FEBRUARY 2016

News & Views

N4LNR

P. O. Box 3276

Lenoir, NC 28645

Serving Amateur Radio

In Caldwell County

Next LARC Meeting
Thursday, February 11
7:00 PM

Gamewell Fire Dept.2806
Morganton Blvd SW,
Lenoir

LARC Weekly Net
Thursday 9:00 PM
146.625 Minus 94.8

Alt 147.330

Caldwell ARES Net
Sunday 9:00 PM 147.330
Plus 141.3

DMR UHF Digital Net
Tuesday 8:00 PM Lenoir
Local DMR

Arduino & Raspberry Pi @ January Meeting

Michelle Suddreth KD4YTU will discuss the various applications of single board computers in amateur radio. ARRL has books on using these tiny computers. Arduino is a small development boards using the Atmel Atmega processors developed as an educational tool. The popularity of an Arduino lies partially in the number of accessories or "shields" available for motor control, wireless, digital signal processing, LCD display, sensors and other functions at a reasonable cost. The development software is available for Windows, Macs, and Linux and is free.

The Raspberry Pi is a single board computer developed as an educational tool. At around $35, it uses an ARM processor and can contain Ethernet, usb, sound, 3D graphics with HDMI video and some digital I/O. Available with various operating systems, the system of choice is usually a Linux distribution called Raspbian. Since it is a full OS, all the development tools are available and free and it has the power to run SDR, Satellite tracking, digital modes and others.

The Club business meeting will follow the program.

President's Comments: Hidden Antennas

I grew up in the NC Mountains from birth and have enjoyed the full four seasons that we enjoy in this part of the country. Mild summers give way to fall and winter sets in. Spring finally arrives and we repeat the cycle all over again. As a child, I enjoyed the winter almost as much as the summer. Snow days meant playing outside in the white powder and as I got older, driving the ATV into untouched parts of the woods. I still enjoy all of those things, but as I have aged I have begun to enjoy hobbies that at least on the surface seemingly need the warm sunshine.

Ham radio seems like it would be one of those hobbies. With the wind whipping and the temperatures below freezing, it is not a conducive environment for setting up antennas and working outside on towers. When I first got my ticket, winter was coming quick and I thought that I might have to wait until spring to get my antenna up. The first antenna I purchased was an Alpha Delta DX-CC. It was made for 40m-10m. At first I assumed that I would put it up outside but as the weather got colder I started doing some research on alternative means of mounting.

Many different hams have to look into alternative mounting options for antennas. Most of the time it is because of restrictions in their neighborhood or they live in an apartment or townhouse. My motive was to find a temporary place to mount my antenna till spring. I ventured onto the web and started doing some research. To my surprise this was a topic that has a wealth of content. I found many designs and considerations for methods to mount the antenna. After measuring my roof, I decided to venture into the attic.

My house is built with trusses supporting the roof. This made my adventure a little harder because I had to work around the support structure. After attaching a length of paracord to each end of the attic and mounting some pulleys, I unwound the antenna and began placing the plastic standoffs separating the bands. It took some time but between some help from my wife and some careful reading of the instructions, we finally got the antenna ready to tune.

I will not go into full detail into how I got the coax from my basement shack to the attic but after connecting one end to the analyzer and one to the antenna, I started making the final adjustments to get the radiators the perfect length. Once the tuning process was complete, I fired up the radio and gave the knob a whirl. To my pleasant surprise I was picking up stations in many different countries. I made several of my first QSOs on that setup.

Even though later in the spring I moved the antenna into the backyard, I still have fond memories of when I first got started with that compromise location. The antenna does have a little less noise when moved away from the house but not as much as you would think. I still use the attic as a location for an antenna except I replaced the long 40-foot HF antenna with a small folded J-pole for VHF and UHF. If you hear me check in on any of the different nets we have, I will be talking on my attic antenna and getting into the repeaters just fine.

My challenge to you this month is not to let an obstacle get in the way of trying new things. The Internet has a treasure trove of knowledge about the hobby and if you can think it, chances are someone has tried it out and can give you pointers on how to do it better. If you live in an area that does not allow antennas or you just want to try something new, try an indoor antenna. You may be surprised on how good it picks up!

