



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

February 2019 - Volume 14 Number 2



**Feb is
FYAO
Month**



PCARS K8BF

The Club that puts the FUN in Ham Radio!



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Mark Your Calendars

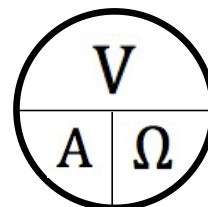
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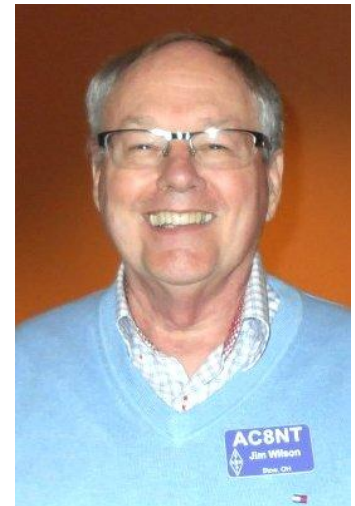
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From the President

Jim, AC8NT
PCARS President



This month has been all about finishing projects. At the club site we have a new big screen TV for the Social Room to get installed; software to install at the stations in the Operations Room and more clean-up in Bay 3. At home I finished up a prototyping station for ham related Arduino projects, code practice gear and a bunch of Anderson Power Pole® distribution boards. I also installed an ICOM IC-7300 just for me. It has been busy.

Club Site Work

The club site is getting better all the time. We had a little problem with the heat in Operations, but that has been fixed. Mounting a big screen TV in the Social Room will allow us to hold meetings while leaving the Operations Room for operating. It also allows two meeting at the same time if the need arises. Now we need to finish up Bay 3. We will be painting the wall separating us from Unified Resources and we have something special to hang on that wall (More to come). The Bay 3 work will require at least one clean-up event which will be scheduled for February.

Projects in my Shack

At home I completed many projects that have been 98 percent complete for months. Made the XYL very



happy. The IC-7300 Christmas present has been installed and we have already made quite a few FT8 and SSB contacts. Some of the simpler projects I finished were two different Anderson Power Pole boards, an Arduino prototyping system, and a couple of different code practice tools. The biggest project I am finishing is actually a combination of three projects. In one package I have built an Antenna analyzer for HF and VHF, a GPS stabilized RF oscillator and a very useful RF field



strength meter. This project is a combination of the WB00EW project in the September/October QEX edition, the VA7TA Field Strength Meter project in the January/February QEX edition and a home brew Arduino antenna analyzer of my design using an active SWR bridge. One battery powered instrument that does a lot of work. This may end up being a build day project. I will be documenting the construction for others to duplicate and making the software available to all. I may also build one for the club laboratory.



After Chris' presentation at the January meeting, I finished up several -kits and my go bag. Something we all need to do.

Monthly Meeting Update

PCARS now has meeting speakers scheduled up through May and the plan for the rest of the year is being finalized. The current list is as follows:

February: **Han Summers** of **QRP-Labs** will be Skyping from Turkey to talk about his new QSX SSB transceiver project.

- March: **Carole Perry** will be at our meeting discussing how to get youth interested in ham radio. This presentation has been opened up not only to other ham clubs, but also to IEEE members and teachers. We expect a great turnout for this event.
- April: **Michael Kalter W8CI** will be talking about the work required to make **Hamvention®** possible
- May: **Jim Storms AB8YK** will be talking about **Youth DX Adventures**

Talks that are being scheduled include Fox Hunting, a Skype from an Antarctica ham station, an AMSAT presentation on satellite modes and Bob Heil on audio. We are also working on the logistics for a presentation from Australia. That should keep interest high in our monthly meetings. We are always interested in hearing from you on presentation ideas. If you have a topic you are interested in, please let me know. I would like to thank everyone that has helped in building this schedule. It was certainly a team effort.

Build Day in March

We are planning a build day for March. We will have a number of projects that can be completed during that build. At the February meeting we will have a list of these projects. Please check the list and if you are interested in building one of the projects, use the sign-up sheet to register. Projects will include at least these:



Two meter/70 cm J-Pole	Code Practice Oscillator
2 Meter Slot Cube Antenna (QST 01/19)	Dummy Load Watt Meter (QST 11/18)
1:1 or 4:1 Balun	Raspberry Pi for WSJT-X 2.0
Anderson Power Pole Dist. Module	

If you have ideas for other projects, please let me know.

Tech Class

We have a **Technician Class** scheduled for **February 6th through March 27**. We have had a lot of interest in this session. It will include the usual material plus we have scheduled a "Hands-On event for Saturday February 16th where students will get a chance to see how stations are put together; handhelds are programmed and make their first contacts. If you know anyone interested in this course please have them send an email at jawilson@j3solutions.com. We expect a great turnout.

Freeze Your Acorns Off

Freeze Your Acorns Off is a great event!! Come to the park and make some QRP contacts. You can also enjoy some great food and a lot of good conversation. Bring your cold weather gear and QRP rig to have some real fun. I plan to be there and operate using some new QRP gear of my own.

Contests

I am sure that Chuck will tell you all about the contests coming up and his great DX/Contesting SIG. This SIG is a great opportunity for those not familiar with contesting to learn about this part of our hobby. Please attend one of these SIGs and learn about DX opportunities and contesting.



From the Vice President

Nick, AC8QG
PCARS Vice President



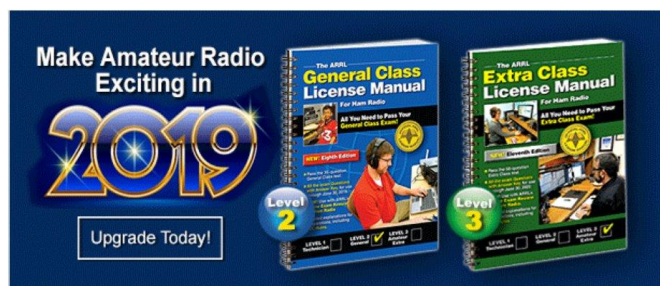
First of all, I want to give a big thank you to Chris Woolverton, N1CJW, for his presentation at our January meeting. I know a lot of people built or refined their go-kits after that talk. In my own family, it's already sparked several conversations about emergency preparedness. Great job, Chris!

The calendar for the rest of the year is already starting to fill up with exciting events! Coming up soon is a Tech class starting February 6th, Freeze Your Acorns Off on February 9th, and Hans Summers of QRP-Labs joining us by Skype for our club meeting on February 11th. And that's not everything. Check out the calendar, the website, and this newsletter for even more events!

We have an amazing club site. If you haven't been out to visit recently, you're missing out! A lot of hard work has gone into cleaning, maintenance, and improvements recently. There's still a bit more work to do though, and we will continue to maintain and improve it throughout the year.

Speaking of the club site, come out for a Net Night at the Club Site. Every fourth Thursday is a great opportunity to put a face to a callsign and just generally hang out and have a good time with your fellow PCARS members. While you're there check out all the new equipment we have. Maybe even try out one of the new ICOM IC-7300s.

We're off to a great start this year, but let's keep up the momentum! Join us at a SIG, come out to some meetings, and show up for a build day. PCARS is the BIG FUN amateur radio club, so take advantage and join the fun with your presence, on-air and in-person!



Schedule of Events



On the calendar for upcoming meetings and activities are:



- Feb 2nd - VE Testing Session at the club site - 10 am
- Feb 4th - Board Meeting at the club site - 7 pm
- Feb 6th - Spring Technician Class Starts at the club site - 7 pm
- Feb 9th - **FREEZE YOUR ACORNS OFF** Special QRP FUN Day - 10 am - 4 pm
- Feb 11th - PCARS Meeting at the American Legion in Kent - 7 pm
- Feb 16th - Tech Class Hands On Event at the club site - 9 am to noon.
- Feb 19th - Field Day Meeting at the club site 6:30 pm
- Feb 23-24 - North American QSO Party RTTY Contest - Club Site
- March 4th - Board Meeting at the club site - 7 pm
- March 9-10th - Wisconsin and Idaho QSO Parties - at the club site in Ravenna
- March 11th - PCARS Meeting at the American Legion in Kent - 7 pm
- March 23rd - 2 meter Yagi build at the club site - 9 am to 1 pm
- March 27th - VE Testing at the club site for Tech Class - 7 pm - walk-ins welcome

Special Interest Groups (SIGs) - Every Month at the Club Site in Ravenna - 7:00 pm



- | | | |
|-----------------|---|--|
| First Tuesday | - | Digital - Moderator: Rick, K8CAV |
| Second Tuesday | - | QRP/CW - Moderator: Terry, KB8AMZ |
| Third Tuesday | - | Antenna - Moderator: Tony, WA8AR - starts at 7:30 pm |
| 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 |



PCARS

ARRL Volunteer Examiners:
serving the Amateur Radio community

First Saturdays 10:00 am
at the club site in Ravenna

February, April, June, August,
October, December



14th Annual FYAO - February 9th !!!!!

All of you know how cold it has been lately. So what better time than to - **FREEZE YOUR ACORNS OFF!!** On Saturday, February 9th, we will once again be meeting in the Roy Smith Shelter House located in the Fred Fuller Park - 497 Middlebury Rd., Kent, OH, to take part in our annual Special Event. This is our **14th annual, Freeze Your Acorns Off QRP Event** sponsored by PCARS.



This first event took place on a very cold Saturday in February of 2005. There was no snow on the ground yet, but the temperature and the wind kept reminding us that just perhaps the hand full of PCARS members out in this weather, were a tube or two shy of a complete rig.

The event has grown over the years and now many members take part either setting up stations or just coming out to be with fellow HAMS to cheer the faithful (and still crazy) ops who set up stations in the frigid cold.



You are encouraged to come on out and help make this 14th annual event, the fun event it has been for the past 13 years.

We will start to gather at 9 am which is when the set up starts and the actual operations begin at 10 am and go until 3 pm.

Activity will be in the General portions of the bands of 6, 10, 15, 20, 40 and 80 meters. The modes as in the past are CW and SSB and of course it's all QRP.

We will have at least one station operating using the club call of K8BF which, when contacted, will earn the caller a certificate suitable for framing.

Don't forget that there is a **Best Recipe Cook-Off Contest** that takes place also. So clean out the slow cookers and crock pots and break out your recipe books and bring something that shows your culinary skills.

Check the flyer in this newsletter giving you the important info regarding FYAO for 2019 and see the PCARS web site where you can also download the official rules for the event.

