



The E-VOX

The Official **On-Line**
Newsletter of the



Lehigh Valley Amateur Radio Club - W3OI / KB3SYV
Allentown, Pennsylvania (Lehigh County) - USA

Officers

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Secretary: Phillip Bigg - KB3HMK (philbert17@verizon.net)
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LVARC Repeaters

146.34 / 146.94 (PL 71.9)
147.735/147.135 (PL 167.9)
447.775 (PL 71.9)
Club Simplex Freq. - 147.420

LVARC/RACES/ARES Net

Every Monday at 7:30 (ET)
146.940 (PL 71.9)

D-Star








W3OI Dstar repeaters are now on W3OI at
147.165, W3EPE at 445.225 and W3OK at
145.110

Join us for a Mid-Atlantic regional net Tuesdays
on the 147.165 port

To register for the Gateway or need information
on setting up the radio, please visit
<http://www.epaares.org/dstar/>

W3OI Home Page: <http://www.w3oi.org>

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Happy Easter
Welcome Spring!



Newsletter submissions can be sent to Mark
(AK3M) at AK3M@rcn.com

Your submissions can be text and/or graphics.



The April, 2011 LVARC meeting will be held on
April 5, 2011 at the TriClover Fire Company at 7:30 pm.

LVARC / RACES NET

Don't forget to check into the Monday Night
LC/LVARC/RACES Net on 146.94 (PL 71.9) with an
alternate frequency of 147.735/147.135 (PL 167.9)
The Net begins at 7:30 pm local time (ET).

**Many club announcements
will be heard there !**

Monday Night RACES/ARES Check-In Summary - 2011

Month

January
February



Number of Check-In's

137
147



Number of Nets/Mondays

4
4

REMEMBER:

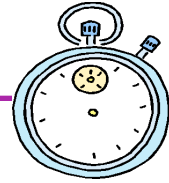
Registration for the monthly test session, must be
made NO LATER THAN THE
SUNDAY BEFORE THE TEST!



Contact Mark (AK3M) at AK3M@rcn.com
or call 610-865-9183

Minutes of the March, 2011 LVARC Meeting

de - Phil (KB3HMK)



The meeting was called to order by President Wolfe at 1931 Hrs, (EST / EDST).

The meeting opened with the Pledge of Allegiance, then a moment of silence was observed for Silent Keys.

There were a total of 22 members in attendance, and the club was joined by 4 guests. The following Board Members were present at the meeting: Rod (N3XG), Craig (N3TSY), Phil (KB3HMK), Brian (KB3QHA), Paul (N0KIA), Robin (KB3GZV), Dave (N3GRH) and Brian (KW3K).

Corrections Additions to the minutes: None noted

Motion by: Bruce – KA3TIU

Second by: Craig – N3TSY

Carried (Y/N) Y

Guests:
John – WX3C
John – KB3VNS
Ed – WA3WSJ
Dave – K3MXS

Treasurer's Report: (Brian – KB3QHA)

Starting Balance: \$4,128.71 (January)
\$4,158.32 (February)
Ending Balance: \$4,158.32 (January)
\$4,227.08 (February)

Approved by: Carl – AA3IX

Second by: Walt – KE3SP

Carried: (Y/N) Y

Committee Reports:

Repeater: KP3N was wondering if the 135 repeater is a bi-lingual repeater. Rod informed him it is. When using in a different language, please follow the rules as set forth. Also, don't forget that the phone patch does work. If you have any ?, contact Rod (N3XG)

Program: Phil reports that tonight's program features Ed (WA3WSJ). He will be presenting a program on Narrow Band Emergency Messaging System. April will be on wire antennas and May will be on foxhunting.

Volunteer Examiners: 1 passed the tech test in February.

Old Business: There are a couple of events coming up. The _ Marathon will be May 1. St. Joe's the Worker 5k Walk – Run will be May 21. This is a good training event for members who are new to the events.

(Minutes cont. on page 5)

(Minutes cont. from page 4)

The Board of Governors held a meeting on January 24. The necessary changes have been made due to the new officers. Rod thanked Paul for his many years of service as the treasurer. The board decided to purchase safety vests for events. The idea is to hand them out at the events. This way people will know who we are. If you attend enough events, you will be able to have the vest for future events. Rod asked for a member/s to head up a committee on what the vest would look like and what was on them. Craig (N3TSY) volunteered.

It was asked to keep an eye in the sky. Storms are already starting to produce. If you have any info related to the storms, relay them to Brian (KW3K). He is still looking help with Skywarn. If interested, please contact him.

Rod would like to have a picnic sometime in August. It would be on a Saturday. He asked for a motion to reserve the Upper Macungie pavilion. A motion was made by Dave (N3GRH) and seconded by Craig (N3TSY). The motion passed.

