



Nashoba Valley  
Amateur Radio Club

# SIGNAL

A club since 1992



Since 1993



Since 1996

de N1NC

November 2016

Volume 25 Number 11

## This Month's Meeting

NVARC member Mack Wallace, KC1EOB, will present a talk on railroad communications. Mack is a communications systems engineer for Pan Am Railways and has projects across its route.



The Pan Am "meatball" hasn't been on airplanes for quite a while. Now it's on what used to be the Guilford, the Boston and Maine, and the Pine Tree Central lines. There's a lot of specialized communications involved and Mack will lay it out for us.

**IMPORTANT:** December is Homebrew Night and January is Short Subjects Night. These are informative sessions put on by the membership itself. Plan on attending, but better: plan on presenting something. We want to hear from you!

## The President's Corner

I don't know if this will be covered elsewhere so I'm going to cover it here. At breakfast, last week several members suggested we need to do more to promote the club. While there were a lot of suggestions, the conversation was short on volunteers. To try to address some of the issues and thoughts I have come up with a list of things we will do or try to do given someone willing to take on the task.

First, we are going to create a link on the web site to allow contacting us for info or questions about the club. Ralph is setting up

the link and Dan KW2T has volunteered to fill that role and answer any queries that result.

A second thing we are looking at is a redesign of the web site. That will take some time to develop. Kayla W2IRY and Skip K1NKR have volunteered to work on that project.

One thing we have been missing since Roland NR1G moved out of the area is a Public Information Officer. I am looking for a volunteer to fill that position. It shouldn't be very time consuming once a routine is set up. There are a few local newspapers that have some type of community calendar or whatever they may call it. I'm guessing that a monthly note of a few sentences listing NVARC, when and where the meeting will take place, and program if known would do it. The same blurb would probably be sent to all the papers once a month. I don't know if it is done by email/attachment or some other means. I only found a few papers listed for the area and the weekly or monthly local papers may all have the same contact for many town versions—something that will have to be discovered. The only other thing that normally comes under this job title is some release for ARRL Field Day (FD) and our activity. The League usual creates such Public Service Announcements (PSAs) that just get customized to a club with contact info, FD location, etc. If the job seems like too much to take on maybe someone would take on part of it? There are probably other opportunities that we could explore. Also, the club has two brochures that could be updated. Finding places that allow postings

of things like that could be useful. Anyone interested in taking on one of these activities should contact me and we can talk about it.

Another topic. Though not strictly a club repeater system, the N1MNX machines are supported and maintained by club members. Recently the area around the repeater site has become a night time party location with a lot of trash and vehicles driving in close to the building and guy wires. Because we are in good stead with the Conservation Commission (ConCom) and other town departments I asked if we could gate off that area with a cable or some other means. The result was that posts and a gate were installed for us to keep vehicles out of that area. Large stones will complete the access control. It is good to have friends!



*KD1LE photo*

Finally, with the cooler weather moving in I'm sure some of you are firing up your wood stoves. I've only been burning occasionally but now is the time to prepare. Don't forget to clean the chimney and stove pipes. Burning only dry wood at the proper (high) temperature is the best way to prevent creosote buildup. I don't want anyone to have a problem.

73, Stan KD1LE

## Last Month's Meeting

Nobody sorts QSLs like NVARC sorts QSLs! Last month's meeting hosted 30-35 dedicated Radio Amateurs, representing at least three—maybe four—clubs, sorting more than 15000 cards for the ARRL Incoming W1 QSL Bureau. (The numbers are soft because we didn't have a sign-in sheet. We

did have a few drop-ins and even garnered a couple of new members.)



Preparation...



Execution...



Reward!

*K1NKR photos*

The NVARC sort is a major service event and reminds us that all our local clubs are "sister" organizations, cooperating in ensuring each other's health and well-being—and are all joined in service to our hobby.

More photos, from KD1SM...



