

MARCH 1995



NEXT GENERAL MEETING WILL BE HELD
WEDNESDAY, MARCH 8, 1995

GROUNDWAVE



Club Call VE3RC

Repeater VE2CRA

VE3RC

Official Bulletin of the Ottawa Amateur Radio Club, Inc.

The Ottawa Amateur Radio Club, Inc., Box 8873, Ottawa, Ont., K1G 3J2

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THE OTTAWA AMATEUR RADIO CLUB, INC. is an association of Radio Amateurs devoted to the promotion of interest in Amateur Radio communications in the National Capital Area; and to the advancement and achievement of club members.

REGULAR MEETINGS of the OARC, Inc., are held on the first Wednesday of each month (except July and August) in the Champlain Room (2nd floor of the Old Teacher's College) of the RMOC HQ complex on Lisgar St., Ottawa, at 1915 hours. Further details about each meeting is elsewhere in this publication.

THE OARC EXECUTIVE normally meets on the second Wednesday of each month at 1930 hours. Contact the President to confirm the date of the next meeting.

PACKET RADIO MEETINGS will be held at 7:30 p.m. on the last Thursday of every 2nd month, starting September 1993, at the Museum of Science and Technology. This is an OARC technical meeting open to all who have an interest in packet radio.

DEADLINE FOR COPY is the second Wednesday of each month. Make yourself better known to fellow members and other amateurs, too, by giving us an article, technical or otherwise, relative to our hobby.

MATERIAL PUBLISHED herein does not necessarily represent the official OARC viewpoint. Items may be reprinted by Amateur Radio or other publications provided that proper credit is given to the author and to the OARC, Inc.

JUNIOR MEMBERSHIPS - To encourage young people to join the club and to participate in amateur radio, the club is opening a junior class of membership. Dues will be at a 50% discount but the junior member must pick up his/her copy of the Groundwave (preferably at the meeting).

RADIO AMATEUR CALL BOOKS are available at many local libraries. Ask at the information desk.

SAFETY BELTS AND AN ENGRAVING PENCIL are available for loan to club members. The engraving pencil (to mark valuables for identification in case of loss or theft)

and the safety belts with pole straps are available to any members. For the belts, a refundable deposit consisting of a cheque equal to the replacement value of the belts is required. Contact the President for the engraving pencil; and Paul, VE3ICV, at 820-6643 (West End) or Brian, VE3JKZ, at 523-1535 (East End) for the belts.

THE CAPITAL CITY NET meets every Monday at 2000 hours on the Club Repeater VE2CRA (146.34/.94) to pass traffic and to make announcements of interest to amateurs in the National Capital Region.

PACKET RADIO VOICE NET meets following the Capital City Net on VE2CRA at 2040 hours. This is an informal net to answer questions about packet radio, pass along operating hints and provide information for future packet operators.

THE SWAP NET is a service provided and conducted by Ed Morgan, VE3GX. This feature appears on the Capital City Net, noted in the foregoing paragraph. To list items and make inquiries, call Ed Morgan at 733-1721.

POT-HOLE NET is a SSB/HF net sponsored by the Ottawa Valley Mobile Radio Club, and conducted every Sunday at 1000 hours on 3.760 Mhz. All amateurs are welcome to check in. The Swap-Net is a regular feature.

POT-LID CW NET is an informal slow-speed CW net sponsored and conducted by Ed, VE3GX, and meeting every Sunday, except during July and August, at 1100 hours on 3.620 Mhz, to promote interest in CW and CW procedures.

REPEATERS

VE2CRA	Voice	146.94/34 443.300/448.300
VE3OCR	Packet	145.01(sx) Inter city links
VE3OCR	Packet	145.07(sx) Local Area net for QSO and Packet BBS.
56 kbps	Packet	220.55/433.55
VE3XDX	Packet	145.11(SX)

For further information, please contact repeater chairman.

****ATTENTION**ATTENTION****

The March OARC general meeting will be held on the second Wednesday of the month, March 8, 1995, in the Champlain Room of the RMOC HQ complex.

The Executive meeting will be held on the first Wednesday, March 1st.

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MINUTES OF OARC GENERAL MEETING
HELD FEB. 8, 1995

The meeting was called to order by the President, Roger, VE3BZR, at approximately 19:30.

