WAVELENGTH

Official bulletin of
Scarborough Amateur Radio Club, Inc.
www.ve3we.org

PARTICIPATE – LEARN – ENJOY

65th Anniversary April 2011 Volume 5 Issue 4

President:	Ralph Muecke VE3VXY
Vice-President:	Arpad Vadasz VA3VAD
Secretary:	Ray Chow VE3ZXC
Treasurer:	Lambert Philadelphia VE3LYP
Membership:	Antonio Tiongson VE3FDU
Communications:	Bob Chrysler VE3IEL
Field Day:	Asif Ahmed VA3SIF
Education:	Nick Blacklock VE3EBC
Examiner:	Nick Blacklock VE3EBC
Assistant Secretary:	Rod Long VE3SOY
Archives:	Gord Hogarth VE3CNA Audrey Little VA3YD
Elmer:	Rod Long VE3SOY Nick Blacklock VE3EBC

SARC Nets

Sunday	28.730 Mhz CW 10:00 AM SSB 10:30 AM
Tuesday	147.060 MHz (VE3RPT) 7:30 PM Alternate frequency 146.520 MHz simplex
Thursday	28.730 MHz SSB 7:00 PM

Everyone is invited to check in on CW before the nets start.

These are open nets. All licensed hams are welcome. Come and join us.

We also want to emphasize that 28.730 MHz is our calling frequency. Please monitor and/or call your friends. 7:00 PM is a good time.

SARC 65th Anniversary Party
April 18, 2011
7 PM
Don Montgomery CC

From the President

Now that spring is upon us and the air is crisp, we are all ready to put up that antenna that we got over the winter to replace the one that just didn't want to work all that well. Please think safety - after all we need you at our field day this year. So that will be at our new park this year and I'm looking forward to June myself.

Just wanted to say thanks to everyone that helped me and our club out at Ham-EX this year.

Thanks Ralph VE3VXY

Happy Birthday SARC!

HAPPY 65th BIRTHDAY to SCARBOROUGH AMATEUR RADIO CLUB, INCORPORATED!! And many more of them!

This month of April in the year 2011, Scarborough Amateur Radio Club Incorporated celebrates 65 continuous years of service to the Amateur Radio community in Scarborough and Toronto.

I cannot think of a more appropriate topic to write about than the story of our founding, and the most accurate account appears just below. This story is simply copied from SARC's website and here it is for all to read.

I hope as many people as possible will be at the next SARC meeting on Monday, April 18, 2011 for a birthday celebration and I do plan to have some of our historical materials available for viewing as well.

73 de Gord, VE3CNA

THE FORMATION OF THE SCARBOROUGH AMATEUR RADIO CLUB

One spring evening in the early part of April 1946, five hams sat in the car of Ken Tripp VE3DGM, after attending a meeting of the Wireless Association of Ontario. Suddenly the idea arose – why not form a club in Scarborough.

On April 23, 1946 the following hams met at Ken's home on Scarborough Crescent (160 Scarboro Crescent): Ken Tripp VE3DGM, Vince Graham VE3AXB, Jack McKenzie, (no call sign), Chuck Harvey VE3ARC, Jack Marr VE3BDO, and Al Wilson, VE3AMB.

The following officers were elected: President, VE3AMB; Treasurer, VE3DGM, Secretary, VE3ARC, and Chairman – VE3BDO.

The meetings continued for one year and by this time Wilf, VE3AJO had joined the group. By the fall of 1947 the Club was expanding and through the help of VE3AZC (Frank Stewardson), Oakridge Public School was procured as a meeting place.

Abut this time Barney, (VE3DVA) now VE3MB, came into the picture. The Club was showing growing pains again and Barney suggested we move to his recreation room at the rear of his basement and many enjoyable meetings were held there.

Quite a bit of carpentry work was added to make more sitting room and one night all the club turned out to paint the room. A few enjoyable Christmas parties were also held there.

Later we moved to the Civil Defence on Eglinton Avenue. Then to Cedarbrae. On to the Scarborough Boys Club on Ellesmere. Back to Cedarbrae , and now at the Scarborough (Foreign) Mission.

The first Field Day was held at the old Eatons' Boys camp just west of the radar plant. One field day at the Bluffs, due to heavy rain and mud, everything was hauled in and out on planks. What Fun!

I would like to mention a few of our past presidents: Jack Turner, VE3NZ; Tom Mcdonald, VE3JO; (all now deceased) VE3AZC Frank Stewardson; VE3ARC Chuck Harvey; VE3AMB Al Wilson, VE3DMB Fred Whitton; VE3BOX Art Wilkins; VE3DVA Geoff Wade; VE3TT Dick Guy (now VE7GG); VE3BZU Herb Lehman; VE3DZI Jim Leitch; VE3BXM Norm Dickenson, VE3EBN Eric Squires and last but not least Bill Cate, VE3HR.