Tanner KK4SZI

Celebrating 30 Years: February 1986

I'm sitting here reading the Newsletter from February 1986, smiling as I catch a smell of mimeograph fluid as I turn the pages. The Newsletter was produced on an Atari 800 computer and printed on a Star Gemini 10X dot-matrix printer. It cost $.22 to mail the Newsletter. While I will continue through the year summarizing the birth of Lenoir Amateur Radio Club in this column, I will post each of these old Newsletters on the LARC website http://N4LNR.ORG in the Newsletter Archives for your reading enjoyment.

This edition is the second written by Jim Rogers N4EUX SK as the Lenoir Amateur Radio was becoming a glimmer in the eyes of several newly licensed or soon to be licensed operators. The phrase that was later to become the name of the LARC Newsletter "News & Views" appeared as a section heading for the "ramblings of the Editor."

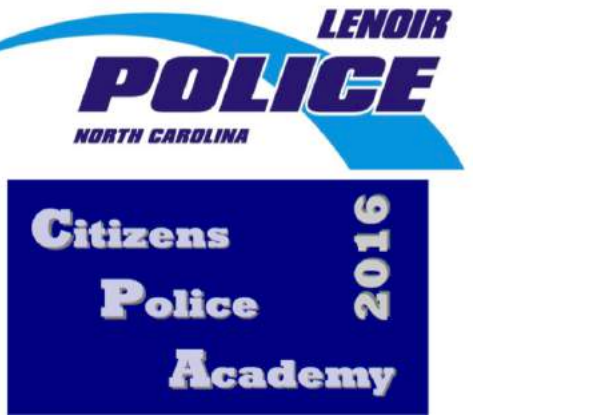
A Novice class was underway at Caldwell Community College but there was concern that there may not be further amateur radio classes offered. The FCC has just 3 months earlier removed the required 30-day waiting period before being allowed to take a license exam if you had failed the previous exam. But, because of bureaucratic processing requirements, those who passed their exams could lose their interim 90-day operating privileges waiting for the paperwork to make it's way through the process.

Several hams, including James Bradshaw, passed their General Upgrades in December 1985 and received their new callsigns – James became N4NIN. It's like reading a letter to Santa, as the Newsletter describes the equipment each of this new group of amateur operators acquired – Kenwood TR-2400 HT, 7-element Cushcraft beam, digital using a C-64 computer, log periodic antenna, Vic-20 computer, Kantronics interface, Yaesu FT-101EE, Kenwood TS-9408 Transceiver, Drake TR7, and packet radio. No Baofeng's here!

Nine hams showed up at the "first" Breakfast Club meeting, including James, Susan and Mark Bradshaw. James and Susan are still active members of LARC. This "crowd" decided to continue the Breakfast Club and set the Tastee Freez as its meeting location for Saturday mornings at 9 AM.

And, like all Newsletters, the last topic is asking for help getting news and gossip to put in the next Newsletter. Sounds familiar, things never seem to change in that department. Can't wait for the March Newsletter, give you a hint – it's the last one printed with mimeograph fluid!

Lenoir Police Looking For A Few Good Citizens!



Applications for the Spring 2016 Academy, which begins on March 3 and runs through April 7 are available at the Lenoir Police Department and our web-site at www.cityoflenoir.com. Applications are due by February 18, 2016.

The Lenoir Police Department will make every effort to involve people from all walks of life in this program. We encourage men and women, young and old to apply. First priority will be given to those applicants who reside or are employed inside the corporate limits of the City of Lenoir.

Participants must be 18 years of age or older with no criminal convictions other than minor traffic offenses.

For more information on the Lenoir Police Department Citizens Police Academy, feel free to call 828-757-2100.

The Lenoir Police Department Citizens Police Academy is coordinated by Lt. Daryl Cornett, 828-757-2148 or *dcornett@ci.lenoir.nc.us*.

Error with the Global Positioning System (GPS) network blamed for causing problems with digital radio broadcasts

On 26 January, one of the GPS satellites - named SVN23 - orbiting the Earth was decommissioned. This unexpectedly caused problems for the whole network. While the core navigation systems were working normally, the coordinated universal time timing signal was off by 13 microseconds that exceeded the design specifications. Read article at http://www.bbc.com/news/technology-35463347.