Dan KW2T and Rod WA1TAC





Erik KV1J



Kayla W2IRY and Jesse W1DEA

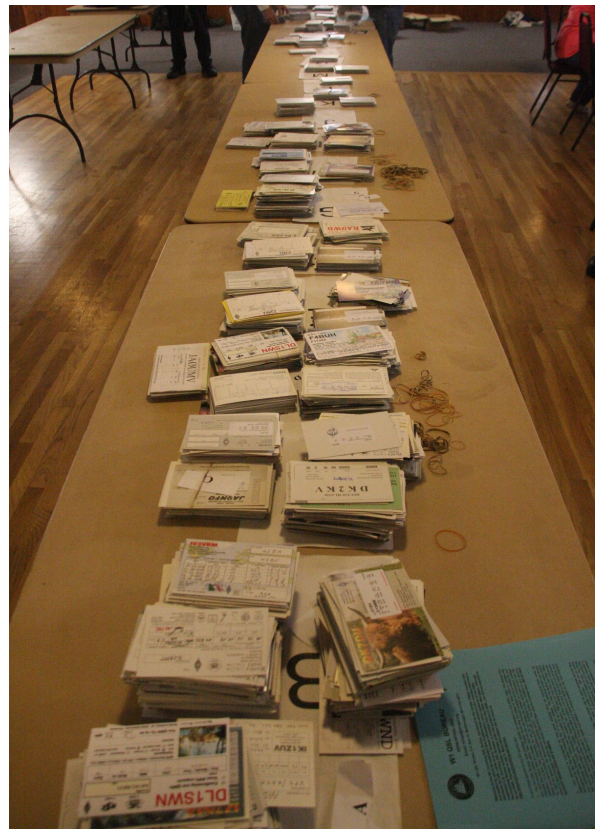


Ed N1YFK



Bruce K1BG, Ed N1YFK, John KK1X, Jesse W1DEA, Kayla W2IRY, Tom AB1GF.

Larry W1ESR was remembered with a photo on the sorting box



## News and Happenings

### NVARC Yearbook

Following discussion at the October Board meeting, publication of the NVARC Yearbook has been terminated. The genesis of this continuously updated 3-ring binder compendium of history and other club data (distributed to new members) was other clubs' losses of their historical records. Stan has been maintaining and updating the Yearbook on his own initiative for years. Much of the Yearbook content may be moved to the NVARC website as the site is rejuvenated.



### Job Opening

NVARC Public Information Officer. Initiates and manages news and "we're here" items to the media and the general public. (This position is not responsible for internal information like the newsletter, the website, or the reflector.) PIO is an ad-hoc position, not specified by the Constitution or By-Laws, so you can make of it whatever you want. Contact Stan.



### Larry Swezey, W1ESR

The obituary reads, "Lawrence 'Larry' Weston Swezey passed away on October 18, 2016 at his home in Groton, Massachusetts." But that's only part of the story. Larry was a dedicated—and revered—member of the NVARC family.

Air Force veteran, technician, scuba diver, pilot, astronomer, manager of MIT Lincoln Lab's Firepond optical research facility,



ham—Larry was a font of experience and enthusiasm.

He was Mr EMCOM: our emissary to the

Massachusetts Emergency Management Agency. Without him, Groton's Amateur Radio emergency capability would be unequipped. In fact, without him, the emergency-capable three-band N1MNX repeater than NVARC relies upon would be a shadow of itself.

There's one story that Larry told on himself. It is also a great ham radio story and a small world story.

Several years ago Larry and Cindy went on holiday to Australia. Larry got a reciprocal Australian amateur radio license and took a handheld two-meter radio. One of the stops they made on the trip was in Hobart, Tasmania. They were staying in a hotel in Hobart when Larry turned on the radio and, tuning around the band, came across a local net. This net was much like our own Monday night NVARC Information Net.

Larry listened with interest to the net and as the net was winding down he picked up the radio and checked in. As one would expect he was welcomed and this started a round of comments from the members of the net welcoming Larry to Australia. Then one of them dropped a real shocker on Larry. The commenter said he liked the looks of Larry's beard.

Now imagine the shock this comment would be to anyone who was 10,000 miles from home and in a place you had never been before in your life. Plus you had only been in the town for a few hours and were sitting in a private hotel room talking to people that you have never met. How did he know Larry had a beard?

Well when Larry's turn came to respond he had regained enough composure to thank the fellow for the comment and ask how he knew about the beard. The answer is simple enough and demonstrates how the world is getting smaller. It seems the fellow had come across the NVARC web page in the past and had actually spent some time reading the club newsletters. When Larry introduced himself to the net and mentioned he was from Groton MA this fellow recognized the connection between Groton and the NVARC web page. He pulled up the web page on his computer and came across a newsletter picture of Larry smiling back at him through the beard.

Imagine what it would have been like to be a fly on the wall in that hotel room in Tasmania just to see the look on Larry's face when he heard the comment about his beard coming through the speaker of his handheld!