Roger introduced Ernie, VE3EJJ, from the OVMRC. Ernie informed the members that the OVMRC was successful in obtaining government funding and as a result was recommissioning VE3JW at the National Museum of Science and Technology. He

invited members to volunteer as operators. The station presently has a Kenwood TS-850 SAT and a linear. As time progresses various other modes will be added, such as packet and ATV. Anyone interested was invited to call Ernie at 728-3666 or Gerry Wells at 225-7374.

Roger offered congratulations to John, VE3GS, for getting up to number 1 on the DXCC Honor roll, SSB only.

Members were asked if anyone needed information or help. The question of who locally printed QSL cards was raised. It was suggested that there was a printer at the corner of St. Laurent and Belfast. Carl, VE3CGM, asked who might be a source of tubes. He was advised to contact Jerry, VE3AVI. A suggestion was also made that anyone with influence approach the Tourism Bureau with the idea of sponsoring QSL cards promoting the city of Ottawa.

Roger invited any guests to sign the guest book to receive a complementary copy of the Groundwave.

Roger introduced the evening's guest speaker and club member, Todd Nichols, KBOHQ/VE3. Todd is originally from South Carolina, received his Ph.D. from the University of Colorado and worked with BNR in Dallas before moving north to Ottawa where he continues to work for BNR. Todd gave a slide presentation on "Micro Strip Antenna Design." He explained that these antennas, designed for the UHF and microwave bands have several unique advantages as low profile and aerodynamic, low cost and repeatable, linear and circular polarizations available, versatile and shock resistant, versatile pattern synthesis, one patch on ground plane has a gain of 7db and integrate active components onto patch substrate. Disadvantages were said to be narrow bandwidth, feedline may interact with patch and critical parameters. Todd touched on beam steering, micro strip array feed networks, circularly polarized antennas and a "real" micro strip antenna

array, 3.5" x 3.5", that he designed in school with a center frequency of 10.8 Ghz and a gain of 11.8 db. After Todd's talk he took numerous questions from the floor. Richard thanked Todd for his informative presentation, especially with such short notice.

Roger advised that we may have scheduling problems for the monthly meeting and that it may be necessary to reschedule the meeting. Other locations will be sought, however, for the time it was suggested that members look to the Groundwave and the nets for time and location. Home brew night will be in April.

Richard advised that an advanced class of 19 students has begun at Carleton University.

Harrie, VE3HYS announced that the ski marathon was this weekend. Due to poor weather the first three sections have been closed resulting in a new route.

Roger closed the meeting at 20:55 hours, followed by a ragchew and coffee.

Roger

UPCOMING MEETINGS

March: George Roach, VE3BNO
 April: Home Brew Night
 May: Speaker to be announced

VOLUNTEERS NEEDED!!

A volunteer is still needed to fill the Editor's position. Also, elections for the 1995-96 Executive will be coming up in a few months. Anyone interested in supporting their club by volunteering for a position may do so by calling any member of the Executive.

MAKERS OF ELECTRONIC HISTORY

JOSEPH HENRY



Born in Albany, New York, in 1797, Joseph Henry acquired fame through his far-reaching discoveries in magnetism and electricity. Also, he developed numerous magnetic principles that later on formed the basis for our modern telephone and radio communications systems.

He was the first to observe the phenomenon of electromagnetic induction, and was honored for this discovery by having the term "henry" adopted for the unit of inductance. He was also the first to employ magnetic attraction and repulsion for producing motion, and constructed the first electric motor equipped with a commutator. Through his further studies with the Leyden jar, he practically suggested the existence of radio waves in space. In general, Henry probably did more towards advancing the science of electricity than any other American since Franklin. He died in 1878.

Picture - Courtesy RADIOCRAFT
 de Peel Signal, Bulletin
 of the Peel Amateur Radio Club

SIX HAMS ABOARD CANADIAN ICEBREAKER AT NORTH POLE

The Canadian icebreaker *Louis St-Laurent* returned in October from Canada-USA Joint Scientific Expedition to the Arctic Basin, climaxed by a 24 hour visit to the North Pole together with the US icebreaker *Polar Sea*.

