NALINR News & Views

P. O. Box 3276 Lenoir, NC 28645 http://lenoir-arc.org





Serving Amateur Radio In Caldwell County

Save the Date!

Next LARC Meeting
August 14, 2014
Thursday, 7:00 PM
Gamewell Fire Dept
2806 Morganton Blvd SW,
Lenoir

LARC Weekly Net Thursdays 9:00 PM 146.625 MHz Minus PL 94.8 Alt 147.330 MHz Plus PL 141.3

Caldwell ARES Net Sundays 9:00 PM 147.330 MHz Plus PL 141.3



LARC To Tour Caldwell County Emergency Operations Center

Members of the Lenoir Amateur Radio Club are invited to tour the new Caldwell County Emergency Operations Center in the HHS Building on Morganton Blvd SW (in front of the Sheriff's Dept.) at 6:30 PM on Thursday, August 14. The regular monthly Club meeting will be held immediately following the tour at the Gamewell Fire Department.

The EOC is a secure, restricted access facility and all doors are locked. Those members attending the tour should be at the rear entrance of the HHS building promptly at 6:30 PM where an EOC staffer will be waiting to conduct the tour.





President's Message

There is a phrase that goes something like "...as long as we're all singing out of the same hymn book." which generally means several folks who are in agreement about a subject, idea, or decision can accomplish more than the sum of the individuals. When this is occurring, there is a "harmony" of work achieved. This doesn't mean everyone is going to be hitting the same note or octave at the same time, but harmony allows the

freedom of individuality coupled with a coordinated effort of direction. I am often impressed with the dynamics of harmonic resonance.

In Amateur Radio we are well familiar with the caveats of harmonic issues. Whether it is within the cabinetry of a homemade rig or the tuning of an antenna, harmonics can be beneficial or detrimental, depending on how applied. Harmonics on an antenna can enable it to be useable for multi-band resonance, but harmonics within a power supply can disrupt the clarity of reception or output of transmission. In an audible fashion, the harmonics produced by a group of singers can be enjoyable to the ear. Personally, I have trouble carrying a correct tuned note if singing alone, but if I'm singing with others it's easier for me to stay in tune. The same can be said when a group is working together for a common goal. Individuality is important, but it is most beneficial when it is "in tune" with the group. I am mindful in this topic of how the members of the Club work so well together. I am pleased to see how both "old timers" and the new members share their strengths of knowledge and skills to benefit not just each other, but the Club as a whole.

Recently at Field Day 2014, we had a lot of fun, especially the good-humored poking and joking between the "old school" and the "new tech" guys. In harmonics, this state is two different frequencies, with each resonating at a shared harmonic. It's good to have that wonderful blend of individuality which is governed and held "in tune" by the desire of staying in harmony, but don't expect me to bring any songbooks to our next meeting. Ha-ha.

73 KF4FLY

July 16, 2014 — Officially licensed amateur (ham) radio operators may now use their call sign as their Alternate Name, or nickname, on their individual profiles. Jeff KB1PNB, who works at the Facebook Headquarters in Menlo Park, California found a petition circulating on an amateur radio Facebook group to which he belongs, and did some research, wrote the necessary code, got it reviewed and approved.





New Member Profile: Gene Rozea KlAVE

I was borne in Montana and moved to New York and then Connecticut in the 40's. I am newly remarried (4/17/14) to Carol, and gained two great stepdaughters and a big collection of nieces and nephews as part of the deal.

I was licensed in Nov. 1956 as a Novice – KN1AVE – and upgraded to General in April 1957 and operated primarily with CW on 40, 15 and 10 meters. As a member of the CD (Civil Defense) team in the town of Sprague, CT, I mostly practiced traffic handling and patrolling the town with a monster, yellow 2-meter Gooney Box — scary times in the cold war era.



I am a kit builder – initially mostly Heath Kits of all kinds including Ham (AT-1, AR-3, DX-100 and others), test equipment – grid dip, VTVM and audio (AR1500) – probably over 25 total. After high school, I attended and graduated from the Ward School of Electronics, part of the University of Hartford, with a Certificate in Communications Technology and also earned a commercial Radiotelephone First Class license with Ship Radar Endorsement during that time. I worked for three years in an R & D lab at United Aircraft as a Senior Technician where part of that time was spent at SAC HQ in Nebraska in the underground command center. I was there when President Kennedy was killed — ask me about the underground "prep"! I went back to school at the University of Connecticut in pursuit of a BSEE that I earned in 1969 — having the commercial license opened up some nice summer jobs in the boat yards on the Connecticut shores to help pay the tuition!

