



# ZERO BEAT

<http://hcra.org>

April 2015

## April Meeting

### Special points of interest:

- Visit the HCRA [facebook page](#).
- Don't forget to check out [hcra.org](http://hcra.org)
- Visit Summits on the Air <http://www.sota.org.uk>
- 2015 New England ARRL Convention Aug 21-23 <http://www.boroboro.org>

### FIELD DAY 2015

June 26-28 2015



[hcra.org/field-day/field-day-2015](http://hcra.org/field-day/field-day-2015)

**Join us Friday April 3rd at 7:30, in the Holyoke Medical Center  
Auxiliary Conference Center**



I earned my first ham license around 1981 when I was about 9 years old (KA1KOX). I used it to communicate with my Dad (via morse code of course) who was an oil tanker captain and gone a lot. I earned my general license soon after because voice calls were easier - and upgraded to extra class (NW1X) in high school. I graduated from Falmouth High School in 1990, the University of Notre Dame in 1994, spent 11 years flying F-14's off of aircraft carriers in the Navy, and for the past 11 years have been a pilot and captain for Southwest Airlines. I started high-altitude ballooning in 2012 as a project with middle-

schoolers in Bourne and have thus far flown two successful missions to altitudes in excess of 90,000 feet.

[For directions to The Holyoke Medical Center Auxiliary Conference Center:](#)

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## HELP WANTED

**Come join the Award Winning Team of The  
HCRA for:**

### ARRL's FIELD DAY 2015



Visit [hcra.org/field-day/field-day-2015](http://hcra.org/field-day/field-day-2015) for more details,  
and ways that you can join the Fun!

## AMATEUR RADIO ROUNDTABLE

W5KUB.COM

### Bringing Ham Radio to You



You are invited to Amateur Radio Roundtable, a new series of [W5KUB.com](http://W5KUB.com) live weekly webcasts. The webcast is every Tuesday night at 8:00 PM Central Time (0200 UTC Wednesdays) at [W5KUB.COM](http://W5KUB.COM).

Amateur Radio Roundtable is an informal discussion of all aspects of ham radio with the intent of allowing viewers to watch this live webcast or be a guest via Skype or Google Hangout. A question and answer session with viewers will follow each topic.

The show covers all aspects of ham radio; such as, balloon launches, Satellite, go-kits, emergency communications, SDR, digital modes, DXing, home brewing, and much more. This week's guests include Arnie Shatz, N6HC, a team member of many great DExpeditions; Eric William discussing SRD; and Franc Dunatov, ZL1SLO, discussing Special Event operations from New Zealand.

To watch Amateur Radio Roundtable: Go to [W5KUB.com](http://W5KUB.com), click on Live Events and sign in with your existing User Name and Password.

During the last half of the roundtable, every viewer is invited to make a virtual appearance on the show. Guests will need a Google+ account, microphone, and camera. A link allowing you to join will be provided during the show. This part of the show is very informal; you can just pop in to say hello, or stay a while and join in on a wide range of topics. Google Hangout will allow up to 10 people at a time.

We need your help with programming. If you have a specific subject that you would like to present in a future show, send an email to [tom@W5KUB.com](mailto:tom@W5KUB.com).

Join us for fun and interesting ham radio programming. We'll see you on the webcast!

Tom Medlin, W5KUB

### CLUBLOG RESULTS FOR MARCH 2015

Juergen (NV1Q) is still leading the pack with 215 contacts, followed by Jim (KK1W) at 188, with Matt (W1MSW) in 3rd with 167, 4th is Martin at 141, and rounding out the top 5 is John (KX1X) with 123.

It is still early in the year, and it's not too late to join the fun!

