NOVEMBER 2016

Volume 5 Issue 11

VE3ERC-LUB

President: Joycee VA3WXU
Vice-President: John VE3JXX
Secretary: Tom VE3DXQ
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Website Admin: Ted VE3TRQ
Lighthouse: Bruce VE3QB
Maple Syrup Display: Judd VE3WXU
Joycee VA3WXU
Newsletter: Bob VE3IXX

ERC REPEATERS

UHF 444.700 TONE: 131.8
VHF 147.390 + TONE: 123.0
EMERGENCY SIMPLEX: 147.51

Emergency Reminder:
In the event of an emergency, tune into our repeaters,
UHF 444.700 or
VHF 147.390 or
HF 3.755 LSB or
Simplex 147.510
For coordination and assignments.

Lest We Forget

IN THIS ISSUE

Ham Radio– "Condo Style"!
See page 9 for more.

THE PREZ SEZ!

This club is Radio-ACTIVE

President's Update for September 2016

A New View.....

Rubber Duckies... Sink or Swim?

November has been a busy month for the WXU house. Our annual fall trek to the south was certain to remember. While there, we were invited to attend a meeting of the local radio club. In some ways, it was much like all the other radio club meetings I have ever been to except for one thing... their meeting begins with a prayer.

That night a club member gave a very interesting presentation exclusively on HT rubber duckies and their antennas and just how well they perform together. He used an android tablet and a mini-VNA Pro analyzer to test several different antennas. As it turned out, most of the ones he tested worked below its expectation. He summed up his presentation by suggesting that the real shortcoming of handies is low power and the antenna system being used.

Needless to say, when we returned home, we wanted to check our own handies and antennas to see how efficient they were. We used an MFJ 269C analyzer to derive a plot of the various antennas that we have. The result was that all the OEM antennas tested for amateur bands fell short of our expectation. We did have as well, several after market replacement antennas to test. Of those antennas we did find a minimal improvement in the analyzer plots.

Surprisingly to us, there was a commercial marine handheld that passed beyond our expectation. That was probably due to its Part conformity requirements. Our tests were by no means an indication of true performance. Further testing of field strength would have given more data.

So what can we do to make our handies more "buoyant" and effective? Here are a **few** ideas. When you are using your handie, avoid operating in a Faraday cage and "get in the clear" as best as you can. Or, try adding an external speaker mic so that you could hold the radio up over your head. When you go to purchase a used antenna, ask if you could analyze it before you buy it. If all else fails, cross your fingers and stand on your tip toes.

73 - Cheers, Joycee

In Memory of Wally Caughell VE3LCR-SK, a long-time ERC member,
who became a Silent Key in August of this year,
we are reprinting an article that was published in this newsletter on November of 2011,
about his service in the air force during World War II,
with his close friend and also ERC long-time member Ralph Brubaker VE3EUC.

Can you find Ralph (VE3EUC)? This is the graduation of Ralph from flight training with the Canadian Air Force circa the end of 1943. He was only 18 years old and is center in the back row just below the propeller.

Even though Wally (VE3LCR) is a Waterloo native and Ralph (VE3EUC) has his roots in Elmira and both joined the air force near the end of 1942, the two didn't meet until the spring of 1944. This is not too surprising since Canada was host to 150 training centres for pilots for the entire Commonwealth countries. Add on the volunteers who had fled to England from the European countries occupied by Hitler's armies in the 1940's and this added up to a very large number. Ralph remembered his class as containing many Norwegians.

Wally was 18 and Ralph 17 (with parental permission) when they entered the service. They were sent to Pendleton (near Ottawa) for their elementary training, learning their basics on the Tiger Moths (a World War II biplane) shown in the photo.

The TIGER MOTH was the starter trainer for new student pilots.

As always, there were humorous and tragic incidents that occurred during this period. One student landed in a haystack, while another tragically crashed into a gas truck. Still another trainee was just lifting up his plane when the engine stalled. The aircraft immediately turned nose down and crashed. Fortunately, the pilot survived.

Wally next proceeded training on the Avro Anson (pictured), a twin engine plane which prepared bomber pilots and Ralph began fighter training on the Yale (also shown). Edenvale (near Barrie) was their base for gunnery and bombing training. Besides the actual flying, all pilots were required to learn morse code at 10 words per minute.

This was primarily for plane identification, but became invaluable for later passing their amateur radio exams.

