

Operating on 630 metres: Why and How?

Presentation to WARA

20 March 2018

by

Roger Graves, VE7VV

Operating on 630 metres: Why and How?

- **Brief History of 600m (“Why and How on 600m?”)**
- **VE7 activity on 630 - (“Why is it interesting?”)**
- **A few VE7 630m stations - (“How do we do it?”)**
- **Demo of VE7VV station (“How do I do it??”)**

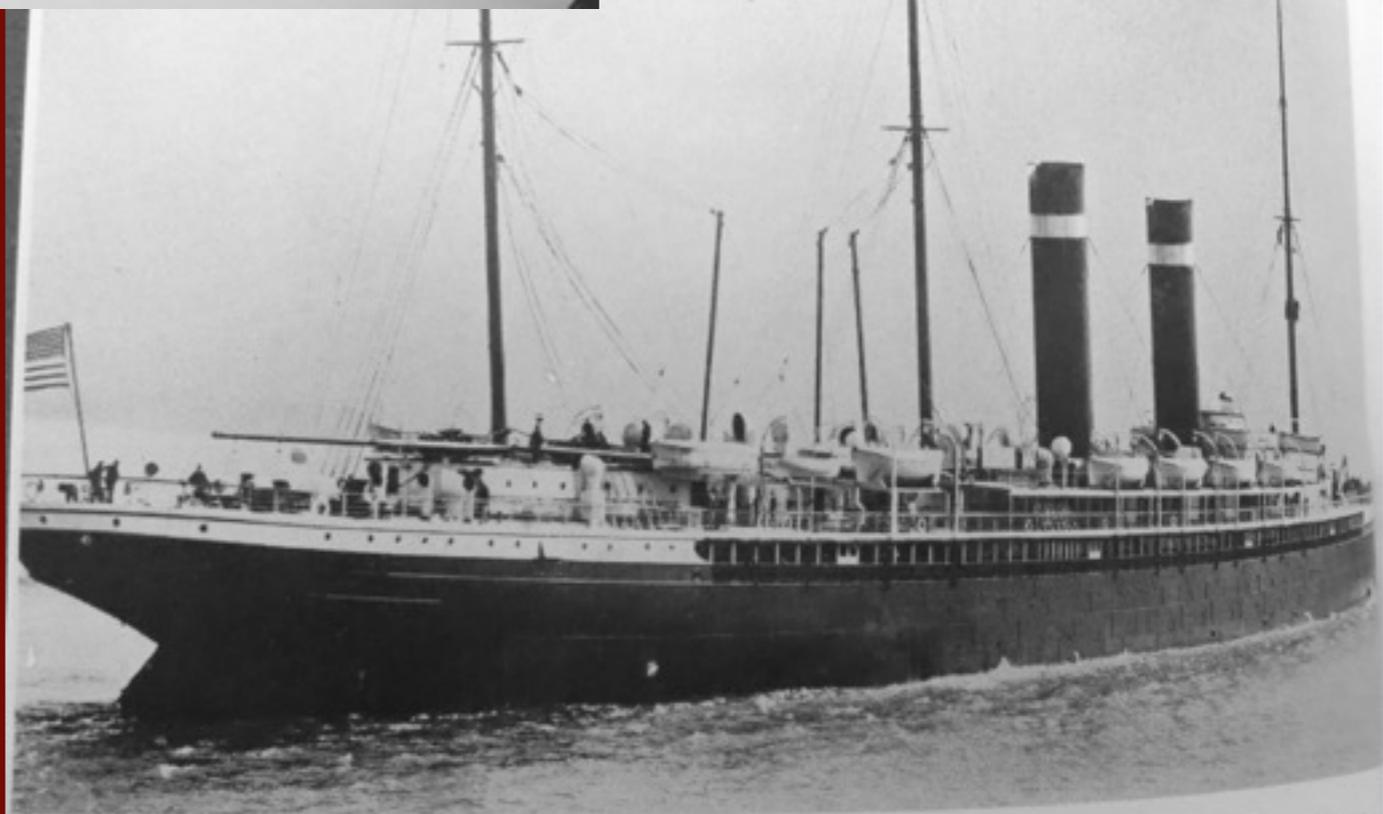
RAPID ADOPTION OF MARITIME WIRELESS

1898 - Marconi's first 2-way wireless ship to shore link

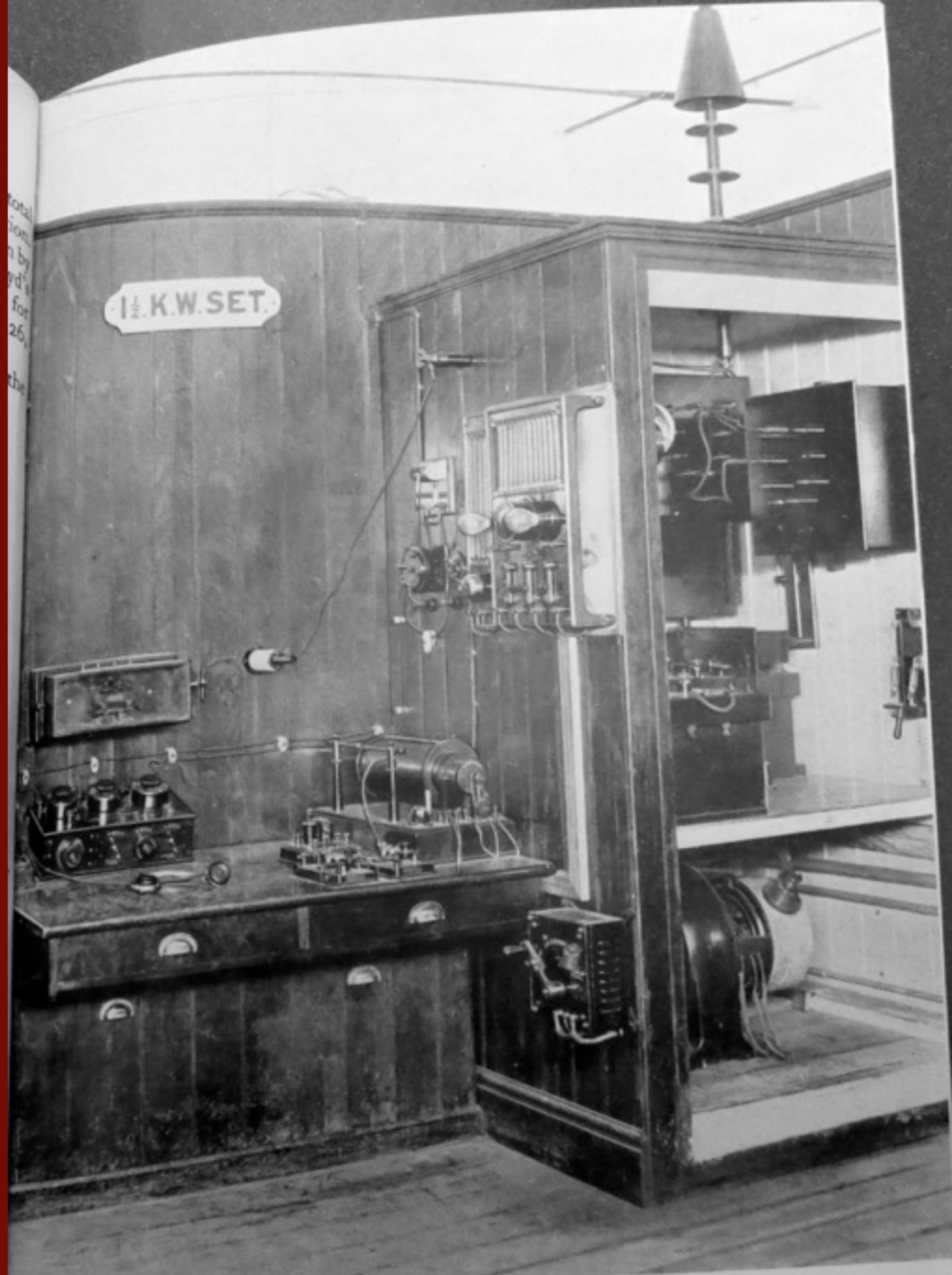


Photograph by courtesy of The Canadian Pacific Railway

The S.S. 'Lake Champlain' the first ocean-going British ship to be fitted with Marconi's wireless telegraph apparatus in 1901. This vessel was then owned by the Beaver line, which was a few years later taken over by the Canadian Pacific Railway Company



