Monthly Meetings: 1st Thursdays @ 7 p.m., Highland Christian Church, 1500 Forest Hills Blvd, Bella Vista
Club Call: N5BVA • Repeater: 147.255 +offset, pl 162.2 • Website: www.bellavistaradioclub.org

WEEKLY NETS:

3.830 kHz Roundtable - Sundays @ 4 pm
147.255 Repeater Net - Wednesdays @ 8 pm
Wide Area Net - Wednesdays @ 9 pm on the N5UFO NWA Linked Repeater System

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NEXT BVRC MONTHLY MEETING

VIRTUAL MEETING

THURSDAY - JULY 2, 2020 - 7 PM

BVRC YOU TUBE CHANNEL

JULY MEETING

As the Covid-19 issue continues, so do BVRC's great virtual meetings. We have had excellent turnouts from our previous virtual meetings and thank all our valued members for tuning-in and staying 'in the loop' with the Club.

A special feature of this month's meeting will be a tour of the massive footprint NW Arkansas Link System by Tem Moore – N5KWL and Jon Williams – K5DVT. Tem & Jon will take us on a tour of repeater locations, and explain some of the intricacies of how the system works and what gives it such exceptional coverage. A HUGE "thanks" goes out to Tem for allowing BVRC to use the system each Wednesday evenings at 9pm for the BVRC Wide Area Net.

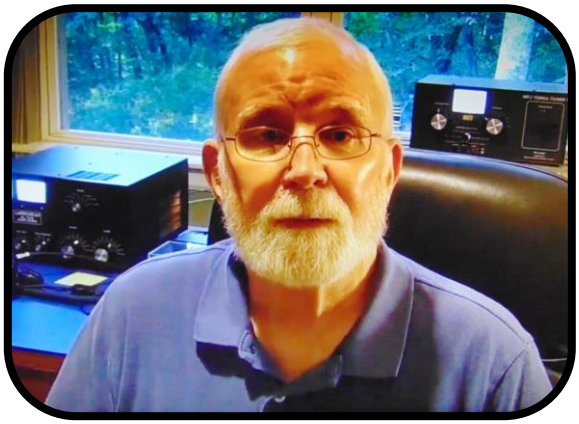
Following the link system presentation, we will be treated to two additional BVRC member shack tours: Glenn Kilpatrick – WB5L will invite us into his radio world, followed by newcomer Scott Branyan – W5AAJ. Scott, who just recently passed his Amateur Extra class exam, is the epitome of a new ham 'on fire' for the hobby. He already has DXCC and will be sharing what other activities he is working on.

SEE YOU JULY 2nd at 7pm on the BVRC YouTube Channel!!!

BVRC Virtual Meetings Continue With Members "Showin' Off The Shack"

Still in a holding pattern for the Covid-19 virus issue to return to a degree of normalcy, BVRC conducted its June meeting with another great virtual club meeting on the BVRC YouTube Channel. 34 members tuned-in, as BVRC Secretary Wayne Patton – K5UNX did another stellar job in directing the event, and he just keeps getting better! Thanks Wayne!

There was such a positive feedback from last month's meeting which used a 'show and tell' format from some of our members inviting us into their ham shacks via virtual video, that it was decided until we are able to resume our regular meetings at Highland Christian Church, this would be an excellent format to continue with, until things get back to normal.



President Tom – W5XNA

It couldn't have been a better idea. President Tom Northfell – W5XNA kicked the meeting off, and organized a slam-bang lineup featuring some of BVRC's veteran operators who treated us to some ultra-interesting facets of their shacks. Antennas, grounding, surge protection, rigs, switching devices, SWR protection, DIY projects, workbenches, and a plethora of other topics were featured.

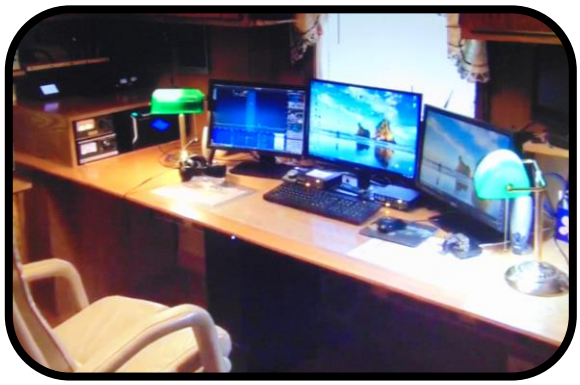
John Bryant – N5SU, Nick Kennedy – WA5BDU, Mark Whatley – K5XH, and Marc Whittlesey – WØKYZ were our gracious video hosts for this month. Thanks, gentlemen, for inviting us into your shacks!!!

Virtual meeting attendees were then treated to the last shack tour of the meeting, with a marvelous installment from Vinson – K5VCA, Clara – KI5HTX, and Jere – KI5FPD from Vinson's shack. Tom asked these three newcomers to be included in the meeting's lineup, to give all BVRC new and veteran members alike a look at what amateur radio means from a rookie's point of view in our current generation. They did an excellent job relating what amateur radio has meant to them since joining the hobby, getting involved with

N5SU

WA5BDU

local repeaters, repeater nets, and learning how to operate in contests, most recently the SSB Rookie Roundup and Arkansas QSO Party. Jere likes all aspects of the hobby in what he's been involved with so far, Clara has enrolled in the Long Island CW Club online classes and has learned Morse code (she is now at the intermediate level), and Vinson has just recently began operating FT8 and is having a ball.



K5XH

K5VCA, KI5HTX, and KI5FPD

Several factors have come to light with these past two virtual club meetings: BVRC has *many* members who are excited and involved with our wonderful hobby, who possess a wealth of knowledge in just about any sphere of radio, and who are exceptionally talented as speakers and orators!

BVRC members are doing things!!!

If you missed the online meeting, you can see a replay of it here:
https://www.youtube.com/watch?v=_8ECq-mkriM

The largest radio club in northwest Arkansas!!! 114 strong and growing! Thank you, members!!!

From Ron EVANS – K5XK
BVRC Public Information Officer

W5AAJ – Scott (ex-KI5DJP) continues to be very active for a relatively new ham. Scott has been working intercontinental DX on "The Magic Band" (6-meters) using FT-8. He also recently worked Don-K5DB for his Arkansas CW contact in his quest for the ARRL Triple Play award.