Hawaiian style shirts are encouraged to show Mother Nature a little cold weather never hurts us.....

Keep that Saturday open and mark your calendars. Come on out and join us.



Portage County Amateur Radio Service, Inc.



PCARS - K8BF

14th Annual

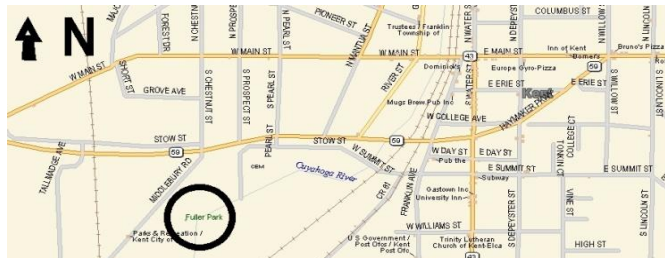
"Freeze Your Acorns Off"
(FYAO) Special Event Station



*Where: Fred Fuller Park - 497 Middlebury Rd., Kent, Oh
at the Roy Smith Shelter House*

*When: Saturday - Feb. 9, 2019
Set up: 9 am*

Operating Time: 10 am - 3 pm EST



We will be active on CW & Phone in the General areas of the 6, 10, 15, 20, 40 and 80 meter bands (Repeater & Echolink on the K8SRR echo link node for a certificate) and anything else we can get working. Club Call Sign **K8BF** for a certificate. Other participating stations will be using their own callsign/FYAO, or calling "CQ FYAO" (only stations at the Freeze Your Acorns Off event should use the /FYAO designator). Yes, we'll be braving the cold snowy weather of North Eastern Ohio to set up QRP stations using portable power and antennas.



A beautiful color (suitable for framing) 8" x 10" certificate is available if you contact K8BF on 2 meters FM or EchoLink and send your QSL **with a large SASE** to the club call trustee:

Amy Leggiero, KD8SKL - 6229 Gladys St Unit B - Ravenna, OH 44266

So, from the comfort of your warm radio shack - give us a contact while we're out freezing. We'll need all the contacts we can make to help keep us warm. Your support will be very much appreciated!



Check PCARS out on the web at: www.portcars.org
Questions? Contact Chuck, W8PT at chuckw8pt@gmail.com



Carole Perry to Visit PCARS Meeting in March

Tom, WB8LCD



For the March 11th, 2019 PCARS meeting, our guest speaker for the evening will be Carole Perry, WB2MGP.

Carole Perry, WB2MGP is the recipient of the prestigious 1987 Dayton Ham of The Year Award, the 1987 ARRL Instructor of The Year Award, the 1991 Marconi Wireless Memorial Award, the 1993 QCWA President's Award, the 1996 Radio Club of America (RCA) Barry Goldwater Amateur Radio Award, the 2009 RCA President's Award, the 2012 RCA President's Award, and the 2015 Vivian Carr Award for Women in Radio. She is the winner of the 2016 SOAR (Sisterhood of Amateur Radio) Legacy award for Pioneering Women in Amateur Radio, and the 2016 recipient of the YASME Foundation Award for Excellence. In 2017 she was the winner of the Brooklyn College Milton Fisher Second Harvest Award for her volunteer work with young people and technology, around the world. In May 2018 Carole was inducted into the "CQ Amateur Radio Hall of Fame." In July "QST" magazine, Carole was the featured member in the "Member Spotlight".

Carole is an RCA Fellow, and in 2007 she was elected to the RCA Board of Directors; a position she still holds, and she created the Youth Activities Committee which she now chairs. She serves on the RCA Scholarship committee as well. She also created the RCA Young Achiever's Award, given to students in grade 12 and below who have demonstrated excellence and creativity in wireless communications. One hundred and seven youngsters have received this award along with a stipend, so far. Carole is also presently a Director for QCWA (Quarter Century Wireless Association). The QCWA Youth Activities program was created and chaired by Carole.

Under Carole's leadership, the RCA Youth Activities Committee goes into schools across the country to set up radio/technology programs. Equipment, cash grants, books, and supplies are donated to the chosen schools or youth groups.



Carole has moderated the Dayton Hamvention Youth Forum and Instructors' Forum for 31 years. She is a member/director of QCWA and RCA. She is also a member of ARRL, DARA, (Dayton Amateur Radio Association) AWA (Antique Wireless Association), and Brandeis Women.

Carole is a contributing columnist for CQ Magazine's Youth Column.

Carole will be with us at PCARS! She will be discussing how to get youth involved in Amateur Radio. I cannot think of a more qualified person to talk with us on this topic. I know you'll want to be there. This is again the type of meeting that we will want to promote not only to other clubs in NE Ohio (and beyond), but we are also inviting anyone and everyone in local education. Starting in January I'll have a lot more information for you on this meeting, but I want to make sure it's on *your* calendar as a "not to be missed" meeting for the coming year.

Philip, KA4KOE

This Month's Stiff: Count Alessandro Giuseppe Antonio Anastasio Volta

**Entered Mortal coil: 8 February 1745
Assumed Room Temperature: 5 March 1827**



"Signore Artist, How long must I hold up this book?"

I look upon these old posed portraits with skepticism. By that, how long did Mr. Volta have to hold that book for this painting? Perhaps Volta's friend and contemporary, Mr. Luigi Galvani, b.k.a. The Frog Torturer, would have gladly offered to shock his biceps to help with those nasty muscle cramps. Anyway, I digress...

Every time you fumble around in the dark during a power outage, cursing because the flashlight doesn't work, or are stranded because the darn car won't crank, or lose all the memories and/or operating parameters in your HF radio's volatile memory, or you are simply caught flat-footed on Christmas morning as your child cries because his new *Super Destructor Evil Doom Machine* is only a piece of inanimate plastic, it's all because we have come to rely on a relatively ubiquitous piece of technology referred to technically as the *voltaic cell*. But, almost 200 years ago, this invention literally and figuratively shocked the scientific world (I apologize; this was too hard to resist!).

Signore Volta was born of nobility. At the age of only 14, young Alessandro set his life's course when he decided his career would be in the field of physics, with an emphasis on electricity. By 1778, the young scientist had isolated methane in the laboratory. He should have visited a nearby cow pasture, in my opinion, for fresh samples of the gas! Volta also invented a static charge accumulator which is the basis of modern capacitors. Such was Alessandro's success in his endeavors that he was awarded the Copley Medal by the Royal Society in 1791. Greater things and discoveries, however, were to come.

Back to Luigi Galvani: Volta's friend had been experimenting with the phenomena of what he termed "animal electricity". Galvani had inserted electrodes of differing metals into a frog's legs, which resulted in muscular contractions (in essence, the "frog juice" was an electrolyte). Luigi thought he was providing a path for the natural animal electricity.

Volta read and discussed his friend's findings, disagreed with Luigi good-naturedly, and investigated further. Volta removed the frog, used alternating discs of copper and zinc, and inserted absorbent cardboard pads between the discs which were impregnated with a suitable solution of salts or acid. In 1800, he stacked many of these discs together, a "battery" of them, so to speak, and was greeted with success. The potential generated by only 20 of these discs was enough to inflict pain. Napoleon Bonaparte requested a "command performance" of Alessandro in 1801 for a personal demonstration of the device. So impressed was the potentate with the "pile of discs" that Volta was eventually made a Count. This invention is also referred to as the *voltaic pile*.

For Volta's work, the unit of electromotive force, the VOLT, designated by either the symbols "E" or "V", was named after him.

Net Night at the Club Site - January Quiz

Tom, WB8LCD



1. What is the GAIN of an "Isotropic Antenna"? a) 0db b) 2.29db c) 3db d) 4x power out
2. What is the EFFICIENCY of an "Isotropic Antenna"? a) 25% b) 50% c) 75% d) 100%
3. When was the ARRL Established? a) 1911 b) 1914 c) 1918 d) 1922
4. When was PCARS Established? a) 2005 b) 2006 c) 2007 d) 2010
5. What Section is NOT part of the ARRL Great Lakes Division? a) OH b) MI c) WV d) KY
6. Who is the current DIRECTOR of the Great Lakes Division? a) Scott Yonally – N8SY b) Tom Delaney – W8WTD c) Stan Hillman – W8FZS d) Dale Williams – WA8EFK
7. In regards to PCARS participation in Field Day, who coined the phrase "What could be more fun than winning? a) Jim – KC8PD b) Parky – KB8UUZ c) Ed – K8IV d) Chuck – W8PT
8. When comparing antenna choices, would you rather have an antenna of which gain? a) 6 DBi or b) 6 DBd
9. What is the highest frequency that Es can regularly be experienced? a) 144Mhz b) 50 Mhz c) 29 Mhz d) 21Mhz
10. Who, along with H.P. Maxim – 1AW – co-founded the ARRL? a) Thomas A Edison – 2ED b) Fred Schnell – 1QP c) Clarence Tuska – 1WD d) David L. Moore – 1VK
11. Who is the current President of the ARRL? a) Scott Yonally – N8SY b) Norm Fusaro – W3IZ c) Rick Roderick – K5UR d) Steve Ford – WB8IMY
12. During WWI – what governmental department regulated radio? a) Department of Commerce B) FCC C) Department of Justice d) Department of the Navy
13. Which location has never hosted a regular monthly PCARS Meeting? a) Mike's Place b) The Center of Hope c) On Tap d) The PCARS Club Site e) Little City Grill f) Sideliners g) Family & Community Services
14. Where is the main US outpost on Antarctica? a) McMurdo Station b) Coats Land c) Marie Byrd Land d) Ellsworth Land
15. For working DX stations on HF, you want an antenna that exhibits a) Low SWR b) Low Angle of radiation c) Low spurious emissions d) Low power consumption
16. Many older radios can be dangerous to work on because a) They contain glass tubes which can shatter b) They were built with point to point wiring c) The chassis were at ground potential d) Schematic diagrams are not available
17. When is it safe to climb a "crank-up" tower? a) When the power is not applied to the antenna b) When a proper climbing belt and fall protection are in use c) When all antennas have been pointed due south d) when all tower sections are fully retracted, or nested.
18. The Amateur Radio License class with the most active licenses is: a) Technician b) General c) Extra
19. How many licensed hams are there in OH? a) 2800 b) 4800 c) 10,587 d) 27,941 e) 32,842
20. The time it takes a capacitor to discharge 37% of its charge through a bleeder resistor is known as? a) The J-Factor b) Time Constant c) Doppler effect d) Half-life theory
21. Radio waves and Light waves are both what? a) polarized energy b) Electrostatic energy c) electromagnetic energy d) ionospheric energy
22. Licensing of "Wireless" activities began in the US in what year? a) 1890 b) 1910 c) 1912 d) 1914
23. Amateur Radio stations are *supposed* to evaluate their station installations each year to verify that they do not exceed Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields. These guidelines are found in FCC Bulletin: a) REFG b) OET65b c) FCC part 97 d) RF Regulations for a polite society
24. What relationship is there between the 15 and 40 meter bands? a) None b) Both are HF bands c) 40 is a harmonic of 15 d) 15 is a harmonic of 40
25. Why is it always necessary to lay down radials when constructing a $\frac{1}{4}$ wave, ground mounted vertical antenna? a) They provide RF reflection attenuation b) They provide reverse electrical charging of the earth c) they provide additional bandwidth d) They provide a low loss current return path back to the vertical
26. Who is credited for making the first radio VOICE broadcast? a) Reginald Fessenden b) Hiram Percy Maxim c) Guglielmo Marconi d) Alexander Graham Bell e) Lee de Forest
27. What was the first Amateur Radio satellite in space? a) W1AW b) OSCAR 1 c) HAMSAT 1 d) Sputnik
28. What frequency should you listen for the ISS on? a) 14.250 Mhz b) 145.80 Mhz c) 222.125 Mhz d) 1263.500 Mhz
29. its 10:00 UTC. What time is it EST? a) 5 AM b) 10 AM c) 5 PM d) 10 PM
30. Who made the comment "You sound like you're getting tired, why don't you send with your other foot for awhile?" a) H.P. Maxim b) Nikola Tesla c) Thomas Edison d) Sparky Brewer e) Jim Aylward f) Stan Hillman g) Samuel FB Morse

