments, I thought I would speak to you about it first and then say something of our general programme for all of the north.

While Churchill is properly thought of as an outpost, or frontier settlement, it has a history which dates back much further than many of the more civilized parts of the continent. The harbour was originally explored in 1619. In 1689 it was named after John Churchill (later the Duke of Marlborough), who was at that time Governor of the Hudson's Bay Company. Settlement was undertaken in the same year but its buildings burned to the ground a few months later. In 1718 Fort Churchill was built and in 1731 reinforced by Fort Prince of Wales, the ruins of which still exist. It was destroyed again in 1782 by a French naval detachment. In 1783 the Hudson's Bay Company re-opened the Fort and it has carried on ever since.

As you know, during the late '20's the federal government began the development of Churchill as a commercial port, and in 1929 the railway was brought in from The Pas.

Let me say a word about the setting. The Churchill River runs north and south and the townsite of Churchill, consisting of the Oblate Fathers' Mission, the grain elevator, the railway station and the Hudson's Bay Company store, plus about fifty houses and shacks, is situated on a spit of land to the east of the river. Five or six miles to the south-east, between the river and the sea, there is an extensive gravel bank stretching out over a fairly flat area about a mile square. This is where the camp and airfield are located.

The modern military history of Churchill dates from 1943 and reflects the fears and anxieties of that fateful year. The United States Army began the construction of an air and hospital base. The airfield was designed as a key station on what was known as The Crimson Staging Route, by which planes would be ferried by short flights via Southampton Island, Frobisher Bay, Greenland, and Iceland as an alternative to the routes based on Gander Lake in Newfoundland or Goose Bay in Labrador. There was also to be a large military hospital for the evacuation of wounded from Western Europe. Work had been finished on two runways of 6,000 feet, nearly finished on a large hospital and partly finished on ninety smaller buildings when the end of the war in Europe made it no longer necessary to proceed with such plans. The station was never used for either purpose for which it was intended. Not a single plane was flown to Europe and not a single wounded man was evacuated via Churchill.

In September 1944 the Canadian and United States governments arrived at an agreement by which all U.S. establishments in the Canadian north would be acquired by Canada in consideration of a lump sum payment. Canada owns the air station and buildings at Churchill.

Except for the short spell of activity while it was used as the base of Exercise Muskox, Churchill remained virtually inactive until the Permanent Joint Board on Defence recommended in September 1946 that it should be used as a joint testing station.

This choice was made for the following reasons:

(a) Churchill is the most northern place having rail transportation the year round. It also has sea transportation for three months each year.

(b) The abandoned American project provided ready shelter and an excellent airfield.

(c) Its location enables it to serve as a base of communications and supplies for other activities further north.

(d) Being just above the tree line (there are neither trees nor grass), Churchill provides access to both the bush and the barrens.

(e) Its climate is truly arctic, comparable to places much further north in other parts of the world, and the high winds that prevail greatly heighten the effect of the cold.

The location and climate, particularly the climate, give rise to many of the most difficult problems. Our first efforts have been concentrated on learning more about how to exist in the north. Certainly until we know how to live there we cannot fight there. At somewhere around 40 or 50 below a man must devote almost all his energies to keeping alive.

Diesel oil begins to solidify at 30 below - Mercury thermometers freeze at 38 below - storage batteries lose more than half their power at low temperatures. A man literally can freeze his lungs by gulping too much air at minus forty. Rubber tires freeze solid and crack. Engines won't start. Drinking water freezes in a few moments. Instruments with delicate moving parts often "freeze" because of the different contraction properties of different metals. Steel becomes brittle and snaps or shatters. Food rations freeze so solid that almost everything must be heated in the field. Much of the food must be thawed out and then cooked or heated as two operations. The frozen ground lacks conducting properties for the grounding of signal corps, radio, telephone and telegraph equipment. Radio waves are freakish and often black out completely. To keep warm a man must wear such heavy mittens and boots that he cannot easily operate instruments and knobs, nor depress the clutch of his vehicle without also applying the brake. If he touches any metal with his bare hands his skin tears away when he tries to let go. Medicines freeze and burst their bottles.

