



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

May 2020 - Volume 15 Number 5



I HAVE A WIRELESS FOR YOU
C Q D
Come Quick Danger

Limit In-Person Social Contact

The Solution is Ham Radio GET ON THE AIR



PCARS K8BF

The Club that puts the FUN in Ham Radio!



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Volume 15 May 2020 Number 5



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From the President

Tom, WB8LCD

PCARS President



May 1st is fast approaching! Can't get here fast enough as far as I'm concerned. Even if we start getting back to "normal" it will be a hollow victory. Way too much has already been lost of 2020. At the very least, maybe we'll get some really nice spring weather.

Let's look at it from another perspective. We've been given the opportunity to "re-boot" many of the things were holding us back, if for no other reason than "that's the way we've always done it." PCARS is an "Amateur Radio Club", so I'm not going to spend time on what it would look like to "re-boot" things such as attitude, personal responsibility, relationships, but, those are all things that affect us as PCARS members. Probably the most important thing to remember is that life is uncertain – we're here today, but everything can be different tomorrow. Forget the idea of "someday I'd like to...." whatever it is. If you'd really like to – Do It Now! You may never get another chance. No more excuses.

What are some of the things that we might be making all kinds of excuses for so we can put it off for later? (disclaimer: this is just a starter list – nowhere near all inclusive)

- Upgrade your license
- Learn the Morse code, become proficient enough to QSO with CW
- Participate in some major contests with the idea of being competitive
- Chase DX, chase counties, chase QRP Q's, chase.....
- Build your station to be what you want it to be
- Put up a decent antenna, experiment with antennas
- Become an expert in digital communications
- Restore some old radio equipment
- Homebrew some equipment
- Make satellite contacts
- Make some YouTube videos to help others learn what you know
- Plan some trips for operating mobile / portable

If these, or other things, are what you would really like to do, why are you sitting on the couch watching TV (or Facebook)? You aren't wasting time. You're wasting life.

Enough of that. I was writing my page for the ARRL Ohio Section Journal and I got to wondering how many PCARS members look at the Section Journal each month. Do you read that? Scott puts together a very informative monthly newsletter. If you don't get it, email Scott and ask him to put you on the list. Or, you can just go to the Ohio Section website at www.arrl-ohio.org and look it up there.

Last month's meeting was very successful in my opinion. It was different not being together in person, but it was pretty much our best alternative to just doing nothing. Unfortunately, this year's YDXA trip has been cancelled. But that doesn't mean that it's over – it will continue to be one of the best opportunities for young ops to get out there and do something extraordinary. They still need our, and your, support for the coming years. Please be as generous as possible. Same thing with Hamvention®. It will be sadly missed this year. (one of the events I most look forward to on an annual basis) But it will return! I've always said, this is one of the largest, and premier Amateur Radio events *In The World!* How lucky are we to have it happening right in our back yard? You owe it to yourself to make plans right now to attend the 2021 Hamvention®. I'll look forward to seeing you there.

Every year I look forward to having a chance to have a few words with Geoff Howard, W0CG – at Hamvention®. Knowing that Geoff is always at Hamvention®, and, having our April meeting topic the Youth DX Adventure program, I thought that Geoff would be a great speaker for our May meeting, as a follow up. Geoff had agreed, and I was looking forward to seeing him in Kent at the PCARS meeting this year. Plans have been changed. With no Hamvention®, Geoff is not travelling to Ohio. But the GOOD NEWS is that Geoff has agreed to be our May meeting presenter via ZOOM again! I had the good fortune to be able to visit Geoff a few years ago in Curacao at PJ2T. Even though it was only for a few hours, it was truly a remarkable experience! Seeing what goes into establishing and maintaining a world class station was amazing. On air for just a few hours as WB8LCD/PJ2 was something I'll never forget! I hope you'll join us for the May meeting. As before, I'll get the information out to you a couple days prior to the meeting.

I don't expect the world to go back to "normal" just because the calendar hits a certain day. It'll probably be a slow progression. It'll probably be a different "normal" from what we're used to. But PCARS is going to be here, and we are going to have a lot of fun events and things to do! Nothing says that just because normal is different, that it can't be better than it ever was before. It's going to take some time to get everything figured out, but we are going to keep the BIG FUN going.

Field Day is our next big program. It's going to be different. But, it's going to be fun. Stay tuned, and 73.

From the Vice President

Nick, AC8QG
PCARS Vice President



Well, the crazy times continue. I happen to be surprisingly busy, and I guess that beats the alternative. I hope all of you are staying healthy, happy, and safe. This novel coronavirus has put a lot of my plans on hold and that includes a lot of PCARS activities. Don't worry though! As things get better we'll continue our on-air activity and eventually get some real in-person events going again!

The April Zoom meeting seemed to go very well. I was glad to see so many faces. It's not quite the same over the internet, but it is a chance to interact in a limited way. I think I might have to make some greasy food to make it feel more real next time. And speaking of next time, please join us for the May meeting! We have another great speaker lined up and I know it will be a good time.

PCARS is the "**Big Fun**" club, and even with so much shutdown, we can keep that tradition going strong. I appreciate everyone who is checking into our weekly nets, participating with the club in contests, and taking part in the online club meetings. I look forward to hearing all of you on the air!

Upcoming Meetings and Events

All of our in-person board meetings, regular monthly club meetings, special interest group meetings, build days, and all club site activities are canceled until further notice.

May 11th (Online): Geoff Howard W0CG / PJ2DX — PJ2T contest station in Curacao

If you have any suggestions for a meeting topic, or if you are interested in giving a presentation, please let me know. We're always looking for new and interesting topics!



Schedule of Events



On the calendar for upcoming meetings and activities are:

- May 4th - Board Meeting - starts at 7 pm
- May 11th - PCARS Meeting - 7 pm - On-Line - Geoff Howard W0CG / PJ2DX — PJ2T contest station in Curacao

NOTE: All In-Person Activities & Meetings

Subject To Cancellation

Check Web Site for Updates



- | | | |
|-----------------|---|--|
| First Tuesday | - | Digital - Moderator: Rick, K8CAV |
| Second Tuesday | - | QRP/CW - Moderator: Terry, KB8AMZ |
| Third Tuesday | - | Antenna - Moderator: Tony, WA8AR |
| Fourth Tuesday | - | DX & Contest - Moderator: Chuck, W8PT |
| Fifth Tuesday | - | Linux for Hams - Moderator: Terry, KB8AMZ |
| Fourth Thursday | - | Net Night at the Club Site - 6:30 pm - Moderator: Tom, WB8LCD |

PCARS Custom Coffee Cups - Limited Edition- Going Fast

PCARS has obtained a 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.



Portage County Amateur Radio Service



K8BF

2018 Hamvention® Club of the Year

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

Contact Paul for all of the details



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The Club that puts the *FUN* in Ham Radio!



PCARS VE Test Sessions

Tom, KB8UUZ
PCARS VE Team Liaison

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

NOTE: All Dates Subject To Cancellation

Check Web Site for Updates

Jun 6th, Aug 1st, Oct 3rd, Dec 5th, June 27th at the Field Day site - 4 pm

Amateur Extra Class question pool changes - July 1, 2020

What to Bring to the Testing Session

- \$15 is still the current test fee. We prefer the exact amount in cash or a check made out to: **ARRL-VEC**
- A government photo ID (**driver's license or state ID card preferred**).
- Your Social Security Number or FCC Federal Registration Number. We are required to submit either your Social Security Number (SSN) or your FCC Federal Registration Number (FRN) with your application. If you are upgrading, your FRN is on your current Amateur Radio license.
- A pen (black ink) and pencil (we can loan you either or both)
- **If you already have an Amateur Radio license: One copy of your current (*unexpired*) Amateur Radio Operator License issued to you.**
- 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.

Any Questions? Contact: KB8UUZ@gmail.com

At this point in time, PCARS will not be having VE Testing Sessions due to the complications in social distancing and the need for protective measures to avoid contamination that could be passed on to either the attendees or the PCARS VE Team.

Some ideas have been looked at, but none seems to be viable. **The ARRL has not come out with any set program or instructions on how to accomplish a remote session.** Think about it - When doing a remote session: How do you get a 605 form with signatures, how many cameras do you need, can they be remotely moved to monitor rooms. Once the test is completed - how do the 3 VE's grade it and sign off on the 605 and CSCE and how does the candidate get the CSCE and sign it? Then the paperwork has to be compiled and sent in to the ARRL. None of these things have been established or tested to ensure the integrity of the VE testing system. Plus - most of the VE's in PCARS are in that prime age group and no one wants to risk catching anything from anybody and I don't blame them. Did you know that the virus can live on paperwork, and money? Both handled during VE test sessions

Look at this chart.



How long the new coronavirus can live on surfaces

SURFACE	LIFESPAN OF COVID-19 VIRUS
Paper and tissue paper**	3 hours
Copper*	4 hours
Cardboard*	24 hours
Wood**	2 days
Cloth**	2 days
Stainless steel*	2-3 days
Polypropylene plastic*	3 days
Glass**	4 days
Paper money**	4 days
Outside of surgical mask**	7 days

*At 69.8 to 73.4°F (21 to 23 °C) and 40% relative humidity
Source: New England Journal of Medicine; The Lancet Microbe**
**At 71°F and 65% relative humidity
BUSINESS INSIDER

Remote Testing - Contrary Opinion

Dan, KB6NU



Remote license exams have been a hot topic lately. I've blogged about it, the ARRL reports that remotely administered testing is promising, and the W5YI VEC in conjunction with HamStudy.Org has also conducted some remote testing. I think that it's safe to say that before long remote testing will be widely available.

Not everyone is thrilled by this idea. Jeff, KE9V, tweeted the following yesterday:

Not a fan of remotely administered tests. It puts even more distance between newcomers and other hams, mentors, and clubs. I doubt it will cease when life goes back to normal so this feels like yet another self-inflicted wound. [arrl.org/news/remotely-...](https://www.arrl.org/news/remotely-...) #hamradio

He's got a point. I think that we already have a problem mentoring the next generation of hams, and going to remote testing is only going to exacerbate this problem. The flip side, of course, is that this is inevitable. I replied:

That's certainly a concern, but it's been my experience that many, if not most, new hams don't take advantage of mentors and clubs anyway. Whether for good or ill, they're getting their mentoring from YouTube, reddit, and other online forums, or just foregoing it altogether.

Jeff went on to say, "I get that, but ceding this function renders local radio clubs a little more unnecessary, and most are in a tenuous position as it is." Jeff is right on again, but the saying, "You can lead a horse to water, but you can't make him drink" comes to mind. Even with local testing, most newcomers don't attend local radio club meetings or take advantage of the mentoring that club members could provide. For example, I offer to help every single student that attends my one-day Tech classes. and over the past dozen years or so, I've had hundreds of students. My guess is that less than 10 percent of them have ever asked for help.

I still think it's time for remote testing, but Jeff's point is well-taken. There are lots of good YouTube videos on different amateur radio topics, but I don't think any of them are designed to help a newcomer discover what he or she might like best.

I hope the VE teams that do remote testing will at least point the newcomers at some resources to help them get into amateur radio. Hopefully that would include links to the ARRL's Find a Club page so that they could find some one-on-one help, if they need it or want it. And, it might be time for the ARRL to actually get serious about a mentoring program. Many folks do just fine on their own, but I'd guess that many more would benefit by having hams they can rely on for advice and a helping hand.



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Contest University 2020 - LIVE On-Line and FREE

Tim, K3LR
Contest University Chairman



Contest University 2020 will be held online free via Zoom *(Link will be available on May 7th)*

Thursday, May 14th 9:00 am EDT

I am pleased to announce that Contest University USA 2020 will be held on-line via Zoom on Thursday May 14, 2020. CTU 2020 is free. Connection details to the CTU Zoom bridge will be posted on the Contest University one week ahead of CTU. CTU 2020 will be recorded for easy viewing any time after May 14 and the slide decks will be posted on the CTU website as well. At the end of CTU 2020 Dave, K3ZJ from CQ Magazine will present the 2020 CQ Contest Hall of Fame awards – live on the Zoom bridge. <http://contestuniversity.com>

Contest University ONLINE 2020 via ZOOM – all times EDT

- 8:45** Welcome to CTU 2020 from W8CI, K3LR and N9JA
- 9:00** W3LPL – “Effective Low Band Receiving Antennas”
- 10:00** W2NAF – “2020 Solar Cycle Update and the HF Response to Ionospheric Storms and Traveling Ionospheric Disturbances”
- 11:00** N6TV – “Everything You Need to Know About USB and Serial Interfaces”
- 12:00** Lunch on your own
- 12:25** K1AR – Memorial reading of the Silent Keys for 2020
- 12:30** NN1C – “Exuberance and Youth Contesting – Update on What is Going On”
- 1:00** W0YK – “Digital Contesting Hints & Kinks”.
- 2:00** K1DG – “Optimizing your Station for Contest Operations”.
- 3:00** N0AX – “Grounding & Bonding for Contest Stations”
- 4:00** NC0B – “Contest & DX Performance A Complex Subject Today Great RX Performance – TX Limitations”
- 5:00** W3LPL – “60 Years of Competitive Contesting — the W3LPL Story”
- 6:00** K3ZJ – Presentation of CQ Contest Hall Of Fame 2020

Contest University



Hamvention QSO Party

The Dayton Hamvention for 2020 has been [cancelled](#). WWROF, in cooperation with the Hamvention organizers, wanted to create a fun way for people to celebrate the Hamvention experience over the air - the Hamvention QSO Party.