There will be an amateur radio cram session this Friday and Saturday in Lehigh. Friday is from 7 – 9:30 and Saturday is from 10 – 3:30/4:00. No test session with this class.

Good of Order: Rod presented Walt (KE3SP) with an ARRL keychain for his years of service as a board member.

Brian (KW3K) has black cases for sale. They are \$55 each. He will also be getting 9 gallon buckets to store food in. If interested, contact Brian.

Rod has DVD's from the All Thing Safety Fest from 2010. If anyone is interested in one, see Rod after the meeting.

W3OK will be having a mini hamfest at there meeting this Thursday. There meetings are at the Nancy Run Fire Company.

Sick Report: Bruce's (KA3TIU) sister-in-law found out that she has ovarian cancer. Your thoughts and prayers would be nice. Her name is Betty.

The LVARC Monthly Business Meeting Closed at 2005 hrs, EST.

Motion by: Craig – N3TSY

Second by: Craig – KB3SBX

In favor: Y

Respectfully Submitted de KB3HMK, Secretary.

\$\$\$	W3OI Finances	\$\$\$	
Balance ending February, 2011 - \$4,227.08			

This Month In Ham Radio

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<i>April 2011</i>					1	2
3	4 ARES RACES Net 7:30	5 LVARC Meeting Tri-Clover 7:30	6 Dist. 2 RACES Net - 7:30 147.255	7	8	9
10 Deadline to schedule test	11 ARES RACES Net 7:30	12	13 Dist. 2 RACES Net - 7:30 147.255	14	15 LVARC Test Session 7:00 pm	16
17	18 ARES RACES Net 7:30	19	20 Dist. 2 RACES Net - 7:30 147.255	21	22	23
24 Easter 	25 ARES RACES Net 7:30	26	27 Dist. 2 RACES Net - 7:30 147.255	28	29	30

LVARC Meeting - Tuesday April 5 - 7:30 - Tri - Clover FC

Test Session - Friday April 15 - 7:00 pm - Red Cross Building

LVARC Activities/Events

Mark your Calendar

PRINT, CLIP and POST



Monday April 4 --- LC RACES/ARES Net - 7:30 pm (146.94)
Tuesday April 5 --- LVARC Meeting (7:30 - Tri Clover FC)
Sunday April 10 --- Deadline to schedule for license exam
Monday April 11 --- LC RACES/ARES Net - 7:30 pm (146.94)
Friday April 15 --- LVARC test session (Registration required)
Monday April 18 --- LC RACES/ ARES Net - 7:30 pm (146.94)
Monday April 25 --- LC RACES/ ARES Net - 7:30 pm (146.94)

There may be additions and deletions to the above dates. Listen to the Monday Night Net, the newsletter and announcements at meetings for changes.

LVARC VE Report

de Mark (AK3M)

At the February 18, 2011 test session, one tested and one passed.

CONGRATULATIONS to:
Charles R. Yeakel who earned his Technician license.



VE's in attendance were, **Mark** (AK3M), **John** (AB3LZ) and **Walt** (KE3SP)

REMEMBER: The LVARC offers amateur radio testing. If you want to obtain your entry level license or if you wish to upgrade, the LVARC can help.

Test sessions are given the 3rd Friday of each month.

REGISTRATION IS REQUIRED!!! Registration must be made no later than the Sunday before the Friday test session.

To schedule a test or for more information, contact Mark (AK3M) at AK3M@rcn.com or call 610-865-9183.



Have an article, diagram or an opinion you would like to share with the LVARC members in this newsletter? Send it to Mark (AK3M). You can submit VOX material in any form. Send it via email (AK3M@rcn.com) or US mail (5508 Hale Ave - Bethlehem, PA 18017). You can send pictures, diagrams or text. **The newsletter needs YOUR material to continue!**



January - *Snow* ----- February - *Explosion/Fire*

The month of January saw the implementation of two RACES nets at the request of Tom Nervine, director of Lehigh County EMA. This was due to severe weather which included both large amounts of snow and a significant amount of ice.

At 10:50 pm (local) on Wednesday February 9, Allentown experienced a huge explosion on North 13th and West Allen streets. This explosion and resulting fire destroyed a row of eight homes, damaged more than 30 other homes and 10 businesses, and forced hundreds of people to flee their homes. It was this flight from warm homes that presumably activated RACES.

I received a phone call from Bruce (KB3FIH) shortly before midnight asking me to initiate a RACES net on 146.94. Thanks to Bruce's understanding, he allowed me a moment to become conscious from my sleep and repeated the instruction. He only told me what I needed to hear and was able to hear at that time of the night. He simply said that there was an explosion in Allentown and deployment of RACES volunteers was not only possible, but probable.