WB5L - Glenn took his new RV on its inaugural trip to the Elk River for several days, making 25 QRP QSOs using his DSW-40 CW transceiver at 2 Watts with a NorCal 'doublet' and a tuner built by W5JAY.

W5KI - Steve was one of the BVRC deserving to take advantage of a huge 6-meter opening into Japan in early June, saying the "Magic Band" opening was the best he'd observed in 10 years.

WB0AUQ – Bob & Rosalee are enjoying some trips with their RV…

KI5HTX - Clara represents the 3rd generation of hams within the Orvin family. Her Dad is Jere, KI5FPD. Along with her grandparents, ACØMG and ACØVM, Clara, Marc and Debbie also hold the honor of being the first 3-member family in the Long Island CW Club.

K5XK – is appreciative of the all-BVRC tower crew of K5VR, N5KWL, W5XNA & W5AEN, who removed the tower at Ron & Debbie's QTH, in preparation for their downsizing move. Ron also surprised the June BVRC Breakfast group by making a rare appearance.

AB5UN – Like many of us, John has been fighting spring/summer pollen, and practicing safe social distancing.

KØETA / KEØQFO – Sheila & Alan continue additions to their separate "his n hers" shacks, with a new operating desk for Sheila.

K5VCA, KI5FPD, KI5HTX, W0KYZ, N5SU, and WA5BDU - Vinson, bro-in-law Jere, Clara, Marc, John, and Mark, all gave exceptional entertaining and informative presentations during the Club's June virtual meeting.

WØKYZ – As explained in the 6/4 Virtual club meeting, Marc continues to identify multiple RFI noise sources in his neighborhood. A parabolic dish and ICOM IC-7000 helped Marc pinpoint aerial issues on various utility poles, making it easier.

KG5MWG – Our regional 'amateur radio recruiter,' Rick continues his energetic promotional efforts building the ranks of our hobby, and may be the only ham holding a membership in 'every' amateur radio club in NW Arkansas.

REMINDER:

DON'T FORGET TO AVAIL YOURSELF OF THE MANY RESOURCES ON THE BVRC WEBSITE !

- MEETING INFO
- SIGNAL N/L ARCHIVES
- VE TESTING INFO
- AREA EVENT CALENDAR
- AREA NET INFO
- DX INFO
- CONTEST INFO
- EMCOMM INFO
- ELMER 9-1-1 HELP
- FORUMS

From The Desk of The President

As I compose this month's message, I am reminded of what a great hobby we have the privilege to enjoy, and the wonderful people we get to enjoy it with.

One example is our recent *Show and Tell* virtual club meetings.

Thanks to Wayne – K5UNX's technical expertise and several enthusiastic presenters, we have had the opportunity to peer into the shacks of fellow BVRC members. The presentations have been interesting, informative, and appreciated. We try to be an inclusive club and want to embrace and support all facets of amateur radio (No Mode Left Behind!).

We also want to be a club known for being welcoming, friendly, and supportive. I am aware of many instances in the past few months when elmering has occurred. There have been towers taken down, antennas raised, a lesson on amplifier tuning, opportunities to get on the air for the first time, first time contesting, fixing a radio that won't transmit, getting an antenna back up after recent winds snapped a dipole from its mooring, and many more I'm sure. Also, speaking of elmering, I want to remind everyone that our website has an Elmer 911 page where answers to your questions or an appeal for help are only a mouse click away.

Lastly, speaking of elmering, I would like to recognize Don Banta – K5DB for being a role model for what that term embodies. The list of those he has helped through the years would require a very lengthy timeline and voluminous pages. However, if you turn to page 80 of the July issue of QST you will see evidence of Don's reaching out to newer hams. Congratulations to Clara – KI5HTX, Jere – KI5FPD, and one of BVRC's newest Extra Class, Vinson – K5VCA for their outstanding ARRL Rookie Roundup performance. Thanks, Don, for not only opening your shack for the contest, but also for sending the photo to ARRL.

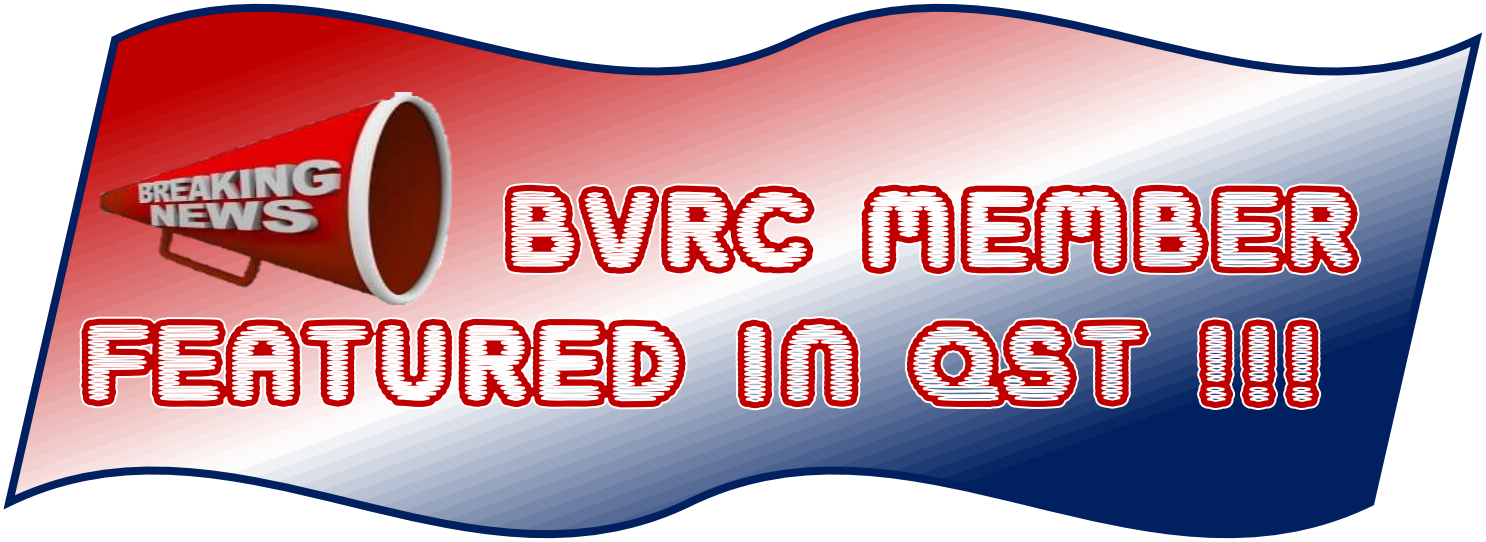
I hope to work many of you during Field Day!