The S.S. 'Philadelphia', in which, in October 1902, readable messages were received from Poldhu up to a distance of 1551 miles, and test letters as far as 2009 miles

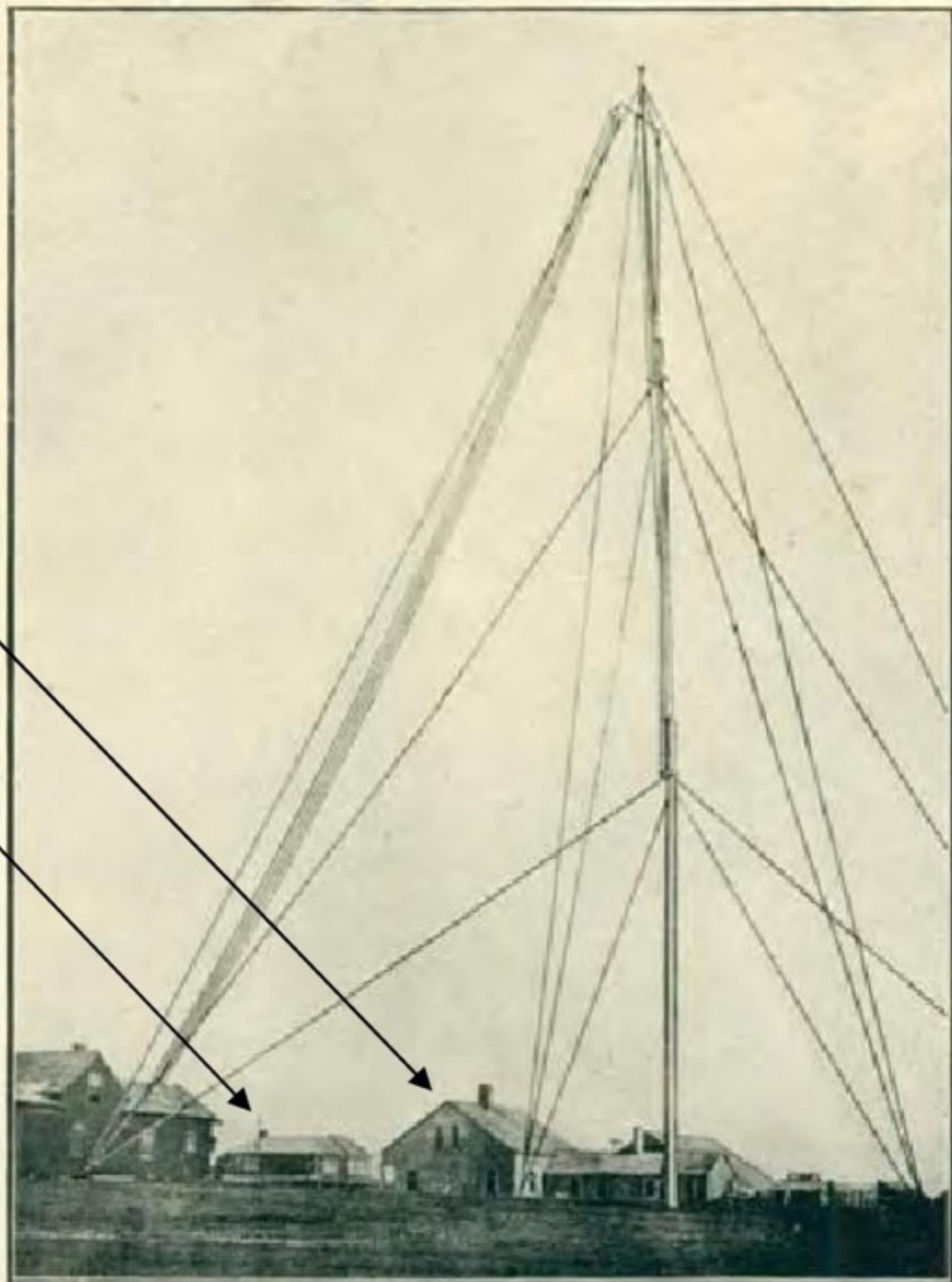


Early ship's wireless installation, 1 1/2 kilowatt rotating spark gap and induction coil emergency transmitter, and Multiple Tuner with Magnetic detector for reception

RAPID ADOPTION OF MARITIME WIRELESS

1898 - Marconi's first 2-way wireless ship to shore link

1901 - First US coast station

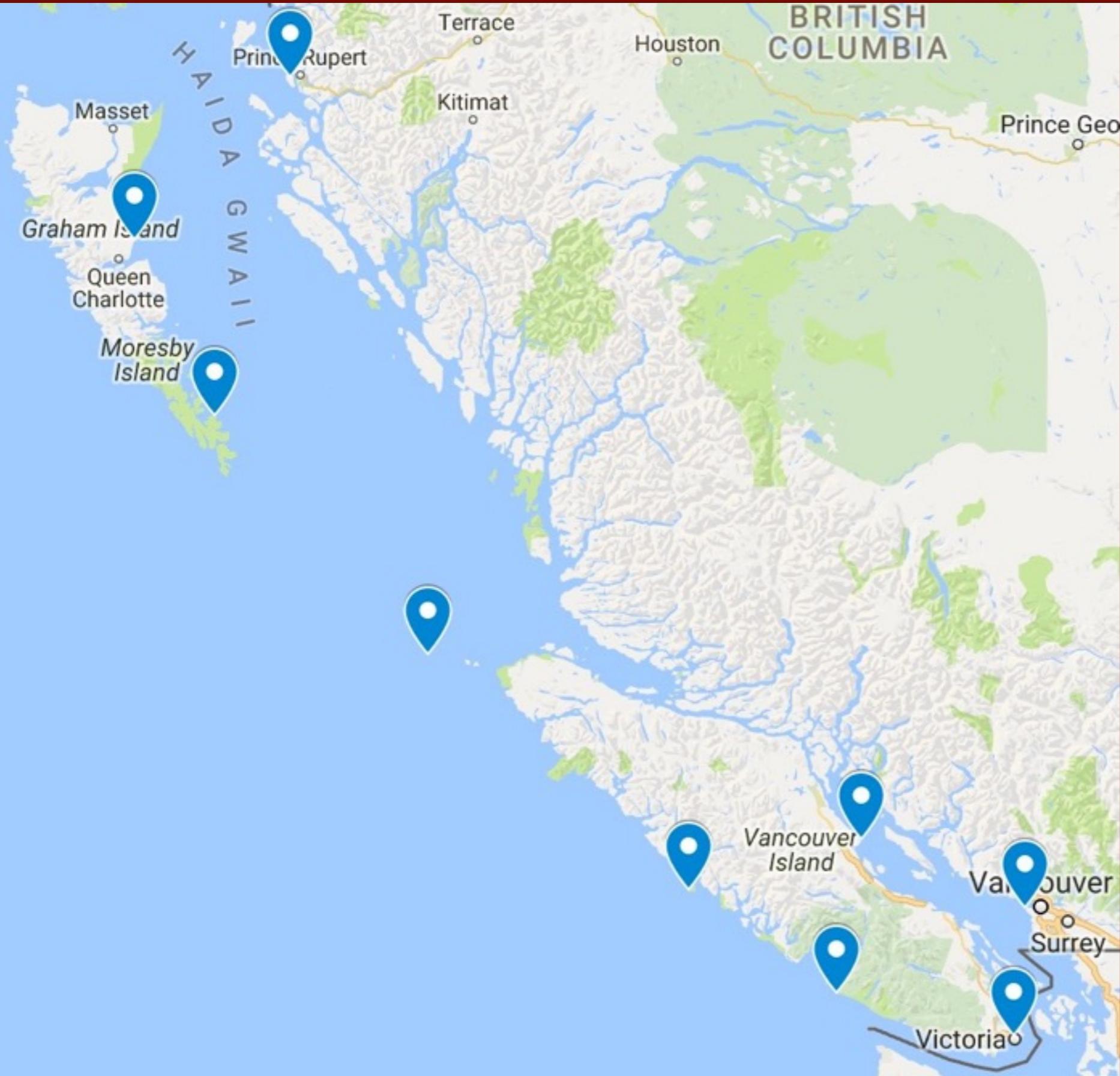


MARCONI'S WIRELESS TELEGRAPH STATION
AT SLASCONSET

Slasconset Historical Association

RAPID ADOPTION OF MARITIME WIRELESS

- 1898 - Marconi's first 2-way wireless ship to shore link**
- 1901 - First US coast station**
- 1902 - First Canadian coast station, Glace Bay NS**
- 1903 - 75 wireless land stations built or under construction**
Many oceanic ships already fitted with wireless
- 1904 - First Canadian govt station at Fame Pt PQ**
- 1906 - 13 Marconi stations operating in Eastern Canada,**
105 stations operating worldwide
- 1908 - Four BC stations operational during daytime**
Only 1 ship on BC coast route fitted with wireless
- 1911 - 35 stations San Diego to Alaska, most ships fitted**
Eight BC stations operating 24/7