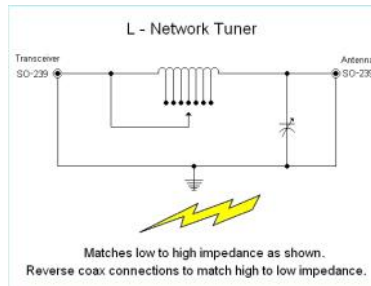
| Rank | Callign  | 160 | 80 | 60 | 40  | 30 | 20  | 17  | 15  | 12  | 10  | 6 | DXCC # | Skts | Range  |
|------|----------|-----|----|----|-----|----|-----|-----|-----|-----|-----|---|--------|------|--------|
| 1    | NV1Q-1 * | 1   | 31 | 0  | 60  | 27 | 164 | 101 | 157 | 125 | 153 | 1 | 215    | 820  | 36 yrs |
| 2    | KK1W-1   | 0   | 72 | 0  | 124 | 38 | 126 | 45  | 125 | 61  | 120 | 0 | 188    | 711  | 39 yrs |
| 3    | W1MSW    | 6   | 64 | 0  | 94  | 10 | 114 | 17  | 125 | 30  | 120 | 0 | 167    | 580  | 5 yrs  |
| 4    | W1MJB    | 0   | 16 | 0  | 8   | 6  | 50  | 32  | 43  | 69  | 59  | 0 | 141    | 283  | 12 yrs |
| 5    | KX1X     | 4   | 35 | 0  | 68  | 2  | 85  | 3   | 102 | 11  | 94  | 0 | 123    | 404  | 18 yrs |
| 6    | AB1WT    | 1   | 9  | 1  | 3   | 2  | 31  | 30  | 56  | 29  | 38  | 1 | 123    | 201  | 1 yrs  |
| 7    | K1VOI    | 4   | 15 | 0  | 25  | 14 | 44  | 18  | 38  | 16  | 42  | 1 | 110    | 217  | 14 yrs |
| 8    | WN1E-1   | 0   | 16 | 0  | 50  | 1  | 66  | 7   | 55  | 9   | 55  | 0 | 104    | 259  | 24 yrs |
| 9    | WD1S-2   | 9   | 36 | 0  | 60  | 6  | 84  | 5   | 68  | 5   | 52  | 1 | 103    | 326  | 3 yrs  |
| 10   | NT1K-2   | 0   | 7  | 0  | 13  | 1  | 49  | 4   | 52  | 4   | 46  | 0 | 95     | 176  | 5 yrs  |
|      |          | 160 | 80 | 60 | 40  | 30 | 20  | 17  | 15  | 12  | 10  | 6 |        |      |        |
| 11   | N3IMJ    | 0   | 4  | 0  | 36  | 2  | 41  | 0   | 29  | 0   | 19  | 0 | 71     | 131  | 3 yrs  |
| 12   | KC1ABV   | 0   | 0  | 1  | 9   | 1  | 17  | 17  | 32  | 15  | 4   | 0 | 67     | 96   | 1 yrs  |
| 13   | KB1VWQ   | 0   | 3  | 0  | 21  | 0  | 36  | 11  | 28  | 4   | 40  | 1 | 66     | 144  | 4 yrs  |
| 14   | N1FTP *  | 0   | 0  | 0  | 8   | 0  | 30  | 2   | 38  | 8   | 39  | 0 | 66     | 125  | 7 yrs  |
| 15   | N1FJ     | 0   | 0  | 0  | 0   | 0  | 3   | 0   | 9   | 3   | 13  | 0 | 24     | 28   | 2 yrs  |
| 16   | W1MOR    | 0   | 1  | 0  | 3   | 0  | 2   | 0   | 10  | 0   | 7   | 0 | 18     | 23   | 2 yrs  |
| 17   | N1MFL    | 0   | 0  | 0  | 1   | 0  | 1   | 0   | 7   | 1   | 13  | 1 | 17     | 24   | 3 yrs  |
| 18   | K1MAZ    | 0   | 0  | 0  | 0   | 0  | 1   | 3   | 1   | 0   | 0   | 0 | 5      | 5    | 4 yrs  |
| 19   | KC1BTA   | 0   | 0  | 0  | 0   | 0  | 0   | 0   | 0   | 0   | 4   | 0 | 4      | 4    | 1 yrs  |

You can link to your club here: <http://www.clublog.org/league.php?club=189>

# BUILDING AN “L” NETWORK TUNER

HAROLD WORING N1FTP

I'm not a very technical ham radio guy but I do like to build simple projects and here is one example I would like to share. This one is called an L-network antenna tuner. The L-tuner can match high to low or low to high impedance by reversing the coax cable connections. By searching the web for L-network antenna tuners, I got pages of results. This circuit diagram is from KC5LCO's web site.