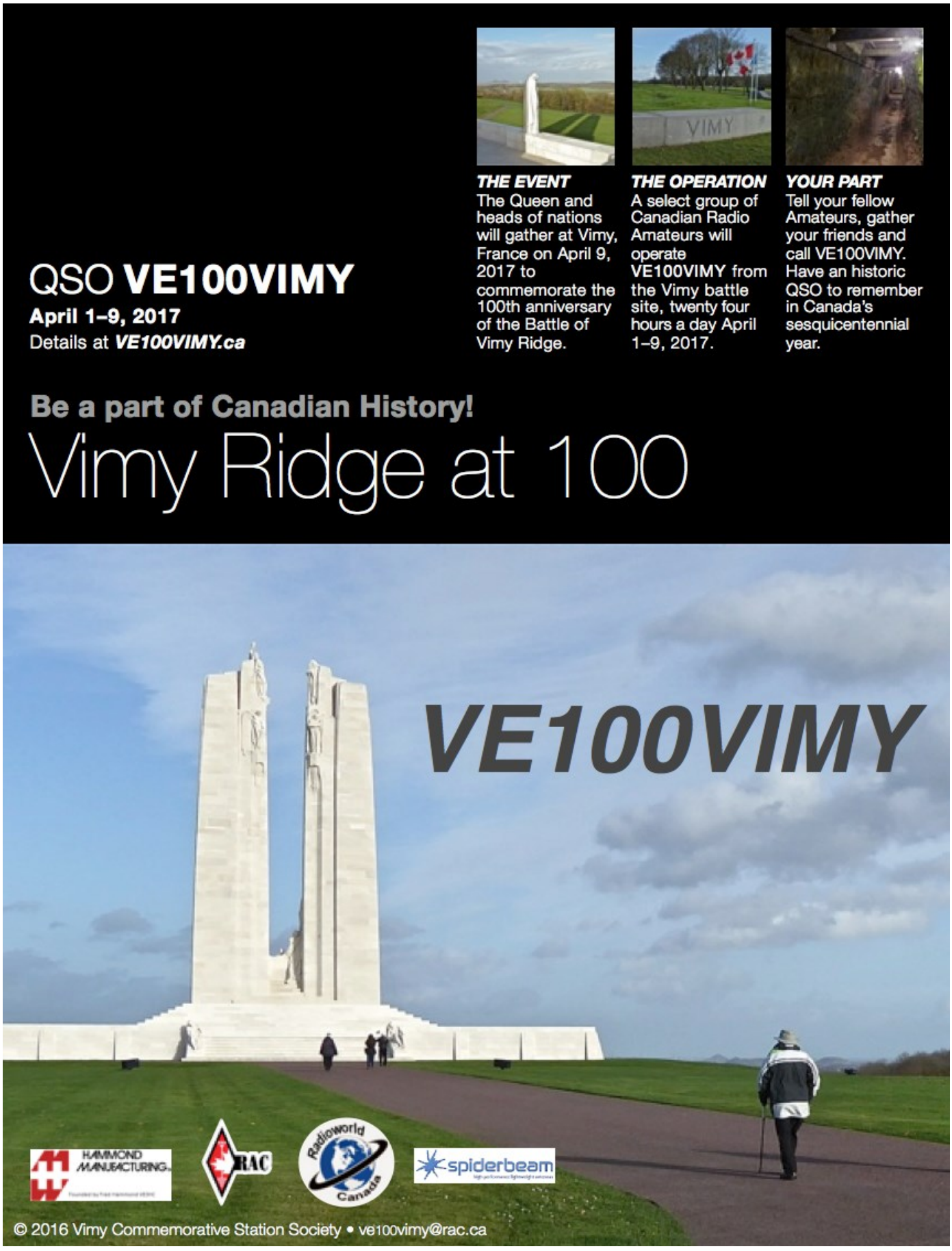
The Avro Anson! The photo on the right was taken by Ralph from the window of his plane.

After completion of training in 1944, Ralph was sent to Stevenson Field in Winnipeg as he was still too young for active duty (19 was the cut-off age) and flew many hours training other pilots. Wally meanwhile was sent to the east coast with Coastal Command to await further assignment. And that was where he remained until 1945 when the war ended. That year both were given a discharge, but not a full discharge. They were expected to remain in the Reserve and could be called back to active duty at any time.

Ralph became a Ham in 1959 through the influence of a friend and Wally passed his exam in the early 1960's.

The YALE trainer as photographed by Ralph.

Above is the Yale fighter pilot trainer. Below was the Harvard which was a similar plane except that it had retractable wheels and a larger, more powerful engine.