73,
Tom W5XNA

****

From Don, K5DB – Signal Editor: Even though BVRC's official club Field Day has been cancelled this year due to Covid-19, you can still have fun during ham radio's biggest yearly event, whether operating from home, your own independent FD operation, or with a private group. And of course, we are all hoping for BVRC Field Day to be able to be reconvened next year!

73 - Don



In their announcement for the upcoming RTTY (radio teletype) Rookie Roundup in August, QST magazine has featured BVRC's own Clara Orvin – KI5HTX from last April's SSB RR, in their July issue, page 80.

Clara is the daughter of Jere – KI5FPD and Lee Orvin of Fayetteville, and, along with her uncle Vinson – K5VCA of Springdale, the three participated in the event with Razorback Contest Club callsign W5YO. Clara is one of our several fine new hams to join the hobby and BVRC. She and Jere hope to both acquire their General class ticket soon.

In their first outing with a major ARRL contest, they placed first in the nation in the Multi-Operator category, and second in the nation overall! Congrats to this fine trio of new operators for an excellent score and outcome in the SSB Rookie Roundup!

BVRC reminds all our new hams who have been licensed 3 years or less, to mark your calendars for the next SSB Rookie Roundup on Sunday, April 18, 2021, sign-up to participate in a really fun event, and develop your own operating skills with some of our club elmers! We welcome you with open arms and want to help you!

For more information, contact Don – K5DB: arsk5db@gmail.com

The 2020 222 MHz and Up Distance Contest

1800 UTC Saturday, August 1 – 1800 UTC Sunday, August 2

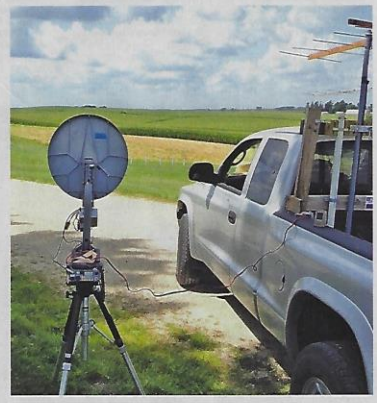
The objective of this distance scoring event is to make as many contacts as possible on 222 MHz up to 241 GHz using terrestrial means (no EME contacts) over as great a distance as possible. Participants will exchange six-digit grid locators and distances will be based on the center-to-center distance between each two stations' six-digit locators. Visit **k7fry.com/grid** for a grid mapping/distance tool, courtesy of Steve Fry, K7FRY.

The three station categories are Single Operator, Fixed; Multi-operator, Fixed; and Rover. A station in a specific grid locator may be contacted from the same location only once on each band, regardless of mode. Competition is by region. There is also a Club Competition and a Team Competition. Be sure to register your team at **http://contests.arrl.org** before the start of the contest.

Each band has a unique band factor value. Total score is the sum of QSO points of all contacts.

Only electronic, Cabrillo-formatted logs will be accepted. Upload logs to **http://contest-log-submission.arrl.org**. The deadline for submission of entries is 1800 UTC August 16, 2020.

For event rules, see
www.arrl.org/222-mhz-and-up-distance-contest



Mel Larson, KCØP/R, had his Rover station antennas positioned to work the Twin Cities in Minnesota during the 2019 ARRL 222 MHz and Up Distance Contest. [Mel Larson, KCØP, photo]

August 2020 ARRL Rookie Roundup — RTTY

1800 UTC – 2359 UTC, Sunday, August 16

Rookies make as many contacts as possible during this 6-hour event. Rookies work everyone and non-Rookies work only Rookies.

Stations exchange each other's call signs, names, a two-digit year, and state (US or Mexican), Canadian province, or DX.

You can enter as a Rookie if:

- You made or will make your first-ever contact this year or during the previous three calendar years (send the last two digits of the year of your first contact in your exchange); or
- You haven't made any contacts using the contest mode (RTTY) before (send the last two digits of the current year in your exchange).

If you're a non-Rookie, send the last two digits of the year you were first licensed.

Rookies can enter as a Single Operator or invite Rookie friends over and operate as Multioperator. Up to five Single Operator Rookies can also enter from their individual stations and submit their total score as a team.

All scores must be reported within 72 hours after the event. No late entries will be accepted.

Licensed only a few months, Clara Orvin, KI5HTX, operated in the 2020 Rookie Roundup (SSB) along with two other Rookies as part of a Multioperator effort at the Razorback Contest Club station, W5YO. [Don Banta, K5DB, photo]

Complete rules, logging sheets, and links for submitting your score can be found at www.arrl.org/rookie-roundup

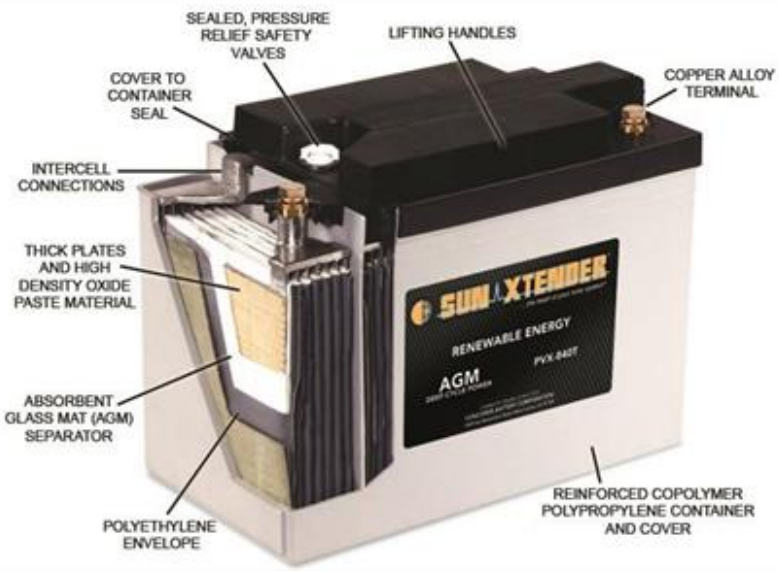
80 July 2020 QST www.arrl.org

LEAD-ACID BATTERIES FOR AMATEUR RADIO USE

There seems to be a lot of misunderstanding about batteries in general, which isn't surprising considering the myriad of types. Amateurs regularly use lead-acids, NiCads, Li-ions, Alkalines, and even the lowly carbon battery. Far too often, the type selected isn't the most apropos for the application in question.

