

# Listening In Articles

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## Ottawa Monitoring Station

Original article by O. Ernie Brown

<http://members.shaw.ca/va3oeb/intercept.htm>

In January of 1942 I reported to Department of Transport Headquarters in the old Hunter Building in downtown Ottawa, Ontario. A technician drove me out to the Monitoring Station on the Experimental Farm, where I was introduced to Ed Davey, the Officer in Charge, and Buster Doubleday VE3NF, who would be my shift supervisor [*Both gentlemen now deceased*].

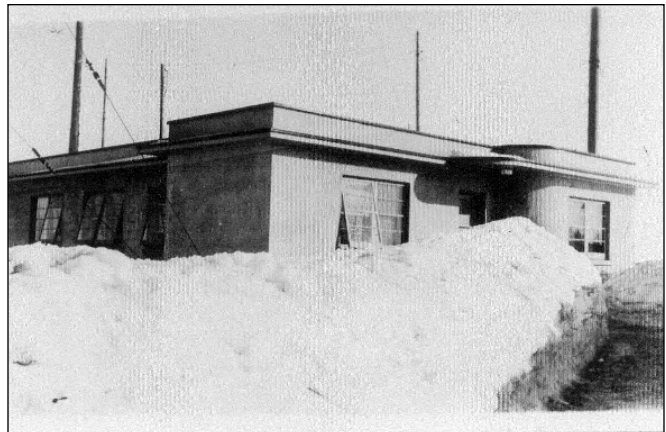
Buster showed me into a room with a large number of operating positions, and set me at the position next to his desk. The HRO receiver was tuned to the German Coast station MMA, and my job would be to copy everything I heard. The messages were in five-letter code groups and I had no trouble copying the automatic sending at 15 to 20 wpm. I was told to be alert for any signals with different tone and with hand sending, and to identify them as 'mobiles', that is U-Boats, sending reports. When such a signal was heard there was an intercom at each position to a Direction Finder hut out in the field. By saying "MOBILE ON MMA" into the Intercom, we would alert the DF operator to take a bearing as quickly as possible on the signal, which would normally be a short message of just 5 letters. I will tell you more about the DF Operator later.

At first I copied all messages by hand, but soon graduated to using the typewriter, or 'mill' [a typewriter with all capitals and numerals] provided at each position. There were 16 operating positions, each tuned to a different frequency, or station. There was also a teletype position where all messages we copied were sent on to Naval Headquarters, or 'Admiralty'. Some were quite active with a steady stream of messages

as with MMA, while others had little or no traffic, but the frequency had to be monitored in case the enemy started using the frequency. The Direction Finder was located in a separate small building.

We monitored the frequencies requested by Naval HQ, and forwarded all messages copied to 'Admiralty' via teletype. The operator on the teletype alternated with the operator in the Direction Finder each time they came on duty. The Naval Service also had monitoring stations where the searching or scanning of frequencies was done, and they advised us when to change frequencies, or to cover new frequencies.

This account honors the memory of the hundreds of Radio Operators who participated in the Interception of Enemy Wireless signals during the War years.



above: The Ottawa Monitoring Station in 1942

## Origins of the Monitoring Station

Around 1935, Ed Davey was the operator at VAA, the Ottawa communications station for keeping in touch with the Northern stations in the Hudson's Bay and Straits, in the Eastern Arctic, and on the East and West coasts. He had also been asked to use the frequency measuring equipment to check the broadcast station frequencies, since their transmitters were using MOPA [Master Oscillator Power

Amplifier] which were prone to drifting in frequency with temperature changes. The broadcast stations had no frequency standard of their own at that time. Operations began in the Radio Test Rooms on Wellington St., but interference from street cars and other electrical equipment generated a lot of noise in the receivers. Space was found in a greenhouse on the experimental farm, but the high humidity caused problems, so the equipment was moved to vacant rooms in the T. R. Booth farmhouse near the corner of Baseline Rd. and Prescott Hwy. [Now Prince of Wales Dr.] Only the barns of that farmstead are still standing. Other monitoring stations were set up at Father Point on the East Coast, at Strathburn in SW Ontario, at Forest, near Rivers, MB, and at Point Grey in Vancouver BC.

With War in Europe threatening, there was an understanding between Departments that the Department of Transport Monitoring Stations would provide the basis for a monitoring service to intercept enemy communications. In 1939 two operators were added to the staff and some frequencies to monitor were assigned. Naval HQ requested more coverage and the build-up of staff began. Very soon the bedrooms of the Booth farmhouse were fully occupied with receiving positions, and overflowing to the hallways and the living room. There was no Direction Finder in Ottawa at the time, but a DF at St. Hubert in Quebec was connected to the Ottawa station by a dedicated line for an intercom. All mobiles were reported to St. Hubert. In the summer of 1941 a new building was erected to accommodate the VAA operator, the frequency measuring equipment, and 16 operating positions, as well as a teletype room, and offices.

A phased move of operators from the Booth farmhouse to the new station took place from October to December of 1941. The Direction Finder was installed at the same time. The station staffing grew to a peak of 125 before the end of the war in Europe, and this included a large number of women radio operators in 1944-45.