QSO VE100VIMY
April 1–9, 2017
Details at VE100VIMY.ca
THE EVENT
The Queen and heads of nations will gather at Vimy, France on April 9, 2017 to commemorate the 100th anniversary of the Battle of Vimy Ridge.
THE OPERATION
A select group of Canadian Radio Amateurs will operate VE100VIMY from the Vimy battle site, twenty four hours a day April 1–9, 2017.
YOUR PART
Tell your fellow Amateurs, gather your friends and call VE100VIMY. Have an historic QSO to remember in Canada's sesquicentennial year.
Be a part of Canadian History!
Vimy Ridge at 100
VE100VIMY
HAMMOND MANUFACTURING
RAC
Radioworld Canada
spiderbeam
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DIGITAL BASICS

By Judd Hodge VE3WXU

Think back to the last public service event or exercise. You probably passed traffic best suited for voice communications, but what if you had been asked to pass a weather report, a list of evacuees, a list of prescription medications or the directions to a disaster scene? The needs of Service Agencies have changed. They still need voice communications but there's an increasing need for data communications. We need to be able to provide more than just voice communications from a HAM with an HT.

With this in mind, I'd like for us to focus on a cheap, simple approach to digital communication during an emergency, while using Open Source software, and not being dependent on intrastructure, but still keeping it fun and useful between exercises and being able to use any type of radio.

First the software: FLDIGI (Fast Light DIGItal) which is Open Source meaning it's FREE! Fldigi uses your computer's sound card to generate and decode digital signals that it sends to and receives from your radio. It doesn't require a powerful new computer, older machines work just fine. It even works with Windows, Mac and Linux machines. It can even be done with an iPhone, iPod, or iPad, to mention a few. All the work is done by the computer, an interface between the computer and radio, is desirable but not required to decode or encode. Audio from your radio can go into your computer's mike . As well, audio from the computer speaker can be directed into the radio's mike.

Acoustic Interfacing: Hold the radio mike up to the computer speakers for transmit and hold the radio speaker up to the computer mike for receive. You do PTT manually. This works especially well with VHF/UHF FM and allows you to send data using most any radio. This allows any HAM to get on digital in the event of an emergency even if they don't have a soundcard interface.

Computer and Fldigi: Being famliar with the software and having it setup, is the first step to basic digital. Download and install Fldigi, the first time started the Wizard will run. Enter your personal info and the soundcard, radio interface and modems info IF it applies. Special note: when working into a Digital Net always have RsID turned on. In an emergency, if you don't have a computer with the software ready to run, even simply Acoustic Coupling will be non-productive.

A brief comment on Apps for digital modes, it's a good way to get started, check the app store, you'll be surprised.

Please join us, on Wed. 30 November for our first attempt @ a digital net...

DIGITAL-ELMIRA RADIO CLUB TRAINING NET

D-ERC Training Net

Fifth Wednesday of the Month

9:00 PM Local

VE3ERC VHF Repeater

I. The D-ERC Training Net

Four times a year a fifth Wednesday appears on the calendar. On those nights training with different digital modes will occur. The first session will be on Nov. 30th and will use PSK31 over the Club's VHF repeater.

DATE: **Every Fifth Wednesday Night** *(Nov. 30, 2016, Mar 29, May 31, Aug 30, and Nov 29, 2017}*

TIME: **9:00 PM Local** *(following the weekly FM Net)*

FREQUENCY: **VE3ERC VHF Repeater, 1500hz Center**

MODE: **Various**

SOFTWARE REQUIRED: **Fldigi** *(free)*

RECOMMENDED INTERFACE: **SignaLink USB** *(optional)*

NET CONTROL: **J. Hodge, VE3WXU**

PURPOSE: **Training with different digital modes**

II. EQUIPMENT NEEDED TO PARTICIPATE:

COMPUTER – *(FLDigi will run on Windows, Mac, Linux and is FREE)*

MONITOR – *(of course)*

VHF TRANSCEIVER – *(HF in the future)*

ANTENNA – *(of course)*

RADIO TO COMPUTER INTERFACE – *(SignaLink USB – optional)*

FREE SOFTWARE – *Fldigi (Flmsg and Flwrap later on)*

III. USEFUL LINKS: **http://www,w1hkj.com/download.html**

http://www.tigertronics.com

IV. D-ERC Training Net:

The Net will begin @ 9:00 PM ET with a Voice Preamble followed by a Digital call out. Check-ins for this net will be taken, starting @ 9:05 PM ET by **voice** over the repeater to start a list. Check-ins should consist of **'CALL and NAME'**. Once the list is developed, Net Control will explain the evening's exercise. Participation in the actual exercise is voluntary, checking-in and listening is learning and part of the training. A simple text message will be transmitted by Net Control, then the list will be used to determine the next steps for the session and future sessions.

