

# SIGNAL

A club since 1992



Since 1993

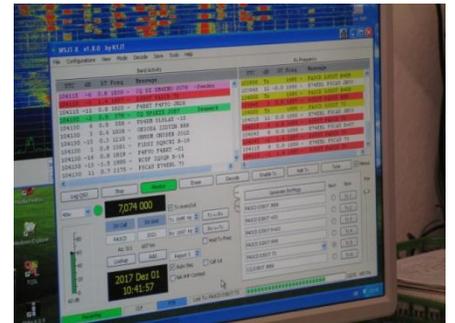
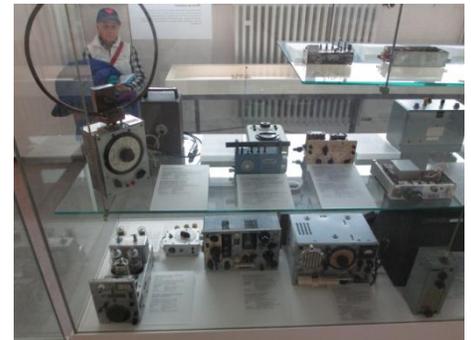


Since 1996

de N1NC

December 2017

Volume 26 Number 12



K1NKR photos

## News and Happenings

### Deutches Museum, Munich Germany

The Deutches Museum is Germany's "Smithsonian." I stopped in last month, hoping to get some pictures of Heinrich Hertz' experimental apparatus. No luck, that exhibit area is under reconstruction. I did, though, find that the museum has a dedicated Amateur Radio exhibit area (photos above), complete with an operating station manned by a local DARC club.

At our own Smithsonian, there are a couple of exhibits that contain Amateur Radio items. There's a Hallicrafters S-40 receiver in the

National Museum of American History and OSCAR flies high in the National Air and Space Museum, but the NN3SI amateur station at the Smithsonian went QRT back in 2008 after 30 years service.

de Skip K1NKR

### November Arduino Group Meetings

The Arduino Group met twice during November at the Pepperell Community Center. In attendance were George KB1HFT, Stan KD1LE, Peter N1ZRG, and Bill AB1XB.

George KB1HFT demonstrated the current configuration of his crucible temperature monitor. The thermocouple is physically

embedded into the crucible where he melts the metal used in his jewelry making. The basic system does the measurement of the thermocouple output voltage and converts it to temperature which is displayed on a small LCD display. The display will be mounted on the system enclosure. Additionally, based on a switch position, the Arduino looks for a network hotspot which he has set as his notebook computer. If it finds the hotspot it connects to it. Once connected the temperature is readable from his cellphone.

We then had a discussion on the Arduino based Antenna Analyzer (November QST). We discussed acquisition of parts and the list of possible sources. It was noted that some parts have particular version requirements because of header pin configurations. In further discussion Bill AB1XB suggested future meetings could include discussions of proper programming techniques, analyzing portions of the antenna analyzer program to understand how it works, and looking how it might be modified to suit various desires like changing the range of the displayed SWR or how much data is stored on the memory Card.

Many thanks to Peter N1ZRG for kitting up many of the small parts for the antenna analyzer (which he gave to several of us). Peter is leading the charge on this project, having assembled his unit and now testing it. By the next meeting I expect there will be four or more units completed or nearing completion. Then we will help each other check them out and learn how to use them.

If someone else wants to build the antenna analyzer you should check with the group since some of the parts may have been purchased in greater quantity than required.

The next meeting will [*the following meeting was held Ed.*] be December 4<sup>th</sup> at 10 AM downstairs at the Pepperell Community Center.

de Stan, KD1LE

## This Month's Meeting

It's Homebrew Night! Large or small, bring in your latest project and tell us about it.

(If your project is physically too big, don't fret. Bring along some pictures, JPEG files,

or anything else. We'll find a way to project or display graphics.)

Remember, December's HB Night and January's Short Subjects Night both rely on member participation. It's your hobby; brag about it.

## The President's Corner

The outdoor work is coming to a close for the year based on temperature and weather. So, you better get any last-minute antenna work done.