1908

- Gonzales Bay**
- Point Grey**
- Cape Lazo**
- Pachena Point**
- Estevan Point**

1911

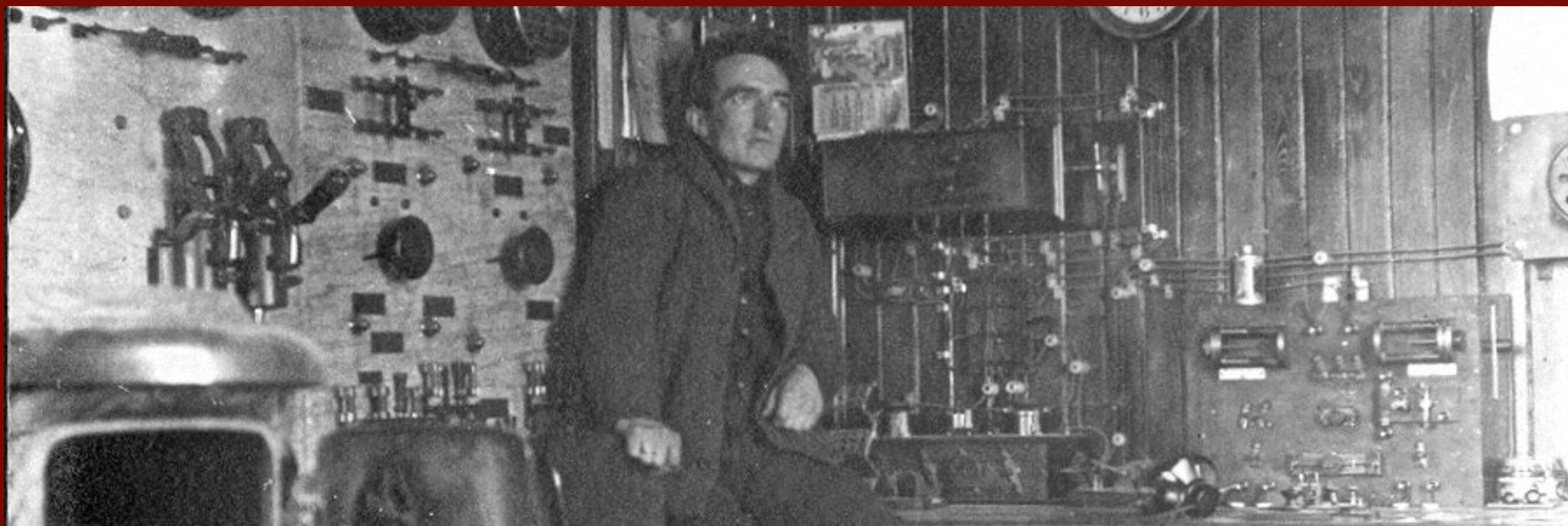
- Triangle Island**
- Ikeda Bay**
- Dead Tree Point**
- Digby Island**



Fowl Bay showing Government Wireless Station
and Observatory, Victoria, B. C.

Fowl Bay, now Gonzales Bay, with two-storey Tea Room & Bath House (1837 Crescent Rd, designed by architect W. D'Oyly Rochfort in 1909 for John Herbert Gray; heritage-registered) just left of centre. *Meteorological Observatory* (heritage-registered) and radio-telegraph station on Gonzales Hill upper right. Extant but radio-telegraph station demolished.
Collection Ron Greene/postcard c.1915

First Government Wireless Station on West Coast



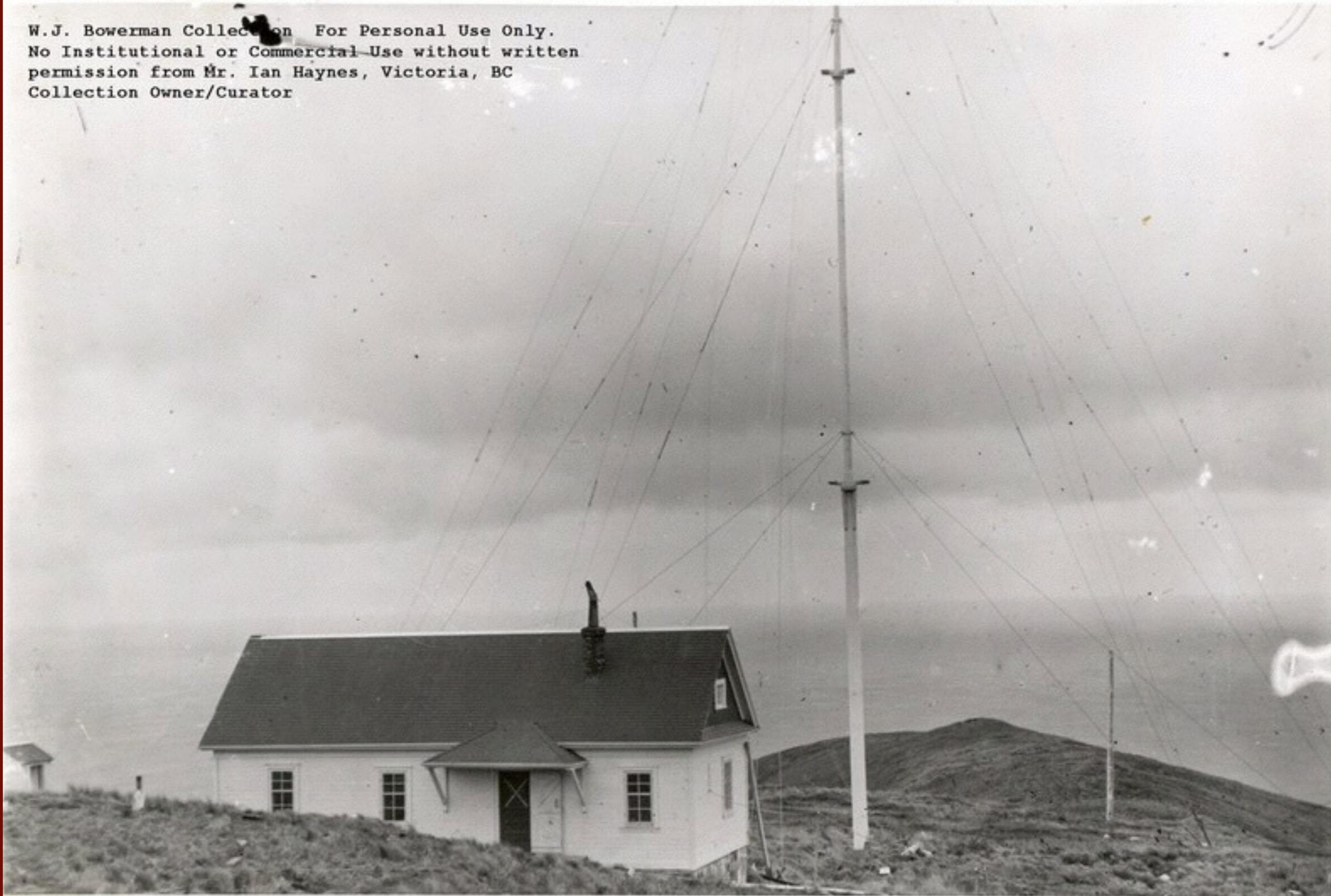
Estevan Wireless Station 1912

TRIANGLE ISLAND

“A lighthouse existed on the island from 1909 to 1919 but was abandoned due to severe fog, regular hurricane-force winds, and conditions utterly repellent to human habitation.” Wikipedia

They not only built the lighthouse but also a wireless station!