Questions, suggestions or comments concerning this Net, Equipment or Software can be sent to VE3ERC@gmail.com

80m Amateur Station–"Condo Style"

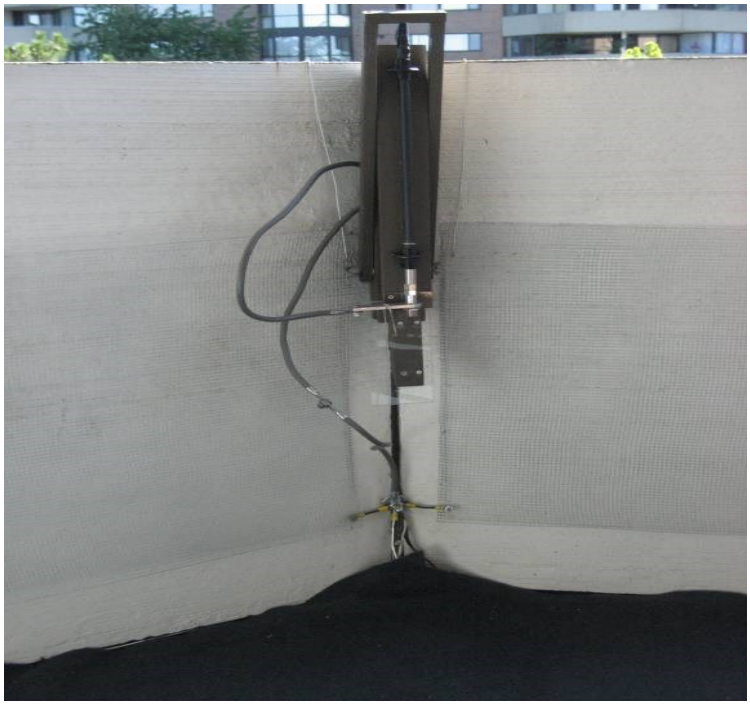
By Paul Birke VE3PVB

I met Matt Newman VA3MGN from Richmond Hill when running the Sandbox Roundtable Net on Sunday 30th October 2016. He came in with a booming signal (others around Ontario reported same!). I commented on his signal strength and he said he was using a Drake transceiver and a mobile antenna at his condo site. For amateurs in the same situation, I now want to show exactly what Matt's station looks like. Especially his use of a Hustler vertical and a 600 watt Heathkit SB-201 Linear Amplifier. Here in Matt's words and pictures is a description of his station.

Special thanks for taking my call tonight on the SandBox Net. It was great meeting you and the group. As mentioned, I am encouraged knowing I am getting out.

Hustler 80m Super Resonator antenna cantilevers out when in use and goes into a horizontal position for weak signal work.

Counterpoise consists of large aluminum sheeting lying underneath the Astroturf carpeting. Aluminum sheeting (vs. inductive cable) underneath the Astroturf and beneath the feed point was found to be a real solution to help ensure a low-impedance return path. Also helping are two galvanized screens on both sides of the antenna. There is an additional RF ground through a large stainless steel hook connected to exposed rebar between the concrete wall sections. The hook is also used to hold the antenna mount firmly in place.



Visit Us at

www.ve3erc.ca

Back-of-the-Napkin Eyeball

QSO notes and stuff

by Rich, ve3DCC

I was fascinated by the excellent article that President Joyce, va3WXU, wrote last month. In it, she talked about the evolution of the phonetic alphabet. I was especially struck by the following extract:

> "**Verbal Orders**
>
> "It is most important that all verbal orders should be brief and concise, and to avoid the possibility of any misunderstanding the method of giving verbal orders has been standardized throughout the Service.
>
> This standardization includes a special phonetic alphabet which is given below and must be mastered."

Relative to Amateur Radio, this takes on special significance. We are all aware of the "cute" phonetics that many Hams use. Unfortunately, in a crisis transmission, unless the receiving station is ear-tuned to the phonetic, important information may be missed, or , worse, valuable time may be lost in requesting a repeat.

For this reason, it is vital that all Ham operators acquaint themselves , and religiously use the standard phonetics. It is also critical that those on channel are succinct and precise in their reports; that is, rag-chewing should not occur. We many need to put this into practice during regular training sessions.

This raises the issue of emergency communications training within ve3ERC.