We are trying to find ways of making this business of keeping alive easier so that more time can be left for other activities. As you can imagine, this involves a tremendously wide field of experimentation and trial.

If a soldier can overcome the problem of living and thinks himself ready to fight he finds: Exhaust pipes issue vapour clouds which would betray a unit's presence miles away; camouflage is virtually impossible because of tell-tale tracks in the snow and the prominence of any shadow against the whiteness; a wounded man would freeze to death rapidly if help were not forthcoming; even after he is picked up it is extremely difficult to keep him warm.

Clothing, of course, is a first consideration. There are two approaches to the problem. The first is the "layer principle" which consists of bundling a man up with all the layers of insulating and windproof clothing he can carry. This method has been found to have serious drawbacks, one of which is that when the men exert themselves even in the coldest weather they perspire. The perspiration freezes and destroys the insulation of the clothing and threatens the man himself with exposure. In opposition to this the "vapour barrier" principle has been developed. Here, as in many other instances we have learned a great deal from the Eskimo, and vapour barrier clothing is patterned as closely as possible after the Eskimo trousers and overshirt. They should be made of caribou skins, but there are not enough of them. While it is not so good, we are getting a very fair substitute in rubberized nylon. On top of a string shirt and ordinary cotton shorts, service men wear a parka lined with non-absorbent material, which prevents absorption of perspiration. As the clothing is loose, permitting the air to enter up the pants' leg, under the bottoms of the parkas and down the necks, perspiration is allowed to evaporate and the body is kept at a normal temperature. Men who have worn them said it felt like entering an air-conditioned theatre on a hot day, so cold that they hesitated to leave camp in them at first. After a hard trek they could pat themselves on the chest and puff out clouds of white steam created by body heat and evaporating sweat. Extensive tests showed that what we now have worked well at temperatures below 40 below zero. One doctor found he could sleep in a snowbank for several hours in a "vapour barrier" suit before the cold would awaken him, although it was 38 below zero with a wind of 10 miles per hour.

In this connection it might be interesting to mention something of the studies that have been made of wind chill - which results from wind carrying off body heat. In Ottawa we know what that is round about the corner of Elgin and Sparks any month of January. A method has been worked out to measure cold taking wind as well as temperature into account. A rough scale has been worked out by a U.S. scientist, Dr. Paul Siple, who determined that flesh freezes at a wind chill of 1,400. This might be arrived at by one of any number of combinations of temperature and wind. For instance, 20 above with a 20 mile-an-hour wind or 15 below with a $2\frac{1}{2}$ mile-an-hour wind or 40 below and a one-mile-an-hour wind. You can see from this what a tremendous difference the wind makes. Last winter's greatest wind chill at Churchill was 2,370, and it was greater than 1,400 most of the time.

Every kind of test has been made of fuels and lubricating oils and general performance of various types of planes and vehicles, particularly the development of vehicles suitable for travel over both snow and muskeg. Lubricants light enough to resist freezing or even make starting feasible, lose their lubricating usefulness once the engine reaches operating temperature. It has been determined that some sort of pre-heating is probably the best method of starting. That means a big gasoline heater to blow hot air around the engine.

A good many experiments have been made with the food used in the north. Containers, preparation, nutritive value, all present problems. It may be found as a result of experiments done last winter that extra quantities of vitamin "C" give extra resistance and fuel value in very cold climates.

Experiments are being conducted in connection with the permafrost and muskeg and conditions generally affecting building. Permafrost is a term for the permanent frozen earth. In the summertime it thaws for two to five feet on the surface, below that there is a solid freeze to an unknown depth, probably well over 200 feet. This creates difficult construction problems because the top layer heaves and cracks when it thaws. The balance is upset when warm air is introduced by sinking foundations in the permafrost. Thus telephone poles have to be built on tripods which sit on top of the ground. The best system for buildings so far found has been to put down a heavy layer of gravel on top of the muskeg and build directly on this.