I staggered into the radio shack and turned on VHF. I opened a net at 0003 on February 10, 2011. I wasn't sure even then, exactly what happened. I asked for chckins to the L.C. RACES net and Mike (KB3QZL) responded to my request immediately. He told me that he was monitoring the situation. He also told me that he was available to deploy. Just what I needed to hear !!! I still wasn't sure what the, "situation," he was monitoring was. I then turned on WFMZ (channel 69) and slowly began to understand what was happening. Dave (W3AMC) was next to check in followed by Jeff (N3MFT) who was already, "On Scene,!" Bruce (KB3FIH) arrived at the EOC and contacted me to get the check in list. Because Gross Towers was being evacuated, a shelter was being set up at "Ag(friculture) Hall," in the fairgrounds. Mike (KB3QZL) was deployed to that shelter at 0036. Since I needed to get up early later that morning, Bruce (KB3FIH) assumed Net Control at 0045 at my request.

The following is a summary of the rest of the events of the early morning, provided by Jeff (N3MFT).

APD Reports to Allentown Comm. 22:48
3rd Alarm reported 23:13



RACES activated per LC EMA Director approx. 2330 hours

Pictures courtesy WFMZ

AK3M opened up as NC

Checkin's:

AK3M (Net Control)
KB3QZL (Deployable) (AG Hall)
W3AMC (Non-deployable)
N3MFT (Scene) Command Post
KB3FIH (Deployable) (EOC/Net Control)
N3XRL (Non-deployable)



(continued on page 9)

(continued from page 8)

KB3QZL assigned to AG Hall arriving 00:51
N3MFT requested KB3QZL work with Fair Grounds PD (Spang) (Stationed Security Office)
NC to KB3QZL (LVHN EM1 requesting information about Family unification)
NC to KB3QZL (Status Check) 01:22
NC to KB3QZL (additional residents enroute to AG Hall) 01:28
N3XRL to NC (Check in. States deployable)
N3MFT to NC (Potential for 2nd Shelter 22nd and Tilghman) 01:44
NC to KB3QZL (Status Check) 01:55
N3XRL to NC (Enroute to Area) 01:56
NC to KB3QZL (Status Check) 02:18
N3XRL to NC (Vehicle Inop. no longer enroute) 02:20
N3MFT to NC (Request AG Hall Red Cross info. ref. residents 542 N. 13th Street) 02:50
NC to KB3QZL (Pass traffic requesting info. about residents 542 N 13th Street) 02:51
KB3QZL to NC (No residents from that address are present per Red Cross) 02:52
NC to N3MFT (Relay no residents)
NC to KB3QZL (Status Check) 03:08
NC to KB3QZL (Status Check) 03:54
NC to KB3QZL (Contact NC via land line Welfare and whether he wants to continue on post. States he would like to continue.)
KB3QZL to NC (Loading 1st bus, will notify on departure) 04:21
KB3QZL to NC (1st bus enroute Gross Towers) 04:31
N3RPV to NC (Confirmation of location of KB3QZL) 04:34
City states 1st Bus arrives Gross Towers 04:37
NC to KB3QZL (Status - AG Hall reports less then a dozen left to return) 05:21
KB3QZL to NC (Last bus loaded, request permission to secure GRANTED) 05:25
AG Halls complete



Pictures
submitted
courtesy Jeff
(N3MFT)



February 13, 2011

top news

More RACES News
de Jeff (N3MFT)

I just can't say enough how happy everyone from the county is from previous last 2 ACS-RACES responses. I will forward a letter from Tom Nervine sometime today.

On that note we would like to improve our alerting capabilities to emergencies . We are going to be using software called I am responding . I need from you to get this set up the following.

Your Name , Callsign , Cell phone number , Email, Home phone number. **If we get a call it will text a message to your cell phone and email you dial an 800 number with your status** it's that simple . **RESPOND TO** to kellyj@ptd.net . We will go over the software at the March 8 meeting in the EOC. To check it out go to <http://www.iamresponding.com>

Thanks
Jeff

Not Dead Yet?

READER SUBMISSION

de Fran (KB3HZB)

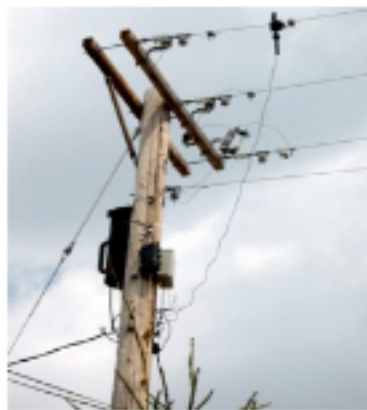
PISCATAWAY, N.J.: I-triple-E has published its standard for Broadband over Power Lines. The Institute of Electrical and Electronics Engineers finalized BPL 1901™ in December and has made them available for purchase. The controversial Internet access technology has been around for several years, but the absence of an IEEE standard has been but one hindrance to its wider adoption.