This completes roughly the story to 1967 – Centennial year.

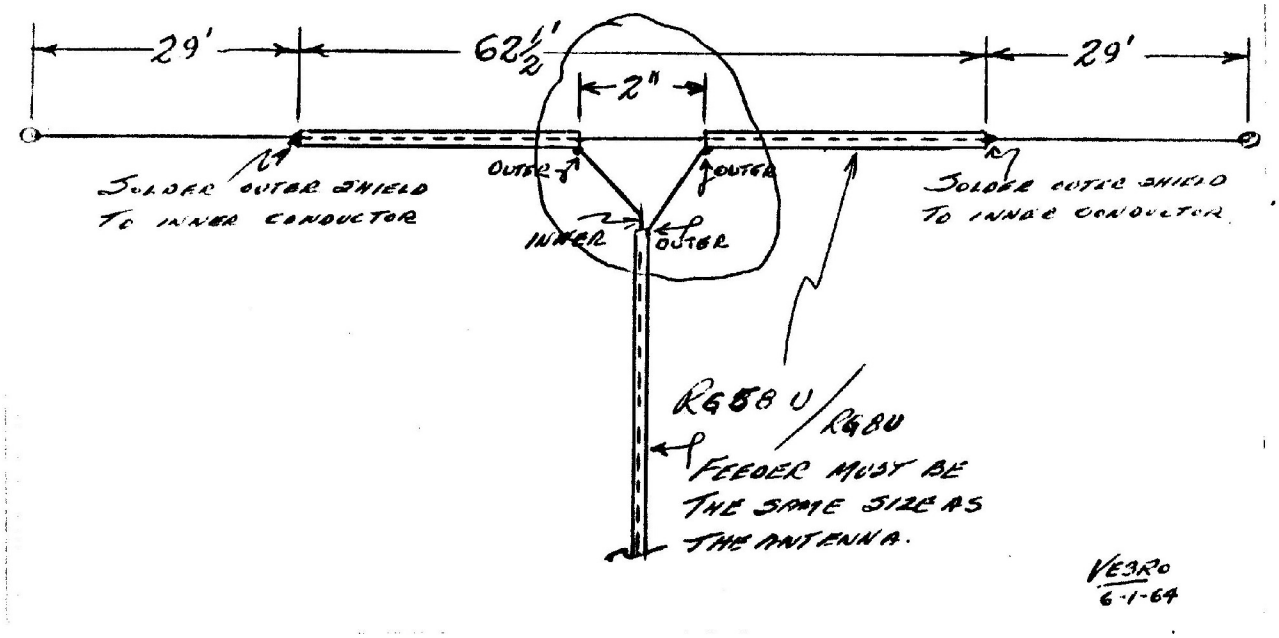
Submitted by Wilf Brown VE3AJO

Mystery Antenna

Rod VE3SOY writes:

Found some interesting antenna designs in a book of antennas (picked up at a hamfest years ago). These were inside the cover, stashed away.

They look like they were printed for a club meeting. Attached is the first one. Perhaps you could use it for a contest, name the antenna?



Long-Delayed Echoes

HELLO ALL SARC MEMBERS AND ALUMNI

As you all know by now, this Month marks the 65th birthday of Scarborough Amateur Radio Club, Incorporated and I have attached some artifacts from both 1946 and 1948 for your viewing pleasure.

Sid Prior (sk) was a well-known SARC member and his Column heading means: "Canadian and U.S. Receiving Station" and SARC is given prominent mention on the right-hand column.

I plan to have some artifacts from the SARC Archives out at the meeting on April 18, when we will have the Club's birthday celebrations.

Happy Birthday SARC and many more of them.

73 de Gord, VE3CNA

have their own members and anyone just doesn't go sailing into a TL and sitting out the entire session without being invited, it occurs to me that there is still room for considerably more co-operation on the part of Ve3's, particularly in this phase of the art.

Ontario with 9 RM's and a great body of ORS stations seems particularly well fitted for more responsibility in the handling of traffic anywhere, be it in the United States or Canada. Properly organized at the outset of traffic activity this fall, it would seem to me that Ve3 stations might call in and QRU? on a number of these nets on an organized basis, with the object of looking for Canadian traffic or QSP's and then asking for QNX so as not to intrude. There seems little doubt in my mind that if this were accomplished on an organized basis (prearrangement between Ve3 RM's and ORS stations) so as to hit the main TL's in the United States, there would be more traffic originated in Canada destined for the United States, and more traffic originated in the United States bound for Canada, and Ve3 stations would feel a greater sense of responsibility in the handling of all-round traffic and be better equipped for future possible emergencies, where operating ability counts.

