PORTAGE COUNTY AMATEUR RADIO SERVICE

The RADIOGRAM

When All Else Fails ~ Amateur Radio Works

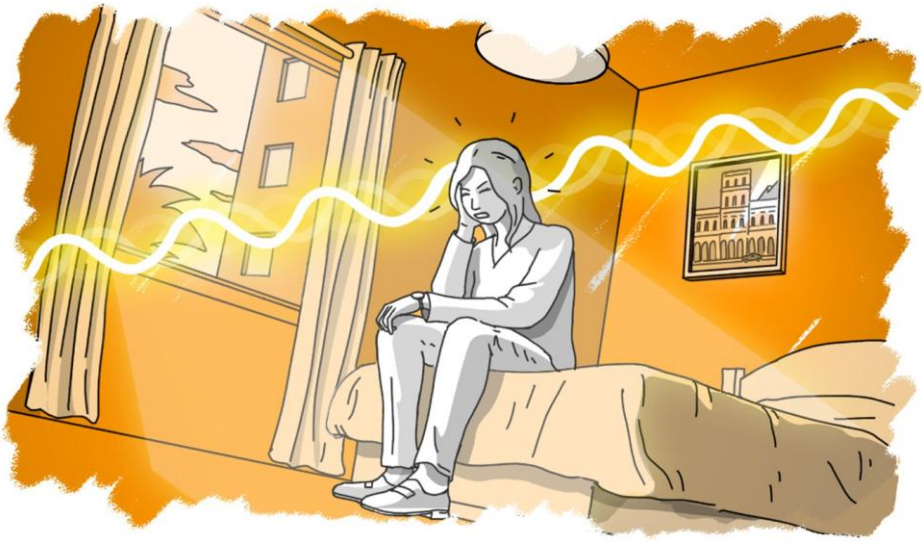
~ Official Newsletter of the Portage County Amateur Radio Service, Inc. ~

PCARS - the 2018 Hamvention® Club of The Year

October 2021 - Volume 16 Number 10

October is JOTA Month

The Mystery of Microwaves

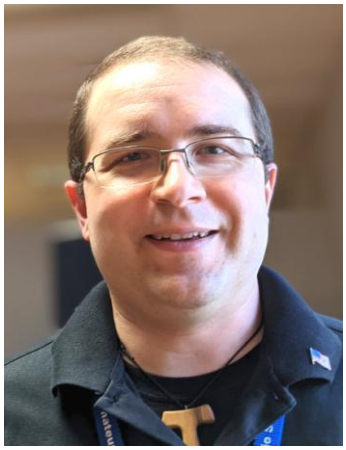


In This Issue of **The RADIOGRAM**

Volume 16 ***October 2021*** *Number 10*

Portage County Amateur Radio Service
K8BF
2018 Hamvention® Club of the Year

From the President



Nick, AC8QG
PCARS President

Ohio BB-QSO Party

Last month I didn't get a chance to talk about the Ohio BB-QSO Party and Club Open House. Well, I can say that it was a great success and wonderful to gather with friends. Some people came out just to say hi, some for the food, some to get on the air, but everyone who joined us had some "Big Fun."

Thank you to everyone who helped make a great day!

Wagner Family OSPOTA 2021 Report

This year we traveled out to the western side of Ohio to work Ohio State Parks On The Air from Grand Lake St. Marys State Park. It was a beautiful park, with almost perfect weather. Ohio in September is truly the best.

Our goal was to have fun and learn. With that as the standard, it was mission accomplished. Of course, making Qs is a lot more fun than not, but we did alright on that front, too. There were some dry times and some pileups; pretty much feast or famine most of the day. In both cases, it was good practice for the operators.

The whole family got in on the fun. Everybody helped with setup and teardown. Bernadette KE8LWO, Benedict AD8FQ, and Agnes KE8LWP (the youth hams of our family) all made contacts. Even seven-year-old Dominic was thrilled to listen in on a headset and help pick out call signs. I, myself (AKA "Dad" in this story), spent a lot of time logging.

All of us are now a bit more experienced. We have a lot of learnings to apply and a lot of new ideas to try out. We can't wait for OSPOTA 2022!

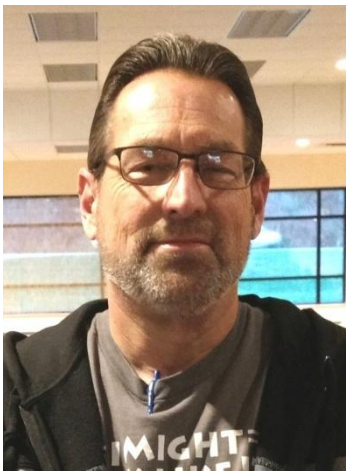
Center of Hope Fundraiser

November is right around the corner, and that means it's once again time for our annual Center of Hope fundraiser. This is a great way to help out an excellent organization in the community! PCARS has been extremely generous in past years, and I know that will be the case once again. To make it easy, we have a donation button on the front page of our website (www.portcars.org). Please ask family, friends, co-workers, bosses, anyone, and everyone to help out if they can. Remember, every little bit helps!

Upcoming Elections

November is also our annual election of officers. PCARS is a great club because of the time and energy spent by all the people who contribute throughout the year. Please think about how you can help out and seriously consider running for election or volunteering for an appointed position. There's a lot of work to do and we need your help!

From the Vice President



Mike N8WCP
PCARS Vice President

Unfortunately I missed the deadline for the September addition so I want to start off by thanking all the members who were able to attend our Cruise In and BBQ. Special shout out to Jim, AC8NT and Linda who made sure the clubhouse looked great for the BBQ and also Bob, N8QE and Mike, KB8TUY for working the grill. Members enjoyed great food and fellowship.

Did you have an opportunity to work OSPOTA? So far over 70 stations have submitted logs for this PCARS sponsored event. The weather was perfect and I hope everyone enjoyed time in our state parks. This was my fourth year working the event and although I could only work it for a few hours, I was able to log 135 contacts from West Branch. I appreciate the efforts of Parky, KB8UUZ, John, KD8MQ, Chuck, W8PT, Joe, W8KNO, and John, KB8UHN to make OSPOTA a success!

If you couldn't attend our recent club meeting, Ken Dorsey, KA8OAD provided an introduction to digital hotspots for DMR, Fusion, P25, and DSTAR. If you'd like to dip your toe into the digital formats, a hotspot can provide the connectivity when there are no digital repeaters near you.

There are so many ways to enjoy our hobby and Clint Bradford, K6LCS with AMSAT will show us yet another one with a Zoom presentation on amateur satellites. If you're interested in working the "birds", I encourage you to attend our October meeting.

October kicks off our membership renewal period. Members can renew before the end of the year in person at a club meeting or online at: https://www.portcars.org/wp/membership/ .

The RADIOGRAM Wins

Tom, KB8UUZ
PCARS Newsletter Editor

I held off on getting this issue of the Radiogram out in order to get "Dale's Tails" from Dale, WA8EFK, our ARRL Great Lakes Division Director to find out about the Great Lakes Division Newsletter Award for 2021. I was all set to travel to the VetteCity/Great Lakes Division Convention (Oct 2nd), and then it got cancelled due to Covid concerns.

I'm happy to report that **The RADIOGRAM** took **FIRST PLACE** for the 2021 Joseph Phillips, K8QOE, Newsletter Award. See our ARRL Division Vice Director, 'Scott's Notes' in the following pages for details.

Thanks goes out to all that contribute to the newsletter. You help make it a bit easier for me to get the newsletter out every month. Keep sending me your newsletter inputs, ***please!***

Schedule of Events

We plan to add to the schedule as we bring back more in-person events. Look for announcements in QST emails, on the website, on our weekly net, and in future newsletters. If you're not feeling well, please stay home and join us by Zoom if instead. We'll continue to offer Zoom as an option wherever it makes sense to do so.

October 2nd - VE Testing at the Club Site - Starts at 10 am
October 2-3rd - California QSO Party at the club site in Ravenna.
October 4th - PCARS Board Meeting - Club Site & Zoom - 7 pm
October 11th - PCARS Meeting - 7 pm at the Kent American Legion & Zoom
October 20th - VE Testing at the Club Site 7 pm (end of Tech Class)
November 1st - PCARS Board Meeting - Club Site & Zoom - 7 pm
November 8th - PCARS Meeting - 7 pm at the Kent American Legion & Zoom - ELECTIONS
CENTER of HOPE Super Raffel Fund Drive
December 4th - FYAO at the park in Kent - *more info to follow*

First Tuesday - **Digital** - Moderator: Rick, K8CAV
Second Tuesday - **Portable Ops** - Moderator: John, KD8MQ
Third Tuesday - **Antenna** - Moderator: Tony, WA8AR
Fourth Tuesday - **DX & Contest** - Moderator: Chuck, W8PT

Fourth Thursday - **Net Night at the Club Site** - 6:30 pm - Moderator: Tom, WB8LCD

From the Great Lakes Division Director

Dale, WA8EFK
ARRL Great Lakes Division Director

Greetings, welcome to "Dale's Tales" for October, 2021

GREAT LAKES CONVENTION UPDATE.

A disappointing decision, but as you are now aware the Great Lakes Division ARRL Convention was canceled. Certainly, the Kentucky Colonels Amateur Radio Club faced a very difficult decision. Attendees, vendors, guests, advertisers, convention sponsors, forum speakers, luncheon staff, convention center venue, tickets sellers, ticket refunds and more had to be notified and take action. To the club's credit, everything went smoothly and from the decision on Wednesday evening, things were pretty well spun down by the weekend.

What happens next? Only time will tell. The Covid pandemic has forced this cancelation and may well cause other course corrections over the next few months. At best, we will plan and execute as conditions permit. From the whole Vette City Hamfest team and the convention team, our sincere thanks to everyone for their cooperation and understanding. Be safe and stay safe.

SIMULATED EMERGENCY TEST (SET).

October brings the SET to the forefront. Nationally, it is held the first weekend of October, but local communities may select other dates to accommodate participation. In any event, check in and offer your local ARES group a hand. Interest in Emergency Communications has grown considerably in recent years, and SET offers us all an opportunity for a little practice and a shot at improving our skill set. (Pun intended).
Even a few minutes will be valuable for all involved.

"CLUB LEADERS NOTE:"

That was the way I began a commentary about how well the responses were from my last month's emailing to club leaders and contacts in the Great Lakes Division. I reported how nice it was to see only about 10% defective e-mail addresses. That comment was perhaps a little premature as 24 hours later the stats changed considerably for the worse. The final number reached more than 25%. I feel confident this is due to personnel changes in clubs and e-mail addresses that have just gone obsolete. It does call for those who lead our radio clubs to annually do a review of the club's status with ARRL and insure that we do have the correct contact information on file. Without that, we cannot do the simple task of referring new hams to local clubs and sometimes we may question whether certain clubs are still in service. Please make an effort to file your club's Annual Report - do it today. If you can't do it, phone me! This really needs to happen.

From the Great Lakes Division Vice Director

Scott, N8SY
ARRL Great Lakes Division Vice Director

Scott's Notes for October 2021

Are you ready for fall? Wow, the weather has really changed here in the metropolis of Lexington. Even the trees are starting to show some of their rich, beautiful colors. Is winter far behind? Shame on me for saying that, but I will remind you that Christmas is less than 3 months away!!

I'm sure by now you have heard the bad news about the VetteCity/Great Lakes Division Convention being canceled. It's unfortunate, but I have to say that it was the right decision. Hopefully, if this COVID stuff ever calms down a bit, we can try it again next year!

Work on the new standing committee, Emergency Communications Field Services Committee (ECFSC) has already begun. We've had several good meetings and there is a lot on the plate to do. I'll keep you updated as much as I can on the progress of the committee. One of the very first items on the list was to get the old Form 4 updated and on-line. Form 4 is the monthly Section Emergency Coordinator's Report form that goes to Headquarters. The updates have been completed and a new "Form 4a" has been rolled out. All the Section Emergency Coordinators around the country have been notified of the changes made and work is being done on getting them onto the new reporting system. There's a lot more in the works that I'll be reporting on as time goes on. So, stay tuned!

As I reported last month, the Joseph Phillips, K8QOE, Newsletter Award selection had concluded. Since our plans got changed due to the cancelation of the convention, Dale and I have decided to announce the winner here. So, here goes:

The winner of the 2021 Joseph Phillips, K8QOE Newsletter award is none other than… Wait a minute...I think I'd better announce just which newsletters were in the running first.

- **For Michigan,** "The Scope" from "The Central Michigan Amateur Radio Club and Lansing Civil Defense Repeater Association." Editor: Chris Ranes, NS8Q.
- **For Ohio,** "RADIOGRAM" from "Portage County Amateur Radio Service." Editor: Tom (Parky) Parkinson, KB8UUZ.
- **For Kentucky,** "QUA/HAM news" from "Bluegrass Amateur Radio Society." Editor: Bart Breeding, KB4FEE.

The judges felt that the 3 newsletters submitted were really very good and showed a lot of professionalism in their reporting of stories and such. They were super impressed with grammar and punctuation being exceptionally good for non-professional writers. They also felt that the graphics and general layout of the newsletters were exceptional as well. They all commented that the newsletters were easy for laypersons to read and understand and not so technical that it went over their heads on what the authors were writing about. And now… (*Drum roll please..*)

The winner is... "RADIOGRAM" from "Portage County Amateur Radio Service."
Editor: Tom (Parky) Parkinson, KB8UUZ.

Dale and I want to thank everyone that writes a newsletter. You are all to be congratulated as that you are the ones to tell the story, not only about your club but about amateur radio as well. Newsletters are the vehicle that gets our message out to those who aren't amateurs already. Your stories are what get the folks interested and wanting more information and eventually becoming a "HAM" themselves. So, even though there will only be one newsletter award winner, every newsletter is a winner to us!

That is going to do it from here this month. So, "***G.O.T.A." and have FUN!!!***

From the ARRL Ohio Section Manager

Tom, WB8LCD
ARRL Ohio Section Manger

Saturday September 11 was the 14th running of the OH State Parks On The Air (OSPOTA) contest and I was with Team K8IV at Punderson State Park. Two comments:

1) What a beautiful day in NE Ohio – blue skies and a nice warm breeze;
2) Bands were open and a whole bunch of Q's were made!

It was a perfect day. Just to add to the fun, one of my Q's on 20 meters was with Lee Sly, N5SLY of Sherman, Texas. In over 50 years as a Ham this is the first time I've ever made contact with another SLY on the air! He was nice enough to send me his QSL, and of course one of mine has already been sent back to him. When the OSPOTA results are released I'll be sure to post them in the Ohio Section Newsletter for all of you to see how you did.

You've all probably heard by now that the 10th Annual Vette City Hamfest, along with the 2021 Great Lakes Division Convention has been *CANCELLED* due to COVID concerns. While I hate to see another one cancelled for 2021, I think it was the right thing to do for all involved. While the plans were being made, I met a great group of people from Kentucky who did just about everything they could to pull it off.

While I've never been to the Vette City Hamfest in the past, it will certainly be on my "to do" list for the upcoming years. I know everyone is interested in hearing about the Division Newsletter Contest, but I'm in the dark as to the winners just like all the rest of you. I'm sure that there will be some sort of presentation coming out in the near future and as I hear any more details on it, I'll be sure to let you know.

On Tuesday, August 31st, we had our first OH Section Technical Session on Zoom. This was presented by OH Section Technical Specialist Jason McCormick, N8EI who did an outstanding job for those in attendance. His topic was "*Beyond the Baofeng: Thoughts on Equipment Choices for New Hams*". Our total participation was approximately 45 – most being new hams and/or "almost" hams!

Now, in the category "Why Do Computers Hate Me?" – I recorded the presentation, but I only got an audio recording. Everything was set up properly, I've talked with the folks at ZOOM to see if there was anything they were able to do to find the video portion, but it's all a "no-go". That being said, the audio portion is still pretty good, I'll be getting that posted where you can listen in, hopefully with a copy of Jason's power point slides very soon. I think this was a very worthwhile presentation for those who participated, and we will be planning future presentations, and staggering the day of the week they are scheduled for, possibly including a Saturday or Sunday presentation. If you have topics you would like to see covered drop me a line and let me know. You can email me at wb8lcd@arrl.org

PCARS VE Testing Information & News

Tom, KB8UUZ
PCARS VE Team Liaison

GOOD NEWS – VE testing has resumed at the PCARS club site in Ravenna. Due to the COVID 19 concerns, PCARS had shut down in-person VE testing to ensure the safety of our VE team members and the applicants that wanted to take a test for their new amateur radio license or to upgrade.

If you have any questions, don't hesitate to contact me at KB8UUZ@gmail.com On behalf of the VE team at PCARS, we all look forward to seeing you at the PCARS club site in Ravenna so you can take your license test. Face masks are not State/County mandated at this time, but you are always welcome to wear one.

PCARS VE sessions are scheduled for 10:00 am on the first Saturday of every even numbered month at the PCARS club site in Ravenna.

2021 - **October 2nd**, (**October 20th 7pm** - at the end of the Technician Class), December 4th
2022 - February 5th, April 2nd, June 4th, August 6th, October 1st, December 3rd

WALK-INS will be accepted.

