Canada West Coast Air Defence World War Two

At the start of World War II, the west coast of Canada had little in the way of air defence capability. This included the ability to detect and track attacking aircraft as well as launching and controlling fighter aircraft to engage them.

Typical Radar Transmission System

The RCAF adopted the British **Chain Home Low** (CHL) early warning radar system during World War II to detect low-flying aircraft. While the core technology was British, Canada played a crucial role in implementing and adapting CHL for its own defense needs. Canadian scientists, engineers, and construction companies were involved in building and operating the Radar stations.

Key Players in Canada:

- **National Research Council of Canada:** Canadian scientists at the NRC were involved in radar development and research.
- **#9 CMU (Canadian Military Unit):** Played a significant role in the construction and implementation of radar stations in Canada, including those using CHL.
- **Marwell Construction Company:** A Vancouver-based company that helped with the construction of radar stations in British Columbia,

In 1942 construction of a chain of radar stations for surveillance of the Pacific Coast began. By November 1943 it was in place. Initially the stations were called "Radio Detachments" and in 1943 the title "Radio Unit" was adopted. The term "RADAR" was not adopted by Canadians until late 1943. The chain ceased operations with war's end in mid 1945.

Metrovick Radar Type T3026 transmitter assembly

Mechanical design of the equipment was entirely Canadian, and a great amount of the Canadian equipment was supplied to the United States when requirements of radar installations here were met. The west coast stations were self-contained units, and besides the CHL equipment, maintained radio navigational aid beacons for guidance of friendly aircraft, and gear for the identification of aircraft coming in,

Typical Radar |Antenna Assembly

Before Japan officially declared war on the U.S.A. the American authorities approached Canada with the proposal that they be allowed to install “Early-Warning” equipment on the British Columbia coast. The U.S. was to provide the equipment and trained personnel to operate it. The Canadian Government would provide the sites, the buildings and supplies, the United States detachments were to be under the command of Western Air Command and the R.C.A.F. would take over the handling of the detectors as soon as the Canadian personnel were adequately trained and prepared to assume the responsibility.

With the attack on Pearl Harbour the establishment of the chain of radar stations for surveillance of the Pacific Coast became a high priority. Construction of the Canadian stations began in December, 1941when builders and technicians moved into Amphritite Point and started construction of the first radar station and by November 1943 all the stations were in place thanks to the pioneering work of #9 CMU and building ability of Marwell Construction Company of Vancouver. These radar stations were integrated into a system that ran from Alaska to California.

Every item of equipment that went into the radar gear was manufactured in Canada by Research Enterprises Limited, the government owned plant at Leaside Ontario, an outgrowth of the National Research Council. Basic electrical design of the gear came from England, which pioneered in radar detection, but the circuits were redesigned for the use of Canadian radio tubes, thus eliminating supply problems.

Late in 1941 it was decided that radar protection was top priority for east and west coasts. The decision for the establishment of the chain in British Columbia was just when the skeleton organization went into action. The most important factor for operation of a radar station is location, which must be high above the surface of the sea and have an unobstructed "view" of all possible approaches of attack. Parties of RCAF technicians traveled up and down the coast in aircraft and boats to select the sites to be used, and out of the mass of material they collected in a short time, they chose the locations for the radar sites.

Fighter squadrons assigned to west Coast Air defence:

No. 2 Group. HQ Victoria, British Columbia

Squadron	Type of Aircraft	Station
No. 14 Squadron RCAF	Curtiss Kittyhawk	RCAF Station Sea Island
No. 132 Squadron RCAF	Curtiss Kittyhawk	RCAF Station Tofino
No. 133 Squadron RCAF	Hawker Hurricane	RCAF Station Boundary Bay
No. 135 Squadron RCAF	Hawker Hurricane	RCAF Station Patricia Bay

Ground controlled interception units were established at Patricia Bay and Sea Island to guide fighters to enemy aircraft that dared to penetrate the defences.

Detached operations "X" Wing. HQ Anchorage, Alaska.