With BPL, merely plugging a browser-equipped computer into a wall outlet yields high-speed Internet access. 1901-compliant local area networks are said to support data rates of more than 500 Mbps, and first- and last-mile ranges of 1,500 meters. The technology scheme allows for the transmission of data over standard AC power lines of any voltage, at frequencies less than 100 MHz.

The Federal Communications Commission adopted rules for BPL in 2004, setting off a firestorm of objection from ham radio operators. The [American Radio Relay League](#), representing hams, contended that BPL interfered with their operations, as well as short-wave and low-band VHF communications.

<http://tvtechnology.com/article/113334>

I have heard the definition of insanity is doing the same thing over again and expecting different results. Does BPL qualify? (ed).





VOLUNTEERS NEEDED



Lehigh Valley Road Runners
The Lehigh Valley's Premier Running Club

Dr. Mike Martinez has contacted me to let me know that he again wants the LVARC to provide communications support for the **Lehigh Valley Road Runner's 2011 Half-marathon**. This event will be **Sunday May 1, 2011**. Mark your calendars and volunteer early. About 17 operators will be needed. If you can help, contact Mark (AK3M) at **AK3M@rcn.com**.



Up Coming LVARC ARES Events

May --- LVRR 1/2 Marathon - May 1, 2011

*** St. Joseph the Worker 5K - May 21, 2011 - **ARES TRAINING EVENT**

June --- Girls 5K

Field Day --- June 25 -26

September --- LVHN/VIA Marathon

October --- Women's 5K Classic --- October 15, 2011



****The "St. Joseph The Worker 5K," is an **ARES Training Event**. If you are new to amateur radio or ARES and want to learn what ARES events are all about, this is an excellent event in which to get started. New ARES participants can be paired with an experienced operator. Contact Mark (AK3M) to volunteer.*

Why Ham Radio Endures in a World of Tweets

READER SUBMISSION

de Bruce (KB3FIH)

http://www.wired.com/epicenter/2011/02/ham-radio-tweets/?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+wired%2Findex+%28Wired%3A+Index+3+%28Top+Stories+2%29%29



Question Pool Scheduled Revision

The next element to be revised is the **General** class (Element 3), released December, 2010 and will become effective July 1, 2011.



A TRIP DOWN MEMORY LANE BUILDING THE XS-801 CRYSTAL SET

Reviving past memories and passing them along to the next generation was the primary motivation for building this crystal radio receiver. I would bet that most of the readers of this article have some fond memories of building a crystal set in their formative years. Some of us were inspired by a friend or relative, some by an upcoming science fair, others by the challenge of listening to a radio we built with our own hands. We can recall winding our coils on oatmeal boxes and clamping our ground wire to the nearest radiator.

The kit pictured here was produced by the Xtal Set Society and contains all the parts necessary to successfully complete an AM band radio. Instructions included with the kit are reminiscent of Heathkit assembly instructions with a check off list after each assembly step. Do be aware that there are some discrepancies between the schematic and the written assembly procedures. The builder will have to supply hook up wire, antenna and good ground connection.

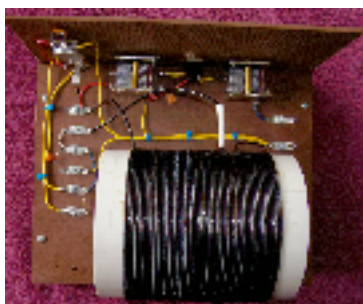
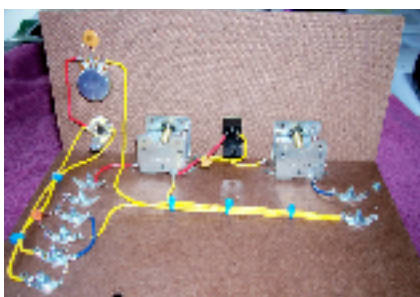
The most challenging aspect of building this kit is winding the coil. The coil core is a piece of pre-drilled PVC pipe. I found that if you fit three pieces of double sided carpet tape to the coil form, winding the coil is a much easier task.

The XS-801, is a nice little project you can build with your children or grandchildren and pass along some radio fever to the next generation.

Information about the XS-801 can be found at:

www.midnightscience.com or The Xtal Set Society
PO Box 3636 -- Lawrence, Kansas 66046 --- Xtalset@sunflower.com

READER SUBMISSION de Frank (W3FTU)



READER SUBMISSION

de Pete (NL7XM)

**Data Shows Disastrous GPS Jamming
from FCC-Approved Broadcaster**

<http://www.gpsworld.com/gnss-system/news/data-shows-disastrous-gps-jamming-fcc-approved-broadcaster-11029>

CLUB FUNDRAISER

MARCH 19 at CHERRYVILLE
HAMFEST. BRING ITEMS TO THE
CLUB DINNER ON 2/23 OR THE
MARCH 1ST MEETING
CONTACT FRANK (W3FTU) OR
ROD (N3XG).