- **You must have your FRN prior to taking an exam - No SSNs will be used on the Form 605 anymore.**
- **If you are sick, have a cough, a high temperature or have been exposed to COVID-19 or someone that has been infected - please, *do not* come to the club site.**
- **No food or snacks allowed. Use of masks is still encouraged.**
- **$15.00 Fee Payment will only be by check or exact change. We cannot make change**
- **If paying by check, make check out to: "ARRL-VEC" The VE Fee is $15.00**
- **Ensure you have the following:**
  - **A picture ID such as a valid Driver's License, State ID, School ID, or US Passport.**
  - **If you are under 16 years of age, a parent or guardian must be able to vouch for you and you need a copy of your birth certificate (you do not have to give us a copy, we just have to see and verify).**
  - **FCC is requiring you have your e-mail address on the Form 605.**
  - **If you are taking a Technician test you will need your FRN number (you can apply for an FRN on the FCC website). For hams having a license, your FRN is printed on your license.**
  - **If you are upgrading to General or Extra - You MUST bring your original valid amateur radio license and a copy of your valid amateur radio license to turn in with your Form 605.**
  - **Bring your own pencils and pens.**
  - **Calculators are okay to use (if you need one) as long as the memories are cleared.**
  - **NO cell Phones allowed**

Any questions? Contact KB8UUZ@gmail.com

Additional Information - What to Bring to the Testing Session

- If you've already passed a test: The original (**and one copy**) of any document that you will use to prove you've already passed a test element.

  These documents may include:
  - An unexpired Certificate of Successful Completion of Exam (**CSCE**) indicating the credit(s) earned.
  - Original and copy of a pre-March 21, 1987 Technician license (this provides credit for the Element 3 [General] exam) - you **must** be currently licensed to get this credit.

Expired License? **Original and a copy** of your expired Amateur Radio License - you must take and pass Element number 2 to re-instate your license.

ARE YOU GOING FOR YOUR TECHNICIAN LICENSE?
READ THIS IMPORTANT INFORMATION

First-Time Exam Applicants MUST Obtain FCC Registration Number BEFORE Taking Exam

As of **May 20, 2021**, all amateur examination applicants are **required** to provide an FCC Registration Number (FRN) to the Volunteer Examiners (VEs) **BEFORE** taking an amateur exam. This is necessary due to changes the FCC has made to its licensing system. Applicants will create an FCC username and account, respond to the verification email from FCC, and then register for the FRN. Register on the FCC's Commission Registration System (**CORES**): **https://apps.fcc.gov/cores/**

Social Security Numbers are *NO LONGER ACCEPTED* at Exam Sessions

Amateur candidates who already have an FCC license, whether for amateur radio or in another service, already have an FRN and can use the same number - it is printed on your current license. All prospective new FCC licensees, however, will be required to obtain an FRN ***before*** the examination and provide that number to the volunteer examiners on the Form 605 license application. An FCC instructional video (**https://www.fcc.gov/rofrn**) provides step-by-step instructions on how to obtain an FRN through the FCC's CORES system. The FRN is required for all new applicants to take an amateur exam and is used afterward by the applicant to download the license document from the FCC Universal Licensing System (**ULS**) (**https://www.fcc.gov/wireless/universal-licensing-system**), upgrade the license, apply for a vanity call sign, and to submit administrative updates (such as address and email changes) and renewal applications.

Email Addresses REQUIRED

As of **June 29**, **2021** all applications will be required to contain an email address for FCC correspondence. Applicants will receive an email direct from the FCC with a link to the official electronic copy of their license whenever a license is issued or changed. ARRL VEC suggests that those without access to email to use the email address of a family member or friend. Licensees will be able to log in to the ULS using their FRN and password to download the latest version of their license at any time. The FCC no longer provides paper license documents.

New FCC Application Fees Information

08/16/2021

The schedule of FCC amateur radio application fees likely will not go into effect before **2022**. FCC staff confirmed during a recent virtual meeting with Volunteer Examiner Coordinators (VECs) that the agency is still working on the necessary changes to the Universal Licensing System (ULS) software and other processes and procedures that must be in place before it starts collecting fees from amateur applicants. Earlier this year, the FCC said it would not start collecting fees from amateur applicants before this summer. The new estimate is that the fees won't go into effect until early next year. Once it's effective, the $35 application fee will apply to new, modification (upgrade and sequential call sign change), renewal, and vanity call sign applications. All fees will be per application. Administrative update applications, such as those to change a licensee's name, mailing, or email address, will be exempt from fees. ARRL VEC manager Maria Somma, AB1FM, said Volunteer Examiner (VE) teams will not face the burden of collecting the $35 fee. "Once the FCC application fee takes effect, new and upgrade applicants will pay the exam session fee to the VE team as usual, but they'll pay the $35 application fee directly to the FCC using the **FCC Pay Fees** system," she explained. When the FCC receives the examination information from the VEC, it will email a link with payment instructions to each successful candidate who then will have 10 days from the date of the email to pay. After the fee is paid and the FCC has processed an application, examinees will receive a second email from the FCC with a link to their official license. The link will be good for 30 days. Licensees also will be able to view, download, and print official license copies by logging into their FCC ULS account. The FCC no longer provides printed licenses. Licensees can log into the **ULS** with their 10-digit FRN (FCC Registration Number) and password at any time to view and manage their license and application, **print their license**, and update anything in their FCC license record, including adding an email address.

FEE SCHEDULE INDIVIDUALS - $35 FEE: New, modification (upgrade and sequential call sign change), renewal, and vanity call sign applications. All fees will be per application. - NO FEE: Administrative updates, such as a change of name, mailing or email address, or license cancellation. **AMATEUR RADIO CLUBS -** $35 FEE: New, renewal, trustee change, and vanity call sign applications. All fees will be per application. - NO FEE: Administrative updates, such as a change of name, mailing or email address, or license cancellation.

ARRL Volunteer Examiner Coordinator (VEC) Manager Maria Somma, AB1FM, said VECs and Volunteer Examiner (VE) teams will **not** have to collect the $35 fee at exam sessions. **Once the FCC application fee does take effect, new and upgrade applicants will pay the regular $15 exam session fee to the VE team as usual, and pay the new $35 application fee directly to the FCC via the Fee Filer System or License Manager System.** The new CSCE form now has information about fee payment,

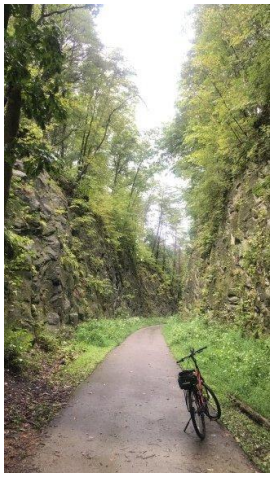
What I Did On My Summer Vacation

John, KD8MQ

I know; the title sounds kind of juvenile, but I have been having fun this summer travelling to parks around Ohio to activate them for Parks On The air, but have been trying to do them in a way that pushes me a bit out of my comfort zone.

One such trip happened in late August, I decided that I would do an activation on Kelleys island; one of the Lake Erie islands. If you've ever taken Millers Ferry back from any of the Lake Erie Islands on a Sunday morning, you know how long the wait can be. I hate waiting in line. Also, the current rate for cars on the ferry is $18 (each way), while bicycles are only $4. There ya go; this turned into a Bicycle Activation.

I needed a cargo rack for my bike, so a trip to Ernie's Bike Shop on North Canton was in order. Of course, I left with an order placed for a new bike. With that purchase, I took my first step into a hobby that is much more expensive than Ham Radio.



In preparation for the trip to the island, I made up a shortened 40M vertical that could be transported on the bike. It was designed by Mike, WB8ERJ. Plans are on his blog at https://mikestechblog.com/build-a-shortened-40-meter-vertical-for-pota-sota-activations/. The activation went off without a hitch, and I can't wait to do this one again.

A few days later, I read about a State Nature Preserve near Newark which has a Bike trail, so I had to visit, and take the radio along. I don't know what was more fun, the POTA activation, or the trail ride. I will return to Blackhand Gorge State Nature Preserve (K-9393) someday.

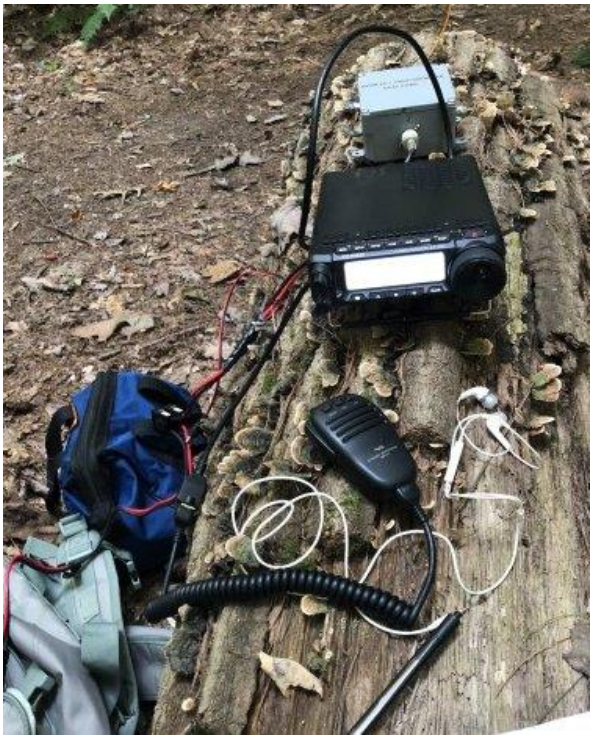
On OSPOTA weekend, Mike, WB8ERJ, & I got together to do some bike riding, and wound up activating a couple parks. We drove up to Mohican Memorial State Forest (K-5455). While mike was activating the forest, I hiked from there into the Clear Fork Gorge State Nature Preserve (K-9398), and activated QRP from a station set up trailside on a downed tree. Yeah, hiking, & QRP. I guess you can say that Mike has gotten me interested in Hike-in activations.

The next weekend, a couple of us from the Alliance area drove up to the Port Clinton Airport and caught a flight out to North Bass Island (K-3517). It has been activated only a handful of times. We activated the heck out of the island that day. It's a great island for hiking, and not that hard to get too.

Only about 6 people live on North Bass Island, which is also known as Isle St. George. There's no stores, no restaurants, nothing! All groceries must be brought in by plane, boat, or snowmobile. The only signs of commerce we saw were the remains of the old vineyards. The bulk of the island has been purchased by the state and comprises North Bass Island State Park.

Our activation of North Bass was special to me because this is the 50th Ohio State park that I've activated. There are only 25 more to go.

So, what's next? I don't know, but I can't wait! This is what I enjoy most about Amateur Radio; there is always something new to explore, or a new way to enjoy this hobby. Let's hear from the rest of you. Get out there and have some fun,



PORTAGE COUNTY AMATEUR RADIO SERVICE

PCARS K8BF

The Club that puts the FUN in Ham Radio!

ARRL SPECIAL SERVICE CLUB

John, I miss you and the fun we had on the radio in the Park - when are coming back again?

PCARS Patches & Stickers

PCARS logo patches (***iron on***) & stickers (stick on) are now available!! Put the patch on your hat, your shirt, your jacket and show off that PCARS logo!! The patch is about 3". The embroidery on the white patch is in Red, Black and Blue. Cost for a patch is only $2.00 each and can be obtained at any PCARS meeting. There are 2 types of stickers available - a 4" x 6" oval and a 3" x 10" bumper sticker. Stickers are $1 each. Show your pride in PCARS - Wear a patch, use the stickers! See the club Treasurer: **Paul, KE8EGF** or e-mail him at: phyland@neo.rr.com

Happy Birthday PCARS Members

PCARS members having their birthday in **October:**

W3MLS	Michelle
N8WCP	Michael
KD8IUA	Michael
KD8MQ	John
W8NET	Gene
KD8EPG	Ken
KE8EGF	Paul
KD8MLE	Jonathan
WA8SAJ	Jeff
KE8VS	Vern

K8SWJ	Scott
WA8AR	Tony
W8GWI	David
K8AAB	Bob
W8DMH	Dennis
K8CAV	Rick
KC8RKD	James
KD8WHA	Aaron
K8DER	Donald

PCARS IO Group

Members are reminded that PCARS has a IO Group site dedicated to PCARS. It's a great site to sign up for and get on the mailing list for important PCARS information.

Check out the PCARS IO Group at:
https://groups.io/g/PCARS

Two things every member should do.

1. Check the PCARS web site every day, maybe a couple of times a day, to see new info that's posted.
2. Join the PCARS IO Group. That's a great place to post message when you are looking for information or have a question about something. Try it - you just may like it!!

2021 Huntsville Hamfest Youth Forum

Carole Perry, WB2MGP
RCA Youth Activities

When Mark Brown N4BCD invited me to moderate the Huntsville Hamfest Youth Forum back in March, I had serious concerns about his vision for the in person Hamfest working out. Due to the many concerns of the pandemic, I had not attended even the smallest of ham radio events for more than 18 months. I proceeded to invite 4 of my RCA Young Achievers to give presentations on August 21st.

Huntsville Hamfest is known for its excellent hospitality and for being the "friendliest Hamfest." I tend to agree. I have always enjoyed my experience there. Dayton Hamvention and Orlando Hamcation along with Huntsville have always provided excellent venues for showcasing our best and brightest young hams at my Youth Forums. I made the decision to attend and was pleased that RCA would be having a booth there as well. Ernie Blair WA4BPS and Stan Reubenstein WA6RNU, both members of my RCA Youth Activities committee and I were at the booth greeting local RCA members and welcoming new ones.

Two of my young presenters Ryan, KN4VKW and Blake, KN4VKY Pearson ended up participating in the Little League World Series and so could not attend. We did get to enjoy the terrific presentation of Audrey, KM4BUN and Jack, KM4ZIA McElroy who shared how young hams can get involved and have "Fun with Hot Air Balloons and Ham Radio."

I was happy to have a receptive and supportive audience for our best and brightest, talented young hams. It was a good decision to attend the Huntsville Hamfest and to see vendor friends and a nice turnout of hams at this friendly Hamfest.

Swap-N-Shop

FOR SALE: Yaesu FT-817ND QRP HF through UHF all-mode transceiver. Original owner. Includes: FT-817ND Transceiver; MH-31 Microphone; Power cable with Anderson Powerpole connector; PA-48B AC adapter; FNB-85 NI-MH battery (installed); 8 cell battery box; Factory manual and spare printed manual; Carrying case; carry strap; original factory box; RT Systems ADMS-4AU programming software and USB-62B programming cable. $400.00

Contact: Rick K8CAV email: k8cav.coms@gmail.com [01/02/22]

WANTED: Icom IC-9100 or **IC-910** (and maybe an **IC-9700)**. Must be clean looking and working. Want to use them for FT8 and maybe satellite work. Also looking for a **2 meter Amplifier** (30 to 40 watts in, and 160 watts out). What have you got?

Contact: Richard, KA8OAT - phone 330-506-7068 [01/02/22]

FOR SALE: Yaesu FTdx-9000MP Top of the line HF & 6m rig - Dual RX, Dual Meters, 400 Watts, , 3 roofing filters. Pristine condition, includes dual speaker/power supply, manual, original boxes - over $10,600 new - sell for $3,900 **Yaesu Quadra Amplifier VL-1000 -** HF-6 - 1000 watts - works great - includes all cables, manual, original boxes - $1,800 **Yaesu MD-200 Microphone** - perfect for the Yaesu HF radio - includes original box - $150 **Heil GM-5 microphone -** Includes Yaesu adapter cable and Heil Desk Stand - $95 Must sell - Downsizing my station - Low use on all the equipment, always kept clean, covered and neat.

Contact: Jeff, K3EMB email: jwinters510@gmail.com or call 216-233-6551 [12/02/21]

FOR SALE: Rick Tenan WA8TSI - SK Estate Items for sale. Complete Drake "B-Line" station in museum quality condition: R4B Receiver, T4XB Transmitter with custom cover, MS-4 Speaker and Cabinet with custom cover, MN-2000 Tuner with custom cover, AC-4 Power Supply and connecting cables, Drake W4 wattmeter, Shure 444 Microphone, Items were serviced and brought up to top operating condition by Jeff Covelli. **$1200 for the complete set. Separate items are not for sale.** Most manuals included. **Yaesu FT-990** HF Transceiver in excellent condition. MD-1 mic and manual included. $750 **Kenwood TS-820** HF Transceiver in excellent condition with manual. VFO-820, SP-820 and MC-50 mic and connecting cables included. $ 650 **Heathkit SB-1400** HF transceiver and SBA-1400 speaker/ps in mint condition. $300 **Heathkit HX-30** 6 meter transmitter and HA-20 Amplifier in average condition. Includes Comair LM-6N2C 6 and 2 meter manual tuner in fair condition. $450. **Heathkit HO-10** Monitor Scope in good condition. $ 50. **Astron RS-50M** DC pwr supply in excellent condition. $250. **Radio Shack 22-510** 25a switching power supply. $75. **Allied-Radio Shack AX-190** HF ham band receiver in very good condition. $150 **Siltronics (SWAN) FS-301** SWR meter with 1000w and 20w scales in good condition. $50 **Radio Shack Pro-2044** Scanner. $35 **Royce 2-100** Field Strength & SWR meter. $15 **Midland 23-135B** Field Strength meter. $10 **Lafayette Telsat SSB-75** SSB and AM transceiver. $50 **Vibroplex 40135** Iambic key in "like-new" condition. $75 **Radio Shack HTA20** 2 meter mobile transmit amp. $60. **SGC SG-239** HF Smartuner. $125 **DSI-5500** 50hz-512mhz frequency counter. $60 **MFJ-260C** dummy load. $45 **MFJ-1702** 2 position coax switch. $35 **MFJ-945D** Mobile tuner. $90 **MFJ-945E** Mobile tuner. $125 **MFJ-949E** Deluxe Versatuner II. $125 **MFJ4225MV** 25A power supply. $50 **"On the Air"** sign Large backlit. $50 **RCI-5054** 6m SSB transceiver. $190 **J-38 style straight key** mounted to heavy base. $45 **CSH-A4S Beam** with optional A-744 driven element for 40 meters. It may need some adjustments. $75. **Diamond X200** vertical for 2M and 70CM. $100 **Ham IV rotator and controller**. $450.

