

**RIVERLAND
AMATEUR
RADIO CLUB**

**SPECIAL
POINTS OF
INTEREST:**

- **Greg's RFI Solved**
- **President's Upper Side Band**
- **How The NBS Helped Make Radio**
- **Bill's Corner**
- **Meeting Minutes**

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THE KEY

ISSUE 4 FOR 2020

APRIL 2020

Case Solved...Greg Miller, K9LEC

December 2018, 345kv of raging electrical energy comes steaming down the power lines like a 4-6-4 Pacific Railroad steam locomotive. Leaving in its wake a Radio Frequency Interference so ravaging that it takes out the HF Bands at the shack of K9LEC.

You all know the story at this point. 15 1/2 months of not being able to fire up a chat with anyone by HF anywhere.

Engineers fly out from Idaho to tackle the problem only to find the RF has eluded them. Three visits from the local power company changing out various poles in the area trying to locate the issue. Excel Energy bringing 2 large bucket trucks here to go over the suspected tower in hopes of stopping the problem. All to no avail. Only until an expert on the subject fly's in from Maryland does the culprit rear up its ugly head and is caught in the act.

The short of the story is that the RFI problem has been solved and K9LEC is back on the air. And I will say that 15 1/2 months with out ham radio really takes its toll on the hobbies interest. But now it

seems like a new hobby to me and interest is coming back.

At our April program night I will discuss what the problem was and how it was solved. Join us on the 146.970 repeater at 7:00 PM April 7th.

73 Greg K9LEC



Presidents Upper Side Band...By Dan Apts, AB9TS

“The new Yaesu DR-2X repeater has been installed at the WXOX transmitter site. Please be patient while we work out a few problems.”

The March 7th and 8th was the ARRL International DX Contest. I try to get on the air at least for a few hours for this event every year. This is the best time I know to work foreign countries. They are listening specifically for stations from the US.

I didn't get up early to start working this contest since I didn't have anything else planned to do that day so I thought I would have lots of time. I downloaded the latest update for this contest from the N3FJP website and installed it. It was about 10:00 AM local time when I turned on the radio and started to listen. It was on 20 meters and the band sounded great! I called E7DX in Bosnia and Herzegovina and worked them immediately. But I thought that I should check out the higher bands first since they would be the first to fade. There was nothing on 10 meters but 15 was good. I started working stations easily. Most of these were in Central and South America. After about 30 minutes I had to quit. My brother came over to look at my truck and figure out what was wrong with it. He saves me so much time and money on car repairs I couldn't say no. After diagnosing it as a failing belt tensioner, the phone rang. It was my son David. He wanted to get lunch and go to the Onalaska gun show. I couldn't say no since it would be fun and we were hoping to get supplies for reloading bullets. We are just getting into

reloading so there was a lot we needed. Getting these locally is great since there is a hazard fee to ship gun powder and primers and the lead bullets are heavy so they aren't cheap to ship. The contest would have to wait until later in the day.

About 4 PM I was able to get back to the radio. I worked only 4 stations on 15 meters before the band died. These were all in various countries in South America. I switched to 20 meters. I made 30 contacts in the next two hours. Most of these were all over South America except for one station in Japan. 20 meters died at that point so I switched to 40 meters. That band wasn't so good. I only made 6 contacts before the noise got to me. I was pleased to work Serbia, Hungary, Slovenia, and Poland on 40 meters though.

The next morning 20 meters was the only band open. I was pleased to find the propagation was toward Europe. I worked about 27 stations in the next two hours. These were to countries like Poland, Slovenia, Spain, Belgium, Hungary, Italy, Serbia, Czech Republic, England, Germany, France, Ireland, Lithuania, Slovak Republic, and the Ukraine.

It was a fun contest. My station worked well. I was only running 100 watts but most of the stations I worked were

running 1000 watts. I wish I could have put more time into it but there is always the CQ Worldwide contest October 24 & 25.

On a different topic, the new Yaesu DR-2X repeater has been installed at the WXOX transmitter site. It has the new W9UP club callsign. Our old WR9ARC callsign has been cancelled so we felt it was important to get it installed quickly. Please be patient while we work out a few problems. One of these is that it isn't putting out full power. It is running in automatic mode select mode. This means that if you transmit to it in analog, it responds in analog. If you transmit to it in C4FM digital, it responds in digital. When people transmit in digital mode it makes an annoying noise for people listening in analog mode. The solution for this is to use the 131.8 tone for both transmit and receive. Some radios call this tone squelch, others call it tone encode and decode. With this setup analog users will see the signal strength meter on their radio go up but they won't hear the noise. Stay tuned for more details on the new repeater.