New ARRL CEO Wants to "Start a Conversation"

From the ARRL

In his first appearance at a ham radio event, ARRL CEO Howard Michel, WB2ITX, told Ham Radio University 2019 attendees on January 5 that he was there to initiate a dialogue on what will make ARRL more successful in its missions amid a changing Amateur Radio environment. Michel became ARRL CEO about 3 months ago.

"What I'm here for is to start a conversation," Michel [told his audience](#) at New York's Long Island University. "I'm starting conversations everywhere I go to find out, by talking to people, what's really important."

In his view, Michel said, ARRL is a membership organization, a business, and a 501(c)(3) public charity that exists for the public good. "All three of those must exist in balance," he said, adding that the balance has been lost. He said changes need to be made in how ARRL is organized and how it operates, and he made clear during the post-presentation Q&A that he sees himself as an agent of change.

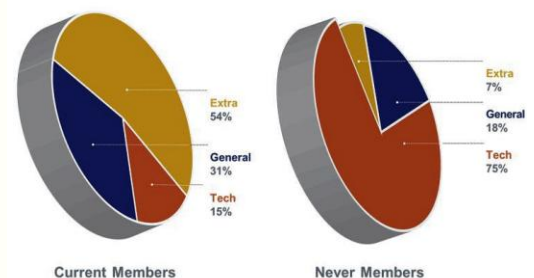


In terms of a membership organization, Michel said ARRL's some 157,000 members, local clubs, and Headquarters staffers should form a three-way partnership, but, he conceded, that the links among those components "are shaky at times," due to a lack of understanding and differing expectations.

Citing ARRL publications as an example, Michel pointed out that the way people get information today is far different than what it was 50 years ago. ARRL's business of the future will be based upon the creation of value. "If we don't create the value and deliver the value, then we're not really an advocate," he said. "ARRL is uniquely positioned to create, curate, and deliver information about Amateur Radio. The way that information is created and delivered is changing, and if we don't change with that, we're not going to be the dominant provider."

In terms of numbers, out of some 30,000 new licensees each year, some 17 - 18% join ARRL, and after 1 year, 61% remain. "Why are we not getting 100% of those new hams?" Michel said. Because 80% of the new licensees took their exams through ARRL VEC, Michel said their lack of interest in joining ARRL suggests "something is wrong in the value proposition." More telling, he continued, is the fact that ARRL membership is falling behind in terms of a percentage of licensees. "We need to turn that around," he said, if ARRL is to continue representing itself as speaking on behalf of Amateur Radio.

Part of the problem lies in current demographic trends in membership. Most ARRL members are Amateur Extra-class licensees, while a larger majority of those who have never been members are Technician licensees. Active radio amateurs are 33% more likely to join ARRL, Michel pointed out. He said a significant majority of non-member Technician licensees have indicated they would like training and support for newcomers, courses for licensing and practical radio operating, training for public service and disaster communication volunteers, and continuing education on technical topics and "online live help" to learn more about ARRL and ham radio.



"We've got them through the test to get their license, and then we've dropped them," Michel said. "We've got to fix that."

The planned approach is recognizing that ARRL members do not represent a monolith, but that each has their own Amateur Radio persona. The spectrum of hams, Michel said, spans communications, service, technology, and hobby.

"Let's think about an average person with some kinds of traits and how you market material to them," Michel proposed. "I'm trying to start a conversation with everybody about how to start something new."

PCARS VE Test Sessions

Tom, KB8UUZ
PCARS VE Team Liaison



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

February 2nd, April 6th, June 1st, August 3rd, October 5th

Also - March 27th at 7 pm (end of Tech Class)
Saturday, June 22nd at the Field Day site - 4 pm

What to Bring to the Testing Session

- \$15 is 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 any 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 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

New General Class Question Pool Released

From the ARRL

Thanks to NCVEC Question Pool Committee



The latest General-class Question Pool, effective July 1, has been released. The National Conference of Volunteer Examiner Coordinators (NCVEC) Question Pool Committee has released the 2019 - 2023 FCC Element 3 General Class Question Pool into the public domain. The 2019 - 2023 General Class (Element 3) Question Pool is available in [Word](#), [ASCII text](#), and [PDF](#) versions. The new Question Pool is effective for Element 3 exams administered on or after July 1, 2019. On January 6, the Question Pool Committee also released a revised diagram Figure G7-1 ([PDF](#)) ([JPG](#)), as part of the new Element 3 Question Pool.

Amateur Radio Applications Piling Up

Maria Somma, AB1FM
ARRL VEC Manager



Amateur Radio Applications Piling Up as Partial Government Shutdown Continues

Volunteer Examiner Coordinators across the US are continuing to receive paperwork from Amateur Radio exam sessions held during the partial government shutdown. While it's still possible to access the Universal Licensing System ([ULS](#)) and file applications, the FCC is not processing individual, club, and exam session -- new and upgrade -- Amateur Radio applications. The FCC closed most operations on January 3, when available funding ran out. According to the FCC public notice, aside from a few emergency and auction-filing systems, all other Commission electronic filing systems will be unavailable to the public until normal agency operations resume.

"Nothing's moving until the FCC reopens," said ARRL VEC Manager Maria Somma, AB1FM. "ARRL VEC continues to enter exam session, individual, and club license data into the system while we wait for the FCC to reopen and normal agency operations to resume. We have approximately 1,600 applications and 125 exam sessions waiting in the queue to be processed. Everything's in there, ready to go."

Somma stressed that, although license upgrade applications are still on hold, current FCC Amateur Radio licensees who have successfully upgraded and hold a Certificate of Successful Completion of Examination (CSCE) may operate temporarily using the privileges of their new license class, until their new licenses are granted.

Even though it's not possible for the FCC to grant a new license, a license upgrade, a change of address or other modification, or a vanity call sign application, the Commission Registration System ([CORES](#)) remains functional to allow critical radio services to obtain FCC Registration Numbers (FRNs) and file applications during the shutdown. Registering a user name and logging into CORES is required to apply for and receive an FRN, which is a unique 10-digit identifier necessary to conduct business with the FCC and to manage existing FRNs. The FCC said that starting in March, users who already have an FRN from the legacy Commission Registration System will need to create a user name to continue managing their FRNs.



If an Amateur Radio license recently has expired or is about to expire, the licensee can apply for license renewal via the ULS and continue to operate while the FCC is closed. The filed application will remain in limbo until the FCC is back to work. Licensees who wait until the FCC reopens to apply then will have 2 days to submit a renewal application before the license is considered to have expired in the FCC database.

The FCC has said it would not automatically extend deadlines in cases where the license has expired and the 2-year grace period has expired, but said it would "consider whether it is appropriate to do so once normal operations resume."

PCARS Patches & Stickers



New 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

PCARS Yahoo Group



Members are reminded that PCARS has a Yahoo Group dedicated to PCARS information. It's a great site to sign up for and get on the mailing list. Check out the PCARS Yahoo Group at: <http://groups.yahoo.com/group/PCARS/>

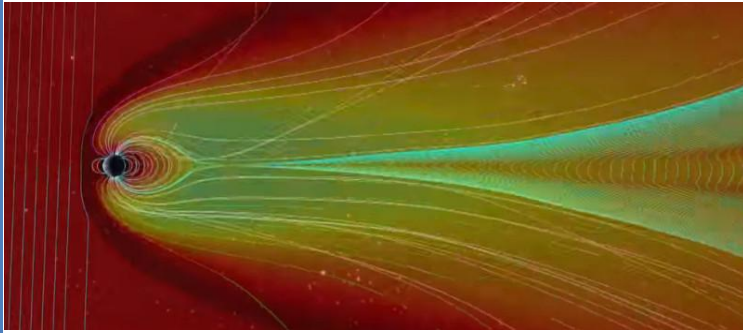
As most of you may know, the portcars e-mail forwarding system is working anymore. Too many internet providers are looking at our forwarding system as spam and deleting the e-mails we send out through that system. So, what to do?

Two things every member should do.

1. Check the PCARS web site every day, maybe a couple of times a day to see new information that is posted.
2. Another thing to do is to join the PCARS Yahoo 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!!



