



de N1NC

March 2016 Volume 25 Number 3

## The President's Corner

### President's Corner

Good Day,

The March meeting will be at the Lawrence Library, 15 Main Street in Pepperell on the third Thursday, March 17<sup>th</sup>, in the basement meeting room. The subject for the evening is "High Speed CW", the presenter is George Allison, K1IG. It will be an interesting subject about a topic that few of us, if any, have tried and the techniques and capabilities of the practitioners will be very enlightening.

The February Tech Nite had only a few of us there, but Dan Pedtke, KW2T, saved the evening by presenting a chalk talk of designing a receiver/transmitter using a single amplifier and adding circuit components and discussing the use of each component's function in the circuit. The finished product was a small circuit board and components, via China, for just a few dollars that operated in the 7 MHz band using a crystal choice that was modified by Dan to get into that part of the band usable by General Class hams. Dan is offering the board and parts at a very nominal price, you can get the necessary info re: the offer at his and his son's web site advertised in the signal. Look for [www.vadien.com](http://www.vadien.com) in the Signal.

Next month, April, we will be having elections for the officers, President, Vice President, Secretary, Treasurer, and one position for the Board. Nominations may be made from the floor for the positions and current officers may be offering to stay on. Give some thought to your desire to make contributions to the club by offering to fill these positions.

Thanks to all of you who, in the general conversation with members, offer suggestions, help, and answers to questions that come up in the conversations. This is a form of Elmering that is so helpful to each of us. And a special thank you to Bruce, K1BG, and Jim, AB1WQ, for the work they have done getting a new ham on the air and helping him construct a station and antenna. That is true Elmering and we give them recognition for their efforts.

Looking forward to seeing all of you at the Lawrence Library on the 17<sup>th</sup>..

Peter N1ZRG

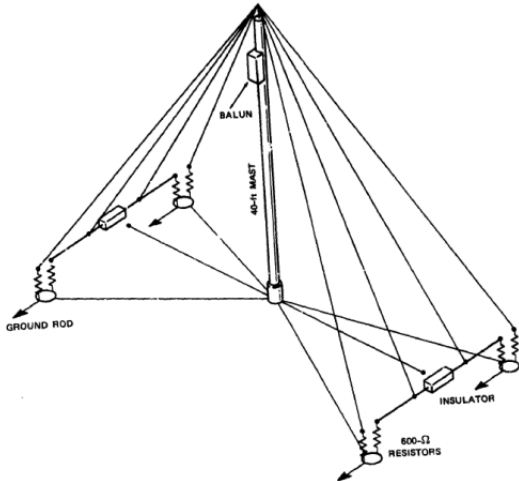
## This Month's Program

**Notice this month's meeting at the Lawrence Library in Pepperell.**

## Last Month's Meeting

Last month's meeting presentation was by Stan KD1LE on Antenna Design and Modeling and tried to show why you might want to take advantage of the tools.

In particular he tried to point out that if you had a specific purpose for the antenna such as regional communications, DX, or some other use? How could you choose the best antenna and how should you mount it for the best performance.



He pointed out it is easier to model an antenna and “try it out” than to build it and take signal reports which are not very accurate. Besides the effort of building the antenna you might have to do testing at various heights and orientations to completely understand the antenna.

Creating a model of the antenna is easier and with relatively easy changes analyze it at various heights and sizes.

#### In Attendance

Jim AB1WQ, Bill AB1XB, Jean K1AVM, Bruce K1BG, John K1JEB, Dennis K1LGQ, Skip K1NKR, Gary K1YTS, Phil KB1JKL, Jill KB1SWV, Faisal KB1SZE, Joe KC1EHM, Charlie KC1EIQ, Stan KD1LE, John KK1X, Dan KW2T, Ed N1YFK, Peter N1ZRG, Ken N3BGN, Jim N8VIM, George W1JHR, Bob W1XP, Rod WA1TAC, Bob W1XP, Gene WW4EN, Greg WY1X