Feel free to contact me with comments and suggestions at AB9TS@yahoo.com. 73 de Dan Abts AB9TS



BILL'S CORNER

Greetings and Solutations

Sometimes ya gotta do what ya gotta do, with the cards dealt to ya. Let us for instance swap a tranny in your 57 Dodge and you only have a few of the popular hand tools. It can be done, you might pay the 'fixem up' garage 300 to help cover cleaning up those splines, but it can be done. Every ham should have some good Duck Tape, baler twin, Elmer's glue, rubber cement, tooth picks, finger nail polish and other essentials. Today I want to tackle some nuts bolts and screws you might find on things like Microwave ovens aiming at those torks or other almost impossible to remove devices to keep you out of those hazards that await. A quick look at the tools available you see that you are short

a few you could use so you have to do with what you have. A few strokes with a hacksaw and a flat tip screwdriver can come in handy in a pinch. But you can use a simple pliers, laying it against the cabinet and pinching the edge of the screws head and press down at the same time then a few twists and the problem is overcome. This can be a lot faster than hack sawing a slot in each screw. There are times when a large flat tip can be used as a crowbar and just pop those heads off. You would want to do this outside as who knows where that flying missile is going to take off for. Depending on what you are trying to dismantle, heat and penetrating oils can help a lot. If you plan on fixing this device, you might want to forego some of my techniques

and take your time with the subject at hand. Many radios I've taken apart could never be repaired, unless I took my time, and did not take the hammer to them.

OT: I just sent off for a computer kit, and am wondering if anyone would like an update once in a while. These are some And Gates, Or Gates and the like in your Extra exam test if that would help at all. If you would like a heads up on that subject you could check out:

<https://www.youtube.com/watch?v=HyznrdDSSGM&list=PLowKtXNTBypGqImE405J2565dvjafglHU>

73 Everyone Bill

UPCOMING EVENTS FOR APRIL 2020

RARC Sunday Night 2Meter Net is held on the 146.970 repeater at 8:00 PM. Net control operators for April are:

April 5...Kevin, KC9ZGD
 April 12...David, KD9EPN
 April 19...Shawn, KD9KGQ
 April 26...Carl, KC9HDS
 May 3...Mark, KB9OFK

April 7...Program Night, Aprils program night will be held on the air due to COVID-19. Net will begin at 7:00 PM on the 146.970 repeater. After check ins and club news by President Dan Abts, AB9TS, the floor will be open to comments from the members. Greg Miller, K9LEC will give a short talk on what caused his RF Interference and how it was solved. You are encouraged to check in.

April 20...Trustee Meeting, details to be worked out.

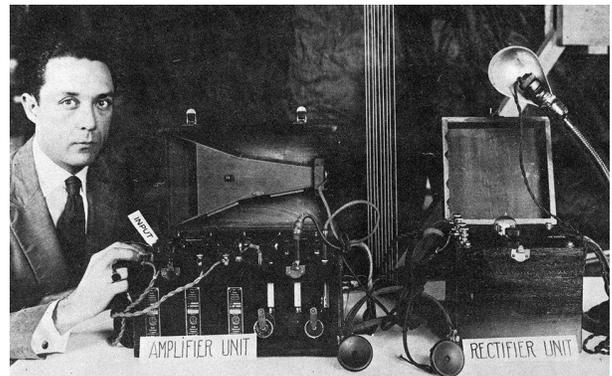
How the National Bureau of Standards helped make “radio”

This was originally published as “NIST’s Role in the Early Decades of Radio (1911-1933)” on the National Institute of Science and Technology’s blog, *Taking Measure.....Dan*

Even if you weren’t able to watch the recent Super Bowl on TV, you could still listen to the play-by-play commentary on the radio. But radio does more than just broadcasting sporting events or playing music. It plays a major role in emergency response, navigation and science.

The word “radio,” however, didn’t become part of our regular vocabulary until 1911, and it happened thanks in part to J. Howard Dellinger, a radio scientist at the National Bureau of Standards (NBS), the agency that became the National Institute of Standards and Technology (NIST). This came about when the second International Radiotelegraph Conference was being planned in London, and a professor sent Dellinger a paper that he was going to present to the conference for review.

At the time, “wireless” was used as the term for radio communication, especially by the British. However, NIST was charged with revising standards in preparation for the conference, and Dellinger



suggested that the professor use “radio,” which was already becoming a popular word in the U.S., instead of “wireless.” The professor agreed, and the word “radio” went on to become the universally accepted term.