I've made a lot of progress since summer. I now have a new electric service pedestal with generator connection and transfer switches. It was a big project that took several years and lots of \$\$ to make happen. It will make transferring to generator power much easier, and more important, it will mean the water well will be functional even in a power failure.

Getting all this done had a secondary benefit in that I did a lot of clean out. I took three trailer loads of metal to my son's metal dumpster, cashed in 90 pounds of copper I had been collecting for 25 years, and put over 250 pounds of nails into metal recycling. Where does all this stuff come from?

I sorted my collection of nuts and bolts hardware into my "new" hardware bins and threw out three buckets of hardware as it reached diminishing returns in the sorting and my patience ran out. I've stripped 300 feet of RG-214 for the double shield to start up my copper collection going again.

In the radio world I didn't accomplish much this month. But I did get my HF radios back on battery power. Most of the rest of my equipment in the shack was already on battery 100% of the time. With this arrangement I don't have to switch power sources when the lights go out and it would make emergency operation more automatic. This is a return to the way my shack had always been set up until I replaced my HF radio a few years back.

I found that a battery booster was beneficial when I was operating during National Parks on The Air. I was receiving poor signal reports running on battery after a few

hours. So I have repurposed the booster to my main radio so that I can get the most operating hours out of the batteries. Modern radios that run on DC are usually specified for 13.8 volts +/- 15%. They become unhappy just under 12 volts because the voltage drops during high current loads like transmitting. Even a good battery doesn't take long to reach that level in use. After several weeks of testing the system running voice and digital modes I have not had to use the booster, though I have run it on several occasions to make sure everything is working and to check for any noise it may produce.

I hope your 2017 has been just as productive. Maybe you can tell us about it at December's or January's meeting.

This month's program is homebrew which depends on all our members. Bring along your homebrew projects and tell us about them. They don't have to be finished to be interesting.

Next month (January) is Members Short Subjects. Let us know if you have something to share, especially if you need the projector and screen.

We are always looking for interesting meeting presentations and presenters. If you hear of something we should pursue, let us know.

73, Stan KD1LE

## Editor's Note

Ninety-seven point one, (echo).

Dot and I spent three weeks in November and early December touring Germany. One of the highlights of my trip was re-connecting with people whom I've had both a professional and an Amateur relationship.

I stayed a couple of days with Ernst, DK3FF/N6IDN, and his wife Ann, DJ0IX/N6GVP. A fine engineer in his own right, I knew Ernst as the office chief team who supplied NATO officer-engineers to me when we were all building GPS back in the eighties. It was from Ernst's QTH on Cologne-Bonn that I made a 500km 10GHz QSO.

While there in Cologne-Bonn, I took a drive out to the Eifel mountain area to visit Gerd, DJ5BV. Gerd has been a "super ham" all his life (137kHz to 10GHz, contester, top of the DXCC list, etc.). In the seventies during my Wiesbaden assignment, Gerd and his company built a large electronic intelligence (ELINT) system for me.

If it were just for visiting, there would have been no particular story to tell. But I hadn't seen these hams for nineteen years. Still, we related as if it were yesterday. Old friends. Good friends. International goodwill based on professional—but more importantly—Amateur relationships.



*Dorothy Mahoney photos*

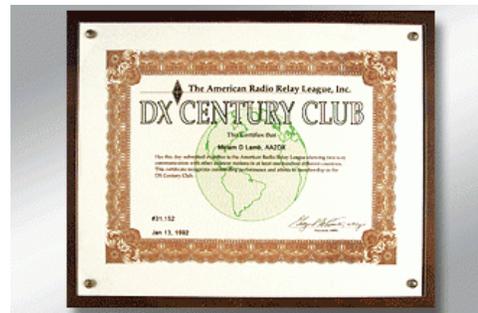
I hope it isn't another nineteen years until we meet again. Nowadays we need all the international goodwill we can muster.