My ham license expired in 1972 because life and work duties trumped it. So in 1991, I sat down and passed the 20 WPM code and all five elements for the EXTRA in one sitting and was issued AA1EO. As it turned out, K1AVE was available from the vanity pool and I applied and was re-issued the old call.

I lived in Massachusetts, just west of Boston, from 1971 to 2010 working at a number of high tech companies in various management roles. It was a crazy time, wearing different hats all the time, as most start-ups require. Looking back though, there's not much that I'd do differently.



At 50, I decided to take up SCUBA Diving and got so entangled in it that I became certified by PADI to teach Open Water and Advanced Open Water SCUBA classes. Although the professional certs have long ago expired, I still hold the Rescue Diver certification. I also had a 27 foot sloop, the "Cracklin' Rozea" (pronounced like the wine) at a slip in Boston Harbor, close to the USS Constitution for 10 years. It was rationalized as an apartment in downtown Boston for six months a year. We took several 2-week vacations on it to the Maine shores and to the Cape Cod islands.

I'm still trying to get the hang of golf, playing usually twice a week and I scored my second hole in one this June! I built and flew Radio Control model planes for many years – using the 6m band for control. With the eyes getting older, I started building bigger, brighter and slower planes until about 5 years ago. I still have lots of pieces but am not active now.

I still enjoy CW, particularly QRP, but also dabble with the digi-modes, PSK, OLIVIA, and a couple of others on 40, 30, and 20 meters. I have several low power rigs: SWL monobanders on 80, 40, 30 and 20 Meters, An Oak Hills Research QRP Classic on 40/20 and an FT-817 that sometimes travels on vacations. There's also a few HT's in the inventory, the VX-6R and a couple of the low cost but great value UV-3 and UV-5's and an FT-7800 that is usually hooked up at home, but ready for mobile duty if needed. On the HF side, there is my old and trusty FT-990 and FT-450D plus an Ameritron ALS-600 Amp. HF antennas include the R7 vertical and 40 M Carolina Windom.

My most memorable contact was with a South African station on 30 M from Sudbury, MA using 0.8W! Not a lot of info passed, but we got our names, locations and signal reports exchanged. Amazing what can be done when the bands are good. Never been a "paper chaser" but am a member of NAQCC, SKCC, NEQRP, 30MDG and will happily supply my member numbers if requested.

The most frustrating thing right now is the constant S9 to 10 over S9 broadband background hiss on most of the HF bands from 80 M up to 15 M. It's been getting worse over the past 10 months or so. I'm planning to do some serious digging in the near future to try to determine the source which I suspect is in the HV lines a couple of hundred yards away.

I still enjoy tinkering and design – can't lose old habits. The last creation was a dual axis Ham Sat tracker using two TV rotators refitted with DC gear motors and micro controllers for the AZ and EL positioning. I designed the hardware and software. The system reads the ASCII output of a tracking program and positions the 70CM helix and 2M yagi accordingly. Never put into service, but had no problem hearing the birds while in the cellar!



Busy Bees On A Hot Work Day!

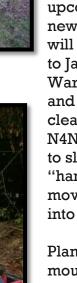




The communications trailer workday on July 12 was a "buzzing"! Chain saws, weed eaters and bees zipping thru debris as the "Hammers" cleared the Repeater site for the upcoming tower climb when a new antenna and coaxial cable will be installed. Many thanks to James N4NIN, Tanner KK4SZI, Warren W3UY, Shawn KI4ZKP and Ted FL4FLY for their clearing work and to James N4NIN for spraying weed killer to slow its return. The "hammers" had to do some moving when they stumbled into a bee's nest or two.



Planning continued on how to mount the pneumatic antenna mast and measurements were taken for materials for the trailer. James located an adhesive to use to attach the carpet to the trailer walls; however, further research is needed.





Did You Know? 7 3 should NEVER be used in the plural form! Each digit should be pronounced SEPARATELY! You should NEVER say "Seventy Three" or "Seventy Threes", you should ALWAYS say "Seven Three". For additional information, go to http://www.dapcom.com/seventhree.htm and http://en.wikipedia.org/wiki/92_Code



New Member Profile: Shawn Griffin KI4ZKP

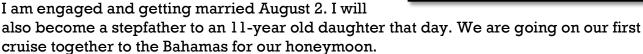
I was born July 24, 1985, and got my Technician license in 2007.