**PLEASE NO COMPUTER
EQUIPMENT. ----- TNX-FTU**

READER SUBMISSION

de Erik (AI3D)

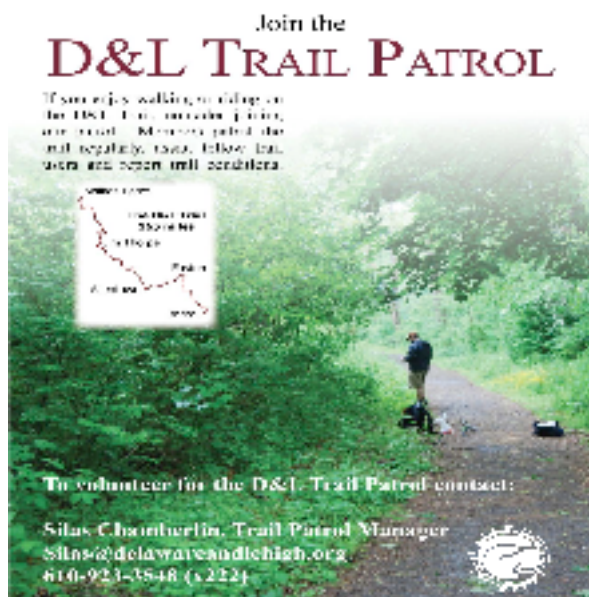
A wireless radio that can send and receive signals at the same time

<http://www.zdnet.com/blog/emergingtech/a-wireless-radio-that-can-send-and-receive-signals-at-the-same-time/2484?tag=nl.e539>

READER SUBMISSION

de Phil (KB3HMK)

The **D&L Trail Patrol** is looking for volunteers. Any questions, contact: Phillip W. Bigg - KB3HMK (philbert17@verizon.net)



Join the
D&L TRAIL PATROL

If you enjoy walking, hiking, or riding on the D&L Trail, consider joining our patrol. Members patrol the trail regularly, report trail conditions, and help with trail maintenance.

To volunteer for the D&L Trail Patrol contact:
Silas Christnerlin, Trail Patrol Manager
Silas@delawareaudlehigh.org
610-923-3548 (x222)



LVARC EVOX
via email



If you have not been receiving the E-VOX delivered to your computer or wireless device, you need to send Mark (AK3M) a viable email address. Some emails have been returned. The E-VOX is published in a pdf format and should be able to be read by iPhones, Blackberry's, etc.

Noteworthy from March QST



Shakespeare PL 259-CP-G coax connector (page 64).



Top 20 Most Wanted Entities (p.92)

- | | |
|------------|------------------------|
| 1. P5 | North Korea |
| 2. KP1 | Navassa |
| 3. 3Y/B | Bouvet |
| 4. 7O | Yemen |
| 5. VK0/H | Heard Island |
| 6. FT5Z | Amsterdam |
| 7. ZS8 | Marion Island |
| 8. VP8/S | South Sandwich |
| 9. FT5W | Crozet |
| 10. BS7 | Scarborough |
| 11. VP8/O | South Orkney |
| 12. HK0/M | Malpelo |
| 13. VK0M | Macquarie |
| 14. SV/A | Mount Athos |
| 15. FT/T | Tromelin |
| 17. KH5K | Kingman Reef |
| 18. PY0S | St. Peter & Paul Rocks |
| 19. KH5 | Palmyra/Jarvis |
| 20. FT/J&E | Juan de Nova & Europa |

iTunes



ARRL Audio News again available from iTunes. (p. 79)

<http://www.arrl.org/arrlletter/audio/aan.rss>

A Blast from the Past - de Ike (N3IK)

1955

READER SUBMISSION

Lehigh Valley's 500 Radio Operators

They're 'Hams', But They're Pros at Public Service

There are hams and there are "hams."

This is about "hams" — amateur radio operators and hobbyists. About 500 of them in the Lehigh Valley help guard your safety.

They serve in Civil Defense organizations, in National Guard and reserve units, as independents on call when needed. One of the most important services of Lehigh County Civil Defense, the communications division, is staffed largely by radio "hams."

In the Lehigh Valley, and all over the world, "hams" have been credited with saving life and property in times of emergency. Because of their hobby, they are able to link isolated or stricken areas with the outside world, bringing speedy help when and where it is most needed.

leaders recognize the value of "ham" operators. They had first-hand opportunity to see them at work during the 1935 floods. Accordingly, the Lehigh Valley Amateur Radio Club was urged to join the Civil Defense organization.

Chartered in 1935

The club was organized and chartered in 1935. There was no clubhouse. Members met in private homes. As time wore on, interest in the club diminished — but interest in radio continued.

Then came the post-World War II Civil Defense program — and an opportunity to reestablish the club. It's going strong now.