Contact: Dave Fairbanks, N8NB at 330-501-5031

Leave a message if I am not available. All proceeds go to Pam Tenan. [01/02/22]

For Sale or Want Ad policy reminder: This is a PCARS ***members only benefit***. Please don't ask to list items for a friend, relative or SK estate unless they are/were a member of PCARS. Requests come in from all over the USA (and beyond) to list items for sale or wanted items and we just cannot dedicate that much space to non-members. Listings are good for 3 months unless canceled or changed earlier. The date listed after the contact information tells you when the ad expires - example: [01/02/22] indicates the ad will run until January 2, 2022.

OSPOTA 2021

Tom, KB8UUZ
OSPOTA Chairman

Hello OSPOTA fans and participants,

The 2021 **Ohio State Parks On The Air** contest (OSPOTA) is history - on September 11th many of you made the trip to one of the beautiful Ohio State Parks to set up and get on the air. We were listening for you! Plus other hams from around the USA were also tuning in to catch the OSPOTA Park Stations that were on the air. So far, all seems to have gone really well.

The weather was perfect - no rain and not cold. If you have not sent in your photos and stories, please do so as soon as you can so they are included in the final OSPOTA results article. Send your inputs to logs@ospota.org

There are over 75 entries sent in and the log and summary sheet verifications have been started. The OSPOTA Contest Committee hopes to have all the results tallied, checked and finalized by the end of October to be published in the November issue of this newsletter. **Stay Tuned** !!

From the CQ Blog

Posted by CQ Newsroom

Hikin' and Hammin'

The route of the Appalachian Trail
(from atontheair.com)

If you're an "OTA" fan, mark your calendar for the Appalachian Trail On The Air event on Saturday, October 2, from 1200-2100 UTC. Hams with portable stations will be activating various points along the 2,190-mile trail, which stretches from Georgia to Maine, according to a report on *Newsline*.

Since the trail generally follows the ridgeline of the Appalachian Mountains and many of its segments are in national or state parks, many of the activations will also count toward Summits on the Air (SOTA) and/or Parks on the Air (POTA) award programs. For more information or to register to be an activator, visit <https://atontheair.com/> or e-mail <ATontheair@gmail.com>.

PCARS Thursday 2 Meter Nets

Greg, KA8TOA
Net Control Coordinator

Thank you all for helping with this! Anytime you are unable to take the net, please give me as much advance warning as possible! **Check-in using the receiver located in Sugar Bush Knolls ~ 146.895 with a PL tone of 118.8**. **We also use EchoLink node K8BF-L**

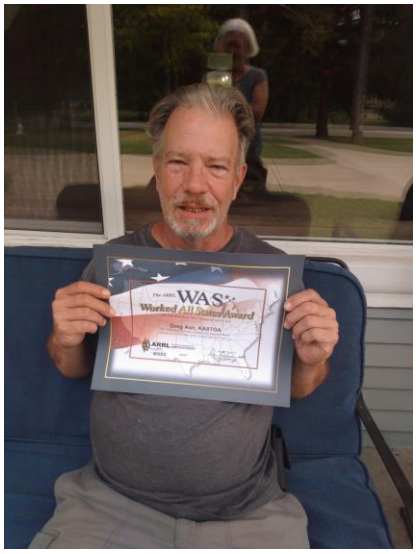
The net control dates will be posted on the Club website. An email will be sent out after the posting. As usual if there are issues please contact me via the roadrunner email address.
Thanks to all of you for helping out.

73 - Greg, KA8TOA - Net Control Coordinator

October	
7	N8QE
14	K8YLK
21	N8WCP
28	N8AMY

November	
4	N8WCP
11	KD8WCK
18	N8AMY
25	No Net

December	
2	N8QE
9	N8WCP
16	WB8LCD
23	KA8TOA
30	KE8BWA

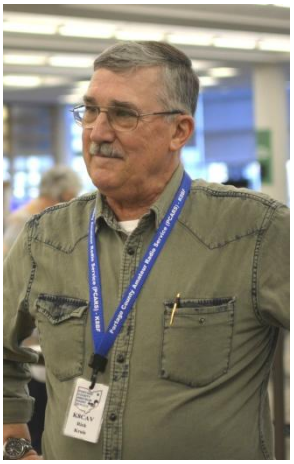


The PCARS net is **BIG *Fun*** - tell your friends to check in via RF or EchoLink!

Editor's Note: Greg sent me this photo he recently had taken -

***CONGRATULATIONS* to Greg, KA8TOA for achieving the ARRL Worked All States Award !!!**

Flex Net

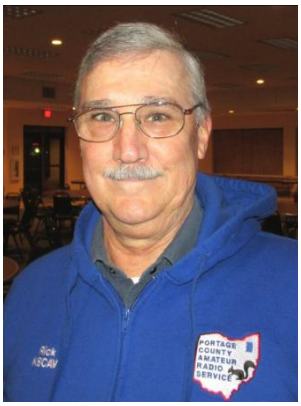


Rick, K8CAV
Flex Net Coordinator

Last month the PCARS Flex Net was conducted on 20 meters using the digital mode Olivia 8-500 and was very successful. We had fewer check-ins than I had hoped for but we had fun and that's what counts! As is typical for our Flex Nets, not all stations wanting to check in were heard by NCS but Mike N8WCP was able to effectively relay those I could not hear. Thanks to Mike N8WCP, Mike KB8TUY, and J.C. KC3JXQ for checking in and making it a K8BF fun net!

Next month's net will be a phone net on 2 meters. The net will take place on Wednesday October 13th at 8:00 PM on 146.550 MHz simplex, mode FM. This is a great opportunity for all of our Technician members to get their feet wet in simplex net operations, and for everyone to polish their skills in relaying communications when necessary. I hope you'll take the time to check in and have fun!

Mantua Potato Stomp



Rick, K8CAV
Portage County Comms Unit

On Saturday September 11th the Mantua Potato Stomp race held its annual four-mile and nine-mile race in Mantua and Hiram townships. This year the event course was changed so that almost all of it was run on the Headwaters Hike and Bike Trail which is part of the Portage County Parks District.

Amateur radio operators from the Communications Unit of the Portage County Office of Homeland Security/Emergency Management, and the Portage County Amateur Radio Service provided communications for the Race Director for the event. Communications support was provided by establishing a net on the K8IV 444.575/449.575 repeater. This repeater has excellent coverage in the race area using just hand-held radios. A Net Control Station opened a directed net and radio operators were stationed at road and trail junctions throughout the course. The COML shadowed the Race Director and a sweep was established to follow the last runner in the race. Due to most of the event taking place on the Headwaters Hike and Bike Trail, providing a sweep using a motor vehicle was not possible so one volunteer performed this function by bicycle.

All of the radio operators in this event performed very professionally. The net was disciplined and concise, and provided the Race Director with timely information about first and last runners along with any other information asked for by the Race Director. As is the case with most of these types of events, there were no instances where radio operators had to request assistance for injuries but observation by one operator led to an alert to NCS that possible assistance to one runner might be required. Follow-up by sweep and subsequent locations kept the Race Director informed of the situation. The Race Director was very appreciative of the communications network established by Amateur Radio and expressed her thanks to all of the radio operator volunteers.

Providing communications support to public service events such as this could not happen without amateur radio operators volunteering to help. Giving their time not only helps support a valuable service to public service event directors, it also puts the face of Amateur Radio directly in front of the public to help maintain the image of Amateur Radio as a service organization. I want to thank the following amateur radio operators for volunteering their time and skills to support this event. Nick N8WLE, Bob N8KBX, Ron W8AHC, Paul KE8EGF, Rick KD8WCK, Brandon KE8ARB, Mike KB8TUY, Terry KC8TUE, Sandy KD8JCY, Andrew KE8BWA, and Norm KE8HQK.

PCARS Custom Coffee Cups - Limited Edition- Almost Gone

PCARS has obtained a limited number of special, custom made coffee cups that are available only to members.

Supply is limited. If you are a current (PAID) member of PCARS you get one coffee cup for **FREE** !! The only catch is you have to claim it from the **Treasurer - Paul, KE8EGF**.

Paul has a list of current members and will check off your name when you get your **FREE** PCARS coffee cup.

There are a ***very* limited number of extra coffee cups** and they are for sale at $5.00 each.

Contact Paul for all of the details: Treasurer@portcars.org

Bottom Cycle Blues

Scott - N3RA spotted this on YouTube:

This is a little tune about my love for the hobby of Ham Radio!
AE3RM - Written and recorded by Raul Midón

https://www.youtube.com/watch?v=cq9hzqD3_Ow

Hamfest Calendar

10/2/2021 - 10th Annual Vette City Hamfest, ARRL Great Lakes Division Convention
----- CANCELLED due to COVID concerns -----
Location: Western Kentucky University Knicely Conference Center - Bowling Green , KY

10/31/2021 - Massillon Hamfest - Location: Green, OH - Sponsor: Massillon Amateur Radio Club - Website: http://w8np.or Learn More http://www.arrl.org/hamfests/massillon-ohio-hamfest

JOTA-2021

John, KJ3X

What is JOTA?

When Scouts want to meet young people from another country, they usually think of attending a World Jamboree. But few people realize that each year more than a million Scouts and Guides "get together" over the airwaves for the annual Jamboree-on-the-Air (JOTA). During the 2014 event, worldwide Scouting participation included 1.1 million Boy Scouts and 200,000 Girl Guides/Gils Scouts, for a total participation of over 1.3 million--the largest Scouting event in the world.

Modern technology offers Scouts the exciting opportunity to make friends in other countries without leaving home. JOTA is an annual event in which Boy and Girl Scouts and Guides from all over the world speak to each other by means of Amateur (ham) Radio. Scouting experiences are exchanged and ideas are shared via radio waves. Since 1958 when the first Jamboree-on-the-Air was held, millions of Scouts have met each other through this event. Many contacts made during JOTA have resulted in pen pals and links between Scout troops that have lasted many years. With no restrictions on age or on the number of participants, and at little or no expense, JOTA allows Scouts to contact each other by ham radio. The radio stations are operated by licensed amateur radio operators. Many Scouts and leaders hold licenses and have their own stations, but the majority participate in JOTA through stations operated by local radio clubs and individual radio amateurs. Some operators use television or computer-linked communications.

How do we take part?- First, contact a local Amateur Radio operator or club to ask for assistance. If you need help finding a club in your area check the **ARRL Affiliated Club Search** page. The **FCC License Data Search** also lists amateurs and clubs in your area (enter your zip code only). Radio amateurs are enthusiastic about their hobby and most will be willing to help you participate in JOTA. The radio operator may suggest that the Scouts visit his/her station or that the operator bring equipment to your local campsite. Often, JOTA stations are set up in unusual locations, such as the top of a mountain, or on a boat.

Licensing Regulations that Apply- Ham radio operators have obtained a radio transmission license by passing an exam given by national authorities. License conditions vary from country to country and Third Party Agreements regulating communications apply. Please consult the list of **Third Party Traffic Agreements**. To review FCC control operator rules, refer to the discussion of **control operator rules** as it pertains to Field Day operation.

BSA JOTA /JOTI Resources and Information- Visit the **Boy Scouts of America JOTA information page** for a wealth of information to help you plan and publicize your event as well as details on ordering JOTA cards and patches and the BSA JOTA report form to download and print. You'll find operating guidelines and recommended frequencies for operation in the U.S. and a a registry of stations planning to participate. Use the online form provided to register your station and operating plan!

Information about the Jamboree on the Internet can be found on the **JOTI information page**.
https://www.scouting.org/international/jota-joti/jota/

Oct 15-17th, most activity will be the 16th, but there will be DX stations on the evening of the 15th. I'm sure they will be on DMR and other digital modes.

D-STAR - http://www.dstarinfo.com

REF033A has been allocated as a full-time JOTA/Radio Scouting D-STAR Reflector. After contact is established, stations should disconnect from REF033A and connect to one or other repeater or migrate to an unused Reflector. SIMPLEX Channels: 145.670*, 145.640, 145.610, 438.010. * 145.670 and 438.010 are commonly used as the National D-STAR Simplex Channels and should be used only as Calling Channels for JOTA. Always listen first to avoid interfering with another QSO.

DMR - http://www.dmr-marc.net

All wide area talkgroups are permitted for use for JOTA for establishing contacts. After contact is established, stations should utilize as few resources as possible. For international, national, and regional QSO's, stations should move their transmissions to one of the DMR-MARC UA talkgroups or to the DCI TAC-310 talkgroup.

EchoLink - http://www.echolink.org

Software or apps available for Windows, Mac, iPhone/iPad, and Android. Dedicated Conference Node *JOTA-365* (node 480809). When contact is made on a Conference Node, it is recommended the two parties establish direct contact with each other to free up the Conference Node.

Cooperative Statewide AR Licensing Classes

Many local Amateur Radio clubs often run licensing classes. These are very important to maintaining and increasing the number of licensed hams in the US. They also play an important role in the recruitment of new members into local clubs. Quite often these classes have only a minimum number of attendees in comparison to the amount of work put in by the club members that teach the classes. They have to find (sometimes also pay rent for) a place for the class and handle other aspects of teaching.

COVID has also been a factor complicating in-person classes. Last year our club, Cuyahoga Falls ARC- www.cfarc.org) decided to take our Tech and General Licensing Classes online. We used Google Meet for online conferencing and Google Classroom to manage the class, distribute materials, provide sample quizzes, share resources, etc. We had a combination of local students, wider-ranging Ohio students and students from three other states. We will be doing this again this year and would like to involve your local club.

Our plan is to do our usual local recruitment of students for the classes but we would also like to enlist your local club's help in recruiting candidates from your local area. The big difference is we will refer any students from your

area of the state to your local club for membership and most importantly in-person mentoring (Elmering). Even if you do not refer to them, if we have students from your area we would like to know that we can refer them to you for membership and Elmering.

What we will do:

1. Provide free online Tech and General Class Licensing instruction
2. Accommodate students from around Ohio and US of all ages
3. Welcome resources, handouts, recordings, guest lecturers, etc. from other clubs
4. Provide a sample news release you can modify for your local media
5. Refer all students completing the classes to radio clubs and VECs in their local area
6. Advertise the class on ARRL website and locally

The Tech License classes will begin Sunday, Oct 10th and run for six weeks. Classes are 1:30 to 4:00 PM and all students must pre-register. The General License classes are not yet scheduled but will run in January/February 2022

Resources/Links

- Class Info- link (https://docs.google.com/presentation/d/e/2PACX-1vQU9aeMBjS5jeJn_Zz5bpxiFNKOdGkGePYGbXe_hk96aE2iabOZWtFcn4ONEdqMwsdnR6KTUQ4_jWNK/pub?start=false&loop=false&delayms=3000)
- Class Registration- link (http://tiny.cc/cfarc-tech)
- Sample News Release (a Google Doc that will make a copy and you can edit for your local media)- link
- Contact Information
    - **Anthony Luscre, K8ZT k8zt@arrl.net 330-650-1110**
    - **Jim Grover, N8PZL n8pzl@arrl.net 330 928-8921**

Please contact us if interested in participating k8zt@arrl.net

Hamvention® 2022 - 'The Reunion'

Rick Allnut, WS8G
Hamvention® General Chairman
From the DARA Newsletter

I don't know if you have ever attended a reunion for a high school class, or a military group, or a group of kindred folks. If you did, you probably had fun catching up with old friends and meeting people whom you barely remember. Some of the people you paid little attention to those many years past had become famous, some of the people you liked were still close to you. Some of the people you used to avoid had mellowed and become a pleasure to get to know afresh. Some of the people you knew well, "back in the day," had died too young and were conspicuous by their absence. Some people who once seemed immature had grown up into amazing people who were a pleasure to talk with in the present.

It has been way too long since we had a gathering of the world's best and brightest amateur radio operators. COVID-19 caused the Dayton Amateur Radio Association to cancel two years' worth of Hamventions. Because of this, we have a lot of catching up to do.

Hamvention® 2022 - There will be friends with new call signs, who were Technicians when last seen, now sporting Amateur Extra calls. Some of the people giving forum presentations will seem incredibly mature compared with the way we remember them from a few years ago. It's amazing how much a ham can learn in a couple years. A whole caboodle of new radios, kits, tools, and techniques are mature now compared with 2019, and will be demonstrated to learners and buyers.

We will find time to think fondly of friends missing, struck down by a pandemic which has caused more death and suffering than the world-wide 1918 influenza epidemic. There will come an appropriate time, with close friends all around, to raise a glass to their influence and impact to our lives.

It looks like the international borders are opening and it appears that international hams will be able to attend the May 2022 Hamvention®. Many of them have had higher risk of infection than we have in the United States, and getting immunized has been much harder. It will be good to welcome them back to the dinners, activities, and booths again. I challenge all DARA members to contemplate what it will be like to see all these visitors, both from overseas and from the United States, again. Imagine the cheer, the fun, the learning, the joking, the congratulations, and the simple acts of sharing our lives with each other again. We call it **The Reunion**!

Portage County Amateur Radio Service

PORTAGE COUNTY AMATEUR RADIO SERVICE

ARRL AFFILIATED CLUB

ARRL SPECIAL SERVICE CLUB

K8BF

2018 Hamvention® Club of the Year

From the ARRL

Katherine Forson, KT5KMF, Receives the 2021 ARRL Hiram Percy Maxim Memorial Award

Increasing the interest and participation in amateur radio of those younger than 21 remains a primary effort of ARRL. Underscoring that focus is ARRL's annual bestowing of its premier award, the Hiram Percy Maxim Memorial Award, on a young member whose contributions to both amateur radio and her local community embody the ideals of the Amateur Radio Service.