In memory of Ron, W8ILC, who became a silent key just two days after the Hamvention 2020 cancellation announcement. Ron had attended every Hamvention since the beginning.

This is a 12 hour fun event on Saturday of Hamvention May 16, 2020.

Object: To celebrate the Dayton Hamvention by working as many Amateur stations as possible during the QSO Party period.

Contest period: 8 AM to 8 PM EDT (1200 to 2400 UTC), May 16, 2020

Bands: 160, 80, 40, 20, 15, and 10 meters CW and SSB - You can work the same station once per band mode (12 QSOs possible with same station).

Exchange: Signal report and first year you attended Hamvention. If you have never attended Hamvention send "2020".

Entry Categories: Only single operator entries - you may use assistance such as the cluster and the reverse beacon network (RBN). No self-spotting.

There are three power levels:

- QRP - no more than 5 watts
- Low Power - No more than 100 watts
- High Power - no more than 1500 watts.

Scoring: Score is number of QSOs + bonus points = final score. There are no multipliers. Special bonus points:

W8BI, the club call of the Dayton Amateur Radio Association (DARA is the host of Hamvention) will be activated by DARA members from their home stations. You can add 10 points for each band mode QSO with W8BI (12 available). So you can earn 120 bonus points (this is like having 120 additional QSOs)

To Enter: Post your score at 3830scores.com within 5 days of the event (May 21, 2020). No logs are required.

Awards: An online certificate will be available to all stations that post a score before the deadline.

Questions: Contact Tim Duffy, K3LR, k3lr@k3lr.com

New Benefits for ARRL Members



ARRL members will now receive digital access to four ARRL magazines beginning with their latest issues. Joining *QST* and *On the Air* magazines on a digital platform will be the bimonthly editions of *QEX* — *The Forum for Communications Experimenters* and *NCJ* — *National Contest Journal*. *QEX* includes articles, columns, and other features ranging from construction projects to more advanced technical information in radio theory and practice. *NCJ*, published since 1973, targets radio amateurs active in radiosport. *NCJ* includes scores, technical articles, contributions from top contesters, and advice for beginners and seasoned radiosport enthusiasts alike.



“Feedback from ARRL members and our readership surveys has shown that our magazines are one of the most valued member benefits,” said ARRL Publications Manager Steve Ford, WB8IMY. “Our investment in digital access provides another channel through which we can deliver content to our members across the expanse of interests and activities in amateur radio. All members can enjoy specialized content and a high-quality reading experience whether at their desk or on the go. Offering this suite of digital magazines is an opportunity for us to give members more of what they want while adding value to ARRL membership.”

ARRL’s digital magazine editions provide replicas of the printed editions with added functionality, allowing users to fully search issues, enlarge pages, share articles, and more. The free *ARRL Magazines* app also supports downloading complete issues onto your mobile device or tablet for offline reading.

Members who have elected to receive a printed *QST* or *On the Air* as part of their membership benefits will continue to have this service. Members may not substitute a print subscription of *QEX* or *NCJ* as their delivered magazine member benefit. Print subscriptions of *QEX* and *NCJ* will continue to be available at additional cost for those who want to receive them.

All four magazines are easily accessed through any web browser from **members-only links**. The free *ARRL Magazines* app is available for iOS and Android in the Apple App Store and Google Play. If you’re already an ARRL member and previously created an **arrrl.org** website account, your username and password will provide you access to the digital editions, whether online or in the app. Members who have not previously registered will need to **create a new account**. If you’ve forgotten your password, visit **www.arrrl.org/forgot-password**, or email **circulation@arrrl.org** for assistance.

Previous and prospective members can **join ARRL** and take advantage of this and other membership benefits.

Tower Safety Video Series

Posted by On All Bands - April 22, 2020

(((ON ALL)))
BANDS

AN AMATEUR RADIO BLOG BY DX ENGINEERING

Welcome to the first installment of DX Engineering's Amateur Radio Tower Safety Video Series, featuring



Tim Jellison, W3YQ
EMAIL: W3YQ@W3YQ.com

Tim Jellison, W3YQ. Tim is a longtime Amateur Radio operator, highly experienced and credentialed tower climber, certified rescue technician, and qualified climbing instructor who speaks frankly about following safety guidelines - *at all times*.

He begins the series by explaining the importance of not doing some of the foolhardy climbing you may have done as a kid: "With age comes a little bit of wisdom," he explains.

We'll be posting more videos covering topics such as inspecting the tower, determining when it's not safe to climb, critical fall prevention and arrest gear, best practices for

ascending and descending, and much more.

Why this series? Why now? We've read too many tragic stories of friends in the Ham Radio community who have been seriously injured or killed participating in the hobby we all love. It is our strong belief that even one accident is too many.



Most importantly, **understand that these videos are *not* to be used as a replacement for taking the time to get trained and certified yourself.** Consider them a warning of the inherent dangers of climbing - even small and moderate-sized towers. We hope they prompt you to seek certified training or to leave tower climbing to the professionals.

<https://youtu.be/Qzn4ME0xVpI> - On All Bands - Tower Video



PCARS
www.portcars.org



*Social
Distancing*



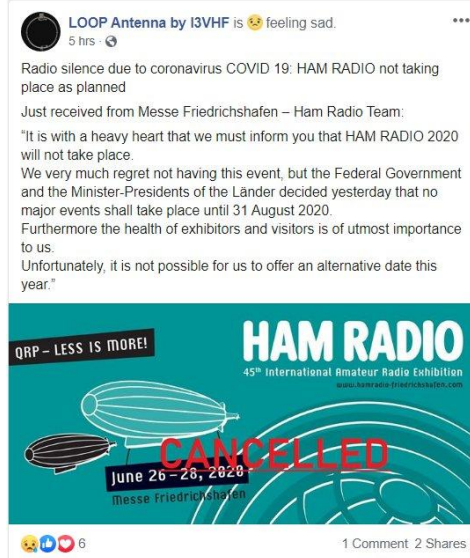
Friedrichshafen 2020 Cancelled

HAM RADIO in Friedrichshafen, Germany, Announces Cancellation of 2020 Show

The annual HAM RADIO show in Friedrichshafen, Germany, has decided to cancel its 2020 show due to the COVID-19 pandemic. According to the announcement, HAM RADIO acted in accordance with an April 15 decision by federal and state authorities that no major events are to take place until August 31. HAM RADIO 2020 was set for June 26 – 28. The event is Europe's major ham radio show, attracting some 15,000 visitors from around the world each summer, including a contingent from ARRL. This year's show would have been the 45th HAM RADIO.

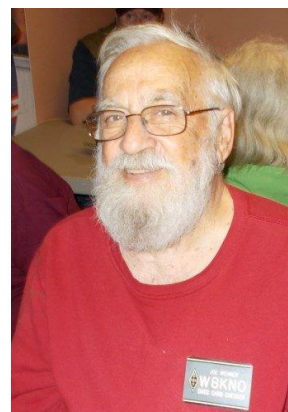
"Our members, domestic and foreign guests, and we ourselves have been hit hard by this decision, which now became necessary to make on short notice," said Deutscher Amateur Radio Club (DARC) President Christian Entsfellner, DL3MBG. "Until we get together again in Friedrichshafen, we as amateur radio operators are looking forward to keeping in contact with one another using amateur radio."

On the **HAM RADIO website**, exhibitors, including DARC, will offer a virtual show.



Paper Chase - Work All Counties

With the continuation of the corona virus, most of the special events have been cancelled. What can we do? There are things that will get you new Paper. One of such event is working all the counties in a state.



Joe, W8KNO

Luckily for us, May gives us the opportunity. The Delaware QSO Party is from

1700Z May 2nd until 2359Z May 3rd. There are only three counties: New Castle (NDE), Kent (KDE) and Sussex (SDE). You should be able to work all three counties from Ohio.

The specifics of the party can be found on the First State ARC website www.fsarc.org/qsoparty/rules.htm.

After the QSO Party and having worked all three counties, you are eligible for a worked all Delaware County Award. You can obtain it by sending photographs of the QSL cards you receive to Joe Grib, KI3B. He asks for \$5 for the certificate. The \$5 includes the postage.

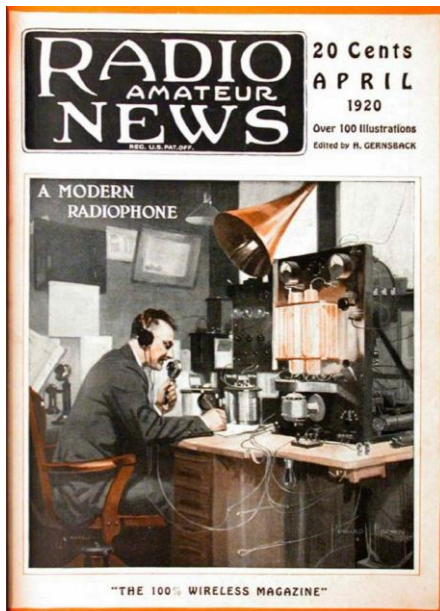


Two Hundred Meters

John, KD8MQ



Finding a subject for this month's submission to the radiogram was a bit of a challenge. My inspiration this time came from the April, 1920 issue of Amateur Radio News. This magazine, and others can be found at <https://www.americanradiohistory.com/>. I could spend an entire evening just reading this issue, but we'll start with the following excerpt from page 548. The article is named "200 Meters and what it means", by Pierre Boucheron.



Here are some of the most important existing laws and regulations concerning amateur operation circa 1920:

- (a) General amateur stations are restricted to a transmitting wavelength not exceeding 200 meters and to a transformer input not exceeding 1 k.w.
 - (b) When within five nautical miles of a Naval or Military radio station, the transformer input is limited to but 1/2 k.w.
 - (c) A licensed first grade amateur must be able to receive at no less than ten words a minute, counting five letters to the word.
 - (d) At present local government radio inspectors frequently "listen -in" to the activities of amateurs and when they hear any one transmitting above the lawful wave-length of 200 meters immediately warn them if it is the first offense, or impose a fine of \$25.00 on the second offense.
- When the Department of Commerce ruled 200 meters for amateur use, it meant 200 meters and not 300 to 400 as some seem to think. Watch your step, young gentlemen, and do not overstep the bounds of safety

Reading the rest of the article, it seems clear that the author was doing his best to keep the Amateur Radio operators on the legal side of 200 meters. We had been banished there by the Radio Act of 1912 in the aftermath of the sinking of the Titanic. So, it was time to get the word out that you didn't want to be caught operating your Amateur Radio gear on the wrong wavelength.

After a while on 200 Meters (1500 KHz), spark began to die out. CW gained favor. Folks then began gravitating to 100 Meters (3 MHz), which they found provided better range than 200 Meters.

The article mentions that the Canadian Amateurs were on a different wavelength, being placed at 50 Meters. In England, no license or permission to operate was obtainable under any condition.

In 1924, US Amateurs got their own bands, which aren't too different from some of the bands we have today. They were 150 to 200 meters (1500 to 2000 kc), 75 to 80 meters (3500 to 4000 kc), 40 to 43 meters (7000 to 7500 kc), 20 to 22 meters (13,600 to 15,000 kc), and 4 to 5 meters (60,000 to 75,000 kc). Spark was allowed in a small portion of the 150 to 200 Meter band, until finally being banned in 1927.

Some of the information for this article comes from a series of articles written by Bill Continelli, W2XOY called "The Wayback Machine". If you can find them online, I recommend reading the entire series. If you have any interest in the History of Amateur Radio, it is a "must read! Thanks for reading, and hope to see you all in person soon!

LEARN WIRELESS AT HOME

The Demand for Wireless Operators Far Exceeds the Supply

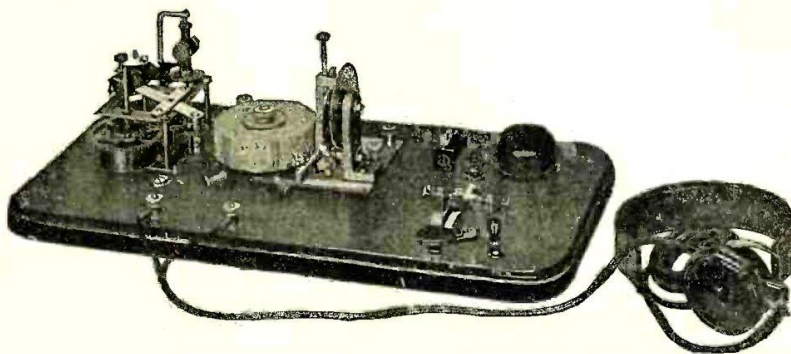
The New York Wireless Institute will make you an operator—AT HOME—in your spare time—quickly, easily and thoroughly. No previous training or experience required. Our Home Study Course has been prepared by Radio Experts. Experts able to impart their practical and technical knowledge to *YOU* in an *easy to understand* way. The graded lessons mailed you will prove so fascinating that you will be eager for the next one. The instruments furnished *free*, will make it as easy to learn the Code as it was to learn to talk. *All you will have to do, is to listen.*

Big Salaries

Wireless operators receive excellent salaries ranging from \$125 to \$200 a month and it is only a stepping stone to better positions. There is practically no limit to your earning power. Men who but yesterday were Wireless Operators are now holding positions as Radio Engineers, Radio Inspectors, Radio Salesmen at salaries up to \$5000 a year.

Travel the World Over

A Wireless Operator can visit all parts of the world and receive fine pay and maintenance at the same time. Do you prefer a steady position without travel? There are many opportunities at the numerous land stations or with the Commercial Wireless or with the Steamship Companies.