There are regular meetings, where new ideas on radio techniques are discussed, at the Lehigh County C.D. Control Center, 1201 Sumner Ave., Allentown.

Friday, are open to all who are interested.

Growing Enthusiasm

The 500 "hams" in the Lehigh Valley are a handful of the more than 200,000 registered amateurs in the world. About 100,000 of these are in the United States.

Back in 1917, when the United States entered World War I, there were only 8,000 amateur radio operators. They were quickly sought out by the armed services, and 4,000 were inducted for World War service. More than 25,000 "hams" served in the nation's armed forces in World War II, and thousands more did important civilian work for the government.

The Old Days

Lehigh County amateur operators recall that following the hobby in the early days of the club wasn't easy.

would have been prohibitive. For instance, a transmitter crystal that can be had for \$2 today was priced at \$25 in 1925. And in those days they had to be able to take 15 words a minute in code.

Today, radio is no more expensive than other hobbies. The amateur ranks, as a result, are swelling.

U. S. Testing

To become a radio amateur the hobbyist must first pass several examinations. Uncle Sam won't issue licenses until the applicant proves he can operate and care for apparatus, observe laws and regulations affecting radio amateurs and send and receive code.

There are four classes of licensed amateurs: novice, technician, general (or conditional) and amateur extra.

The Lehigh Valley Radio Club

The club hopes some day to enlist all Lehigh Valley amateurs for Civil Defense service. The selling points: fun, self-improvement, service. "Hams" say "hams" can do much to erase barriers of nation, race, color, creed.

The Morning Call
1955



HAMMING IT UP - Here are two of the Lehigh Valley's 500 amateur radio operators, or "hams," who aid Civil Defense. They are Ira Kweschner, whose call letters are W3AZR, broadcasting from Control Center, and Mrs. Elsie Oberdoester, W3ICQ, taking a message in a car.

CONGRATULATIONS to Charles Yeakel who tested at the February 18, 2011 test session. He received his call (**KB3VQP**) on February 23, 2011.



ACS ?????

You may have seen or heard **ACS** being used in tandem with **RACES** or perhaps in place of **RACES**. Is it a typo? No, it's an acronym that means **Auxiliary Communication Services**. Why the change? PEMA's ACS program includes **many** various communication services, not only amateur radio.



These include **RACES**, **ARES**, **MARS**, local clubs, and the NWS **SKYWARN** program. Others who are not licensed Amateur Radio operators also provide emergency communications support through organizations such as **REACT**, the **Civil Air Patrol**, the **US Coast Guard Auxiliary**. To learn more, visit ...

Pennsylvania Auxiliary Communications Services Program

http://www.portal.state.pa.us/portal/server.pt/community/programs_and_services/4547/pa_auxiliary_communications_services_program/567377

Food and Companionship was the theme of the evening. The "Mid Winter" dinner at the Old Country Buffet on February 23, 2011. TNX to Phil (KB3HMK) for arranging this annual event. The dinner was well attended and very comfortable as we had our own room.



Photos
courtesy of
Mark (AK3M)



End Fed and Center Fed antennas sites

READER SUBMISSION

de John (AB3LZ)

<http://www.lnrprecision.com/>

<http://www.miracleantenna.com/MMD.htm>

<http://www.miracleantenna.com/Miracle%20Antenna%20Videos.htm>

(See more about antennas from John on page 16)

<http://www.eham.net/reviews/detail/9388>

http://cgi.ebay.com/ULTIMAX100-END-FED-HF-ANTENNA-6-80-METERS-1500W-PEP-/270663655161?pt=LH_DefaultDomain_0&hash=item3f04cf9ef9

de Chuck (WB6CDY)



By Van Field, W2OQI

HF Antennas 101

Here are 10 tips and truisms that every ham should know.



1. An antenna does not have to be resonant to work. The only reason to make an antenna resonant is to eliminate the need for an impedance-matching device such as an antenna tuner. Actually, a non-resonant wire dipole antenna fed with open-wire line and an antenna tuner is a great multiband antenna. See the article "The Classic Multiband Dipole Antenna" by WB8IMY in the March 2004 QST.

2. Two wires are needed to power a lamp. The same is true of your antenna. The best antenna configuration calls for feeding energy from the transmitter to a balanced antenna, such as a dipole. If you can do this with a balanced, parallel-wire feed line, so much the better. However, many of us choose coaxial cable for convenience sake. The problem with coaxial cable is that it is not a balanced two-wire feed line. In fact, coaxial cable can be said to consist of three wires: the center conductor, the outside of the shield and the inside of the shield. RF travels on the surface of a conductor. In a parallel wire arrangement (such as ladder line), there is a balanced RF field between the two conductors. But with coax, the field is between the center conductor and the inside of the shield. This leaves outer surface of the shield braid free to get into trouble. Since it is connected to one side of the antenna, the outer braid becomes part of the antenna and the result can be RF feeding back to your station (see W2DU's excellent book, *Reflections II*). This is the reason some hams prefer to use a 1:1 balun (balanced-to-unbalanced transformer) at the center of the dipole to isolate the unbalanced coaxial feed line.