Our focus has been on emergency communications at Evacuation Centres to facilitate citizen health and welfare messages from a crisis evacuation centre to family elsewhere. This is a task that we relieve the police and fire services of.

Ted's presentation in October highlighted the potential that pop-up MESH networks have for these same emergency communications.

We now seem to be on the verge of a great leap forward.

Tonight, in a report to our Citizen Advisory Panel for Canada Colours/Sulco, I stressed that our goal is to stay out of the way of emergency services, and to provide relief to their communications by handling the health and safety communications from the evacuation centres. We assume that their communications channels are functioning; however, we are able to provide a parallel network that could fill in gaps. Chief, Kieran Kelly, commented that the services appreciate this and if they ever need us, we seem to be ready. There were also favourable comments about our organization, enthusiasm and commitment by those who attended our October meeting.

Ve3ERC has now formed an action committee to deal with emergency measures with the intention of formalizing our training and preparedness. Our focus so far has been to encourage members to tune into VHF, UHF, SIMPLEX and HF frequencies that are outlined in each issue of our newsletter. As we move forward with Tracey's lead, it may be time to seriously consider formal RAC ARES training using the materials available on the RAC site. We have members who are knowledgeable and certainly while we do not want to put our members in harm's way, we need to ensure that operating procedures are faultless.

Is it time to open the discussion of where we go from here?

de Rich, ve3DCC

WEDNESDAY NITE NET CONTROLLERS (8 PM)

NOVEMBER 16 - PAUL VE3PVB
NOVEMBER 23 - M E E T I N G
NOVEMBER 30 - TRACY (VE3JVG)
D-ERC TRAINING SESSION AT 9 PM
DECEMBER 7 - BRIAN VA3DXK
DECEMBER 14 - CHRISTMAS PARTY
DECEMBER 21 - BOB VE3IXX
DECEMBER 28 - JUDD VE3WXU
JANUARY 4 - TED VE3TRQ
JANUARY 11 - AL VA3TET
JANUARY 18 - REG VE3RVH
JANUARY 25 - M E E T I N G

My Mikes – BM-800 Condenser Microphone

By Paul Birke VE3PVB

I first heard this microphone on the air last fall when running the Sunday's Sandbox Roundtable Net. Sounded just great and I asked Scott VA3IED about details. The microphone retailed for about $30 CDN delivered to the door from China. It was a true condenser microphone that can run on 48 volts Phantom Power Supply or off the much lesser DC voltage available on our transceivers (i.e. 9-12 volts). Sounded too good to be true! Here is a photo and specs.

I bought one and now use on the air exclusively (I have actually retired my excellent ribbon microphone). The new microphone has excellent dynamic response and Cliff VA3CAF has told me to "duck tape the microphone" to my transceiver for SandBox Roundtable use.

IF YOU BUY ONE, YOU WILL NOT BE DISAPPOINTED! MAKE SURE YOU GET THE OUTPUT IMPEDANCE 1500 OHMS VARIETY (NOT 150 OHMS). PRESENTLY I USE THIS MICROPHONE WITHOUT ANY 48 VOLT PHANTOM POWER!

VE3ERC Elmira Radio Club Inc.

Minutes from Nov 23, 2016

1. Open and roll call.

The meeting was open by our new President VA3WXU Joyce at 7:30 pm.

Roll Call: VA3TET Al, VE3DXQ Tom, VE3WXU Jud, VA3WXU Joyce, VE3DCC Rich, VE3QB Bruce, VA3QB Bill, VA3DXK Brian, VA3FJM Frank, VE3TRQ Ted, VE3EIX Harry, VA3GWM Gord, VE3CXU Doug, VE3TRQ Ted, VE3JMU Jim, VE3PVB Paul, VE3RVH Reg, VE3KCY Ken, VA3SQD Dan, VE3AHP Rob, VE3EIX Harry.

Reports and Announcements: Executive, Committee Chairs, and members.

Minutes from previous meeting: Tom made a motion to have minutes accepted from last month's meeting. The motion was seconded by Judd. Motion carried.

Treasurer's Report. Reg VE3RVH asked if there were any outstanding bills to pay. None were mentioned. Reg VE3RVH gave us the up to date balance. Reg made a motion to have treasurer's report accepted. This was seconded by VE3DXQ Tom. The motion was accepted.

Nominations committee: VE3PVB Paul advised we are only 5 months into the new Executive, so nothing on the horizon for about 18 months.

Safety Officer Committee: VE3DXQ Tom. No incidents to report.

Elmira Maple Syrup Festival: VE3WXU Judd advised we will be applying for a spot in January.