I started getting into radio after working for the schools system helping with the implementation of the wireless WAN from Hibriten Mountain and Cajah Mountain to various schools. Also, I rigged up my truck to do WAR, driving around the county mapping out access points when I was younger.

I really enjoyed Field Day 2014. I think it's so interesting to have the ability to communicate with people all around the world.

I currently work for the Caldwell County School system, where I am the Network Administrator. I take care of servers, routers, switches, and firewalls. I started in 2004 as a part time computer technician, and worked my way up from there.

My hobbies include working on cars, electronics, computers, web design and hanging out with my family. My play toys are a 1969 Chevelle that I am restoring and I recently bought a 2013 Ford Mustang GT.







DMR: In Their Own Words...

Recently, I received an email from a LARC member in follow up to a Club discussion led by Marv Hoffman WA4NC on Digital Mobile Radio (DMR). He asked if I could share some of the experiences that Club members have had "getting started" with DMR. Currently, I am aware that Will WB4Y, Tanner KK4SZI, Phil KG4BCC and me (Ro K4HRM) are tinkering with DMR. So I asked each and Marv WA4NC to share how they got started with DMR and where they are now.

Marv WA4NC -- I got into TRBO over two years ago when I bought an XPR6550 portable. At that time, the closest repeater was at Crowder's Mountain near Gastonia. Even though it was hard to get into Crowder's from anywhere but the Blue Ridge Parkway, I often traveled across North Carolina and found it useful to have a TRBO radio. It is easy to program in additional repeaters and when I got my copy of CPS, the Raleigh, Charlotte and Wingate repeaters were also operational. I visit family in New Jersey so I started adding sites from Washington to New York and then Dayton and Orlando so I can keep in touch from a number of locations.



The audio quality is superior and many of the people on the DMR system are quite knowledgeable about how the system works. With the availability of the CS700 radios beginning last December, the makeup of the users has changed somewhat -- still a good bunch of people but many are less techie than the original bunch.

I put the Rich Mountain PRN repeater on the air in November 2013 and the network and the traffic on it has expanded greatly. There are

now 21 people who have portable radios in Watauga, Wilkes and Caldwell who have portables and lots of people show up on Boone on the PRN talkgroup from around the state. Given that User IDs are in multiple radios, I would guess that there are over 400 radios in NC, SC and VA on the PRN system now.

The PRN system is reliable, sounds good and is very useful to me. The original builders in North Carolina were Ralph W4ZO, Shane KI4M, Danny K4IT and Steve KA4YMY, plus others whom I have missed. They knew that DMR would catch on and it sure has. It is hard to believe how quickly the network has expanded into South Carolina, Virginia, West Virginia and Tennessee with 18 repeaters on or about to be on the PRN system. I see a number of the ARES EC's now have radios and I see TRBO playing an increasing role in supporting emergency operations.

Will WB4Y – Several years ago, I heard Shane Autrey KI4M and Ralph Bartlett W4ZO talking about DMR; however, I didn't inquire further until recently when I learned Marv Hoffman WA4NC had purchased a repeater and placed it in service on Rich Mountain. After corresponding with Marv some, I met with him and he let me try out his loaner radio -- a Connect Systems CS-700. I was immediately impressed with audio quality and the ability to talk from inside my residence to the Boone repeater on an HT. However, I wasn't really planning to purchase quite yet but "accidentally" won an eBay auction for a Motorola HT.

Am I sorry I won the auction? No, I'm not. While I'm not extremely active on the PRN, the digital radio works extremely well for me with my work driving a truck. I have previously carried analog HTs with me that, unless stopped and out of the truck, was pretty much useless. Even when close to a repeater, transmit and receive from the truck was difficult at best due to interference from an on-board computer. With the UHF digital HT, I have no such problem and, using a speaker mic, I can use the radio while driving without an external antenna. I still have to be reasonably close to the repeater though.

Getting started -- unless you will be traveling in the PRN area a good bit I wouldn't put a lot of money into it. The Connect Systems CS700 is very popular HT and has a good price that I would probably recommend as an entry radio. Any mobile is going to be expensive until the Connect Systems Mobile arrives this fall. It is supposed to be capable of DMR, D-Star, and analog at a "good price" that is yet to be announced. There is not a lot of "local" talk on the Boone repeater and coverage in Caldwell County is spotty. The same probably goes for the Crowder's Mountain site. Personally, I think a TRBO repeater would be a good investment for LARC and would fill in some coverage gaps in the PRN Network.