This wonderful Set for learning the Code furnished free with our Course

FREE Instruments and Text Books

We furnish free to all students, during the course, *the wonderful receiving and sending set exactly as produced in the illustration. This set is not loaned, but given to all students completing the Course.*

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Contest Calendar

May Contest Calendar	
Contest Name	Times
10-10 Int. Spring Contest, CW	0001Z, May 2 to 2359Z, May 3
7th Call Area QSO Party	1300Z, May 2 to 0700Z, May 3
Indiana QSO Party	1600Z, May 2 to 0400Z, May 3
Delaware QSO Party	1700Z, May 2 to 2359Z, May 3
New England QSO Party	2000Z, May 2 to 2400Z, May 3
Arkansas QSO Party	1400Z, May 9 to 0200Z, May 10
CQ WW WPX Contest, CW	0000Z, May 30 to 2400Z, May 31

YES - There are MANY More Contests out there - Check the internet.

Contests that will be active at the PCARS Club Site in 2020	
<p><u>NOTE: All Contest Activities from Club Site</u></p> <p><u>Subject To Cancellation</u></p> <p><u>Check Web Site for Updates</u></p>	
Date	Contest
Jun 13-15	ARRL June VHF Contest
Jul 18-19	North American QSO Party-RTTY
Aug 22-23	Ohio QSO Party & BB-QSO Party
Sept 19-20	Washington State Salmon Run
Oct 3-4	California QSO Party
Oct 10-12	Pennsylvania QSO Party
Oct 17-19	New York & Illinois QSO Parties



Abbott: So, they're saying coronavirus is now officially a pandemic.
 Costello: Who says?
 Abbott: Yes.
 Costello: Who did?
 Abbott: Of course, that's their job.
 Costello: Whose job?
 Abbott: Exactly.
 Costello: And what is the name of that organization?
 Abbott: Not what... WHO.
 Costello: That's what I'm trying to find out!



Dead Electrical Dudes - Joseph Henry

Philip, KA4KOE

This Month's Stiff: Joseph Henry
Entered Mortal Coil: 17 December 1797
Assumed Room Temperature: 13 May 1878



This month's inductee blasts my earlier assertions with respect to beards totally out of the water. The kind reader will take note that the late Mr. Henry is sitting pretty in this portrait sans facial hair. So now we have two extremes starting with Mr. Maxwell, who could've been an honorary member of Led Zeppelin, to this baby faced Dude. Insert foot in mouth!

Ole Joe started out his professional life as a worker in a small general store, like many kids of subsequent generations (this one too). At age 13, he was apprenticed to a watchmaker in Albany, New York. Later, the theater attracted him, and he was offered employment as an actor. In 1819, concerned influential friends persuaded young Joe to turn down this offer and attend Albany Academy. Such was Joe's mind that by 1826 he was offered a professorship at the Academy in mathematics and natural philosophy. It was during Joe's tenure that his gray matter started producing interesting little gadgets.

Joe had an idea that sprung from his interest in electromagnetism. Everyone at the time knew that a current flowing through a wire would deflect a compass needle. What Joe did was wind an iron core with wire...lots of it. The effect was phenomenal, and the rod acted as a powerful magnet when current was flowing through the circuit. More wire was added...then more still. Joe's masterpiece was a monster attractor that could lift over a ton of ferrous metal. One of the formulas governing electromagnetism is simply $F = N \times I$, or magnetomotive force equals ampere-turns. Add more turns of wire, and this force will increase proportionally. Joe gave the magnetic behemoth to Yale before leaving Albany Academy, where it attracted much attention.

A peculiar property was noted when the current was interrupted to the electromagnet. A spark would jump across the contacts. The arc was the result of the magnetic field collapsing around the core...i.e. the energy had to go somewhere. Henry call this effect self-inductance, or the inertial characteristic of an electric circuit. The self-inductance of the coil impeded any changes in current. For Joe's discovery, the unit of inductance, the *Henry*, as denoted by the capital letter "L", was named after him. Some confuse his discovery (at least I did at first) with the work of Faraday. It should be remembered that Faraday invented the transformer, but that's another Dude story for another day.

Joe had a distinguished career even after his work with electromagnetism made him famous. The U.S. Congress appointed him as the first chairman of the board for the new Smithsonian Institution, which was established in 1846. Henry's funeral was attended by the President of the United States and cabinet, the justices of the Supreme Court, and other big shots. Needless to say, ole Joe had some powerful friends. I guess this was due, in part, to his magnetic personality.

Reluctantly kids, I couldn't stop myself. By the way, Reluctance is also expressed as ampere-turns per Weber. Shoot me now please.

Swap-N-Shop

FOR SALE: Navigator Master Cable for an Elecraft KX2 or KX3 for sale. \$40.00. Reason for selling: I no longer have the radio. **AlexMic speaker mic** for Elecraft KX2 or KX3 with case. Never used. Asking \$100.00.

Contact: Call Rex, NX8G at (330)-936-2192 or email: nx8g.01@gmail.com [07/02/20]

FOR SALE: Alpha 77DX with all of the Dick Byrd upgrades. These upgrades include the following; higher voltage plate transformer providing 4300 Volts idle, 7500 Volt rectifiers, 5000 Volt 35 µf filter capacitor, wide spaced loading capacitors like are used in the 77SX, all new step start components, large 10x38mm fuse holders, all new electrolytic capacitors on timer & QSK boards as well as LED lighting for the meters. This amp has ZERO HOURS since being upgraded as it was my back-up amplifier. \$5000 **YAESU VX-3R** 144/440 MHz Dual Band HT, VHF TX 144-148 MHz @ 1.5 Watts, UHF TX 430-450 MHz @ 1 Watt. This radio also has a wide band receiver with an RX 0.5 MHz - 999.99 MHz. New battery purchased on 12/19. Includes antenna, wall charger, manual and box. \$170.00

YAESU FT-1802 50 Watt 2 m mobile that will TX 144-148 MHz & RX 136-174 MHz with 50W/25W/10W/5W with power cord, manual & new mic. \$85.00 **WOXUN KG-UVDP** dual band HT with TX/RX 136-174.995 MHz and 406.100-470-995 MHz and RX 76-108 MHz. Includes AC/DC charging stand with 120 Volt AC & 12 Volt DC cords & speaker mic. \$25.00 **Kenwood TS-480HX** Chassis only with top and bottom covers. \$40.00 **Craftsman 3 ½ Digit DMM** w/ 1000 Volt Fluke Lead Set. Includes Craftsman non-contact Hall-effect voltage sensing probe, used and in good condition \$30.00 **DC Power Cords** 6 Pin ICOM \$20.00, 4 Pin Kenwood \$15.00, Heavy Duty 12 Lighter Plug to Anderson Power Pole 4' Long \$20.00 **High Voltage Rectifiers** (2) 10,000 Volt 1 ampere CCS diodes, great for full wave power supplies or use two for a full wave bridge, \$15.00 each. **Ceramic Insulators for wire antennas.** Can be used as end insulators for dipole or inverted V antennas or as support insulators for loop antennas. \$2.00 **YAESU MH-31A8J Microphone**, New in box microphone for the following radios, FT-817, FT-857D, FT-897 FT-900, FT-450D and others, \$30.00 each **HARGER 2-Hole Long Barrel Lug for #2 Wire** These are premium grade lugs are great for tower grounding projects \$4.00 each **ANDREW CPT-L4ARC1 Cable prep tool** for Andrew ½" Helix coaxial cable. New in box \$125.00 **ANDREW GKT-F4A Ground kit strip tool** for Andrew FSJ4-50B ½" Superflex coaxial cable \$45.00 **VDE Lineman Pliers** New lineman's pliers with chrome plating and 1,000 Volt insulated grips \$30.00 **Universal Snap Ring Pliers** Set Used universal snap ring plier set in excellent condition \$10.00

Contact: Call or text James, KD8VT at (330)-206-4909 [07/02/20]

For Sale: Icom IC-735, AT-150 Tuner and PS-35 Power Supply – comes with the HM-12 microphone and power cable. Original Manual and all other associated paperwork included. This was my father's radio system. Handed down to me. Nice rig. Got me going in Amateur Radio. Moved on to a newer rig. Need to make room in the Shack. Asking \$475 plus shipping. CONUS via UPS. I will accept PayPal only. Selling as a package, I will not break them up. Yes, the plastic door is still attached and functioning. All sales are final due to parts swappers.

Contact: Bob, W8RID at: davet102@gmail.com or call 330-425-7313 [07/02/20]

For Sale: Ameritron QSK-5 Pin diode T/R switch 1.5 KW. Works perfectly, in original box with manual. Sold amplifier and now run barefoot so not needed. \$300 **BITX40 40 meter SSB transceiver kit** in unopened box. Bought two and managed to build one without damaging anything so selling backup. \$30 **uBitx V3 HF transceiver kit** in unopened box. Bought two and managed to build one without damaging anything so selling backup. \$60 **Softrock V6.2 with K3 IF crystal for panadapter.** I built this years ago with the plan of making a panadapter for my K3. FREE pickup

Contact: Bob, KD8CGH at: kd8cgh@arrl.net [07/02/20]

For Sale: Hi-Z SIX Direction Triangular Array Receive System – Including THREE DX Engineering AL24 Vertical Elements. Most components are new/not used. Package consisting DXE p/n HIZ-3-LV2-50 6 Direction Array System and 3 (three) of part number DXE-AL24 Vertical element kits. Hi-Z Antennas Triangular Array Systems offer 6 selectable directions of improved, low-noise receive performance and 30 dB front-to-back directivity for the 160, 80 and 40 meter bands, with useful reception from below the AM broadcast band through 30 MHz. \$650

Contact: Mark, W8BBQ at: W8BBQ@AOL.COM or text to 330-770-5442 [05/02/20]

For Sale: Palstar AT-2K Antenna Tuner. 6 months old. The AT2K matches many antenna types. 6 position antenna selector switch. Peak/Peak Hold metering from the PM2000A has been incorporated into the AT2K. Forward power metering two ranges, 300 & 3,000 watts. SWR measurements displayed with illuminated cross-needle meter. **\$485.** **HA8KF Magnetic Keyer Paddle** Iambic keyer with red paddles. Solid brass polished hub on a heavy steel base, variegated black powder coating. Pre-wired with a 1/4 in. phone plug. New. \$200. **BaoFeng UV-5R Dual Band 128 Channels** dual-band display, Dual Freq, dual-standby, a/B band operation | High/low TX power, busy Channel lock-out. Tri-color background light, FM radio (65.0MHz-108.0MHz) large LCD display. Voice Companding: 50 ctcss/104DCS coder & tone searching. Emergency alert: 25Khz/12.5Khz switchable. LED flashlight: high/low RF power switchable, New in unopened box, **\$25.** **Drake 2B receiver and 2BQ q multiplier.** Antique ham band receiver and speaker q multiplier. Works great for its age. Cabinets need repainted but ok. **\$235.**

Contact Dave, N8NB at 330-501-5031 [05/02/20]

For Sale: Yaesu FT-1000MP AC Version(No power supply required), great contest or DXing radio - excellent condition with operator manual, has extra crystal filters and inrad roofing filter installed. \$750.00 **Yaesu FTDX5000MP Limited** - 200 watt 160 thru 6 meter transceiver - AC powered, 300 Hz / 600 Hz / 3 KHz roofing filters, two independent receivers, operator manual, with custom equipment cover and Nifty Accessories reference guide. In like new condition, original boxes, \$2995.00 Can demo these transceivers at my station, local pickup preferred, will deliver up to 50 miles

Contact: George, K3GP at: 330-829-9504 evenings or weekends. [05/02/20]

For Sale: MorPower 5-kW continuous, 6,250 kW surge, gasoline generator. 19 years old. I'm getting too old for pull start, Bought new electric start. Generator runs good; I had to use starting fluid to start it. \$225. **You pick up in Brimfield.**

Contact: Rick, WA8TSI at 330-634-0396 [05/02/20]

FOR SALE: ICOM IC-7610 - Brand New, *still in the box*. Decided to upgrade antennas instead of radio. Un-opened box **\$2599.** **RC-28 - Remote Encoder** for the IC-7610 to easily operate the second VFO - Brand new - **\$200.** **8 Switch Memory External Keypad for the IC-7610/7850/7851.** Instant access to the 8 stored outgoing messages. Made in Germany by DM2RM. Brand new - \$60. **Cushcraft Ten-3** Three element **10 meter beam.** Cost new \$299.95 - **Sell for \$150.00.** This beam helped me make 7,651 ten meter contacts on a tripod on my roof. Great shape & ready to use. Had the roof replaced and took down the antennas. Will be putting up tower and Opti-Beam antennas - if the ground ever dries out..... well, maybe in Spring or Summer..... **Contact: Tom "Parky", KB8UUZ** - kb8uuz@gmail.com [05/02/20]



PCARS K8BF
The Club that puts the FUN in Ham Radio!



