



# SIGNAL



de NINC

February 2014 Volume 23 Number 2

## This Month's Meeting

Dan, KW2T, has been studying the history and use of low-voltage filament tubes and has prepared an informative talk. These tubes saw a lot of service during World War II and found their way into post-war portable radios like the famous Zenith Trans-Oceanic. His talk covers both the whats and the whys of these tubes, and he's amassed quite a collection of example radios. This should be a good talk!

Dan expects his talk to run just long enough (but not overly long and boring, huh?) that we're not going to have a secondary talk. On the other hand, thanks to Ed Snapp's, N1YFK, reintroduction of the coffee bar at the meetings there's been an upswing of give-and-take conversations. This month let's make these "eyeball QSOs" our secondary topic. How is your W1AW/n QSO count going? Has anyone worked W100AW? How about FT5ZM? Who has suggestions on how to break those pile-ups? Any receiver IFs been modified to use a DVB-T dongle as a spectrum scope? Does anyone want to think about Field Day, or is it too early?

AND, on the horizon is the annual March meeting. You might remember these meetings from times past. The important part is that, because the Community Center is used for the Pepperell Library's book sale, the Pepperell Recreation Department and the Library host us in the Library's meeting room. March will be a great meeting, too. Dale, AF1T, and Mickey, W1MKY, are coming down from the Contocook (NH) Valley Radio Club and will give us one of Dale's famous show-and-tells—this one about transmission lines. More on this next month.

This month's meeting is February 20th at the Pepperell Community Center at 7:30 PM. The Community Center is on the Northwest corner of the Route 111/113 rotary in Pepperell. Access is from Route 111 going north from the rotary.

## Last Month's Meeting

After introductions and raffle John KK1X awarded members their 2013 Field Day pins.



Members receive their 2013 Field Day Pins

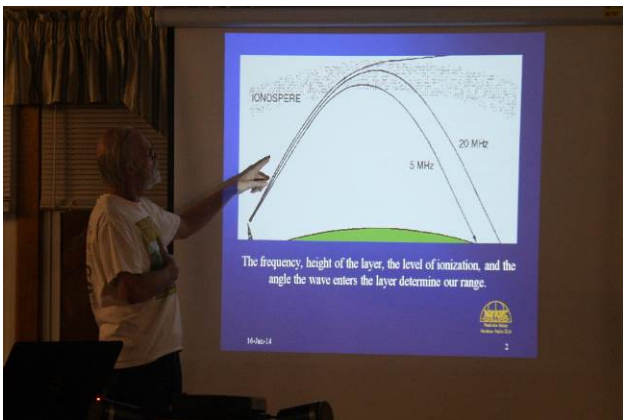
This was followed by the meeting program of Members Short Subjects. A medley of five to fifteen minute presentations. All photos are courtesy of Ralph KD1SM.



Leo K1LK collects old components from local manufacturers. Here he explains a box used to substitute various values of capacitors.



Stan KD1LE shows off the \$15 antenna launcher



Stan KD1LE's short subject was on Ionospheric Sounders and HF propagation.



Rod WA1TAC did a presentation on Loop Antennas



Dan KW2T did a presentation on his solar panel installation including requirements and various State programs.

#### January meeting attendees

Jean K1AVM, Bruce K1BG, John K1JEB, Ken K1JKR, Dennis K1LGQ, Leo K1LK, Skip K1NKR, Gary K1YTS, Phil KB1JKL, Peter KB1LZH, Ken KB1UVP, Dan KB1YGB, Stan KD1LE, Ralph KD1SM, John KK1X, Dan KW2T, Don N1NWE, Les N1SV, Ed N1YFK, Peter N1ZRG, Jim N8VIM, Larry W1ESR, Dick W1LTN, Bob W1XP, Rod WA1TAC

### President's Corner

de Skip, K1NKR

Sometimes it's good to remind ourselves of some of the behind the scenes activities and benefits of NVARC membership. When I took over from Stan, KD1LE, I jotted down a list of all the activities that go on each year so that I wouldn't miss anything. The activities list alone is sixty-one items long, some repetitive, some one-time. The benefits run the gamut

from Elmering and socializing to borrowing and discounting.