Tanner KK4SZI -- I do not have that much experience with the radio yet but I will tell you the things that I do know. I ordered my radio off of eBay. If your looking for Motorola radios, there are a couple options that I'm familiar with.

Motorola XPR 6550. This seems to be the most popular choice. They come in several configurations including VHF and UHF. Make sure you are getting a UHF radio and that the frequency range is 403-470 MHz. There are bunches on eBay that are in the 450-512mhz range and I think they either will not work or there are some complications. From what I see, they range between \$325-400 on eBay. I bought mine for around \$350.

Motorola XPR 7550. This model is newer and I do not know much about it. It has a color screen and can be found with the ability to do 403-512mhz. They are in the \$700's on eBay.

With Motorola radios, you need a programming cable and special software to program them. The company I work for has this so I knew that I would have no problem programming my radio. In all honesty, if I did not have then option or knew someone that has the software, I would have looked at the other options out there.

Other than that, I do not have much experience other that just listening to the Tech Net. I cannot pick up the repeater well at my house and am trying to work on an antenna setup that will help.

Ro K4HRM. I am a fan of D-Star but since I moved to NC with no local repeaters, my HT and mobile unit were useless. However, I can still transmit and receive D-Star over the computer using a DV Dongle. After talking to Marv Hoffman at the LARC meeting, I began to read about DMR and talk with several DMR users, but I was not ready to invest just yet. Will WB4Y emailed me that he had a friend that may be interested in swapping DMR for D-Star equipment. We connected and I got a Motorola XPR6550 HT from the deal. At the same time, I had talked to Jerry Wanger of Connect Systems and he was fixing to make the CS-700 available directly to amateur operators at a substantially discounted price – so I also got one.

Will WB4Y gave me some basic use training and Marv WA4NC provided me lots of information. I live in the extreme Southwest tip of Caldwell County and I can receive DMR from the Boone repeater and can transmit fair. When I go to Lenoir or Taylorsville, I have no reception. Like Tanner, I don't have much experience with DMR but the voice quality of digital is excellent. In fact, you can tell those with poor mic skills right off. I can't speak to which unit performs best overall at this point; however, you need to know someone to get the Motorola programmed; you can program the CS yourself with a little coaching. Both units are simple to operate and I don't really notice any difference in transmit/receive due to my limited access to a repeater. I carry one unit with me most the time just to see what I can pick up -- so far Boone, Fancy Gap, and Crowder's Mountain. It's really cool to sit in downtown Hickory and talk to someone in Charlotte over the Fancy Gap VA repeater.



DMR has a bright future; but probably not so here without a local DMR repeater. Currently, DMR is being used mainly for "talk" but its worldwide linkage of repeaters, independent of the Internet, has great potential for emergency communications during disasters. Personally, I would like to see LARC encourage DMR technology, support a local DMR repeater, and help move the Club away from total reliance on VHF and internet-based digital communications.

Additional Information. A quick, easy read about DMR is *Amateur Radio Guide to Digital Mobile Radio (DMR)* available for free download at http://dmr-marc.net/Amateur_%20Radio_Guide%20to_DMR.pdf. NC DMR coordination is

at www.ncprn.net. You can listen to live DMR transmission at www.norcalmr.org. DMR is coordinated worldwide by DMR-MARC at www.dmr-marc.net.

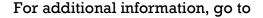


LARC to Participate in 2014 Fire & Life Safety Festival

The 2014 Fire & Life Safety Festival will be held on Sept 27, 10 AM until 3 PM, at the Caldwell Community College & Technical Institute. The festival encourages the citizens of Caldwell and surrounding area to practice prevention activities in their daily lives to reduce the risk of death and injury related to preventable causes. The festival includes demonstrations by multiple agencies, highlighted by the

firefighter challenge. Other events include the team bucket brigade competition as well as an antique fire apparatus show and multiple vendors.