### Girl Scout Thinking Day On The Air

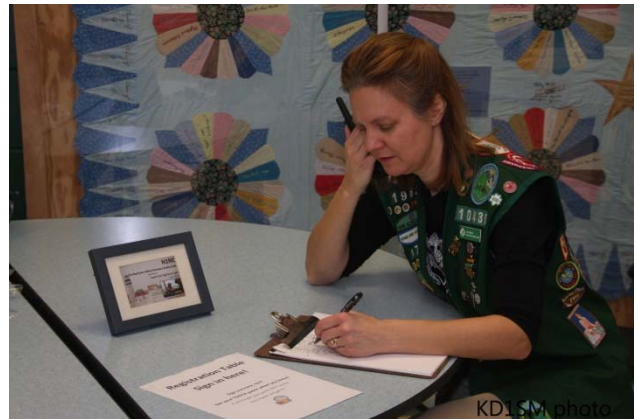
For the second year NVARC members supported Girl Scout Thinking Day On The Air (TDOTA). We trekked to Raymond NH for the event, which for us was kind of a winter Field Day. At O-Dark-30 (6:15 AM) Ralph KD1SM arrived at my QTH for the trip up with the tower trailer and antennas. After a stop in Manchester for breakfast we continued to the Raymond NH Middle School where we meet up with Greg WY1X and his daughter (a Girl Scout). Around 8:00 AM we started the antenna set up and by

9:00 AM we had coax through the window for the station crew.

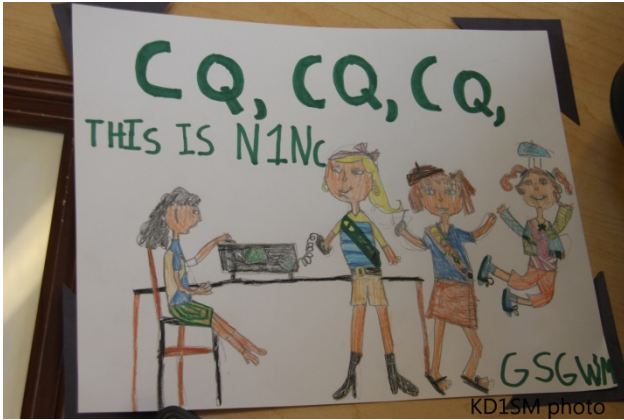


Stan KD1LE at the tower with the antennas ready.

By that time Skip K1NKR, Anita AB1QB (from the Nashua club) and Bruce K1BG had arrived and were setting up the HF station.



Jill KB1SWV (the boss) checked the troops in and kept track of their progress through the various stations using FRS radio.



KD1SM photo

There were a variety of displays the girls created one of which was a QSL Card poster board that held the QSL's from last year. The girls won an award at a Regional Girl Scout event last summer for their activity and display.

Being finished outside Ralph set up a grayline display and I set up the Morse Code station where we had seven positions where the girls would at a minimum send their name in Morse Code.



KD1SM photo

Above Skip explains the Grayline display to a group of Girl Scouts.



KD1SM photo

Above and below Anita AB1QB made contacts and helped the girls speak to the stations that contacted us.



KD1SM photo



KD1SM photo

With Anita at the controls and working with the girls Skip looks on.





Bruce K1BG took turns at the HF station putting the girls on the air. He also “spotted” us when things got quiet. Here Bruce is showing the girls some CW contesting.

The HF station made about 40 Q’s with the girls and Bruce squeezed in another 20 or so in the contest.



The girls went through a series of stations such as making a bead string or bead pin with GS (for Girl Scouts) in Morse Code.



Other stations included things like a little wave theory using string telephones.



Stan KD1LE set up six Morse Code Oscillators and one paddle and keyer for the girls to use. He spoke briefly about call signs while the girls prepared a sheet with their name.