3. Antenna "gain" is derived by shaping and aiming RF where you want it to go. For example, so-called "beam" antennas get their name from the fact that they concentrate RF energy in a particular direction, like a flashlight. Other types of antennas, including wire antennas, can exhibit "shaped" radiation patterns (and therefore gain) as well. Take a look at the latest edition of *The ARRL Antenna Book* and you'll see what I mean.

4. The function of an antenna tuner is to effect a match between the output of a transceiver and the input of an antenna system. Modern transceivers can only deliver full power into a 50 Ω load. Antenna tuners are variable-impedance transformers that allow you to transform the antenna system impedance (which can be almost anything) to 50 Ω for the transceiver. Some antenna tuners exhibit a wide impedance-matching range. Others, such as the ones typically built into HF transceivers, have quite narrow ranges.

5. A wire antenna doesn't always have to be center fed. For instance, you can feed a long wire at the end with a two-

wire feed line. Connect one conductor of the feed line, but not the other. You'll need an antenna tuner at the other end of the feed line to provide a 50 Ω impedance for your radio. This type of antenna used to be called an end-fed Zepp. To work well, however, the ground side of the antenna tuner needs to be connected to a network of radial wires, or a counterpoise.

Another old-time antenna is an off-center-fed dipole, called a Windom way back when. Cut a wire a half wavelength long, find the center and connect a single wire 1/4 λ off center. This also requires a counterpoise for good results. The impedance is about 600 Ω , so you'll definitely need an antenna tuner.

6. A dipole antenna does not have to be perfectly horizontal. That's the way it is usually depicted in books and magazines, but you can bend the legs of the antenna up, down or sideways. The antenna can also be on an incline, or even vertical. The shape of the antenna and its height above ground will affect its impedance at the feed point, so you may need to experiment to obtain a low SWR, if you are feeding it with coax.

7. Vertical antennas shorter than a half wavelength need a ground system. This usually takes the form of radial wires, either elevated or buried. Beware of short vertical antennas that claim to operate without radials. These designs tend to be inefficient. Yes, they "work" in the sense that they radiate some RF, but you'll enjoy much better performance with a good radial system.

8. With vertical antennas there is no such thing as too many radials. The more radials you install, the more efficient your antenna system. Yes, you can reach a point where the benefits of adding more radials levels off, but that number is somewhere around 100!

9. Having a 1:1 SWR does not mean you have a good antenna. A 1:1 SWR only means that you have an impedance match between your transceiver and your antenna system. It says nothing about how well your antenna is working. For example, a vertical antenna with a poor ground system can be tuned to the point where you'll measure a 1:1 SWR at your station, but the antenna is so inefficient, most of the RF is being wasted as heat!

10. Always use the best feed line you can afford. Resist the urge to be penny wise and pound foolish. This is particularly true of coax. Better (less lossy) coax will cost more, but this is the cable that is carrying your precious RF signal to and from your antenna. A good investment now will pay off in better antenna system performance.

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From September 2004 QST © ARRL

Get your license or upgrade -- de Bob (KE3AW)

The Spring series of free classes to help prospective hams and current hams earn their entry level or upgrade license will begin on TUESDAY, MARCH 8.

DLARC is offering classes for the entry-level **TECHNICIAN CLASS** license and the **GENERAL CLASS** license. Classes will be held on 9 Tuesdays, 7 p.m. to 9 p.m. in the Gracedale Complex.

Classes have been scheduled to end Tuesday, May 3. Conveniently, the VE TESTING SESSION is scheduled for three days later, Friday, May 6.

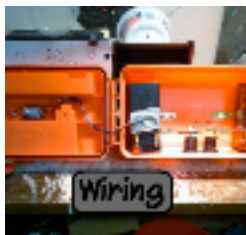
If you know anyone interested in amateur radio and getting their TECHNICIAN LICENSE, or if you hold a TECHNICIAN LICENSE, upgrade to a GENERAL CLASS LICENSE.

So that we have an idea of the size of the class, please register by contacting Bob by email at KE3AW@ARRL.NET or telephone 610.432.8286, or on the air on 146.700.

12 volt Back Up Battery Box

using Cabela's batteries featured in the February, 2011 issue.