NT1K



I read that about 20 turns of 16-12AWG wire, 2 inches in diameter with 1/8 inch spacing makes a good coil for HF at 100 watts or less. I then found an article on how to make coils by K0FF. He uses a piece of PVC pipe, some nylon grommet strips ( I found them on the McMasters web site), a glue gun and a couple of tie wraps.

As you can see from the diagrams, I fastened 4 nylon grommet strips to a 2 inch diameter pvc pipe with tie wraps. I wrapped the wire tightly making sure to go through each channel of the grommet strip. I then squeezed the hot glue in the center of the grommets which held the wire and grommets in place.



Once the glue dried, I simply slid the coil off the pvc pipe. On future coil making, I used only 2 grommet strips as seen in the finished picture.

Tapping the coil was easy as it was either copper or tinned copper wire. The variable capacitor I used was 420pf only because that is what I had in the junk box. Recommended caps were 500pf with more plate spacing. The more plate spacing, the less chances of arcing at higher rf power.



I use the tuner shown on my TS-120 and a G5RV mini. With the tuner, along with an SWR meter, I am able to bring the SWR to a level around 1.5:1 or less on most bands.

Harold, N1FTP

# FROM THE SHACK



## PUBLIC SERVICE

Well as most of you know I am also involved in the public service part of MTARA. Public service in HAM radio is a pretty wide category.

There are several types of events that require communications. Some are small that require a handful of operators and some are large that require in excess of 50 operators. Most events last just a few hours; however, some do last for the majority of the day. Most of the time, the people putting on the show, will feed you and/or give you a shirt in appreciation for your time and effort.

Why do they need us? What about cell phones?

As we check into nets through out the week, we have a net control. He/She makes sure that things are handled in a organized manner. Then relays the info he/she gets to the net manager. In public service, the Net control is usually "shadowing" the chairperson and is able to relay info to and from them in an orderly fashion to and from the operators in the field.

So, why not call them on their cell phone? How many can listen at one time through a phone conversation? 1 and only one. So what about group texts? They don't have time for that. We carry on like a well oiled machine. Net control runs the show, Chairperson asks question, NC asks field staff, receives orderly replies and relays back to chairperson. If something is a miss on the course, field staff calls NC and NC gives the info to the event char and when NC gets a reply from the chair they relay it back to the appropriate member of the field staff.

Let's take the smaller ones for example. The National Federation for the Blind walkathon. That requires a handful of operators, lasts only a few hours. We assist the vision impaired to keep them on the right path. Keep track of the walkers. And usually wrap it up in 2-3 hours.

Then we move to the Westfield Half Marathon. Same as before with the NFB, we keep track of the runners and keep them safe. A little larger, and a little longer. 12-20 operators needed and last 3-4 hours.

East Longmeadow parade. We are there to supply communications from all sections of the parade back to the event char and visa versa.

The Boston Marathon however is an all day affair. With 100's of volunteers from water stops, to first aid.

All of these we are there for event safety and keeping a good line of communication open for the event staff. We are the silent warriors.

Why am I telling you this? As a communications organization, the public looks for us for help. When we help, we get out into the public eye, and they see what we can do. This is one of the many ways we get new operators into the hobby. So PLEASE, if the chance to volunteer comes your way, and you can donate a few hours of your time PLEASE volunteer. WE NEED YOU (draw a mental picture of Uncle Sam pointing).

Ed

KB1NWH

## KX3 RAFFLE WINNER IS.....

First off, We would like to thank everyone who purchased a ticket and those who help with promoting. The money raised from this raffle goes to help the HCRA and help fund future events such as Field Day, Classes, Formal events and promoting amateur radio around the county and beyond. We would also like to thank the Mt. Tom Amateur Repeater Association (MTARA) for putting on an excellent hamfest. They helped us selling tickets and they allowed us to use the hamfest as the place to draw and announce the winner.