Walter Guillot, Ve3BUR.

VE-GET-ACQUAINTED PARTY

Phone or CW

Call CQVE/CQVE/CQVE and sign call letters. See how many Ve stations you can work in 24 hours out of 33 hours.

Here is also a chance to win a WAVE certificate:

When—Saturday, Nov. 27, Sunday, Nov. 28, 1948.

Starting Time—3 p.m. P.S.T., 4 p.m. M.S.T., 5 p.m. C.S.T., 6 p.m. E.S.T.

Ends—Nov. 29, 12.01 P.S.T., 1.01 a.m. M.S.T., 2.01 a.m. C.S.T., 3.01 a.m. E.S.T.

Scoring Points—6 points per QSO, if Ve8; 4 points per QSO, all other districts. If a member of CAROA, bonus of 25. Add total QSO points and multiply this by the sum of different sections worked.

Use any choice of authorized bands. Same station may be worked once on each band. **Any station reported working out of the bands will be disqualified.**

On your log indicate each change in band and type of emission. Also mark each station worked if a CAROA member. If more than one operator works from your station, submit a separate score and log for each.

You do not have to be a CAROA member to enter this contest.

C. & U.S.R.S. COLUMN

By Sid Prior

Here it is November, and by now you will be busy listening in, night after night, hooking as many VE's, W's and dx stations possible, and keeping your fingers crossed that your SWL cards and letters will be answered, so as to pile up a score for our SWL contest now in progress till March next.

I hope the contest rules in the October issue were quite clear and you boys of the SWL realm will make it a fb contest, so good luck, fellows, and may the best man win.

Well, fellows, your editor has been visiting and has still more visiting to do in the interest of the SWL's and XTAL. My first visit was to the Nortown Radio Club at their inaugural meeting, and I had the privilege of saying a few words to the SWL's and the members at large. The occasion was very enjoyable and prizes galore, and so to its executive I send my very best wishes for the club's continued success.

My next visit was to the Scarboro Radio Club and there I passed on the greeting of CAROA and spent a very enjoyable evening, and my thanks to B.K.B. for inviting me up.

At this particular meeting I had the honor of making the draw for the evening door prize, and to be sure it was a year's subscription and membership to CAROA and XTAL, and the lucky winner was an SWL in the person of Ted Collard.

Now for some info on SWL stations of the members of the Scarboro Radio Club:

Ted Collard, 111 Westlake Ave., Toronto—Receiver, NC46 and a 19 Set, bands, 20-40-80; antenna, long wire end fed; Ted copies code and going after license soon.

Barney Cooick, 2482 Kingston Rd., Scarboro Bluffs—Receiver, S40, all bands; antenna, 10-meter folded dipole and long wire; dx, Norway, Cornwallis Island in the Arctic, and Barney has enough cards to paper a room.

Ken Tripp, 160 Scarboro Cres., Scarboro Bluffs—Receiver, home-built job; all bands but 10; antenna, long wire; license soon.

Dennis Eason, 89 Robinson Ave., Scarboro Bluffs—Receiver, S40 and a home-built 9-bottle job; bands, 10 and 20; antenna, long wire; license soon.

As you will notice the Scarboro Radio Club SWL's are after their license, as they have a well-organized code class in the capable hands of Ve3AQR-ARC so to the S.R.C., lots of luck and continued success to your club and your very fine club paper, "Dah Dit Dah."

So, fellows, before I fill XTAL pages with a lot of chatter, I will once more mention the SWL contest, and as to the prizes they are coming on fb, and in a future issue I will be able to tell you what they are.

HAM TECH

Vol 2 No 1 By: JOHN - WY2J

wy2j@arrl.net

Tropospheric Scattering

70 cm Over- the- Horizon Stations

Originally published in the South Jersey Radio Association newsletter Harmonics. Thanks to SJRA editor Ted W2TAG. Visit http://www.k2aa.org/ for more information about SJRA.

Last month we explored some of the fundamentals of propagation by Tropospheric Scattering of VHF & UHF signals. Using a chart method developed by Collins Radio Co. in the early 1970's we were able to calculate the median propagation loss on a 200 mile path, with 50 ft. high antennas, at 2 M, 70 cm and 23 cm. The propagation losses $(L_{Prop})_{50\%}$ were 226.8, 220.1 and 223.4 dB respectively. Since 70 cm gave the lowest loss we will pick that band to construct and analyze our two stations this month.

