



# SIGMA

A club since 1992



Since 1993



Since 1996

de N1NC

June 2017

Volume 26 Number 6

## This Month's Meeting

Tom Walsh K1TW, the ARRL Eastern Massachusetts Section Manager will join us this month. The ARRL New England Division cabinet meeting is coming up in July so talking with Tom will be an opportunity to send feedback to the Division and, from there, the ARRL Board meeting.



Google Images

Also, Stan KD1LE has a presentation put together on the August HamSCI eclipse activities, which he will be giving at both the Contoocook Valley Radio Club and the Billerica Amateur Radio Society in the next couple of weeks. He'll be doing a quick(?) dry run, during which we in the club can discuss our own summer science activities.

## The President's Corner

It was a great day for walking so I went up to the Field Day site to look around. Picked up a little trash but mostly wanted to know the height of the grass on the road and at the site proper. I was trying to determine the need for mowing and anticipate when to schedule it. The answer was that it is quite high so I'll have to contact Rob to see what his plans are.

In the process, standing on high ground looking around I thought this is a very nice place. While on the knoll I met a bird watcher who drove up from Burlington to "bird" there. He was all compliments about what a nice place this was and how few places like it still exist in the area. He asked about its history and how it came to be.

As you set up for Field Day or sit around the food tent take a minute to look around and enjoy. It is much more than a place to set up a tent.

The June meeting ends the "season" so I hope everyone has a great summer. Get on the air and try something different. Try picnic table operating from the Mohawk Trail or some other less customary operating location. I hope, of course, to see many of you at Field Day too.

the next operating event on the agenda is the operation on August 21 as the eclipse crosses North America from Oregon to South Carolina. There is a lot of interest in collecting propagation data during this event from both the amateur and the scientific community. How we can help is to be a presence on the air during the event. There are seven or eight members who will be on the air in some mode and three of them will be operating and observing from somewhere along the path of total eclipse. There are seven bands of interest from 160 to 6 meters. I would like to see NVARC put at least two stations on the air on each band (7) which requires 14 stations. With two stations dedicated to each band we could generate

The stations can run WSPR in receive mode or better yet in beacon mode with transmit and receive. All you need is a radio/computer set up to do sound card modes and the WSPR software—which is free. There are a few more details, and I will be glad to help anyone with questions. Mostly, I'm trying to coordinate the activity so we spread our participants over the bands. But if there is anything else I can do I just ask. Running in single band and mode means you only need one antenna that you can reasonably tune up on for the selected frequency. No fancy CAT or tuner requirement. I'd like to hear from those interested in participating so we can share information.

Since our last meeting I have been asked to speak at three area radio clubs on HamSCI and the eclipse activities. Well, I guess I asked for it,

but it is good to share what we know with other clubs.

73, Stan KD1LE

## Last Month's Meeting

Stan started the meeting off with a little news and a heads-up about the upcoming eclipse.



K1NKR photo



K1NKR photo

Then Dale AF1T informed and entertained us with an extended talk on "classic" antennas—some familiar, some quite unique.

## News and Happenings

### New N1MNX QTH

Dave, N1MNX, has moved (possibly permanently) to Westford House, an assisted living facility.

We haven't seen much of Dave recently, but he's a bedrock of the club, keeping us connected with Pepperell Emergency Management and hosting us on his repeater.

Dave hints that "visitors are welcome at Westford House." Westford House is located at 3 Park Drive off of Route 110 in Westford, MA.

### Field Day

You're a ham so you know the story: Field Day is always the last full (*bad weather Ed.*) weekend in June. This year, that's June 24-25.

[Set-up Saturday morning. See below.]  
START: 2:00PM EDT, Saturday June 24  
END: 2:00PM EDT, Sunday June 25

NVARC will be at our tried-and-true location, the Heald Street Orchard conservation land in Pepperell. In recent years, we have aimed for maximum club membership turnout at the Orchard; this year we'd like to aim for getting everyone who turns out to get on the air, at least briefly. Toward that end, we're going to run a raffle this year. To enter, you'll have to make a Field Day operator entry in the official N1MM logging program. The prize: to be announced at the June meeting. (Keep 'em guessing!)

Stay tuned to the reflector and discussions at the June meeting for full information.

*de Jim AB1WQ*

[The rules state, "Stations who begin setting up before 1800 UTC Saturday may work only 24 consecutive hours, commencing when on-the-air operations begin. We will begin setting up around 1200 UTC, or 8:00AM EDT, and go on-air at 2:00PM EDT. We will then end transmissions 24 hours later, at 2:00PM EDT, Sunday June 25.]