73, Skip K1NKR

## Operating

*Roll forward! Once in a while a member submits material ahead of the requested date. Here's an example—with much appreciation to Les. Ed.*

**How to apply for the DXCC award using a mix of QSL cards and Logbook of the World contacts**



As a DXCC card checker one of the most frequently asked questions I get is how do I make a DXCC submission that contains a combination of both traditional QSL cards and Logbook of the World QSO credits. And while much of this information is available online the ARRL could really do a better job of organizing it.

First a little history, before there was Logbook of the world the DXCC submission process was pretty straightforward. You just had to complete the paper application and submit it with QSL cards confirming contacts with at least 100 DXCC entities. As an option if you felt that the US Post Office might lose your QSL cards you could opt to have a local field checker like myself check them for you in person.

Shortly after the Logbook of the world started to fill up with data, the dilemma for the ARRL became how they would handle initial DXCC applications that contained both QSLs and LOTW QSO credits. For a while they used what they called a hybrid application where applicants would submit all of their LOTW credits and then follow that up directly with a paper application for the QSLs containing the balance of their needed QSOs.

At some point the ARRL felt that the hybrid application process wasn't working so as of April 2, 2012 they stopped accepting them. Since then the ARRL has only allowed separate DXCC submissions containing either LOTW or traditional QSLs. The real change here is that the ARRL now accepts initial DXCC applications containing less than 100 DXCC entities! The guidance I give applicants who want to submit DXCC applications with a mix of LOTW credits and QSLs is make the LOTW submission first (they usually contain a majority of the contacts anyway). Then when they see online that their LOTW account has been updated submit the application with traditional QSLs.

The ARRL has a very good explanation with screenshots of how the DXCC submission process works using LOTW. Here is a link to their page <https://lotw.arrl.org/lotw-help/dxcc-award-credit/#applydxcccredit>. While you can still download the old paper forms to apply for DXCC with traditional QSL card here <http://www.arrl.org/dxcc-forms> , I

think the best way is to use the interactive online application. Using this method you enter QSO information into an online form and can save partial submissions and come back to it later. Here is a link to the webpage with information on creating an online application

<https://p1k.arrl.org/onlinedxcc/index.php#NewAccount>.

de Les Peters, N1SV

## Strays

Ham radio convention: The one instance of space-time where the line to the men's room is longer than the one to the ladies' room.



For our Arduino folks...

99 bugs in the code right now.

99 bugs in the code.

Take one down;

patch it up and around.

132 bugs in the code.



For our CW ops...

<https://www.youtube.com/watch?v=I0qe0ouN2s&app=desktop>

## Treasurer's Report

Income for November was \$65 from membership fees and \$50 from the October meeting raffle. Expenses were \$19.60 for newsletter postage leaving a net income of \$95.40 for the month.

Current balances:

General fund \$2,893.69

Community fund \$5,061.52

As of 7 December we have 39 members who are current with their dues and 23 renewals outstanding. Thank you to those of you who hand in your dues before I come to you. Please check your renewal status on

the roster circulated at the monthly meeting or ask me.

de Ralph KD1SM

*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 a Special Service Club, the ARRL expects a majority of Club members to also be ARRL members.*

## Board Meeting Notes

Board meeting 12/7/2017

Attending: Stan KD1LE, Jim N8VIM, John KK1X, Ralph KD1SM, Rod WA1TAC, Jim AB1WQ, Ed N1YFK.

- Treasurer's Report: General fund \$2,893.69, Community fund \$5,061.52.
- AB1WQ still trying to get Steve from HRO for February as well as perhaps EMA SEC.
- KK1X will try to reach GM3CW by surface mail for honorary renewal. We have not heard from him in a year.

Respectfully submitted,  
de John KK1X

## Radio Anniversaries Abound in December

*From the ARRL News for 12/12/2017*

December is the month in which three notable events in radio history occurred — the first radio transmission heard across the Atlantic Ocean in 1901, the first broadcast of the human voice and music in 1906, and the first successful transatlantic Amateur Radio HF transmissions in 1921.

**Marconi's 1901 Transatlantic Transmission.** On December 12, 1901, Italian wireless pioneer Guglielmo Marconi succeeded in receiving the first transatlantic radio signal, transmitted from Poldhu, in Cornwall, England, to St. John's, Newfoundland, Canada.