Another good example how fragile our communications infrastructure can be. Just a 13 microseconds timing error and many issues occurred. For those not aware, GPS is critical for cellular communications and other means that require exact timing. But of course, I have to tell you that amateur radio is unharmed by GPS failures. Remember, when everything fails ham radio lives on!

Update from the FCW

Foothills Community Workshop is pleased to announce that beginning with the February 8 meeting, the **Western Piedmont Amateur Radio Club** will start meeting at FCW, 10 Falls Ave, Bldg 10B, Suite 1, Granite Falls. The WPARC meetings are on the 2nd Monday of each month at 7 PM. WPARC is currently offering the license VE exams and that means that VE testing will be available at FCW on the 2nd Monday of each month at the WPARC meetings.

There has also been a request for an **Extra Class Prep Workshop** for the VE test. The exact dates are being worked out but it appears that a class will be scheduled either for Friday evenings or Saturday late mornings in the near future. If you would be interested in working for your Extra class license, contact Michelle, KD4TYU KD4YTU@ARRL.NET with your preference for times and watch the FCW website http://fcwhack.com for details.

FCW is working toward a group build of **3D Printers**. With bulk orders, these will be in the $300 range. If you are interested in building/owning a 3D Printer, notify Michelle KD4YTU to get on the mailing list.

Time to renew your LARC membership

Mail your check to the Club address or

see Ro K4HRM to pay your dues

See Something -- Say Something

Amateur Radio plays a significant role in communication before, during and after local crisis but we are *always* communicating so we may be the first to see and hear things of a suspicious nature. The nature of our community outreaches and partnerships allow us to quickly communicate as a team. Let's help keep our nation safe and secure by keeping a watchful eye and ear for potential threats. Find additional information on the Homeland Security website at <www.dhs.gov/see-something-say-something> and contact local law enforcement authorities directly to report suspicious activities. To learn more about identifying suspicious activities, see the DHS website. Be Safe and Help Protect Our Safety.

~Reprint from *ARRL Maryland-DC Section News*

2016 Basic CERT Training Scheduled February/March

Location: Training Room, 3rd floor, Caldwell County Health and Human Services Building 2345 Morganton Blvd SW, Lenoir, NC (Park and enter at the rear of the building.)

Registration: Send an email to caldwellcountycert@gmail.com with your name, address, phone number, and email address. Note if you are attending as a member of a group such as an employer group, civic group, church, etc.

Dress comfortably. Bring your own water or soft drinks and snacks. Training manuals will be provided. There is no charge for this class. To learn more about us, go to our web page, http://caldwellcountycert.com/.

Time – Date	Topic	Instructor
6:00-9:00 PM Thursday 2/18/2016	Unit 1: Disaster Preparedness Unit 6: CERT Organization	Rosemary Hall Shirley Kanode
6:00-9:00 PM Thursday 2/25/2016	Unit 3: Disaster Medical Operations-Part I Unit 4: Disaster Medical Operations-Part II	Kenny & Rosemary Hall
1:00-4:00 PM Sunday 2/28/2016	Unit 5: Light Search and Rescue Operations (Outdoor exercise. Wear sturdy, close-toed shoes. Bring work gloves and a hard hat, if you have them.)	Kenny & Rosemary Hall
6:00-9:00 PM Thursday 3/3/2016	Unit 2: Fire Safety and Utility Controls	Shirley Kanode
6:00-9:00 PM Thursday 3/10/2016	Unit 7: Disaster Psychology Unit 8: Terrorism and CERT	Shirley Kanode

Irv W4IWKI shared an interesting article on Licensing A Business Band Frequency found while researching the use of a Baofeng on GMRS/FRS frequencies. The article describes how to become legal for $60 by getting a business band license. <https://sites.google.com/a/mst.edu/robert_ruark/radio/licensing-a-business-band-frequency> While not directly related to hams, many amateurs run into similar situations. Note: The article fails to mention a radio used for business purposes must have an FCC Part 90 certification sticker that puts the price for a Baofeng radio more in the $60 range.