Squadron	Type of Aircraft	Station
No. 14 Squadron RCAF	Curtiss Kittyhawk	Anchorage, Alaska- replaced 8 Sqn
No. 111 Squadron RCAF	Curtiss Kittyhawk	Kodiak, Alaska

RCAF (Royal Canadian Air Force) fighters were based at Anchorage and Kodiak, Alaska, primarily during World War II to support the U.S. defence of mainland Alaska and the Aleutian Islands

"Y" Wing. HQ Annette Island, Alaska.

Squadron	Type of Aircraft	Station
No. 118 Squadron RCAF	Curtiss Kittyhawk	Annette Island, Alaska

During World War II, the United States military designated Prince Rupert, British Columbia, as a

strategic sub-port of embarkation, activated in February 1942 with Canadian consent. An important American embarkation port and ammunition dump was opened at the port of Prince Rupert and Port Edward in April 1942, but Canada's ability to defend it against attack was a challenge due to the limited availability of suitable sites for airfields. The air base at Annette Island provided a location for defensive air support. Canada offered to supply a squadron of fighters for mutual defence.

Aircraft Types

Curtiss Kittyhawk: Introduced into the RCAF in 1941 three Kittyhawk squadrons operated in Alaska and the Aleutians. the P-40 was tough and reliable, attributes essential for operations in the relatively primitive conditions and harsh climate of Alaska and the Aleutians.

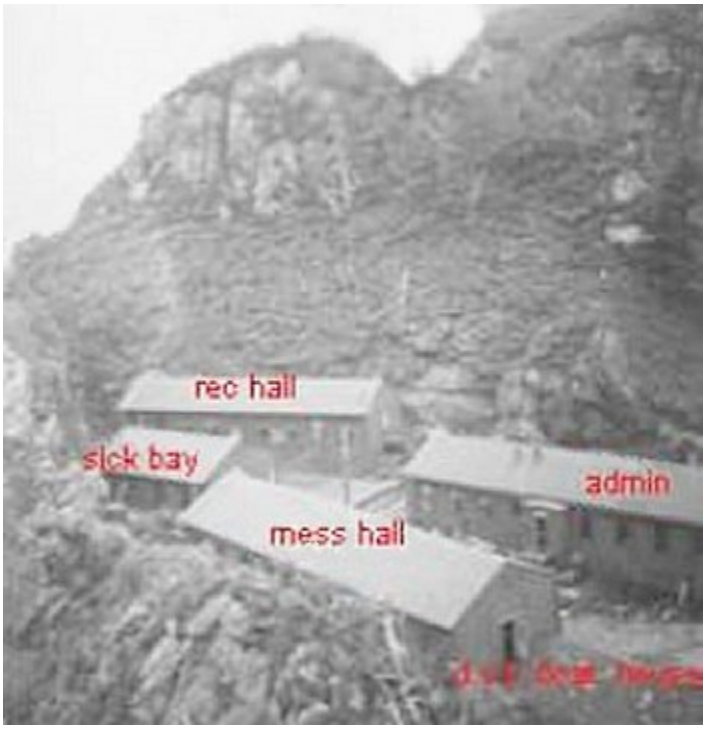
Hawker Hurricane: were used by the RCAF's Western Air Command to patrol the Pacific coast and defend against potential Japanese threats, including submarines and Fugo balloons, Hurricanes were built in this country. While not so graceful or well known as its fighting mate, the Spitfire, the Hurricane proved to be rugged in service and highly adaptable being used in a wide variety of roles and carrying diverse types of weapons and armament.

West Coast Radar Sites

History of radar in B.C. is not the glamorous, action packed story of similar organizations in England and on the fighting front it is a story of lonely vigils in outposts and utter boredom that can only come in complete isolation, the monotony of constantly repeated tasks and little or no diversion. No thought of comfort for personnel or ease of communication entered into the considerations of station location crew. Efficiency of operation was the only factor to be considered. The other difficulties would be solved as they arose. The sites are addressed from north to south.

Typical Living accommodation

Normally the accommodation included four bunk houses for the operations crews. This was intended to reduce disruption to the crews not going on watch.