Each spring the Board identifies a Nominating Committee. This year, Bruce, K1BG, agreed to be an independent "committee of one" to solicit candidates for officership and Board membership from among the club. Officer positions are for a single year. Director positions rotate on a three-year cycle, one being open this year. We've made a conscious attempt over the last couple of years to keep bringing new blood into all our elected positions. Doing so is good for long-term health of the club and also provides the general membership both leadership training and the opportunity to contribute. Directors represent the best interests of the club and its members. They steer the club and the officers do the work.

Ah, ha! Speaking of leadership, the revered role of Field Day Incident Commander is open. Is anyone up for it? Prior commanders will help you through it. The camaraderie is rewarding and the food is great.

Did you know that we have a library? Peter, N1ZRG, maintains it for us. It's got a lot of ARRL technical publications that, while useful, you might not have wanted to invest in: antenna compendiums, the satellite and weather satellite handbooks, hands-on experiments, *etc.*, plus cassettes and videotapes. Thanks to a donation from the estate of Dale, AB1GA (SK), our library has been considerably expanded. Check it out.

Similarly, we have an equipment pool. John, KK1X, handles it for us. We've intentionally kept the inventory quantity modest, a couple of code practice oscillators and a keyer/PS/rig combination. (Some of these actually sit at various members' shacks.) But if the last rig on your operating table breaks, John may be able to arrange that temporary help you need before you've got enough pennies saved to fund a trip to the candy store.

Don't forget the PowerPole discounts. John, KK1X, has an article on that elsewhere. And the outgoing QSL Bureau that Bob, W1XP, manages can easily save you more than the cost of membership each year.

Not bad. All that, plus socializing and some technical or operating entertainment each month. What a club!

## January Treasurers Report

Income for January was \$60 in membership renewals, \$7.76 in bank interest, \$45 from the book raffle at the January meeting, and \$2 from ARRL membership renewals. Expenses were \$18.40 for newsletter postage and \$88 for the annual Post Office box fee, leaving a net income for January of \$8.36.

Current balances:

General fund	\$2,616.51
Community fund	\$4,836.41

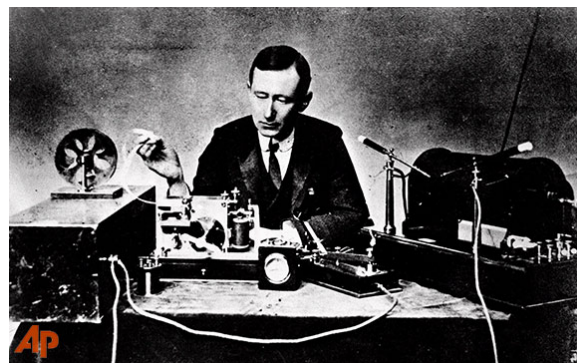
As of 6 February we have 45 members who are current with their dues and 27 renewals outstanding. Please check your renewal status on the roster circulated at the monthly meeting or ask Ralph.

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

## DXing – An Introduction

This is the first of a series of articles that explores the different aspects of long distance communications otherwise known as DXing. DXing means different things to different people but in the HF spectrum it's generally accepted as communicating internationally. From the earliest days hams have always been fascinated with trying to see how far they can communicate.



Guglielmo Marconi

On December 12, 1901 Guglielmo Marconi is said to have transmitted the first wireless transatlantic message between the UK and Newfoundland Canada on a wavelength of 350m (~856 KHz). Because the entire communications path was in daylight there is some doubt as to whether it really occurred or not. But either way Marconi is credited with the achievement and as they say the rest is history. Speaking of history, here is a link to an online archive of rare Marconi documents, photographs and other interesting memorabilia <http://www.marconicalling.com/html/index.html>.

As long distance wireless communication gained in popularity the ARRL started the DXCC award program in 1932. The award was given to amateur radio stations that could provide written proof of two-way communications with other amateurs in 100 or more entities (countries as defined by the ARRL). The program was suspended during World War II but restarted following it in 1945. Since then the DXCC program has become extremely popular and has expanded to include single band and single mode awards. For additional info on the DXCC program visit the ARRLs DXCC web page <http://www.arrl.org/dxcc>.

As a Novice in 1979 I was fascinated at being able to cobble together a crude station that could communicate all over the Northeast on the 80m Novice band. As I upgraded my license and my equipment I was able to communicate farther and farther away and on many more bands.



**KLM 15m 4el Beam & 2m FM beam (1980)**

Many afternoons as a high school student I remember getting off the school bus and running home to turn on my Tempo One transceiver and work African stations on 15m phone. Back in 1980 there were fewer distractions than today. No computers, cell phones, or CATV. One of my most memorable contacts during that time was with ZS1KX in South Africa. I remember he had a loud signal; it was like talking to some-

one across the room. This gave me the opportunity to ask lots of questions and learn about South Africa.