At Lincoln Lab, Larry was instrumental in siting and setting up the Westford Water Vapor Experiment (WWAVE), a 1.25 meter



fully agile telescope capable of tracking LEO spacecraft, an atmospheric lidar (in this case a 10KW-class laser radar) to study neutral atmospheric temperature and density, and many other projects. He was known at the facility as the key to making things safely work and for doing great science.

Whether it was a laser radar, a gourmet Field Day breakfast, communications for the Groton Road Race, or a dog-mounted APRS tracker, Larry had a way of making things happen. Some of his suggestions were larger than life but all were from the heart.



...awaiting check-ins. W1ESR, W1ESR, W1ESR. Nothing heard. Will the net please be advised, W1ESR is a Silent Key.

I had only known Larry for the 6–7 years that I have been in the NVARC.

But, in a sense, Larry and I grew up together in Ithaca, NY: he in the 1930's and 40's; me in the 60's and 70's.

True, we were in different stages in our lives, he in high school, me in graduate school; but we both learned and grew in Ithaca. Much later, at NVARC Saturday breakfasts, we would share our marvel at Ithaca's natural, physical, and social wonders.

We would share and compare remembrances of Ithacan places, people, and institutions, like "Ithaca Photo", and the "State Theater", where Larry's dad played the organ in the 20's & 30's. I've enjoyed many movies in that same small-town theater.

Larry was one of the first of the guys in NVARC that I met, and from the outset, he was open, welcoming, helpful, cheerful, and had a nice dry humor.

My involvement in this net began when Larry lent me a 70cm rig so I could check in.

Larry was a friend of mine; I will miss him.  
May he rest in peace.

*KB1HFT's preamble to the net, 31 October*

*compiled from members' inputs*



## Field Day Site

Our regular Field Day site has undergone a number of changes over the years. It has changed from a rundown unused apple orchard to a large area cleared as a planned flyway that continues into New Hampshire for ground nesting birds. One result of this change is larger and larger areas need to be mowed, at least every year or two to keep brush from taking over.



Above is a recent view from the knoll where we set FD up. An additional area that has been developed to the east of our site that I have been working on with Rob Rand from ConCom will resemble a savanna. For anyone who doesn't remember, Rob is the person who was present at our first try setting up for WRTC and cut down the trees that were preventing us from raising the tower.



*KD1LE photos*

A savanna is grass land with occasional trees. (It is hard to see in the pictures since many of the few trees have shed their leaves.) Going forward, these areas will need to be mowed to retain their intended condition. Mowing is probably done for this

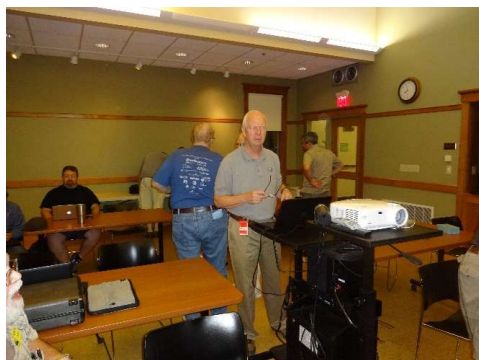
year, though we are still working on trail clearing. The ConCom received some grants to cover the first couple of years of maintenance but going forward this will become a volunteer effort. Since we like and use this area it could be an opportunity to give back in the future.

de Stan KD1LE



### TDOTA

Last month, Skip K1NKR, on one stop of the “Merrimack Valley Grand Tour,” gave a presentation on the ARRL Girl Scout Interest Patch and NVARC’s Girl Scout Thinking Day On The Air activities at the Montachusett ARA in Lunenburg.



While NVARC piloted TDOTA and the patch, we have a continuing effort to expand other Amateur Radio clubs’ support to these activities as both a community service and an outreach to youth.



*KD1LE photos*  
de Stan KD1LE

### Editor’s Note

OK. Editorial integrity requires that I re-write this. Deadlines were closing in and inputs were slow to non-existent. I was frustrated. Here’s what I originally wrote:

Short and sweet. Sweet like lemons.

Remember how short the Signal was last month? I tried to make a point without inadvertently insulting potential contributors. Yet nothing from anyone but Stan arrived. Well, nothing except an e-mail from my granddaughter (KB1SWV’s harmonic, who has been a Field Day participant for a couple of years) offering to start a Youth Column. That offer says a lot, doesn’t it?

Sorry, Annika. We’ve had plenty of the “I know I promised but I just didn’t get around to it” from the adults. We wouldn’t want to embarrass anyone, so until they step up to the plate there’s probably no place in the newsletter for the enthusiasm of youth.