Bunkhouse designs for coastal radar stations during WWII were typically prefabricated, modular wooden structures intended for rapid deployment and temporary housing. They were often referred to as "shacks" and designed to house a small crew of operators, usually four-man teams. The bunks themselves were likely simple, possibly with straw mattresses and blankets, and the buildings would have included basic amenities like a firewood cook stove.

Langara Island Northern Tip of Haida Gwaii

The Operations room adjacent to the Radar transmitter

Overview of the main site.

By and large supplies to the sites were delivered by sea as there were no reliable roads available. Particularly so in the northern locations'

At Langara, the trip ashore rivalled a ride on any roller coaster. Lacking a dock or beach to land personnel or stores, access to the Station site was by means of a high line lift that would raise a rowboat with its occupants, and/or cargo, out of the water and lift it straight up, then pull it horizontally along the highline and set the rowboat down on a flat rock surface.

The highline was a steel trolley cable fastened to a high point on each side of a very narrow sea inlet in the cliff face. Riding this highline was a small-wheeled carriage with a centre pulley mounted so a lifting cable could be fed round the pulley and head downward toward the water. The highline was perhaps 70 feet above the water surface, and the lift up was probably about 50 or 60 feet.

The rowboat, having left the supply boat standing offshore, would have to be maneuvered into this inlet. Often visiting officers of high rank on an inspection visit were given a rather hair-raising ride to remember their trip. The operator would lift the rowboat (by means of four hooks attached to the lifting cable) from the flat rock surface, with departing people sitting inside, and let it slide along the sloping highline gathering speed quickly, then brake it suddenly as it centred over the water inlet. This would cause the boat to swing back and forth.

As the rowboat stabilized, the lift operator would suddenly release the brake, letting the rowboat freefall at gathering speed until it was right above the water, he would brake it suddenly, then gently lower it the last couple of feet into the water where the four hooks had to be quickly released and the boat rowed out to the supply boat standing off shore. One needs to have experienced this to really appreciate either the scare or thrill of it, whichever. More often than not, officers so treated seldom returned to the Island!

Marble Island Centre of Haida Gwaii

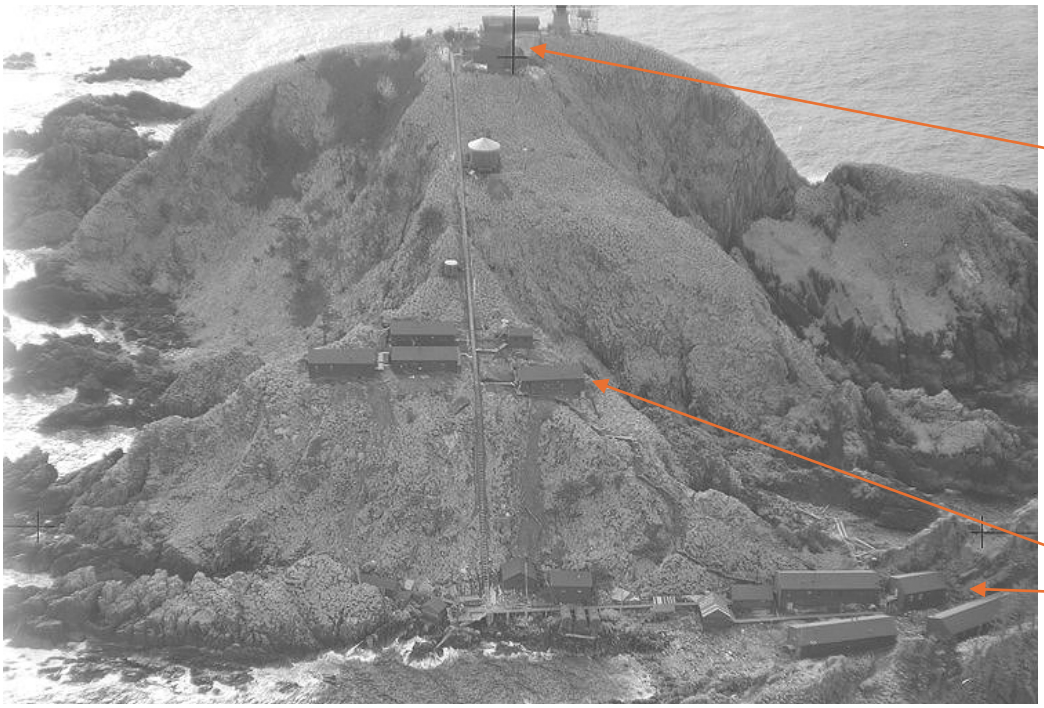
During World War II, 27 Radio Unit at Marble Island played a role in the air defence of the Pacific Coast radar system. The Pacific Coast Air Defence Radar System – World War II was part of a larger network of radar stations, filter rooms, and communication circuits used to track aircraft and surface vessels.