Let's pick some basic components for our stations with a focus on being practical and keeping costs reasonable. Mode wise we will start with good old CW and then extrapolate to SSB voice and PSK-31. Here are my major component picks.

1. A single long Yagi antenna such as the M^2 model 32-9WL, 28 elements on a 21 ft boom. Free Space Gain (G_A) = 19.45 dBi. Noise Temperature (T_A) = 290^o K.
2. A 100 watt (P_T = +20 dBw) power amp located at the top of the tower.
3. A 0.8 dB NF (T_R = 58.7^o K) low noise preamp with built in duplexer located at the antenna feed point.
4. Coax from the power amp to duplexer is 15 ft of 9913. Loss (L_T) = 0.5 dB
5. Coax from shack to duplexer and shack to power amplifier is 100 ft of 9913. Loss = 3.3 dB maximum..
6. A 70 cm transceiver with +/- 0.01 ppm or better frequency stability that supports CW, SSB and AFSK digital modes.

Our evaluation criteria will be the signal to noise ratio $(S/N)_{50\%}$ on CW with a 240 Hz BW receiver.

1. $S/N_{50\%} = P_R / P_N$
2. $S/N\ (dB)_{50\%} = 10 \log P_R\ (dBw) - 10 \log P_N\ (dBw)$
3. $P_R\ (dBw) = P_T\ (dBw) + 2\ G_A\ (dBi) - L_T\ (dB) - L_{Prop}\ (dB)_{50\%} = + 20 + 38.9 - 0.5 - 220.1$

   $P_R = -\ 161.7\ (dBw)$
4. $T_S = T_A + T_R = 290 + 58.7 = 348.7^o$ K.

(See Ref. No. 1)

5. $P_N = 10 \log (KT_S BW_{Hz})$ where

   K = Boltzman's Constant = 1.38 (10^{-23})

   BW_{Hz} = 240 Hz for CW

   $P_N = 10 \log ((1.38)(10^{-23})(348.7)(240))$

   = -179.4 dBw (See Ref No. 1)

6. $(S/N)_{50\%}$ = - 161.7 – (-179.4) =17.7 dB CW

For SSB voice with a 2400 Hz receiver bandwidth the $(S/N)_{50\%}$ = + 7.7 dB since the BW and the receiver noise power is 10 times greater.

For PSK-31 which digitally implements a 60 Hz bandwidth the $(S/N)_{50\%}$ is 6 dB greater or + 23.7 dB because the noise is one fourth that of the 240 Hz CW receiver.

The 17.7 dB value for CW is almost 3 S units above noise and more than adequate for reliable copy. The PSK-31 signal is almost 4 S units above noise and should produce very reliable copy. The 7.7 dB SSB voice S/N is really marginal. But let's hold off declaring it non usable until we understand just what the $(S/N)_{50\%}$ term really means.

Equation 3 above list the propagation loss as $L_{Prop}(dB)_{50\%.}$ This loss is the mean value of the propagation loss measured ever second for a year and then averaged. It is the mother of all mean values. Within that year are all types of fading with the slowest varying with the seasons and the fastest varying over one second of time. Different phenomena are responsible for the variations including the weather. We do know from much observing that the mean loss in the summer months is about 10 dB less than the calculated yearly average. Likewise in the dead of winter, typically February, the loss increases by approximately 8 dB. These are rule of thumb values but they are useful. In the summer the 7.7 dB mean on SSB voice increases to almost 18 dB or 3 S units, a very useful mode. In February work PSK-31 or one of Joe Taylor's (K1JT) very narrow band digital modes.

Fast fading is due to multiple signal paths in the troposphere creating varying addition and subtraction of the signals. To improve a signal from 50% to 99% reliability requires about another 8 to 10 dB of S/N. There are diversity techniques both frequency and spatial that can nearly eliminate this fast fading loss but they are not too practical for the average HAM.

What I have presented in these two issues of Ham Tech are some simple charts that allow you to forecast the propagation losses of VHF / UHF tropo scatter communication and some simple equations that allow you to evaluate a station. There is a lot I didn't cover due to lack of space but you can ask questions and I will answer them.

Next month I am going to digress from propagation and focus on some antenna basics including patterns and antenna interaction with the earth. I will answer the question of why I used free space antenna gain in the calculations for Tropo Scatter at 70 cm.

Reference No. 1: Reference Data For Engineers ITT. Fifth Edition1972 Chapter 27.