W.J. Bowerman Collection For Personal Use Only.
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permission from Mr. Ian Haynes, Victoria, BC
Collection Owner/Curator



Triangle Island Station

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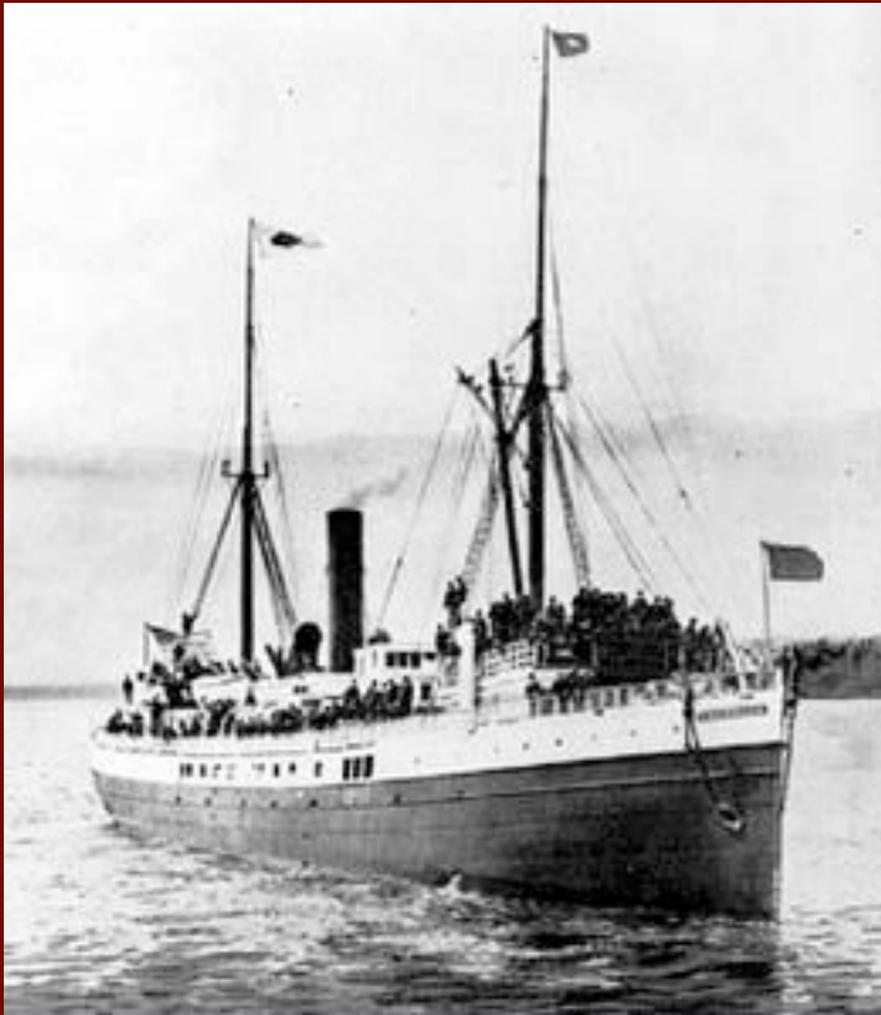
WHY?

WIRELESS FOR EMERGENCY COMMUNICATIONS

1899 - First use by a ship to seek aid: Lightship off London

1900 - England contracts for 6 land and 26 ship stations

1906 - Valencia wrecked at Pachena Point loss of 117 lives



Valencia wreck 22 Jan 1906



Pachena Point

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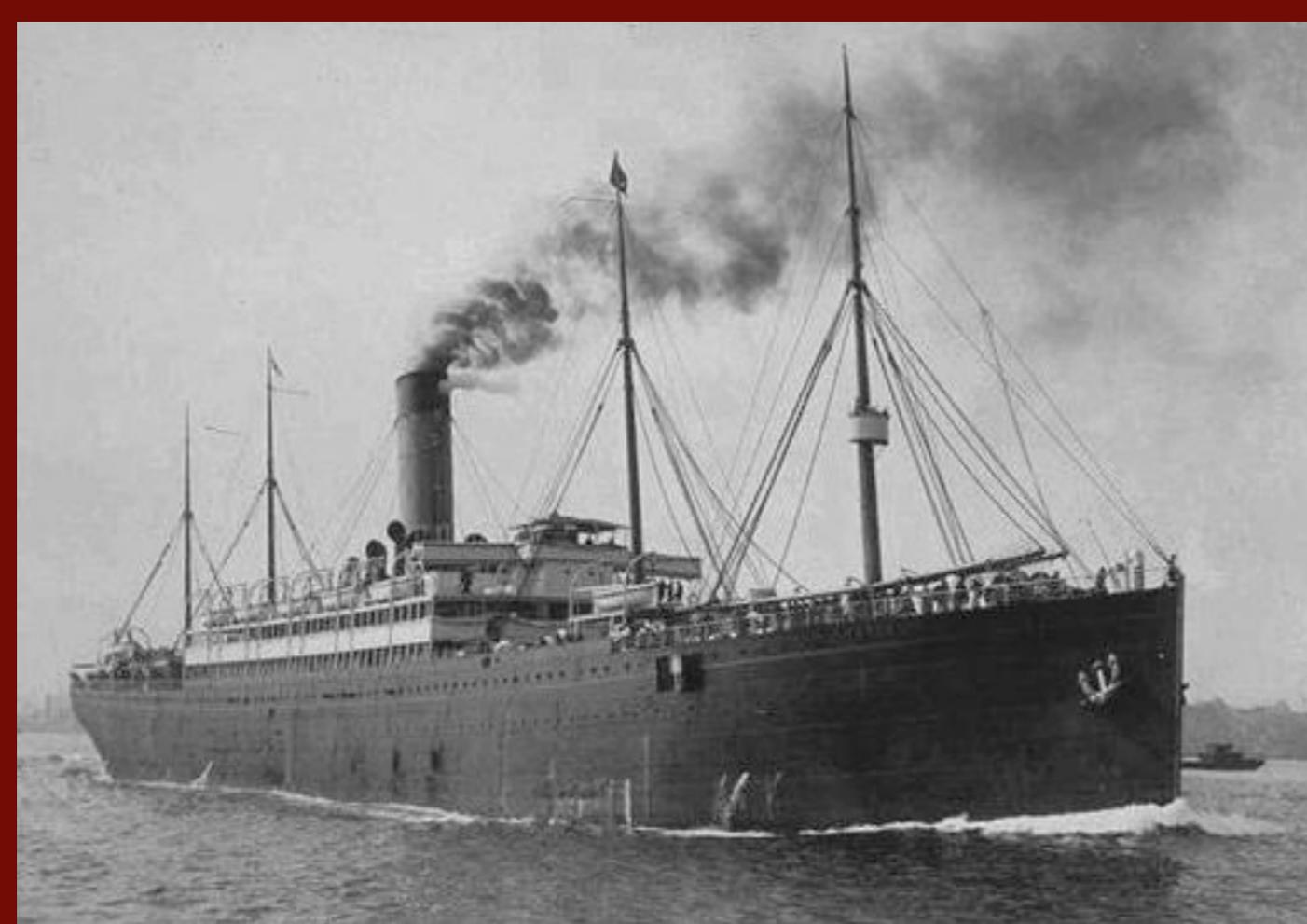
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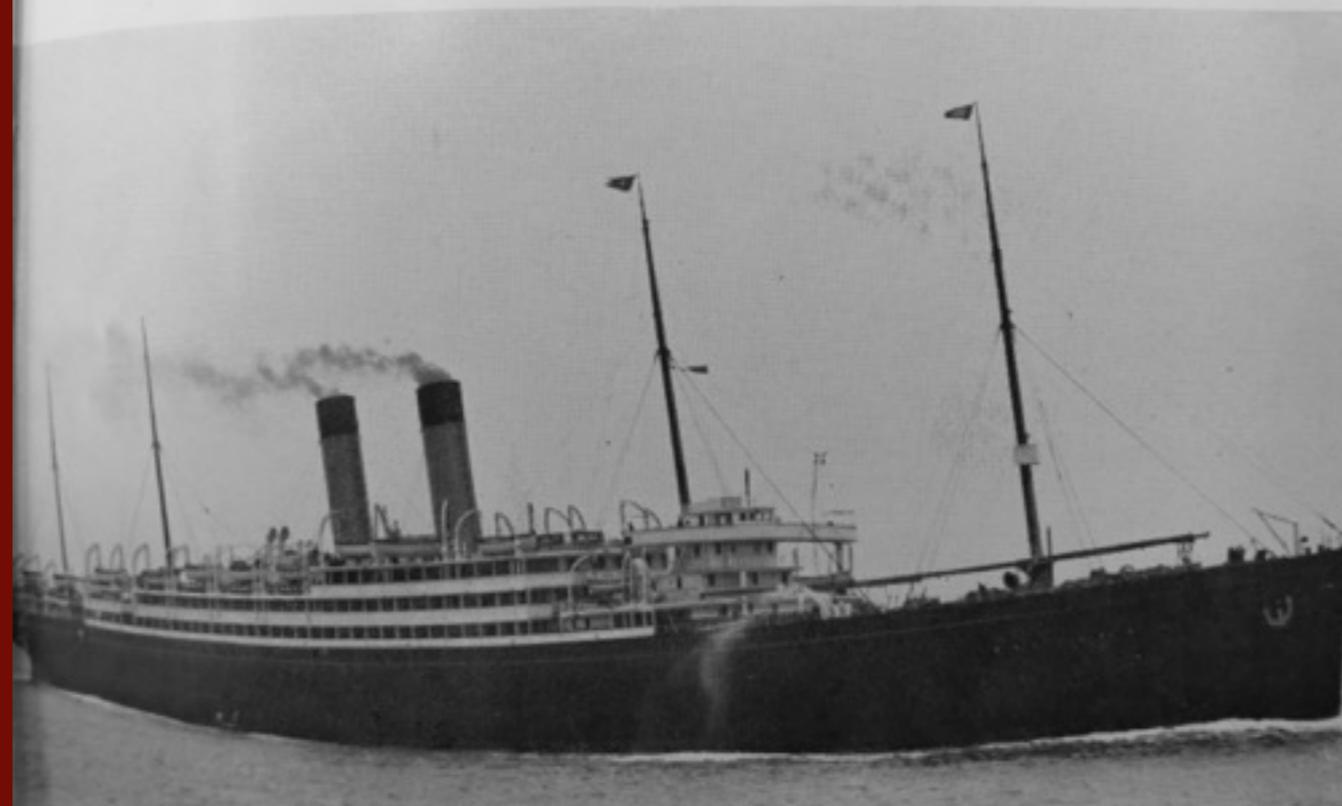
1909 - Liners Republic and Florida collide in fog all 1290 saved