### Groton Road Race

Our premier public service event went smoothly (as expected). Thanks to all—from our club and from other "sister" clubs—who participated.



John KK1X and George KB1HFT during preparation.  
K1NKR photo



Runners approach post 8. K1NKR photo



*Stan KD1LE and Ralph KD1SM at Net Control. K1NKR photo*

### **Groton Memorial Day Parade**

This PS event is one that doesn't get much publicity. On Memorial Day NVARC members Bob AB1CV, Dan KW2T, Ralph KD1SM, and Stan KD1LE supported Groton's Memorial Day Parade. The action was not in the Megahertz frequencies but rather in the 20-20,000 Hz range. We do use radio to coordinate among ourselves but mostly we provide public address systems so the public can hear the ceremonies and speakers at the various locations along the route. Activities take place at Legion Hall, Fireman's Memorial, the Old Burying Ground, Sawyer Common, and the Mound at the Groton Cemetery.



*(left) West Groton Minutemen approach the Old Burying Ground. (right) Bob AB1CV consults with Groton Fire and Police Chiefs. KD1SM photos*

### **NVARC Picnic**

Gene, WW4EN, has invited the club to hold its picnic at "the barn" again this year.

It will be held 2:00-5:00 (that's 1400-1700 local time) on Sunday August 6. Gene has a propane grill on the ground floor now and he'll provide the beverages (beer, soda, water), picnic supplies, chips, etc. Participants just need to come and bring proteins, sides, salads, desserts, etc. You can find his QTH via <http://qth.novabarn.com>.

NVARC picnics have been outstanding summer events in the past—especially those at Gene's QTH. Plan NOW to join us!

## **Editor's Note**

I did most of the mental preparation for this editorial while driving home Memorial Day weekend, listening to an interview with historian David McCollough on Maine Public Broadcasting, and passing seas of flags displayed at half-staff. A phrase of McCollough's got me to thinking. He spoke of the "worthy accomplishments" of life.

Now, I'm an analog kind of guy. As far as I'm concerned, reality beats bits. (Even having happily experimented with the advantages of digital Amateur TV, I've got to say that processing delays make displays seem oddly unreal and QSOs terribly disjointed. And, n-minutes to pass nothing more than 59-73 on JT65 is technically astounding but conversationally void.) Still, there's been an uptick of digital talk on the NVARC Reflector and I, for one, am happy about it. It means members are trying new things. As I've often said, ours is a learning hobby.

Elsewhere in this issue of *Signal* you'll see reference to HamSCI as well as the upcoming Solar Eclipse QSO Party. My advice: join in! As Stan and Phil say, there are so many levels of participation that something will "resonate" with everyone's interest and skill level.

Wouldn't it be something if each of our ham activities this summer led not only to enjoyment of the hobby but also to trying something new—perhaps learning, perhaps adding to the database from which all our knowledge of the ionosphere is expanded. Those would be worthy accomplishments.

73, Skip K1NKR

## **Looking Forward**

(A shameless advertisement for an upcoming meeting)



*Google images*

Andy Wallace, KA1GTT, was to have joined us this month to speak on "Bugs." Unfortunately,

due to some medical issues Andy had to cancel. We'll hear from him soon, probably September.

Andy, an inveterate QRP op from Chelmsford, is a member of the Billerica ARS.

## On the Air

### DX is Farther Away

Or closer via short path...

"Australia's coordinates have been moved 1.8 meters—nearly six feet—northeast, following the first update of the country's coordinate system since 1994.

"The Australian continent is Earth's fastest-moving tectonic plate and drifts about seven centimeters a year, putting map features out of sync with global navigation system [GPS, GLONASS, Galileo, and Beidou, IRNSS, and QZSS] coordinates."

(From the Institute of Navigation's "ION Newsletter," Winter 2017, p15.)

## The Technical Corner

### The Amateur Extra Reverse Quiz

We give the answer, you guess the question:

1) 9

- The dB equivalent of a power ratio of 4.
- The number of wavelengths traveled by a 7 MHz signal in 1.29  $\mu$ s.
- Value of SWR if a 337.5  $\Omega$  load is connected to 75  $\Omega$  coaxial cable.
- Maximum number of ARRL Directors that can fit into W1AW Studio 1 at one time.

