

# AN EARLY HISTORY OF THE WEST COAST RADIO SERVICE

by

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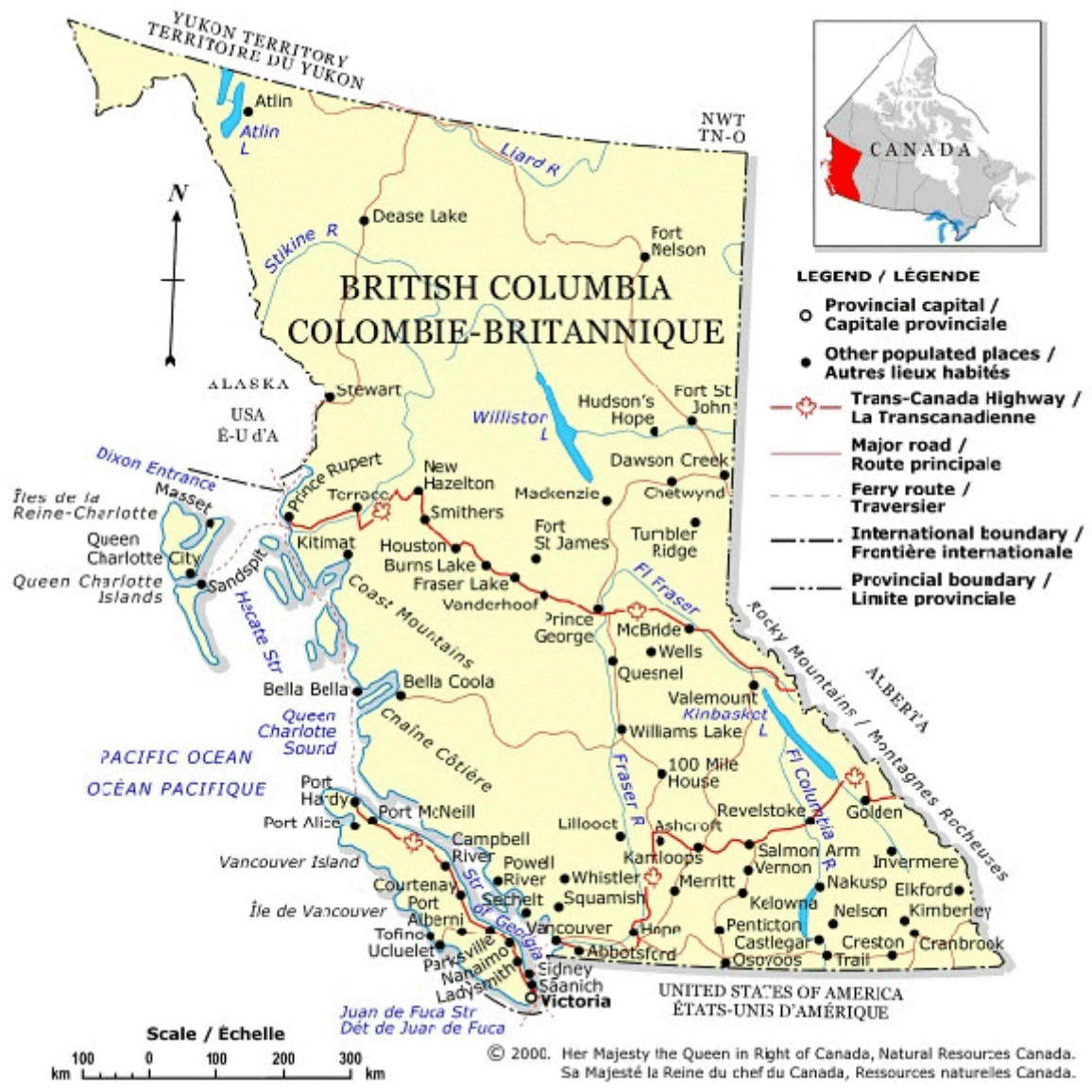
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Written for the 20th Anniversary of the  
Department of Communications

The views and opinions expressed herein are those of the author and do not necessarily represent those of the Department of Communications.

Mr. Reid voluntarily recalled his early days with the West Coast Radio Service in celebration of the 20th Anniversary of the Department of Communications.

n.b. Any reader who has additional information, old documents or photos relating to the early days of the West Coast Radio Service is invited to forward them to the Vancouver Regional Office, Public Affairs Branch. They will be held in trust until an historian accepts the challenge to document the complete history of these very first steps of our radio service past.