A very intensive attack is being made on the mosquitoes and black flies that make life in the Arctic almost as bad in the summer as in the winter. During the months that Churchill is not frigid and windy, it is infested with 10 varieties of mosquitos, 6 of deer flies, and 15 of black flies. This year 8 Canadian and several American teams are working in conjunction to see how this scourge can best be overcome. Tests have been made to determine the habits of the insects by coloring with dyes, to study their habitat by counting their incidence in zones of different colours of vegetation, to see how wide areas have to be sprayed and what kind of material should be used, and at what time. One interesting experiment was to spray a substance like DDT from the air over the snow just before it melted. This may turn out to be more effective than creeping up on the mosquito after he has come out of winter quarters to start off again on summer operations.

Water supply problems have been studied. Most of the lakes freeze solidly to the bottom. Steam jets have been found the most effective means of cutting the ice. How do you produce the steam? The best way is with large pressure stove burning 100 octane gasoline.

Radio wave propagation is studied by field tests and at the ionospheric station run by the R.C.N.

Various expeditions carry out exercises away from the Camp and learn amongst other things about the problems of logistics and supply in the north.

Doctors have studied the psychological problems of the north, tested the dangers of carbon monoxide from stoves in shelters, worked out means to carry wounded in litters in snowmobiles, studied snow blindness, and experimented with nonbreakable containers.

Practically all types of weapons and electronic equipment have been tested to find out what their performance is in cold weather conditions. Also experiments have been successfully carried out in connection with ways of covering weapons with plastic cocoon to prevent their deterioration.

Altogether, a great deal has been learned about life in the Arctic. Information has been obtained which is of great value in civilian as well as defence activities. Despite the difficult conditions under which these people work and live, their spirit is remarkable. I don't think that I have seen anywhere a group of men more constructively and cheerfully carrying out the work they are engaged in than the personnel of the Canadian services and the U.S. personnel who are working with them.

Churchill is a joint station under a Canadian Commandant. The U.S. troops and Canadians work very closely together, there being complete exchange of information. They share the same messes and recreational facilities and nowhere is there the slightest sign of friction.

This is by far the largest single establishment where personnel of both countries live and work together. About as many people are involved in this project here as are doing joint or exchange work everywhere else in Canada and the United States.

This year in order to make living conditions as good as they can be in this sort of climate the Canadian Armed Forces are spending $1,500,000 on new construction. This will provide for 44 married quarters, five barrack blocks for single men, a mess-hall, a sergeants' mess, two workshops, a laboratory for the Defence Research Board, a central heating plant and a power plant.

Our men are assigned there for periods not exceeding two years. They come from every part of Canada and represent all arms. I do not think I have ever seen a finer body of troops. The townsite of Churchill hasn't much to offer in the way of bright lights but at the camp the army theatre "The Northern Lights" shows first run movies three times a week. Our men have to make their own life and they are doing an exceedingly good job of it. The Canadian Army does most of the housekeeping. I had meals with the officers, the sergeants and the men. They get over 5,000 calories a day. Soon after my arrival I visited the men's recreation huts, with bowling alleys, billiard and pingpong tables, wet and dry canteens, library and snack bar, all in charge of a private. We have a 100 watt radio station licenced by the Department of Transport. The station is on the air eight hours a day. Its a godsend to the far-off missionaries, traders and trappers. The station manager, programme director, announcer, public relations officer, advertising manager and engineer is a private and he does a good job or jobs. The army has three other similar stations up north. When I was there, Lieut.-Col. James A. Tedlie, D.S.O., the Camp Commandant, Dr. Omond Solandt, Chairman of the Defence Research Board, the United States officer in charge, and John Connolley of the Ottawa press gallery, joined me in putting on a forum over the air.

At the camp, too, there are general stores, a grocery store and butcher shop, all under the management of a corporal. Another corporal, Cpl. Melancon from Grand Falls, N.B., has charge of the laundry and dry cleaning establishment employing several Indian girls. They give a three-day service and the shirts and clothes are done up as they would be by a first-class Ottawa laundry. Cpl. Melancon did not know anything about laundering or dry cleaning so they sent him down to Winnipeg to take a month's course there and now he does a great job. These regimental activities run by the officers and men and their wives are all carefully supervised. They do a business of about $60,000 a month and the profits are turned back to improve the amenities and services. The hospital looks after the wives and dependents of the soldiers as well as emergency cases in the neighbourhood. In April, ten babies were delivered in the military hospital including twins to a soldier's wife.