Aboard the *Louis St. Laurent* were six Canadian Amateur radio operators, one of whom - Bill Falconer VE1VCB, was contacted on August 29, shortly after the North Pole rendezvous off the coast of Spitzbergen, using the ship's amateur radio call VEOMBJ. Bill supplied the information in this article.

In the evenings they would go on the Amateur bands and work DX: "one or two CQ's with the VE0 call" says Bill "and we had a pile up. I did mostly CW, and Phil VE1CGT would come up later and work SSB. We have several other Hams on board also: VE1BFX Bob, VA3KA Ken, VE2YGB Ivan and VE1VCS Gord."

While in the Arctic we started to listen to some of the Ham satellites; having not looked into this aspect of hamming much, but now we are going to see what is required to get on the air. We spent a lot of time in the Arctic and I was surprised at the coverage these satellites have. The last four or five degrees (Latitude) before we got to the Pole, and the same after we left it, we lost the commercial satellite that the ship uses; but the Amateur satellites were there throughout! I would appreciate any information or contacts concerning satellite operations. We will be heading for the Arctic again next summer, and by the time we hope to have something up and running. You know what manuals we will be reading this winter!"

CFARS OPERATORS A GREAT HELP

"The rig here is an ICOM 781 running about 150 watts into a home made dipole; we also have a KAM+ for a TNC, but have

not used it yet; poor conditions at the Pole. The only band open while in the Arctic was 20 metres, and the window into North America was only a few hours a day. As the window was around 1200 to 1400 our local time, we used it to run phone patches for the crew on CFARS. We had a lot of support from CFARS operators all across the country, but there were four operators who were with us practically the whole way: VE1QU Ralph Campbell; VE1EB Ed McGillivray; VE3ANO Al Oldfield; and VE7UZ Vic Williams. We had a sked every day with these operators, and didn't miss many days. I would like to say a sincere thanks to all the CFARS operators from the crew of the *Louis*."

"The morning we got to the Pole was started at 0530 our local time, and ran 40 patches in a three hour period; anyone who wanted to call home could; we were really lucky because the band had been very poor the previous two days without patch quality; this morning the band was wide open."

Bill VE1VCB explained that he was one of two electrical officers on board ship. The ship had just completed an extensive refit, changing from steam driven turbo generators to diesel. "The whole propulsion system was replaced with the latest Siemens digital drive controls, to control the three 10,000 hp DC electric motors that propel the *Louis*. This refit has increased our fuel efficiency and greatly enhanced our ice breaking capabilities. We have two engine rooms; the forward one with two 5 megawatt main generators and two 900 kW auxiliaries; the aft one with three main and one auxiliary. All told we can generate some 27 megawatts."

The time on the Pole seemed to go fairly fast. We were there for 24 hours. Phone patches for the crew was the extent of our hamming for the day; didn't work one DX contact which was a real shame. After three or four hours doing phone patches, we had a baseball game with the *Polar Sea* and won! Some people were skiing; a

friend and I had mountain bikes so we went for a ride around the Pole; others went for a polar swim; there was skating, kit flying, etc. The sun never set the whole time we were there, so if you couldn't sleep and woke up at 3 am, you could always go outside and join in whatever was going on."

A POLAR WEDDING

"Another big event was the wedding for two scientists on board. As we were out of satellite range, the Amateurs provided communications to the newlyweds families, which went really well, as the band conditions were excellent. The ceremony and reception were held in the helicopter hangar. The *Polar Sea's* crew were invited and a good time was had by all."

MEETING WITH RUSSIAN NUCLEAR ICEBREAKER

"While at the Pole our captain was in touch with Russian icebreaker *Uama1*, and the next day we steamed over to her QTH about 15 miles away. We had a nice barbecue and a tour of the ship. The Russians treated us really well, and we were permitted to go anywhere we wanted on board. They opened a small observation hatch and we could look right down on the reactors. She has a length of 500 feet and is 110 feet wide."

The two reactors run four large generators; the main propulsion system is turbo electric, very similar to ours before our refit. One big difference is that she puts out 75,000 shaft HP, which as we saw the next day can make a ship do some pretty impressive moves in the ice."