YUKON TERRITORY  
TERRITOIRE DU YUKON

NWT  
TN-O



**BRITISH COLUMBIA**  
**COLOMBIE-BRITANNIQUE**



PACIFIC OCEAN  
Océan Pacifique

UNITED STATES OF AMERICA  
ÉTATS-UNIS D'AMÉRIQUE

## **AN EARLY HISTORY OF THE WEST COAST RADIO SERVICE**

Wireless came early to Canada when, in 1901, the government issued a contract for two Marconi stations to be built on the Straits of Belle Isle. Later that same year, Marconi made his famous first trans-Atlantic test transmissions between Poldhu, Cornwall and St. John's, Newfoundland. In December the following year the Governor General, the Earl of Minto, opened the new Marconi trans-Atlantic wireless station on Cape Breton by sending its first message to King Edward VII.

In August 1903, an Act to incorporate the Marconi Wireless Telegraph Co. was given assent. This was followed in 1904 by issuance of a contract to the new Marconi Co. of Canada to build a chain of 23 wireless stations from Port Arthur east to the Atlantic coast. This chain was later expanded to 27 stations and an additional contract was issued for them to operate the chain for a period of 20 years. The latter contract was extended several times until 1957 when it was taken over by the Department of Transport.

In 1905, the first Wireless Telegraph Act was given assent. That same year an Act to incorporate the Fessenden Wireless Telegraph Company was given assent. Also this year, Cecil Doutre, the Dominion Superintendent of Wireless Stations for the Department of Marine and Fisheries, obtained approval to establish a similar chain of stations between Vancouver and Prince Rupert on the Pacific coast. It is a matter of some speculation why this second chain of stations had not been contracted out, however, for some reason it was made a Departmental project and Mr. E. Hughes was appointed as project engineer at a salary of \$100 per month plus a living allowance of \$40 per month.

At that time a wireless station, call sign "PW", had already been established in Victoria sometime between 1902 and 1904 by the United Wireless Co. of America and was part of a chain of stations extending south to San Diego. It is believed this station was located on present day University of Victoria property just off Cedar Hill Cross Road. The 1909 call book also listed United Wireless stations at Victoria North .and at North Vancouver, however, no evidence has been found. that they were ever built.

In 1906, Doutre and Hughes, accompanied by Capt. Gaudin, the Departmental Agent for the west coast who would be responsible for this new chain of stations, made a site selection tour of the west coast aboard the CGS Quadra. Sites were selected at Point Grey (near Vancouver), Gonzales Hill (Victoria), Pachena Point (Vancouver Island entrance to Juan de Fuca), Estevan Point (halfway up the coast of Vancouver Island), Triangle Island (25 miles NW of the northern tip of Vancouver Island), Ikeda Head (near the south end of the Queen Charlotte Islands), Digby Island (Prince Rupert) and Cape Lazo (Comox) at the northern end of the Gulf of Georgia.

That year the Telegraph Act was amended to include wireless by adding a Part IV.

Shortly after this tour, Hughes established his construction headquarters in the Department's marine yard located in Esquimalt Harbour. This yard was later moved to the Victoria inner harbour near the west end of the Johnston St. bridge. Late in 1906, the first station was opened for service at Gonzales Hill, call sign VSD, with E.J. Haughton as operator-in-charge at a salary of \$70 per month plus free accommodation.

One of the first things Haughton had to do was to learn the American Morse telegraph code in addition to the Continental code in order to deal with the telegraph line tie-in to the station.

As other stations were connected to local telegraph systems, their operators also had to learn this second code. In later years, it became a requirement for all the operators in the service to be proficient in both codes.

One of the labourers who helped in the building of the Gonzales station was Walter Howard. Howard had been a telegraph operator in Britain in the early 1890's but apparently found the life too tame, so he joined the Royal Engineers. Around 1900 he was sent out to work on improving the defences of the Royal Naval base at Esquimalt. When the Esquimalt project was completed, he returned to Britain and shortly after took his discharge from the army. In 1906 he returned to Victoria where he met Hughes who hired him to help on the Gonzales project, but Howard turned down an offer of permanent employment as an operator and instead went north to the Yukon to make his fortune. He struck out there and after a couple of years working as a fireman on a river boat out of Dawson, he returned to Victoria, joined the Wireless Service in late 1909 and got married in 1910.