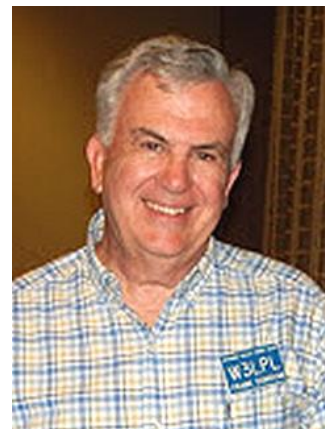
THE RADIO FAMILY



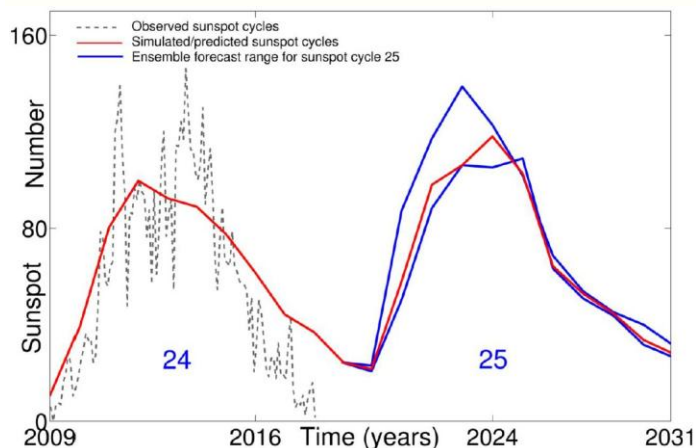
NOAA Updates Solar Cycle 25 Prediction

Frank, W3LPL

Thanks to [The Daily DX](#)



Frank Donovan, W3LPL, notes that the National Oceanic and Atmospheric Administration (NOAA) Space Weather Prediction Center ([SWPC](#)) has published its official updated prediction of Solar Cycle 25 in new, interactive [Solar Cycle Progression graphs](#). The updated prediction is based on the results of NOAA's Solar Cycle 25 Prediction Panel.



"SWPC forecasts a solar maximum between 105 and 125, with the peak occurring between November 2024 and March 2026," Donovan said. "There is broad consensus that solar minimum is ongoing this year -- or may have already occurred -- and that Cycle 25 will have no major change in the level of solar activity compared to Cycle 24."

As Donovan explained, for many years the SWPC's solar cycle predictions have used the Royal Observatory of Belgium's International Sunspot Number. SWPC's official solar cycle prediction now uses the SWPC sunspot number. The International Sunspot Number is typically about one-third lower than the SWPC sunspot number.

"While this is SWPC's official Cycle 25 prediction, it's important to note there is still divergence among various forecasting methods and members of the space weather forecasting community," Donovan said. "Most forecasts and forecasters agree that the Cycle 25 peak is likely to be within $\pm 20\%$ of Cycle 24 and is likely to occur between 2024 and 2027." [More information](#) is on the Springer Nature website.

Titanic Distress Call

A Welsh radio amateur copied the *Titanic* distress call, but authorities did not believe him.

April 15 marked the 108th anniversary of the *Titanic* disaster. As the passenger vessel was going down, frantic shipboard radio operators transmitted repeated distress calls. Arthur "Artie" Moore, MNX, near Pontllanfraith, Wales, heard one of the calls for help: "CQD CQD SOS de MGY Position 41.44N 50.24W. Require immediate assistance. Come at once. We have struck an iceberg. Sinking." At that time, operators used "CQD" (come quickly, distress) and "SOS" interchangeably. MGY was the RMS *Titanic*'s call sign. The then 26-year-old Moore picked up the distress calls from the stricken ship thousands of miles away, and, as [recounted](#) in *The South Wales Argus* newspaper, he raced to inform police about what he'd heard, but the authorities would not believe him. It wasn't until a day or two later that the grim news reached the shores of Great Britain. More than 1,500 people died in the tragedy, including some prominent individuals, on the voyage from England to the US on the *Titanic*'s maiden voyage



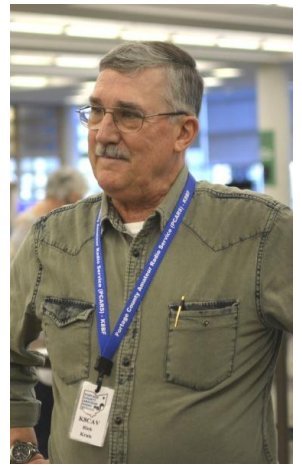
440 Tower Information

Rick, K8CAV

Dave, K8PKN sent in a short note to Tom, WB8LCD about the tower in Hiram that Ed, K8IV is using for the 440 repeater:



“Western union Telegraph Company built this tower in 1962. I bought it in 1992, and have used it for two way radio, paging, and a cell site. Most of that business is gone now, but I do have a microwave relay, and a few other users on the tower. The small barn that I built to house a mower, has been converted to a barracks for the 83 division re-enacted. My hearing is not good, so I use a headset with my two meter rig. Your voice comes through better than most guys on the net.”



From the ARRL Ohio Section Manager



Scott, N8SY
ARRL Ohio Section Manager



We've got another week marked off of the calendar under the "Stay At Home" orders, although it sounds like we're gonna' have those orders modified some in the very near future.

After listening to the President and our Governor last Friday, it sounds like some things will be opening back up within the next few weeks. I'm so glad, it's really been depressing to see just how many shops, restaurants and the like are closed. I've already heard from a few local shop owners that have decided not to open back up. That's so unfortunate. Here in the Richland County area we have a really cool motto.... "Be Focal, Buy Local." That's gonna' be a lot more difficult now.

As they have been warning everyone, things aren't going to be the same for a very long time to come. I have to agree, hugs, handshakes and gatherings like hamfests, club meetings and banquets where we are all packed in just aren't going to happen for some time to come yet, I'm afraid that's a reality that we're all gonna' have to come to grips with. I know that many of you are chomping at the bit to get to a hamfest to buy something amateur radio! I want that to happen too, but the reality is, it might not happen for a while yet. One undisputable fact that many governments around the world have discovered is that social distancing does work to fight the spread of this killer. That's a huge game changer for sure.

I will say this, I've still been able to attend a lot of club meetings and luncheons, and yes, I'm still attending some morning breakfast club gatherings too. Thanks to your willingness to utilize new and old ideas like Skype, Zoom and EchoLink. It's been great being able to take advantage of all the various ways we have to stay together yet keep our distance! Kudo's to everyone out there that has "adapted and overcome" the obstacles. Has your club been finding new ways of having meetings yet? If not, why not? Please, don't just stop having meetings because you can't do them in a building. Your club needs to hear from its officers on what's going on, even if nothing is happening, just getting together and making sure that your fellow hams are OK is vitally important. Remember, your club didn't just stop because of COVID-19. Take advantage of the technology out there and make good use of your clubs' resources!

Let's move down the band..... Janie and I have been out briefly on the trails a few times this past week, but not on the bikes since the weather just hasn't cooperated very well, but that's ok, we've got lots of time yet and many warm days ahead of us. How's about you? Are you getting out and getting some fresh air? You need to. Go out and clean up the yard. Do some spring cleaning in that overcrowded garage or shed. Put the snow thrower away and get the lawn mower out.

Even my neighbor has gotten "Robbie" the robot lawn mower back out. It seems that the neighbor is still having a little problem with him getting confused and just going around in circles sometimes. It's been a blast watching him hit some of the natural obstacles that seem to just magically appear, like sticks and tree roots that have surfaced since the last time he went in that direction. I thought he was going to explode one day when he hit a tree root and bounced back a foot or so. You would have thought he'd get the idea that there is something there he needs to avoid, but no, he just keeps going after it like a dog with a bone. I watched him attack this tree root for almost a half an hour before neighbor finally came out and shut him off. Well, that's how I spend some of my time out in the yard, how's about you?

I know that this next thought sounds like a broken record, but I do want to make sure that you are taking care of YOU. Yes, making a joke once in a while is good for the brain and the body. One thing that we all have to start talking about is our mental health. This is just as important as our physical health and humor is a good way of staying mentally healthy. Stay active, meeting with your ham buddies on the air or on the phone. Seeing one another either visually or just hearing a familiar voice has a huge positive impact on your brain. Yes, it's ok to crack a joke now and again. This relieves the tension and it's also good exercise. Yes, exercise. You use many more muscles in your face and body when you laugh than when you frown. Ok, I won't belittle this subject anymore. You've all gotten the idea. Now do something FUNNY!!!!

Update on Janie, KB8YPW. She's now closing in on having made 600 masks for our church, local nursing homes and several hospitals as well. You don't dare go into her room for fear of getting put to work. No, I don't sew, but she has a full assembly line going and she'll find you something to do, even if it's just running the vacuum cleaner!

Whelp, my final go around before gong QRT... Stay safe my friends! I want to see all of you soon at a meeting or hamfest! We will get through this and when we do, we'll have so much to talk about. Most of all... have FUN and get on the airwaves!!

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



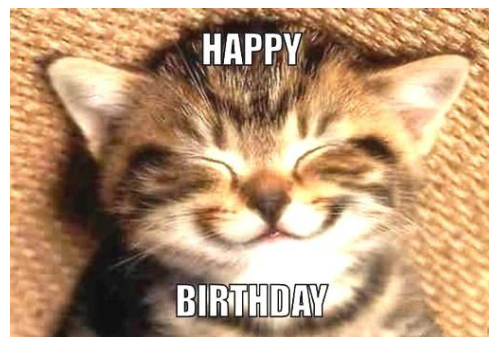
and Blue. Cost for a patch is only \$2.00 each and can be obtained at any PCARS meeting. There are 2 types of stickers available - a 4" x 6" oval and a 3" x 10" bumper sticker. Stickers are \$1 each. Show your pride in PCARS - Wear a patch, use the stickers! See the club Treasurer: **Paul, KE8EGF** or e-mail him at: phyland@neo.rr.com

Happy Birthday PCARS Members

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

W8EZT	Frank
WA8TSI	Rick
K8BBE	Chuck
WA8US	John
K8NYM	Wes
WA8YFL	Lloyd
K8HTB	Joe
WA8UWV	Doug

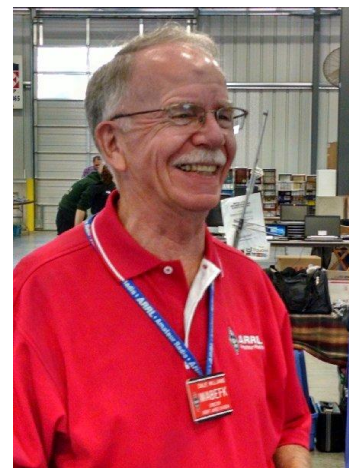
W8BDE	Don
KC8LJO	Mike
K8KSU	Melanie
KE8LJQ	Teresa
KD8SNM	James
WD8KGH	William
KE8HQQ	Norman
KE8MKY	Jordan



From the Great Lakes Division Director



Dale, WA8EFK
ARRL Great Lakes Division Director



The entire Great Lakes Division is now pretty much on "Hold" for the next month or so. Cabin fever abounds and like virtually every non-essential business, even the ham bands are closed.

I have heard from many of our Division members and everyone seems to be geared up to endure this radical change in lifestyle. Even my now-faint recollections from what our parents and grandparents went through in WW II don't really compare. I remember the rationing and the blackouts, but never was there a need to hole-up at home and not associate with friends, neighbors and family.

Travel by your Director, Vice Director and Section Manager is quite limited under the current crisis. We are assuming that everyone will be back on the proverbial road when our club meetings resume. At that point, we all will extend some extra effort to make up for those missed, cancelled and rescheduled meetings.

Importantly, we radio amateurs should not declare ourselves as essential workers and self deploy. Continue close contact with your local ARES® Emergency Coordinator to confirm your availability if you are needed.

Any activation of our services should come through the appropriate agency and based upon their specific need. We can all do our part by being properly prepared and ready to activate IF that call should come.

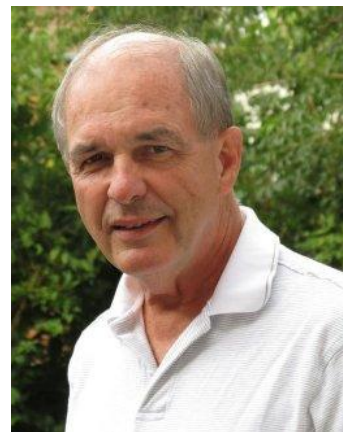
We can be thankful now for Amateur Radio and even the non-ham technologies that let us communicate today. That takes some of the edge off. Let's use it, get on the air, try some new modes, work some new stations, fill up the log. If you don't have WAS, get it; if you don't have DXCC, get it; try some meteor scatter; try FT-8 or FT-4, MFSK, PSK-31, CW, AM, SSTV, moonbounce, Digital Phone, - okay, I've only got about 75 more modes to name.... You can check into some new nets, make some new friends. And there are several interesting new nets in the Great Lakes Division, all taking advantage of those who folks are now available during the day. Join in.

Hamfests are still being postponed and cancelled, much to the disappointment of many of us, but it remains critically important for all of us to continue the lock-down vigil until the Covid-19 crisis passes.

Taking this action now will give us the best chance of avoiding contact while affording the medical profession to get a leg up on the test kits and materials they sorely need to treat the victims of the virus. Stay the course; we will get back to normal, even if it is a different normal.



From the Great Lakes Division Vice Director



Tom, W8WTD

ARRL Great Lakes Division Vice Director



So much has been written about the pandemic that I don't need to say much more than to comment on what I have seen hams do in reaction. Many clubs have been meeting via video conference or chat, and that is a good thing. The repeaters are busy—well, busier than they usually are—so people are trying to stay in touch. This thing will eventually pass, and we need to continue to make plans, be prepared, and improve our capabilities. Not to mention that we need to check up on each other and support those who are lonely or need help in some way. So with all the electronic means at our disposal, it's good to see that we are finding creative ways to communicate.