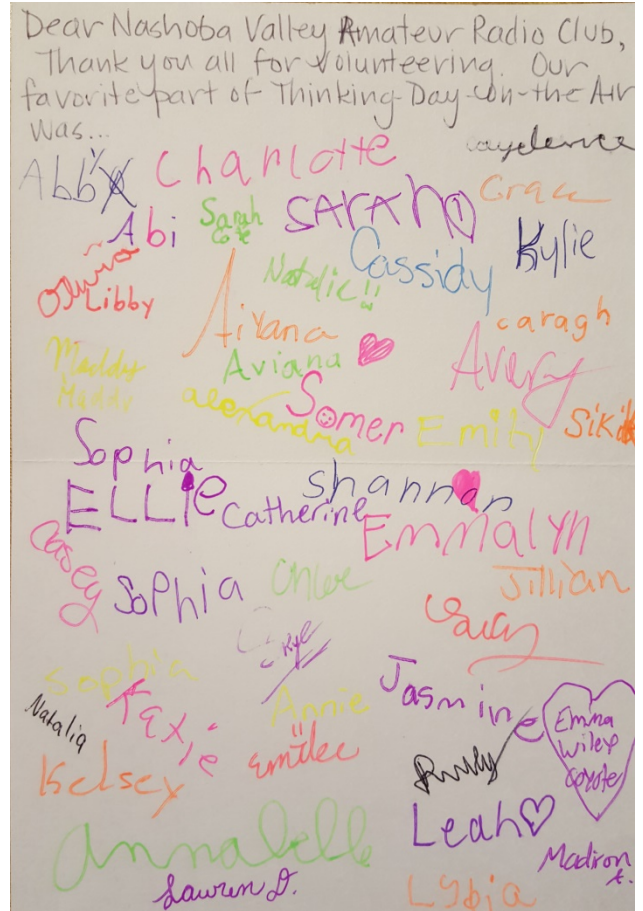
Then they marked the Morse Code next to each letter of their name. He explained how the difference between dots and dashes in time and had them practice “their” dots and dashes. Then each girl sent her name in Morse.



Above my assistant, Annika (Jill's daughter), takes over and explains to a group of the girls the Morse Code and how to send using the code oscillator.



Some of the girls couldn't get enough and came back several times writing short sentences and sending to each other. The girl on the right liked using the paddles though in an unconventional two handed approach.



Last year there were a total of 85 participants counting the girls and leaders. This year there were 68 girls and 31 adults for a total of 99 participants plus NVARC. The girls were from 13 troops (Raymond, Candia, Deerfield, Epsom, Northwood, Nottingham, Brookline, Andover MA, Groton MA).

Stan

## Hamcation Trip Report

**de Skip, K1NKR**  
**Submitted simultaneously to the NVARC Signal and the NARC newsletter**

During the first half of February I was visiting Florida, the land where folks do their morning exercise by riding their electric scooters around the block and their afternoon exercise by lifting "four-o'clocks." Bob, W1XP, had often mentioned stopping at the Orlando "Hamcation" and the timing was right so I ran over to Orlando to

spend the weekend with him and Karen. It was well worth it and I got to compare things with our local hamfests. The following thoughts are critique, not criticism.

Hamcation is held at the Central Florida Fairgrounds and Expo Park. This year Hamcation hosted the ARRL National Convention. Further, the keynote speaker at the Saturday evening banquet was retiring ARRL CEO Dave Sumner, K1ZZ.

I can't compare Hamcation to Dayton—it's been too many decades since the one time I found myself accidentally in town at the time of that event. But compared to Boxboro and NEARfest, it seemed to have had a lot more attendees and massively more flea market and tailgating. By a lot I mean factors of two or three.

And the vendors, wow! Twice, three times, maybe four times what we're used to. From the big guys like Ken-Yae-Com, Elecraft, and Flex to the mom-and-pop parts retailers. If they didn't have it, you didn't need it.

But even though there were seven tracks of talks Saturday, it was slim pickings and shallow content. To make things even more difficult, Hamcation is held on a large fairground, which made getting from talk to talk challenging. Much different from back home! I'm used to having to choose between which of Boxboro's five or six parallel tracks of talks I want to attend. Hamcation's Saturday seven-track schedule offered only four talks that I wanted to sit in on, all of which Bob and I actually attended. Of these, two were OK. Gerald Youngblood, K5SDR, gave a talk proposing some new receiver test standards and Ed Callaway, N4II, described his investigations and resulting theory surrounding an unusual 80m greyline QSO he had to the other side of the earth.