In an effort to get the chain of stations operational as soon as possible, the first consideration was construction of the operational building, installation of the equipment and erection of the masts and aerials. Dwellings could follow later. These early station buildings comprised an operating room, a transmitter room (they called it the high voltage room), an engine room and a room to accommodate the operator. The latter contained a single cot with mattress, linen and blankets, a table and chairs, a kitchen cook stove and a supply of basic cooking utensils.

The usual outhouse was out back and a well supplied the water. Later they added a windmill driving a pump to supply water to the station. On sites such as Triangle Island, where wells were out of the question, rain water was collected from the building roofs and fed to cisterns. Incidentally, the wall between the operating and transmitting rooms contained a small window so the operator could observe the transmitter spark gap.

The equipment at that time comprised a one kilowatt Marconi spark transmitter, a Marconi 10 inch induction coil as an emergency spark transmitter, a Marconi magnetic

detector for a receiver and a 5 horsepower Fairbanks Morse horizontal single cylinder gas engine driving a generator with a wide flat leather belt. The emergency transmitter was powered by a bank of 24 volt wet batteries which were charged by the generator.

Wavelengths used were around 600 meters, which they called "short wave", and around 1500 meters, which they called "long wave". The designation of frequency by kilohertz and megahertz did not come into use until much later. Frequency control was very imprecise as they could only tune the aerial with fairly high "Q" inductances and large capacitors. The latter were made of sheets of copper plate with sheets of plate glass as a dielectric. These were later replaced with oil-filled capacitors. When the operator had to change frequency he had to go into the transmitter and change taps on the aerial inductance.

Initially, Gonzales was the only station supplied by a hydro system so its gas engine was used only as an emergency back-up. Also, it was the only station to have electric lights - the others used coal oil lamps. The other stations were connected to hydro systems as and when it became available.

The gas engines were only run when charging batteries or when actually using the main transmitter. Thus, when the operator received a call, he had to go into the engine room and start the engine before he could transmit his reply, and starting these early engines could often take some time. Fortunately, most ship operators knew the problem and waited patiently for the acknowledgment of their call.

Electric starters had yet to be invented so the start up procedure was a bit involved. The operator had to rotate the flywheel to a point just before the igniter would spark, prime the engine with raw gas via a small brass priming cup, check that the oil lubricator drip cups were full of oil and adjust the rate of drip, switch on the ignition by closing a small knife switch, turn on the fuel line to the carburetor and then spin the flywheel; hopefully, the engine would start.

These early engines used a "make and break" ignition system supplied from a 6 volt dry battery (Eveready Hot Shot) which was connected to an iron core inductance and an igniter whose contacts, controlled by a timing cam, would open and close inside the cylinder creating a spark. It was crude but usually effective. In 1910 a program was initiated to replace this make and break ignition system with a more efficient ignition system using magnetos and spark plugs.

The dwellings on the outside stations were initially lit by coal oil lamps but in the 20's, 32 volt battery lighting systems were installed. Later, some of the stations were wired for both 110 volt and 32 volt lighting systems. A diesel plant would usually supply the 110 volts from 8 AM to 10 PM when the plant would be shut down, then everyone would switch on the battery lighting system. During the night, the duty operator would only start up a smaller plant when needed to answer calls.

At Bull Harbour (on Hope Island, the northern entrance of the Queen Charlotte Straits), this unique system continued until the early 50's, when new Caterpillar diesels were installed and continuous power became available.

Aerial masts were made from tall trees felled locally and, after peeling the bark, they were shaped by hand using a large drawknife. Two or three such trees would then be lashed together with iron bands to form a mast 150 to 200 feet high. Erecting these masts was quite a feat considering the lack of power equipment. They relied on the use of Gin poles, blocks and tackle and a small hand operated windless.

Initially these were one man stations open from 8 AM to 6 PM, seven days a week, 365 days per year. If the operator wanted a vacation, he had to hire his own relief. By 1909, it became common practice to hire two operators and provision was made for vacation relief. New operating hours on two-man stations were 8 AM to 1.30 AM the following morning. With the increase in staff, additional accommodation had to be provided. In the case of Cape Lazo, temporary accommodation was provided in the form of a lean-to installed on the side of the station building.