After a 9 months of promoting and even some begging, we sold approximately 180 tickets. I wish everyone could be a winner but there could only be one.

**The person holding the winning ticket was Raymond Burk (WB1GLX). He purchased the winning ticket #136 while at the hamfest.**





# Local happenings

**Sundays:** 0845: Western Mass Emergency Net 146.94, PL 127.3 - W1TOM/R

**First Monday:** Southwick Regional RACES Drill, 1845, 146.49 Simplex

**Mondays:** 1930: HCRA 10m Net 28.375

**Tuesdays:** 1930-2000: 146.94, PL 127.3 - W1TOM/R - Hampshire County Emergency Net

**Wednesdays:** 1930: MTARA Info net 146.94, PL 127.3 - W1TOM/R - includes NTS Net

2000: MTARA Swap net: 146.94, PL 127.3 - W1TOM/R

2000: MTARA Simplex Net - starts on 146.94 - PL 127.3, then goes to 146.42 direct (simplex) Usually starts immediately following the swap net.

**Thursdays:** 2100: Weather Net (Roger, K1PAI Net Control), 1st Thursday of every month: 147.090 MHz, All other Thursdays: 147.000, PL 127.3 - W1TOM/R

**Fridays:** 1200: BB's (Brown Baggers Luncheon)  
Munich House  
13 Center Street  
Chicopee, MA 01013

## Join the ARRL or renew your membership!

ARRL members enjoy:

- QST Magazine
- Members-Only Web Services
- Technical Information Service
- Member Discounts
- Outgoing QSL Service
- Continuing Education
- ARRL as an Advocate
- Regulatory Information Branch
- Public Relations for Amateur Radio
- ARRL Field Organization
- ARRL-sponsored contests
- Operating Awards
- Local Clubs
- Amateur Radio Emergency Service
- Hamfests and Conventions
- Volunteer Examiner Coordinator Program



<http://www.arrl.org/membership>

## Club meetings & VE sessions

**1st Friday of the month** 7:30 PM, HCRA Club Meeting, Holyoke Hospital Auxiliary Conference Center, 575 Beech St. Holyoke MA 01040 (no meetings held in July or August.)  
<http://www.hcra.org/meeting-location/>

**3rd Friday of the month** 7:30 PM, MTARA Club meeting, Red Cross building 506 Cottage St, Springfield, Mass. (no meetings held in July or August)

**4th Friday of the month** 6:00 PM, Technician, General, and Extra Class License Exams, Holyoke Hospital Auxiliary Conference Center, 575 Beech Street, Holyoke, Mass. Hosted by the Western Mass VE Team (WMVET). Contact: David Cote, w1fab@arrl.net

**Third Monday of the month** 7:00 PM, Franklin County Amateur Radio Club meeting, Room S301, Greenfield Community College (no meetings held in July or August)  
<http://www.fcarc.org/>

**4th Monday of February, May, August, November** 7:00 PM, FCARC VE Exams, Unitarian Church, Main Street, Northfield <http://www.fcarc.org/>

## HCRA contact list

President, Ed LaCombe KB1NWH

kb1nwh@comcast.net

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aa1yw@arrl.net

Secretary, Dave Fant WM1B

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Programs, Larry Krainson W1AST

wb1dby@comcast.net

Membership, Rich Wheeler N1KXR

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Technical, Bob Meneguzzo K1YO

k1yo@comcast.net

Skywarn Liaison, Eric Tuller N1QKO

et-n1qko@juno.com

VE Session Liaison, Dave Cote W1FAB

w1fab@arrl.net

# DOTS & DASHES:

Things I can't think where to put, but are interesting.