2) 622

- Characteristic impedance of open-wire line with a conductor spacing of 0.5 inches.
- Maximum number of multipliers for a DX station in the ARRL International DX Contest.
- Peak-to-peak value of a 220 V RMS ac waveform.
- Current cost of a genuine Eimac 3-500Z triode in the original shipping carton.

3)  $2\pi/360$

- Conversion factor from degrees to radians.
- Conversion factor from angular velocity to frequency.
- Conversion factor between secants and tangents.
- Conversion factor between hertz and cycles per second.

4) 470 pF

- Value of capacitance required to resonate with a 3.9  $\mu$ H inductor at 3.72 MHz.
- Value of capacitance which creates 338  $\Omega$  of reactance at 28 MHz.

c. Value of capacitance exhibited by a one foot length of RG-174 coax.

d. Value of capacitance consumed by over-rotating three-phase stator.

(from Boulder ARC's BARC's BARK, May 2013)

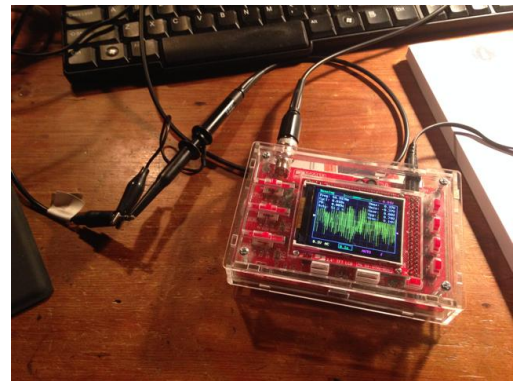
## Hints and Kinks

I've recently been trying to debug PC-to-radio audio chain for a Surface Pro 4 to Rigblaster Pro to IC-756PROIII set-up. The Pro4 "audio" jack is identified as a "headset" jack (*i.e.*, four conductors carrying three channels plus ground: left, right, and microphone). An audio "line-in" jack is not provided on this PC. Plugging a real "PC Headset" device onto the headset socket gives the desired results: mic & ear-phones act as expected. (The headset has a stereo audio plug.)

However, wanting to get audio to and from the Rigblaster, I found that plugging in a dual multi-conductor Y-connector does not work. If I plug in a stereo headset, the OS (Win10) senses it and reassigns the audio in/out device to the headset. But if I plug in a bare multi-conductor plug (or one with my JT-63 tones on it), the OS does not recognize it at all and I get no input/output audio.

I have purchased a USB Audio "adapter", which is supposed to give me the "line-in" path that I want but it does not work (yet). < sigh > I hate computers.

However!!



KB1HFT photo

Whilst tracing the audio in the above detailed odyssey, I found that the DSO138 oscilloscope that we built at Tech Night was a great help. (*Finally! A use for those nifty devices. Has anyone else found another use? Ed.*)

Thanks, Jim, and 73!

de George KB1HFT

## Strays

### NVARC in the News

Just this past year.

QST, May 2017, p93. The visual highlight of the Field Day summary was Kayla's (W2IRY) FD portrait.

ARRL front page News, 17 March 2017. Highlight article, "Girl Scouts and Girl Guides 'Thinking Day on the Air' Generates Enthusiasm for Ham Radio." (Duplicated in The ARRL Letter for 16 March 2017. Also quoted in North Carolina Section News, 31 March 2017.)

ARRL webpage. 2016 ARRL Field Day Soapbox (<http://www.arrl.org/soapbox/view/9421>), 1 July 2016, Kayla's (W2IRY) entry including eight photos.

Amateur Television Quarterly magazine, feature article by Skip, K1NKR, "Two Novices Enter the DATV Arena – Elmerless," Vol 29, No 4, Fall 2016, pp 11-15.

ARRL webpage on Amateur Radio and Scouting (<http://www.arrl.org/amateur-radio-and-scouting>), "Girl Scouts Celebrate Thinking Day on the Air."

ARRL News for 14 June 2016 (<http://www.arrl.org/news/arrl-now-offering-new-radio-and-wireless-technology-patch-program-for-girl-scouts>), ARRL Now Offering New "Radio and Wireless Technology" Patch Program for Girl Scouts."

QST, December 2016, "2016 ARRL Field Day Results" article, p75. Kayla's (W2IRY) photo of Sara, Annika, and Bruce, K1BG .