While large high-powered shortwave broadcast stations can easily be heard internationally the challenge for hams has always been to be heard with a fraction of the power and using much simpler equipment. There's something special about assembling your own station and using it to communicate with other hams in distant countries.

One of the popular aspects of DXing is collecting QSL cards and then using them to apply for operating achievement awards like DXCC, Worked all Zones (WAZ), and Islands on the Air (IOTA). With the advent of Log Book of the World (LOTW), you no longer have to provide written proof for some awards like DXCC. Instead you can upload your digitally signed log to a central repository where your contacts are matched up with those from other logs to determine confirmations. Even with LOTW collecting QSL cards still continues to be popular among many people including myself.

It's easier to work DX on some bands like 20m because the propagation characteristics are more consistent for reflecting your signal off the ionosphere. Other bands like 160m are more of a challenge requiring more specialized equipment and a great deal of patience! There are also a growing number of hams that use the moon to reflect their signals back to earth (EME) allowing them to communicate internationally using digital modes like JT65.



**2M EME array at SV1KBS**

In order to be able to work DX you don't really need any special equipment but a greater enjoyment will be realized if you can install an antenna that provides a relatively low angle of take-off. When using a horizontally polarized antenna, this can be achieved by elevating it as high as possible. A simple dipole antenna is a good basic horizontally polarized antenna to start with. For a vertically polarized

antenna a good ground system is essential to achieve a low take-off angle. Having a low take-off angle will allow you both to hear distant stations better as well as for distant stations to hear you better.

Some countries are easier to contact than others because they contain many licensed hams like Germany or Italy. Still other countries can be much rarer and therefore more difficult to work because they contain very few licensed hams if any. And of course then there are those entities that are small uninhabited islands out in the middle of the ocean. Sometimes the only way to work these rare entities is to wait for one or more people to put together a DXpedition (a portable operation designed to work many stations around the world from the entity). Some DXpeditions are informal and may be part of a family vacation where a minimal amount of gear is taken and the operation is part time. On the opposite end of the spectrum are the very large DXpeditions to the rarest of entities that are sometimes years in the making and can cost hundreds of thousands of dollars to put together.

The rarer the DX entity, the greater the number of stations that want to work it. A "pileup" occurs when a number of stations are all trying to contact the same DX station at the same time. There can sometimes be a lot of confusion and it's not always the str////////any/ times it is the operator with the best skills (and a little bit of luck at times) who can slip their call in at just the right time to be heard. Chasing DX can be a lot fun, learning about antennas & propagation, new operating skills, and of course making new friends around the world.

Les, N1SV

## February 6<sup>th</sup> Board Meeting Notes

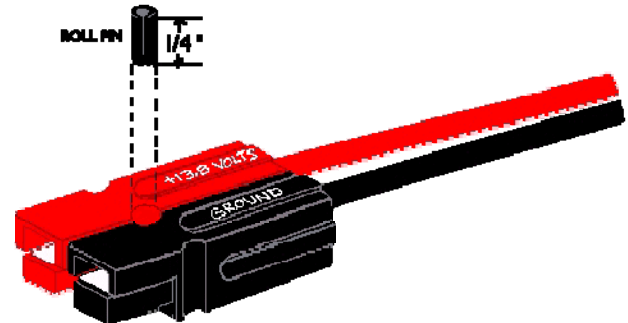
Field Day is coming up - looking for chair volunteer  
Coffee seems to be well accepted  
Need to line up topics for upcoming meetings  
AF1T to get a mileage reimbursement  
Treasurer's report  
Should we provide training for emergency/licensing?  
March meeting to be held at library

## Powerpole Connectors

It should be widely known by now, but the Anderson Powerpole® connector is likely to be the most widely-used power connector in Amateur Radio. It was adopted by the Orange County CA RACES before I was even a ham, and quite a lot, if not most, of our club members use this connector. Indeed, for several years the club has underwritten the use of this connector standard by providing con-

nectors sets (one red housing, one black housing, two contact inserts, and a roll-pin for keeping the housings together) for less than our cost. Street price for this connector in small quantities is almost a dollar. We provide them for fifty cents per connector. Quite the bargain.