## AMATEUR RADIO PARITY ACT 2015

The push is on to convince Congress to pass The Amateur Radio Parity Act of 2015 — H.R. 1301, introduced in the US House early this month with bipartisan support and now has 22 cosponsors. The full text of the bill now is available. If approved and signed by the president, the measure would direct the FCC to extend its rules relating to reasonable accommodation of Amateur Service communications to private land use restrictions — also known collectively as “deed covenants, conditions, and restrictions” or CC&Rs. In the March issue of the ARRL Legislative Update, ARRL President Kay Craigie, N3KN, said the bill is “simple and sensible,” and she urged all radio amateurs — whether or not affected by CC&Rs — to join the effort to gain cosponsors for the measure. A regularly updated H.R. 1301 page on the ARRL website includes key “talking points” and other information for Amateur Radio delegations or individuals to use when approaching US House members for their support.

## TICKETS FOR THE 2015 NEW ENGLAND ARRL CONVENTION NOW ON SALE

Tickets for the 2015 Boxboro convention are now on sale. This year the event will be held August 21, 22, & 23rd, at the Holiday Inn, Boxboro, Ma.

As you may have noticed, we are breaking are usual "every other year" schedule having a convention this year, so help us spread the word to your friends and acquaintances that there IS a convention this year.

The committee is lining up speakers, forums and exhibitors, so many details are still to be announced. However, Gordon West WB6NOA is confirmed as the keynote speaker at our Saturday banquet.

And finally.. be the first on your block to get tickets.

<http://www.boxboro.org>

## INTERESTING HAM RADIO WEB SITES:

### BUILD AN IN-LINE BATTERY BACK-UP MODULE

Here is a relative easy module to keep your SLA batteries charged

<http://hackaday.io/project/4945-in-line-battery-back-up-module-for-ham-radio>

## CONTESTING:

### APRIL 2015 CONTESTS

|        |                                   |  |             |
|--------|-----------------------------------|--|-------------|
| Apr 3  | Lighthouse Spring Lites QSO Party | <a href="http://www.cwops.org/cwt.html">www.cwops.org/cwt.html</a>           | CW,         |
| Apr 4  | Mississippi QSO Party             | <a href="http://www.arrlmiss.org">www.arrlmiss.org</a>                       | CW, PH, Dig |
|        | Missouri QSO Party                | <a href="http://www.w0ma.org">www.w0ma.org</a>                               | CW, PH, Dig |
|        | LZ Open 40 Meter Contest          | <a href="http://www.izopen.com">www.izopen.com</a>                           | CW          |
|        | Montana QSO Party                 | <a href="http://www.fvarc.org">www.fvarc.org</a>                             | CW, PH, Dig |
| Apr 11 | New Mexico QSO Party              | <a href="http://www.newmexicoqsoparty.org">www.newmexicoqsoparty.org</a>     | CW, PH, Dig |
|        | Georgia QSO Party                 | <a href="http://www.georgiaqsoparty.org">www.georgiaqsoparty.org</a>         | CW, & PH    |
| Apr 18 | Nebraska QSO Party                | <a href="http://www.qcwa.org/chapter025.htm">www.qcwa.org/chapter025.htm</a> | CW, PH, Dig |
|        | Michigan QSO Party                | <a href="http://www.miqp.org">www.miqp.org</a>                               | CW, & PH    |
| Apr 19 | ARRL Rookie Roundup               | <a href="http://www.arrl.org/contests">www.arrl.org/contests</a>             | PH          |
| Apr 25 | Florida QSO Party                 | <a href="http://www.floridaqsoparty.org">www.floridaqsoparty.org</a>         | CW, PH      |



## FOR SALE:

If you have a piece of Ham Radio equipment to sell, send photo and details by the 20th of the month, to [wa1mow@arrl.net](mailto:wa1mow@arrl.net). All submissions will be screened for appropriateness, and content. The decision to publish is at the discretion of the ZB Editor



### FOR SALE:

For sale is my Icom IC-761. Rig is from a clean nonsmoking shack and works with no problems that I know of. There are a few minor chips on top edge. It has built in power supply and antenna tuner. Included is stock mic and manual on CD.