To further narrow things down, there is just one type (electrolyte-wise) which will be discussed here, and that is the lead-acid. The main thrust is backup power, but with a dose of amateur radio mobile operation tossed in for good measure. However, before we get too far into the subject, we need to know a few common battery terms.

Common Terms



AGM - This stands for *Absorbent Glass Mat*. Almost by definition, an AGM battery incorporates spirally wound plates, rather than flat plates like those used in a nominal vehicle battery. The electrolyte is gel-like rather than a liquid, so mounting position is not critical. In fact, they can be used upside down! Under nominal use, the battery does not outgas (the gas is absorbed by the mat) so it can be used in enclosed areas such as a trunk or closet. They do not require any routine maintenance, and typically outlast a standard vehicle battery by two or three times.

BCI Group Size – This term comes from the Battery Council International which describes the internal size of a lead-acid battery.

BlueTop - This is a registered trademark of Optima Batteries for their line of AGM batteries designed for marine applications. Exide Batteries have a similar color scheme, as do other manufacturers.

CA - The term stands for *Cranking Amps*. It is a measure of the number of amperes a lead acid battery at 32 degrees F can deliver for 30 seconds, and maintain at least 1.2 volts per cell, or 7.2 volts for a nominal SLI vehicle battery. Repeatedly abusing a battery in this manner will drastically shorten its life.

CCA - The term stands for *Cold Cranking Amps*. It is an industry rating which measures the cranking power a battery has available to start a vehicle's engine at 0 degrees F, for 30 seconds, and maintain at least 1.2 volts per cell. Repeatedly abusing a battery in this manner will drastically shorten its life.

Deep Cycle - No doubt the most misunderstood term with respect to lead-acid batteries. No matter the design or application, any nominal 12-volt lead acid battery is considered discharged when the voltage under load drops below 10.5 volts. Discharging one below this point will drastically reduce its service life; deep-cycle-designs, notwithstanding!

Flooded - The term *flooded* refers to the fact the electrolyte is a liquid (nominal 12 volt vehicle battery). They outgas during charge and high current use, so they must be located in a well-ventilated area, and they must be kept upright. Incidentally, the outgas is primarily hydrogen, and is explosive in nature, so keep the open flames and lit cigarettes away. Flooded, lead-acid batteries may or may not be maintenance free. Abuse one, and even a maintenance free battery will require service.

Lead-Acid - The term lead-acid refers to the fact the plates are made from lead. The acid is sulfuric acid, and very corrosive. Splash some in your eyes, and you can receive permanent vision damage! Ingesting even a small amount will cause serious health problems. This is the reason shop rags are colored with a special dye which changes from red to blue when exposed to sulfuric acid.

Life Cycle - Every rechargeable battery has a finite number of times it can be charged. The number varies with the quality of the battery, plate design, how deep (voltage wise) the discharge, mean temperature, and about a dozen more factors. The supplied warranty (from 12 to as long as 84 months) takes these factors into account. It is a way of expressing MTBF (Mean Time Between Failure).

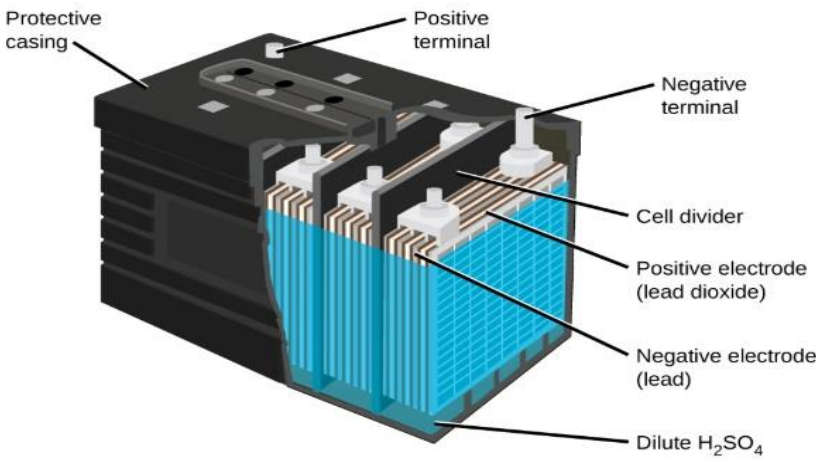
Marine - This term is here for a reason. Marine batteries have a very specific use, and are not the battery of choice for ANY amateur application. More on this later.

Red Top - This is a registered trademark of Optima Batteries for their line of AGM batteries designed for SLI applications. Exide Batteries have a similar color scheme, as do other manufacturers.

RC - The term stands for *Reserve Capacity*. It is the length of time (in minutes) a nominal 12 volt lead-acid battery can deliver 25 amps at 80 degrees F, and maintain a voltage of at least 10.5 volts. Typically used as a measure of how long the battery will last if your alternator fails, it is a good indicator for us amateurs. Once again, 10.5 volts, while under load, is considered a 100% discharged state!

SLI - This stands for *Starting, Lights, and Ignition*. In other words, a nominal vehicle battery. It may be flooded or an AGM, and in most cases nowadays, maintenance free.

Yellow Top - This is a registered trademark of Optima Batteries for their line of AGM batteries designed for RC applications. Exide Batteries have a similar color scheme, as do other manufacturers. They are a dual-purpose battery. They excel in RC applications, but can be used in SLI applications if sized appropriately.