Within a year most ships fitted with wireless



*The White Star liner 'Baltic' which rescued the passengers of the
'Republic' and the 'Florida'*

Photograph by courtesy of Cunard White Star Ltd.



WIRELESS FOR EMERGENCY COMMUNICATIONS

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1906 - USN Chicago provides only communication from San Francisco after the earthquake

1909 - Liners Republic and Florida collide in fog all 1290 saved

Within a year most ships fitted with wireless

1912 - Titanic sinks with loss of 1503 lives

IRC 3 months later - licenses, frequencies, SOS, Q signals, etc

The Times Dispatch

THE DISPATCH PUBLISHED DAILY
SIX CENTS PER COPY

WHOLE NUMBER 18,977

RICHMOND, VA., TUESDAY, APRIL 30, 1912

THE WEATHER BUREAU—RICHMOND

PRICE TWO CENTS

Titanic, Giant White Star Liner, Sinks After Collision With Iceberg on Her Maiden Voyage, and 1,800 Lives Are Reported Lost in World's Greatest Marine Disaster

WIRELESS CALLS SEND VESSELS RUSHING TO AID OF SEA COLOSSUS

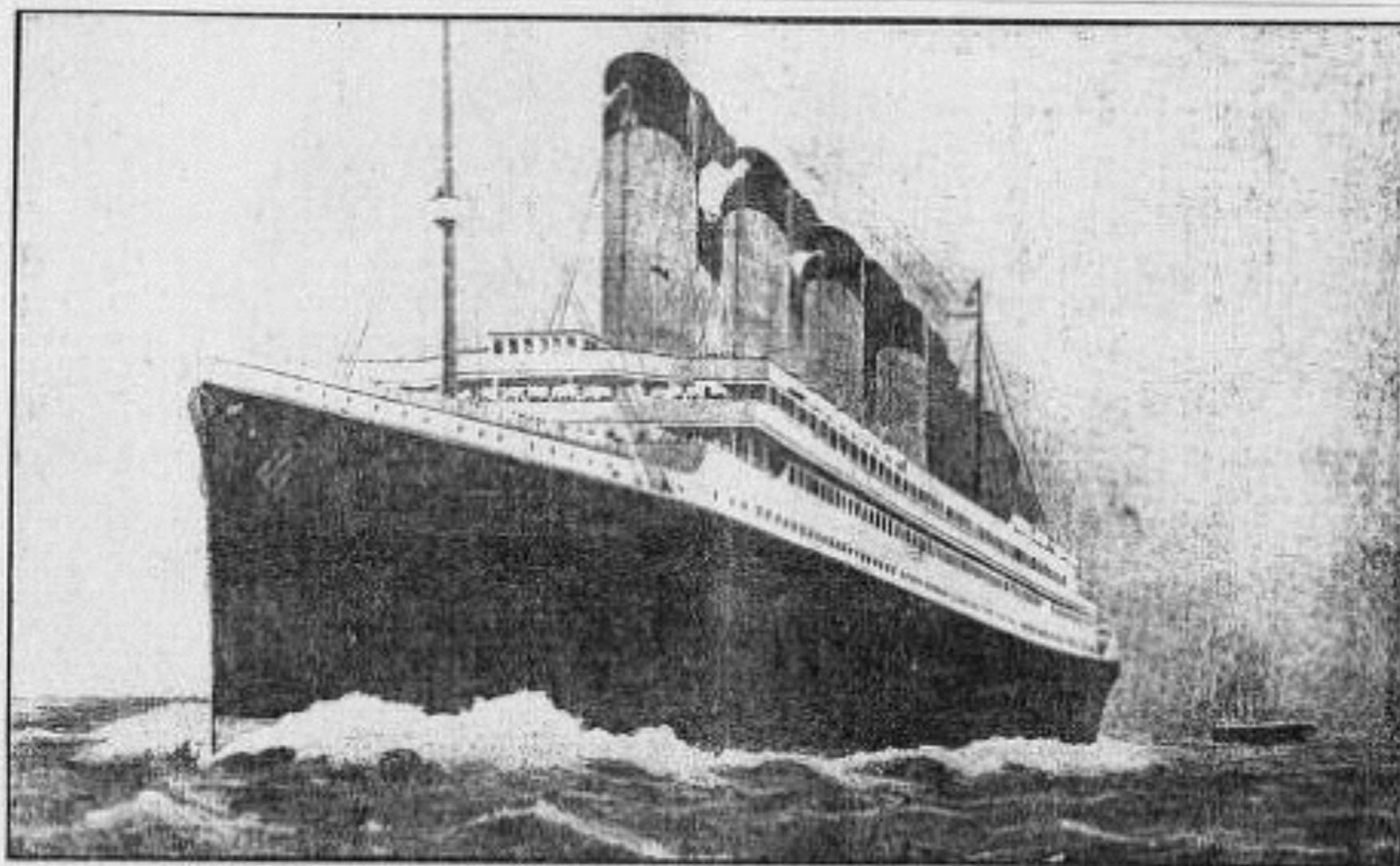
Through the Night They
Drive With Full
Speed to Reach
Titanic.