The recipient of the 2021 Hiram Percy Maxim Memorial Award is Katherine M. Forson, KT5KMF, of Plano, Texas. A Technician in 2013 at the age of 9, a General in 2017, and an Amateur Extra in 2018, Katherine's enthusiasm resulted in her appointment as the North Texas Section Youth Coordinator in 2019.

She is an active member of the Plano Amateur Radio Klub and Collin County RACES, and a trained National Weather Service SKYWARN Storm Spotter; she has been profiled as a *QST* "Member Spotlight," participates as an amateur radio operator in public service events, such as the Plano Balloon Festival, and is currently working with several other female members of the ARRL North Texas Section to help build a female-friendly area of the ARRL NTX Section website.

When not on the radio, Katherine is active in her school and community. A senior at Plano West Senior High School, she carries a 4.46 grade-point average and is a member of the National Honor Society, the Spanish Honor Society, and her high school band. She won second place in the Dallas Regional Science and Engineering Fair, and placed second in the physics and astronomy category at the Texas State Science and Engineering Fair. She serves as a children's lector at her church, and is a Dallas Meals on Wheels volunteer.

The Hiram Percy Maxim Memorial Award consists of a $1,500 cash award and an engraved plaque. West Gulf Division Director John Robert Stratton, N5AUS, and North Texas Section Manager Steven Smith, KG5VK, will present Katherine with her award at the September 20, 2021 meeting of the Plano Amateur Radio Klub.

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ARRL Board Establishes Program to Cover Initial FCC License Fee for Young Applicants

The ARRL Board of Directors has formally endorsed a proposed program calling on ARRL to cover the $35 application fee for license candidates younger than 18 years old. The FCC is not expected to implement the $35 application fee schedule until sometime in 2022. The Board approved the "Youth Licensing Grant Program" at its July meeting in Windsor, Connecticut. The program concept, first raised at the Board's annual meeting in January, was reviewed by an ad-hoc committee, which expanded the scope of the original motion by ARRL Southeastern Division Director Mickey Baker, N4MB.

Goals of the program include expanding the reservoir of trained operators, technicians, and electronics experts within the amateur radio community, and removing a financial obstacle to young people who wish to

acquire an amateur radio license, as a means of encouraging potential careers in science, technology, engineering, and mathematics.

Under the program, ARRL would cover a one-time $35 application fee for each qualified candidate who passes one or more amateur radio exams taken on the same day at a single examination session. Tests would have to be administered by a Volunteer Examiner (VE) team working under the auspices of the ARRL Volunteer Examiner Coordinator (VEC). Qualified candidates would also pay a reduced exam session fee of $5 to the ARRL VEC.

The new program would also "enhance ARRL's position as the leader in volunteer testing," the Board motion said. "The Board believes that the recruitment and training of young amateur radio operators is a necessary mission of ARRL, and that subsidization of the $35 fee will reduce the number of new amateurs that otherwise would be lost from these groups," the Board said.

The Board said ARRL Headquarters staff would determine the method of qualifying applicants and instruct VE teams, giving the teams flexibility to determine that a candidate is eligible for reimbursement in the absence of documented proof. The Board envisioned that the VEC would pay the FCC directly. The new program would initially serve up to 1,000 new license applicants younger than 18 years old.

The motion gave ARRL staff "complete latitude" to determine how payment is delivered to the FCC or to reimburse eligible applicants. This program length is indefinite; it may be renewed or terminated by the Administration and Finance Committee or by the Board of Directors. The motion carried with applause from Board members.

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ARRL Board of Directors Bestows Awards

The ARRL Board granted several awards at its July 2021 meeting.

- The ARRL Doug DeMaw, W1FB Technical Excellence Award went to Steve Franke, K9AN; Bill Somerville, G4WJS, and Joe Taylor, K1JT, for their July/August 2020 *QEX* article, "The FT4 and FT8 Communications Protocols." The DeMaw award honors the author of an article or article series judged to possess the highest degree of technical merit in ARRL periodicals for the past year.
- John Levo, W8KIW, of Hillsboro, Ohio, was designated as the recipient of the 2021 ARRL Philip J. McGan Memorial Silver Antenna Award. This award honors a Public Information Officer who successfully promotes all aspects of amateur radio that enhance the understanding of amateur radio's contributions to education, public safety, and recreation. The Board said Levo's efforts over time have captured "the many avenues of opportunities of amateur radio as a hobby, an education tool, and a service for public safety."
- The 2021 ARRL Technical Service Award 2021 award recipient is James Baxter, K0UA, of Branson, Missouri. The Board said Baxter "exemplifies the spirit of this award due to his diligent work assisting hundreds of hams to get on the air, particularly with FT8, and by spending countless hours on web sessions with them to work out their configuration issues, show them best practices, and to help track down RFI issues."
- The Board bestowed the 2021 ARRL Technical Innovation Award on Steve Haynal, KF7O; Wojciech Kaczmarski, SP5WWP, and Roger Clark, VK3KYY. Haynal was cited as the instrumental and driving force behind the Hermes Lite 5 W HF SDR transceiver as a fully open-source hardware and software project. Kaczmarski was recognized for developing the open-source digital radio communication protocol M17, leading to the development of *DROID-Star* (an Android application) by Doug McLain, AD8DP. Clark was cited for spearheading a successful effort to augment a low-cost handheld radio for use by visually impaired operators, significantly lowering the cost of entry for such amateurs.

- The 2021 Herb S. Brier Instructor of the Year Award went to David Ritter, ND4MR. ARRL sponsors this award in conjunction with the Lake County Indiana Amateur Radio Club in Brier's memory to recognize superior amateur radio instruction and recruitment. An ARRL Member for nearly 40 years, Ritter is an ARRL Registered Instructor and a full-time faculty member at Wilkes Community College in North Wilkesboro, North Carolina, where he's been the lead -- and sole -- Technician licensing course instructor since 2010.

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Nathaniel Frissell, W2NAF, Awarded $481,260 NASA Research Grant

Ham Radio Science Citizen Investigation HamSCI founder Nathaniel Frissell, W2NAF -- an assistant professor in The University of Scranton's Physics and Engineering Department -- has been awarded a $481,260 grant through the NASA Space Weather Applications Operations Phase II Research Program. Frissell will serve as principal investigator for a research project entitled, "Enabling Space Weather Research with Global Scale Amateur Radio Datasets." He'll collaborate with Philip Erickson, W1PJE, of the Massachusetts Institute of Technology Haystack Observatory and Bill Engelke, AB4EJ, at the University of Alabama.

"This grant includes significant funding for participation of Scranton undergraduate students in this research, as well as support for new computation resources," Frissell said. He explained that the grant will fund "the development of an empirical model for the prediction of traveling ionospheric disturbances (TIDs) in high-frequency radio communications while investigating the geophysical drivers of these disturbances." The grant will cover 2 years of work.

Frissell said that the predictive, empirical TID models will be developed using data collected by the Reverse Beacon Network, WSPR, and PSKReporter -- automated, global-scale radio communication observation networks operated by the amateur radio community. Undergraduate students will help the faculty researchers to create algorithms used for the model development.

This new NASA award complements a 5-year National Science Foundation grant of more than $616,000 that Frissell received in 2020. That investigation aims to understand the source of TIDs observed in amateur radio and other scientific datasets.

In 2019, Frissell received a $1.3 million National Science Foundation grant to fund a 3-year initiative to measure modulations produced in the Earth's upper atmosphere. This is Frissell's second NASA grant. Read an expanded version.

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August 2021 Volunteer Monitor Program Report

The Volunteer Monitor (VM) Program is a joint initiative between ARRL and the Federal Communications Commission (FCC) to enhance compliance in the Amateur Radio Service.

- Licensees in Pawcatuck, Connecticut; Wamego, Kansas; Valley Cottage, New York; Long Valley, New Jersey; Columbia, South Carolina, and Maryville, Tennessee, were sent Advisory Notices concerning operation on frequencies that were set aside for Haiti earthquake emergency communications by the International Amateur Radio Union (IARU) Region 2 Emergency Coordinator.
- Licensees in Prineville, Winston, Silver Lake, and Roseburg, Oregon; Sioux Falls, South Dakota, and Houston, Texas, were sent Advisory Notices concerning failure to identify, as required by Section 97.119(a) of the FCC Amateur Radio Service, pursuant to a nationwide rule compliance review of operations on 3.819 MHz and 3.953 MHz.
- A former licensee in Seabrook, Texas, was sent an Advisory Notice concerning operation with an expired license.

- An FT8 operator in Orion, Michigan, was sent to an Advisory Notice reminding him of the 200 W power limit on 30 meters.
- A licensee in New Caney, Texas, was sent a final notice that his case was being referred to the FCC for license revocation or deletion of voice privileges from his license.
- A Good Operator commendation was sent to an operator in Roseville, California, for Exemplary Amateur Procedure on May 21, 2021, during the 40-meter California Rescue Communications Net.

The revised total for VM monitoring in July was 5,746 hours -- the highest number of hours monitored since the inception of the VM Program.

The IT staff at ARRL Headquarters completed work on an automated system for Volunteer Monitors to report monthly monitoring hours and Incident Reports. -- *Thanks to Riley Hollingsworth, K4ZDH, Volunteer Monitor Program Administrator*

The Volunteer Monitor (VM) Program is a joint initiative between ARRL and the Federal Communications Commission (FCC) to enhance compliance in the Amateur Radio Service.

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ARRL, RSGB Announce Joint Events to Celebrate Centenary of Ham Radio Transatlantic Success

ARRL and the Radio Society of Great Britain will jointly sponsor events to celebrate the achievement of transatlantic communications by radio amateurs 100 years ago.
In December 1921, ARRL sent Paul F. Godley, 2ZE, as its representative to listen for amateur signals from North America during the Second Transatlantic Tests. Setting up his listening station in Ardrossan, on the west coast of Scotland, Godley received the signals of more than 2 dozen US amateur radio stations, the first on December 12 (UTC) from 1BCG in Connecticut, operated by members of the Radio Club of America. The message read: "Nr 1 NY ck 12 to Paul Godley, Ardrossan, Scotland. Hearty Congratulations. (Signed) Burghard Inman Grinan Armstrong Amy Cronkhite."

These successful transatlantic tests and the ones that followed spurred technological advances and new global wireless distance records. Several amateur radio operating events this year and next will commemorate the centenary of these significant milestones that heralded the dawn of two-way international amateur radio communication.

Paul Godley, 2ZE

ARRL and RSGB will activate special event stations for 6 hours (0200 - 0800 UTC) on December 12 for the 160-meter Transatlantic Centenary QSO Party. RSGB will activate GB2ZE from Scotland, with a team of stations from the GMDX Group sharing operating duties. ARRL will activate W1AW. The stations will operate only on CW. If transatlantic propagation holds up, the stations may continue to operate beyond 0800 UTC.

The GMDX Group of Scotland will award a *quaich* -- a traditional Scottish drinking cup representing friendship -- to the first stations in North America and the UK to complete contacts with both W1AW and GB2ZE during the QSO party. A commemorative certificate will be available for download.

RSGB and ARRL are also organizing an international amateur radio marathon on the HF bands to

commemorate transatlantic tests held between 1921 and 1923. The Transatlantic Centenary Marathon will take place in December 2022. The objective will be to mark these historic events by encouraging all radio amateurs to get on the air. Event details are pending.

ARRL and RSGB have assembled a list of stations and groups that are also organizing events and activities to celebrate 100 years of amateur radio transatlantic communication. For more information, visit arrl.org/transatlantic and rsgb.org/transatlantic-tests. The sites also include links to many previously published articles and presentations covering the historic tests.

Additional events and commemorations include:

- **Radio Club of America (RCA) Transatlantic QSO Party**, 1200 UTC on November 13 to 0400 UTC on November 14, 2021 (16 hours total). The QSO party commemorates the contribution of members of the Radio Club of America who constructed and operated the 1BCG transmitter site in Greenwich, Connecticut, that sent the first message received by Paul Godley, 2ZE, in Scotland.
- **W1AW Commemorative Transatlantic QSL Card**. Stations making contact with the Hiram Percy Maxim Memorial Station, W1AW, between December 11, 2021, and December 31, 2022, qualify to receive a commemorative W1AW QSL card. US stations should QSL with a self-addressed, stamped envelope; international stations should QSL via the Bureau.
- **The 2021 ARRL 160-Meter Contest**, 2200 UTC on December 3 - 1559 UTC on December 5. This 42-hour, CW-only contest is most similar to the original Transatlantic Tests of the early 1920s. Stations in the US and Canada work each other as well as DXCC entities. RSGB is planning to activate one of the original call signs used in the Transatlantic Tests, with up to seven different prefixes from the UK and Crown Dependencies. Look for G6XX (England); GD6XX (Isle of Man); GI6XX (Northern Ireland); GJ6XX (Jersey); GM6XX (Scotland); GU6XX (Guernsey), and GW6XX (Wales).
- **Special Event GB1002ZE**, December 1 - 26, 2021. The Crocodile Rock Amateur Group (CRAG) based near Ardrossan, Scotland, will activate the special event station GB1002ZE to commemorate the successful reception of amateur transatlantic signals by Paul Godley, 2ZE, in 1921. The RSGB encourages stations in the UK and Crown Dependencies to append the suffix "/2ZE" to their station's normal call sign throughout the period, as authorized by UK regulator Ofcom.

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AWA Video: SSB was Slow to Catch On as a Ham Radio Mode

Hams are often early adopters of new technology, such as FT8, but this was not the case with single sideband (SSB) amplitude modulation. First referenced in Major General George Squier's 1911 patent that had nothing to do with RF applications, SSB didn't really catch on as a popular ham radio phone mode until the 1960s.

Antique Wireless Association (AWA) museum curator Ed Gable, K2MP, recounted "The History of Single Sideband" as part of the inaugural "AWA Shares" program, presented on August 19. Gable described Squier as an "early idea man" in the history of SSB at a time when hams had hardly adopted AM in *any* form.

As Gable explained, John Renshaw Carson built on Squier's patents to define the principles of SSB radio transmission theory, using a balanced modulator and filters. AT&T went all in with SSB, basing its first long-haul telephone system on the technology. Its SSB voice service to Europe, which kicked off in 1923, lasted for more than 3 decades. A receiving site in Scotland took advantage of Beverage antennas put in place for the ARRL transatlantic tests.

Gable credited Robert M. Moore, W6DEI, with introducing SSB to the ham radio community, through an article in *R9 Magazine* in the early 1930s. The technology remained more of a curiosity, however, in part because of the Great Depression, cost, and technical difficulty. Besides, hams of that era saw no real advantage to narrowband modes, since bands were not that crowded.

The mood began to change after World War II, though. In 1948, Oswald Villard, W6QIT, engineered the airing of SSB signals via Stanford University's W6YX, re-introducing the mode to a burgeoning and more technically savvy post-war ham community that included a lot of veterans. A 1950 *GE Ham News* article by Don Norgaard, W2KUJ, described plans for a 5 W, three-tube SSB transmitter he dubbed "The SSB Jr."


The Central Electronics Model 20A.

Expanding on this, Central Electronics' Wes Schum, W9DYV, built the first SSB exciter, the 10A, in 1952, and it became the company's first product, spawning a series of successor products that included a VFO based on a modified BC-458 military surplus transmitter, an "SSB slicer" for receiving, and even a linear. SSB equipment was neither inexpensive nor accessible, however.
"Cheap and Easy S.S.B." by Anthony Vitale, W2EWL, which appeared in *QST* in 1956, spoke to hams' attitudes, helping to advance the adoption of SSB among radio amateurs. Byron Goodman, W1DX, addressed receiver improvements with his *QST* article, "The Product Detector."

In the same decade, General Curtis LeMay, K3JUY/K4RFA, promoted the advantages of SSB to the military, heralding a phase-out of AM as the dominant voice technology. Many hams were not convinced of SSB's advantages, deriding the signals as sounding like Donald Duck. Adoption didn't really take off until the Collins KWM-1 came along in 1957. It was the first SSB transceiver to share receiver and transmitter circuitry. Heathkit, Viking, and B&W produced SSB adapters for use with current AM gear.


The Collins KWM-1 is considered the first "true" transceiver, sharing receive and transmit circuitry.

Other manufacturers including National and Swan came along to further boost adoption of the mode, and it wasn't that many years before SSB eclipsed AM as the predominant voice mode on the HF bands. https://youtu.be/BBRntPJTr5Y

The ARRL Letter

PORTAGE COUNTY AMATEUR RADIO SERVICE

PCARS K8BF

The Club that puts the FUN in Ham Radio!

ARRL SPECIAL SERVICE CLUB

Charlie the Tuner's HF High-Lites

Chuck, W8PT
a.k.a. "Charlie the Tuner

Greetings DXers:

Charlie the Tuner's DX High-Lites – October 2021

Three months to the end of another year. And what a year it has been. We thought by now we would be done with Covid but NOOOOOOO….! So I hope that all of you have been taking precautions and staying safe. I also hope that many of you have taken advantage of some of the milder WX and got things ready for winter. If you needed to get more strain relief on that wire antenna, then do it before the snow flies. You don't want ice to put you off the air. It's the same with coax runs and antenna drops. If you've been putting off some "minor" repair, get it done now while you still can without wearing your moutons and mukluks.

In NE Ohio we don't have the luxury of being able to just run outside in January to do a quick fix. So if you need a kick in the pants, please consider this as a mild but needed kick.

Soapbox has been put away now. I just don't want any of you to miss out on any weird openings as Cycle 25 gets cranked up. Yes I know it going to be winter and the bands are usually quieter at that time, but I've been around long enough to know that strange things do happen from time to time. Just saying….