Lead-Acid Battery Cutaway

Applications

Lead-acid batteries offer a lot of bang for the buck whether the application is vehicular, marine, backup power, or what have you. The problem arises when you purchase a battery for a perceived benefit, and that perceived benefit doesn't exist! As stated above, one of the most misunderstood terms is *Deep Cycle*. We have the batteries companies to thank for this misunderstanding.

Just in case you missed it, any nominal 12-volt, lead-acid battery is considered discharged when the voltage, under load, reaches 10.5 volts. Repeatedly discharging one below this level will reduce its life. How much depends on several factors. Let's take an average case:

The SLI battery in your vehicle will usually last about 40 months (average *Life Cycle*). Less up north where it is cold, and less in the south where it's really hot. Discharge one to 10.0 volts each and every time you use it, and the Life Cycle drops to about 4 months, perhaps less. Discharge one to 9.0 volts each and every time, and the Life Cycle can be measured in days!

So, what's the difference between an SLI and the mythical *Deep Cycle*? An SLI battery is designed to deliver the large amount of current needed to start your engine. The demand length is short; less than 30 seconds, and typically just 3 or 4 seconds. Once the engine starts, it is the alternator that is supplying the necessary current. The battery then acts as a buffer when the alternator's output is low; at idle for example. What it is not meant to do, is act as a long-term, reserve-capacity (*RC*) battery.

For some unknown reason, a lot of amateurs select a marine style of battery for their RC applications. Perhaps it's the fact that most models have both posts and screw terminals. However, the fact remains, marine batteries are not meant to be used in reserve-capacity applications – emergency station power for example.

So, what are they designed for? A marine battery is designed to sit for long periods of time without being periodically charged, and still maintain enough reserve to start the boat's engine. Due in part to their low internal resistance, some marine batteries will maintain 80% of their charge after sitting 12 months or more (assuming the storage temperatures aren't extreme). While a lot of them are used as long-term, reserve-capacity (RC) batteries, it isn't the battery of choice for this application.

So what type of battery should I use for standby power? The simple answer is one designed for long-term, reserve-capacity use. As stated above, the term *Deep Cycle* (sometimes referred to as *Deep Discharge*) is a misnomer. It doesn't make any difference what lead-acid design we're speaking of, none of them can be discharge below 10.5 volts if we expect a decent Life Cycle (several years).

The Yellow Top (and similar batteries from other manufacturers) are specifically designed for long-term, reserve-capacity (RC) use. The best way to explain this is to compare a similarly sized (in this case a BCI 24), and grade (Life Cycle) of a Marine, an SLI, and a RC battery in an amateur application. Assuming a continuous draw of 25 amps, a marine battery will reach its 10.5 volt level in approximately 80 minutes. An SLI in about 100 minutes. An RC takes about 120 minutes.

Let's look at the other end of the equation: Assuming the same batteries as above, an SLI will deliver about 1,000 amps for 30 seconds, a marine for about 20 seconds, and an RC battery for only about 15 seconds. It should be apparent there are batteries designed for each of these specific applications. While ampere hour ratings for any given BCI size are similar, their performance in any one application is, well, specific.

Charging

Contrary to popular belief, there isn't one correct way to charge a lead acid battery.

Here is a great web site to learn about charging methods. It's from M Power in Australia, and it explains the charging processes in a great detail. The site also has information on other types of batteries like Li-ions and NiCads.

Another excellent reference tool is the M Power Battery Performance page which includes a discharge voltage chart comparing the various, commonly used batteries. Makes you wonder why SLI batteries aren't Lithium Ions. However, if you read further down the page, you'll discover why they aren't used in SLI applications. The point being, each and every application has a specific type best suited to it; a point worth repeating and remembering!

Mobile Operation

In the vast majority of mobile installations, the vehicle's SLI battery is enough. However, if you run an amplifier, it is often less expensive and advantageous to use a trunk-mounted, parallel-connected, properly fused, second battery to better handle the peak current demands. In these cases, an AGM (an SLI rated battery in this application) is the only correct solution.

Using a flooded lead-acid battery in this application is asking for serious trouble. Incidentally, mixing flooded and AGM batteries is not problematic unless there is a great disparity in their ages. In other words, don't mix new with old. Contrary to popular opinion, isolation is not necessary or advised for most mobile operation. Unless...

If your mobile application is stationary (at a camp site for example), then an RC battery is the correct selection. Some form of isolation between the vehicle's SLI battery and the RC battery is thus required, least you end up not being able to start your engine. A battery isolator is preferred over a relay arrangement. This said, not all battery isolators as created equal.

Most are inexpensive units utilizing large, encapsulated diodes. The problem with them is the forward voltage drop is between .7 and 1.0 volts depending on the load. As a result, the batteries never recharge to their full level. Some isolators, like the Hellroaring units, use power FETs to bypass the diodes when the alternator is operating, thus avoiding this shortfall. The shortfall could also be avoided if alternator regulators were adjustable, but this is a very rare case.

There are a couple of important items to keep in mind when using any isolation technique. First, some automobile engine control strategies (Honda, Toyota, et. al.) use the alternator current and voltage levels as data inputs. Suddenly connecting a second battery can cause fault codes to be written to the OBD II memory, which will turn on the Check Engine light.

Secondly, most alternator circuits incorporate a fuse. It is possible to draw enough current to blow this fuse, if you suddenly connect a fully discharged RC battery to the charging circuit. Obviously, you should keep a spare fuse on hand, and you should also follow Hellroaring's recommendation about delaying the FET closure until the current and voltage stabilize. If you need more information about this, go to their web site.

Battery Boosters

These devices use a switching power supply design to boost the battery voltage to a nominal 13.8 volts regardless of the actual battery voltage. They're popular because most newer model transceivers will shut down if the supply voltage drops below 11.5 or so. Boosters allow a lead-acid battery to be taken down to their 100% discharge point of 10.5 volts (and beyond).

All too often, these devices do not have an automatic shut-off feature to keep the battery voltage from dropping below 10.5 volts. If you use one, it behooves you to keep an eye on the voltage level, so that you don’t end up with a greatly reduced Life Cycle and/or a ruined battery.