But at the last minute Rod WA1TAC sent in the kind of “writing’s not so hard” article I had requested.

So... This editorial is short. Thanks, Rod. There’ll be a free raffle ticket waiting for you at the meeting.

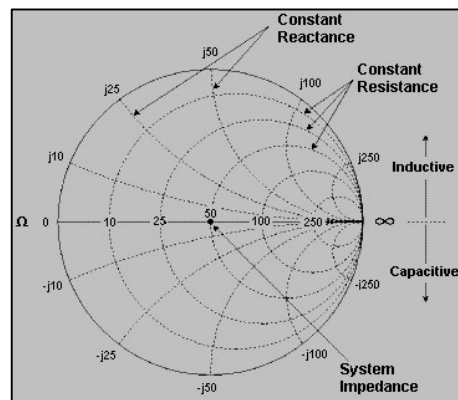
73, Skip K1NKR

### Technical Corner

#### Exam Questions – Amateur Extra E9G05

*What type of chart is shown in figure E9-3?*

- Smith chart.*
- Free space radiation directivity chart.*
- Elevation angle radiation pattern chart.*
- Azimuth angle radiation pattern chart.*



The **Smith chart** was invented by Philip Smith, a Bell Labs engineer, in the 1930s. It

provides a graphical solution of complex impedances (or admittances) along a RF transmission line. It is comprised of a series of circles and arcs. The circles represent resistance values while the arcs represent reactance, both positive and negative (inductive and capacitive, respectively). On the chart the top half is inductive reactance while the bottom half shows capacitive reactance. In addition, many versions of the chart have a number of scales along the bottom that allow the user to find VSWR, reflection coefficient, and other parameters directly from the chart. Some charts use another series of circles to show VSWR.

The advantage of the Smith chart is that it greatly simplifies impedance calculations in transmission lines by eliminating the messy hyperbolic trigonometry functions. The chart's outer arc is called the reactance circle and the straight line through the center of the chart is the resistance axis. The arcs represent constant reactance. At the center of the chart is the resistance value of one, the normalized value. All impedances are normalized by the impedance of the transmission line. Hence, a 50 ohm load fed with 50 ohm coax will appear as a single point at the center of the chart. However, a 75 ohm antenna fed with 50 ohm coax will start at the point 1.5 along the resistance axis. Then, as one moves along the line toward the generator (transmitter), the impedance varies along a clock-wise circle whose center is at the chart center and whose radius is the point 1.5. A rotation of 180 degrees represents a quarter wave distance away (taking into account the velocity factor of the transmission line). For the example above, the impedance of the 75 ohm load would then have the normalized value of 0.65, or 33 ohms. This example is exactly that of a quarter wave transformer.

This means that the Smith chart can be used to easily calculate matching networks such as a stub match. (Note that stub tuners are for a single frequency.) The general idea of a stub is to parallel a length of transmission line, cut to give the correct reactance, at a point along the line that cancels the reactance that the mismatched load gave and gives an impedance match to the transmission line.

de Rod WA1TAC

## Strays

### Anniversary



*(Display at Cape Canaveral. The text says: Mission Specialist Owen Garriott was the first astronaut to take a ham radio into space, launching radio station W5LFL on November 28, 1963 on board STS-9.) K1NKR photo*



## Treasurer's Report

Income for October was \$80 from membership fees and \$2 from ARRL membership renewals. Expenses were \$78.06 for the October meeting pizza and soda and \$36.05 for kits for the meeting raffle leaving a net expense of \$81.11 for the month.

Current balances:

General fund \$2,735.36

Community fund \$4,886.41

As of 3 November we have 47 members who are current with their dues and 12 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.

de Ralph KD1SM

## Board Meeting Notes

Board meeting 11/3/2016

Attending: Stan KD1LE, Jim N8VIM, John KK1X, Ralph KD1SM, Rod WA1TAC, Ed N1YFK, Jim AB1WQ. Observing: Peter N1ZRG, Skip K1NKR

Discuss 503(c) organization - seems to be more of a pain than it's worth.

Celebration of Life for Larry W1ESR - Limited space available.

Club publicity? Social Media (Facebook/Web Site). Dan KW2T has volunteered to field club contacts via email. Skip to advertise for PIO in Signal.

Future meeting programs: Mac Wallace KC1EOB, November - Railroad communications; some guy on the hook for TransAtlantic communications in February or March; 6m E-skip meeting in February or March by some other guy; December Home Brew meeting; January Short Subjects meeting.