Radar site

Camp facilities on Marble Island

Cape St. James Southern Tip of Haida Gwaii

Delivery of supplies by boat



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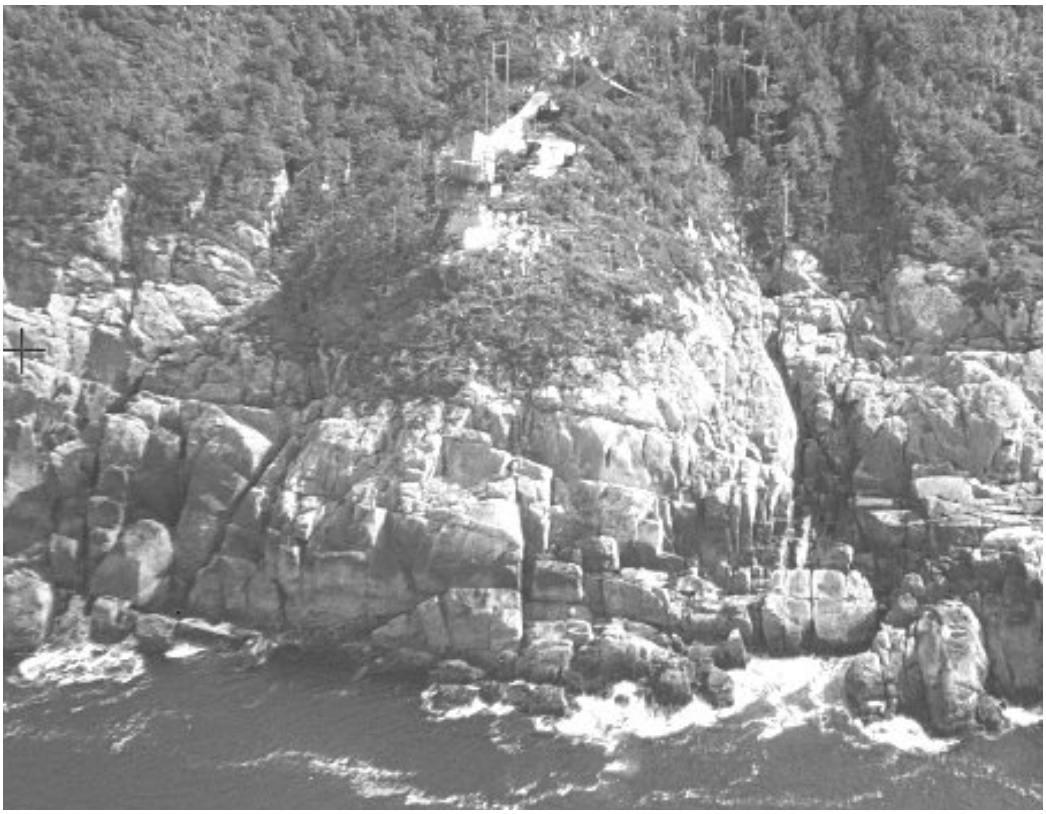
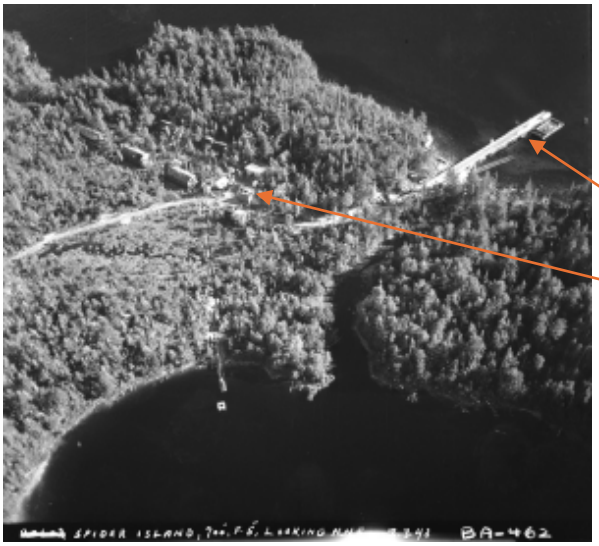
Main Camp facilities on Cape St James