There are also projects, for people who are staying at home and not working. Some projects are just “catch up,” and others are in the nature of new modes or something else never tried before. New hams will miss out on some in-person mentoring, but the new On the Air magazine can help with some detailed illustrations of projects. And someone they know can always talk them through it. For those who have been around a while, QST always offers a few challenges, and there are other places to find worthwhile projects. The mail and the delivery services are still working, so parts are available.

It's nice to see that someone came up with a contest idea to replace the “in-person” adventure of Hamvention. I suspect that we'll be hearing of some other contests or operating events to help us stay in touch and keep our skills going.

For this part of the country, spring is welcome in that it brings warmth and sunshine, but it also brings the threat of severe weather. Let's hope we don't have to respond to those kinds of disasters along with the one we're in. But we can be ready, and we'll figure out what to do if and when we need to.

Here's hoping that some breakthroughs are made soon, and that some of this present trouble will pass quickly. In the meantime, stay strong, and get on the air!



PCARS K8BF
The Club that puts the FUN in Ham Radio!



NIST's Role in Radio (1911-1933)

Dan, KB6NU

This was originally published on the National Institute of Science and Technology's blog, *Taking Measure*.

=====



NIST's Role in the Early Decades of Radio (1911-1933)

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



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

was going to present to the conference for review.

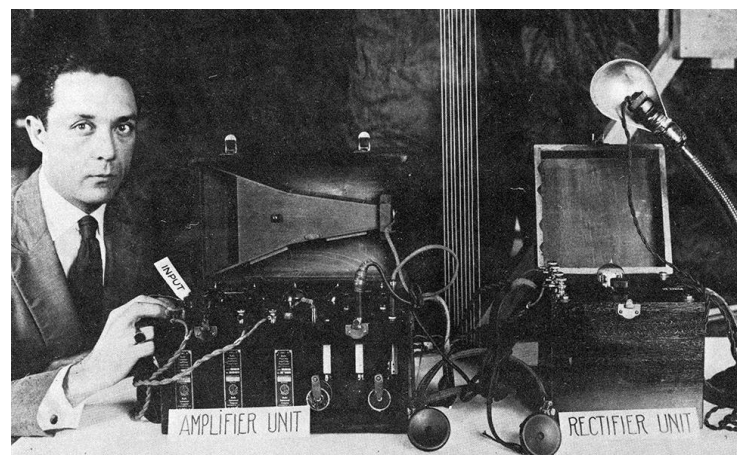
At the time, "wireless" was used as the term for radio communication, especially by the British. However, NIST was charged with revising standards in preparation for the conference, and Dellinger suggested that the professor use "radio," which was already becoming a popular word in the U.S., instead of "wireless." The professor agreed, and the word "radio" went on to become the universally accepted term.

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

A New Type of Radio Receiver

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

Percival Lowell with his patented radio set powered by alternating current. Credit: NIST



The "mousetrap" was a receiver for a radio amplifier that could run on AC. This was considered a breakthrough because at that time radios were only able to be powered by direct current (DC) provided by batteries. These batteries were bulky and heavy, had to be charged from time to time and were considered

dangerous because of the acid used in them. The researchers' prototype meant the radio could be used in homes without causing damage and with the same performance quality.

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

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

Flying by Radio

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

Dunmore created a prototype, but Harry Diamond, a radio engineer who joined NIST in 1927, completed the device, called the radio guidance system. Diamond solved the problem by developing a separate device that allowed for voice communication to the pilot without receiving any outside interference from ships' radios. A Curtiss Fledgling, a trainer aircraft developed for the U.S. Navy, was equipped with the device, and flight tests were performed between NIST's experimental air station at College Park, Maryland, and Newark Airport in New Jersey in foggy weather. After a series of successful tests were performed, the device was turned over to be used by the Department of Commerce in 1933.

Praise From a Famous Inventor

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

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

ABOUT THE AUTHOR



Alex Boss is a general assignment writer in the NIST Public Affairs Office and covers standard reference materials (SRM). She has a B.S. in biology from Rhodes College and an M.A. in health and...
filed under: [history](#) tagged with: [nist](#)

When he's not teaching ham radio classes, Dan blogs about amateur radio, writes exam study guides (www.kb6nu.com/study-guides), and operates CW on the HF bands. You can email him at cwgeek@kb6nu.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.**

Don't forget - 4th Thursday is NET NIGHT at the Club Site !!

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.

May	
7	K8IV
14	WB8LCD
21	N8QE
28	KD8WCK

June	
4	K8YLK
11	K8CAV
18	KE8BWE
25	N8XTH

July	
2	
9	
16	
23	
30	

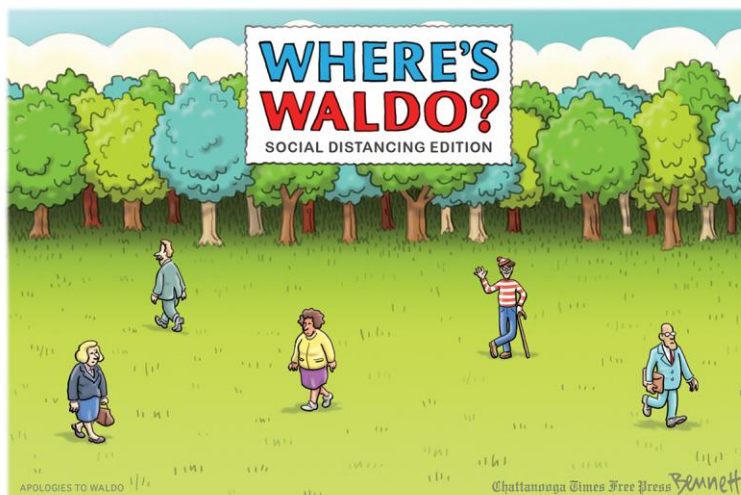


The PCARS net is **BIG Fun** - tell your friends to check in via RF or EchoLink!

If you have not been a Net Control Operator for PCARS and would like to give it a try, please contact me at: grgory999@roadrunner.com everyone who is a club member is welcome to have a turn - and have fun being the PCARS Thursday Night Net Control !

The net roster has been posted on the club web site. We appreciate everyone for checking in and participating during these troubled times. Also, the net operators for their time and effort. I have some stats that will follow. If you are a net operator please send the log to me as a PDF or use the fill in link. I print them for future use and certificates. At the end of the year they are kept at the club site for a permanent record. Hint for net operators slow it down and they will fall in line. Thanks to everyone's support and help. **And - don't forget** - when you check in to the PCARS net 10 consecutive weeks - you are eligible for a Certificate - suitable for framing. But you have to make it 10 week in a row. Miss one, and you start over again. When you get those 10 check ins, contact me so I can check the logs and get the certificate made up for you. I miss all of you and we will get through this, stay safe and play radio.

1st 13 weeks of 2020 total check ins was 264. In January the 5 week average was 18 check ins. In February the 4 week average was 19 check ins. In March for 4 weeks, the average was 24 check ins.



Paul Bourque, NISFE
ARRL Contest Program Manager



ARRL Suggests Taking a Creative Approach to Field Day 2020

This year, ARRL [Field Day](#) promises to be a unique iteration of this annual event, with many individuals and groups coming up with new and interesting ways to adjust their approach. As an event, Field Day is structured to be versatile and can be adapted for any situation.

Many groups have asked how they can adjust their Field Day planning to address social-distancing guidelines that may be in effect in many areas of the country, as gathering at their traditional Field Day site may not be feasible or safe. Instead of participating in a group event this year, consider operating as a Class B, C, D, or E station, utilizing your own call sign.

ARRL will include club names for all participating stations in the published results, so the efforts of your club's members can be acknowledged. While we will not publish an aggregate club score, seeing the name of your club associated with various individual member's results is certainly a way to highlight your club's activity. Myriad opportunities are possible in this year's Field Day setting. A few options are as follows:

- Consider having an intra-club competition among members, seeing who can make the most contacts during the event. You can award prizes or distribute certificates at a club meeting. This can be a fun way to bolster the activities of individual club members, even though they cannot all gather together at the same location this year.
- Set up a Field Day Challenge with rival clubs in neighboring communities. See how many members of each club get on the air from their own stations and participate in the event. In addition to "bragging rights," perhaps certificates to the top-scoring individual entries in each category can be presented as part of this inter-club camaraderie.

One club is planning to conduct its Field Day as a 4A club group, with participants spaced to comply with social distancing guidelines within the required 1,000-foot-diameter circle and operating individual stations. This club also plans to set up a "Get on the Air" (GOTA) station. The club's plan is to have the GOTA coach at the Field Day site, while GOTA operators participate via remote link.

Another club is planning to set up a remote-controlled station at its usual Field Day site, with club members taking turns controlling the station from their homes. The club is developing a schedule that outlines when each member of the club will be at the helm via the remote link.

Whatever approach you take to this year's Field Day, keep up to date with the current guidelines issued by local and state health agencies that may impact your proposed operation.

For the latest news and updates, visit the [Field Day webpage](#).

Field Day - Flex Station



Rick, K8CAV
Field Day Flex Station Captain



The operator schedule for the Flex Station is still three-fourths full, which is great news! The sooner we have all of the slots filled the sooner we can concentrate on training and tactics to increase our contact total during Field Day 2020. Here is the schedule below so if you see an open spot you want to operate in drop me a line at k8cav.coms@gmail.com. There are also a number of open slots for loggers, who are important to cutting down our QSO time so please consider volunteering for that as well.

DAY	TIME	MODE	OPERATOR	LOGGER
SAT 27 JUN	14:00 - 16:00	40M FT8 DIGITAL	Jim AC8NT / Rick K8CAV	
SAT 27 JUN	16:00 - 18:00	20M DIGITAL	Amy KD8SKL / Wayne K8FF	
SAT 27 JUN	18:00 - 20:00	20M DIGITAL	Rick K8CAV	
SAT 27 JUN	20:00 - 23:00	80M CW	Terry KB8AMZ	
SAT 27 JUN	23:00 - 00:00	80M DIGITAL		
SUN 28 JUN	00:00 - 02:00	80M PHONE	Deron N8XTH	Self-Logging
SUN 28 JUN	02:00 - 04:00	80M PHONE	Deron N8XTH	Self-Logging
SUN 28 JUN	04:00 - 06:00	80M DIGITAL	Rick KD8WCK / Mara KE8KBJ	
SUN 28 JUN	06:00 - 08:00	80M DIGITAL	Andrew KE8BWA	
SUN 28 JUN	08:00 - 10:00	20M DIGITAL	Gene W8NET / John KE8MXR	
SUN 28 JUN	10:00 - 12:00	40M DIGITAL	Mike N8WCP	
SUN 28 JUN	12:00 - 14:00	40M DIGITAL		

FLEX & CW to coordinate with 20M & 40M to insure that both are not on the same band at the same time.

Field Day - CW Station



George, K3GP
Field CW Station Captain



We are still looking for Field Day CW Operators (June 27-28). Currently, we have 8 operators and the first draft of our operating schedule is based upon three hour shifts.

This schedule is simply a first draft - let me know if you prefer a different time and we will do our best to accommodate.

Additional CW operators are more than welcome, we will adjust the operator schedule and durations accordingly. Email me at rttyfan@gmail.com

DAY	TIME	OPERATOR
SAT 27 JUN	14:00 - 17:00	K3GP
SAT 27 JUN	17:00 - 20:00	N8NB
SAT 27 JUN	20:00 - 23:00	ND8L
SAT 27 JUN	23:00 - 02:00	K8RR
SAT 27 JUN	02:00 - 05:00	W8BBQ
SUN 28 JUN	05:00 - 08:00	KB8AMZ
SUN 28 JUN	08:00 - 11:00	K8IV
SUN 28 JUN	11:00 - 14:00	N8QE

CW will coordinate with FLEX to insure that both are not on the same band at the same time.

Field Day - 20 Meter Station



Tom, WB8LCD
Field Day 20 Meter Station Captain



If you would like to be on “Stand By” – let me know what times you would be at the Field Day site and willing to be on call. If you would be willing to log, PLEASE! Let me know what time slots you would be willing to be a logger. A good logger can keep a good operator going at full speed AND a good logger can make a mediocre operator a better operator!

If you can be at the FD Site before and after operations, we will certainly appreciate your help with the set up and take down of the individual stations as well as the clean up of the site in general.

There will be a training / operations session in APRIL and/or MAY where we will discuss the operation of the radio (Elecraft K3S) as well as our Field Day strategy for the operation of the 20 meter station, and any “back up” scenarios we will want to be prepared for.

Watch for a QST on this.

DAY	TIME	OPERATOR	LOGGER
SAT 27 JUN	14:00 - 16:00	N8WCP	
SAT 27 JUN	16:00 - 18:00	K8KSU	
SAT 27 JUN	18:00 - 20:00	N8QE	
SAT 27 JUN	20:00 - 22:00	KD8SKL	
SAT 27 JUN	22:00 - 00:00	WB9LBI	
SUN 28 JUN	00:00 - 02:00	WB8LCD	
SUN 28 JUN	02:00 - 04:00	W8KNO	
SUN 28 JUN	04:00 - 06:00	KA8TOA	
SUN 28 JUN	06:00 - 08:00	KA8TOA	
SUN 28 JUN	08:00 - 10:00	N8QE	
SUN 28 JUN	10:00 - 12:00	KE8JUZ	
SUN 28 JUN	12:00 - 14:00	N8WCP	

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!!

Groups Find or Create a Group <https://groups.io/g/PCARS> Help Log In

Home Messages Hashtags

PCARS K8BF
The Club that puts the FUN in Ham Radio!