I guess I should also acknowledge the Ham Radio Deluxe talk. While mostly sales, it revealed a pile of capabilities I didn't know I had. I've just been using, and upgrading, and using and upgrading HRD for the past ten years or so, merely accessing just the day-to-day fea-

tures that got me to install it in the first place. Now I've got homework to do. That bargain (\$100) shack management suite has a pile of stuff in it that I had left uninvestigated. This insight alone made the \$15 Hamcation entry fee worth it.

The banquet was FB (although not as heavily attended as a typical Boxboro banquet). Typical—you know, a decent \$24 dinner with the usual \$60 banquet price tag. The real FB part was seeing Dave Sumner, K1ZZ, regarded by all as "Mr. Ham radio" so well-feted in anticipation of his retirement this Spring. Dave gave a real from-the-heart keynote address. While he did give the biographical information you'd expect of any retiree, Dave concentrated his talk on describing and praising other luminaries in the history of Amateur Radio as well as the hobby itself. (On a side note, when Stan, KD1LE, and I went to Mount Wachusett this Fall for the 10GHz contest we arrived without a functioning 2m coordination rig. Dave was just about to depart as we arrived. Instead, he stuck around for the afternoon, had an extended "eyeball QSO," and let us use his rig. He's a real gentleman and the personification of The Radio Amateur's Code.)

And on the unexpected side of my Hamcation experience, there were a surprising number of "locals" from back home (folks we all know from the Nashoba Valley ARC, the Nashua Area RC, YCCC, WRTC, *etc.*) who were there: Ed Deichler, K2TE, former long-time president of NARC; Tom Frenaye, K1KI, New England ARRL Director and our WRTC friend; Doug Grant, K1DG, Grand Poobah of WRTC and NVARC speaker; Ed Parrish, K1EP, Massachusetts Official Observer coordinator and NVARC speaker; Ed Stratton, W1ZZ, of Groton, an occasional NCVARC meeting and Field Day attendee; and of course, Bob Reif, W1XP, and me. There was even evidence that Dick Frey, WA2AAU, leader of the Mount Greylock Expeditionary Force, was there chasing microwave bargains and that the peripatetic Steve Finberg, W1GSL, had been there passing out "Flea at MIT" posters.



## Meeting Coffee Bar

Many thanks to Ed N1YFK for running the coffee "bar" at the meetings. There's been an incremental increase in socializing, and that's what we meet for.

Don't forget to leave a donation if you partake.

## Groton Road Race Sunday April 24

Temperatures reaching the 70s in early March are a harbinger of great spring weather to come. Especially on Sunday April 24 when the 25th running of the Groton Road Race will be held. The race committee is again asking the Amateur Radio community to provide the logistics and safety communications for the Race.

This continues to be a major event for Amateur Radio in North Central Massachusetts. Those of you who have joined us in the past years know that the runners sincerely appreciate our presence. Many say so as they run past. This event is so large that Police Departments from several other communities come to assist the Groton PD. Part of our role is to provide the communications from the Groton Police to these out-of-town officers who come to help with this event.

The change last year to run the 5k and 10k races simultaneously was successful and will be repeated this year. This change increases the number of radio operators needed but also allows us to secure all stations earlier in the afternoon. The courses themselves will be the same as last year. The maps, etc from previous years are available on the NVARC Public Service Events page [1].

Contributing to the public good is one of the reasons Amateur Radio exists. Our public service events are a key opportunity for us to show our colors, volunteer our skills and equipment, and demonstrate why it is in the public's interest to continue to allocate precious RF spectrum to our the Amateur Radio Service. The Groton Road Race is a low-stress event and a great way to gain more experience with the public service aspect of amateur radio. Please consider joining us on the 24th.

If you are interested in helping at these events but unsure of what is expected of you or what equipment you may need, please ask me, Stan KD1LE, or John KK1X.