Miscellaneous

If you discharge a lead-acid battery to 10.5 volts at say 10 amps, and remove the load, the battery voltage will climb back up. It may even reach a static charge level of about 12.2 volts. Don't be fooled into thinking you can reduce the load, and still keep using the battery. While this might be okay in an emergency situation, you're damaging the battery's Life Cycle.

Some folks inanely buy marine batteries because they have screw terminals. Apparently, they don't realize adapters are readily available to convert any post type, to another post type. The fact is, a lot of newer designs have both side and post connections, and adapters are available to convert either of them to screw terminals.

In a recent QST article, one enterprising amateur concluded the cheap-appearing, plated steel, factory battery connections were inferior to the older type lead-based connectors. If he would have had a means of measuring the voltage drop under load, he would have discovered the opposite is true. He replaced them with some after-

market units which used set screws. These are even more lossy than any of the other types, albeit the difference is small.

A simple method to attach wires to your SLI battery is to trot down to your local hardware and buy a metric nut to screw on the existing clamp bolt. In most cases, the bolts are .9 mm in diameter (.23 inches), which allows 1/4 inch holed lugs to be used.

Lead-acid batteries should be kept in approved battery boxes for obvious reasons. Boxes for 1, 2, 3, and even 6 batteries are widely marketed. Most auto parts store carry at least one style of battery box. Prices start as low as $15.

Short circuit a good-quality lead-acid battery, and the supplied current can be as high as 3,000 amps, albeit briefly. Even a cheap one will do 800 to 900 amps for nearly a minute. Doing so usually causes them to explode violently, slinging sulfuric acid hither and yon. Proper fusing and proper handling will prevent this occurrence.

When removing batteries, the negative connection should be removed first, then the positive. Use the reverse order when installing them. This procedure lessons the chance of short circuiting the battery against some metal part of the vehicle.

All batteries, whether or not they are lead-acid, should be discarded properly. Most retailers will recycle your used batteries for free, even if you didn't purchase new ones from them. It's their contribution to "staying green".

Conclusion

What you've read here is not all-inclusive, nor could it be. Every battery manufacturer has their own trade secrets, processes, and construction techniques which makes every battery brand a little different than another. The best place to learn about batteries is to start with the aforementioned web sites.

Lastly, don't assume one specific type is all inclusive for your application. Doing so is surely to cost more than selecting the correct one the first time around.

BVRC Weekly Net Reports

BVRC Wednesday Night Net – N5BVA Repeater

May 20, 2020
NCS: KG5SZQ - Chris
Check-ins (12)
AB5UN John
K5DB Don
K5SAW Steve
K5UNX Wayne
KCØDX Ed
KEØQFO Alan
KEØVLQ Dennis
KI5HOL Patty
N5LML Randy
W5HB John
WB5L Glenn

June 3, 2020
NCS: KEØQFO - Alan
Check-ins (10)
AB5UN John
AD5AM Buster
K5ANW Darryl
K5SAW Steve
K5UNX Wayne
K5VCA Vinson
KCØDX Ed
KEØVQL Dennis
W5HB John

May 27, 2020
NCS: KEØQFO - Alan
Check-ins: (13)
AD5AM Buster
K5DB Don
K5SAW Steve
K9DPT Jerry
KCØDX Ed
KEØVLQ Dennis
KI5DUV Bonner
KI5EQL Faith
N5SQY Rob
W5HB John
W5ZQI Shane
WB5L Glenn

June 10, 2020
NCS: WB5L - Glenn
Check-ins: (11)
AD5AM Buster
KEØQFO Alan
KEØVQL Dennis
KCØDX Ed
N5LML Randy
K5DB Don
K5VCA Vinson
ACØQU Bill
K5ANW Darryl
K5SAW Steve

BVRC Wide-Area-Net – NW Arkansas Link System

May 20, 2020
NCS: W5HB – John
Check-ins: (11)
ACØQU – Bill
K5DB – Don
K5UNX – Wayne
K5VCA – Vinson
KG5ZCI – Bill
KI5CPT – Daniel
N5LML – Randy
W5HB – John
W5XNA – Tom
WB5L – Glenn

June 3, 2020
NCS: K5DB – Don
Check-ins: (12)
K5ANW – Darryl
K5DB – Don
K5DVT – Jon
K5VCA – Vinson
KB5UWK – Jerry
KG5DVJ – Josh
KG5ZCI – Bill
KI5DUU – Dallas
N5SQY – Rob
W5HB – John
W5XNA – Tom

May 27, 2020
NCS: Tom – W5XNA
Check-ins: (12)
K5DB – Don
K5DVT – Jon
K5VCA – Vinson
KCØDX – Ed
KI5DUV – Bonner
N5KWL – Tem
N5SQY – Rob
W5HB – John
W5KI – Steve
W5ZQI – Shane
WB5L – Glenn

June 10, 2020
NCS: K5VCA - Vinson
Check-ins (13):
K5ANW – Darryl
K5DB – Don
K5DVT – Jon
K5UNX – Wayne
K5VCA – Vinson
KG5ZCI – Bill
KI5CXH – Susan
KØJWG – Jonathan
N5KWL – Tem
W5HB – John
W5XNA – Tom
W5ZQI – Shane

BVRC VE REPORT

June 13, 2020

Congratulations!!!

Brigan Mayer – New Technician!

Cameron Dunaway – New Technician!

Vinson Carter – K5VCA – New Amateur Extra!

Scott Branyan – W5AAJ – New Amateur Extra!

WELCOME NEW BVRC MEMBERS !!!