I have visited most of our military establishments across Canada during the past year and in all isolated centres there are communities like these but I do not think I have seen one where there is a better spirit than at Churchill. One of the reasons is the Officer Commanding. Another is that they have to make the most of it and they depend on themselves. Also they have to work harder than some of us down here regard as right or proper. Time studies showed that some of the men are sometimes doing over a hundred hours a week. They get Arctic pay and extra leave. Now with regular RCAF plane services to Edmonton and Rockcliffe we can fly personnel in and out on leave.

Altogether this was a great show and it made me proud to be a Canadian, to see how Canadian soldiers can adapt themselves to live under such difficult conditions.

As you will have realized, practically all the defence activities I have mentioned have civilian uses; similarly civilian activities are significant in terms of defence. Unless you can live in the north you can't expect to fight there, and if we can and do live there, the chance of anyone else moving in is not very great at present. One of the first jobs we have to do is to look after our Arctic.

The extent to which military and civilian activities go hand in hand is well illustrated by a list I made up some time ago of our major activities in the north. These are:

1. The Canadian Army maintains the Northwest Highway System, that is, the Alaska Highway; and the RCAF maintains the Northwest Staging Route.

2. The Canadian Army provides tele-communication services through the Northwest Territories.

3. The RCAF this year will photograph 300,000 vertical and 300,000 miles tri-camera, which would bring the total in the last four years to 757,500 miles of vertical and 827,000 miles of tri-camera photography. At Rockcliffe they process about 100,000 photographs a month. These are then turned over to Mines and Resources to be made into maps for mining and fishing and tourist travel as well as for military purposes. Army engineers and civilians will fix triangulation points. Last year the RCAF carried a party from the Dominion observatory which re-located the magnetic pole.

4. A number of weather stations and Loran stations have been established.

5. This year the Royal Canadian Navy will have an exercise in the course of which the aircraft carrier "Magnificent" and a tanker will proceed as far as Wakeham Bay in Hudson Straits north of Ungava accompanied by two destroyers, the destroyers coming on as far as Churchill itself. The Navy is to build a large powerful icebreaker for northern use.

6. Health, welfare and educational activities have been extended through the northwest. More health and welfare work is being done each year since the war than was done in all the time up to the war put together. I am glad to have had a hand in extending this when I was Minister of National Health and Welfare. We are learning how much more remains to be done.

7. There has been a great increase in scientific attention - by geographers and geologists, by experts surveying wild life and taking steps to conserve and enlarge the animal population.

8. Recent years have in fact been marked by a great increase in knowledge and in public interest in the north.

Perhaps a change in our attitude is best shown by two striking figures. I must confess they astonished me when I got the results of an enquiry I made. In 1938-39 the federal government spent in the Northwest Territories and in the nearby country under $1,000,000 dollars. In 1948-49 - just ten years later - the figure was over $22,500,000, twenty-five times as much. Each year the federal government is spending more money in the north than it spent in the whole history of the country up to the year 1939. And imagine that far more is going to be done.

Here in our north we have some of the great undeveloped resources of the nation. Here, also we have a moral responsibility to the native population and a direct interest in their welfare. That responsibility and interest have been recognized by much greater expenditures on health and welfare than ever before.

The north is one of the last great frontiers of the world; this country has the appeal and challenge of the still unknown, the still undeveloped, the still untamed, where man dies unless he knows the right way to live. It beckons those who can hear the call of adventure, young men and women searching for new lives, for opportunities for a life which is neither cozy nor particularly profitable. The old world of adventure and the new world of science meet in Churchill. Here is a great demonstration of the partnership that will be necessary to bring about the still newer world of co-operation.

It is a great opportunity for men and women of foresight, of courage, and of resolution. From what I have seen of the service people and civilians working in the north, I don't think you need fear that they will fail to respond to their opportunities.

The Canadian north is one of the last great frontiers of the world. It is cold, empty, inhospitable; but we ourselves live for the most part in a cold country and in the laboratories of our north our young men and scientists are experimenting with implements and instruments and with themselves in an effort to wrest from those limitless spaces knowledge and technique which may be of service to Canada and the rest of humanity. I do not think that you need fear that they will waste their opportunities.