In 1909, a contract was let to a New Westminster firm to build duplex houses at the stations at Estevan and Pachena Points. Unfortunately, Ottawa was short of funds so the contract did not provide for plumbing. Capt. Gaudin did, however, find sufficient material in his stocks to meet this deficiency except for bathtubs which were added the following year.

To assist Hughes in his construction program, two experienced operators were hired. Messrs. Morse and McIntyre acted as overseers during construction and then installed the wireless equipment and trained the incoming operator. At the time the bulk of the operators were recruited from the British Telegraph Services and, while proficient in the continental telegraph code, generally had no experience in wireless. Morse and McIntyre were paid \$90 per month with \$40 a month living allowance. The casual labourers were paid \$3.50 per day and their foremen \$5.00 per day.

In 1907, some land was purchased from a cattle ranch at Cape Lazo, near Comox, at a cost of \$2,000 per acre. This property and that for the Deadtree station which was built later, were the only sites purchased. The remainder were built on crown land.

Late in 1907, the station at Point Grey was made operational with Mr. Morse running it until February 1908 when J.H. Field was hired as its operator-in-charge. At that time, this station was pretty isolated with the nearest civilization being the village of Point Grey, about 5 miles away through dense forest. (The village was located in the area of present day 10th Avenue and Sasamat Street.) Supplies were brought out to the station from Vancouver by launch. Late in 1908, the CPR blazed a trail through the forest and connected the station to its telegraph service and Field now had to learn the American Morse telegraph code. The station did not get connected to the B.C. Telephone

Co until 1910 and the road connection was made in 1911.

One of the early assistant operators boarded in the village and used to ride to work on horseback over the telegraph trail. The story is told that he was once attacked by a cougar which he shot with a pistol he carried.

In February 1908, the Pachena Pt. station became operational with L.H. Bradbury as operator-in-charge. His brother, Charles Bradbury, took charge of the Cape Lazo station when it opened later in the year. Shortly after, the Estevan Pt. station was opened by Mr. Morse as operator-in-charge but he resigned not too long afterwards. With the shortage of operators at the time and, as Estevan was considered the more important station, Bradbury was moved up from Pachena and Pachena was temporarily closed and not reopened until 1910.

In early 1908, signal flags and union jack flags were issued to the stations, the latter to be flown during daylight hours.. Signal flags were hoisted to warn non wireless equipped vessels of impending storms. In March, the Department had to pay \$25 to replace a steer that had wandered onto the station property at Cape Lazo and fell to its death over the cliff. Evidently the Department had failed to comply with a clause in the Agreement of Sale requiring the fencing of the property. Needless to say they were not long in meeting the fencing requirement.

In a letter dated July 13, 1908, Haughton was promoted to Superintendent under Capt. Gaudin, with a salary increase of \$100 per month. He was also to continue as operator-in-charge at Gonzales. Later, in a letter of August 12th, the Acting Deputy Minister expressed gratitude for the good work of the wireless stations (actually it was Haughton at Gonzales) for picking up a wireless dispatch from the S.S. Victoria 703 miles west of Cape Flattery. Evidently the much nearer US Naval station at Tatoosh with its rather insensitive Carborundum detector receiver couldn't hear the vessel, but Haughton, with his magnetic detector, could.

Cecil Doutre was promoted in December 1908 to Departmental Agent for Purchasing and Contracts and was replaced by C.P. Edwards, whose background is unknown. Edwards was, however, known to be proficient in both telegraph codes and had a good knowledge of wireless operations.

Jim Harker, a former telegraph operator in the British Postal Service, immigrated to Victoria in 1909 and took temporary employment in a biscuit factory. The story he told his son was that one Sunday, while he was out for a walk in the Uplands area of Victoria, he heard code coming from a wireless building (the early spark transmitters made quite a noise). Harker went in to investigate and the operator was surprised to learn that Harker could read 25 words per minute with ease. This must have been the United Wireless station call "PW" mentioned earlier. The upshot was, the operator put



Harker in touch with Haughton at Gonzales who arranged to hire him and initiated his training in wireless. Thus began his long career in the service. Harker was assigned to Cape Lazo as assistant in 1910 and later became a Radio Inspector.