Spider Island Central Coast of BC



Main Camp facilities on Cape St James



This photo shows the dock for supplies and a wooden road for moving deliveries to the camp.

Cape Scott Northern Tip of Vancouver Island

This base was considered top secret. The crew building the base used trees in the area to string their antennas. The station included six crew barracks, sick bay, canteen (which doubled as a movie theatre), mess hall, the operations centre, washrooms, and a series of plank roads. About 50 men were stationed at the base. Each shift would have a separate barracks, so as not to disturb each other when some were working the night shift.

Airial view of the site

Operations block

Wooden road to transport heavy loads

Some of the crew

Christmas dinner

Ferrer Point Central West Coast of Vancouver Island

Ferrer Point was a crucial part of Canada's WWII air defense system, serving as a Radio Direction Finder (RDF) unit detachment on the northwestern coast of Vancouver Island. Construction began in September 1942 and was completed in May 1943, becoming operational in June 1943.

The radar was constructed on a small peak called Northwest Cone that pokes up over a relatively flat area of Nootka. The operation site is removed from the main detachment – a distance of approximately 1 1/2 miles. On the actual operations site was situated a guard house, operations building, winch house and inclined railway, 380 feet long.

Two arial views of the Ops Centre

Ruminants of the Radar Antenna

Tofino Southern Coast of Vancouver Island

The site at Tofino was developed during the early days of World War II and was opened in 1943 as a RCAF "Radio Detachment". The radar at the base was used to protect the Pacific coast from enemy attack. Due to the site's remote location it was equipped with its own airfield. The base was protected by a RCAF Squadron.

Amphitrite Island Barkley Sound (Vancouver Island)

Camp and supply dock

The barrack buildings were heated by wood stoves and those occupying the buildings were responsible to supply the fuel. Electricity was generated by diesel electric generators at the station and normally two of the three generators were used.

Whenever the alternators were being switched, the operations site had to be informed so the radar equipment could be momentarily shut down to prevent damage due to a power surge. Communication with the Filter Center was by coded radio signals. After a tour of duty of about 18 months crews were normally rotated out.

In June, 1942 the lighthouse at Estevan Point had been shelled a few days earlier by a Japanese submarine. A state of alert existed and all personnel were required to carry rifles or sidearms at all times. The radar building had a few Sten guns, hand grenades and a 200-pound bomb to use if necessary to destroy the radar equipment.

Communication with the Filter Center was by coded radio signals.

Radar and Operatioms Room

Sea Island Near Vancouver

No. 147 (Bomber Reconnaissance) Squadron RCAF was a Canadian Home War Establishment (HWE) squadron. It was formed as part of the Western Air Command on July 1, 1942, at RCAF Station Sea Island, in Richmond, British Columbia in Canada where it served as a Bomber Reconnaissance Unit tasked with anti-submarine duty Bristol Fairchild Bolingbroke, a maritime patrol aircraft.

No. 147 Squadron moved to RCAF Station Tofino, British Columbia on Vancouver Island in March 1943 and, with the reduced threat of Japanese action on the Canadian Pacific Coast, was disbanded on March 15, 1944.