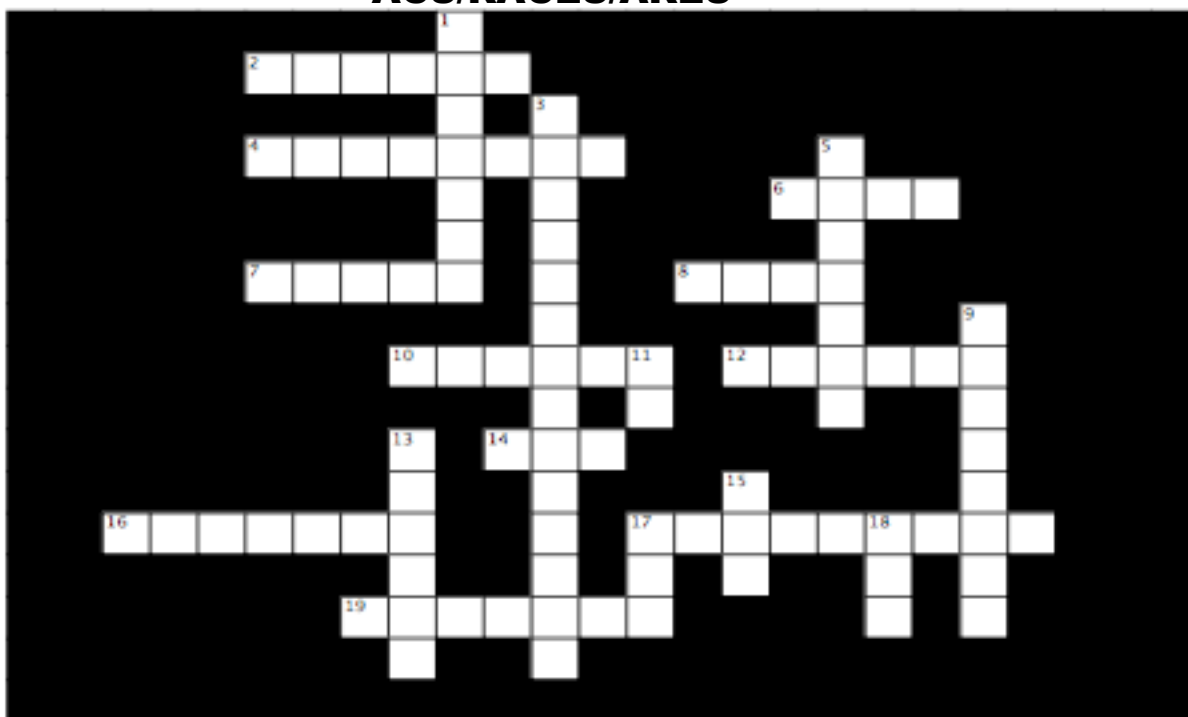
The two 12 volt batteries from Cabela's shown in the February issue of the EVOX have been installed in a marine battery box with a DC volt meter and output jacks. This makes an ideal DC power supply for HT's, lanterns, cell phones etc.



READER SUBMISSION

de Larry (NR3R)

ACS/RACES/ARES



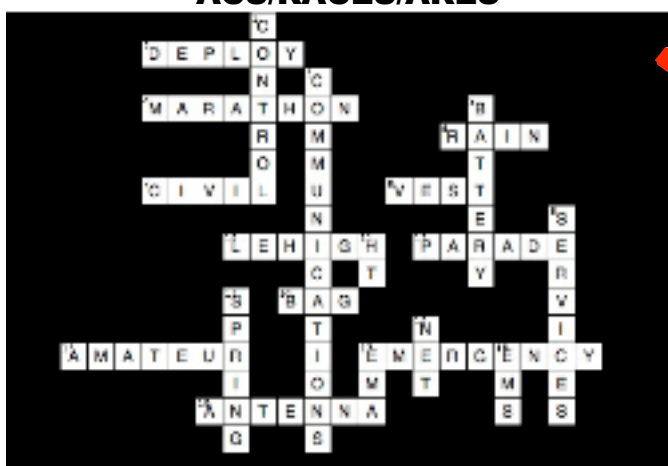
Across

2. Move into position.
4. Along-distance running race.
6. Moisture condensed from the atmosphere.
7. THE "C" IN RACES.
8. A close-fitting waist-length garment, typically having no sleeves.
10. County of the LVARC
12. March, cavalcade, motorcade, spectacle, display, pageant.
14. "Go _____"
16. "A" in ARES.
17. Urgent situation, accident, disaster, catastrophe.
19. A rod, wire, or other device used to transmit or receive radio or television signals.

Down

1. The "C" in NCS.
3. The imparting or exchanging of information or news.
5. Storage cell.
9. "S" in ARES.
11. Portable unit.
13. Season of many ARES events.
15. Roster roll call.
17. Tom is director.
18. Emergency Medical Services

ACS/RACES/ARES



**Support your
club's upcoming
2011 ARES
events.**

Contact Mark (AK3M) to help with any or all of the Spring, Summer and Fall ARES events. **Your help is needed!**

See page 11 for a list of 2011 ARES events.