PCARS@groups.io

Group Description
This is the discussion group of The Portage County Amateur Radio Service, Inc. This site is for the members, by the members of PCARS.

Group Information
59 Members
1 Topic, Last Post: Feb 21
Started on Feb 21
Feed

Join This Group or Log In If You Are Already A Member

Group Settings
All subscribers can post to the group.
Posts to this group require approval from the moderators.
Posts from new users require approval from the moderators.
Messages are set to reply to group.
Subscriptions to this group do not require approval from the moderators.
Archives are visible to anyone.
Wiki is visible to subscribers only.
Members can edit their posts.
Members can set their subscriptions to no email.



YOTA 2020 Cancelled

2020 Youth on the Air in the Americas Camp is Canceled

The inaugural camp for radio amateurs in the Americas aged 15 through 25 has been put off until next year. It was set to take place June 21 - 26 at the National Voice of America Museum of Broadcasting in West Chester Township (North Cincinnati, Ohio). It has been rescheduled for July 2021.

Campers accepted to the 2020 camp will have the first chance to register for next year's camp. The daily schedule and plan for the 2020 camp will be the same for the 2021 camp as much as possible. The committee found that July was a more accessible date for the widest range of campers to attend.

The committee is also looking at ideas for a shortened, virtual camp this summer, so that campers can participate in limited activities from home. The camp was meant to focus on building peer and mentor relationships and taking amateur radio to the next level.

While many sponsors and donors have already expressed support for holding over funds received for 2020 to use in 2021, refunds of donations made to the camp are being offered. Groups or individuals wishing to receive a refund should [contact](#) director Neil Rapp, WB9VPG. Less than \$350 of the money spent thus far went to items that may not be usable in 2021, Rapp said.

More information about YOTA in the Americas can be found at [YouthOnTheAir](#) and on YOTARegion2 on Facebook, Twitter, Instagram, and YouTube.



Youth on the Air

Activities for the Next Generation of
Amateur Radio Operators in the Americas

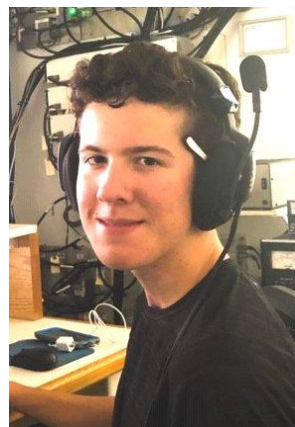
YouthOnTheAir.org

Youth Team - Contest from K3LR Cancelled

Bryant, KG5HVO

Youth Team Postpones its Planned CQ WPX CW Operation from K3LR

The youthful Team Exuberance has announced that it's postponing its planned CQ WPX CW contest operation from K3LR until May 2021. Team Exuberance will compete in the multi-two category.



“While this decision was not taken lightly, it was clearly the appropriate action in light of the coronavirus pandemic,” team member Bryant Rascoll, KG5HVO, said in an announcement. “Thank you to all individuals and clubs who financially contributed to our fundraising efforts,” he said.

Those seeking to have their 2020 contributions refunded should [email him](#) or [Marty Sullaway, NN1C](#). All funds retained will go toward Team Exuberance's next operation, Rascoll said.

CQ MVARA - 2 Meter Contest



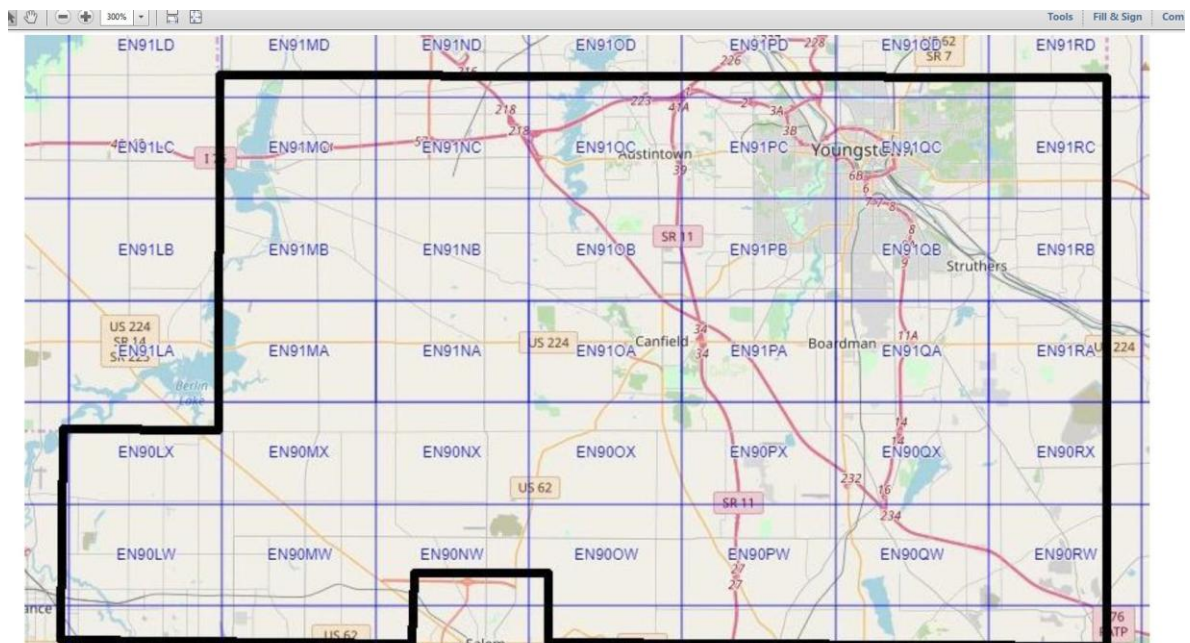
Mark your calendar for Saturday, May 30, 2020, 1:00pm to 4:00pm, for the Mahoning Valley Two Meter Contest. All interested amateurs are invited to join in for a FM Simplex Grid Square Contest covering Trumbull, Mahoning, and Columbiana Counties.

The object is to work as many different stations in as many different grid squares as possible. No 100 watt base station, no problem! The contest has a QRP category for 5 watts or less and a high power category of greater than 5 watts so everyone will have a level playing field. There will be certificates awarded to the highest scoring QRP Power Fixed and High-Power Fixed stations. We currently are not including Rover stations, pending changes in the stay at home orders from the state.

This contest is dedicated to the memory of pioneer Valley ham Lou Malice WA8PKN whose dedication to amateur radio touched the lives of all of us. Even if you never had the pleasure of knowing Lou you are still part of his legacy. Chances are good that the hams who inspired and encouraged you to become part of amateur radio were, themselves, inspired, encouraged, and trained by Lou.

The short version of the rules:

1. Mode and Frequencies: All contacts must be made on **SIMPLEX** using FM voice mode and confined to the frequency ranges 146.400 to 146.505, 146.535 to 146.595 and 147.400 to 147.585 defined by the ARRL bandplan as simplex frequencies. In Ohio FM simplex is often channelized in 15 Khz steps to avoid adjacent channel interference. Please use the frequencies on the 2 Meter FM Simplex Frequencies page available on the MVARA website. Do not use the FM calling frequency of 146.520. **NO CONTACTS MAY BE MADE THROUGH REPEATERS.**
2. Exchange: Each station will give their call and the six character maidenhead grid square they are operating from as shown on the contest maps available on the MVARA website. If your grid square is not on the maps you can find it by putting your call sign into www.qrz.com and clicking the detail tab or use the grid locator at www.qrz.com/gridmapper.
3. QSO: To be valid a contact (QSO) must contain a unique call sign and grid square combination. For complete contest rules and operating aids please check the website here: <http://mvara.org/Mv2mc.html>



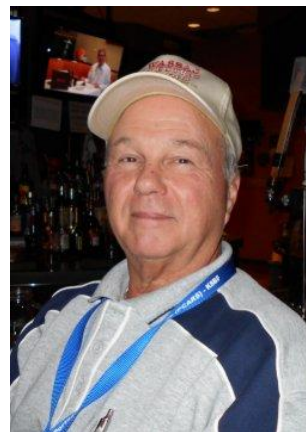
Drake TR-3 - Pre-Production 1962

Jeff, WA8SAJ

Hope you and your family are doing well? Lucy and I are doing fine up here, staying home and getting stuff done around here and working on my own ham gear for a change.



This might not be of importance, but all I have this month, Hi! Here is a "rare" picture of a Drake TR-3 prototype that I've been looking for since the 1960's and everyone thought I was nuts, but here it is for the old folks that remember Drake in the hey day, their "first" transceiver.



Now this was NOT the production model, they made what we see today out there, but the fact it had the Drake 2-B knobs and the black case etc, is a carry over from the receivers only that they were making in 1962. Production of the actual TR-3 was in 1963.

R.L.DRAKE CO. MODEL TR-3 SIDEBAND TRANSCEIVER

The Drake TR-3 is a compact light weight transceiver designed for single sideband fixed or mobile operation on all amateur bands 80 thru 10 meters. It offers the same outstanding frequency stability and selectivity which has characterized the Drake receivers.

PRELIMINARY SPECIFICATIONS

FREQUENCY COVERAGE: 3.5 to 4.1 mc,
7.0 to 7.6 mc, 13.9 to 14.5 mc,
21 to 21.6 mc, 28 to 28.6 mc,
28.5 to 29.1 mc, 29.1 to 29.7 mc.

POWER INPUT: 150 watts PEP input to two
6GJ5 novar base tubes

OUTPUT IMPEDANCE: Nominal 50 ohms,
adjustable with pi-network.

FREQUENCY STABILITY: High stability permeability tuned VFO tunes same range for all bands. Warm-up drift less than 400 cycles, less than 100 cycles after warm-up, less than 100 cycles for $\pm 10\%$ line voltage change.

SELECTIVITY: Two special, Drake designed and manufactured, 9 mc crystal lattice filters, one for upper and one for lower sideband, provide sideband selection without the necessity of shifting any oscillators. Selectivity 2.1 KC at 6 db, 7.5 KC at 60 db. The 9 mc filters are asymmetrical, that is, steeper on the carrier side resulting in unwanted sideband suppression of more than 40 db and carrier suppression of 50 db.

RECEIVER SENSITIVITY: Less than 1 microvolt for 10 db S/N

FRONT PANEL CONTROLS: Receiver Gain/Power ON-OFF Switch, Transmitter Gain (Mike gain on operate, carrier injection on tune), Bandswitch, Sideband Switch with indicator lights, RF Tune, Plate Tuning, Load Tuning, Operate-Tune Switch, Calibrator ON-OFF

RIGHT SIDE SCREWDRIVER ADJUST CONTROLS: Vox Gain, Anti-Vox Gain, Carrier Balance, S-Meter Zero

REAR CONTROLS AND CONNECTORS: Amplifier Bias Control, 11-Prong Power Supply Receptacle, Antenna Jack, Antenna Relay Jack, Receiver Input Jack

DIMENSIONS: 5-3/8" high, 10-3/4" wide, 13-3/4" deep.

WEIGHT: 12 pounds

POWER SUPPLY REQUIREMENTS: -80, 150, 300, and 600 to 750 volts DC; 12 volts AC or DC

DELIVERY: Fall of 1962, AC and DC power supplies will also be available. Prices to be announced.



Charlie the Tuner's HF High-Lites

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



Greetings to all DXers:

May already and we are still hunkered down trying to stay healthy. I hope that this newsletter and it's DX Column finds you all well and safe.

Well, I finally was able to get out and do some antenna work and hopefully, this month will see at least one of my towers completed so that I can join the rest of you, hunting some of the DX that is listed below. There is still a lot of events that have been cancelled due to the epidemic. You will find an updated list in this column. But there are still many events that are going ahead with intrepid Amateur operators who want to keep DX alive during this time.

So let's all keep their efforts from being in vain and do our part by getting on the air and making contacts with as many DXers as possible,

As always thanks to the Northern Ohio Amateur Radio Society, Northern Ohio DX Association, Ohio/Penn PacketCluster Network, the AB5K's AR Cluster Networks, ARRL Web Page, NJ1Q & W1AW, AA3B, NG3K & ADXO, NY3B, W3UR & The Daily DX, K5GS, AA7A, K8BL, K8GI, K8YSE, W8GEX & 60m DX News, W9ILY, DL1SBF, DL7UXG & The DX News Letter, DxCoffee.com, DXNews.com, DX-World.Net, F5NQL, F6AJA & Les Nouvelles DX, I1HYW, I1JQJ/IK1ADH & 425 DX News, OH2BH, Pete Rayer & ISWL, RN3RQ, Sixitalia Weekly, 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.

DXPEDITIONS (Updated/Cancellations). Over the last few weeks there have been many DXpeditions, present and upcoming, that have canceled their operations due to the corona virus or travel restrictions caused by it. Many of the DXpedition have postponed, rescheduled for later in the year or planned to be active next year in 2021.

3D2CR QSL STATUS. "Following similar news regarding international postal services' issues, we also must report that currently, the Polish Post Office, does not process any in and outbound international mail. Due to the fact we cannot send any 3D2CR cards internationally - until the corona virus issues end and the postal service would resume providing reliable services, again.

SPECIAL STAY AT HOME STATIONS/ACTIVITIES. Be looking for many special event stations to hit the airwaves to promote "STAY-AT-HOME" and raise awareness for the restrictions necessary to fight the spread the corona- virus. Stations announced are: 8A1STAYHOME (Indonesia), 9K9STAYHOME (Kuwait), A60SH/1 [SH=StayHome] (United Arab Emirates), A60SH/2, A60SH/3, A60SH/4, A60SH/5, AX2020STAYHOME (Australia), GB5NHS (NHS=National Health Service), HZ1STAYHOME (Saudi Arabia), TC1STAYHOME (Turkey), VC2STAYHOM (Canada) and XM2STAYHOM (Canada). QSL via operator's instructions.