QSL Manager: VE3WXU Judd All cards are up to date.

Lighthouse Report: VA3TET Al nothing to report.

Emergency Committee: VE3DCC Rich advised he had a meeting with Ron Koniuch from CARE and Kieran and Kelly from the fire department. They advised that we are keen and knowledgeable group who can be counted on in an emergency. They confirmed we are in the emergency plan. Rich advised that the next step would be to get ARES training.

Unfinished Business: Feed Mill repeater update- VE3JMU Jim

Jim VE3JMU and John VE3JXX Have take down the antenna and mast and stored them inside the feed mill. They also wound up the Heliax and tied it to a lightning cable. The feed mill will have the roof stripped off and replaced. This is to be done in 3 days. They placed a magmount to the repeater temporarily. The antenna they took down has damage at the base.

Jim advised that it is very windy up on the feed mill. This could be the problem. There was much discussion on what antennas and options we could use. Judd VE3WXU made a motion that AL VA3TET look into a new antenna. This was seconded by Brian VA3DXK.

Sale of Bill Graham's Equipment: Al VA3TET advised that he was under the weather for a bit this month and did not get to this early as he would have liked. Al advised the following items are for sale. Flex3000, ICOM 746, 30 amp power supply, and a MFJ loop antenna with a rotor and remote control on it. Al VA3TET advised it will be offered first to club members and then put on swap shop. All equipment is in excellent condition.

Fund Raising Ideas: Joyce VA3WXU advised that our insurance has 5,000,000.00 liability per occurrence, with 1,000.00 deductable per occurrence. So Joyce feels that we definitely need more money in our account. Rich VE3DCC said that if something did come up that ERC would come up with the deductable and we are very careful at all our events.

There was much discussion regarding different scenarios about claims. Bill VA3QB advised also there could be legal fees as well**. Bill also mentioned that we should look into if RAC has had any claims and how did they turn out.**

There were a few suggestions regarding fund rising. One Idea was a tail gate sale only; another was a radio only sale.

Christmas Party: The Christmas Party is on Dec 14, 7:00 PM at the Fire Hall. Also anyone wishing to show up to help set up is welcome. Set up will be at 1:00 pm the same day.

Speakers/Program/ Discussions

Al VA3TET- PVDA Antenna. Al advised that we have to get away from the IDEA that the PVDA antenna is an Omni-directional only. He said that radiation pattern is the same as a dipole when you have a split on each side and it is also a very Hi Q antenna. The antenna is also tunable as it has a variable capacitor and coil which are controlled by a small electric motor.

Judd-Hand Out on Digital Basics. Judd VE3WXU handed out Digital basics for beginners on operating in digital mode over their radios. He stressed the importance of being able to send text for emergency situations where other systems fail. So this coming Wednesday Nov 30, 2016, after the regular ERC net there will be a training net on the same frequency. This will be possible if you have the following items. 1. Computer with a monitor, VHF Transceiver, Radio to computer interface, FLDIGI software.

Ted's Demonstration of FLDIGI and other Digital modes. Ted VE3TRQ had his laptop connected to the flat screen TV and showed us how to use FLDIGI. He was using LINUX. He was also using his KX3 radio. Ted was using a sound card Behringer 202 from Long and Mcquade. He said you need to have a USB cable to serial adapter to control the radio from your computer.

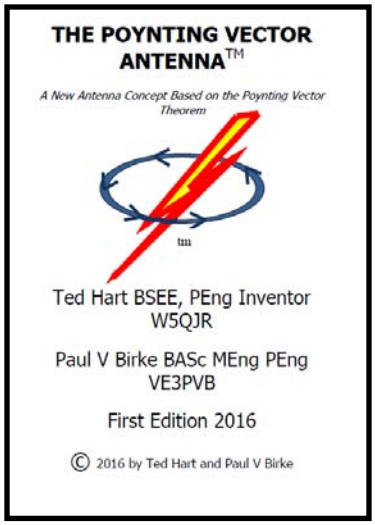
The meeting ended at 9:15 Pm.

The Poynting Vector Antenna

by

Ted Hart and Paul Birke

Two Engineers, Ted Hart from Georgia in the USA and Paul Birke from Ontario, Canada have teamed up to write this book. With over 100 years of combined antenna and electrical engineering experience, they have applied the Poynting Vector Theorem of 1884 to fabricate a new antenna technology. The result is the Poynting Vector Antenna that has a much smaller footprint, only a small fraction of the size of an equivalent Hertz Antenna. The wide frequency tuning range, high efficiency, and large instantaneous bandwidth place this antenna in a unique category all alone.