Let's see what October has in store.

Thanks to the Northern Ohio Amateur Radio Society, Northern Ohio DX Association, Ohio/Penn PacketCluster Network, the AB5K's AR Cluster Networks, NJ1Q & W1AW, K3LR, NG3K & ADXO, W3OA, W3UR & The Daily DX, W4VQ, K8YSE, W8GEX & 60m DX News, DJ8NK, DL1SBF, DL7UXG & The DX News Letter, DXNews.com, DX-World.Net, F6AJA & Les Nouvelles DX, G7BZD, I1JQJ/IK1ADH & 425 DX News, OH2BH, Sixitalia Weekly, UT3UY and VA3RJ & ICPO for the following DX information.

And as always, this report "could" contain "Pirate/SLIM" operation or more likely a "BUSTED CALLSIGN". As always, you never know, so…….. - **"Work First, Worry Later".**

PLEASE NOTE: The fact that donation requests, from various DXpeditions, are at times included in this column does not mean that PCARS or this HAM approves or disapproves of donating to the DXpeditions listed. I am only providing information for you to make up your own minds as to whether or not to donate.

I know this is a DX column but…..
DXENGINEERING YOUTUBE PRESENTATION. Tim Duffy, K3LR, from DXEngineering, interviews John, K1AR, Director of the CQ WorldWide Contests. The video is just under 38 minutes, and is about the workings of the CQ WorldWide Contests which can be viewed at: https://www.youtube.com/watch?v=7GICdPFrdYI

October…

3DA0RU KINGDOM OF ESWATINI DXPEDITION (Update). Two operators have dropped out of the 3DA0RU team. They are Vladimir/RK8A and Albert/UB9WLJ. No reason was given, but this now leaves two spots open for operators. Contact Vasily/RA1ZZ or Vasily/R7AL if interested in joining the 3DA0RU team. Current list of operators are Nick/R5EC, Vasily/R7AL, Vasily/RA1ZZ, Leo/RW9JZ, Slav/OK8AU and Wlodek/SP6EQZ. They plan to be active as 3DA0RU from Eswatini between October 22nd and November 8th. Activity will be on 160-6 meters using CW, SSB and FT8 (F/H). QSL via R7AL or ClubLog's OQRS (preferable).

5B, CYPRUS. Paul, SA6PIS, will be active as 5B/SA6PIS from Fig Tree Bay, a sandy beach resort of Protaras, Cyprus, between October 19-31st. Activity is a holiday expedition for the WWFF award using a portable station. QSL via his home callsign, direct or by the Bureau.

5H, TANZANIA (Reminder). Maurizio, IK2GZU, will once again returned to "Mission Ilembula" to do some volunteer work at the Ikelu hospital and orphanage until Nov 20th. He plans to be active during his spare time as 5H3MB on various HF bands using CW, SSB, RTTY and FT8. Maurizio will use his FT-891 and dipoles GP for 10 MHz. QSL via IK2GZU, direct, by the Bureau & ClubLog. Also, QSL via LoTW (after his return home) and eQSL.

5U, NIGER, Adrian, F4IHM will be QRV as 5UAIHM from Niamey until October 22. Activity will be on 40 and 20 meters using CW and SSB. QSL to home call.

6W, SENEGAL, Dani, EA4ATI is QRV with his temporary call sign 6W1/EA4ATI and here for about three months. He is active on 80 to 10 meters using mainly SSB. QSL via EA4R.

8Q, MALDIVES (Reminder). Nobby, G0VJG, will once again be active as 8Q7CQ until October 13th. This will be his third trip there, but this time he will be active from the Island of Innahura (AS-013). Activity will be on 80-10 meters (this now includes 60m) using SSB and the Digital modes. His equipment will be a FT-450D or FT857 with a JUMA 1000 watt amp into HF6V Butternut vertical for the HF bands and a link dipole. QSL via M0OXO's OQRS or direct.

A3, TONGA, Masa, JA0RQV is QRV as A35JP from Tongatapu Island, IOTA OC-049, until October 31. Activity is on 80 to 6 meters using CW, SSB, and FT8. QSL to home call.

D2, ANGOLA. Mikalai, UT6UY, is now active as D2UY from Cabinda, Angola, for several months. Activity is limited between 1600-2300z on 20/15/10 meters using CW only because of very strong local QRM on low bands. He using a Yaesu FTDX-10 into a vertical antenna. QSL route is TBA later.

DQ850, GERMANY (Special Event). Members of the DARC local association Schwerin (V14) have activated the special callsign DQ850DOM to celebrate the 850th anniversary of the first consecration of the Schwerin Cathedral. Activity will last until November 30th, with operations on 160 meters and up including the QO-100 Satellite using CW, SSB, RTTY, FT8 and other Digital modes. A free downloadable diplomas (Gold/Silver/Bronze) are available free of charge in PDF format. See QRZ.com for details. QSLs will be automatically sent via the Bureau after the activity – PLEASE do not send your own QSL! Logs will be uploaded to DCL and ClubLog.

JX, JAN MAYEN, Operators LA7GIA, RA9USU, DL5EBE, LB1QI and EA3HSO are QRV as JX0X from Kvalrossbukta, IOTA EU-022, until October 5. Activity is on the HF bands using all bands and modes and with four stations active. QSL direct to UA3DX.

K7, UNITED STATES (Special Event). Members of the Central Arizona DX Association (CADXA) will activate the special event station K7UGA from Arizona honoring the late Senator from Arizona Barry M. Goldwater between Oct 4-8th. Activity is expected to be on all bands and modes. QSL via K7BHM (w/SASE). For more details, see QRZ.com.

KH9, WAKE ISLAND. Several sources are reporting that Stacy, KK4WZI, will be active as KH9/KK4WZI from Wake Island (OC-053) in a few weeks. Length of stay was not mentioned. He is going there to work and is expected to return every 6 months. Activity will be on 40-10 meters using mostly FT8/FT4 (possibly SSB) with a Yaesu FT-891 transceiver, Yaesu ATAS 25 antenna, and possibly vertical for 40-10m. Hopefully, more details will be forthcoming.

P4, ARUBA. John, W2GD will be QRV as P40W from October 18 to 31. Activity will be on the various HF bands, with some focus on the 30, 17 and 12 meters and 160 meters using mostly CW. His activity will also include an entry in the upcoming CQWW DX SSB Contest as a Single Op/All Band entry. QSL via LoTW or N2MM. No bureau cards.

R60-R*60, RRC ANTARCTIC TREATY SPECIAL EVENT STATIONS. To celebrate the 60th anniversary Antarctic Treaty Signature, the Russian Robinson Club will activate the following special event stations (each representing a country that initially signed the Antarctic Treaty) between Oct 1st and Dec 31st during this event: R60ANT - Russia RG60ANT - Argentina RN60ANT - Norway RA60ANT - South Africa RJ60ANT - Japan RT60ANT - Australia RB60ANT - Belgium RK60ANT - United Kingdom RU60ANT - USA RC60ANT - Chile RL60ANT - France RZ60ANT - New Zealand And a special callsign from Antarctica RI60ANT The Worldwide Antarctic Program (WAP) has already issued a "Reference Number" for each of the above Special Event Callsign.

SP, POLAND, Special event station 3Z20UR is QRV until October 15 to celebrate 20 years of the University of Rzeszow. QSL via SP8POP.

VP5, TURKS AND CAICOS ISLANDS. Mario, I2HBW is QRV as VP5MA until the end of Oct. QSL via Club Log.

IOTA News…

AF-018. Michal, OK1M (OK1WMR), will be active as IH9/OK1M from **Pantelleria Island** during the CQWW DX SSB Contest (October 30-31st) as a Single-Op/Single-Band (80m)/Assisted/Low-Power entry. QSL via OK1M. PLEASE NOTE: This one counts as a separate multiplier, Italian Africa.

AF-018. Operator Raffaele, IH9YMC, will be active from **Pantelleria Island** (IIA TP-001, MIA MI-124, WW Loc. JM56XT), African Italy, during the CQWW DX SSB Contest (October 30-31st) as a Single-Op/Single-Band (??m) entry. QSL via LoTW.

That's it for October. Get on the air. Use the license that you studied so hard to get. And let me know how you're doing.

An Introduction to Microwaves - Part 2

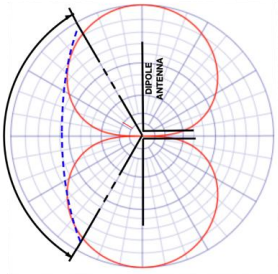
Jim, AC8NT

In the last article we discussed the design and construction of a parabolic dish used as part of an antenna system. The dish itself is simply a very efficient reflector. In this article we will discuss the systems used to supply energy to and collect energy from the reflector. We will be using terms often used when discussing light because microwaves behave like light in most properties.

In a perfect dish antenna system, the radiating element will equally illuminate the entire area defined by the aperture angle, which gives the best results. Unfortunately, this goal is very hard to achieve. We will discuss a couple of feed systems designed to effectively "shine some light" on our dish reflector. None of these systems are 100% efficient, but they do supply nearly best-in-class solutions.

Dipole Feed

Figure 1



The dipole feed system is the simplest, at least in theory. You locate a resonant dipole at the focus of the dish where it radiates energy toward our reflector. The radiation pattern of such a dipole is shown in Figure 1. This is the standard dipole pattern we have all seen many times. The blue line represents the dish with the aperture angle showing edge to edge. You will note there are two major lobes in this pattern. The left-hand sides of these lobes illuminate the dish but not evenly. The center of the dish has much less illumination than the edges. Modifying the aperture angle using the F/D ratio can maximize the reflection of energy from this dipole. The equation for the aperture angle is shown in equation 1.

You can see that to increase the aperture angle you will need a smaller F/D ratio. This reduction in F/D will make your dish flatter. Even with the best possible F/D ratio, It is also easy to see this antenna subsystem is not very efficient with often over fifty percent of the radiation (radiation sent away from the dish) wasted.

$$\emptyset = 2\tan^{-1}\left[\frac{1}{4(\frac{F}{D})}\right] \quad \{\text{eq } 1\}$$

We can modify the dipole system to improve the pattern. One method is to build a two element Yagi from our dipole. This is done by adding a reflector behind the radiating element. The length of the reflector is approximately 105% of the length of the dipole. Its location is approximately .2 λ behind the radiating dipole. Figure 2 shows the pattern from the addition of a reflector. In this figure the dish is to the right of the diagram. Properly oriented, this design will increase radiation toward the reflector and covers more of the aperture angle. You will still need to properly select the F/D ratio to reduce spill over. In this example you would want to decrease the aperture angle, increasing the F/D ratio.

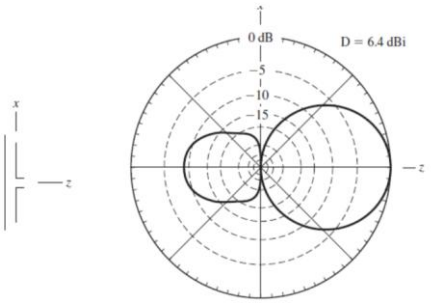


Figure 2

An interesting application of this type of feed is the triband feed system developed by WA3RMS. This is a three band "fan dipole" for microwaves. It covers 2304, 3456 and 5760 MHz bands. The entire antenna is constructed using a two-sided circuit board. One half of the fan dipole is printed on each side of the board. The reflecting elements are printed on both sides.

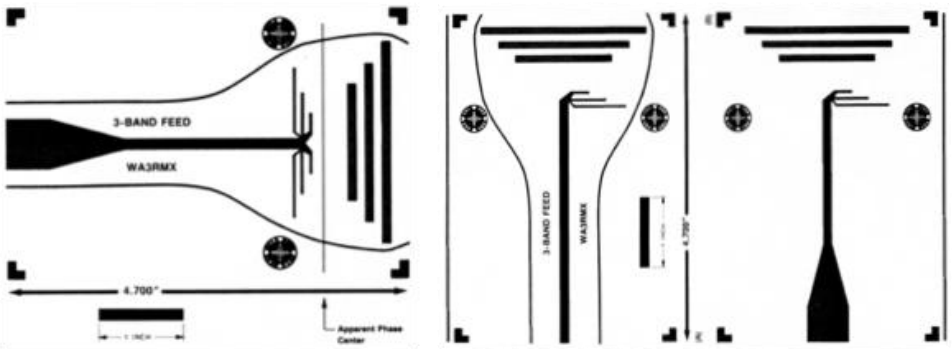


Figure 3

This design can be modified to add a low noise amplifier or power amplifier on the same board as the antenna. It creates a very small shadow on the dish and because the amplifiers are on the same board, reduces feed line losses. If you replace the fan dipole with a single band folded dipole, the impedance of the antenna will be higher and easier to match on board electronics.

Another variation using the dipole is to place two dipoles a quarter wavelength apart and run them 90 degrees out of phase. This is the same methodology used to for phased array verticals. This will produce the pattern shown in Figure 4. There are many designs using printed circuit strip lines to create this phase shift. Again, the antennas, phase shifter, and possibly power amplifier/preamp can all be on the same board at the feed point.

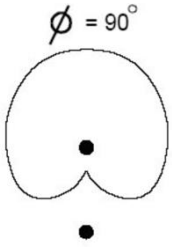


Figure 4

Dipoles provide inexpensive feed point solutions. They have reasonable bandwidth, modest power handling capability and are inexpensive to build.

Waveguide Radiators

More commonly used in microwaves systems are feed points built on waveguide technology. A waveguide is a structure that guides waves, in our hobby electromagnetic waves, with minimal loss of energy by restricting energy to flow in only one direction. Waveguides are simply metal pipes. They can have rectangular, circular, or oval cross sections and are almost always made of very conductive metal. Two examples are shown in Figure 5. The examples shown are commercial waveguide sections. They are usually very expensive unless found on the surplus market. Working with waveguides is very similar to plumbing. You can buy straight, curved, and even twisted sections that can be bolted together to act as your transmission line. The cross sections of all connected pieces are usually identical. Also like plumbing you can have leaks at the connections of the sections causing losses.

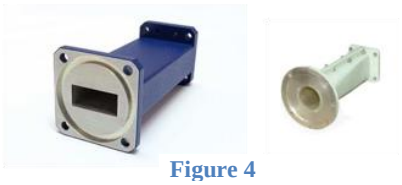


Figure 4

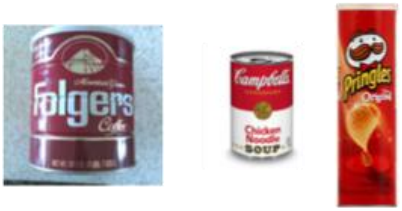
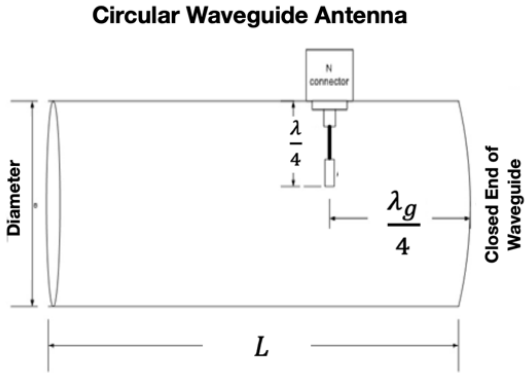


Figure 5

Now we are ham radio hobbyists. Most of us are frugal to put it politely. For this discussion we will be looking a circular cross section waveguides that will be excited to form an antenna we can use at our feed point. We will also be looking at much cheaper waveguide materials like those in Figure 6. Coffee and soup are found in metal cans. Potato chips can be found in metal lined cardboard containers that can also be used.



Most of the time we will be using only one can for our excited waveguide antenna. We say they are excited because we insert a small radiator into the waveguide to provide the RF energy. Our designs will look like Figure 7 where our signal is connected to the N connector.

Figure 6

Before we can make a waveguide antenna, we must learn a little about how they work and how to pick the correct sizes of cans or commercial waveguides. We will only be studying the circular option. Maybe in the future, I will cover rectangular guides.

Waveguides as the name implies, transport electromagnetic waves down the guide. As you probably know the electric and magnetic fields are at right angles to each other in all cases. Determined by waveguide cross section shape, dimensions and frequency, the electromagnet waves travel differently down the guide. The different ways they travel are called modes. There are two types of modes, TE (transfer electric) where the electric field is perpendicular to the wave guide direction, and TM (transfer magnet) where the magnetic field is perpendicular to the wave guide. For a given guide (shape and dimensions) frequency determines the mode of transfer. For circular waveguides the lowest frequency mode is TE_{11} and the next mode as you increase frequency is TM_{01}. For each mode there is a cutoff frequency. Below that frequency the wave will not travel using that mode. In the circular example, if you are below the cutoff frequency for mode TE_{11} the waveguide will not work at all.

The designer's goal is to pick a circular diameter that has a TE_{11} cutoff frequency below the frequency we want to send down the waveguide and have a TM_{01} cutoff frequency above our desired signal. This guarantees one mode will be used

As an example, we will be designing an antenna from a 76mm tube for 2.45 GHz. The calculations are in the following table.

- λ is the wavelength of our signal in free space (speed of light/frequency) [2.45 GHz]
- λ_C is what is called the cutoff frequency. Below this frequency the waveguide will not work in any mode including TE_{11}.
- λ_H is the frequency of the next mode (mode TM_{01}). The design goal is to establish a waveguide that will only work in TE_{11} which means the signal frequency λ must fall between λ_C and λ_H.
- L_g or λ_g is the wavelength inside the waveguide for the input (free space) frequency. Traveling waves inside the waveguide always travel slower than the speed of light. Therefore, there will be a different wavelength for our signal in the waveguide.