The 1859 Carrington Event

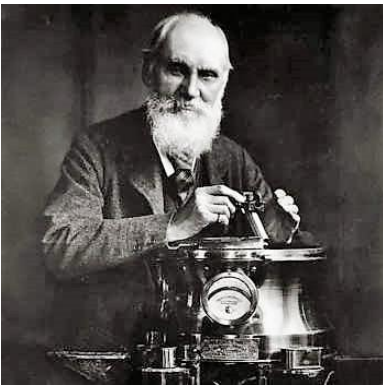


Dan Maloney

Like many Victorian gentlemen of means, Richard Carrington did not need to sully himself with



labor; instead, he turned his energies to the study of natural philosophy. It was the field of astronomy to which Carrington would apply himself, but unlike other gentlemen of similar inclination, he began his studies not as the sun set, but as it rose. Our star held great interest for Carrington, and what he saw on its face the morning of September 1, 1859, would astonish him. On that morning, as he sketched an unusual cluster of sunspots, the area erupted in a bright flash as an unfathomable amount of energy stored in the twisted ropes of the Sun's magnetic field was released, propelling billions of tons of star-stuff on a collision course with Earth.



Carrington had witnessed a solar flare, and the consequent coronal mass ejection that would hit Earth just 17 hours later would result in a geomagnetic storm of such strength that it would be worldwide news the next day, and would bear his name into the future. The Carrington Event of 1859 was a glimpse of what our star is capable of under the right circumstances, the implications of which are sobering indeed given the web of delicate connections we've woven around and above the planet.

A MORTIFYING SPECTACLE

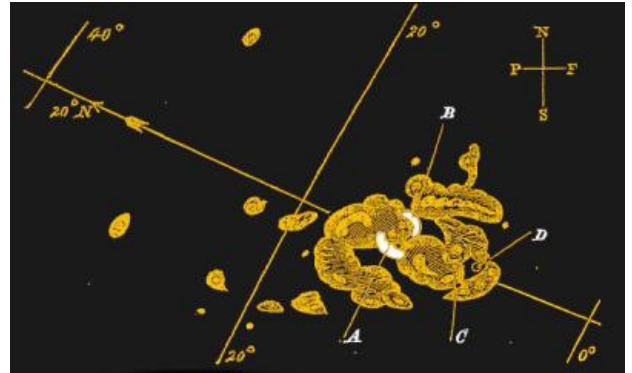
Richard C. Carrington. Source: SolarStorms.org

Solar science was in its infancy in 1859, and while Carrington's instruments were crude by today's standards - a 4-1/2" equatorial mount telescope projecting an image onto a white card - it was enough. Using similar equipment, astronomers had begun to tease out the secrets of the Sun, observing that the number of sunspots and their location on the Sun's face occur in cycles. They also knew that sunspots were associated with observable phenomena on Earth, such as the aurora borealis and aurora australis, and that there was a clear association between solar activity and the Earth's magnetic field. Some solar observatories even had magnetometers that could record changes on Earth and correlate them to solar activity.

The event that Carrington was lucky enough to have watched unfold on September 1st was only one of many outbursts that the Sun would have over a multi-day period. Solar observers reported large numbers of sunspots starting on August 28th, with strong aurora being seen at unusually low latitudes starting that night. That suggests that one or more of the sunspots had created a solar flare and coronal mass ejection (CME) of sufficient energy to fling a cloud of plasma toward Earth sometime in the prior two days - while the electromagnetic effects of a solar flare are visible about 8 minutes after it happens, the matter subsequently ejected takes several days to push through the 93 million miles (150 million km) of space between the Sun and the Earth.

Carrington's observations of the sunspots seen on Sept. 1, 1859. The flare started in the white regions (A and B) and spread over the whole face of the 35,000 mile-wide cluster for five minutes before fading. Source:

Richard Carrington [Public domain], via Wikimedia Commons Those eruptions would pale in comparison to what the Sun would release on September 1st. Carrington's routine observation of the sunspot cluster that day was interrupted at 11:18 AM local time by the appearance of two intensely bright white spots of light that moved across the entire face of the sunspot before gradually fading out and disappearing. He at first thought something had happened to his apparatus and that direct sunlight was being projected on his viewing screen, but it became clear that he was witnessing something rare and unusual. He rushed to find someone else to witness the event, but when he returned a minute later was "mortified to find it was already much changed and enfeebled." The whole thing lasted less than five minutes.

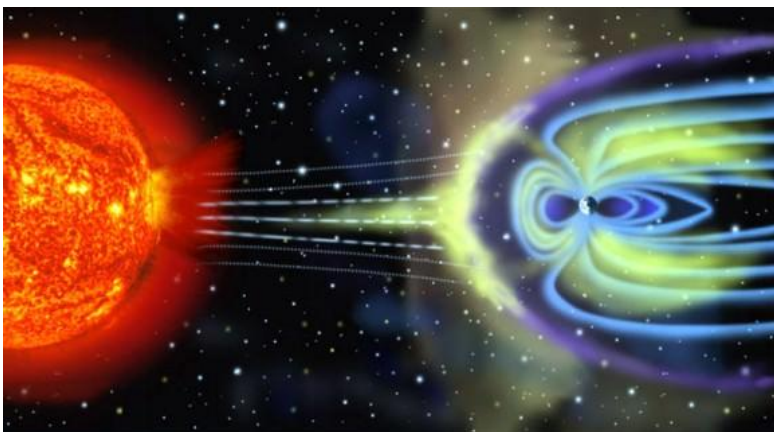


But the energy released in those few minutes would have enormous consequences. Gigatons of charged particles were blasted from the surface of the Sun, to ride along a twisted knot of the Sun's magnetic flux on a collision course with Earth. That the first effects of the arriving CME were reported a mere 18 hours after Carrington saw the flare suggests that the previous solar flares had cleared the space between Earth and the Sun to make the plasma cloud travel faster than the usual million miles (1.6 million km) per hour; or perhaps the CME that arrived the night of September 2nd was in fact released by an earlier, unobserved solar flare.

HERE COMES THE SUN

No matter the source, the arriving beast caused a geomagnetic storm of epic proportions. The Earth's magnetosphere was violently shoved aside, allowing charged particles to slip into the atmosphere and couple with gas molecules, producing strong aurorae. The lights were seen in both the northern and southern hemispheres at latitudes approaching the tropics; people reported being able to read a newspaper on the street at midnight and mistaking the bright display for sunrise and starting their day's hours too early.

As awe-inspiring as the auroral displays were, they were but a backdrop to the destructive energy that was



then sleeting down on the planet. As with the geomagnetic storm on 1989, the distortions of the Earth's magnetic field eventually reached a point of collapse. NASA has a good simulation video of this, used as the image at the top of the article. The collapsing magnetic field released its stored terawatts of energy back into the Earth. With little in the way of electrical infrastructure, most of the current eventually dissipated harmlessly. But the nascent telegraph network would suffer the brunt of the damage. Telegraph offices reported outages and connection problems,

switchgear crackled and sparked, and operators were shocked when they touched the keys. Some offices reported damage as paper tapes in the recording receivers burst into flames.

The storm continued for two days, damaging telegraph equipment across the globe. Some operators, in an attempt to spare their networks from further damage, disconnected their batteries from the lines, only to find that they could still send messages using only the current provided by the storm. Wires on poles coupled enough energy to light them on fire, and damage was considerable. By the time the storm was over, millions of dollars in damage had been inflicted upon the fledgling network.

SO MUCH MORE TO LOSE

In the century and a half since Richard Carrington made his observation, solar scientists have studied the Carrington Event and searched ice-core and other records for evidence of similar storms hitting Earth. Everything found thus far pales in comparison to the fury of the 1859 storm. There have been far more near misses, of course. One, a “Carrington class” CME launched by a 2012 solar flare, missed intersecting with Earth in its orbit by a mere nine days.

Famed insurer Lloyd’s of London, a firm with much to lose in such an event, commissioned a study to estimate the impact of a Carrington-level event striking the Earth today. They knew the stakes were much higher, what with 160 years of wires, switches, repeaters, satellites, and radios added to our grid, not to mention our complete dependence on the services built upon that infrastructure. They concluded that we might possibly see up to \$2.6 trillion in grid damage in the United States alone, with power outages lasting up to two years.

From: <https://hackaday.com/2019/01/22/the-1859-carrington-event/>



HACKADAY

Dan Maloney: Staff Writer - Hackaday. Dan has also been a generous contributor to the PCARS newsletter, **The RADIOGRAM**.

Dan has been a tinkerer since the days when Radio Shack still issued an annual paper catalog. Scientist by training but developer by necessity, Dan left his Ph.D. program with a Master’s in biology when he realized that automating his experiments and data capture was far more interesting than the ribosomal whooziewhatsis he was supposed to be studying. His day job now is to keep the R&D pipeline filled at a Major Pharmaceutical Company by automating experiments and data capture. What goes around comes around.

The remainder of Dan’s time is spent homesteading and trying to pry enough productivity out of 10 acres of New England glacial till and forest to sustain his family. While not remotely close to it yet, his goal is to free himself from the systems of support and build regenerative systems that require as few inputs as possible, which tweaks his hacker instincts as he searches for ways to automate his homestead as much as possible. He also enjoys cosplaying with his children, although we doubt he’ll ever admit to it.

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 !!



February	
7	K8CAV
14	KA8TOA
21	N8QE
28	WB8LCD

March	
7	N8XTH
14	K8IV
21	K8CAV
28	WB8LCD

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

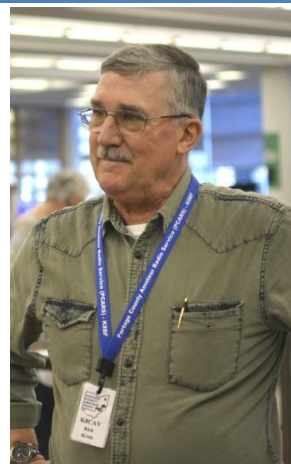
I am trying to get some new net control operators, anyone interested please contact me.

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 !

Portage County Coms Unit - Help Wanted

Rick, K8CAV

Portage County Coms Unit Commander



I WANT YOU
FOR THE PORTAGE
COUNTY COMS
UNIT!

The Portage County Office of Homeland Security and Emergency Management Communications Unit, known in short as the Coms Unit, currently has thirteen active members in it. Members are sworn volunteers, and I'm proud to say that the participation of our members in training nets, meetings, drills and exercises is in the high ninety percent range. This is a tribute to the dedication of our members that they willingly give their time and talents to serve the residents of our communities. During an actual incident, things such as personal/family safety and welfare, employment, and other circumstances may keep some members of the Coms Unit from being available for requested support and if enough cannot participate, may endanger the ability of the Coms Unit to support the mission.