Chuck Korzendorfer – KM5G – Fayetteville

Jerry Boseman – KB5UWK - Springdale

Qurious QSLs

By Steve Norris – W5KI

Steve Norris, one of our valued members from Eureka Springs, was first licensed in 1964 at the age of 15, with callsign WN5KUD. After upgrading to General, he was then WA5KUD. He attended the University of Arkansas from 1968 – 1972 where he operated from the iconic UofA club station W5YM. Steve has many accolades and achievements in ham radio. From contesting to DXing to repeater operation, from CW to SSTV (slow scan TV) Steve has amassed thousands of operating hours in our hobby. He has also operated as DA2NO from Ramstein AFB in Germany. Steve relates a couple of stories about two very interesting QSLs from his collection for this month's Signal issue……

It was a lot of years before I had anything close to quality radios and decent DX antennas. Probably my first "real" DXpedition catch was **Mellish Reef – VK9ZR.** Located at about 17 S, 156 E, it is a territory of Australia, about 700 miles northeast of Brisbane. At low tide, it is about 2 miles wide and 6 miles in length. But, at only half-tide, that shrinks to a small area of approximately 200 x 1000 feet above the high-water line by only six feet. Apparently little vegetation can outlast storms. Its population consists of seabirds, crabs, and insects. I worked this 1978 operation, the 2nd major DXpediton to go to Mellish Reef, and was about as excited as a re-born DXer could be. Only seven major DXpeditions have occurred there: 1972, 1978, 1989, 1993, 2002, 2009, and 2014. So, if they mount another one, I recommend working them. It doesn't come along that often. It currently sits at #36 as the most wanted DXCC country by ClubLog.

Claimed by multiple nations (China, Philippines, Taiwan), **Scarborough Reef – BS7** located in the South China Sea, is a little over 100 miles west of the Philippines. It is the topic of national security issues even up until today. DXpeditions over the years have proven it to be one of the **hardest** locations from which to operate. Sitting as the #1 most needed DXCC country at the time of this 2007 operation, stations were on nothing more than rock outcroppings -- with "treehouse-

Here are a couple of photos from that 2007 DXpedition, but please Google it, and see more photos and read some of the articles, to give you an idea of their effort.

Now THAT is a Field Day operation!! !

Scarborough Reef remains one of the rarest DX entities. Having only been added to the DXCC list since Jan 1, 1995, efforts of varying success were made in 1994, 1995, 1997, and this 2007 operation. But the question remains if China will build up an "artificial" island for military use there as it has in the Spratly Islands (1S) and make future access even harder.

Reknowned DXer and BVRC club member San – K5YY, was a key player in getting this activation rolling, many years before it happened. San was then part of the support group for this 2007 operation. I'm sure he could tell us some great stories about it.

It currently sits as #4 on the most wanted DXCC country by ClubLog.

Great stories, Steve! Thanks for sharing!

2020 ARKANSAS QSO PARTY SUMMARY

15 BVRC members made a fine showing for our club in this year's Arkansas QSO Party, which was a huge record-busting event.

Overall, according to many comments that were received, the propagation for this year's ARQP was very good, for the first time in over 5 years. That, probably coupled with many folks staying at home due to the Covid-19 issues, contributed to the best year in Arkansas QSO Party history.

47 records were either set or broken, with many new faces joining the fun. 47 out of 50 states submitted log entries this year, tying last year's record.

Another record was shattered with 411 log entries received, steamrolling the 189 entries from last year. Along with the 47 states, 3 Canadian provinces were also represented. On that note, another record was surpassed with 13 operators from Ontario participating. And yet another record was broken with 9 DX stations submitting log entries!

Although the Covid-19 issue did impact the mobile station activity, Connie & Pam from Muskogee, OK – K5CM & N5KW, and Bob from Plano, TX – N4CD, braved the roads of Arkansas and turned-in great activity and great scores as the two lone mobile stations.

The ARQP Co-Bonus Stations also experienced the best results in the history of the QSO party – WR5P and W5YO combined for a total of 553 CW QSOs and 659 SSB QSOs for a grand total of 1,212 contacts. The two stations also logged 103 cumulative multipliers between them.

Finally, this year marked Don Banta's (K5DB) final year as Arkansas QSO Party Chairman after serving in that position for 18 years. Don has announced that the annual Arkansas QSO Party will now be sponsored by the Noise Blankers Radio Group, callsign WR5P. NBRG has served as Co-Bonus Station several times in past years for the event, doing a great job every time. They are a fine group of hams who love the hobby, love what they do to encourage participation, and serve our local community with radio assistance in the public service. There is no doubt they will continue the ARQP tradition with integrity and respect, promoting the event and our great state of Arkansas.

Best wishes to the Noise Blankers as they host their first ARQP next year!

SETTING-UP YOUR FIRST HAM STATION

by H. Ward Silver - NØAX

Putting together your first ham radio station can be exciting, confusing, and challenging all at the same time! Here, you will find tips and tricks to help you build and use a station that grows with your needs and helps you operate effectively and confidently. The tips might save you some expense, too!

Be flexible

Don't assume that you'll be doing the same activities on the air forever. Here are a few tips on flexibility:

- Avoid using specialized gear except where it's required for a specific type of operating or function.
- Use a computer and software for things that are likely to change, like operating on the digital modes.
- Don't neglect grounding and bonding — build this in as the first step. It's harder to do later and having it in place makes it easy to change the equipment layout.
- Try a different layout to see if something works better — you're allowed to change your mind! You might find a new arrangement to be more comfortable or convenient.
- Leave some budget for "surprises," like a special cable or a power distribution box. You never know what a new interest or operating style will bring.

Study other stations

Browse the web for articles and videos that show how other stations are put together and operated. Make note of any particularly good ideas. Don't be intimidated by big stations, because they started out as small stations!

Learn about those extra functions

You paid for all those nifty features and controls — learn how they work and put them to work for you. Here are some common examples:

MON: Short for Monitor, this button is usually close to a handheld transceiver's PTT switch. It opens the squelch so you can listen for a weak station without changing the usual squelch level.

Memory write: You should practice transferring your VFO settings to a memory channel. On VHF/UHF this is good practice for public service operating. On HF, you can use this when chasing a DXpedition or making a schedule. Learn how to do this without referring to the manual.

Noise blankers and noise reduction: Turning these on and off is easy but did you know they are adjustable? Controlling the sensitivity and level of these functions customizes them for the noise at your location. You should also be skilled at adjusting the radio's RF gain and AGC for HF operation. Know where the preamp and attenuator controls are, too.

Adjustable filters: Since most new radios use DSP, filters are smoothly adjustable, can be offset above and below your operating frequency, and different settings stored for later use. After you become skilled at using these functions, you'll wonder how you lived without them!