MEANTIME, WORLD WAITS IN AGONY OF SUSPENSE

Bracing Lists. Arrive Too
Late, and Biggest and Most
Luxurious Ship in World Goes
Down, Carrying Hundreds of
Passengers and Crew, Icebergs
Making Mock of Senses,
Which Had Given of Its Best
to Make This Sea-Palace In-
vincible and Unmistakable.

New York, April 31.—The Ti-
tanic, of the White Star Line, the
biggest and most luxurious ship
in the world, lies at the bottom
of the sea just north of the Grand
Banks of New Foundland and
400 miles southeast of Halifax.

On her maiden voyage, the



THE TITANIC.

OF ALL ON BOARD ONLY 675 KNOWN TO HAVE ESCAPED DEATH IN OCEAN

Those Rescued Mostly
Women and Children,
Who Were Taken
Off in Boats.

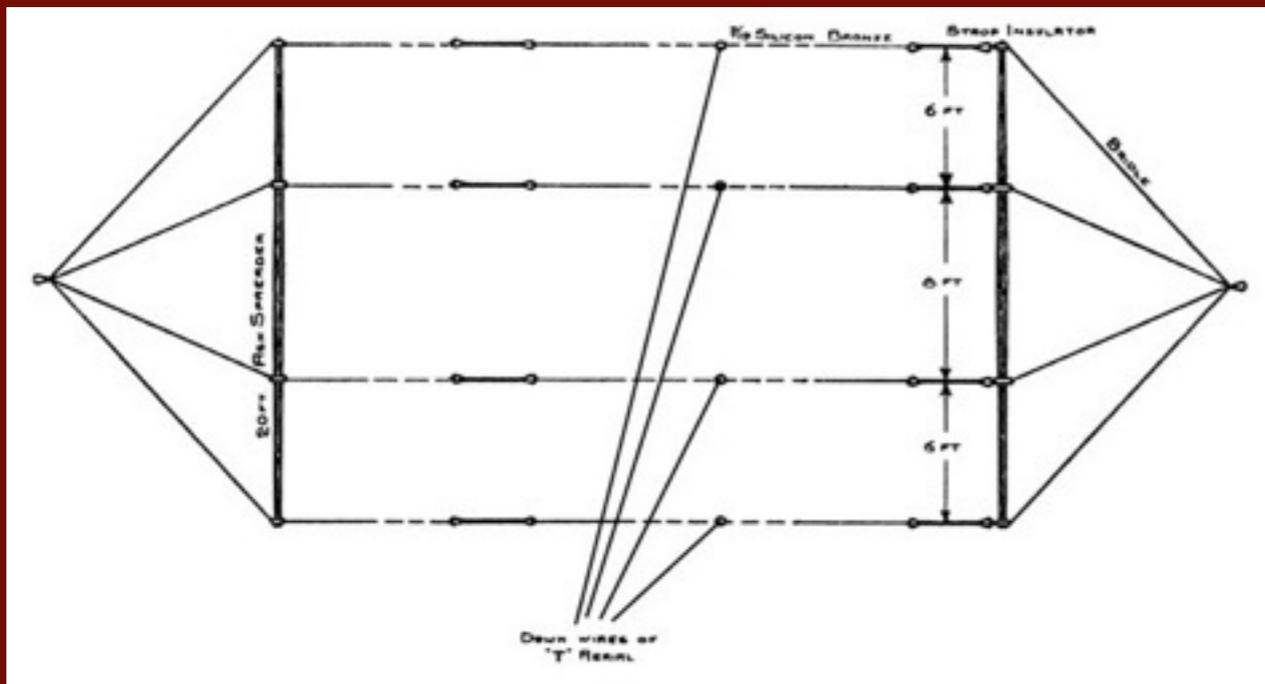
BITS OF WRECKAGE ALL THAT IS LEFT OF GREAT VESSEL

Steamer Carpathia Is Bringing
Survivors to Port—Two Other
Vessels Not Heard From, and
There Is Faint Hope That
They May Have Picked Up
Some of Titanic's Passengers.
A List of Those Reported Lost
Are John Jacob Astor, W. T.
Steel and Many Others Who
Are of World-Wide Promi-
nence.

New York, April 31.—The list
of the survivors from the steamer
Olympic, reporting the sinking
of the Titanic and the rescue of
691 survivors, which reached



Radio Officer John George ('Jack') Phillips, senior wireless operator in S.S. 'Titanic', who lost his life when that ship sank after collision with an iceberg on Sunday, April 14, 1912



TITANIC 1912

600 METRES/500 kHz - MARITIME STANDARD

Common before and mandatory after 1906

Remained in regular use until 1960

Restricted to maritime use until 2012

WRC 2012 - Allocated 472-479 kHz to Amateurs

Canada authorized 630m band April 2014

US authorized 630m band Oct 2017

5W EIRP limit in Canada and US

Why 600 Metres?

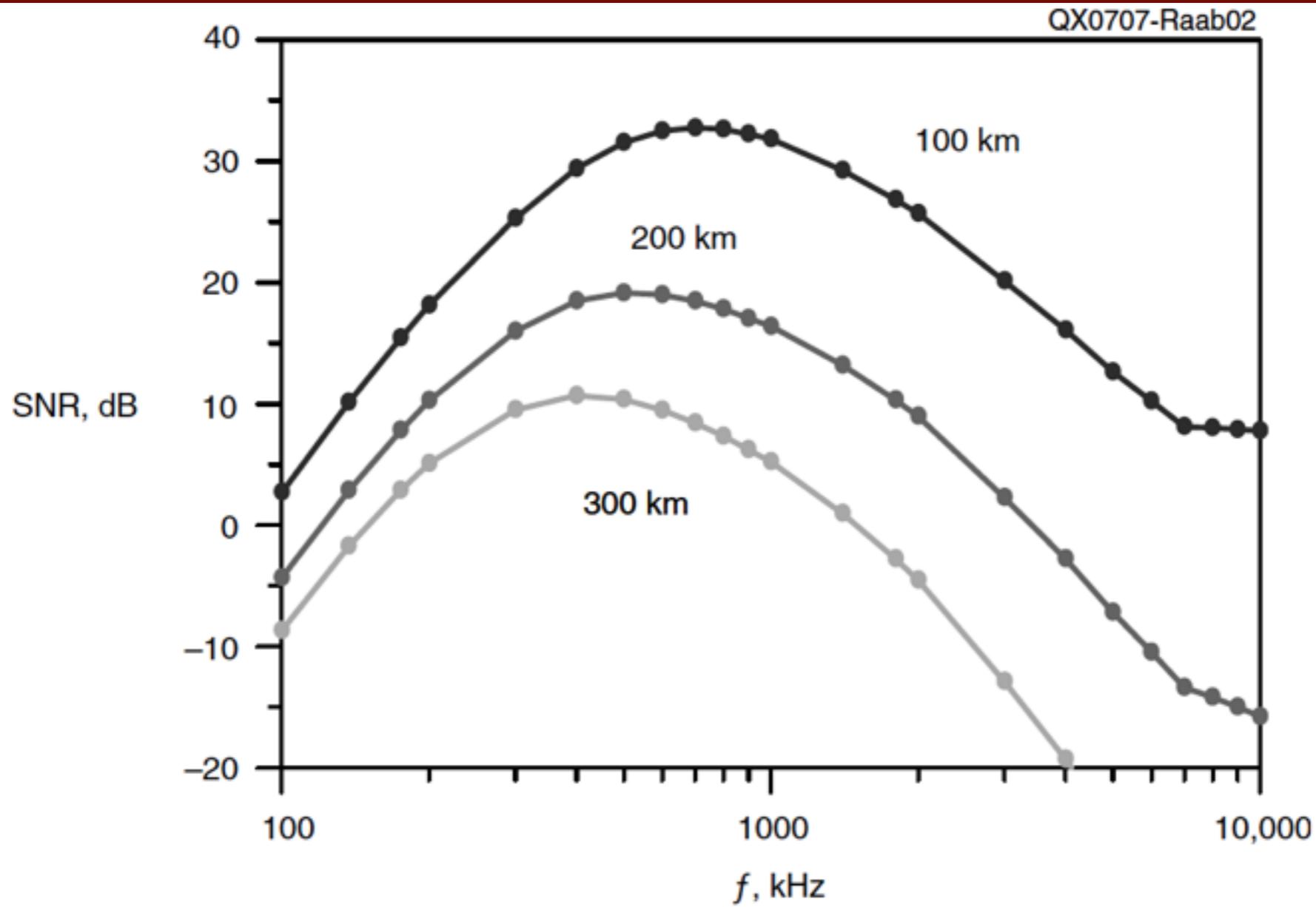


Figure 2 — Ground-wave SNR as a function of frequency for typical amateur use.