"The average thickness of the ice at the Pole was 15-18 feet, with ridges as thick as 45 feet. We took turn and turn about with the *Polar Sea* as lead ship. The ship following would burn far less fuel than the one breaking the ice, and would not shake or vibrate as badly, giving both crew and machinery a break."

POLAR BEARS TAGGED

"We had one guy on board who would tag every polar bear we came across, and hang a special locator collar around their necks, so the bears could be tracked for about a year by satellite. One of the bigger bears he tagged was a little over ten feet long from nose to tail - more bear than I care to be around even if he is sedated!"

"This joint Canadian/American expedition involved 60 scientists with the aim of understanding the Arctic in the context of global change. The 55 day undertaking included experts in oceanography, ice physics, geologists, biologists and environmental scientists. The leader of the Canadian team was Dr. Ed Carmack of the Institute of Ocean Sciences in Sidney, B.C. The Project Science Leader was Prof. Knut Aagaard of the University of Washington in Seattle, WA.

de David Adams, VE3HBF
YRARC Splatter

HOW TO REPAIR A RADIO

Step 1. Approach the ailing radio in a confident manner. This will give the radio the mistaken idea that you know something. It will also impress anyone who happens to be looking, and if the radio should suddenly start working, you will be credited with its repair. If this step fails to work, proceed to step 2.

Step 2. Wave the manual at the radio. This will make it assume that you are at least familiar with the source of knowledge. Should this step fail to work, proceed to step 3.

Step 3. In a forcible manner, recite Ohms Law to the instrument (CAUTION: before taking this step, be sure of your knowledge of Ohms Law). This will prove to the radio, beyond the shadow of a

doubt, that you happen to know something. This is a drastic step and should be attempted only if the first two fail. If this step fails to work, proceed to step 4.

Step 4. Jar the instrument slightly. This may require anything from a three to six foot drop, preferably on a concrete floor. However, you must be careful with this step because, while jarring is an approved method of repair, you must not mar the floor or get the radio out of alignment. Again, this is a very drastic step. If it fails, proceed to step 5.

Step 5. Brandish a large screwdriver in a menacing manner. This will frighten the radio and demonstrate your knowledge of the deadly "short circuit" technique. Proceed to step 6.

Step 6. Add a tube...even though the radio is solid state. This will prove that you are familiar with the radio's design. This will confuse the radio and thereby increase your advantage. If this does not work, proceed to the most drastic and dangerous step. It is seldom needed and is a final resort if all else fails!!

Step 7. THINK!

(Courtesy of READY, FIRE, AIM school of operations; author unknown.)

de Guelph Amateur Radio Club

SKI MARATHON

Harrie Jones, VE3HYS, would like to thank all the volunteers who so generously gave their time to participate in this year's Ski Marathon.

CYCLE VS. HERTZ

Jack Carr, NV9S

Several years ago, when 'hertz' was used to replace 'cycle' in radio wave frequency designations, there was some displeasure among the old timers (we old timers don't like to see any changes.)

I think the problem was that a specific word was used to replace a non-specific word. 'Cycle' can be denotative and connotative. 'Cycle' denotes something that has rhythmic pattern - be it a washing machine or a frequency. Used specifically, 'cycle' connotes the word it is being used with, e.g., kilo-cycle, moon cycle.

We would not think of saying, "The washing machine is in the rinse hertz." We would, however, feel comfortable using the word 'cycle' in the two sentences above because 'cycle' means periodic pattern. 'Cycle' can also be a verb. Something can not be hertzing or re-hertzed.

In all fairness to the purists, I must point out that hertz refers to cycles per second. (1 Hz=1 cps). By saying, "One thousand kilohertz," we are saying, "One thousand kilocycles per second." I can't think of any situation in which one would say, "one thousand kilocycles per hour" when talking about electromagnetic waves. This might be why the old timers think that it was like putting bumper guards on bumpers to substitute 'hertz' for 'cycle'.

As I said, we old timers like to see things last. When I first read that our sun was good for only about 12 billion more years, I felt kind of sad.

Newswave, DuPage ARC
from WORDRADIO

mk's WORDS

(This column was written for the January Groundwave, but with all the chaos around Christmas, it never seemed to get to the proper place .. so you will have to settle for lefovers this time. (mk) It's 1995 already. Where does the time go? It is also (according to the ITU at least) the 100th anniversary of radio.)