Rick Roderick K5UR
Elected as ARRL's 16th President

The ARRL Board of Directors has elected ARRL First Vice President Rick Roderick, K5UR, of Little Rock, Arkansas, as ARRL President. The Board took the action as it convened for its 2016 Annual Meeting January 15-16 in Windsor, Connecticut. Roderick, 63, officially assumed office for a 2-year term at the conclusion of the Annual Meeting. He is the ARRL's 16th president, succeeding Kay Craigie, N3KN, of Blacksburg, Virginia, who had served for three terms since being elected in 2010.

A ham for 48 years, Roderick is an attorney. He has served on the ARRL Board of Directors for 24 years and is an enthusiastic Amateur Radio operator and DXer on HF and VHF/UHF.

The ARRL Board of Directors adopted an updated Strategic Plan that defines the League's vision and guides its direction over the next 5 years. The six strategic goals are:

- Grow Amateur Radio worldwide.
- Increase the vitality of Amateur Radio.
- Keep Amateur Radio accessible to all.
- Advance Amateur Radio science and technology.
- Organize and train volunteers to serve their communities by providing public service and emergency communications.
- Practice good governance and organizational management.

Take some time to explore a wealth of vintage radio magazines and electronics catalogs, go to http://www.americanradiohistory.com. A lot like going to a hamfest flea market from the comfort of your recliner.

Try a Slinky-coil Multiband Dipole

Blair KM4DOQ talks about his "slinky dipole" so I decided to check it out. My Internet research took me to http://nonstopsystems.com where I clicked on the homepage of Frank Dorenberg N4SPP. Once on his homepage, I clicked on "amateur radio" then "antenna projects", then low and behold there was "slinky-coil multiband dipole" listed. The article was wonderful! Step by step directions, materials, references, and pictures – all starting with a $2 slinky from Walmart. Really an interesting approach where space is limited and you just want an antenna project on these cold winter days. Enjoy!

Choosing the Right Co-Axial Feed Line Cable

By Mike Maynard K4ICY

In my last edition, as part of my New Ham's Antenna Series, we dealt with station grounding. Now it's time to move up in the world and get our signal from the rig to the antenna. The question always arises with new hams: *what kind of co-ax should I get?* You'll no doubt be bombarded with facts and figures that will make your head spin. As an Elmer here, I'll try to give you the 'condensed guide' to choosing station co-ax. If you're a new ham, you shouldn't have to worry too much about what to string up just to get on the air, as long as it performs decently.

So when choosing the right co-ax feed line for the job, you'll have to consider factors such as your operating frequency, amount of power, length vs. loss, and stealthy-ness (for you homeowners.) Yes, different co-ax performs better for different frequency ranges, and each type of co-ax cable has what's called a "velocity factor" which basically determines power loss (or attenuation) of your signal for any given length. And the power loss factor increases with frequency too!

If you wish to have as little power lost as possible, I'd like to suggest using "ladder line" which comes in a few styles and types but has their own installation considerations. Many hams still prefer to use it. Co-ax is often preferred, despite its setbacks for many reasons; including weather resistance and the ability to be routed around metal structures. There are two mainstay types of co-ax for basic Amateur Radio use, and they are named by alphanumeric designations:

RG8/U. It's great for home use, but not very stealthy for covenant-controlled properties, as it measures nearly half an inch in diameter. Then there's **RG58/U**. it's slightly thinner in diameter than the stuff used for TV cabling in your home at about 3/8 inch dia., so it's great for packing in a jump-kit. But its more compact size comes with a price: RG58/U at mid-HF frequencies has around 2 dB power loss per 100 feet of length, which means if you put 100 watts in, your antenna is only going to see around 63 watts! That's only 2/3 of your signal. Where does the rest go? Why, in the form of heat, making this a tasty treat for squirrels to gnaw on!

If you're going to work with longer lengths, especially over 100' try RG8/U. At around 1.2 dB rated loss, you'll lose just a quarter of your power - down to 75 watts at 100 watts in at a length of 100'. RG58/U and RG8/U are generally the more cost effective coax because of supply and demand from the many hams out there. But just be careful about the quality of the coax sold. Visit *eHam.com* or talk to an Elmer to go over the various possible quality pitfalls; such as the type of inner-copper braid, dielectric material, and types of insulation, which by the way come in varieties that you can bury in dirt and even leave out in UV-intense sunlight. Both have a rated impedance of 50 ohms, which means they should match electrically to your transmitter's output circuits. By the way, the "RG" stands for "Radio Guide" and the "/U" stands for Universal, which are WWII era government designations. "MIL" or "M" means mil-spec.