The predictions in Figure 2 are based upon the following:

- 15 m (50 ft) monopole with sixteen 30 m radials,
- Ground with $\sigma = 0.01$ S/m and $\epsilon_r = 10$,
- 1 W delivered to the antenna.

As shown, the combination of antenna gain, surface-wave attenuation, and noise level favours frequencies near 500 kHz for distances from 100 to 300 km.

Why 630 Metres?

600m used for maritime radio from 1898 to 1960

Because it is the best frequency for ground-wave

Hams banned from band from 1912 to 2012

Now offers new type of operating, unlike HF, VHF

Potential for emcoms

**Why operate on
630 Metres?**

1st VK-VE 630 metre QSO!

Queensland Australia

VK4YB

Emoyeni, 291 Moorina Road, Moorina, Qld, 4506

Confirming QSO with	Date			UTC	MHz	Report	Mode
	Day	Month	Year				
VE7SL	15	SEPT	16	12.02	0.475	-26	2x JT9

Tnx QSL

Roges

73 de Roger Crofts

ZF1EJ

JAMES A. EDEN

P.O. BOX 119

GRAND CAYMAN KY1-1501
CAYMAN ISLANDS



MY FIRST 5T9 ON 630M ENJOYED IT!

Confirming 2-Way QSO(s) with: *VE7SL*

QSL via:

DATE			UTC	MHz	MODE 2 Way	RST	QSL
YY	MM	DD					
<i>2017</i>	<i>01</i>	<i>24</i>	<i>0422</i>	<i>.475</i>	<i>5T9</i>	<i>-23dB</i>	PSE TNX

QSL via K6AM Direct or W6 QSL Bureau

73, Eden

GOLD PRINT SERVICE-WWW.LZ3HI.COM



Molokai Island
HAWAII

K9FD/KH6

- K9FD/KH6** CQ-31 ITU-61
- K9FD** Grid BL-11JD
- IOTA OC-19

- Maui county
- Kalawao county



To VE7VV Via _____

Date	UTC	MHz	2-way	RST
18-OCT 2017	07:12	0.475	JT-9	-10
7-NOV 2017	04:18	0.475	JT-9	-14
1-JAN 2018	04:18	0.475	JT-9	-14

Merv Schweigert
PO Box 351
Maunaloa HI 96770
USA

Pse -Tnx QSL

RIG: K3, home made amp. 90W

ANT: INV L BASE LOADED, 1WERP

BALONA
MERV

73's from K9FD Merv

PALMER WASILLA, ALASKA USA

KL7L

Laurence Howell
Palmer Wasilla, Alaska USA

WWW.KL7L

Matanuska Susitna Borough

Grid: BP51ip



KL7L

Confirming QSO with: VE7VV

Day 2 Month NOV Year 2017

UTC: 1130Z KHz: 475 KHz

RST: -25 MODE: JT9

Transceiver: TSB50 HBTVR WIVD PA. 200W

Power: 5 Watts EIRP

Antenna: 7d 200m ARCONI

Pse QSL Tnx QSL

Remarks:

*Super QSO, Rod
many thanks*

*ONLY KL7L
ACTIVE TX AT
THIS TIME!*

73, Laurence *KL7L*

N03M

QSL:
DIRECT
LoTW
BURO



ERIC TICHANSKY
CRAWFORD CO. EN91wr
PENNSYLVANIA U.S.A.

160M DXCC #2136

Eric Tichansky (Ty) - N03M

TNX FB 630m QSO
ROGER. GL-DX CUAGN
73

Confirming QSO with	Date		
	Day	Month	Year
VE7VV	16	12	17
UTC	MHz	RST	Mode 2-Way
0615	0.475	-23	JT9

~~QRP QSL~~

TNX QSL







VE7CNF 630m Power Mixer Transverter

- POWER
- PTT
- RX ANT
- POWER ON
- PTT ON
- RX ANT SEL



Handwritten notes on a spiral-bound notebook, including a name 'EDWARDS' and a location '2145 MILTONA RD'. A blue pen is resting on the notebook.

British Columbia, Canada

Amateur Radio Station

CF7MM

MARITIME MOBILE



*Commemorating Canadian Confederation 1867 - 2017
150 Years Strong and Free*

British Columbia, Canada

CF7MM

MARITIME MOBILE

Confirming QSO with amateur radio station VE7VV

Date	UTC	Frequency	Mode	RS(T)
11-AUG-2017	03:16	475 kHz	SSB	55

PSE QSL TNX *MM* FROM WINTER COVE, SATURNA ISLAND

Mark Mattila, 3332 Willerton Court, Coquitlam, BC, Canada V3B 2X7

Other side: 9.6 m Beneteau 310 First fractionally rigged sloop 'Hakuna Matata' sailing the inner south coastal waters of British Columbia. The vessel is equipped with an HF radio system that utilizes the mast back stay as a tunable vertical antenna. CF7MM operates maritime mobile from this vessel.

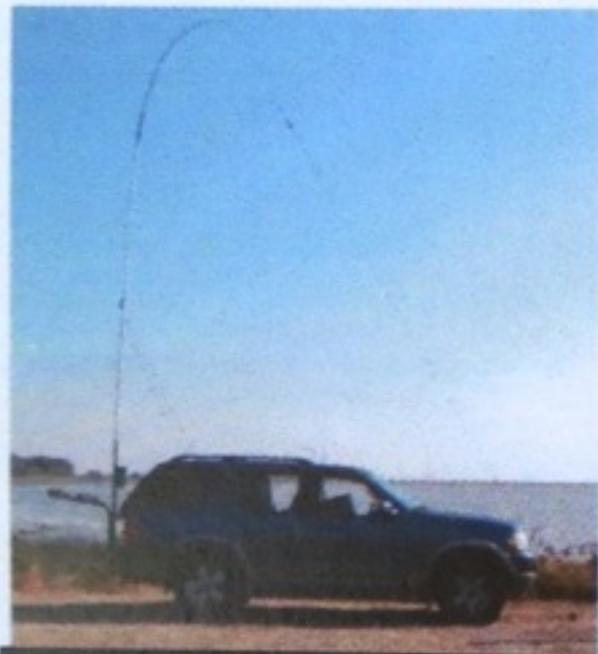
VE7CNF/7

Burnaby, BC

CANADA

630 Meter Band Mobile

GRID CN89ng



IC7410 W. HOME BREW
TRANSVERTER 20W TPO
24 FT VERT ANT. W. TOP
LOAD WIRE. 2x100 FT RADIALS.
IONA BEACH, BC

TOBY HAYNES
9570 WILLOWLEAF PL
BURNABY BC V5A 4A5
CANADA

49°13.102'N 123°12.433'W

CONFIRMING 2-WAY QSO with CALL	YEAR	MONTH	DAY	UTC	Freq kHz	MODE	RST	QSL
VE7VV	2017	08	29	2303	475.0	CW	529	PSE TNX

ARRL Field Day Entry Form

Datestamp: 2017-06-27 12:21:55 PDT

Call Used: VE7VV ARRL/RAC Section: BC
Class: 1E

Power Source(s): Battery
Power Multiplier: 2X

Bonus Points:

100% Emergency power	100
Submitted via the Web	50
Total Bonus Points	150

Score Summary:

	CW	Digital	Phone	Total
Total QSOs	1	1	0	
Total Points	2	2	0	4

Claimed Score = 8

Submitted by: Roger Graves, VE7VV

Comments: "Other" band is 630 metres, 475 kHz.