Custom setups: Your radio may be able to save its operating configuration on a memory card or internally. This allows you to create custom setups for casual operating, public service nets, contesting, mobile operating, and so forth. It sure saves a lot of button pressing!

Shop for used-equipment bargains

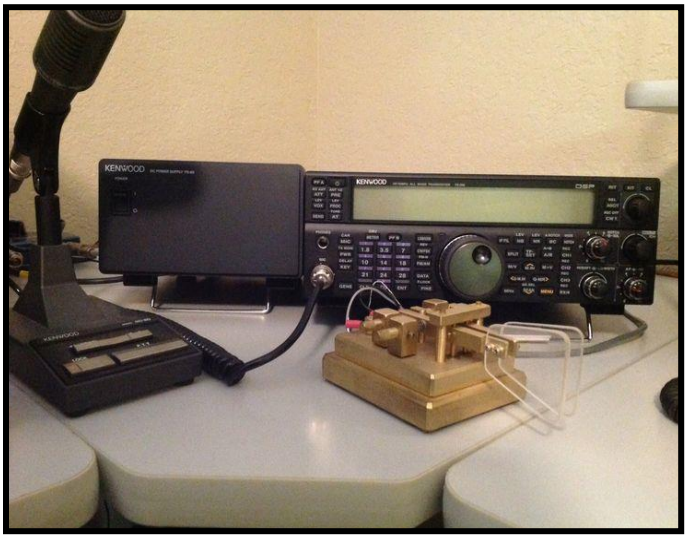
If you have a knowledgeable friend who can help you avoid worn-out and inadequate gear, buying used equipment is a great way to get started. Purchasing used gear from a dealer who offers a warranty is also a good option. Saving money now leaves you more cash for exploring new modes and bands later.

Build something yourself

Using equipment that you build yourself is a thrill. Start small by building accessory projects such as audio switches, filters, and keyers. Building things yourself can save you some money, too. Don't be afraid to get out the drill and soldering iron. You can find lots of kits, web articles, magazines, and books of projects to get you started.

Optimize your signal
Make sure you are using your microphone, keyer, and sound card properly. Get together with a friend and configure your audio so that it's clear, clean, and "sounds like you." Note how the ALC and power output meters act when you have things set properly. For FM voice, find out what microphone orientation and voice level sound best. Have your friend listen to adjacent channels and frequencies — splattering or over-deviation waste power and aggravate others.

On the digital modes, check your audio settings, both receive and transmit. On receive, your audio level should be well above the minimum noise level but not so high that a strong signal exceeds the maximum input range of decoder. On transmit, have that helpful friend be sure you don't overdrive the audio circuits and create spurious signals.



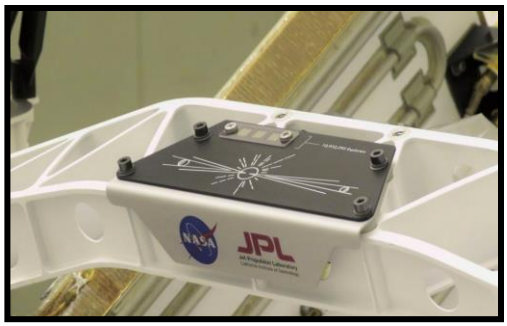
Save cash by building your own cables
You need lots of cables and connectors in your station. At a cost of roughly $5 or more for each premade cable, you can quickly spend as much on connecting your equipment as you can on purchasing a accessory. Learn how to install your own connectors on cables, and you'll save many, many dollars over the course of your ham career. Plus, you'll be better able to troubleshoot and make repairs.

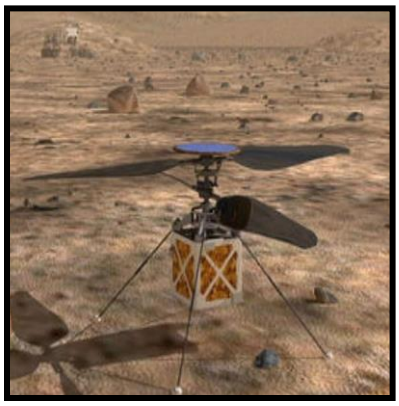
Build step by step
After you have the basics of your station in place, upgrade your equipment in steps so that you can always hear a little farther than you can transmit. Don't be an alligator (all mouth, no ears). Plan with a goal in mind so that your ham radio dollars and hours all work to further that goal. Remember that the biggest bang for your ham radio buck is often improving the antenna!

Find the weakest link
Every station has a weak link. Always be on the lookout for a probable point of failure or of loss of quality. On the airwaves, you'll encounter stations with a multibucks radio but a cheap, garage-sale microphone that results in muffled or distorted audio. Use quality gear, and keep heavily used equipment well maintained.

Make yourself comfortable
You're going to spend a lot of hours in front of your radio, so take care of yourself, too. Start with a comfortable chair. Excellent chairs are often available in used-office-furniture stores at substantial discounts. Also make sure that you have adequate lighting and that the operating desk is at a comfortable height. The dollars you spend will pay dividends every time you go on the air.

Some of our BVRC members will recall the announcement last year in The Signal about placing your name on the next Mars rover, which has now been named 'Perseverance', and perhaps you sent your name in. Be advised that the launch is now set for July 20 and the 'Send Your Name to Mars' plate has been installed on the rover! Nearly 11 million names are etched on silicon chips that are being held on the aluminum plate on the rover. On the plate, there is a message stating "Explore as One," written in Morse code, NASA tweeted on March 20. Once Perseverance lands on Mars at the Jezero Crater, it will join the still functioning Curiosity rover and the now-deceased Opportunity rover on the Red Planet. Unlike Curiosity or Opportunity, this rover will carry *the first helicopter that will fly on another planet*, NASA added.





Mark – K5XH recently performed the ultimate "good Samaritan ham" gesture by installing a 40-meter rotatable dipole atop the tower of San-K5YY. It was a sweltering-hot day and by the time Mark returned to Mother Earth, he was ready for a cold bottle of water, some shade, and a stretch-out. K5YY, KK5II, W5XNA, and K5DB were on hand to lend help from the ground. (Photos courtesy Paul-KK5II)

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