Marconi's team in Cornwall transmitted the letter "S" in Morse code, and this was heard by Marconi and his assistant George Kemp at a facility set up in Cabot Tower on Signal Hill in St. John's. On the Cornwall side, Marconi had erected a powerful spark-gap transmitter feeding a massive antenna. The receiving team used a kite antenna. The experiment proved that radio signals could be transmitted beyond the line of sight, opening the door to global wireless communication.

An article in the December 2007 issue of QST suggested that absorption may have been less in 1901 than in the 21st century, perhaps contributing to the success of the feat, which occurred during daylight on the Canadian end.

**Fessenden's 1906 Broadcast from Brant Rock** On Christmas Eve 1906, experimenter Reginald Fessenden made what may have been the first radio broadcast to include speech and music. The transmission originated at Brant Rock, Massachusetts, about 30 miles from Boston.

As he's done in year's past, Brian Justin, WA1ZMS, of Forest, Virginia, will commemorate that first audio broadcast by operating WI2XLQ on 486 kHz this month, marking the 111th anniversary of the Fessenden's accomplishment. Historic accounts say Fessenden played the violin — or a recording of violin music — and read a brief Bible verse, astounding radio experimenters and shipboard operators who heard the broadcast.

"Since we now have a ham band on 630 meters, I will have a shorter transmission period this year that will only cover the Christmas holiday," Justin told ARRL. That's because he hopes to be active on the new band himself.

Justin will begin his transmission on December 24 at 1700 UTC and continue until December 26 at 1659 UTC. For his transmitter in 1906, Fessenden used an ac alternator modulated by placing carbon microphones in series with the antenna feed line. Justin's homebuilt station is slightly more modern, based on a 1921 vacuum tube master oscillator power amplifier (MOPA) design, using a UV-202 tube. The transmitter em-

loys Heising AM modulation, developed by Raymond Heising during World War I.

[Send](#) listener reports directly to Brian Justin, WA1ZMS.

**The ARRL Transatlantic Tests Revisited**  
In 1921, ARRL sponsored two series of transatlantic tests to see if signals from previously qualified Amateur Radio stations could be heard at a receiving station in Ardrossan, Scotland. The second series succeeded, with several ham stations heard on the receiving end, using equipment far superior to what had been available to Marconi just 20 years earlier. "[The Story of the Transatlantics](#)" chronicled the events in the February 1922 issue of QST, to great fanfare. As Mike Marinaro, WN1M, recounted in "[The Transatlantic Tests](#)," in May 2014 QST, the first signal "unofficially" heard in Scotland was actually that of a pirate, identifying as 1AW and not using the prearranged transmission format.

The "rough listening post" in Scotland, staffed by receiver designer Paul Godley and D.E. Pearson of the Marconi Company, was equipped with a superheterodyne and regenerative receiver connected to a 1,300-foot Beverage antenna, 12 feet above ground.

On December 10, the CW signals of official entry 1BCG, owned by Minton Cronkhite, "were solidly heard on 230 to 235 meters," Marinaro wrote in 2014. "This signal derived from the specially designed and constructed station of the Radio Club of America at Greenwich, Connecticut — the only station heard that morning."

Connecticut radio amateur and radio history buff Clark Burgard, N1BCG, will be among those celebrating the 96th anniversary of the first transatlantic shortwave transmission in Greenwich, Connecticut. Several other stations will take part by establishing contacts between the US and Europe, including GM7VSB in Ardrossan, Scotland.

No specific bands and frequencies were set in advance, in order to "permit flexibility due to propagation." Burgard has posted [additional information](#) on his QRZ.com profile page.

Chris Codella, W2PA, provides [additional radio history](#) on his "Ham Radio History" website.