Dellinger not only played a role in popularizing the word “radio,” but he also played a role in the first radio work done at NIST. A commercial company asked NIST to calibrate a wavemeter, a device developed by one of its engineers that measures electromagnetic waves like those of radio. Dellinger was known as the wireless expert and took on the project of calibrating the first radio instrument at NIST.

A NEW TYPE OF RADIO RECEIVER

But for radio to become mainstream, it first had to be commercialized, which began with its introduction into households. However, the challenge was building a radio set that used the electrical current, called alternating current (AC), which powered lights, fans and kitchen appliances when plugged into wall sockets. The predecessor to this technology was developed and patented by two researchers, Percival D. Lowell and Francis W. Dunmore, at NBS in 1922. They called their invention the “mousetrap.”

The “mousetrap” was a receiver for a radio amplifier that could run on AC. This was considered a breakthrough because at that time radios were only able to be powered by direct current (DC) provided by batteries. These batteries were bulky and heavy, had to be charged from time to time and were considered dangerous because of the acid used in them. The researchers’ prototype meant the radio could be used in homes without causing damage and with the same performance quality.

Continued on page 5

Lowell and Dunmore filed two more patents together for other innovations, and for the “mousetrap” they sold the rights to the Dubilier Condenser Corporation. Little did they know that, because there was no uniform policy on patents issued to government employees, their actions would result in more than a decade of litigation over who legally had the rights to the patent.

While they were tied up in court, the Radio Corporation of America (RCA) developed its own model of the AC radio in 1926. Its model later became the first AC-powered radio sold to consumers.

Flying by Radio

During the early years of flight navigation, NIST was doing research to assist pilots while they were flying and landing. Pilots needed three things to get their bearings when flying “blind,” meaning it’s foggy, too dark or too cloudy to see. They needed to know the longitudinal position, altitude and speed of the aircraft, which were all achieved by various beacons installed in the plane. The remaining issue was that there were two frequencies the pilot constantly had to switch between the frequency that the Department of Commerce used to send weather information to planes and ships, which sometimes caused interference for pilots, and the frequency the radio beacon operated on, which gave altitude and other information.

Dunmore created a prototype, but Harry Diamond, a radio engineer who joined NIST in 1927, completed the device, called the radio guidance system. Diamond solved the problem by developing a separate device that allowed for voice communication to the pilot without receiving any outside interference from ships’ radios.

A Curtiss Fledgling, a trainer aircraft developed for the U.S. Navy, was equipped with the device, and flight tests were performed between NIST’s experimental air station at College Park, Maryland, and Newark Airport in New Jersey in foggy weather. After a series of successful tests were performed, the device was turned over to be used by the Department of Commerce in 1933.

PRAISE FROM A FAMOUS INVENTOR

While mostly intended for serious users, some of NIST’s journals and publications were popular with the public. One such book, titled *The Principles Underlying Radio Communication*, covered topics such as elementary electricity, radio circuits and electromagnetic waves and was also published as a textbook for soldiers in the U.S. Army. The famous inventor Thomas Edison received a copy from NIST and wrote a letter thanking the first director, Samuel W. Stratton, for publishing it, saying it was “the greatest book on this subject that I have ever read.”

As these and other examples show, NIST had a significant influence on radio research between 1911 and 1933. However, NIST’s radio work didn’t end with the first blind landing. NIST would continue to contribute to the field leading up to and during World War II, and research continues to this day in areas such as 5G, public safety communications and spectrum sharing.

ABOUT THE AUTHOR

Alex Boss is a general assignment writer in the NIST Public Affairs Office and covers standard reference materials (SRM). She has a B.S. in biology from Rhodes College and an M.A. in health and...



Hunkering Down...By Carl Thurston, KC9HDS

A report on the St. Paddy's Day Parade was what was planned, but with the advance of the COVID-19 virus, and the cancelation of nearly every event where people could congregate. It has become unnecessary to do such a report.

Heck, there is so little that is still open to the public and with the Governor's order to not gather in groups of more than 10, life has changed a lot. The Libraries in La Crosse have closed and all books and media that is currently checked out can stay that way without a penalty for the duration of their closing. One can still check out books on line, so those who can do this will have no loss of reading material because of the closing.

The local grocery stores have cut back their hours so that the shelves can be restocked to keep up with demand and everything is getting a special deep cleaning there. On line ordering and curbside pick up is available at most grocery stores. Pharmacies are still open.