$r = \frac{d}{2} = .038\ m$
$\lambda_c = \frac{2\pi r}{p'_{11}} = \frac{2\pi r}{1.8412} = \frac{2\pi(.038)}{1.8412} \approx 129.68\ mm$
$f_c = \frac{c}{\lambda_c} = \frac{300}{130} = 2.31\ GHz$
$\lambda_H = \frac{2\pi r}{p_{10}} = \frac{2\pi r}{2.4049} = \frac{2\pi(.038)}{2.4049} \approx 99.28\ mm$

$f_H = \frac{c}{\lambda_H} = \frac{300}{100} = 3.02\ GHz$ Note that 2.31 GHz < 2.45 GHz < 3.02GHz. Tube will work.
$\lambda_g = \frac{1}{\sqrt{\left[\frac{1}{\lambda}\right]^2 - \left[\frac{1}{\lambda_c}\right]^2}} = \frac{1}{\sqrt{\left[\frac{1}{122.45}\right]^2 - \left[\frac{1}{129.68}\right]^2}} = 371.97\ mm$ Note that the wavelength of our 2.45 GHz signal is 122.45 mm in free space and the wavelength for this signal in the waveguide is much longer at 371.97 mm.
$\frac{\lambda}{4} = \frac{122.45\ mm}{4} = 30.61\ mm$ Note you should use the free space wavelength to determine the length of the dipole used for excitation.
$\frac{\lambda_g}{4} = \frac{371.97\ mm}{4} = 92.99\ mm$ Note the location of the dipole is a quarter wavelength from the closed end of the tube. You must use the wavelength in the waveguide for this calculation.
$L = .75\lambda_g = .75(371.97\ mm) = 278.97\ mm$

An interesting point is that if you increase the diameter of the tube, you will lower λ_C and decrease the wavelength inside the guide. If you use an 85 mm tube the length L of the waveguide drops to 171.37 mm. This represents a drop from 11 inches to 6.75 inches. It will be much easier to mount at your feed point.

As in the case of the dipole feed point these "can" antennas are to be mounted at the feed point. Due to size, the dishes used with waveguide antennas are usually the offset type (repurposed satellite dish). Although we have been discussing feed points for dish antennas, these antennas can be used without dishes for experimentation and in point-to-point links. The example above can be used as a WIFI extender.

This article only touches this topic. If you are interested in learning more, let me know. I have lots of resources on the subject. In our next article we will do a teardown of a 2.45 GHz dish antenna and put some of what has been covered in these articles to work.

DX Engineering is Hiring

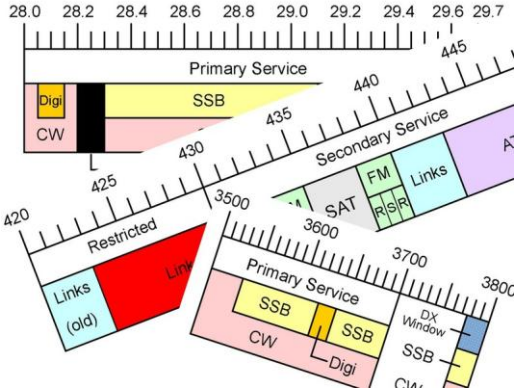
DX Engineering is hiring. Share your passion for Ham Radio and get paid for it.

DX Engineering is looking for active Hams for several areas: **Technical Sales Rep, Retail Technical Sales Rep** and many others. The most up to date list is available here:
https://summitracing.wd5.myworkdayjobs.com/DXEngineering-External-Career-Site

Multiple positions open. Flexible days and hours. Check back often to see new opportunities. DXE is a great place to be - working daily with other ham radio operators. Join the team.

IARU HF Band Plan Review

Source IARU Region 1
https://iaru-r1.org/



Over the past 18 month a proposal for an IARU HF Digital Mode reorganization has been undertaken by representatives of all three IARU Regions

IARU-R1 reports:

The objectives were to review the data modes usage of the Amateur Radio HF spectrum and propose changes that:

- Reduce inter-mode conflict between dissimilar operating modes; and
- Facilitate the expansion of new technologies.

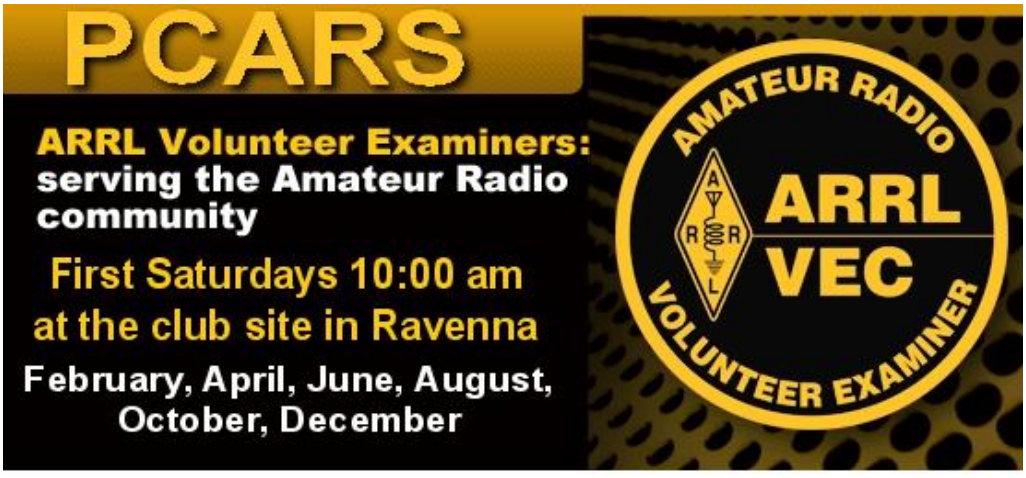
In conducting the review it was realized that it was necessary to update the manner in which the IARU creates its band plans. Accordingly, the IARU's band planning definition toolkit were redefined, and additional data mode definition characteristics has been added to help separate activities that are fundamentally incompatible within the data mode family.

With the band planning process updated, the proposal then revised the band plans of all three IARU Regions, focusing on the data sub-bands and taking into consideration:

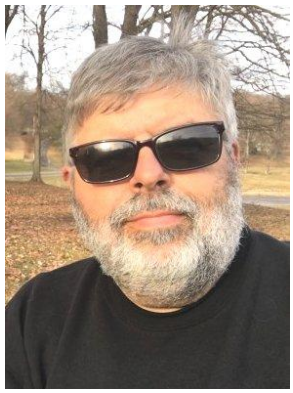
- Popularity and capacity requirements; and
- Existing band users and inter-mode compatibility assessments.

The team also took the opportunity to harmonize the band plans of all three IARU Regions to the greatest extent possible of course. The proposal is now being discussed in the relevant committees.

The changes proposed include a significant expansion of the data mode segments. Each band is detailed in the slides in the document "Attachment to Doc.031 International Amateur Radio Union - HF band plan revision 2021 - Proposal.pdf" The PDF is near the bottom of the Input documents page on the conference site at https://www.iarur3conf2021.org/documents/



Portable Ops Special Interest Group



John, KD8MQ
Portable Ops SIG Coordinator

HI everyone, the Portable operations SIG is going on the road in October. Actually, just up the road is more accurate. At this time we are looking at the Ravenna City Park on Oakwood St. bring your portable gear, and lets put some stations on the air. Watch for the QST in October with all the detail, but it looks like a great time to operate.

Let's plan to get together on October 12th at the park. Time may vary, so watch your QSTs the week before. We'll also be running via Zoom. Here's the link: Join Zoom Meeting
https://us02web.zoom.us/j/86483499206?pwd=anA4dXl3ZXVYR0sza3NXZXVoR0xlQT09

Again, we meet on the 2nd Tuesday of each month. See you there.

Digital Special Interest Group

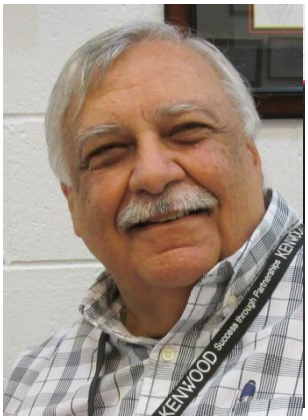
Rick, K8CAV
Digital SIG Coordinator

The PCARS Digital Special Interest Group meeting will be held on Tuesday October 5th at 7:00 PM at the club site in Ravenna.

This month's topic will be a presentation on the Ohio Digital Emergency Network (OHDEN, https://arrl-ohio.org/SEC/ohden/index.html). After the presentation we will do live, on-the-air check-ins to OHDEN on 80 meters.

As always we will be available for any discussion of digital communications, or to answer questions or help with problems. I hope to see you there.

DX & Contest Special Interest Group



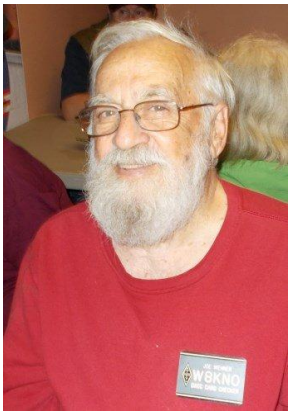
Chuck, W8PT
DX & Contest SIG Coordinator

We held our monthly DX/Contesting Special Interest Group meeting on Tuesday, Oct. 28. We had 7 members present or participating by ZOOM. Our main topic of discussion was our participation in the California QSO Party on Sat, Oct 2 through Sunday, Oct 3.

We reviewed the rules and the fact that this year we would have each position dedicated to a band and not be able to switch bands. This is due to the fact that this contest requires an exchange that includes not only our state abbreviation, but also a sequential serial number. Since each radio logging software would have its own number list. I really like contests that keep exchanges simple, but we have to go with the flow at times.

We also discussed our new antenna/tower project and noted that we would start to dismantle the old tower and antenna on Oct 9-10 weekend. And hopefully start the installation of the new tower and antenna on the weekend of Oct 16-17. We're hoping for a good group of members to be present on both weekends to help with this project.We are looking forward to having even more success with the new antenna system in place.

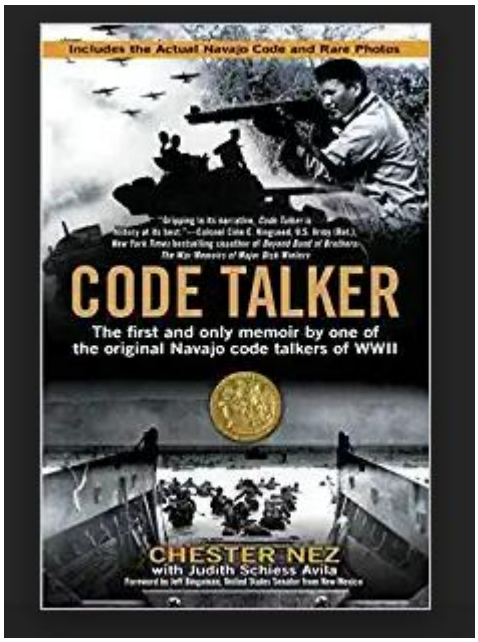
Paper Chase - Code Talkers



Joe, W8KNO

We have all heard the term "Code Talkers". This is their brief history.

In 1917 there were some 33,000 Native American men in the United States who were eligible for military service. Through a government-run program of assimilation, about two-thirds of age-eligible Indian men were citizens by that time. Having been discouraged in government run schools from speaking anything but English, the young men from Oklahoma's tribes, like the Choctaw, Chickasaw, Seminole, Muscogee (Creek), Cherokee, Comanche, Kiowa, Osage, Pawnee, Ponca, and Sac and Fox, learned their native language from their families. And despite having to "earn" citizenship instead of it being their birthright, these men believed in American ideals of liberty and self-determination, and trusted that someday their people would share fully in its rewards. In all, more than 12,000 Native American soldiers from more than sixty tribes were integrated into twenty U.S Divisions that made up the AEF.



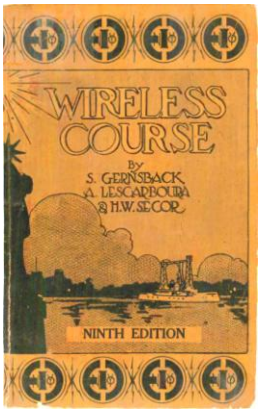
The first Oklahoma men to use their language to protect communications were Choctaw soldiers in the 36th Division. By happenstance, a group of these soldiers were reportedly overheard talking in their native tongue by one of their officers and, recognizing the potential to stop their communications breach, formulated the largest and best known use of Native American radio telephone operators of WWI. A squad of Choctaw soldiers were quickly assembled from units within the Division and converted from riflemen, machine gunners, and scouts to field telephone operators, and were positioned with each major field command element. The Choctaw language had not been written down and was, therefore, known to few people except members of their tribe.

The switch to code talkers at Forest Ferme, France in October 1918 had such an immediate and telling effect in confusing and confounding the Germans that it led to more units in other parts of the line putting Native Americans on the field phones. Use of code talkers tipped the scales in favor of the AEF, and the rapid allied advance that followed prompted Germany to sue for peace, bringing this long brutal conflict to an end.

To commemorate the heroism of the WWI Code Talkers, the Vm Okla Nan Ola ARC will operate a special event station, W5D, on October 9th and 10th from 10 am till 10 pm our time. Listen for the station operating PSK31 on 40m, 20m and 15m and phone in the vicinity of 7.218 MHz, 14.318 MHz, 21.318 MHz and 28.318 MHz. A certificate will be available from: WI5ND - Attn: Holly Sharrock KG5SSJ - 12715 N 410 Road - Hulbert, OK 74441

I speak no Choctaw, Joe - W8KNO

Stray Signals from around the Web



Just ran across a mess o' stuff you could have fun with in the newsletter …

This link is for a 20 unit course in 'radio'. Some of the builds look positively dangerous … but, hay … it was 90 years before the safety commissions! - **Larry, N8FTP**

Site: https://worldradiohistory.com/BOOKSHELF-ARH/Bookshelf-Gernsback/Wireless-Course-Gernsback-9th.pdf

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2021 PA QSO PARTY - https://paqso.org/ I bet you will hear **KD8MQ** in PA !!!

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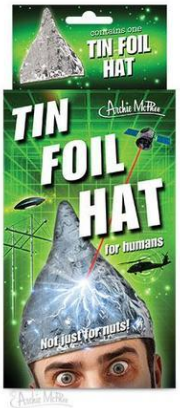
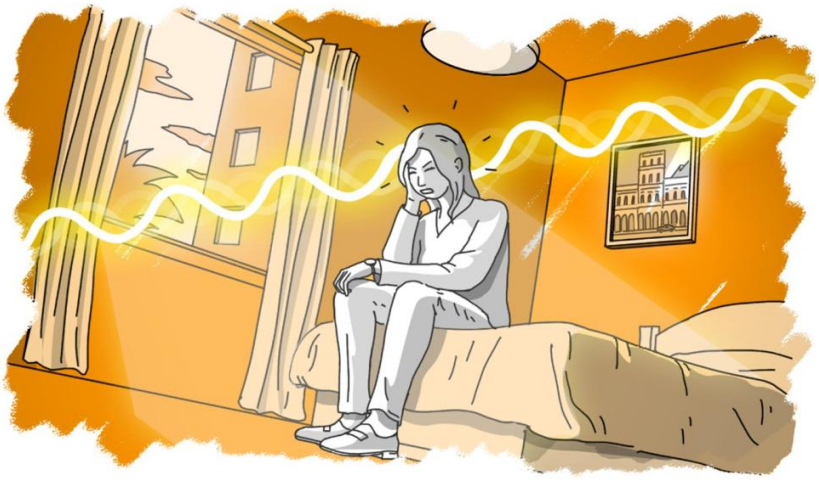


Worried about Microwaves - The CIA sending messages direct to your mind?

Then you'll need one of these:
https://www.snarkgifts.com/products/tin-foil-hat-for-people?_pos=1&_sid=3985d4076&_ss=r

And while you are at it - get one for your pet cat, too:
https://www.snarkgifts.com/products/tin-foil-hat-for-cats?_pos=2&_sid=3985d4076&_ss=r

Havana Syndrome & the Mystery of Microwaves



Gordon Corera
Security Correspondent,
BBC News

Doctors, scientists, intelligence agents and government officials have all been trying to find out what causes "Havana syndrome" - a mysterious illness that has struck American diplomats and spies. Some call it an act of war, others wonder if it is some new and secret form of surveillance - and some people believe it could even be all in the mind. So who or what is responsible?

It often started with a sound, one that people struggled to describe. "Buzzing", "grinding metal", "piercing squeals", was the best they could manage.

One woman described a low hum and intense pressure in her skull; another felt a pulse of pain. Those who did not hear a sound, felt heat or pressure. But for those who heard the sound, covering their ears made no difference. Some of the people who experienced the syndrome were left with dizziness and fatigue for months.

Havana syndrome first emerged in Cuba in 2016. The first cases were CIA officers, which meant they were kept secret. But, eventually, word got out and anxiety spread. Twenty-six personnel and family members would report a wide variety of symptoms. There were whispers that some colleagues thought sufferers were crazy and it was "all in the mind".

Five years on, reports now number in the hundreds and, the BBC has been told, span every continent, leaving a real impact on the US's ability to operate overseas.

Uncovering the truth has now become a top US national security priority - one that an official has described as the most difficult intelligence challenge they have ever faced.

Hard evidence has been elusive, making the syndrome a battleground for competing theories. Some see it as a psychological illness, others a secret weapon. But a growing trail of evidence has focused on microwaves as the most likely culprit.

In 2015, diplomatic relations between the US and Cuba were restored after decades of hostility. But within two years, Havana syndrome almost shut the embassy down, as staff were withdrawn because of concerns for their welfare.