Late in 1909, the station at Triangle Island, call sign TLD, was opened with J.D. Greer as operator-in-charge. This island, 700 feet high and about 5 miles in circumference, sticks up like a mountain rising from the ocean and is located at the end of a chain of islets, rocks and reefs known as the Scott group which projects some 25 miles northwest from Cape Scott on the northern tip of Vancouver Island.

Wind velocities on the island are incredible with 100 mph being common and up to and in excess of 150 mph being occasionally experienced.

The island is treeless and covered by a kind of tundra grass which is the nesting ground for thousands of sea birds while the rocks below are home to countless sea lions. Back then, the buildings were specially braced and anchored to bed rocks with steel cables and all walkways between buildings had hand rails. Even so, in 1912, the operating building was torn off its foundation and lodged against the engine house. Only its full water tanks saved it from going over the cliff to follow the aerial masts that had already disappeared to sea.

On another occasion, the roof of the bachelor quarters was torn off, most windows shattered and the doors ripped off. Out through the openings went the three operators' bedding along with most of their clothing and personal effects, much of which was never recovered.

In a letter of January 28th, 1910, the Deputy Minister advised that E.J. Haughton would in future have complete charge of the B.C. Wireless Service and that his salary would be increased to \$110 per month, but he was also to continue running Gonzales. Hughes was to become District Engineer also with a salary of \$110 per month but his \$40 living allowance was discontinued and he would be thereafter on a straight expense account.

A. Buchan reopened the Pachena Point station, KPD, in February 1910, and reported that the station was in very poor condition after its period of closure. Evidently the roof had been leaking and had caused considerable damage. He also complained about having to hike the ten miles over the Life Saving Trail from Barnfield through a foot of mud and snow while carrying two suitcases and a new "tuner".

This trail today is known as the West Coast Trail and is part of the Pacific Rim National Park.

In a letter dated June 29th, 1910, Ottawa advised that a parliamentary committee headed by the Right Honourable Sir Wilfred Laurier would be touring the west coast and was to be given free wireless service.

In mid 1910, the station at Ikeda opened, call sign AKD, with A.F. Whiteside as operator-in-charge. This new station soon found a source of telegraphic revenue when the first telephone service in the Queen Charlotte Islands was opened between the station and Ikeda mine, over the ridge to the Jedway Harbour Hotel and on to several other mines in the area. Ikeda was noted for having, at that time, the tallest wireless aerial mast on the west coast with a height of 225 feet.

Earlier in the year in a letter dated January 11th, Haughton had urged extra pay for the more isolated stations, particularly at Triangle Island. This appeared to bear fruit as later in the year some increases were made. In this same letter he went on to comment on some staff transfers and discussed the "not yet enforced" rule against placing none other than married men in charge of stations. He suggested that the property of the government and the service would greatly benefit if this rule were strictly adhered to. Shortly after, C.P. Edwards instructed the enforcement of this rule saying that where a station was already in the hands of a single man or, where a single man was about to be appointed to a station, he would be expected to give a commitment that he would get married within one year.

In mid year, Haughton's wife died leaving him with a young daughter to raise. He never remarried. C. P. Edwards sent a handwritten letter of condolence using stationery from the Grand Trunk Hotel, Prince Rupert, where he was staying while inspecting the construction progress on the northern stations.

During that year, most of the stations were equipped with new 2 kilowatt rotary spark transmitters. Also, most stations were staffed with two operators and Gonzales with three.

Due to the death of King Edward VII, all correspondence coming out of Ottawa was edged in black from the mid to the end of the year.

In a letter dated August 24, 1910, the Assistant Deputy Minister of Marine and Fisheries advised Capt. Gaudin that all wireless stations would in the future come under the jurisdiction of the newly created Department of the Naval Service. Gaudin was advised to turn over all books, files and papers to E.J. Haughton who would be the Superintendent in charge.

In August 1910, Haughton reported to Ottawa that he had inspected four amateur stations in Vancouver owned by Messrs. R.N. Lockner, C. Roddis, R. Buch and R. Kelly. Kelly appeared to be the only one who was able to copy code and who had copies of private correspondence between Pt. Grey and Gonzales.

With the exception of Mr. Roddis, none of the men had a definite objective in view but were merely using their sets as a "pastime". Mr. Roddis claimed to be experimenting in the transmission of power. Haughton went on to state that the men had been causing interference to ships entering Vancouver Harbour. In one instance,

when the CGS Quadra was towing a disabled vessel in a gale, the captain could not raise Point Grey to request some assistance because of this interference.