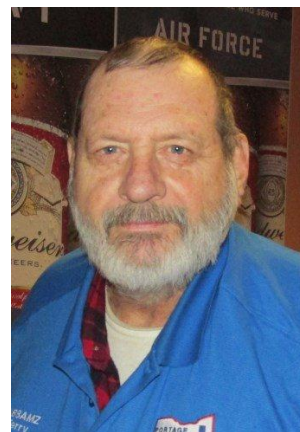
To mitigate the possibility of not having enough members being able to participate in an incident or event, I would like to expand the size of the Coms Unit and I am extending an invitation to any of you who may be interested in service to your community, to consider becoming a member. We would like to invite anyone interested, to attend one of our monthly training meetings to get an idea of what we do, and to get a better idea of this being something that would fit your expectations as a volunteer. The leadership of the OHS/EM and of the

Coms Unit is dedicated to spending the necessary time and effort to insure that productive training in all we do is planned and executed so that your time and participation will be well spent and fulfilling.

If you are interested in becoming a member of the Coms Unit, or in attending one of our training meetings, please contact me at: k8cav.coms@gmail.com and I will send information to you.

Winter Field Day

Terry, KB8AMZ



This last weekend of January is Winter Field Day. After being outside several times before this event I have decided that I will forgo this year's attempt at setting up outside. I will try to make contacts with those that have setup but I don't think my body or mind can handle the severe temperatures. It would have been good practice for the next event, **Freeze Your Acorns Off** that I do plan to work no matter the outside temp extreme. I may set up my antenna outside but my station might from the comfort of the front seat of my Kia Soul.

Basically the same rules apply for Winter Field Day as the typical summer time Field Day except there are temperature extremes at the bottom end of the thermometer. The northern climate stations must contend with the cold, bone chilling temperatures rather the hot sweltering temperatures of the summer Field Day. The spirit of the event or contest, depending on one's view, is to show that Amateur Radio Operators can deploy and set up their gear for emergency communication whether the weather is fair or severe.

For those diehards that work out in the exposure of the severe weather extremes, I tip my hat to you. This senior will stay home this year, in a warmer atmosphere and make contacts. This is 24 hour event like the typical summer Field Day. The FYAO event the following weekend is a shorter event that I think my body can handle better than the 24 hour event.

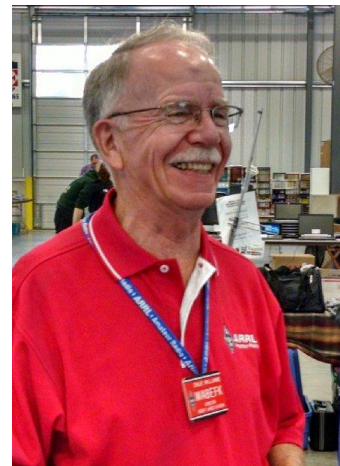
From the Great Lakes Director



Dale, WA8EFK
ARRL Great Lakes Division Director

Greetings, welcome to "Dale's Tales"

David AD8Y, the Faculty Advisor of The Case Amateur Radio Club, reports that CARC will be sponsoring the 2019 HamSCI conference in March. It will be on the campus of Case Western Reserve University and will include tours of the CARC station, W8EDU, and the CWRU ThinkBox public-access shop. There will also be an exam session. More material will be available as the date approaches. This fits well with the ARRL's new incentive for Lifelong Learning and you will hear more about that over the next few months.



DXCC Field Card Checkers. As you recall a few months ago I successfully lobbied for several revision to the DXCC Field Card Checker rules. Among the changes is the provision for adding more checkers, especially in areas where there are none. In the Great lakes Division, we have card checker in the following areas: Paducah, KY; Louisville, KY; Russell, KY; Gregory, MI; Marysville, MI; Bath, MI; Waterford, MI; Kalamazoo, MI; Goshen, OH; Hamilton, OH; Wooster, OH; and Hiram, OH. A quick look at the map will clearly show that the urban areas of our three Sections are well covered, but there are regions where added Card Checkers would really benefit the DXers in those areas. We need checkers in Southern Kentucky, SE Ohio, the northern Lower Peninsula and the Upper Peninsula in Michigan. If you live in any of these areas and hold DXCC, please consider becoming a card checker. Of course, we would like you to be available at regional hamfests to do some field checking just like our present Field Checkers. IF you have an interest in helping out, please let me know at wa8efk@arrl.org.

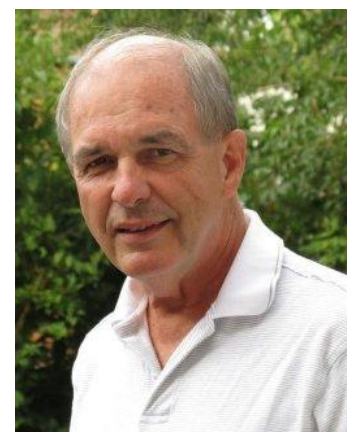
IN OTHER NEWS: My personal quest for making connections with inactive local hams continues, but I am thinking I might find that contacting one per month is bound to be the going rate. The initial effort with phone and e-mail has run its course and I now need to turn to letter writing due to the inaccessibility of e-mail addresses and phone numbers.

From the Great Lakes Vice Director



Tom, W8WTD
ARRL Great Lakes Division Vice Director

I like the changing seasons. But I think all of us in the three states in our Division were surprised by how quickly fall turned to winter. Hope this doesn't mean a long, snowy winter. What does this have to do with ham radio? If there are "seasons" for ham radio, it's a bit like gardening. There's always something to do, but the activities vary according to the seasons. I got most of my antenna work out of the way, so unless something falls, I don't have to worry about putting up antennas in the cold.



For those of us a little more involved in disaster response, batteries always need to be charged, and the gear always ready. Any season can bring emergencies. Even though we tend to focus on spring storms, October's

SET in Ohio featured a winter storm scenario. Just a few years ago, hams in Central Kentucky had the real thing, and they did a great job responding.

With some exceptions, hamfests tend to happen in the spring through the fall. I usually have a list of small items, parts, etc., that I'll look for at hamfests. Hope I don't need anything too quickly. The next hamfest I plan on attending is still a few months away.

Two other things in ham radio are really without seasons. Mentoring is key to keeping the hobby going. Any time a new ham, or an old ham with a new challenge, needs help, we should all be ready to offer advice or help. How's your club doing with mentoring as a club project?

The other thing is dealing with the public. Whether you're at a winter parade or a summer bike ride, we can all promote ham radio's public service aspect. And it's a great feeling to be of help in your community.

Proposed Change to the Constitution & By-Laws



Proposed change to the PCARS Constitution and By-Laws concerning the Trustees semi-annual audits and annual inventory audit.

This change was read to the membership at the January 14, 2019 meeting and will be voted on by the membership at the February 11, 2019 meeting.

Existing:

Sec. 4. The Trustees shall audit the financial reports, records, and statements of the Treasurer in **June, and December** of each year and shall report to the membership the results of such audits. The Trustees shall also take inventory of any organization owned equipment or supplies in **December** of each year and shall report to the membership the results of such inventory. The most senior Trustee (the 1 Year Trustee) shall ensure that the audits are accomplished on schedule.

Change to: (changes shown in bold)

Sec. 4. The Trustees shall audit the financial reports, records, and statements of the Treasurer in the **first quarter and third quarter** of each year and shall report to the membership the results of such audits. The Trustees shall also take inventory of organization owned equipment (**the list of equipment is determined and maintained by the board members and kept on file by the Treasurer and Trustees**) ~~or supplies~~ in the **fourth quarter** of each year and shall report to the membership the results of such inventory. The most senior Trustee (1 Year Trustee) shall ensure that the audits and inventory are accomplished on schedule.

By having the audits in the first and third quarters - that gives the Trustees leeway in case scheduling conflicts come up. The annual Inventory can be done in the fourth quarter to also allow for scheduling changes.

This change was approved by the Board Members on January 8, 2019, was brought up to the membership meeting on January 14, 2019 and will be voted upon by the membership at the February 11, 2019 meeting.

Hamfest Calendar

02/17/2019 - InterCity ARC Hamfest - Location: Richland County Ohio Fairgrounds - 750 North Home Road - Mansfield, OH 44901 - Website: <http://www.iarc.club> - Sponsor: InterCity Amateur Radio Club - Public Contact: Danny Bailey, W8DLB - 70 Euclid Street Shiloh, OH 44878 - Phone: 567-763-0021 - Email: W8DLB113@gmail.com

03/03/2019 - WINTER HAMFEST - Location: Lorain County Community College - 1005 North Abbe Road - Elyria, OH 44035 - Website: <http://www.noars.net/hamfests/noarsfest> - Sponsor: Northern Ohio Amateur Radio Society - Public Contact: Tom Porter, W8KYZ - 161 Herrmann Drive Avon Lake, OH 44012 - Phone: 440-930-9115 - Email: tporter161@oh.rr.com

04/13/2019 - 65th Annual Cuyahoga Falls Amateur Radio Club Hamfest - Location: Emidio & Son's Party Center - 48 East Bath Road - Cuyahoga Falls, OH 44221 - Website: <http://cfarc.org> - Sponsor: The Cuyahoga Falls Amateur Radio Club, Inc. - Public Contact: Pat Morrow, N8OQP - 627 Brewer Avenue Akron, OH 44305 - Phone: 234-206-0270 - Email: retired_guru@neo.rr.com

05/17-19/2019 - 2019 ARRL National Convention at Dayton Hamvention® - Location: Greene County Expo Center - 120 Fairgrounds Road - Xenia, OH 45385 - Website: <http://hamvention.org> - Sponsor: Dayton Amateur Radio Association - Public Contact: Henry Ruminski, W8HJR - PO Box 964 Dayton, OH 45401 - Phone: 937-232-9272 - Email: media@hamvention.org

06/01/2019 - Breeze Shooters Amateur Radio Club - Location: Big Butler Fairgrounds - 1127 New Castle Road - Prospect, PA 16052 - Website: <http://www.breezeshooters.org> - Sponsor: Breeze Shooters Amateur Radio Club - Public Contact: Cathy Heiles, KB3OYS - 134 Easley Road Pittsburgh, PA 15237 - Phone: 412-600-3846 - Email: kb3oys@breezeshooters.org

08/03/2019 - Columbus, Ohio Hamfest - Location: Aladdin Shrine Center - 1801 Gateway Circle - Grove City, OH 43123 - Website: <http://www.columbushamfest.com> - Sponsor: Voice of Aladdin Amateur Radio Club - Public Contact: John Lehman, K8PJ - 7415 Hagerty Road Ashville, OH 43103 - Phone: 614-571-5179 - Email: k8pj.john@gmail.com