## Calendar

### Upcoming Events

#### December

21 NVARC HomeBrew Night

#### January

21 NVARC Short Subjects Night

21 NEARC Antiques, Brookline NH

#### February

9-11 Hamcation, Orlando FL

10 Thinking Day On The Air – Londonderry NH

11 Thinking Day On The Air – Shirley MA

23-24 HamSCI Workshop, New Jersey



Great NEW LOCATION for the  
"Biggest Old Radio Show on the entire East Coast"

# NEARC RADIO XLIX

Antique Radio and Vintage  
Electronics Flea Market

March 4, 2018 8:00am-1pm  
Rain or Shine

RADIO is the East Coast's Largest Antique Radio and Vintage Electronics Show & Flea Market!! 100+ Indoor tables and 60+ Vendors. This is a family event, and with one \$10 adult admission, spouse and children under 18 are free. Admission is free from 11 am to 1 pm. There is free onsite parking. The show is guaranteed to run Rain or Shine. NEARC has never cancelled an event, and never will!!

Event Center – Courtyard Marriott  
2200 Southwood Drive, Nashua, NH 03063  
Route 3 – New Hampshire Exit 8  
www.nearc.net or call (603) 772-7516

Public Is Welcome! Hourly Radio Drawings

### Upcoming Operating Activities

#### December

1-3 160 Meter Contest

9/10 10 Meter Contest

17 Rookie Roundup - CW

#### 2018

International Grid Chase (all year!)

#### January

1 Straight Key Night

6 Kids Day

6-7 RTTY Roundup

20-22 VHF contest

#### February

10, 11 Thinking Day On The Air

12-16 School Club Roundup  
17-18 International DX contest - CW

**March**

4-5 International DX contest - Phone

Are you a "contest nut?" See <http://www.arrl.org/contest-calendar> (Contest Corral) for month-by-month listings of both ARRL and non-ARRL contests.

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**Nashoba Valley  
Amateur Radio Club**

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

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**Secretary:** John Griswold KK1X  
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Jim Wilber AB1WQ, 2016-2019  
Ed Snapp N1YFK, 2017-2020

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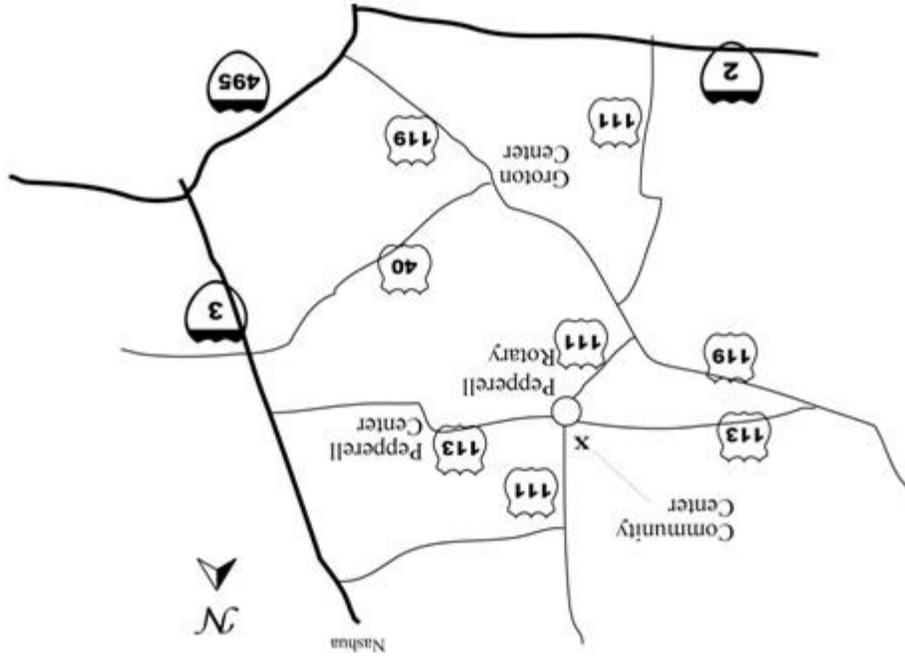
Join NVARC! Annual membership dues are \$15;  
\$20 for a family.

Meetings are held on the 3rd Thursday of the  
month at 7:30 p.m. in the Pepperell Community  
Center.

Contact us on the N1MNX repeater.  
442.900 (+), 100Hz  
147.345 (+), 100 Hz  
53.890 (-), 100Hz

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