The book gives theoretical explanations and practical examples which underpin the engineering basis of this new and unique antenna, which is a radical departure from the conventional Hertz antenna. The evolution of this antenna concept is presented as well as simple examples that may be readily copied, and finally what the Authors believe to be the ultimate physical configuration in the shape of a Flute.

Theoretical explanation of Radiation Resistance and other new Physics concepts are presented; even suggested changes to Maxwell's equations. **Amateurs may build the PV antenna for any band-see Chapters 6, 15, 21 and 23.**

CHAPTERS

1: HISTORY OF THE POYNTING VECTOR ANTENNA (PVA) – the important persons in history from Isaac Newton to Professor Hately give us the background.

2: POYNTING VECTOR DEFINITION – a detailed explanation of the Poynting Vector theorem.

3: POYNTING VECTOR POWER FLOW CONCEPTS – this traces the power from the transmitter thru the coax to the radiating antenna. It is unique in that it details the power flow based on the electric and magnetic fields in the coax, which combine to carry power as described by the Poynting vector.

4: THE POYNTING VECTOR ANTENNA CONCEPT – this chapter compares the Hertz and Poynting vector antenna concepts.

5: POYNTING VECTOR OF A POYNTING VECTOR ANTENNA – this chapter traces the displacement current from a simple disc capacitor while the capacitor unfolds to make a Poynting Vector antenna.

6: DESIGN & CONSTRUCTION OF A POYNTING VECTOR ANTENNA – this chapter uses a 40 meter antenna as an example of a simple but great performing antenna. It provides the construction details, tuning procedure, and measurement process. It is complimented with the EXEL program provided on the forum to display all of the performance parameters of the antenna. Further, the program allows you to scale the antenna from 160 meters thru 2 meters.

7: CONTRASTING HERTZ DIPOLE & POYNTING VECTOR ANTENNAS –the equivalent schematic diagrams are presented as well as the voltage and magnetic fields of each antenna.

8: PVA ENDS CHU-WHEELER LIMIT FOR SMALL ANTENNAS – before the Poynting Vector antenna, theory said there was a finite limit as to how small an antenna could be. Now a small antenna can outperform a large Hertz antenna.

9: LOW NOISE FLOOR OF THE PVA ON RECEIVE – Due to the E and H fields of the antenna being constrained to the proximity of the antenna and must be in time phase, electrical noise being either an independent magnetic or electrical field is rejected by the antenna. An example using ignition noise is reduced more than two (2) S units compared to a Hertz antenna.

10: ELECTROMAGNETIC FIELDS OF THE POYNTING VECTOR ANTENNA – in this chapter Paul uses a computer program to develop and display the fields. For the first time we can visualize the fields surrounding the antenna.

11: ELECTRIC & MAGNETIC FIELD CALCUATION USING FEMM – this chapter displays the results of a more sophisticated program for analyzing the antenna.

12: POYNTING RF PHOTON EMISSION AND RADIATION RESISTANCE – for the first time in history, this chapter presents the theory defining the source of radiation resistance. It is based on quantum theory using jerk momentum "backlash" as the key idea. While the theory is complicated, a simple graphic display allows an understanding.

13: FREE SPACE: SOLITON NONLINEAR TRANSMISSION LINE FOR PHOTONS – here the medium by which the electromagnetic energy travels from one antenna to another is defined.

14: POYNTING VECTOR ANALYSIS FOR A SPHERICAL ANTENNA – the geometry of a Hemi-Spherical Antenna and its characteristics is presented. This then allows the hemi-sphere shape to morph into other shapes including cylinder, prolate, and flute geometries.

15: POYNTING VECTOR ANTENNA TECHNOLOGY IN SWEDEN – One of the shapes is demonstrated in Sweden as two flat plates. Virtually any shape may be used to effect a Poynting Vector antenna so long as the two elements are aligned and there is a small gap between the elements. This chapter also contains very important details on isolation and impedance matching transformers.

16: ELMIRA AMATEUR RADIO CLUB – SUPER T PVA ANTENNA – in 2002 a club in Canada chose to develop an antenna based on the Poynting Vector concept. The details are presented.

17: BIRKEHART POYNTING VECTOR ANTENNA - this unique antenna integrates numerous concepts from antennas presented in this book as well as geometrical optics to minimize reflection and diffraction, resulting in a small antenna with wide bandwidth and an isotropic radiation pattern. It has virtually constant radiation resistance over a wide frequency range.