Bars and restaurants, are also closed indefinitely, so that form of entertainment is done for now. On top of that, our club call sign has been changed to W9UP so our old club call sign WR9ARC had to be removed from the repeater, it was also decided to change out the repeater as well. We now have the new Yaesu DR-2X Digital/Analog 2 meter/70 centimeter repeater installed and on line, although only the 2 meter portion is currently active in both Digital and Analog modes. Oh yes there are some issues with it yet. Those issues will be dealt with as they arise. This forced isolation has added to the problems of fine tuning the repeater. Suffice it to say that our diligent Repeater Committee is hard at work with all of the needed adjustments and all should be well very soon.

The ongoing issues and remedies that this situation has caused everyone have to be taken care of and everyone's patience and consideration for others is a necessity. This could be a time when we can unite in a common cause to defeat this virus. We need to keep our heads and be mindful that not all information that is available on the media is correct. Some of what is being said about this is obviously false, some of it is misleading, and some of it is so misconstrued that panic could result. With that In mind, be careful. Use good judgement when determining what to believe. Choose reliable sources for information and avoid virus driven scams on the internet.

If we are patient and do our parts, this situation will pass, but we need to be prepared for what might happen and hope that things work out well with everything. In the mean time, keep the air-wave flowing and talk it out with other Hams. See you down the log. 73





RIVERLAND AMATEUR RADIO CLUB

Monday, March 16th, 2020 Board Meeting

MINUTES

Call to order: 5:37 PM, 2237 UTC

Members Present : Shawn KD9KGQ, Dan AB9TS, Steve W9DXE, Kelly KD9LQW, Roger KA9BKK, Carl KC9HDS, Rick KD9GVS, Drew AB9NE, David KB9EWG

Approval of Minutes: Approved as written

Treasurer's Report: Available upon request from Drew, AB9NE

Officer's Report:

Old Business:

- + ARES/RACES – Began on-line FEMA ICS course training at March 10th meeting. Future meetings cancelled for now due to health concerns. March 25th is a scheduled test for local hospital “HCERC Region 4”
- + Club Call Sign changed officially to W9UP.
- + Newsletter articles – Dan plans to submit on ARRL Int'l DX contest
- + Back-up for Art to play Newline on Sunday Net – Kevin has volunteered
- + Balloon Launch – Bill – no report
- + Fox Hunt – no report
- + Swapfest – RARC hamfest info sent to ARRL, we are officially sponsored. Not sure yet if “card checking” will be available. Pat Moretti, SM-WI and Kermit Carlson, DIR-CD have been informed. More advertising should be done in light of all the cancellations of other events, we may see increased attendance.
- + Shawn taking care of WAR (Wisconsin Association of Repeaters) for our new installation. A new 70CM frequency for control purposes needs to be coordinated.

Committee Reports:

- + Repeater Committee – New DR-2X repeater to be installed tomorrow, the 17th.

New Business :

- + Program suggestions for April – K9LEC, W9GM, new repeater. We will be doing an “on the air” meeting of some type. The “Zoom” app was suggested to facilitate this.
- + Mitch's class on oscilloscopes cancelled due to school closing, may reschedule later.
- + Club Shirts – no report

Motion to Adjourn: 6:27PM, 2327 UTC

CLUB INFORMATION



Riverland Amateur Radio Club

PO Box 621

Onalaska, WI 54650

The Key is published monthly and e-mailed to members and friends of the Riverland Amateur Radio Club by the 28th of each month.

The newsletter focuses on news, announcements and activities of the Riverland Amateur Radio Club. It may also consist of news and information of interest to the Amateur Radio community as a whole. Guest editorials and articles related to Amateur Radio are welcome.

Address any correspondence or anything that should be included in the newsletter to: Greg Miller at KA9FOZ@gmail.com.

The Riverland Amateur Radio Club maintains a website at rarc.qth.com. More information about the club can be found there as well as past copies of The Key.

RARC also maintains a Facebook page where members add information and share their Amateur Radio adventures. Please friend us at Riverland Amateur Radio Club—RARC.

RARC maintains a repeater that is located on the WXOW television tower above LaCrescent, MN. 146.970 pl 131.8.

RARC holds a weekly 2meter net on Sundays at 8:00 PM on the 146.970 repeater.

Trustee Meeting is held the 3rd Monday of the month at Perkins Restaurant, 9428 State Road 16, Onalaska, WI 54650 at 5:30 PM, all club members are welcome.

Program evening is held the 1st Tuesday of the month at 7:00 PM, Elmer session at 6:30 PM at 401 West Avenue in LaCrosse.

Below are listed your RARC 2020 Board of Trustees and contact information.

President.....Dan Abts, AB9TS Email...ab9ts@yahoo.com

Vice-President.....David Peters, KB9EWG Email...kb9ewg@gmail.com

Secretary.....Rick Kolter, KD9GVS Email...rckolter@gmail.com

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