ARRL Radio Waves instructors' journal for Spring 2016 ([http://www.arrl.org/files/file/Radio%20Waves%20Newsletter/Spring\\_2016\\_Radio\\_%20Waves%200.pdf](http://www.arrl.org/files/file/Radio%20Waves%20Newsletter/Spring_2016_Radio_%20Waves%200.pdf)) Spring 2016, p5. Feature article "Girl Scouts Think Out Loud on Amateur Radio for Thinking Day on the Air."

ARRL Radio Waves instructors' journal for Spring 2017 (<http://www.arrl.org/files/file/Radio%20Waves%20Newsletter/Spring%202017%20Radio%20Waves%20-%20Draft%205.pdf>) Spring 2017, p1. "Don't Miss" reference to NVARC's 2017 multiple TDOTA activation.

Results Database, 2016 ARRL June VHF Contest ([http://www.arrl.org/results-database?event\\_id=79781](http://www.arrl.org/results-database?event_id=79781)).

Results Database, 2016 ARRL International DX Contest (Phone) [http://www.arrl.org/results-database?event\\_id=77220](http://www.arrl.org/results-database?event_id=77220).

Kayla's (W2IRY) website (<http://www.kaylacreamer.com/2016/06/27/nvarc-field-day-ma-event-photography>) Extensive text and photo coverage of 2016 N1NC Field Day.

Phil's (W1PJE) presentation of Joe's (K1YOW) paper ("Upper Level Lows and Six meter 50MHz Es: A Citizen Science Investigation") at Dayton Hamvention 2017.

Participation of Phil, W1PJE, in HamSCI cited in interview on at about 00:35:00 on <http://hamradio360.com/index.php/2017/05/21/hamvention-2017-day-2-review/>. NVARC members and Joe's paper were highlighted on multiple HamSCI webpages (<http://hamsci.org/article/hamsci-2017-dayton-hamvention>, also [www.hamsci.org/People](http://www.hamsci.org/People), and .../Publications).

BTW, for all you Google searchers, there's a Nashoba ARC in Germantown TN.



Ways you can participate in HamSCI operations during the August eclipse:

(EASIEST) Get on the air and make contacts on 160 to 6 meters (but not 60m or the WARC bands).

(EASY) Set up WSPR on any sound card configured radio. Monitor and report.

(MORE CHALLENGING) Activate a WSPR beacon.

(WICKED) An even more complex way is to build and operate a multi-band beacon like the QRP Labs Ultimate3. And add a monitor station... And get on the air, too...

(AWESOME) Help others get set up.

## Treasurer's Report

Income for May was \$75 from membership fees. Expenses were \$200 for the annual liability insurance premium and \$19.60 for newsletter postage leaving a net expense of \$144.60 for the month.

Current balances:

General fund \$2,980.32

Community fund \$5,136.41

As of 1 June we have 41 members who are current with their dues and 21 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

## Board Meeting Notes

Board meeting 6/1/2017

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

- Stan will have new locks for Conservation Commission - our donation.
- Dale & Mickie were given \$25 and a mug for their travel expense.
- Stan to visit Contoocook Valley Radio Club on 7/11 to discuss HamSCI and propagation during the August eclipse and will present "Ham 101" at the Lawrence Library on 6/14. Stan offered to Tom Walsh a talk on the Eclipse to other clubs.
- Stan taking the loose responsibility to coordinate the Eclipse for the Club.
- Field Day. Moving along slowly but surely. Looking for publicity. Idea floated - Those who log into N1MM during Field Day (an indication of having operated)- will get entered into a raffle for something cool.
- John to order more Arduinos.
- N1MNX is in Westford House for long-term care. Probably has implications for the repeaters.

Respectfully submitted,  
de John KK1X

## Club Services

**Item One** Sometimes activity seems quiet on Monday nights but rest assured, the NVARC net goes on. Join us—8pm local on the 442.900 N1MNX repeater.

## NVARC Property as of 1 June 2017 de John KK1X, Secretary/Equipment Custodian

Holder's Call	Holder's Name	Qty	Property Description
KD1LE	Stan Pozerski	32	Safety Vests
KD1LE	Stan Pozerski	3	5' Brown folding tables
KD1LE	Stan Pozerski	5	MFJ Code practice oscillators
KD1SM	Ralph Swick	1	Swingline M711 stapler
KD1SM	Ralph Swick	1	Club banner
KK1X	John Griswold	1	Badge laminator
KK1X	John Griswold	1	Badge punch
AB1WQ	Jim Wilber	1	Kenwood TS-450S transceiver SN 6100025
AB1WQ	Jim Wilber	1	Astron RS-35M power supply SN 9506184
AB1WQ	Jim Wilber	1	Cushcraft R7 antenna
KD1LE	Stan Pozerski	1	Projection screen

**Meeting Coffee Bar.** We return to thanking Ed N1YFK for running the coffee "bar" at the meetings. (It was really smart to have cold beverages at last month's meeting!) This is not a funded club activity, so consider leaving a donation if you partake.