The Squannacook River Runners and the Groton Police Department repeatedly praise and express their appreciation for your assistance in providing communications for this event. I do hope you will be able to join us this year; please let me know.

Thanks and 73,  
-Ralph

[1] <http://www.n1nc.org/Events/>

## Strays

Raymond Tomlinson, the inventor of modern email has died. Tomlinson died on Saturday at age 74.

Email in the form of electronic messages existed in a limited capacity before Tomlinson. The messages could be exchanged on a single computer system.

But until his invention of the first network person-to-person email in 1971, there was no way to send something to a specific person at a specific address across multiple networks.

[https://en.wikipedia.org/wiki/Ray\\_Tomlinson](https://en.wikipedia.org/wiki/Ray_Tomlinson)

Other events:

**MARCH EVENTS**

National Baked Scallops Day: Saturday, March 12th

Daylight Saving Time: Sunday, March 13th

St. Patrick's Day: Thursday, March 17th

The First Day of Spring: Sunday, March 20th

National Lobster Newburg Day: Friday, March 25th

Easter Sunday: Sunday, March 27th

National Clams on the Half Shell Day: March 31st

## NVARC Club Net

The NVARC Club Net meet's every Monday evening at 8 PM on the 442.900 Pepperell repeater. Stop in and bring your input and questions. Recent nets have been run by George KB1HFT/NCS. Attendees; Stan KD1LE, Skip K1NKR, Jim N8VIM, Peter N1ZRG, Dan K1RAU.

## March Treasurers Report

Income for February was \$2 from ARRL membership renewals. Expenses were \$19.60 for newsletter postage and \$98 for the annual Post Office box rental, leaving a net expense of \$115.60.

Current balances:

General fund	\$3,341.86
Community fund	\$4,886.41

As of 3 March we have 47 members who are current with their dues and 17 renewals outstanding. Thank you to those of you who hand in your dues before Ralph comes to you. Please check your renewal status on the roster circulated at the monthly meeting or ask Ralph.

If you are joining ARRL or renewing your membership please consider letting Ralph send in the paperwork for you. The Club will buy the stamp and will get a commission from ARRL. ARRL membership checks should be made payable to NVARC; Ralph deducts the Club commission before forwarding your paperwork to Newington. As an Special Service Club, the ARRL expects a majority of Club members to also be ARRL members.

Ralph KD1SM

## The Little Box Challenge

In 2014 Google and IEEE issued The Little Box Challenge. The challenge was to build a small but efficient kilo-watt DC to AC inverter. Though no use for the inverter was specified, photovoltaic (PV) solar is one possible use.

There were many requirements such as >50 W/in<sup>3</sup>, 2 kVA, >95% efficiency, 450 VDC input, and 240 VAC output. The inverter would also have a maximum surface temperature, meet FCC part B, total harmonic distortion and more. The full specification for a submission was a 37 page document.

Worldwide over 2000 teams registered to participate in the event which had a \$1,000,000 dollar prize. Teams had to submit their entry by July 2015.

Over 80 submissions qualified to be tested. The testing was done by the National Renewable Energy Laboratory (NREL).

The three finalists were CE+T Power with a power density of 142.9 W/cubic inch, Schneider Electric at 96.2 W/cubic inch, and Virginia Tech at 68.7 W/in<sup>3</sup>.

The specification makes me think of inverters for home solar which now have volumes of several cubic feet but would be around fourteen cubic inches based on the winner's submission. Using only the watts per cubic inch and not having any information on its applicability to larger or smaller units I'll just throw out a couple of possible examples. For the two kilowatt system that might be a 3 X 6 X 1 enclosure instead of the multi cubic foot inverters in use today. A microinverter for solar panel mounting which today is around twenty cubic inches would be a little more than two cubic inches.