Initially, there was speculation that the Cuban government - or a hard-line faction opposed to improving relations - might be responsible, having deployed some kind of sonic weapon. Cuba's security services, after all, had been nervous about an influx of US personnel and kept a tight grip on the capital.

That theory would fade as cases spread around the world.

But recently, another possibility has come into the frame - one whose roots lay in the darker recesses of the Cold War, and a place where science, medicine, espionage and geopolitics collide.

When James Lin, a professor at the University of Illinois, read the first reports about the mysterious sounds in Havana, he immediately suspected that microwaves were responsible. His belief was based not just on theoretical research, but first-hand experience. Decades earlier, he had heard the sounds himself.

Since its emergence around World War Two, there had been reports of people being able to hear something when a nearby radar was switched on and began sending microwaves into the sky. This was even though there was no external noise. In 1961, a paper by Dr Allen Frey argued the sounds were caused by microwaves interacting with the nervous system, leading to the term the "Frey Effect". But the exact causes - and implications - remained unclear.

Radio 4 - Crossing Continents

In the 1970s, Prof Lin set to work conducting his experiments at the University of Washington. He sat on a wooden chair in a small room lined with absorbent materials, an antenna aimed at the back of his head. In his hand he held a light switch. Outside, a colleague sent pulses of microwaves through the antenna at random intervals. If Prof Lin heard a sound, he pressed the switch.

A single pulse sounded like a zip or a clicking finger. A series of pulses like a bird chirping. They were produced in his head rather than as sound waves coming from outside. Prof Lin believed the energy was absorbed by the soft brain tissue and converted to a pressure wave moving inside the head, which was interpreted by the brain as sound. This occurred when high-power microwaves were delivered as pulses rather than in the low-power continuous form you get from a modern microwave oven or other devices.

Prof Lin recalls that he was careful not to dial it up too high. "I did not want to have my brain damaged," he told the BBC.

In 1978, he found he was not alone in his interest, and received an unusual invitation to discuss his latest paper from a group of scientists who had been carrying out their own experiments.

During the Cold War, science was the focus of intense super-power rivalry. Even areas like mind control were explored, amid fears of the other side getting an edge - and this included microwaves.

Prof Lin was shown the Soviet approach at a centre of scientific research in the town of Pushchino, near Moscow. "They had a very elaborate, very well-equipped laboratory," Prof Lin recalls. But their experiment was cruder than his. The subject would sit in a drum of salty seawater with their head sticking out. Then microwaves would be fired at their brain. The scientists thought the microwaves interacted with the nervous system and wanted to question Prof Lin on his alternative view.

Curiosity cut both ways, and US spies kept close track on Soviet research. A 1976 report by the US Defense Intelligence Agency, unearthed by the BBC, says it could find no proof of Communist-bloc microwave weapons, but says it had learnt of experiments where microwaves were pulsed at the throat of frogs until their hearts stopped.

The report also reveals that the US was concerned Soviet microwaves could be used to impair brain function or induce sounds for psychological effect. "Their internal sound perception research has great potential for development into a system for disorienting or disrupting the behaviour patterns of military or diplomatic personnel."

American interest was more than just defensive. James Lin would occasionally glimpse references to secret US work on weapons in the same field.

And while Prof Lin was in Pushchino, another group of Americans not far away were worried that they were being zapped by microwaves - and that their own government had covered it up.

For nearly a quarter of a century, the 10-storey US embassy in Moscow was bathed by a wide, invisible beam of low-level microwaves. It became known as "the Moscow signal". But for many years, most of those working inside knew nothing.

The beam came from an antenna on the balcony of a nearby Soviet apartment and hit the upper floors of the embassy where the ambassador's office and more sensitive work was carried out. It had been first spotted in the 1950s and was later monitored from a room on the 10th floor. But its existence was a secret tightly held from all but a few working inside. "We were trying to figure out just what might be its purpose," explains Jack Matlock, number two at the embassy in the mid-70s.

Image caption - US Embassy on Novinsky Boulevard in Moscow, circa 1964

But a new ambassador, Walter Stoessel, arrived in 1974 and threatened to resign unless everyone was told. "That caused something like panic," recalls Mr Matlock. Embassy staff whose children were in a basement nursery were especially worried. But the State Department played down any risk.

Then Ambassador Stoessel, himself, fell ill - with bleeding of the eyes as one of his symptoms. In a now declassified 1975 phone call to the Soviet ambassador to Washington, US Secretary of State Henry Kissinger linked Stoessel's illness to microwaves, admitting "we are trying to keep the thing quiet". Stoessel died of leukaemia at the age of 66. "He decided to play the good soldier", and not make a fuss, his daughter told the BBC.

From 1976 screens were installed to protect people. But many diplomats were angry, believing the State Department had first kept quiet, and then resisted acknowledging any possible health impact. This was a claim echoed decades later with Havana syndrome.

What was the Moscow signal for? "I'm pretty sure that the Soviets had intentions other than damaging us," says Matlock. They were ahead of the US in surveillance technology and one theory was that they bounced microwaves off windows to pick up conversations, another that they were activating their own listening devices hidden inside the building or capturing information through microwaves hitting US electronic devices (known as "peek and poke"). The Soviets at one point told Matlock that the purpose was actually to jam American equipment on the embassy roof used to intercept Soviet communications in Moscow.

This is the world of surveillance and counter-surveillance, one so secret that even within embassies and governments only a few people know the full picture.

One theory is that Havana involved a much more targeted method to carry out some kind of surveillance with higher-power, directed microwaves. One former UK intelligence official told the BBC that microwaves could be used to "illuminate" electronic devices to extract signals or identify and track them. Others speculate that a device (even perhaps an American one) might have been poorly engineered or malfunctioned and caused a physical reaction in some people. However, US officials tell the BBC no device has been identified or recovered.

After a lull, cases began to spread beyond Cuba.

In December 2017, Marc Polymeropolous woke suddenly in a Moscow hotel room. A senior CIA officer, he was in town to meet Russian counterparts. "My ears were ringing, my head was spinning. I felt like I was going to vomit. I couldn't stand up," he told the BBC. "It was terrifying." It was a year after the first Havana cases, but the CIA medical office told him his symptoms didn't match the Cuban cases. A long battle for medical treatment began. The severe headaches never went away and in the summer of 2019 he was forced to retire.

Mr. Polymreopolous originally thought he had been hit by some kind of technical surveillance tool that had been "turned up too much". But when more cases emerged at the CIA which were all, he says, linked to people working on Russia, he came to believe he had been targeted with a weapon.

But then came China, including at the consulate in Guangzhou in early 2018.

Some of those affected in China contacted Beatrice Golomb, a professor at the University of California, San Diego, who has long researched the health effects of microwaves, as well as other unexplained illnesses. She told the BBC that she wrote to the State Department's medical team in January 2018 with a detailed account of why she thought microwaves were responsible. "This makes for interesting reading," was the non-committal response.

Prof Golomb says high levels of radiation were recorded by family members of personnel in Guangzhou using commercially available equipment. "The needle went off the top of the available readings." But she says the State Department told its own employees that the measurements they had taken off their own back were classified.

A host of problems plagued early investigations. There was a failure to collect consistent data. The State Department and CIA failed to communicate with each other, and the scepticism of their internal medical teams caused tension.

Only one out of the nine cases from China was initially determined by the State Department to match the criteria for the syndrome based on Havana cases. That left others who experienced symptoms angry, and feeling as if they were being accused of making it up. They began a battle for equal treatment, which is still going on today.

As frustration grew, some of those affected turned to Mark Zaid, a lawyer who specialises in national security cases. He now acts for around two dozen government personnel, half from the intelligence community.

"This is not Havana syndrome. It's a misnomer," argues Mr. Zaid, whose clients were affected in many locations. "What's been going on has been known by the United States government probably, based on evidence that I have seen, since the late 1960s."

Since 2013, Mr. Zaid has represented one employee of the US National Security Agency who believed they were damaged in 1996 in a location which remains classified.

Mr Zaid questions why the US government has been so unwilling to acknowledge a longer history. One possibility, he says, is because it might open a Pandora's Box of incidents that have been ignored over the years. Another is because the US, too, has developed and perhaps even deployed microwaves itself and wants to keep it secret.

The country's interest in weaponising microwaves extended beyond the end of the Cold War. Reports say from the 1990s, the US Air Force had a project codenamed "Hello" to see if microwaves could create disturbing sounds in people's heads, one called "Goodbye" to test their use for crowd control, and one codenamed "Goodnight" to see if they could be used to kill people. Reports from a decade ago **suggested these had not proved successful**.

But the study of the mind and what can be done to it has been receiving increased focus within the military and security world.

"The brain is being seen as the 21st Century battle-scape," argues James Giordano, an adviser to the Pentagon and Professor in Neurology and Biochemistry at Georgetown University, who was asked to look at the initial Havana cases. "Brain sciences are global. It is not just the province of what used to be known as the West." Ways to both augment and damage brain function are being worked on, he told the BBC. But it is a field with little transparency or rules.

He says China and Russia have been engaged in microwave research and raises the possibility that tools developed for industrial and commercial uses - for instance to test the impact of microwaves on materials - could have been repurposed. But he also wonders if disruption and spreading fear were also the aim.

This kind of technology may have been around for a while - and even have been used selectively. But that would still mean something changed in Cuba to get it noticed.

Bill Evanina was a senior intelligence official when the Havana cases emerged, and stepped down as the head of the National Counterintelligence and Security Center this year. He has little doubt about what happened in Havana. "Was it an offensive weapon? I believe it was," he told the BBC.

He believes microwaves may have been deployed in recent military conflicts, but points to specific circumstances to explain a shift.

Cuba, 90 miles off the Florida coast, has long been an ideal site to collect "signals intelligence" by intercepting communications. During the Cold War, it was home to a major Soviet listening station. When Vladimir Putin visited in 2014, reports suggested it was being re-opened. China also opened two sites in recent years, according to one source, while the Russians sent in 30 additional intelligence officers.

But from 2015, the US was back in town. With its newly opened embassy and a beefed-up presence, the US was just beginning to establish its footing, collecting intelligence and pushing back against Russian and Chinese spies. "We were in a ground fight," one person recalls.

Then the sounds began.

"Who had the most to benefit from the closing of the embassy in Havana?" asks Mr Evanina. "If the Russian government was increasing and promulgating their intelligence collection in Cuba, it was probably not good for them to have the US in Cuba."

Russia has repeatedly dismissed accusations it is involved, or has "directed microwave weapons". "Such provocative, baseless speculation and fanciful hypotheses can't really be considered a serious matter for comment," its foreign ministry has said.

And there have been sceptics about the very existence of Havana syndrome. They argue that the unique situation in Cuba supports their case.

'Contagious' stress

Robert W Baloh, a Professor of Neurology at UCLA, has long studied unexplained health symptoms. When he saw the Havana syndrome reports, he concluded they were a mass psychogenic condition. He compares this to the way people feel sick when they are told they have eaten tainted food even if there was nothing wrong with it - the reverse of the placebo effect. "When you see mass psychogenic illness, there's usually some stressful underlying situation," he says. "In the case of Cuba and the mass of the embassy employees - particularly the CIA agents who first were affected - they certainly were in a stressful situation."

In his view, every-day symptoms like brain fog and dizziness are reframed - by sufferers, media and health professionals - as the syndrome. "The symptoms are as real as any other symptoms," he says, arguing that individuals became hyper-aware and fearful as reports spread, especially within a closed community. This, he believes, then became contagious among other US officials serving abroad.

Image caption - United States Embassy in Havana, May 2021

There remain many unexplained elements. Why did Canadian diplomats report symptoms in Havana? Were they collateral damage from targeting nearby Americans? And why have no UK officials reported symptoms? "The Russians have literally tried to kill people on British soil in recent years with radioactive materials, yet why are there no reported cases?" asks Mark Zaid. "I would probably put on pause the statement that no-one in the UK has experienced any symptoms," responds Bill Evanina, who says the US is now sharing details with allies to spot cases.

Some instances may be unrelated. "We had a bunch of military folk in the Middle East who claimed to have this attack - turned out they had food poisoning," says one former official. "We need to separate the wheat from the chaff," reckons Mark Zaid, who says members of the public, some with mental health issues, approach him claiming to suffer from microwave attacks. One former official reckons around half the cases reported by US officials are possibly linked to attacks by an adversary. Others say the real number could be even smaller.

A December 2020 report by the US National Academies of Sciences was a pivotal moment. Experts took evidence from scientists and clinicians as well as eight victims. "It was quite dramatic," recalls Professor David Relman of Stanford, who chaired the panel. "Some of these people literally were in hiding, for fear of further actions against them by whomever. There were actually precautions we had to take to ensure their safety." The panel looked at psychological and other causes, but concluded that directed, high energy, pulsed microwaves were most likely responsible for some of the cases, similar to the view of James Lin, who gave evidence.

But even though the State Department sponsored the study, it still considers the conclusion only a plausible hypothesis and officials say they have not found further evidence to support it.

The Biden administration has signalled it is taking the issue seriously. CIA and State Department officials are given advice on how to respond to incidents (including 'getting off the X' - meaning physically moving from a spot if they feel they are getting hit). The State Department has set up a task force to support staff over what are now called "unexplained health incidents". Previous attempts to categorise cases as to whether they met specific criteria have been abandoned. But without a definition, it becomes harder to count.

This year, a new wave of cases arrived - including Berlin and a larger group in Vienna. In August, a trip by US Vice-President Kamala Harris to Vietnam was delayed three hours because of a reported case at the embassy in Hanoi. Worried diplomats are now asking questions before taking foreign assignments with their families.

"This is a major distraction for us if we think that the Russians are doing things to our intelligence officers who are travelling," says former CIA officer Polymreopolous, who finally received the medical treatment he wanted this year. "That's going to put a crimp in our operational footprint."

The CIA has taken over the hunt for a cause, with a veteran of the hunt for Osama bin Laden placed in charge.

Markers in the blood

An accusation that another state has been harming US officials is a consequential one. "That's an act of war," says Mr Polymeropolous. That makes it a high bar to reach. Policymakers will demand hard evidence, which so far, officials say, is still lacking.

Five years on, some US officials say little more is known other than when Havana syndrome started. But others disagree. They say the evidence for microwaves is much stronger now, if not yet conclusive. The BBC has learnt that new evidence is arriving as data is collected and analysed more systematically for the first time. Some of the cases this year showed specific markers in the blood, indicating brain injury. These markers fall away after a few days and previously too much time had elapsed to spot them. But now that people are being tested much more quickly after reporting symptoms, they have been seen for the first time.

The debate remains divisive and it is possible the answer is complex. There may be a core of real cases, while others have been folded into the syndrome. Officials raise the possibility that the technology and the intent might have changed over time, perhaps shifting to try and unsettle the US. Some even worry one state may have piggy-backed on another's activities. "We like a simple label diagnosis," argues Professor Relman. "But sometimes it is tough to achieve. And when we can't, we have to be very careful not to simply throw up our hands and walk away."

The mystery of Havana syndrome could be its real power. The ambiguity and fear it spreads act as a multiplier, making more and more people wonder if they are suffering, and making it harder for spies and diplomats to operate overseas. Even if it began as a tightly defined incident, Havana syndrome may have developed a life of its own.

Illustrations by Gerry Fletcher https://www.bbc.com/news/world-58396698

ARRL On-Line Auction

The 2020 ARRL Auction was a huge success! We look forward to the 2021 Auction which will be held October 8-14. 2021. Preview October 5-7, 2021.

Proceeds from our Online Auction benefit ARRL education programs including activities to license new hams, strengthen Amateur Radio's emergency service training, offer continuing technical and operating education, as well as creating instructional materials. To learn more and to register, visit: www.arrl.org/auction .

Center of Hope Donations

November is coming soon and it is a very important month for PCARS, and it's a very important month for **you** to show up at our meeting November 8th!

Three items come to mind as to why:

1- It's the perfect time to pay your dues for the coming year!

2 - It's our annual election of officers, and

3 - It's our annual 50/50 to benefit the Center of Hope in Ravenna.

You know why you need to pay your dues, you know why our election of officers is so important to the continued success of PCARS! Our annual donation to the Center of Hope is important, not only to the Center of Hope, but to the Portage County Community at large, and specifically to PCARS.

In the early years of PCARS, before our own club site space existed, many PCARS functions and events were held at the old Center of Hope on W. Main St. in Ravenna. (The Center of Hope is one of the programs of F&CS). We even had a few of our clubs monthly meetings there. Early on we decided that in November, all of the clubs portion of the 50/50 raffle would be donated to the Center of Hope as a "thank you" for the assistance they had given PCARS for the use of the space, and later on for the generous opportunity to have space in the former ODOT facility. Our donation has grown from a few hundred dollars to **$10,210.74 last year!** Probably one of the largest single donations that The Center of Hope receives over the course of a year.

We want to continue that upward trend as long as we can! We have an outstanding club facility that we can all be proud of, and that we should all be thankful for. There are 3 ways you can help us. First, come to the meeting and buy LOTS of 50/50 tickets - you can also buy them on-line at the PCARS web site! The half of the 50/50 that would normally go to PCARS is given to the Center of Hope donation. Second, make a personal donation to the Center of Hope. Dig deep on this, give what you can to help someone in your community have a better holiday season this year. Lastly, don't be afraid to ask your friends, neighbors, employers, employees, and anyone else you come in contact with to help you support this very worthwhile endeavor. They can say "yes" or they can say "no", but if you don't ask them, there's no way to get to "yes", and that doesn't help anyone!