In the fall of 1942 I was assigned to learn the DF operating procedures, working with a senior operator who was soon to leave for a posting to a Northern station, and before long I was the DF operator. Early in 1943 there was a call for volunteers to serve on the Radio Range Stations of the Northwest Staging

Route through Northern BC and the Yukon. I put my name in and was among the first group of operators transferred to the West.

At the end of hostilities in Europe, some of the Ottawa staff were assigned to learn the Japanese 'KANJI' code, and were transferred to Vancouver. Others were assigned to tours of duty on northern stations, or were transferred to the growing number of Radio Range stations being installed in the Western Provinces. Station VAA and the Frequency Monitoring function remained at the Ottawa station for many years.

### **Monitoring Services**

Ottawa was not the only Monitoring Station participating in the Interception of Enemy Wireless traffic. Department of Transport had stations at Strathburn, ON.; Hartlen Point, NS.; Rivers [or Forest] MB.; and Point Grey at Vancouver, BC.

RCN had Wireless Station CFF located on the Experimental Farm [in Ottawa - editor].

CFF provided communication with their ships at sea as well as monitoring enemy communications. During the war they added many stations to intercept enemy wireless signals, and the WRENS provided the operating staff.

RCCS operated No 1 Canadian Special Wireless Group at Leitrim, to provide communications as well as interception of enemy wireless signals. I believe there were many more such stations.

Bletchley Park in the UK was the centre for decryption of enemy communications, and so far as I know this was the destination of all traffic we copied and forwarded to 'Admiralty'. A book written about the exploits of Bletchley Park gives the impression that they operated alone, but in fact a very large network of stations were intercepting all kinds of signals and forwarding the flow of signals into their decryption system.

USA got into the activity also, and on one web site, found under a search of HF DF, they stated that by the end of the war in Europe, more than 40 US, British and Canadian DF stations were providing

bearings on U-boat signals.

## Direction Finding

The Direction Finder antennae were four vertical masts in the Adcock configuration. The masts acted as if they were loops, with each pair of diagonally opposite towers connected to one winding of the goniometer fixed coils. The goniometer is an arrangement of two fixed coils, oriented at 90 degrees to each other, wound on an insulated form, with a smaller rotatable coil within that form, connected to an external receiver, in this case an HRO receiver. The effect was a reproduction of the electromagnetic field, sensed by the external masts, within the goniometer. A signal from a distant transmitter would be reproduced within the goniometer, and the rotor would sense a null signal in the direction of arrival, that is, pointing toward the transmitter.

The DF operator had to memorize the HRO receiver coil number and dial setting for the most active frequencies in use by the Germans. [The HRO used plug-in coils, each covering a range of frequencies, to tune to different portions of the RF bands. The 'band switch' in later receivers accomplishes this function.] When the call on the intercom said "MOBILE ON MMA", the operator changed the coil if necessary and spun the dial to the setting for MMA, and on hearing the signals would rotate the goniometer dial looking for the null. The dial was calibrated in degrees from North, and virtually all signals came from the NE quadrant, that is the North Atlantic. We were lucky to get one swing through the null, giving a Class C bearing, before the transmission ended. If the message was longer and a second swing of the dial gave a better indication of the null, that would be a class B bearing. A class A bearing would have been three or more confirmations of the null bearing, which we hardly ever achieved, since the messages were so brief. We had charts for frequency versus coil number and dial settings for all monitored frequencies, but the operators memorized the coil numbers and dial settings for the most active stations only. I do not recall the frequencies, but believe they would be around the 6 to 8 Mc [40m] band.

## Recollections of the Ottawa Monitoring Station

Bill Wilson was a Director General in the Department

of Communications when Ed Davey wrote the letter quoted below. Ed Davey was the first Officer in Charge at the Ottawa Monitoring Station. Mrs. Dool was the widow of Frank Dool, a senior operator at the Monitoring Station. All other persons named were radio operators at the station during the War years.

In a letter to Bill Wilson in 1967 Ed Davey wrote in part about the days when he was the receiving operator at VAA and the subsequent development of the monitoring service:-

*"--the receiving station was a partitioned-off end of a greenhouse in the Arboretum---Due to the excessive humidity and general unsuitability of the greenhouse C.P. Edwards obtained permission from Dr. Archibald, then director at the Canadian Experimental Farm to use the unoccupied side of the old T. R. Booth farmhouse still standing near the corner of the BaseLine Road and the Prescott Highway. -- Since VAA receiving station occupied one room only, the powers that were decided to move the frequency standard and receivers from the Test Room to the Booth Farmhouse and make the fullest use of the VAA receiving operator to operate the equipment in his spare time --- the undersigned became the first monitoring operator in the Radio Branch. (About 1934---)."*

Mr. Davey reports further that in 1936 he had to take sick leave and Charlie Rose was brought in from the East Coast to fill in. When he returned from sick leave he was assigned to the monitoring duties while Charlie Rose stayed on VAA. In 1938 Gerry Gard was assigned as full time help. Further quoting from Mr. Davey's letter:

*"It was the policy of HQ that the monitoring service would form the nucleus of an Interception Service in case of war." --- "This brings us up to 1939 - the demands of the Foreign Intelligence Service under Commander J.E.F. DeMaribois caused an increase in staff at the Ottawa Monitoring Station to a peak of 125 and resulted in the new station on the Merivale Road which also continued as a regular Frequency Monitoring Station after the war." ❖*