RG8-Mini and *RG8/X* have the lesser loss factor of RG8/U and is about the same diameter of RG58/U, it's much more expensive, but worth it for more compact EmComm jump kit use. *LMR600* has become a favorite of hams with premium station setups. It's nearly the same diameter as RG8/U but it's expensive, however, at 0.25 dB of loss in the mid-HF range, if you can afford it, the low loss may be worth the coin to you. RG-213/U is an inexpensive alternative for many hams, but it has the unfortunate combination of RG8's thicker size with RG58's loss. If you can save up a little more for RG8/U, you'll thank yourself later.

RG-174/U is attractive because of its very thin diameter of only a 10th of an inch, but with its extremely high loss should only be used for short runs as RF-shielded jumpers inside of homebrew equipment or in your vehicle where lower power equipment is to be used. Don't pack this kind in your jump kits and expect to perform well. I need to note that the types of coax I've mentioned here are **not** usually rated for more than 500 watts of RF power. If you're going the "big gun" route and would like to use a linear amplifier on a precision antenna system, then I'm sure you're already knowledgeable on what to use. If you do your research before buying, you'll be happier in the end – and with more contacts in your log.

Personally, I use RG8/U at home and in the yard, while I pack RG58/U for portable stations and my jump kit.

There are plenty of sites dealing with coax and charts available to compare specs: http://en.wikipedia.org/wiki/Coaxial_cable or http://www.w4rp.com/ref/coax.html are a couple, http://www.thewireman.com/ is a great site. Check out the *Coaxial Cable "Technical data table"* PDF in their 'Products' menu. Well, this should get you through the next phase of installation for your first HF antenna. But I'll have to leave the soldering of the dreaded PL-259 connectors for another article!

7 3! DE Mike K4ICY
k4icy@arrl.net

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NET CONTROL STATIONS NEEDED FOR TARHEEL EMERGENCY NET

Additional Net Control Stations are needed for the Tarheel Emergency Net (THEN), which meets daily at 7:30 PM local time on 3.923 MHz. If you are involved in ARES – NC AUXCOMM activities, would like to participate in net operations, and improve your operating skill please consider becoming a Net Control Station for the THEN. For further information on the THEN, see http://www.ncarrl.org/nets/THEN/index.html or contact Karl Bowman by email at w4chx@arrl.org or by cell phone at (919) 669-6068.

Ham Happenings…

February 13, 2016 Technician Licensing Class Gastonia sponsored by Greater Gaston Radio Society. Contact Tony Jones (704) 827-2138 or n4atj@bellsouth.net for more information.

February 28, 2016 North Carolina QSO Party starts at 1000 EST to 2000 EST. For details, see http://rars.org/ncqsoparty/

March 11-12, 2016 Charlotte Hamfest at 4551 Old Airport Rd. 4571 Hwy 49 North, Concord NC sponsored by Mecklenburg Amateur Radio Society, see http://www.charlottehamfest.org

April 2, 2016 44rd Annual RARSfest/North Carolina State Convention at 1025 Blue Ridge Rd, Raleigh NC, sponsored by the Raleigh Amateur Radio Society, see http://www.rars.org/rarsfest

April 16, 2016 Catawba Valley Hamfest, Burke County Fairgrounds, Morganton, see http://cvhamfest.com

July 9, 2016 31th Annual Firecracker Hamfest at 315 Martin Luther Jr. Ave S, Salisbury NC, sponsored by the Rowan Amateur Radio Society, Salisbury, see http://www.rowanars.org

July 16, 2016 Mid-Summer SWAPFEST, Cary Amateur Radio Club, Cary http://www.qsl.net/n4nc

September 3-4, 2016 60th Annual Shelby Hamfest/ARRL Convention, Shelby Amateur Radio Club, Shelby

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Send comments concerning the Newsletter

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Suggestions and articles are appreciated.