09/22/2019 - Cleveland Hamfest and Computer Show - Location: Cuyahoga County Fairgrounds - 164 Eastland Road - Berea, OH 44017 - Website: <http://www.hac.org> - Sponsor: Hamfest Association of Cleveland - Public Contact: Glenn Williams, AF8C - 4134 Stoney Ridge Road Avon, OH 44011 - Phone: 440-934-5566 - Email: af8c@arrl.net

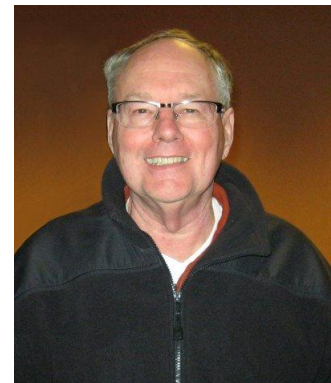
Happy Birthday PCARS Members

PCARS members having a birthday in **February**:

N4IT	Carl Capps	KC8YYS	Jim Albright
KC8LJY	Michael Bakes	WV8P	David Germ
KB8SK	George Boggs	KB8CLH	Vivian De Simio
AB8YK	Jim Storms	KD8FLZ	Mike DiCarro
KD8DFL	Ray Larrick		

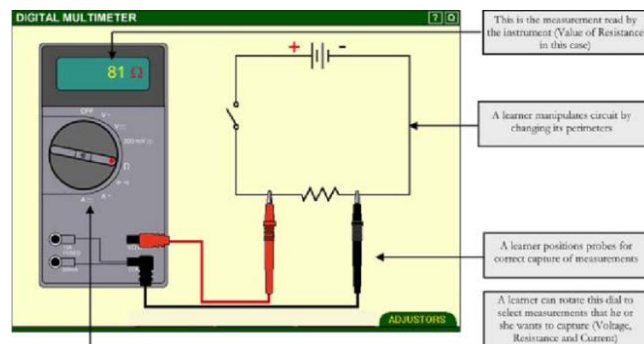
Teaching Ohm's Law to Beginners

Jim, AC8NT
PCARS President

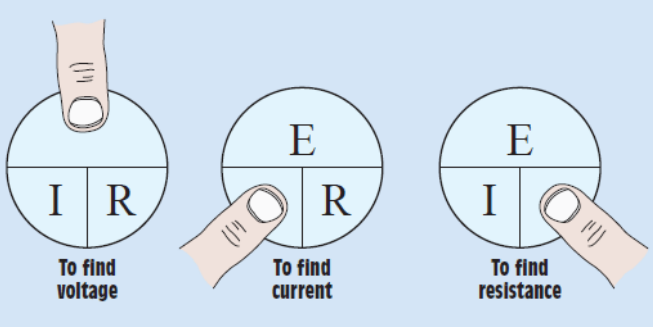


Those of us that work with beginners in electronics understand that they may want to play with circuits before they completely understand the math behind those circuits. We use water analogies to explain similarities to electronics including voltage, current and resistance. As an example we use a stream of a given width running down mountains of different elevations to show how the “current” in the stream is proportional to the height of the mountain. All well and good.

The next step is to have them play with a few circuits with different voltages and resistances, measuring current to get a feel for the relationship between the three. Kids as young as 10 really get an excellent “feel” for the relationship between V, Ω , and A using some of these simple experiments. Notice I didn't say E, R, and I. There is a reason for this. Look at a typical multimeter used in these experiments:



You don't see E, I or R anywhere. You see V, Ω , and A on the meter. This is true with most meters. When was the last time someone told you that it “Takes 5 standardized units of electromotive force (E) to make the LED glow” or “It takes 20 standard units of electron intensity (I) to trip a breaker” It takes 5 volts to make the LED glow and 20 amps to trip the breaker.

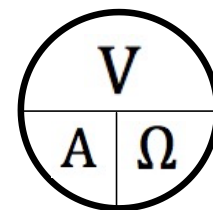


We then explain how all these are related using Ohm's Law. However, some may not have had any algebra so showing them $E = IR$ doesn't help much. Our next step is often the use the old Ohms Law Circle to help them calculate one of the variables given the other two:

Now remember we have just spent a lot of time using the terms voltage, current and resistance. We haven't spent a lot (usually zero) time talking about electron intensity or electromotive force. So what is the question you would expect? Of course “Mr. Wilson, what is E or I or R?” Now we have either

of two courses that are normally taken. In the case of kids, “Kids E is the same thing as V; R is the same thing as Ω ; and I is the same thing as A.” This almost always get you headed down a rabbit hole of questions that begin with the classic question “Why?”. Been there and done that.

So why not simplify the discussion by using the following wheel instead. The same use of your thumb applies, but the units are not new to the student. This eliminates the confusion of letters and allows us to focus on understanding these key relationships.



This is not a new idea. For years a lots of mechanics, HVAC technicians and other skilled tradesman have been taught the basic of electricity using this wheel. As people educating young and old alike, this wheel makes sense and allows teaching on ONE set of variables that are key to understanding simple circuits. I am not saying that we forget E, I and R. To move on to higher understanding you will need to know these variables. But why don't we start simpler?

The next time you are working with beginners or especially kids, trying making your job a little easier using this approach to Ohm's Law.

Swap-N-Shop

For Sale: Two Velvet Vernier Drives, Large 4" dia. Vernier drives used for precision adjustment of air variable capacitors. \$60.00 for the pair.

For Sale: Two (2) Hammarland transmitting capacitors, for a large antenna tuner. Rated 300 pf at 7500 Volts. They would make the ideal capacitor pair for a high power tuner. 13-7/8" L x 5-1/2" W x 4" H. One of the capacitors has had a single plate removed from the rotor. This has had the effect of reducing the capacitance by 4% or 12 pf. Therefore, one of the capacitors measures 288 pf while the other one measures 300 pf. However, 250 pf is all that is required to tune 160 meters in a T-network tuner so this should not be a problem. \$150

For Sale: 4" Coax Entry Port, This 4" entry panel complete with stainless steel mounting hardware, boot and cushion for four cables up to 1/2" in dia. The cushion can be changed out so any combination cable sizes can be accommodated. Two of the holes have removable plugs. \$30.00

For Sale: Andrew Helix Prep Tool Set, One set consisting of a prep tool for Andrew LDF4-50 1/2" Helix and one almost new, (used once) Helix cutter. This special Helix cutter is designed keep the cut end perfectly round so it will easily fit into prep tools and result in a properly prepared cable end ready for the installation of a connector. \$130 for set

For Sale: Andrew Helix Prep Tool, Two (2) new prep tools for Andrew LDF4-50 1/2" Helix \$100 each
James, KD8VT 330-206-4909

Contact James. KD8VT - 330-206-4909 [04/02/19]

FOR SALE: Diawa Cross Needle Antenna Tuner - Model CNW 419 - Asking \$175

Contact David, WV8P - email: WV8P@roadrunner.com [05/02/19]



For Sale: Collins 100 Watt Dummy Load DL-1 S/N-5288 dummy load will handle 100 watts for tuning up your rig, can work with any radio transmitter. \$150

For Sale: Used KT-88 Amplifier tubes that just came out of service in a McIntosh MC-2102 100 watt stereo amp. \$150

For Sale: Collins SM-2 microphone with original box, packing, cable, connectors, and mounting stand. \$350

For Sale: Used Collins SM-2 microphone with mounting stand no cable included. \$150

For Sale: Drake B-line Restored - Drake R-4B receiver S/N-14602B, T-4XB transmitter S/N-19769B, AC-4 power supply S/N-38653, MS-4 speaker (1972 Vintage), EV-638 microphone, RED LED digital readout, plus extra range crystals for all WARC bands & 160 meters, cooling fan on T-4XB.

Restored, aligned using sweeping method. Many new parts too much to list here. AC-4 re-built. \$1200, no trades, no Pay-Pal, Prefer pickup (NE Ohio Cleveland) or plus UPS Shipping 48 States

For Sale: Swan WM-1500 Wattmeter - Swan WM-1500 large 4-inch wattmeter, with scales of 5, 50, 500, 1500 watts analog only (no peak reading). Just a nice LARGE meter that works well.

Contact: Jeff, WA8SAJ at (440) 951-6406 is best for more info, no E-mails [04/02/19]



FOR SALE: WIMCO 2 Meter Wagon Wheel Antenna - Also known as a cloverleaf antenna. As new, plus save expensive shipping from Germany \$60.00

Contact Al, WA8CCU - email: radioflyer73@roadrunner.com [03/02/19]

FOR SALE: Hustler 5-BTV Vertical Antenna - Good Condition with mounting bracket, SO-239 Adapter and home brew 17 M add-on. Delivered FREE anywhere in Portage County. I can also help with set up. \$75

Contact Gene, W8NET - call 330-619-9194 [02/02/19]

FOR SALE: ICOM IC-7300 - NEW - never turned on and still in the box! (I want a 7610) From HRO - \$900.00

Contact Richard, KA8OAT - call 330-506-7068 [02/02/19]



Charlie the Tuner's HF High-Lites

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



We certainly have had some strange WX during January so who knows what February will bring. One thing I know is that this WX keeps me inside where I can play radio. The various contests that were held during January proved to me that the bands are not as much as they are abandoned because of perceived beliefs that they are not worth turning on your rigs.

But let a favorite contest be held and the bands light up like many of our now discarded Christmas trees. And there is talk that we even have had some sunspot activity that might be ushering in Cycle 25. I might not go so far as to say that is happening but the sunspots have been there.

So what should we as HAMS, and more to the point, as DXers be doing while all this is happening? Why, getting on the air of course! Warm up the airwaves and see what's out there. As I've mentioned many times in this column, you might just be surprised what you come across. With that in mind, let's see what is scheduled during the next several months and what we DXers might run into.

As always, thanks to the Northern Ohio Amateur Radio Society, Northern Ohio DX Association, Ohio/Penn Packet Cluster Network, AB5K & the AR TelNet Clusters Network, AF1G/C6ATH, NJ1Q & W1AW, NG3K & ADXO, W3UR & The Daily DX, K6VVA, K8GI, K8YSE, W8GEX & 60m DX News, W9ILY, DL1SBF, DL7UXG & The DX News Letter, DxCoffee.com, DXNews.com, DX-World.Net, ES1CW, F5NQL, F6AJA & Les Nouvelles DX, HA1AG, I1JQJ/IK1ADH & 425 DX News, I2MQP & DX Italia News, JI1LET, OZ1ADL, OZ6OM & 50 MHz DX News, 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.