During World War II, Sea Island in Richmond, BC, played a significant role in Canadian air defense, serving as a training ground, a Home War Aerodrome Unit, and a base for bomber reconnaissance. RCAF Station Sea Island, established in 1940, was initially part of the British Commonwealth Air Training Plan, training aircrews for the RCAF and RAF.

Later, it became a Home War Aerodrome Unit, tasked with defending the West Coast. Additionally, it was the location of No. 147 (BR) Squadron, a bomber reconnaissance unit involved in anti-submarine patrols.

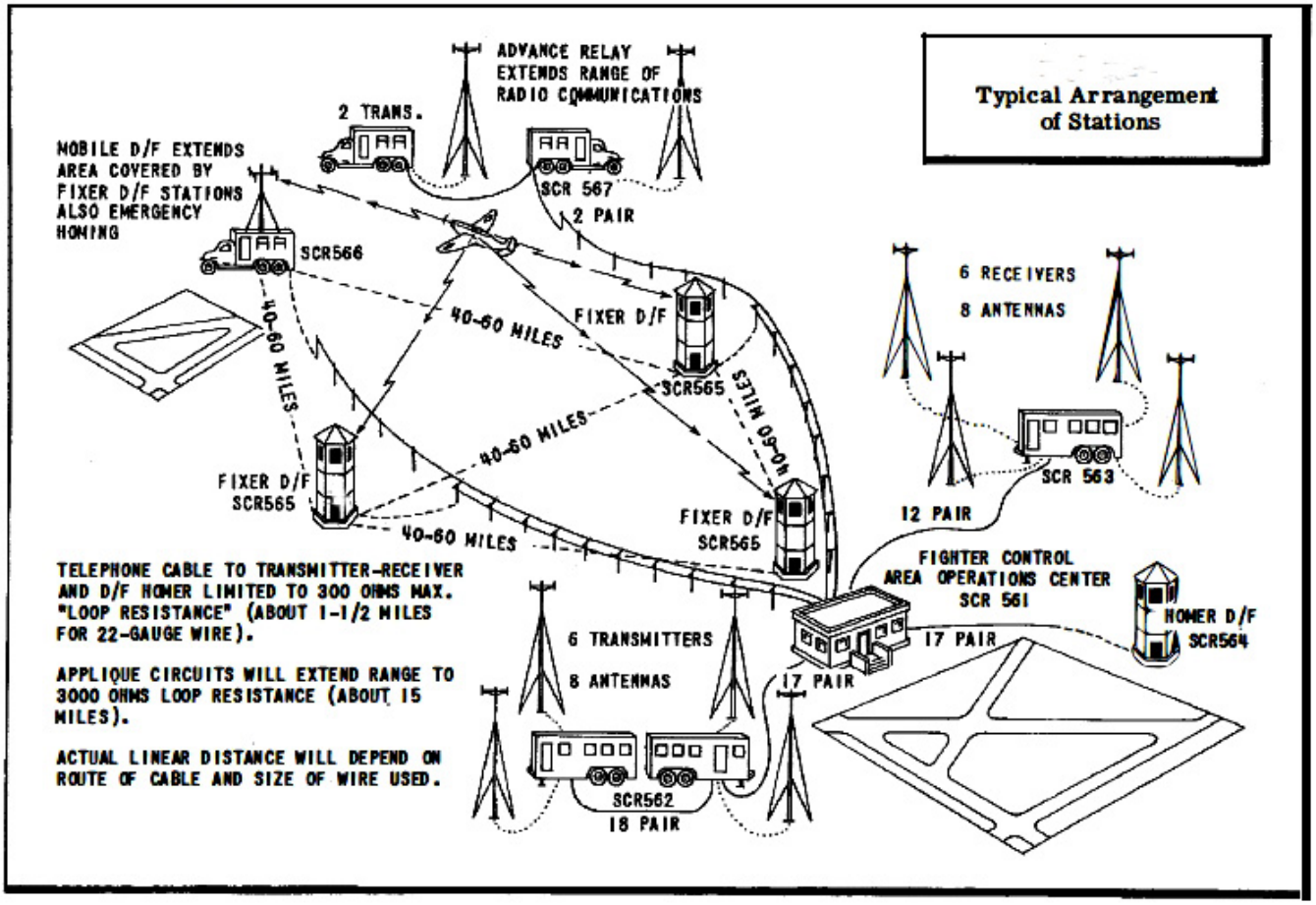
Pat Bay Southern Tip of Vancouver Island