24 Hour 630m Communication Test Victoria to Vancouver

31 Jan - 1 Feb 2017

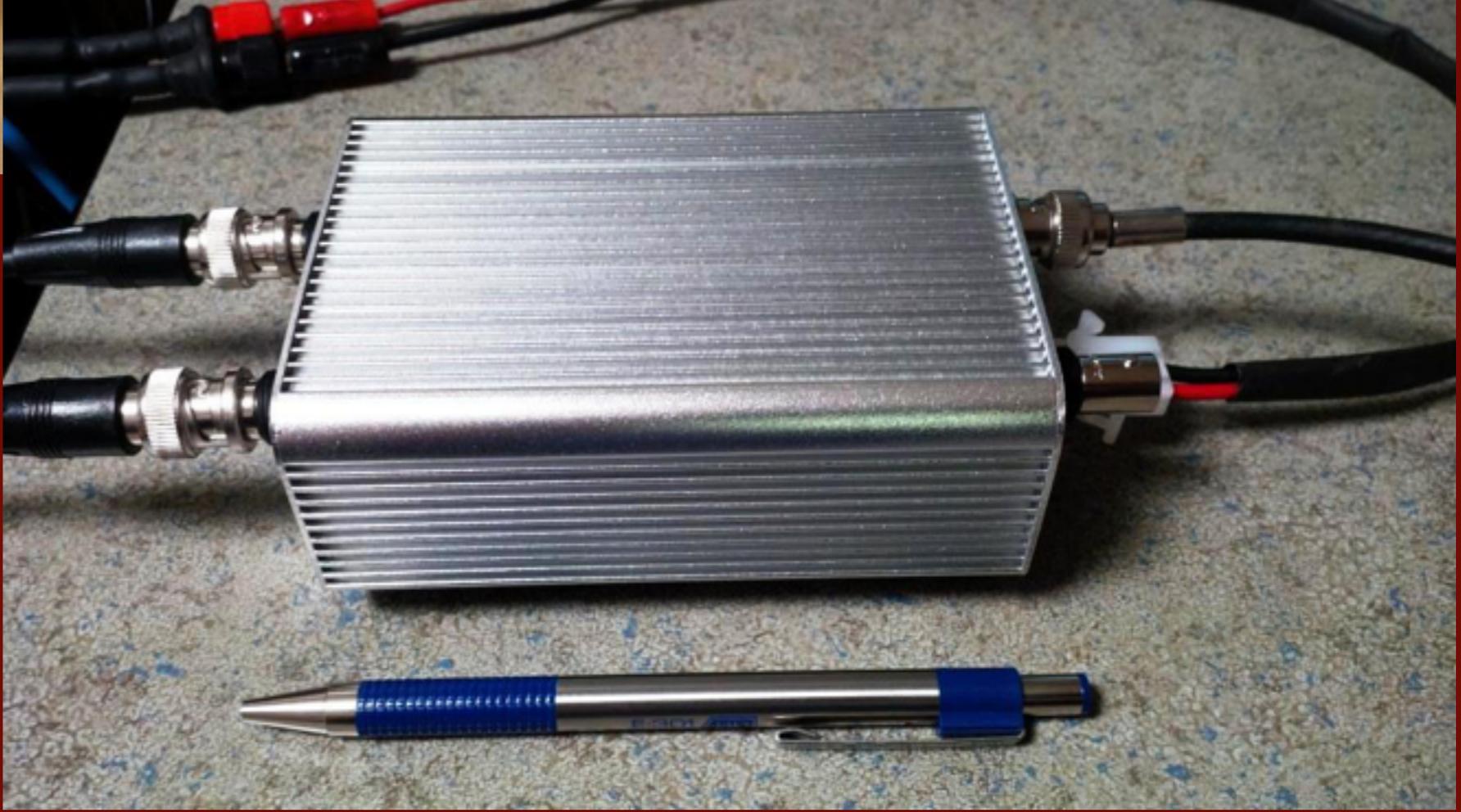
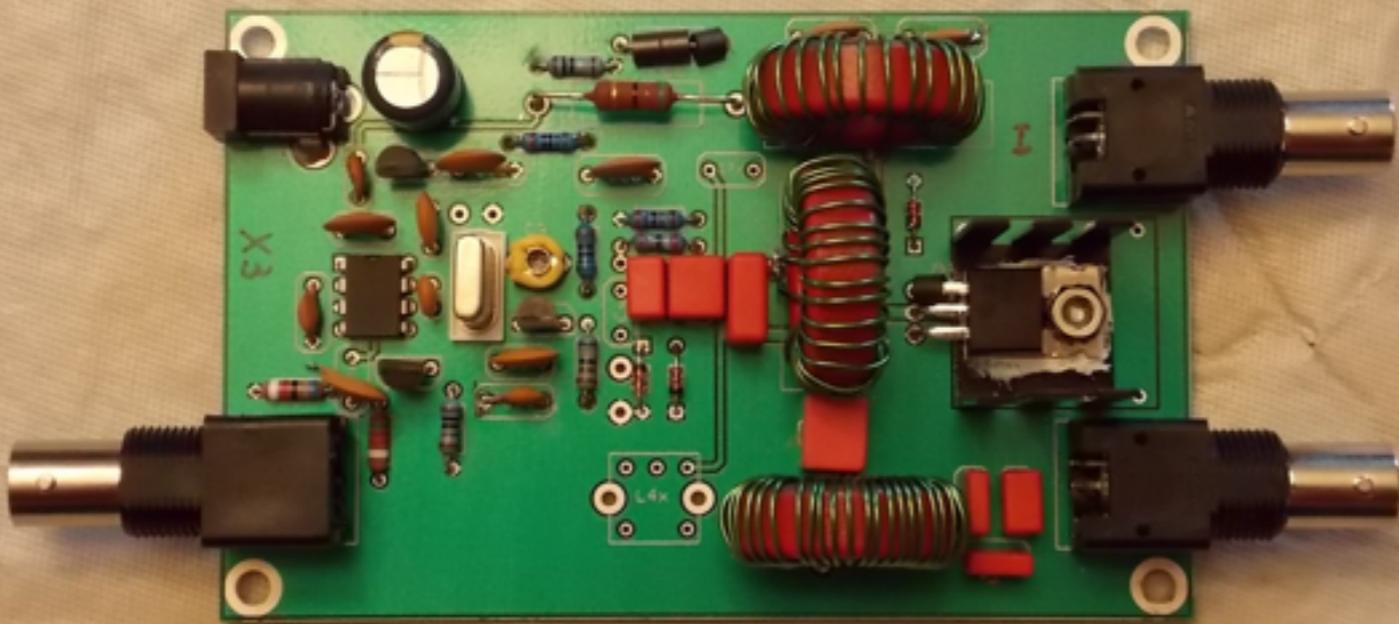
VE7VV, VA7MM, VE7CNF

FSQCall software, 40 wpm text, SSTV



VE7 630m Stations

- VE7BDQ** 49' Inverted L
John IC-756 Pro3, Homebrew transverter and amp
- VA7MM** Marconi at 150', 50' multi wire top hat
Mark IC-746 Pro, IC-7600, MF Solutions transverter 20W,
100W amp
- VE7SL** Marconi at 100', 70' multi wire top hat.
Steve IC-756 PRO3 to VK4YB transverter 90W
- VE7CNF** 52' Inverted L
Toby Homebuilt and designed phasing SSB transmitter. IC-7410
Homebuilt and designed transverter 90W
<http://phasordesign.com/VE7CNFamateurRadio/>
- VE7CA** Marconi at 75' (3X 20m Ext Dbl Zepps)
Markus Ten Tec Omni 6+, Homebuilt transverter, 90W



MF Solutions Transverter



 **MONITOR
SENSORS**

Receiving 630m
472 -- 479 kHz

630m *transverter*







VE7VV 630m Station



**Modified SoftRock RXTX Transceiver
2200-160 metres**



DEMO OF OPERATION ON 630m