3A, MONACO. Philippe, EA4NF, will be active as 3A/EA4NF from Monaco between February 15-18th. Priority will be given to FM and SSB Satellites to get confirmed as much as possible this rare DXCC country to the amateur radio satellite community. HF activity will be on 20 meters SSB, but on the QRP mode (5w). QSL via LoTW.

3W, VIETNAM. Jean-Pierre, F6CTF, will be active as 3W9JF from two different locations in Vietnam between February 19th and April 6th. His schedule is as follows: February 19th-March 6th -- From Phu Quoc Island (AS-128) March 16th-April 6th -- From Hoi An Activity will be on 80/40/20/17 meters using CW and SSB. QSL via direct or eQSL.

3Y0I BOUVET DXPEDITION NEWS. Nothing new this week and no other details to report. Departure dates are still not known. It is still a mystery... Remember, it takes 12 days to get to Bouvet from South Africa, and they plan to stay on the island for at least 2 weeks if the weather cooperates. The 3Y0I DXpedition's band plan frequencies (160-6m) and modes (CW/SSB/FT8) can be found at: <https://www.rebeldxgroup.com> <https://bouvetoya.org/3yoi-bandplan> QSL via ClubLog's OQRS (preferred), LoTW or via 3Z9DX. For more details and updates, we suggest to watch the following Web pages: <https://bouvetoya.org> <https://www.rebeldxgroup.com> http://jouban.jp/3y0i_ja (For JA stations) <https://www.facebook.com/bouvetoya.org> <https://www.facebook.com/rebeldxgroup> <https://twitter.com/Bouvetoyaorg>

5A, LIBYA. Elham, 5A0YL has been QRV on 20 meters using SSB at various times. QSL via OQRS.

6W, SENEGAL. Willy, ON4AVT, will once again be active as 6W/ON4AVT from Mbour, Senegal, between February 20th and March 30th, 2019. Activity will be on 40/20/10 meters using CW, SSB, PSK31 and PSK63. Equipment is a Yaesu FT891 transceiver into a Buddipole antenna. This time Willy will also take an end-fed for 3 bands (40/20/10m). QSL via his home call sign.

9G, GHANA (Update). Matt, IZ4YGS, is active as 9G5GS from Sanzule, West Takoradi (Western Region), Ghana. Matt informed OPDX of the following [edited]: "I'm travelling to Ghana almost every month for work reasons and it will be so throughout 2019. I'd like to be on-air from 80-6m, but it will take some time to be operational on all bands. I'll start with an FT-891 and wire antennas, SSB and FT8, mainly in the evening after work. Ham radio won't be my main activity in Ghana, but I'll do my best to let everybody have fun." QSL via IZ4YGS, direct or eQSL.

9M2, WEST MALAYSIA. Rich, PA0RRS is QRV as 9M2MRS from Penang Island, IOTA AS-015, until February 15. Activity is on the HF bands using CW, RTTY, PSK and FT8. QSL to home call.

9X, RWANDA (Reminder). Harald, DF2WO, will once again be active as 9X2AW from Kigali until February 14th. He is currently preparing his 160m antenna and will build a Hexbeam with Bamboo Sticks for working on 20/17/15/12/10 meters using mainly Digital modes (FT8, PSK31, JT65 and RTTY), CW and SSB. QSL via M0OXO's OQRS.

C3, ANDORRA. Salvador, EA3QS is QRV as C31CT from the C37AC club station. Activity is on the HF bands using CW. This includes being on 160 meters, conditions permitting. QSL to home call.

C5, THE GAMBIA. Przemyslaw, SP3PS is QRV as C5SP from Sanyang. He is active on 80 to 10 meters using SSB and FT8. QSL direct to home call.

CE, Juan Fernandex Islands Group, SA-005. RRC operators Vasily/R7AL, Vasil/RA1ZZ, Vladimir/RK8A, Aleksei/RL5F, Leonid/RW9JZ and Marco/CE1TBN will be active as XR0ZRC from Robinson Crusoe Island (WW Loc. FF06oi), in the Juan Fernandez Islands (CE0Z) group, between March 11-27th. The DXpedition Pilot will be Victor, UA3AKO. Activity will be on 160-10 meters using CW, SSB and FT8. QSL via R7AL, direct, ClubLog's OQRS or LoTW. For more details and update, see: <https://dexpedition.wixsite.com/xr0zrc>

E5, SOUTH COOK ISLANDS. Milan, OK1DWC is QRV as E51DWC. Activity is on the HF bands. This includes being an entry in the upcoming CQ World Wide 160 Meter CW contest. QSL to home call.

EM1, ANTARCTICA. Roman, UT7UA, will soon be active as EM1UA and/or EM1A from the Ukrainian Antarctic Akademik Vernadsky Base base station (EM1U) on Galindez Island (AN-006, WASA UR01). His license is good until February 1st, 2020. Activity will be on various HF bands and modes. QSL via UT7UA.

FK, NEW CALEDONIA Phil, F6OBD is QRV as FK/F6OBD until February 10, 2019. Activity is on the HF bands using only digital modes. QSL to home call.

FR, REUNION ISLAND Pierre, F1TCV is QRV as FR/F1TCV until February 27, 2019 while on vacation here. Activity is on 30, 20, 17 and 15 meters using RTTY, PSK and FT8. QSL to home call.

HP, PANAMA Special event station H31A will be QRV from Jan 1 to Aug 15 to celebrate the 500 years since the founding of the nation. Activity will be on 80-10 m using SSB, RTTY, FT8 and some PSK31. QSL via HP1AVS.

HS, THAILAND. Lars, SM6NT is QRV as HS0ZME until April 9. Activity is on the HF bands. QSL to home call.

JA, JAPAN. Special event station 8N8SSF is QRV until February 11 during the 70th Sapporo Snow Festival on Ishikari Island, IOTA AS-078. Activity is on the HF bands. QSL via bureau.

JD1, OGASAWARA. Makoto, JI5RPT, will once again be active as JD1BLY from Chichijima Island (AS-031) between February 15-17th. Activity will be on 630-6 meters using CW, SSB and the Digital modes (NO 6m EME). He states that

he will be active on the "630m Band" using mainly the JT9 mode. QSL via his home callsign JI5RPT. His log search will be available on his Web site at: <http://www.ji5rpt.com/jd1> He will also use Twitter to inform his real-time activities at: <http://twitter.com/jd1bly>

KG4, GUANTANAMO BAY. David, AC8AY, is now active as KG4AY from Guantanamo Bay (NA-015) until March 21st. Activity will be on 80-10 meters using only SSB. QSL via AC8AY, direct, eQSL, LoTW or QRZ.com Log Book.

PJ6, SABA ISLAND. Operators Bob/K4UEE, Tim/K5AC, Jeff/NM1Y and Ned/WC4X will be active as PJ6A from Jolieville, Saba Island (NA-145), during the ARRL CW DX Contest (February 16-17th) as a Multi-Single/Low-Power entry. QSL PJ6A via N4NX or LoTW. DO NOT QSL VIA BUREAU. Before and after the contest the operators will be signing PJ6/homecall and will be on 160-10 meters using CW, SSB, RTTY and possibly FT8. They'll be using their Elecraft K3's, transmitting into a Battle Creek Special on 160 meters, wire beams on 80 and 40 meters and a Yagi on 20-10 meters. The team will be there between February 11-18th. QSL via their home callsigns.

RI1, ANTARCTICA. Alex, RD1AV QRV as RI1ANV from Vostok Station, AN-016, to mid Feb. QSL via RN1ON.

S7, SEYCHELLES. Vlad, UA4WHX, is expected to be active soon as S70VB from La Digue Island (AF-024). Specific dates were not provided. Activity will be on various HF bands using CW, SSB and the Digital modes. QSL via UA4WHX direct or by PayPal (see QRZ.com).

SM, SWEDEN. Members of National Association of the Active Seeing Impaired club station SK5CG are QRV with special event station SF50CG during all of 2019 in celebration of their 50th anniversary. QSL via SM0BYD.

ST, SUDAN. John, N9MDH is QRV as ST2JB from Khartoum. He has been active on 15m using FT8. QSL via LoTW.

T31EU KANTON ISLAND DXPEDITION NEWS. The following was posted on the T31EU Web page: "Our preparations are on schedule. The team is very grateful for the great sponsoring from the ham community. The antenna material is stored in Tarawa. The PIPA Kanton Coordinator, Tuake Teema, confirmed that our 2 generators were in excellent conditions and we have 2 drums fuel available on the island. All our equipment is successfully checked and the suitcases are packed. We have again a total of 250 kg Radio equipment! In four weeks our team flies from Frankfurt over Brisbane to Tarawa. After a short stay in Tarawa we will fly on Feb. 16th with a small charter plane (Beechcraft King Air 200) to Kanton. There we are guests of the village community. The team members are in a good spirit and looking optimistically forward to a successful DXpedition." For more details and updates, see: <http://www.kanton2019.de>

V3, BELIZE. Paul, VE3AXT, is once again active as V31AX in the northern part of the country, Consejo Shores, Corozal, until mid-May. His rig is an IC-7300 with 100 watts into a Hexbeam G5RV dipole. QSL via M0URX and OQRS. Bureau QSLs are via OQRS ONLY at . Please do not send YOUR QSL card via the Bureau. For more info and pictures, see his V31AX QRZ.com Web page.

V84, BRUNEI. Operators Kom/9M6KOM, Choigonjav/JT1CO, Krassimir/K1LZ, Jeffrey/K1ZM, Patrick/KK6ZM, Adrian/KO8SCA, Nikolay/LZ1NK, Atilano/PY5EG, Roman/RN5M, Adi/S55M, Chris/VK3FY and possibly others will be active as V84SAA from Istana Pantai, Brunei, between February 7-18th, 2019. Activity will be on 160-10 meters with a focus on the low bands and the WARC-79 bands. Look for more details to be forthcoming as well as a Web page.

VK0, MACQUARIE ISLAND Norbert, VK5MQ is QRV as VK0AI until March 2019. Activity is on the HF bands. Of late, he has been active on 40 and 20 meters using FT8 at various times. QSL direct to home call.