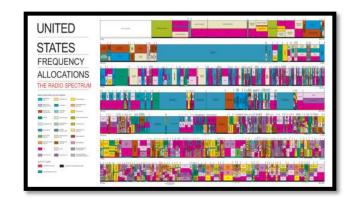
LARC will have a booth with educational materials for those interested in amateur radio and an operating radio station. Volunteers are needed to man the booth and setup/breakdown. Contact ThomasLand@msn.com





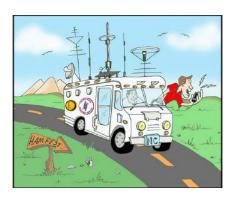
https://www.facebook.com/CaldwellCountyFireLifeSafetyFestival

US Frequency Allocations: The Radio Spectrum Chart



Members may be interested in this 31" x 43" poster of US frequency allocations. It's large enough to be legible. The chart shows through color codes the parts of the radio spectrum that are allocated to each type of radio service. Service areas include radio and television broadcasting, radio navigation, mobile, amateur, satellite, and others. It also indicates which parts of the spectrum are for use exclusively by the government, which parts are for use exclusively by the private sector and amateurs, and which parts the government and others share.

Go to http://bookstore.gpo.gov/products/sku/003-000-00694-8 to order the US Frequency Allocations: The Radio Spectrum Chart (Poster) \$12 includes shipping.



Places To Be, People To See...

August 9. Foothills Community Workshop will conduct an **Amateur Radio VE License Exam** on Saturday, August 9, starting at 12 noon. All levels – Technician, General and Extra – will be tested. The exam fee is \$10. The exams are open to anyone wishing to obtain or upgrade an Amateur Radio license. FCW is located in the Old Shuford Mill building in Granite Falls NC. For directions and more information refer to http://foothillscommunityworkshop.org or contact Michelle Suddreth at <a href="http://foothillscommunityworkshop.or

August 20. Caldwell County Emergency management will hold the **FEMA ICS-300**Intermediate Incident Command System for Expanding Incidents at the Emergency Services Building, 2351 Morganton Blvd. SW, Lenoir. For additional information and to register, contact Kenneth Teague at Caldwell County Emergency Services (828) 757-1419 or kteague@caldwellcountync.org

August 23. 16th Annual Ole Fashioned CFARS SwapFest, Cape Fear Amateur Radio Society, Fayetteville, NC, http://www.cfarsnc.org/

August 25. The Watauga Amateur Radio Club will hold an **Amateur Radio VE License Exam** on August 25, 2014 at 6 p.m. in the Lois Harrill Senior Center, Poplar Grove Road, just west of downtown Boone, NC. Walk-ins are welcome but, in order to insure that we have sufficient numbers of exams, please indicate to the VE Team Coordinator, Vern Dyer, W5VM your intent to test. His email is builder@skybest.com

August 30-31. North Carolina State Convention **58th Annual Shelby Hamfest**, Shelby Amateur Radio Club, Shelby, NC, http://www.shelbyhamfest.org

September 9-14. The Road Show Amateur Radio Club, along with several other clubs in Western Carolina, will operate a Special Event Station N4F to introduce amateur radio to the attendees of the NC Mountain State Fair. In addition, the Clubs will provide information and demonstrations, including: D-STAR; Echolink; IRLP; APRS; WinLink; MARS; an SDR receiver (paired with a Drake tube transmitter!); a MESH (Broadband- Hamnet) network with cameras linked to the internet; videos on the history and contributions of ham radio, and the facets of ham radio; and, a quite popular 2 meter GOTA station. The NC Mountain State Fair will be held at the Western North Carolina Agricultural Center in Fletcher, NC. For further information, see http://www.mountainfair.org/mountain-state-fair.html

September 17. Caldwell County Emergency management will hold the FEMA ICS-400 Advanced Incident Command System Command and General Staff class at the Emergency Services Building, 2351 Morganton Blvd. SW, Lenoir. This class is required for ARES members. For additional information and to register, contact Kenneth Teague at Caldwell County Emergency Services (828) 757-1419 or kteague@caldwellcountync.org

September 26-27. The W4DXCC DX and Contest Convention is the South East's largest and best-attended ham radio event for 10 years running. Located at the MainStay Suites in Pigeon Forge Tennessee September 26-27th. A full schedule of popular presenters speak on DX and Contest subjects throughout the main convention with prize drawings between presenters, drinks and snacks included. Major equipment manufacturers are on hand to demonstrate new products and answer your equipment questions face to face. A banquet rounds out the day where the grand prizes are drawn. The Convention is just a short drive from Caldwell County (160 miles via I-40). A full range of shopping for the family is located nearby along with water parks, go cart tracks and Dollywood for the kids. Bring the family for a wonderful weekend full of Fun. Check out the WEB site for more details, filling fast, book early at www.W4DXCC.com

October 12. Maysville Hamfest, Maysville Hamfest Association, Maysville, NC, email: bhighland@nc.rr.com

October 25. The ARES Western Branch Meeting will be held October 25, 10:00 AM until 1:30 PM in Morganton. Location TBA.