Price is \$400 and I can be reached at [wa1uwx@yahoo.com](mailto:wa1uwx@yahoo.com) or (413) 210-9205 Jim O'Brien North Hatfield MA

### FOR SALE:

- 1) Ameritron AL-811 600 watt amplifier - \$500.00. New lists for \$750.00 discounted.
- 2) MFJ-969 6-160 300 watt manual antenna tuner - \$100.00. Lists for \$200.00 discounted.
- 3) RotorCard DXA Rotor control card - \$50.00 . Controls rotation within computer logging and contest programs. Compatible with Rotor-EZ or HyGain DCU-1 protocols. New lists for 150.00.
- 4) HP Oscilloscope Model 1740A with manual and probes - \$95.00.



If anyone is interested I can be reached at: [k1voi@arrl.net](mailto:k1voi@arrl.net)

**If you have any Amateur Radio related equipment to buy, sell, or trade.**

**Or**

**If you need a piece of equipment.**

**Email [wa1mow@arrl.net](mailto:wa1mow@arrl.net) to list in Zero Beat.**

## AREA SWAPFESTS:

2015

Apr 12 Framingham (MA) ARA Ann. Spring Flea Mkt  
Apr 17 Eastern VHF-UHF-MW Conference  
Apr 18 Portland Amateur Wireless Association  
Apr 19 Flea at M.I.T  
Apr 25 RANSON Auction 2015  
May 17 Flea at M.I.T.  
May 30 Southern Berkshire A.R.A. 24th Ann. Hamfest

Cambridge, Ma  
Manchester, Ct  
Portland, Ma  
Cambridge, Ma  
Gales Ferry, Ct  
Cambridge, Ma  
Goshen, Ct

[www.w1fy.org](http://www.w1fy.org)  
[www.newsvhf.com](http://www.newsvhf.com)  
[www.qsl.net/pawa](http://www.qsl.net/pawa)  
[www.swapfest.us](http://www.swapfest.us)  
[www.ranson.org](http://www.ranson.org)  
[www.swapfest.us](http://www.swapfest.us)  
[www.w1baa.org](http://www.w1baa.org)

# HCRA MEMBER PROFILE APRIL 2015

- 1) Name: Gent Lam
- 2) Town: Westfield, Ma.
- 3) Callsign: WA1CQF
- 4) Previous Callsigns: WN1CQF
- 5) License Class: Extra
- 6) Main station equipment: Elecraft K3 transceiver, Homebrew 2x3-500 amplifier, Homebrew keyer, Drake R4a receiver (love the tube sound), Cushcraft A3 triband beam. Still use paper logs. Love computers but have no interest in integrating them with the radio.
- 7) Favorite Band(s): 20 & 40 meters
- 8) Favorite Mode(s): CW & SSB
- 9) Year you were first licensed and license class: 1964 Novice
- 10) How did you become interested in amateur radio? Always had an interest in electronics construction. Initially interested in Hi-Fi (stereo was not yet invented). There weren't any small Hi-Fi projects to build. I did build a push-pull audio amplifier using a pair of 6V6's. Amateur radio afforded the opportunity to build many different projects of varying complexity.
- 11) What are some of your favorite aspects of the hobby? Construction-especially amplifiers (see my profile at QRZ.com). Being a mentor when the opportunity arises.
- 12) What is your most memorable experience in the hobby? My first Field Day.



This is the radio desk.



This is where I spend most of my amateur radio time.