Haughton requested some restriction be put on the indiscriminate use of wireless as the "fad" was spreading.

On December 3rd, 1910, at 2.30 AM, after the Government stations were closed for the night, the SS Northwestern which was bound for Nome, Alaska, from Seattle, went ashore at Pile Point on San Juan Island, about 16 miles northeast of Victoria. The vessel sent out a wireless distress call which, fortunately, was picked up by the operator on the S.S. Tees, tied up in Victoria. The operator on the Tees had stayed up to do some repairs prior to sailing the next morning. He alerted the ship's master and the Tees set sail and rescued all on board the SS Northwestern.

This report must have given C.P. Edwards the ammunition he needed because on December 19, he advised he had received authority to employ additional staff to provide 24-hour service at Gonzales, Point Grey, Cape Lazo, Triangle Island, Pachena Point, Estevan Point and Digby Island. He went on in his letter to say that once 24-hour operation was established, he would close down the United Wireless station in Victoria.

In an undated hand-written letter in late 1910, C.P. Edwards advised Haughton that a Christmas box had been authorized for the staff at the U.S. station at Tatoosh. Haughton was instructed to send the receipts directly to Edwards since he had arranged for payment out of the Deputy Minister's personal expense account. He went on to suggest that the box should include a box of good cigars and a case of champagne, but that the total cost was not to exceed \$40.

On his appointment as District Superintendent in mid year, C.P. Edwards instructed Haughton to install a partition across the living room of the dwelling at Gonzales and to set up his office on one side. He even included a list of suggested furniture.

Haughton appeared to go along with this idea but in December 1910, the Deputy Minister discovered that Haughton had, without authority, set an office in the Post Office building on Government Street in downtown Victoria (site of the present District office). The letter didn't seem to faze Haughton since he just ignored it and continued to occupy the office until his retirement in the late 30's. At the end of the year, he even applied for authority to hire janitorial service at a cost of \$15 per month.

The Deadtree station, located a few miles north of Skidegate Mission on North Island of the Queen Charlotte Island chain, was opened in 1911 with Walter Howard as operator-in-charge. This station had not been included in the original chain of stations envisaged by Doutre and Hughes in their survey of 1906, but was the result of a political decision brought about by a strong lobby made by the citizens living on North Island

who wanted some form of communication with the mainland and saw wireless as the answer.

With the establishment of the Deadtree station, the Government Telephone and Telegraph Co. established a service to connect the station with Queen Charlotte City, Skidegate Mission, Tlell, Port Clements and Massett. This made the station a popular assignment as the operator received not only his salary of \$85 per month, but additionally a stipend for managing the telephone and telegraph service.

On January 26, 1911, the S.S. Cottage City was wrecked off Quadra Island. Her distress call was picked up by the Cape Lazo station who implemented rescue operations and all on board were rescued.

Between 1911 and 1914, an extensive recruitment campaign for telegraph operators in the United Kingdom resulted in most stations becoming staffed with four operators.

Among these were some of the more prominent pioneers of that time: Jack Bowerman, Tommy Raine, the Gray brothers, Sid Elliot, the Neary brothers, Sid Jackson, Harold Tee and Jim Daniel.

In 1912, an additional station was established at Alert Bay to provide improved coverage of the inside passage.

After three previous conventions where little had been accomplished, the major nations of the International Radio Telegraph Convention, London 1912, finally agreed to some far reaching International Regulations: to drop the name "wireless" and replace it with "radio" ~ adopt the European Continental Telegraph code as the International Radio Telegraph Code ~ establish basic standards for radio operator certification~ set up a table of message tariffs and adopt the French Franc as the medium of exchange~ to adopt the signal SOS as the international signal of distress which would receive priority over all other communications~ and to set up a committee to sort out the call sign mess and to assign blocks of call letters to the various nations.

Within a few months of the Convention, the new distress call was used by the Titanic when she collided with an iceberg in the North Atlantic and sank, incurring a huge loss of life.

Shortly after the Convention of 1912, the Postmaster General of Great Britain issued a "Handbook for Wireless Telegraph Operators" which was adopted throughout the Empire and by most of the Dominions. Haughton made frequent reference to it in his circular letters to the stations.

A new Canadian Radio Act was given Royal assent on June 6, 1913, which cancelled Part IV of the Telegraph Act of 1906.