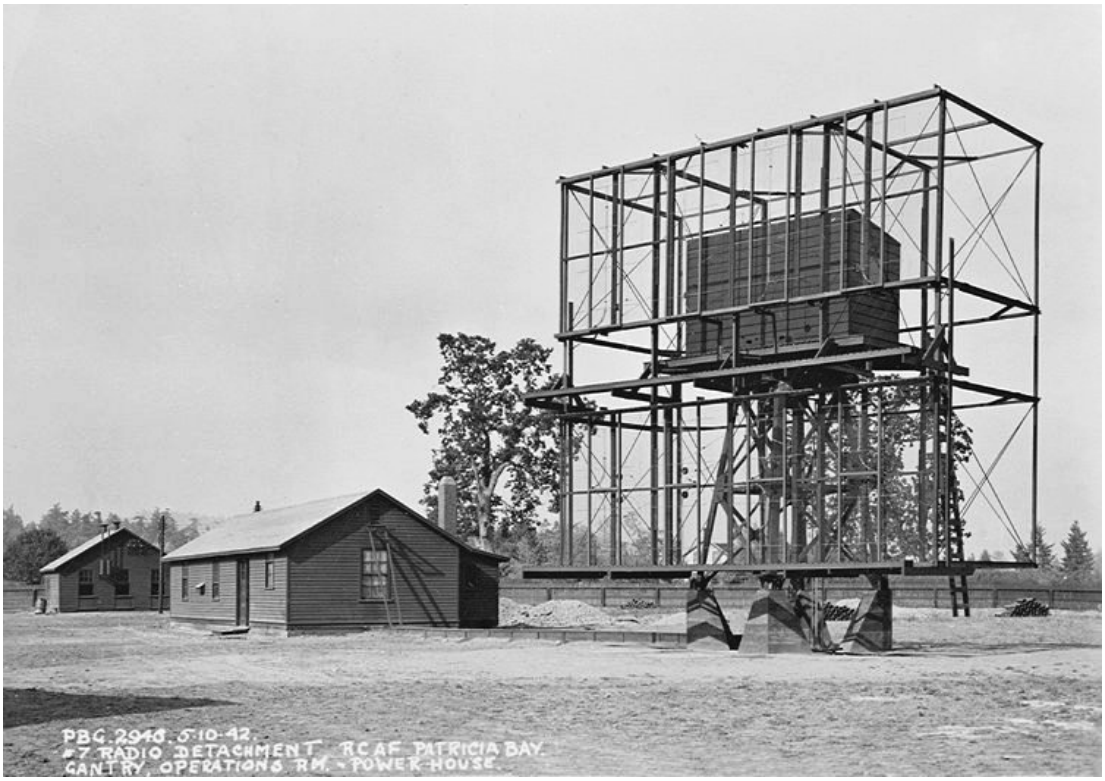
Hurricane Fighters

In addition to Radar, starting in 1942 , the RCAF installed and operated a VHF Direction Finding service atop Mount Douglas, a short distance from wartime Victoria B.C. It was part of a Fighter Control Network whose mission would be to direct fighter aircraft in case of attack by the Japanese.

In the 1940s, VHF was considered to be 99 to 156 MHz as noted in the VHF Fighter Control manual, and not 30 to 300 MHz as it is today. Installations which had the capability to perform VHF radio direction finding (VHF/DF) were called "fixers". (When the direction - finding station determined the bearing of a signal, it was termed a fix.)

The bearings measured by the fixers would be sent to a central control point which had the authority to dispatch fighter aircraft. So far the remains of two fixer stations have been identified. These are: Mount Douglas and Point No Point all in British Columbia. A much smaller hexagon base was found on Radar Hill near Tofino.





GCI Ground Control Intercept radar installed at Pat Bay