## Phunetics

## Across

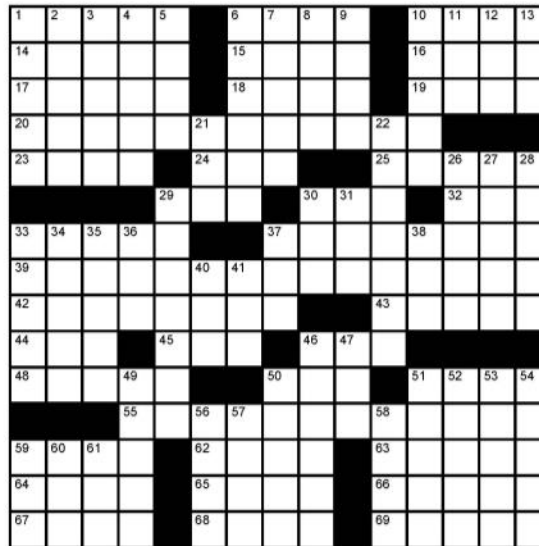
1. How puzzle ends  
 6. Suffix with hard- or soft-  
 10. Radio personality K2ORS  
 14. Improvised  
 15. Suffix with radi- or modul-  
 16. Put in stitches  
 17. Whinny  
 18. Sailor's rum drink  
 19. Partner of FIGS  
 20. Outfit for dancing?  
 23. Dozen dits  
 24. Mo. for VHF QP  
 25. Legislate  
 29. Mo. for ID, OK, VA and WI QP's  
 30. HZ pilgrimage  
 32. US Army station  
 33. TA bigwig  
 37. Barren  
 39. Newington bar order?  
 42. NE to ZL from W0  
 43. They got 11 in '58  
 44. Tack on  
 45. Nav. rank  
 46. Classic rcvr maker from IL  
 48. Celebrate  
 50. Sat. type  
 51. Flex's  
 55. Shakespearean wireless dance?  
 59. Maker of the "seven drifts three"  
 62. RSGB is a member  
 63. W5 capital last name  
 64. Function on an HT, say  
 65. \_\_\_ Kringle  
 66. Classic vinyl  
 67. Combustible heap

68. If follower, to a programmer  
 69. C's low in the bands

## Down

1. Unchecked items on a DXCC list, for example  
 2. Brainstorms  
 3. Adds water to latex, say  
 4. DXing LIDs, slangily  
 5. See 58 down  
 6. DL opera composer  
 7. Take \_\_\_ (travel)  
 8. Tripod place  
 9. "Cogito \_\_\_ sum"  
 10. OP lead-ins  
 11. DXCC item (abbr.)  
 12. Hams are on it  
 13. Nets make it up  
 21. KH6 is in it, but not for DXCC  
 22. Celebrate  
 26. Normal operator state in a contest, hopefully  
 27. Provide food for  
 28. Low cards  
 29. HK0 place  
 30. HHS, predecessor  
 31. Fire remnant  
 33. Route to VU from W9, e.g.  
 34. Tube cap  
 35. Test, on 7.002 MHz, perhaps  
 36. Hardly a beauty  
 37. T  
 38. Mode on 7.178 MHz, probably  
 40. W6 area net  
 41. Sm. radios  
 46. Decline

47. Jersey call  
 49. Moldova prefix  
 50. Large-eyed lemur  
 51. Lifted, so to speak  
 52. Crushes, as in a contest  
 53. Scoundrel  
 54. Flower towers?  
 56. Phone op's need  
 57. Countess's husband  
 58. With 5 down, ultra short wave moonbounce signal?  
 59. Brainwave radio?  
 60. Like yagi elements in winter  
 61. Shack on wheels



## ARE YOU READY?

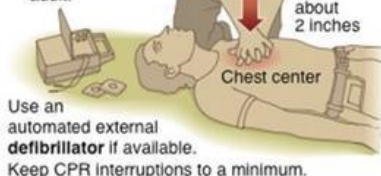
## Simplifying to hands-only CPR

Experts now believe an adult who suddenly collapses due to cardiac arrest has enough air in his lungs and blood during CPR and doesn't need mouth-to-mouth breathing.

## If you see someone collapse ...

... have someone call 911.

Position unresponsive adult.



Use an automated external defibrillator if available. Keep CPR interruptions to a minimum.

**Begin hands-only CPR** with straight arms and forceful compressions at about 100 a minute.

Lift hands slightly after each to allow chest to **recoil**.

**Take turns** with a bystander until emergency medical services arrive.

SOURCES: University of Arizona Sarver Heart Center; American Heart Association

AP

## March's Puzzle





**Here is your exciting copy  
of April's  
Zero Beat!**

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**Hampden County Radio Association  
P.O. Box 562  
Agawam, MA 01030-0562**