Stan KD1LE

## 2016 Flea Markets/Hamfests

March

19 Amateur Radio Fleamarket Dayville CT  
20 Southington ARA Fleamarket CT  
25 Maine State Convention, Lewiston ME

April

10 Framingham ARA Flea Market, Framingham MA  
16 PAWA Hamfest, South Portland ME  
16 RASON Auction, Gales Ferry CT

May

21 Southern Berkshire ARC Hamfest, Goshen CT

September

9 New England Division Convention, Boxboro MA



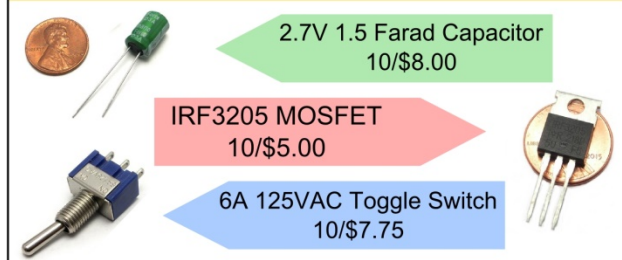
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## 2016 Upcoming Contests

April

17 Rookie Roundup Phone

June

11-13 June VHF

18 Kids Day

25-26 Field Day

July

9-10 IARU World Championship

August

6-7 August UHF

20-21 10 GHz & Up Round 1

21 Rookie Roundup RTTY

September

10-12 September VHF

17-19 10 GHz & Up Round 2

24-25 EME 2.3 GHz & Up

October

17-21 School Club Roundup

22-23 EME

November

5-7 November Sweepstakes CW

19-21 November Sweepstakes Phone

19-20 EME

## Your Article

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**Nashoba Valley  
Amateur Radio Club**

PO Box # 900  
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<http://www.n1nc.org/>

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Librarian: Peter Nordberg N1ZRG

Property Master: John Griswold KK1X

N1NC Trustee: Bruce Blain K1BG

Annual membership dues are \$15; \$20 for a family  
Meetings are held on the 3rd Thursday of the month

7:30 p.m. - Pepperell Community Ctr.

Talk-in 146.490 simplex

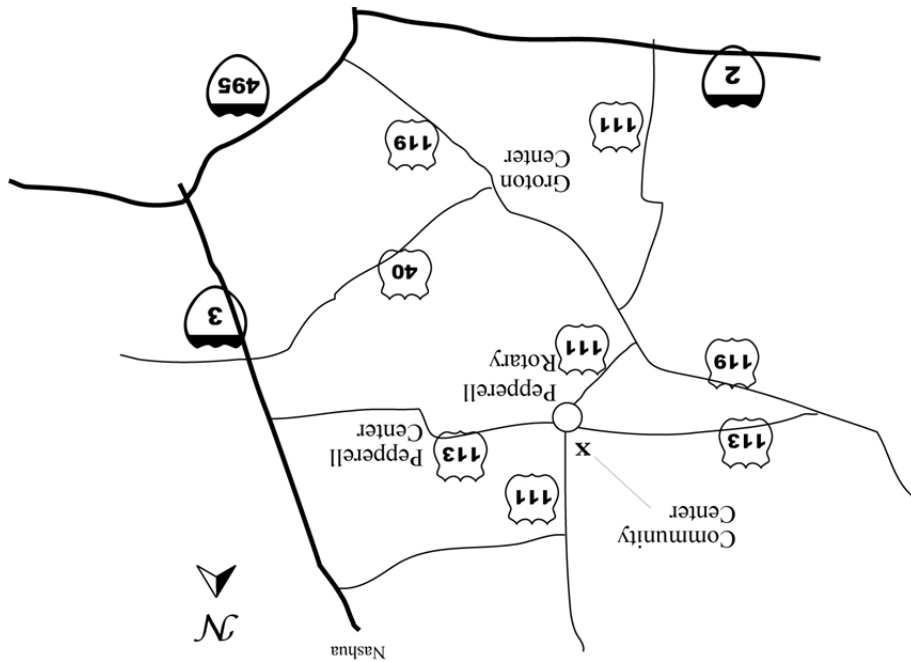
442.900 + 100Hz Repeater Emerg Pwr

147.345 + 100 Hz Repeater Emerg Pwr

53.890 - 100Hz Repeater Emerg Pwr

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