For those who haven't adopted this connector, or for those who need a refresher course, I've put together a bit of an instructional.



I stole this picture from the Orange County RACES (OCRACES) web page [1].

The manufacturer [2] recommends that the housings should be mated according to the diagram above, viewed from the contact side – tongues down, hoods up, red on the left, black on the right. The 3/32" roll pin is inserted into the hole between the housings to keep the housings from sliding apart. Some people ignore the roll pin and glue the housings together.

The contacts can be crimped (preferred if you use the relatively expensive crimper designed for the contacts – it costs about \$40) or soldered before insertion into the connector. You must be careful if soldering to not let solder wick past the end of the barrel, which can stiffen the wire and shorten the connector's service life. I'm not above crimping (I have one of the \$40 crimpers) AND soldering, just to make sure. A less-expensive (\$10) crimper tool is available, but it doesn't produce as neat a crimp, and it's a bit harder to use. A great source for crimpers and other accessories is PowerWerx [3], though you can purchase them on Amazon as well, which is a good indicator of how mainstreamed this connector is.

John KK1X

[1] <http://www.ocraces.org/powerpole45.html>

[2] <http://www.andersonpower.com/products/sin-glepole-connectors.html>

[3] <http://www.powerwerx.com/anderson-powerpoles/>

## Meeting Coffee "Bar"

Many thanks to Ed Snapp, N1YFK, for his rejuvenating the coffee "bar" at the last two 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.

## Strays

Many of us may be planning on going to the ARRL Centennial Convention in Hartford this Summer. Since it's a four hour round trip drive to Hartford, staying overnight may well be the choice for some. Note this. The links from the Centennial website to the local hotels' websites do not necessarily carry the group discount information along. When you make reservations be sure you get the ARRL rate. If the hotel chain's automated reservation system doesn't give it to you call the hotel (even if you've made an Internet reservation) and talk to the staff. K1NKR saved \$30 per night over Holiday Inn's "best" quoted rate this way.

## Interference

Several members mentioned in conversations that they had some sort of interference on the HF bands. Not the same interference, just something in each case that they heard that they considered "interference". Over the course of the last month I heard of three or four more instances some in the Amateur HF frequencies and some in the allocations of other HF services. Between these and the Haystack event my interest was aroused.. I have done a lot of fox hunting on VHF which would be like the Haystack search but nothing in the HF spectrum. This piqued my interest as to how you would go about resolving such a problem. So I read a few books on the subject including the AC Power Interference Handbook, ARRL RFI Book plus many articles some by hams and some by companies and consultants who do noise location and mitigation commercially. The ARRL is also a resource with a collection of articles and resources including wave files of various kinds of interference.

It is all very interesting but I still haven't located or solved a case of interference but I'm working on that. Solving one case I could move on saying "been there--done that". Nonetheless I've learned quite a bit and think it is worth passing on.

The first thing is it will take some effort by the "receiver" to resolve the problem. It is easy to complain but is the problem significant enough to warrant the effort to resolve it? In some cases it may not be. If there is some noise spike on a band that is seldom used or can be worked around then you may just decide to avoid it. If the problem doesn't crimp your activity then that can be a reasonable choice. If the problem isn't insignificant or avoidable then it is up to you to make a commitment to solve it since some work is required up front at the site of the receiver of the interference. Until that is completed there isn't much anyone else can do to help.

What I have done is create a "check list" to guide the resolution process. But it isn't quite that easy. The questions are not yes or no type but require data collection or actions. Once the first part of the list is completed then the help of others may be useful. So if you have a problem that has reached the "must be solved" level I would be happy to send you a copy of my resolution process.

Stan KD1LE

## 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.

The net is in need of a regular Net Control Station (NCS).

Participants talked about Winter preparations antenna work, antenna switches. Also, various SDR dongle projects by members for aircraft radar, signal analysis and interference identification.