**Reminder.** 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.

## Calendar

### Upcoming Events

#### June

18 Flea at MIT, Cambridge

24/25 **Field Day**

#### July

16 Flea at MIT

#### August

20 Flea at MIT

27 NoBARC Hamfest, Adams MA

## September

- 8-10 N E Division Convention, Boxboro MA  
17 Flea at MIT

## October

- 13/14 NEARfest, Deerfield NH  
15 Flea at MIT, Cambridge  
21 NEARC Antiques, Brookline NH

## Upcoming Operating Activities

### June

- 18 Kids Day  
24/25 **Field Day**

### July

- 8/9 IARU World Championship

### August

- 5/6 August UHF Contest  
19/20 10 GHz & Up (Round 1)  
20 Rookie Roundup RTTY

### September

- 9/10 EME 2.3 GHz & Up  
9-11 September VHF Contest  
16/17 10 GHz & Up (Round 2)

### October

- 7/8 EME 50-1296  
16-20 School Club Roundup

### November

- 4/5 EME 50-1296  
4-6 CW Sweepstakes  
18-20 Phone Sweepstakes


### December

- 1-3 160 Meter  
9/10 10 Meter  
17 Rookie Roundup CW

Are you a "contest nut?" See <http://www.arri.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/>

**President:** Stan Pozerski KD1LE

**Vice President:** Jim Hein N8VIM

**Secretary:** John Griswold KK1X

**Treasurer:** Ralph Swick KD1SM

**Board Members:**

Rod Hersh WA1TAC, 2015-2018

Jim Wilber AB1WQ, 2016-2019

Ed Snapp N1YFK, 2017-2020

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.

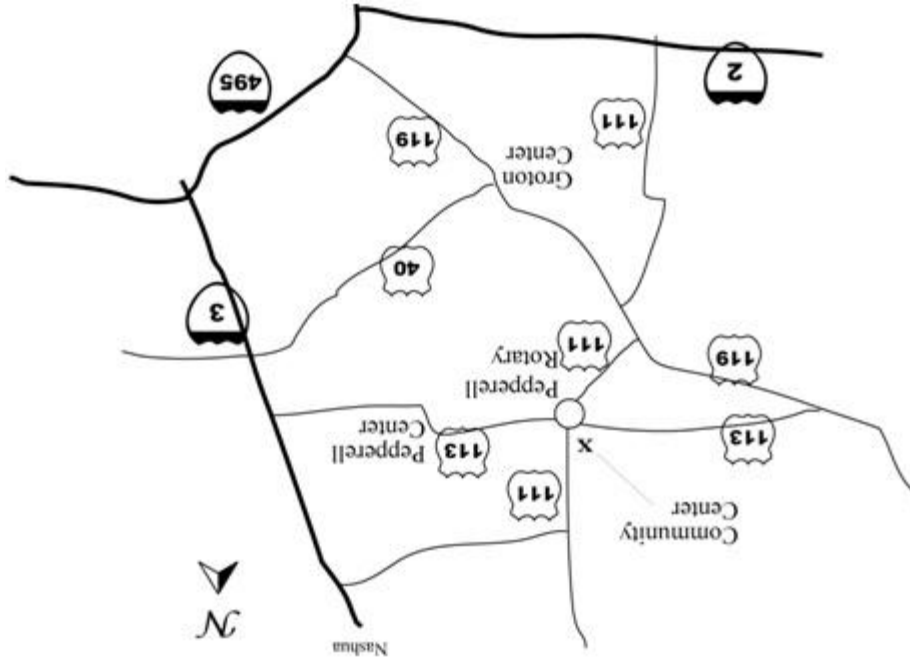
442.900 (+), 100Hz

147.345 (+), 100 Hz

53.890 (-), 100Hz

This newsletter is published monthly. Submissions, corrections and inquiries should be directed to the newsletter editor. Articles and graphics in most PC-compatible formats are OK.

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