Treasurer's report: General fund: \$2,735; Community fund: \$4,886.

Outbound QSL costs increasing dramatically.

Field Day - time to start thinking about getting a chairman.

Respectfully submitted,

de John KK1X

## Club Services

### Library

Yes, the club has a lending library. Peter N1ZRG maintains it. Unlike our Property List, the list of the library's holdings is too long to publish. You can peruse both lists at <http://www.n1nc.org/Members/>.

### Meeting Coffee Bar

As always, many thanks to Ed N1YFK for running the coffee "bar" at the meetings.

*(We've often reminded members about making coffee bar donations, but Ed recently took us aside and said he'd much rather have the coffee used up and see conversation and Elmering go on than take a few bucks home.)*

## Calendar

### Upcoming Events

#### November

24 Thanksgiving, stay home! (or go over the river and through the woods)

#### December

2-4 Nashua ARC Extra class

3 Flea market, Windsor CT

#### January

21 WARC Flea market, Whitman MA

#### February

4 CVFMA Flea market, Springfield VT

18/19 NVARC's support of Girl Scout Thinking Day On The Air (maybe here!)

18 AARC Flea market, Marlboro MA

### Upcoming Operating Activities

#### November

12 WAE DX Contest, RTTY

12 Kentucky QSO Party

19-20 EME 50 to 1296 MHz

19-21 Sweepstakes - Phone

26 CQWW - CW

#### December

2-4 ARRL 160 Meter

10-11 ARRL 10 Meter

18 Rookie Roundup - CW

#### January

1 Straight Key Night

7 Kids Day

7-8 RTTY Roundup

21-23 VHF Sweepstakes

#### February

13-17 School Club Roundup


18-19 ARRL DX - CW



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.

## Advertisers

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## Nashoba Valley Amateur Radio Club

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

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**Vice President:** Jim Hein N8VIM

**Secretary:** John Griswold KK1X

**Treasurer:** Ralph Swick KD1SM

**Board Members:**

Ed Snapp N1YFK, 2014-2017

Rod Hersh WA1TAC, 2015-2018

Jim Wilber AB1WQ, 2016-2019

Editor: Skip Youngberg K1NKR

Emergency Coordinator:

Photographer: Ralph Swick KD1SM

PIO:

Librarian: Peter Nordberg N1ZRG

Property Master: John Griswold KK1X

N1NC Trustee: Bruce Blain K1BG

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.

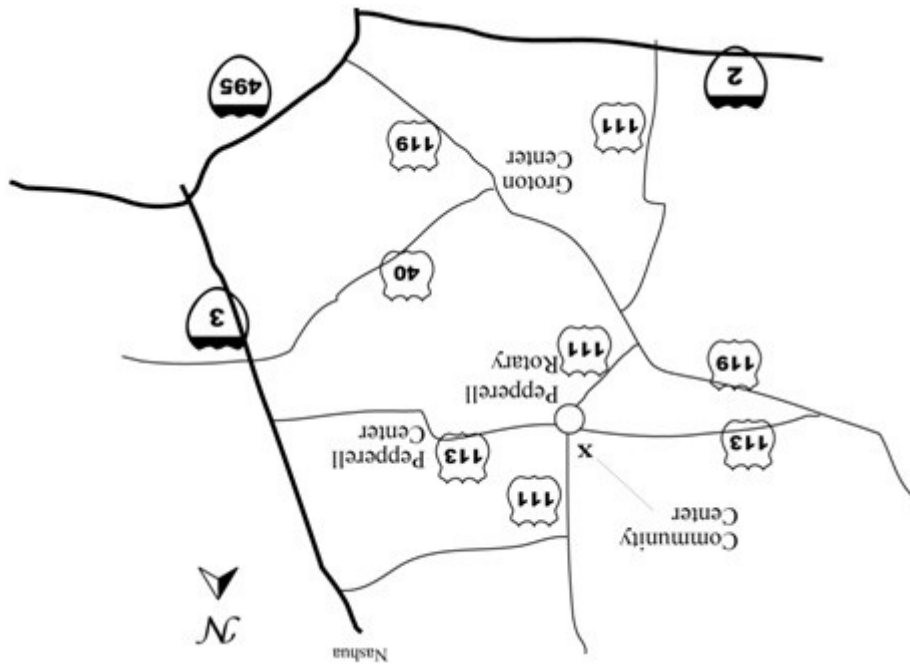
442.900 (+), 100Hz

147.345 (+), 100 Hz

53.890 (-), 100Hz

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