In light of that, I thought I'd put together a list of the milestones and some ner misses along the way to the beginning of it all:

- 143 br (before radio) 1752 Ben Franklin proves that lightning and electricity are the same thing while flying a kite in a thunderstorm.
- 57 br (1838) Prof C.A. Steinheil of Munich proposes the use of electricity for wireless communication, invents a two symbol alphabetic code and progresses from a two wire system to one using only one wire, to one which can signal across a body of water. It works by using two widely seperated plates on each shore. It isn't quite radio, as it runs on direct current. The same year, Morse invents and demonstrates his electric telegraph.
- 53 br (1842) Joseph Henry shows the discharge from a Leyden jar to be oscillatory in nature. He magnetizes (or is it de-magnetizes) needles at a distance of 200 feet with a single spark.
- 45 br (1850) Guitard notes that nearby dust particles clump together (cohere) when sparks are emitted from his static generator.
- 31 br (1864) James Clerk Maxwell predicts electro magnetic fields and postulates that IF waves of electro magnetic disturbance can be generated, they will travel outward at the speed of light.
- 23 br (1872) Mahlon Loomis patents the use of "natural electricity" for signalling using kites tethered to mountain tops and keying one of the wires.
- 20 br (1875) Prof. Elihu Thompson deliberately excites an ether disturbance and detects it in another room 6 floors and 100 ft. away, but does not persue his studies in this area.
- 16 br (1879) D.E. Hughes hears clicks in some of his microphones when a spark is generated in the circuit. He removes the wires and the clicks remain. Around the same time he re-discovers that fine carbon particles cohere in the presence of a spark, but only concludes that this makes microphones made this way unreliable.
- 14 br (1881) A.C. Brown proposes an inductive method for communicating with moving trains.
- 13 br (1882) A.E. Dolbear applies for a patent for wireless telegraphy.
- 11 br (1884) Dolbear sends signals 13 miles.
- 10 br (1885) Edison signals to trains inductivly, while Heaviside sends signals down into a coal mine.
- 7 br (1888) Hertz publishes results of experiments with electromagnetic waves, investigating properties and showing similarity to optical phenomenon. When asked, dismisses the possibility of ever using the new waves for communication.

3 br (1892) William Crookes suggests that tuning will be needed to allow more than one signal at a time to be passed. He notes that all the requirements for communication across free space are now within the possibility of discovery.

1 br (1894) Lodge demonstrates transmission and reception of electromagnetic waves. (in later years opinions differ on whether or not he mentioned their use for signalling).

0 (1895) A.S. Popov develops a mechanism for recording atmospheric disturbances. He notes that his apparatus could be used for signalling if only a sufficiently powerful transmitter could be devised. It later turns out that, like other people in other countries, he is working on such a project in secret for his government.

Rutherford de-magnetizes needles via spark at a distance of 3/4 mile.

Marconi signals over a range of 1 3/4 miles at his fathers farm. Unlike most of the others, however, he is most interested in the practical development of wireless as a commere and receiving messages over ever greater distances. He persists in his search for financial backing as well, and the rest, as they say, is history.

73, happy signaling
mk.. VE3FFK

YOU KNOW YOU ARE A HAM WHEN...

1. The mail arrives and you read your radio magazines before you balance your bank statement.
2. The lawn needs mowing but you put it off to get that rare DX station.
3. You turn a family outing that was supposed to be a Sunday drive, into a stop at a Hamfest.
4. You find yourself thinking "dididitdahdahdah didahdahdit" while your waiting your turn at an intersection.
5. Each passing lightning storm makes you shudder to think what is happening at the home QTH.
6. You send out more QSL cards then greeting cards.
7. You use your HT more than you use the telephone.
8. You or someone in your family is names ELMER.
9. You pick up the telephone and find yourself giving your CallSign to the other party, who doesn't know what you are saying.
10. You go to a neighborhood party and upon introduction someone says, "Oh yes, you're the house with the antennas!"
11. Tubing down the local creek you send out a call as Maritime Mobile.

de NORTOPICS (who credit WORLDRADIO)