Now which mic goes with that radio? One of these pictures is the mobile setup of a good friend of mine – Gary KA3FZO. Can you guess which one?



From The July Meeting...

Attendees. Ted KF4FLY, Tom KA4HKK, Irv W4IWK, James N4NIN, Susan N4OJN, Tanner KK4SZI, Michelle KD4YTU, Ro K4HRM, Scott KC4SWL, Warren WU3Y, Shawn KI4ZKP, Phil KG4BCC

Communications Trailer. Welded plate on trailer tongue. Additional study needed for mounting the antenna. Set work

day for July 12. Scott KC4SWL reported on GL/BD insurance.

Repeater Upgrade/Professional tower climber. Ted KF4FLY to get date for tower climb. Workday on July 12 to include clearing debris at the repeater site.

Website. Tanner KK4SZI commented that posting of email comments was working as planned using PIN. Discussed master email list to be maintained. Ro K4HRM will take various email lists and make a master list for review.

Public Service. Tom KA4HKK reported on the Blackberry Festival and noted that the Caldwell County Fire & Life Safety Festival is set for September 27. Volunteers will be needed.

Field Day 2014. Tom KA4HKK reported that he is working on submission to ARRL and that contacts were over 850 this year. Everyone agreed that the event was a great success. **Contests.** Tom KA4HKK and Will WB4Y got all required contacts in the 13 Colonies Special Event July 1-7.

Training. ICS 300 will be offered Aug 20 and ICS 400 on Sept 17 at the Caldwell EOC. ICS 400 is a required ARES course.

LARC 2014 Officers



Ted Manuel
President
KF4FLY



Tom Land
Vice President
KA4HKK



Irv Kanode **Secretary** W4IWK



Phil Crump Treasurer KG4BCC

Blowing Rock Fall Classic -- September 2015

With the demise of The Bridge-to-Bridge Challenge, the Town of Blowing Rock stepped into the void and became the start/finish line of the Blowing Rock Classic, a new bike ride to be held September 26, 2015. The route will be approximately 72 miles, beginning behind Blowing Rock Memorial Park, next to the American Legion Hall, parade down Main Street,

through the equestrian preserve, descend US Hwy 321 to Happy Valley, go West to Collettsville, pick up the old Bridge-to-Bridge route, climb Hwy 181 into Linville, then across US 221 back to Blowing Rock. 800 to 1000 riders are expected.

The Blowing Rock Classic will join two other bike rides to be known as the 2015 Triple Crown of the Mountains. The other two rides are the Beech Metric, a 62 mile ride that will



climb 8,000 feet to the top of Beech Mountain, and Blood, Sweat and Gears, which consists of a 100-mile course and a 50-mile course, both of which begin and end at Valle Crucis School.

LARC will be talking to organizers to see if communications assistance is needed for any of these events. However, individual Club members can also volunteer to assist should the Club decide not to participate.



Editor For A Final

A couple weeks ago, the ham community lost one of the good ones and I lost a great friend and my "Elmer" -- Alan W1ABT.

Alan was always ready to help a new ham and made even my dumb questions seem important. If you needed a cable, connector, radio, antenna, HT, he was the first with a solution.

When I did the first wiring harness on my truck, I called Alan to check my work! And he always called me to share "tail-end Charlie" on those 100 and 200- mile bike rides.

Alan's favorite saying was "ham gear should not be in a box, it should be used." As I was moving some boxes around in my basement a couple weeks ago, I realized that these were boxes of used, perfectly good, radio equipment. I think I heard Alan say, "Why is it sitting in boxes?" He would have wanted me to "pay it forward" so I emailed a fellow ham interested in moving into HF and asked if he would take a gently used HF station. I was delighted when he said yes and I know this equipment will not sit in a box, it will be used. Thanks, W1ABT. R. I. P.

Send comments concerning the LARC NEWSLETTER to hrmaddox@nettally.com
Suggestions and your articles are appreciated.