U.S. POSTAL STOPPAGE. The U.S. Postal Service has "Temporary Service Suspensions" outgoing mail to many countries, effective April 3rd. This will be "for the duration of the corona virus issues." Here is a list of the countries the U.S. Postal system will not accept mail for (as of April 8th): ** Unless noted otherwise on International Service Alerts, service suspensions to a particular country do not affect delivery of military and diplomatic mail.

Angola Kuwait* Samoa* Benin Kyrgyzstan Saudi Arabia* Bolivia Laos Senegal Bosnia & Herzegovina
Lebanon Seychelles Botswana* Libya* Solomon Islands Cameroon Madagascar* South Africa*
Cayman Islands* Malawi Sri Lanka* Chad* Maldives* Sudan Cook Islands Moldova Tajikistan Costa Rica
Mongolia* Tanzania Ecuador* Mozambique Timor-Leste Fiji* New Caledonia* Tonga French Polynesia*
Panama* Uganda Gambia Papua New Guinea Uruguay Guatemala Paraguay Vanuatu Honduras* Peru*
Venezuela India* Republic of the Congo Zimbabwe* *denotes countries not accepting incoming mail

Please do not attempt to send an item addressed to any of the affected countries. If you do, the item will be returned to you.

May...

A2, BOTSWANA (Rescheduled). David, VE7VR, active as A25VR from Botswana until May 24th, 2021. Activity holiday style on 40-20 meters. Ops will be low power using an Elecraft KX2 transceiver (10 watts) with a 40/20 meters inverted V in a baobab tree. Should a tree not be available, he will have a 40' SpiderBeam fiberglass pole to elevate the antenna. QSL via his home callsign.

FJ, ST. BARTHELEMY. Ops Thierry/F6CUK and Gerard/F6EHJ active as FJ/F6CUK and FJ/F6EHJ, from the QTH of FJ5AB, between May 4-16th. Activity will be on various HF bands using CW and SSB. The duo and FJ5AB are planning to operate from Tintamarre Island (NA-199), St. Martin, sometime during their stay using a special callsign. Look for more details forthcoming.

G, ENGLAND, Special call GB75PEACE will be used by RSGB members as part of VE Day and VJ Day celebrations, May 1 - 31 and Aug 1 - 31. QRV on the HF bands and 6 meters using phone, CW and digital. QSL via LoTW or eQSL only, no paper QSLs.

GU75, GUERNSEY (Special Event). The Guernsey Amateur Radio Society (GARS) will be running a special event station May 6-12th (main days of op are 8/9/10th), to mark the 75th anniversary of the Liberation of Guernsey from Occupying Forces. The callsign will be GU75LIB. Activity will be on the HF bands, all modes, QO100, and maybe some 2m/70cm activity as well, depending on conditions. The station will operate from St. Peter Port, Guernsey. QSL via the Bureau, or direct to Dave, GU8ITE (QTHR).

HI, DOMINICAN REPUBLIC. Members of the La Loma Del Toro Contest Club will be active as HI3Y during the CQWW WPX CW Contest (May 30-31st) as a Multi-Single/Low-Power entry. This operation is dedicated to the memory of their good friend and operator Edwin Nunez, HI3K/SK. Operators mentioned are Jamie/WP3A, Julio/HI3A, Lor/HI3Y, Tino/HI3CC, César/HI3CMM and Franky/HI3TT. QSL via LoTW.

LN1, NORWAY. The Norwegian National Guard's Radio Amateur Club (LA1V) is QRV as LN1V during all of 2020, but mainly during the month of May, to mark the 75th anniversary of the liberation of Norway at the end of World War II. Operations will be on 160 meters to 70 centimeters (including 60 and 4 meters) using CW, SSB and the digital modes. QSL via LA4LN, either direct or via the Bureau, but no electronic QSLs.

OT2, BELGIUM (Special Event). Operators Egbert/ON4CAS and Marc/ON7SS/OO9O have activated the special event station OT20STAYHOME until May 15th. Activity will be on all HF bands using CW, SSB and probably some Digital modes. Egbert states, "This is yet another station in the #stayhome series to encourage all HAMs to stay home and protect themselves during the Corona outbreak." QSL via ON4CAS.

PA75, THE NETHERLANDS (Special Event). Operators Harm/PA0HPG, Michel/PA0VCC, Ad/PA2PCH, Nico/PA3ADU, Gerrie/PA7TT, Harm/PD0GIB, Bert/PD2B and Gerard/PD2VW will activate special event station PA75ASN until May 7th. Activity is to commemorate the 75th anniversary of the liberation of Assen City. Operations will be on 80/60/40/30/20/17/15 meters using CW, SSB and FT8/FT4. QSL via PA0VCC, direct or by the Bureau. NO eQSL.

RI1, ANTARCTICA, Alexander, RX3ABI will be active as RI1ANM from the Russian Mirny Station in Queen Mary Land, (AN-016), on the coast of the Davis Sea, until early 2021. Activity will be on various HF bands during his spare time. QSL via home call.

June....

A6, UNITED ARAB EMIRATES (U.A.E.). Members of the Emirates Amateur Radio Society (EARS), will activate the following special event station to promote the World-Wide "Stay-at-Home" campaign:

A60SH/1 -- Operator Obaid, A61M; QSL via A61BK	A60SH/2 -- Operator Abdullah, A61Q; QSL via EA7FTR
A60SH/3 -- Operator Khalid, A61NN; QSL via A61NN	A60SH/4 -- Operator Khalid, A61BK; QSL via A61BK
A60SH/5 -- Operator Ali, A61DD; QSL via A92AA	A60SH/6 -- Operator Obaid, A61QQ; QSL via A61BK
A60SH/7 -- Operator Faisal, A61FJ; QSL via LZ1YE	A60SH/8 -- Operator Khalifa, A61K; QSL via A61BK
A60SH/9 -- Operator Ali, A61AY; QSL via A61AY	A60SH/10 -- Operator Fahed, A61FK; QSL via A61BK
A60SH/11 -- Operator Talal, A65MM; QSL DIRECT	A60SH/12 -- Operator Hassan, A61HA; QSL via A61BK

V4, ST. KITTS. John, W5JON, will once again be active as V47JA from his Calypso Bay, St. Kitts, West Indies vacation home, located 200 feet from the Caribbean Sea, between June 11th and July 2nd. Activity will be on 160-6 meters (incl. 60m) using SSB and FT8, with emphasis on 6m and 160m - FT8. Equipment is a Yaesu FT1000MP, FT857D and an Elecraft KPA500 Amplifier. John states his antennas are a Mosley Mini32A 10/15/20m, 33' Vertical 10-40m, 35' Top Loaded 80m Vertical, 160m Vertical and 6m 5 element Yagi. ALL QSLs go to W5JON direct or via LoTW. NO Bureau QSLs.

ZM, NEW ZEALAND (Special Event). The following was posted on March 31st, on the NZART (New Zealand Association of Radio Transmitters), by Don, ZL2TLL, NZART ALO: Use of ZM call signs during COVID-19 Lock-down -- At the suggestion of Paul, ZL4TT, we applied to Radio Spectrum Management for, and have been granted, approval to treat the COVID-19 lock down period as a "special event". This means that, for the duration of the lock down, New Zealand Amateurs may use the ZM prefix instead of the ZL prefix on their callsign. Please feel free to use these call signs from today. We hope that the use of the ZM prefix will: *

help to relieve the boredom for amateurs stuck at home over the lock-down period; and * increase the profile of New Zealand amateurs (and New Zealand in general) overseas. Stay safe in your bubble.

July...

5X, UGANDA, Shabu, M0KRI (ex-9U4RI), will be going back to Uganda (2nd home) after 15 years active as 5X1RI sometime during the end of July to mid-August. He is calling it "The Pearl of Africa – DXpedition Part 2." Look for more details forthcoming.

IOTA NEWS...

AS-023. Kenji, JA4GXS, will be active as JA4GXS/6 from **Amami Oshima Island** between May 9-11th. Activity will be on 40-17 meters using CW, SSB and FT8. QSL via JA4GXS, by the Bureau or direct.

NA-070. Members of the Russian Robinson Club team will be active as KL7RRC from **Kiska Island** between **June 10-15th**. Operators mentioned are Vyacheslav/OK8AU, Yuri/N3QQ, Yuri/UA9OBA and possibly Tim/NL8F and Alexey/NW7M. Activity will be on 40/30/20/17/15/12/10/6 meters using CW, SSB and FT8(FH), with three stations. The frequencies will be published on their

SA-029. Members of the CabreuvaDX Team will once again be active as ZV1C from **Cedro Island** between **May 1-3rd**. Activity will be on 160/80/40/20/17/15/10 meters using CW, SSB and FT8. There will also be activity on 2 meters satellite. QSL via PU2VCP. For more details and updates, see QRZ.com.

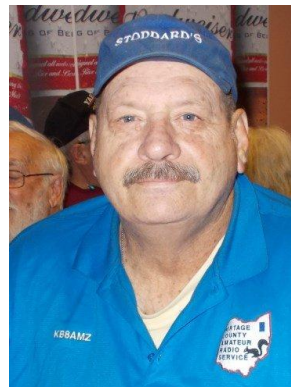
Well, you can certainly see by some of the above, how the virus has affected even Amateur Radio throughout the world. I even didn't realize that the U.S. Postal Service had suspended delivery and acceptance from many countries. Please stay safe and don't put you or your loved ones at risk. **Stay in and get on the air!!** You can use this time to keep you rigs powered up. As I've said before, it's the greatest hobby in the world so why sit back and let the world pass you by. **73 until next month.**

Photos from the April PCARS Zoom Meeting



CW/QRP & Linux Special Interest Groups

Terry, KB8AMZ



CW & QRP SIG

Until the Ohio amends the "Stay At Home" or "No Close Social Contact" restrictions out, special interest groups will not meet. It only takes a minute to peruse the coronavirus.ohio.gov website to see the affect of the virus on people, that is the number persons known to be exposed by testing and more importantly the numbers of people that have died from this virus. The median age of those ultimately affected is 51 years old and 60% of those affected are males. I, like many of you, are beyond the median age of those that have succumbed to this nasty virus.

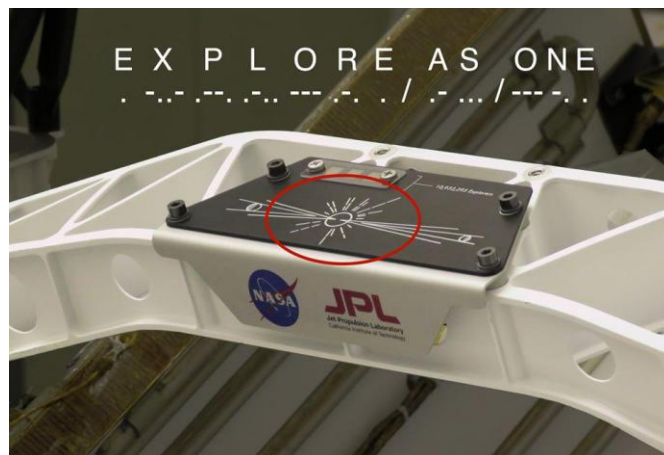
Let's be patient. Stay at home. Socialize by telephone, **radio**, and the Internet. Governor Mike Dewine has stated that pre-K through 12 grades of public and private schools will not return to classrooms this school year so I doubt the go ahead to return to social gathering will be given by the beginning of June. Until we can meet again, stay safe and healthy.

Linux for Hams SIG

June 30, 2020 should be the next date for Linux for Hams SIG, ONLY IF, the PCARS executive board approves re-opening. The board members discussed cleaning the club site, prior to the "Stay at Home" policy. It will be a requirement, in my opinion, that the club site be cleaned with disinfectant cleaners to ensure our membership has a safe environment to use. The Radiogram and Club Calendar on the web site will be your guide to future club activities.

Morse Code Message Going to Mars "Explore As One"

The future Mars rover (suppose to launch in 2020) named "Perseverance" is carrying a message in Morse code. A placard commemorating NASA's "Send Your Name to Mars" campaign was installed on the Perseverance Mars rover on March 16, 2020. Three silicon chips (upper left corner) contain 10,932,295 names and the essays from 155 finalists in NASA's "Name the Rover" contest. And the sunbeams in the diagram spell out "Explore as One" in Morse code. (Image: © NASA/JPL-Caltech)



Remember when we got these tickets back in May 2019?
If you got one - your name is on the silicon chip!