Here are a few things you should know about the Center of Hope:

- The Amelia DiGirolamo Center of Hope is dedicated to enhancing the nutrition of low-income people in Portage County where local food pantries are not present. Hot meals are offered at no cost five days a week and are typically served to between 75-100 individuals each day. Groceries are available monthly through the Christian Cupboard. Opportunities for socialization, cooking classes and referral services are also offered.
- Out of every $1.00 donated, 94 cents goes toward direct service to their clientele. That puts the Center of Hope at the very top of the scale for percentage of funds that actually reach their intended target! There are over 100,000 individuals who receive service through the Center of Hope each year.

We are the Portage County Amateur Radio Service. This is one more way that our community benefits from our organization.

Please bring all of your donations, including those you collect from others, to the meeting with you on Monday, November 8th.******

When making your donation, please make checks payable to 'The Center of Hope'. By doing this PCARS does not need to report your donations as income. You will receive a charitable donation receipt directly from the Center of Hope. (If you collect any donations from friends, relatives, etc., the same applies to them) All donations are aggregated to the PCARS donation, even though the individual donor is given credit for it.

**** If you are not able to make the PCARS meeting but you would still like to help us support the Center of Hope, please check the PCARS web site - you can donate on-line through PayPal**

PCARS Ham Radio License Plates Wanted !!! PLEASE !!

Dig out that amateur radio call sign license plate (with your present call sign), clean it up and bring it to be permanently affixed to the wall in the PCARS club station.

We have 72 PCARS member's ham plates now, **but we can use more**. Don't have ham radio call plates on your vehicle? Well for those of you in Ohio, you can get the plates sent to you by going to any License Bureau office and filling out the special plate registration form. Have a copy of your current FCC license when you apply. The official form to obtain your Ohio Amateur Radio license plates is on the PCARS IO Group site. Then you'll have an old plate to bring in to get hung up as a ***permanent*** **part of PCARS history**.

From the Ohio BMV:

General Information: Owners or lessees of motor vehicles who are residents of Ohio and hold an unrevoked and unexpired official amateur radio station license issued by the Federal Communications Commission may apply for these plates. The official call letters will be the license plate numbers.

Registrant Eligibility: **Owner must submit a copy of the un-revoked and unexpired official amateur radio license issued by the Federal Communications Commission. (FCC).**

Title Requirements: Ohio Certificate of Title issued in the same name as the FCC license, either singly or jointly, or the name on the FCC license is the same name on the lease agreement.

Vehicle Information: These plates may be issued to passenger vehicles, non-commercial trucks, recreational vehicles, house vehicles and non-commercial trailers.

Type of Plates: Plates will be manufactured with the FCC license.

Issuance Information: Amateur Radio plates cannot be issued with system assigned, reserved, or personalized plate formats.

Renewal of plates can be done at your local Deputy Registrar or by mail using their renewal notice. **Amateur Radio License Holders must provide a copy of their current unexpired and unrevoked official amateur radio license issued by the Federal Communications Commission (FCC) at the time of *any type renewal transaction*.**

All plates will be mailed directly to the address on your registration card unless customer requests otherwise. The deputy will issue your registration card, stickers and provide you with a permit which will allow you to operate your vehicle while your plates are being manufactured. Special license plate applications are available at all Deputy Registrar license agency locations. These plates cost an additional $10.00 annually plus the normal registration fees. The fee is determined by Ohio Revised Code section 4503.14.

PCARS is on YouTube

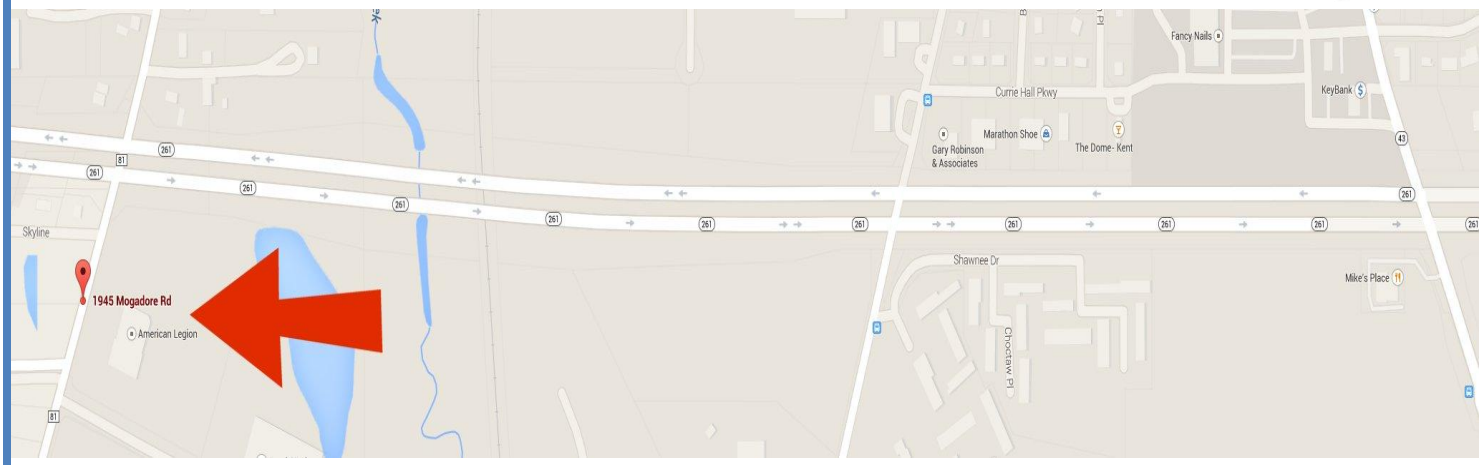
That's right - PCARS is now on YouTube. So, what does that mean? Hey, we have a new place to put all kinds of videos that are about PCARS for the world to see.

PCARS Meetings

The Portage County Amateur Radio Service (PCARS) in-person meetings are held the **2nd Monday** of each month and start at 7:00 pm.

CHECK WEBSITE FOR UPDATES ABOUT IN-PERSON MEETINGS

The meetings are held at The American Legion, Post 496
1945 Mogadore Road - in Kent. (Just South of Route 261)



The American Legion Post 496 is located on the southeast corner of State Route 261 and Mogadore Rd. The driveway is on the south side of the building and as you enter you will pass through a parking lot on the south side of the building. Please do not park in this lot but instead continue on to the parking lot on the east side of the building which is the near the rear entrance into the Post 'Canteen'. As you enter the post from this entrance you'll see a bar to the left and a dining area to the right. The meeting area we'll be in is on the right, to the rear of the dining area.

The picture on the left shows The American Legion Post 496 as viewed from Mogadore Road. (looking East)

The menu consists of your basic burger / dog / chicken sandwiches, wings, fries, onion rings, and salads. There is also an appetizer selection as well. Adult beverages are available and costs are in line with what you would expect at most bar-restaurant facilities.
If you are a member of the The American Legion, The American Legion Auxiliary, or the Sons of The American Legion, bring your ID card as you get a substantial discount on adult beverage pricing.

Photos from the September Meeting

Portage County Amateur Radio Service, Inc. (PCARS)

Membership Application ☐ **New** ☐ **Renewal**

This form **MUST** be filled out for any membership transaction

Name: _____ Call Sign: _____ License Class: _____

(*Name Example: You can enter Bob instead of Robert if you want too. Also if you have a nick name you want listed, enter that, too*)

Address: _____

City: _____ State: _____ ZIP: _____

Phone: _____ E-Mail Address: _____

ARRL Member? ☐ Yes ☐ No ARRL Membership Expires Month: _____ Year: _____

Use 2099 if ARRL Life Member

(*We need month for the Birthday List and we need year to keep on file for the senior member advantages*)

Birthday: Month: Year:

A $5.00 initiation fee will be assessed in the first year of membership for all new members.
Membership year is Jan 1 - Dec 31. Dues are due no later than Dec 31st. ***If you don't pay by 12/31 - you are no longer a member and you will have to pay the $5.00 fee again plus dues per the schedule below and you will be issued a new member number.***

Check One	Membership	Renewal & New Membership Rate **	New Membership Rate **
☐	Life Member ***	$75-Founder $175-Charter	$250-Regular $125-Senior
☐	Regular Member	$20.00 Jan-Dec	$15.00 July-Dec
☐	Associate Member	$20.00 Jan-Dec	$15.00 July-Dec
☐	Senior Member (65+)	$16.00 Jan-Dec	$11.00 July-Dec
☐	Family Member *	$10.00 Jan-Dec	$5.00 July-Dec

*Family = wife, husband, brother, sister, son, daughter, father, mother that is a licensed amateur radio operator and who's FCC license has the same address as the paid regular member's FCC license.

**The rate plus a $5.00 initiation fee will be assessed for all new members.

*** Must have been a member in good standing for previous 5 consecutive years.

*Checks can be made out to either "**PCARS**" - or - "**Portage County Amateur Radio Service, Inc.**"*

What are *YOUR* Ham Radio interests:

Signed: _____ Date: _____

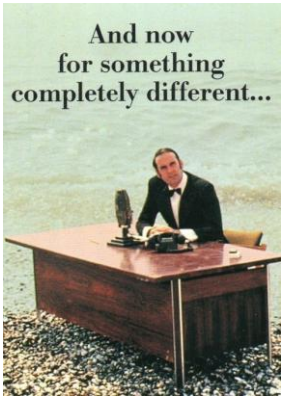
As a member in PCARS you agree to PCARS sending club related information to your e-mail address and allowing use of your photographs submitted or taken during PCARS events to be used for PCARS publications and ham radio related articles.

Mail to: Portage County Amateur Radio Service, Inc.
705 Oakwood Street - Box 12
Ravenna, OH 44266

Date Received:	☐ New	☐ Renew
Initiation Fee: $	+ Dues: $	= Total $ $0.00
Paid: ☐ Cash -or- ☐ Check Check #		
-or- ☐ PayPal Transaction Number:		
Date Voted:	Results:	Member Number:
☐ Database Updated		

Rev. 9 September 2020

Just for Fun



Quotes from Phyllis Diller

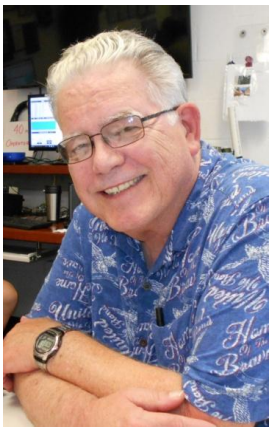
(The older folks will remember Phyllis)

- As your beauty fades, so will his eyesight.
- Housework can't kill you, but why take a chance?
- Cleaning your house while your kids are still growing up is like shoveling the sidewalk before it stops snowing.
- The reason women don't play football is because 11 of them would never wear the same outfit in public.
- Best way to get rid of kitchen odors: Eat out.

- A bachelor is a guy who never made the same mistake once.
- I want my children to have all the things I couldn't afford. Then I want to move in with them.
- Most children threaten at times to run away from home. This is the only thing that keeps some parents going.
- Any time three New Yorkers get into a cab without an argument, a bank has just been robbed.
- We spend the first twelve months of our children's lives teaching them to walk and talk and the next twelve years telling them to sit down and shut up.
- Burt Reynolds once asked me out. I was in his room.
- What I don't like about office Christmas parties is looking for a job the next day.
- The only time I ever enjoyed ironing was the day I accidentally got gin in the steam iron.

- His finest hour lasted a minute and a half.
- Old age is when the liver spots show through your gloves.
- My photographs don't do me justice - they look just like me.
- Tranquilizers work only if you follow the advice on the bottle - keep away from children.
- I asked the waiter, 'Is this milk fresh?' He said, 'Lady, three hours ago it was grass.'
- The reason the golf pro tells you to keep your head down is so you can't see him laughing.
- You know you're old if they have discontinued your blood type.

Thanks & 73



Parky, KB8UUZ
PCARS Newsletter Editor

I really appreciate the help in gathering material to keep this newsletter number one. Without your help we would not have received the newsletter awards this year and in past years. All of our members (and others) look forward to getting this newsletter every month, so keep sending those inputs! I'm sure PCARS is known as the **BIG FUN** amateur radio club. So chip-in and send your article in to keep this newsletter great for 2021 and beyond.

Thanks go out to the contributors for this month's newsletter:

AC8QG, N8WCP, KB8UUZ, WA8EFK, N8SY, WB8LCD, KD8MQ, KE8EGF, WB2MGP, KA8TOA, K8CAV, N3RA, KJ3X, K8ZT, N8PZL, WS8G, W8PT, AC8NT, W8KNO, N8FTP, Gordon Corera, The ARRL, CQ Newsroom, DX Engineering, IARU, BBC and the World-Wide Web

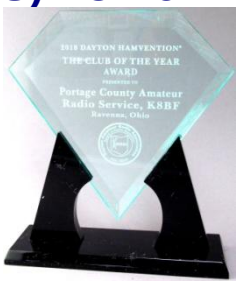
With ***your*** continued help – **we** can keep making this a ***great*** newsletter.

It's still here - and it looks like it will be for a while

If you have been following the news about the COVID-19 Delta variant, then you know that is gaining ground around the world and right here in Ohio as well as all over the USA. State and local governments significantly ramped up notifications to the public during the pandemic to spread awareness about COVID-19 and accompanying public health measures. The new Delta variant seems to be even more contagious. This is **not** over, we need more people vaccinated to cut down on spreading this virus and its mutations - masks are the fall style now. **We will get through this - just hang in there**. Everyone wants to go back to the old 'normal'. But until it happens, please, be careful out there.

The Portage County Amateur Radio Service, Inc. (PCARS) - Ohio

~ The Hamvention® 2018 "Club of the Year" ~



PCARS meets the second Monday of each month at the **Kent American Legion Post 496**.
1945 Mogadore Rd. - just South of Rt. 261 - Enter the rear of the building for the meeting room.

Meeting starts at 7:00 pm - All are welcome to attend ~ Stop in and say hello!

PCARS uses the **K8IV** repeater: **146.895 MHz PL 118.8** in Sugar Bush Knolls ~ EchoLink Node: **K8BF-L**

Check PCARS out on the web: www.PORTCARS.ORG -or- www.K8BF.ORG

~ 2021 Officers ~	2021 PCARS Appointments & Committees		
President - Nick Wagner - AC8QG Vice President - Mike Szabo - N8WCP Treasurer - Paul Hyland - KE8EGF 3 Year Trustee - Amy Leggiero - N8AMY 2 Year Trustee - John Myers - KD8MQ 1 Year Trustee - Chuck Patellis - W8PT Past President - Tom Sly - WB8LCD	ARRL Awards - DXCC	W8KNO	Joe Wehner
	Club Site Manager/Liaison	K8CAV	Rick Kruis
	Contest Coordinator	W8PT	Chuck Patellis
	EchoLink	AC8NT	Jim Wilson
	Field Day Chairman, 2021	WA8AR	Tony Romito
	FYAO Chairman	W8PT	Chuck Patellis
	Historian	KB8SZI	Peggy Parkinson
	K8BF Callsign Trustee	N8AMY	Amy Leggiero
	K8BF QSL Manager	N8AMY	Amy Leggiero
	Membership Chairman	AC8NT	Jim Wilson
	Net Control Manager	KA8TOA	Greg Ash
~ Meetings & Net ~	Net Night - Club Manager	WB8LCD	Tom Sly
	Newsletter Editor	KB8UUZ	Tom Parkinson
	OSPOTA Chairman	KB8UUZ	Tom Parkinson
	Public Information Officer		
2nd Monday of each month. 7pm Thursday night Club Net at 8 pm on 146.895	Secretary	AC8NT	Jim Wilson
	Social Media	N8AMY	Amy Leggiero
	Tech, Gen & Extra Class Manager	AC8NT	Jim Wilson
	Volunteer Examiner Liaison	KB8UUZ	Tom Parkinson
	Webmasters	KD8MQ	John Myers
		K8SRR	Steve Randlett

PCARS *Active* Volunteer Examiner Team Members

KB8UUZ	Tom	Parkinson
WB8LCD	Tom	Sly
N8XTH	Deron	Boring
N8PXW	Jim	Korenz
N8QE	Bob	Hajdak
K8IV	Ed	Polack
WA8CCU	Al	Nagy
AC8NT	Jim	Wilson
KA8TOA	Greg	Ash
W8PT	Chuck	Patellis
AC8QG	Nick	Wagner
N8FUM	Dan	Torchia
W8GWI	Dave	Seckel
N8AMY	Amy	Leggiero

THE RADIOGRAM

PCARS Incorporated
Nov. 1, 2005

First Meeting
Nov. 14, 2005

ARRL Affiliation
April 20, 2006

Special Service Club
March 22, 2010

The RADIOGRAM is published every month and only sent to subscribers. If you would prefer not to receive this newsletter, we understand. We'll try not to take it personally. It's not you saying you don't like us, but maybe you just don't have the time to look at all this hard work we've done just for you. Hey, that's cool. But if your heart is truly set on making sure you no longer receive this newsletter, even though we promise to one day reveal the meaning of life in it and you're going to be really upset when you miss out on that, we can take you off the e-mail list. Send your newsletter inputs (**in .TXT format**) along with **in-focus** pictures (not small 50 kb photos) to the newsletter editor: KB8UUZ@gmail.com

By attending PCARS in-person activities, you are acknowledging that an inherent risk of exposure to COVID-19 exists in any public place where people are present. By attending PCARS in-person activities, you voluntarily assume all risks related to exposure to COVID-19 and covenant not to sue and agree not to hold the Portage County Amateur Radio Service (PCARS) or any of their directors, officers, contractors, vendors or volunteers liable for any illness or injury. While PCARS implements preventative measures to reduce the spread of COVID-19 in accordance with Federal, State and Local guidelines, we cannot guarantee that attendees will not become infected with COVID-19 as a result of attendance.

NLC

Portage County Amateur Radio Service (PCARS)
705 Oakwood Street - Box 12
Ravenna, OH 44266 USA