Recent attendees were

Jim N8VIM, Stan KD1LE, Skip K1NKR, Larry W1ESR, Les N1SV, Bruce K1BG, George KB1HFT

## February Contests

Date	Contest	Exchange
February		
15	ARRL Int'l CW DX--RST, state/province or power	
16	Maine 2m FM Simplex PH--call, power, city	
21	CQ WW 160 SSB--rst, state/province or CQ Zone	
22	NA QSO RTTY—name and s/p/c	
23	N Carolina QSO—NC county or s/p/c rst optional	
March		
1	ARRL Int'l Phone DX—rs and state/province or pwr	

- 8 Idaho QSO Party—rs(t) and ID cty or s/p/c
- 9 NA RTTY Sprint—both callsigns,s/n,name,and s/p/c
- 15 Russian DX—rs(t),serial or oblast abbr
- 15 Virginia QSO—serial and VA county/city or s/p/dx
- 22 Oklahoma QSO—rs(t) and OK county or s/p/dx
- 22 Louisiana QSO—callsign,rs(t),LA parish or s/p/c
- 22 CQ WPX SSB—rs and serial

**Flea Markets/Hamfests**

- 15 Feb AARC Flea (Marlboro)
- 15 Feb Winterfest 2014 (Augusta ME)
- 22 Feb Vermont State Convention (HAM=CON)

- 1 Mar Mt. Tom ARA Flea (Chicopee)
- 6 Mar BARC Business Meeting
- 15 Mar Amateur Radio Flea Market (Dayville CT)
- 15 Mar WMARC Ham-Fest (North Conway NH)
- 16 Mar SARA Flea Market (Southington CT)
- 23 Mar CVRC Hamfest (Henniker NH)

- 6 Apr FARA Flea (Framingham)
- 19 Apr Portland AWA (S Portland ME)
- 20 Apr MIT Flea (Cambridge)

- 2-3 May NEAR Fest (Deerfield NH)
- 31 May 23rd Annual Hamfest (Goshen CT)

- 17 July ARRL National Convention (Hartford CT)

**Your Article**

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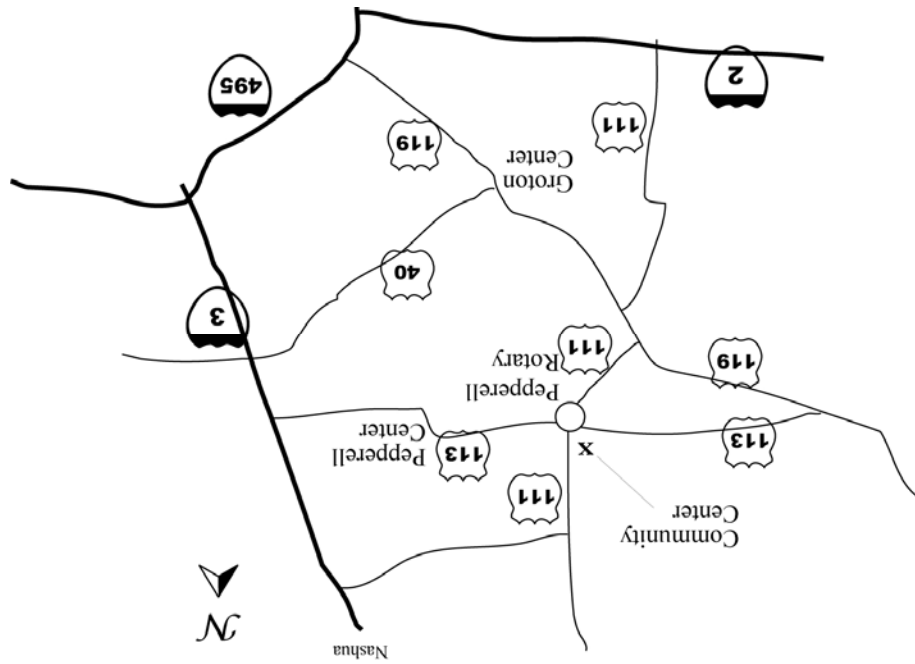
**Nashoba Valley  
Amateur Radio Club**

PO Box # 900  
Pepperell Mass 01463-0900

<http://www.n1nc.org/>

President: Skip Youngberg K1NKR  
Vice President: Jim Hein N8VIM  
Secretary: John Griswold KK1X  
Treasurer: Ralph Swick KD1SM  
Board Members:  
Dan Pedtke 2011-2014  
Rod Hersh WA1TAC 2012-2015  
Bob Reif: W1XP 2013-2016

Editor: Stan Pozerski KD1LE  
Emergency Coordinator: Larry Swezey W1ESR  
Photographer: Ralph Swick KD1SM  
PIO: Roland Guilmet NR1G  
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 battery power  
147.345 + 100 Hz Repeater  
53.890 – 100Hz Repeater battery power  
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**Nashoba Valley Amateur Radio Club**

*PO Box 900  
Pepperell, MA 01463-0900*