Radio Amateurs Help Develop Medical Ventilator System

Bob, KD8CGH



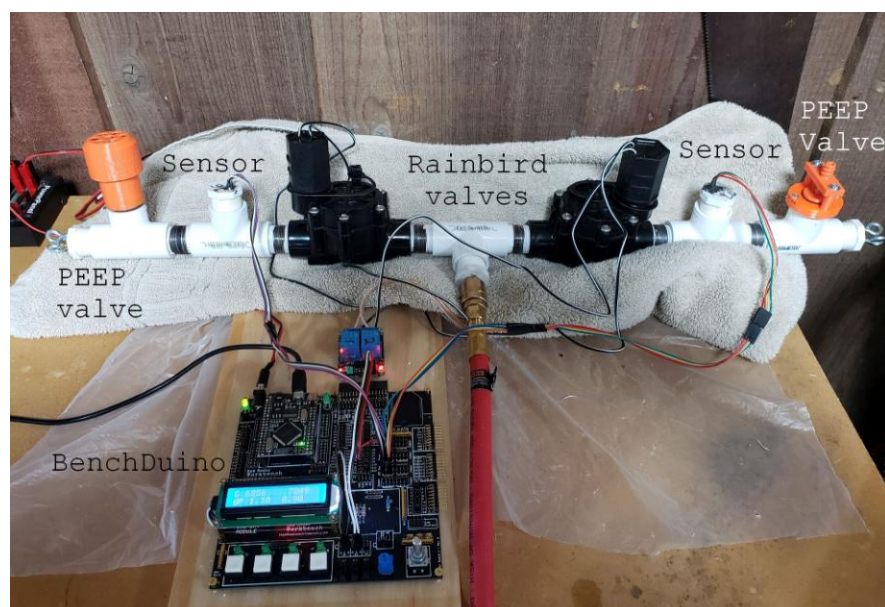
My involvement started with a March 22nd post by Gordon Gibby (KX4Z) on the BITX20 groups.io forum looking for volunteers to aid development of an Open Source Ventilator Project hosted by the University of Florida Center for Safety, Simulation and Advanced Learning. With experienced developers like Ashar Farhan (VU2ESE) and Jack Purdum (W8TEE) volunteering, I decided to forgo my meager programming skills and volunteered to develop 3D printed parts for the system.

The initial concept was to use lawn sprinkler valves as the controlled solenoid valves and hardware store parts. The active valves controlled inhalation and exhalation together with three passive valves. The passive valves included an Anti-asphyxia valve that opens at low negative pressure so that the patient can breathe on his own, an Over-Pressure Valve to protect the patient's lungs and a PEEP valve to provide some back pressure on exhalation to prevent lung collapse.

As the system used PVC pipe, the valves are designed to fit into PVC Ts. They use a flat poppet that closes on a rubber washer commonly used for garden hoses. I tried to make the throat as large as possible to not restrict low pressure air flow when opened. The first valves were weight loaded which I think do not require calibration since plastic density and nut weights are fairly repeatable. After requirements changed, the new higher pressure valves are spring loaded and screw adjustable. The springs, washers and screws are common items that were purchased at Lowe's.

The valves were designed in OpenSCAD that is freely available and completely parametric. I use the "Poor man's openscad screw library" to ease generating screw threads. They were printed in PETG on a Prusa MK3s 3D printer.

After several design iterations the core UF team requested that I join them in conducting high cycle testing of the Rainbird sprinkler valves and 3D printed valves. I built a test bench in my shop using a BenchDuino development board running an Arduino AT Mega 2560. This development system was produced by the Ham Radio Workbench podcast team. I picked my boards up at the Hamvention last year. The board included an LCD display and a plethora of switches, buttons and easy connections. A test control program was developed using the Arduino IDE. In addition to the basic



Arduino and LCD, I used two slide switches to cut out individual valve relays for examination and the left most push button is monitored so that, when pressed, detailed data is sent out to the serial monitor. Valve function is monitored by BME280 pressure and temperature sensors on the I2C bus. If the difference between valve outlet open and close pressures is over a threshold value the valves have successfully opened and closed and the count is incremented. Air is supplied by a "quiet" (relative term) twin tank compressor with a short 3' hose.

The system normally runs without a computer to prevent glitches that could reset the count and for that reason is powered by a battery backup system. The system runs 0.5 second open/close cycles 24/7 and so far the solenoid valves have accumulated 2,000,000 cycles and are still functioning.

As of April 22nd the project is ongoing and the team is focused on getting FDA approval for use in the US. As this is a global effort, it is expected that the system will be implemented in other countries using locally available materials.

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.

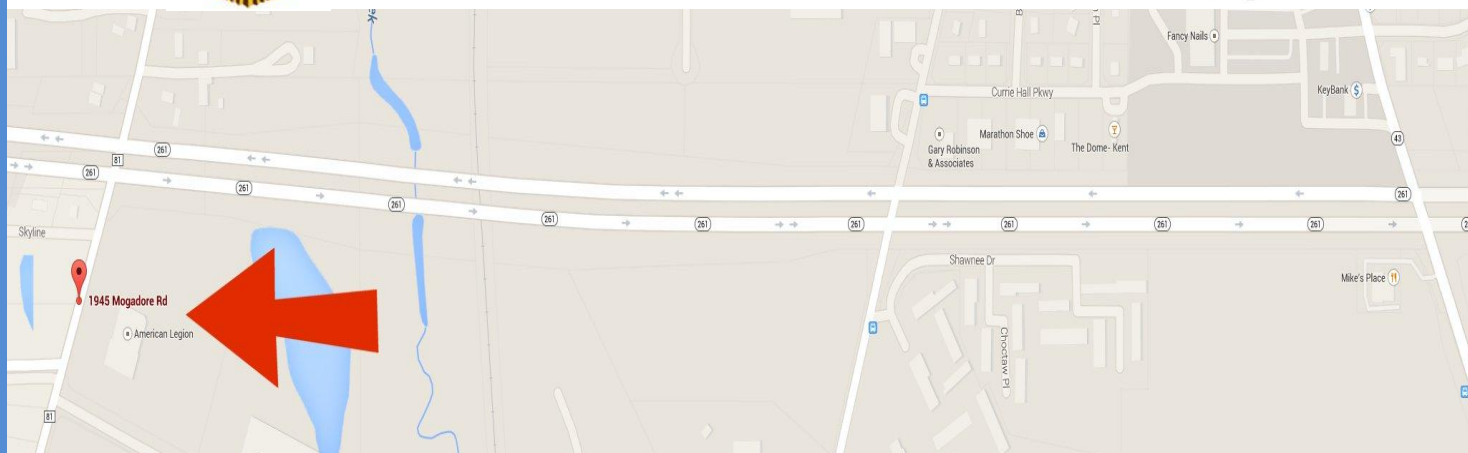


PCARS Meetings - Suspended Until Further Notice

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



***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.



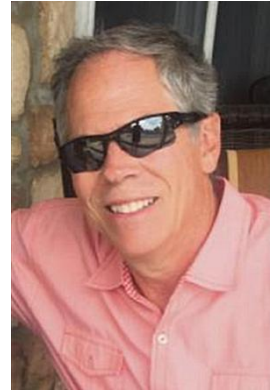
*The picture on the left shows
The American Legion Post 496
as viewed from Mogadore Road.
(looking East)*

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.

I'm Trying to Smile - You Should, Too

Bob Dyer
Akron Beacon Journal



As a member of that fragile age group, your favorite columnist is trying to take it easy these days. So once again I'm going to let other people write my column. I don't even know who they are, other than members of Facebook. Perhaps that is irresponsible of me. Perhaps I don't care. I'm trying to smile. You should, too. That is an order.

- "Eighth day of self-isolation and it's like Vegas in my house. We're losing money by the minute, cocktails are acceptable at any hour and nobody knows what time it is."
- "I've spent two weeks with myself and I'm so sorry to every person I have ever spent time with."
- "Turns out my top three hobbies are: 1.) eating at restaurants, 2.) going to nonessential businesses and 3.) touching my face."
- "Day 6 of quarantine: Preparing to take out the garbage. So excited. Can't decide what to wear."
- "Remember laughing at Michael Jackson wearing a mask and glove? Now y'all out here looking like you wanna be starting something."
- "Mom always told me I'd never amount to anything lying on the sofa. Yet here I am, saving the world."
- "Imagine surviving all that unprotected sex just to die from an unprotected handshake."
- "Whoever said one person can't change the world never ate an undercooked bat."
- "Does anyone know how long toilet paper will last if you freeze it?"
- "Remember when we were little and we had underwear with the days of the week on them? Yah, those would be helpful right now."
- "Day 10 in quarantine ... Wife: 'Do you want something to eat?' Husband: 'What are the choices?' Wife: 'Yes or [bleeping] no.'"
- "My house got TP'd last night. It's now appraised at \$875,000."
- With a photo of germophobe Howie Mandel: "Who's crazy now?"
- "If your mother is over 60 years old and wants to go out, forbid her. If she complains about everybody else going out, say, 'You're not everybody else.' Payback time."
- "I remember when you could smoke in a bar. Now you can't even drink in one."
- "I hope you firefighters are ready. Some of these people haven't cooked a day in their lives."
- "I feel like I'm 16 again. Gas is cheap and I'm grounded."
- A photo of the marquee at a strip club: "Clothed till April 30."
- And finally ... "Monday: No gatherings of more than 500 people - Tuesday: No gatherings of more than 50 people - Wednesday: No gatherings of more than 10 people - Thursday: Stay 6 feet away from people - Friday: Stay home"

Bob Dyer can be reached at bdyer@thebeaconjournal.com. He also is on Facebook at www.facebook.com/bob.dyer.31.

Free as a public service during coronavirus outbreak

This story is being provided for free as a public service to our readers during the coronavirus outbreak. You can find more stories on coronavirus at <https://www.beaconjournal.com/topics/coronavirus>. Please support local journalism by subscribing to the Akron Beacon Journal at <https://www.beaconjournal.com/subscribe>.

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 that we do get. 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 report in to keep this newsletter great for 2020 and beyond.

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

WB8LCD, AC8QG, KE8EGF, KB8UUZ, KB6NU, K3LR, W8BBQ, KA8OAD, W8KNO, KD8MQ, KA4KOE, W3LPL, K8CAV, K8PKN, N8SY, WA8EFK, W8WTD, KA8TOA, N1SFE, K3GP, KG5HVO, WA8SAJ, W8PT, KB8AMZ, KD8CGH, MVARA, NASA, Alex Boss, Bob Dyer, DX Engineering, The ARRL and the World-Wide Web.

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



PCARS
www.portcars.org



Spotted in Cuyahoga Falls



After 2 weeks of quarantine with her husband, Gertrude decided to knit him a scarf..



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: **K8SRR**

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



~ 2020 Officers ~		2020 PCARS Appointments & Committees	
President - Tom Sly - WB8LCD Vice President - Nick Wagner - AC8QG Treasurer - Paul Hyland - KE8EGF 3 Year Trustee - John Myers - KD8MQ 2 Year Trustee - Terry Morris - KB8AMZ 1 Year Trustee - Ed Polack - K8IV Past President - Jim Wilson - AC8NT		ARRL Awards - DXCC	W8KNO Joe Wehner
		Club Site Manager/Liaison	K8CAV Rick Kruis
		Contest Coordinator	W8PT Chuck Patellis
		EchoLink & Web Guru	K8SRR Steve Randlett
		Field Day Chairman, 2020	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
		Net Night - Club Manager	WB8LCD Tom Sly
2nd Monday of each month, 7pm Thursday night Club Net at 8 pm on 146.895		Newsletter Editor	KB8UUZ Tom Parkinson
		OSPOTA Chairman	KB8UUZ Tom Parkinson
		Public Information Officer	
		Secretary	N8WCP Mike Szabo
		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
	W8EZT	Frank Tompkins
	AC8NT	Jim Wilson
	K8MSH	Mark Haverstock
	KA8TOA	Greg Ash
	W8PT	Chuck Patellis
	AC8QG	Nick Wagner
	N8FUM	Dan Torchia
	W8GWI	Dave Seckel



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 the official newsletter of the Portage County Amateur Radio Service, Inc. (PCARS) - Hamvention® 2018 Club Of The Year - copyright ©2020. The **RADIOGRAM** is an **Award Winning** newsletter: **ARRL Ohio Section Newsletter - Third Place 2015 - Second Place 2014, 2016 - First Place 2012, 2013, 2017, 2018, 2019. ARRL Great Lakes Division Newsletter - Second Place 2013 - First Place in the 2017 & 2020.** Articles are the opinion of the authors and not necessarily those of PCARS. Or, better yet, let me express it this way: "These are my opinions and only my opinions, unless you share them as well, which would make them our opinions, but I am not of the opinion that I can express your opinion as my opinion without your prior expression of said opinion, and then my re-utterance of that opinion would, in my opinion, be foolish unless I were expressing agreement to your opinion, and then it wouldn't be my opinion but your opinion to which I only agree." **GO AHEAD - STEAL THIS NEWSLETTER! You have our permission to post, e-mail, copy, print, or reproduce this newsletter as many times as you like, but please do not modify what you use. If you use material in this newsletter, all we ask is that you give credit to PCARS along with the author of the article.** Caution - some of the articles in this newsletter maybe covered by copyright - please do not copy and use the ones that have by-line information unless you obtain permission from the original author. If you're not sure, drop an e-mail to KB8UUZ@gmail.com. The **RADIOGRAM** always obtains written permission for reproducing copyright material. The **RADIOGRAM** comes out the first day of each month (usually), please have inputs submitted by 8 pm ET on the last Friday of each month. ARES® (Amateur Radio Emergency Service®) is a program of, and both logos are registered trademarks (used with permission) of the American Radio Relay League, Inc. ARRL, the National Association for Amateur Radio™. **Why the Black Squirrel in our logo?** For those of you not familiar with it: The Black Squirrel is commonly seen around Portage County, Ohio. Seems that some of these little guys and gals got loose from Kent State University back in 1961. They have migrated and thrived throughout our county. Kent State University even has an annual Black Squirrel Festival. **So when you spot a black squirrel - think PCARS!**

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



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705 Oakwood Street - Box 12
Ravenna, OH 44266 USA



NLC