With the outbreak of WWI in August 1914, the male members of the West Coast Radio Service were put in naval uniform. The radio operators became Warrant Officers, Houghton became a Lieutenant and C.P. Edwards a Lt. Commander. They all continued to receive their civilian rate of pay. The engineering staff under Hughes were busy installing radio equipment on the obsolete cruiser HMCS Rainbow, on the two recently acquired submarines and on other smaller naval vessels.

The acquisition of the two submarines occurred when the Government of Columbia (South America) reneged on payment for their construction to a shipyard in Seattle.

When the German Government showed an interest in the purchase of these submarines, the Premier of British Columbia rushed an emergency bill through the legislature and bought them.

Thus for a few days B. C. had its own navy until the Dominion Government took them over. .

Once war was declared, army infantry detachments were stationed at the Pachena Point, Estevan Point and Triangle Island stations to guard against possible raids by German landing parties.

The fear of German raiding parties landing on the coast was well founded since, as soon as war broke out, the German East Asia Naval Squadron based at Tsing-Tau, under German command, sailed into the Pacific Ocean under the command of Admiral the Count Von Spee (the WWII pocket battleship *Graf Spee* was named after him).

His squadron comprised two modern heavy battle cruisers, three light cruisers and four armed merchantmen. He detached one of the latter, the *Emden*, to raid in the Indian Ocean and her operations created a legend of daring exploits and of great humanity in the care and treatment of captured prisoners.

In September 1914, one of the German light cruisers, the *Nurnberg*, flying a French flag, put a landing party ashore on Fanning Island and destroyed the cable station and severed the Trans-Pacific cable.

British Columbians living along the coast expected to see *Von Spee* appear on the horizon at any moment, brush aside the Canadian Navy and mount an attack. Fortunately, *Von Spee* had greater worries, namely the Japanese who, with their powerful navy, joined the side of the allies and dispatched a heavy squadron to search out and destroy *Von Spee*. The Japanese took over the protection of our coast and even kept a heavy cruiser based at Barnfield until the crisis passed.

On November 1, 1914, *Von Spee* defeated a British Naval Squadron under the command of Admiral Craddock, at the battle of Coronel off the coast of Chile. Craddock

and most of his squadron were sent to the bottom of the sea while only minor damage was done to the German ships. One badly damaged British cruiser managed to break away into the South Atlantic and made her way to the Falkland Islands.

Needless to say, this action caused a lot of concern throughout the British colonies in the Pacific and in Australia and New Zealand. These two Dominions refused to let ships carrying their troops to Europe sail until Von Spee was brought to heel. Fortunately, Von Spee feared that the powerful Japanese Squadron would "descend on him, obtained supplies and coal from neutral ports and then headed off. He planned on occupying the Falkland Islands and using them for a base for raiding in the South Atlantic. This was his mistake. Unknown to him, a powerful British squadron had gathered there to meet him. The battle started just after noon on December 8th and after three running engagements, Von Spee and most of his squadron were sent to the bottom of the sea with few survivors.

In 1915, new call signs were issued to the stations to conform with the block of call letters assigned to Canada as a result of the International Radio Telegraph Convention of 1912.

The need for better coverage of the North Pacific by the Estevan Point station was soon obvious, so a 7.5 kilowatt transmitter was installed with a huge single cylinder diesel engine and generator to power it. This engine was started by compressed air and was the latest thing at that time. With this increase in power plus an outstanding location which had exceptionally high ground conductivity, the station put out a tremendous signal. Few believed the relatively low power it actually used. It was low compared to the many U.S. stations using 250 to 500 kilowatts and to the one million watts used by NAA on the east coast.

## WEST COAST RADIO STATIONS

<u>First Call Sign</u>	<u>Location</u>	<u>Call Sign After 1915</u>
VSD	Gonzales Hill, Victoria	VAK
KPD	Pachena Point	VAD
USD	Estevan Point	VAE
TLD	Triangle Island	VAG
AKD	Ikeda Head	VAB *
PGD	Pt. Grey, Victoria	VAI
DTD	Deadtrees Pt., Q.C.I.	VAH
SKD	Cape Lazo	VAC
unknown	Alert Bay (added in 1912)	VAF

\* This call sign was re-assigned to the station established in downtown Vancouver in 1923 at 815 West Hastings Street.