18: FLUTE POYNTING VECTOR ANTENNA – through analysis and experimentation the Flute shape has been found to be the ultimate antenna. It is small, has nominally 10% bandwidth, high efficiency (less than 1 dB loss at the low end), and tunable over a more than 12/1 frequency range. It is the choice for commercial and military applications. A new company has integrated a computer, radio and the antenna to form a system. Two or more of these systems can communicate via HF propagation to convey voice, data or emails just as done by the internet except the communication link is the ionosphere rather than a cell tower or satellite.

After the book was published a test was performed comparing 27 MHz CB antennas on Ted's pickup truck. The standard commercial antenna for trucker served as the base line. Replacing that with a ¼ wave whip

gained 3 dB. Replacing that with a Poynting Vector antenna (only 9 inches tall) gained another 3 dB. Thus, a trucker could replace his existing whip and gain 6 db, which is equivalent to doubling the distance.

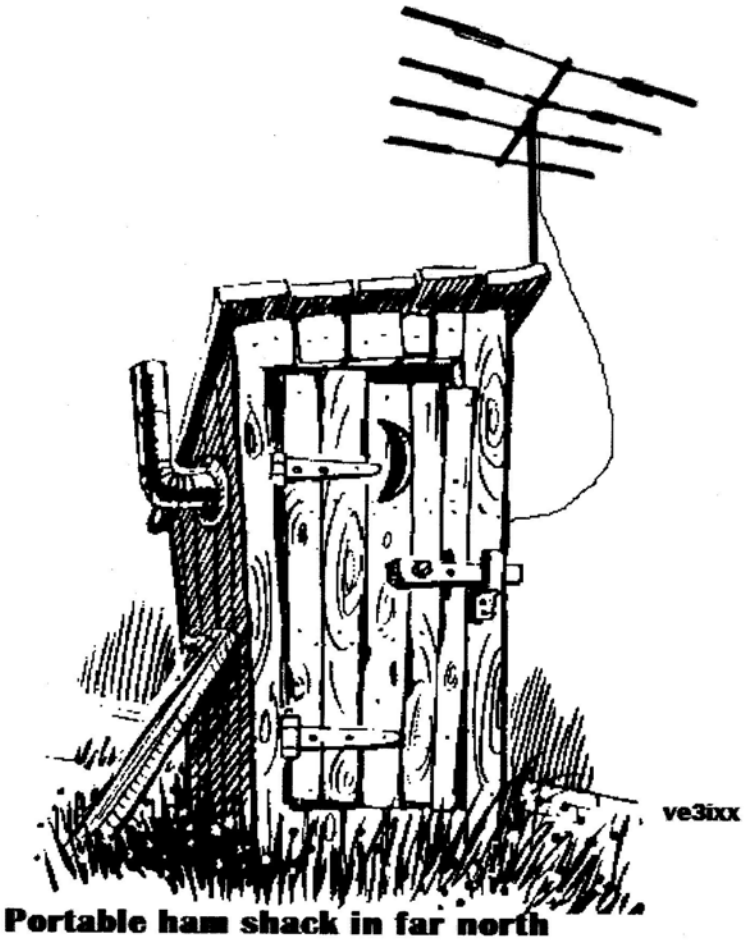
19: RFID ANTENNAS – this chapter explains that a 90 degree phase shift network inserted in the feed line will cause a Hertz antenna to develop radiation in the near field. This significantly enhances performance in numerous ways.

20: MAXWELL'S EQUATIONS UNDER REVISION – these equations have been the bible since they were recorded. However, they have limitations and this chapter lists the corrections needed.

21: HINTS AND KINKS – Useful information, particularly for Hams when building and testing Poynting Vector Antennas.

22: BACKGROUND INFORMATION – presents the evolution of these antennas and also includes test information for an AM Broadcast antenna.

23: COMPUTER PROGRAM – it was not feasible to include the Excel spread sheet in the book. It has now been placed on the forum.



Portable ham shack in far north

UPCOMING
"ADVANCED CERTIFICATE"
COURSE
By
The Cambridge Amateur Radio Club

Bob VE3MF, current president of the Cambridge Amateur Radio Club announces-

The Cambridge Club is going to run an Advanced Course starting January 7, 2017. The course is free but there is a charge for the Advanced manual. The course will require on-line registration through the Cambridge Public Library, also known as the Idea Exchange.

The link is **www.ideaexchange.org**

The registration for the course will be available at the end of the month.

If there are any questions please contact me via

www.cambridgeham.ca

All the best,

'73

Robert (Bob) Kernohan VE3MF

President Cambridge Amateur Radio Club