XV, VIETNAM. Andy, DL3YM, will be active as XV9YM on a job related trip to Ho Chi Minh City between February 16th and March 18th. Activity will be limited to his spare time on 40-10 meters using mainly CW. All QSOs will be confirmed with a card and uploaded to LoTW.

XV, VIETNAM. Jacek, SP5APW, will once again be active from Vietnam during March. Look for him to be active as XV9JK/p (pending) from Mui Ne City between March 6-8th, and as XV9JK (pending) from Cu Lao Thu Island (AS-157) between March 10-16th. Activity will mainly be on 20/17 meters using SSB, and possibly FT8 on 40/30 meters. QSL via his home callsign, direct, by the Bureau or LoTW.

XV, VIETNAM. Mats, RM2D (SM6LRR), will once again be active as XV9D from Phan Tiet between November 17-30th. Activity will be holiday style, but he will make a serious effort for the CQWW DX CW Contest (November 23-24th). Entry category will be defined later [either a 160/80/40 meters Single- Band effort]. Activity before and after the contest will be mainly on CW, SSB, and possibly some Digital modes, mainly on 160-40 meters. This year the aim is to focus on the 5 lowest bands (160-20 meters) and main goal is to give DXers ATNO or new bandpoints on 160/80/40 meters. QSL via LoTW or direct to EA5GL. NO Bureau QSLs.

XV9, VIETNAM. Operators Bogdan/SP2FUD and Zenon/SP2GCJ active as XV9FUD and XV9ZT, respectively, from Vietnam, between February 5-18th, 2019. Activity will be on various HF bands and modes. QSL via their home calls.

Z8, SOUTH SUDAN Diya, YI1DZ is QRV as Z81D from Juba and is here for the next six months. Activity is in his spare time on 80 to 10 meters using SSB and various digital modes. QSL via OM3JW.

Well, there you have it. With all that activity from Vietnam, somebody should be able to work it that needs that DXCC entity. And if you are an FT8 buff, and have not worked Sudan, look for ST2JB on 15 meters using FT8. Until next month, vy 73.

CW/QRP & Linux Special Interest Groups

Terry, KB8AMZ

CW & QRP SIG

The members of this group have decided to have build projects this year 2019 that are not too difficult and don't cost too much money for the aspect of QRP.

This month we will discuss the types of baluns and determine which baluns we will build over the next couple months.

I hope to see you at our second 2019 SIG of this great new year.

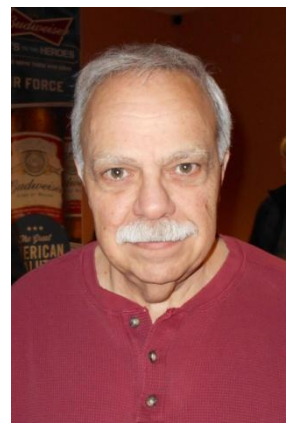


Antenna Special Interest Group

Tony, WA8AR

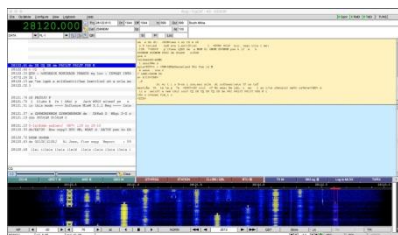
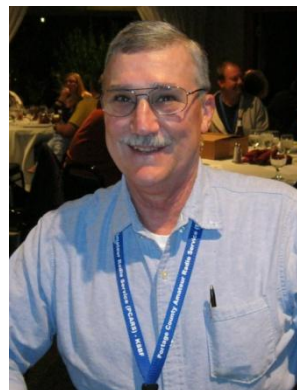
The Antenna SIG will meet at 7:30 PM in the PCARS club site radio room on the third Tuesday of every month. Please note that our regular meeting time of 7 PM has been pushed back to 7:30 to accommodate Field Day planning meetings which will be held from 6:30 to 7:30, January to June. Our February Field Day and Antenna SIG meetings will be held on 2/19/2019. All PCARS members and guests are welcome to attend the Antenna SIG (the Field Day meeting is only open to PCARS members). We will be discussing all antenna related topics including selection, design, construction, trouble shooting and safety for all Amateur Radio bands.

Please note that the PCARS QST email system is functioning very well, so please watch for PCARS QST's for last minute announcements prior to all Special Interest Groups. And, always check the PCARS web site for Antenna SIG updates or last minute cancellations before going to the club site for a meeting.



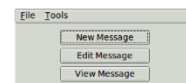
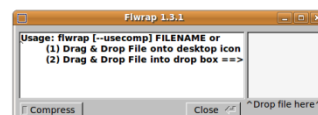
Digital Special Interest Group

Rick, K8CAV



Fldigi is a very popular, full featured software program that includes all of the popular digital modes in use by amateur radio operators, and many more, less popular but intriguing digital modes. While the base fldigi program is all you need to get up and operating digitally, there is a suite of associated programs written by the same group that work directly with fldigi to do things like rig control, logging, and more.

Two associated programs, flwrap and flmsg are aimed at those in the emergency communications community. During this month's Digital Special Interest Group meeting we'll be doing a presentation on how to use these two programs in conjunction with fldigi to generate and decode message traffic in a number of different message formats such as the ARRL radiogram, ICS forms, MARS forms plain text, and others. We'll also show how using the wrap function can insure that the message you have received is without error. We'll have a couple of stations set up to do some real-time message traffic to demonstrate the concepts. In addition, we'll be using rarely heard but super-fast 8PSK mode that's specifically designed for VHF/UHF-FM.



The meeting will take place on Tuesday February 5th at 7:00 PM at the PCARS Club Site in Ravenna. As always, we'll also be available to answer any questions or help with any digital issues you may be having. Hope to see you there!

Some Notes About Field Day 2019

Tony, WA8AR
Field Day Chairman



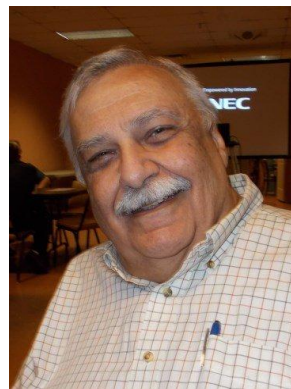
The February Monthly Field Day Planning meeting will be held on Tuesday 2/19/19 at 6:30 to 7:30 pm in the radio room at the PCARS Club site. All Field Day Station Captains and Field Day Staff should attend. Our monthly meetings are also open to all PCARS members who wish to participate. These meetings will end at 7:30 sharp to accommodate the following Antenna SIG Meeting.

As previously stated, our goal this year is to be #1 in the nation in our 4A operating Class. We are making a number of tweaks and upgrades to our 2018 operating effort that we expect could move us up from #4 to #1 in 2019. But it all comes down to the work that our members put in to make this happen. This is a Team effort.....Come Join the Field Day Team, even if you can only make a small contribution to the effort, it all adds up and can help us reach our goal!



DX & Contest Special Interest Group

Chuck, W8PT



First of all, I want to thank all who attended our January DX/Contest Special Interest Group meeting. We had some first timers and they were really interested in what we were doing in regards to DX and contesting. We may even have a new member come out of this meeting. There was an even split between those attending who wanted to know more about our RTTY contesting and those who wanted more information regarding Freeze Your Acorns Off.

From the comments made during the meeting, we will have some new ops operating in our FYAO coming up on February 9th and we will have some new ops who will try their hands at operating RTTY during the ARRL North American QSO Party - RTTY Mode that will take place February 23-24.

You will find more information regarding Freeze Your Acorns Off elsewhere in this newsletter.

The North American QSO Party, as mentioned, takes place on February 23-24 and starts at 1 pm local time on Saturday and ends 12 hours later at 1 am local time on Sunday morning. If you attended the RTTY training on January 26th, I encourage you to come out and make some contacts during the NAQP. And even if you did not attend the training, come on out and see how it's done.

At the January meeting certificate were handed out to the PCARS members that operated during the California QSO Party that was held in October 2018.

The results are in and the certificates were presented to W8PT, W8KNO, KB8AMZ, N8QE and KB8TUY. PCARS was First in the Multi-Multi Low Power category.

I hope you take advantage of what PCARS has to offer you in enhancing your operating skills, widening your view of what Amateur Radio has to offer, and just having the opportunity to have **BIG FUN!!**



Contest Calendar

February Contest Calendar	
Contest Name	Times
Vermont QSO Party	0000Z, Feb 2 to 2400Z, Feb 3
10-10 Int. Winter Contest, SSB	0001Z, Feb 2 to 2359Z, Feb 3
Minnesota QSO Party	1400Z-2400Z, Feb 2
British Columbia QSO Party	1600Z, Feb 2 - 0400Z, Feb 3 and 1600Z-2400Z, Feb 3
ARRL School Club Roundup	1300Z, Feb 11 to 2359Z, Feb 15
ARRL Inter. DX Contest, CW	0000Z, Feb 16 to 2400Z, Feb 17
CQ 160-Meter Contest, SSB	2200Z, Feb 22 to 2200Z, Feb 24
South Carolina QSO Party	1500Z, Feb 23 to 0159Z, Feb 24
North American QSO Party, RTTY	1800Z, Feb 23 to 0559Z, Feb 24
North Carolina QSO Party	1500Z, Feb 24 to 0059Z, Feb 25

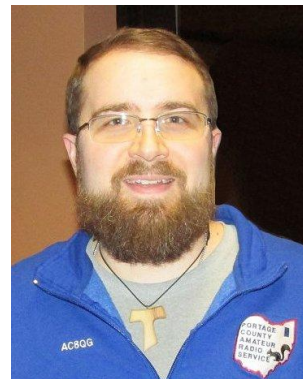
YES - There are MANY More Contests out there - Check the internet.

Contests that will be active at the PCARS Club Site in 2019	
Date	Contest
Feb 23-24	North American QSO Party, RTTY
Mar 9-10	Idaho and Wisconsin QSO Parties
Apr 27-28	Florida QSO Party
May 4-5	7th Call Area; Indiana; Delaware; New England QSO Parties
Jul 20-21	NA QSO Party RTTY
Aug 24-25	Ohio QSO Party/ BBQ
Oct 5-6	California QSO Party
Oct 12-13	Arizona QSO Party



■ *Father Maximilian Kolbe*

Nick, AC8QG



I've heard that in ham radio, we shouldn't talk about religion or politics. Well, bear with me, because I'm going to share a brief story about a priest and some Nazis. Don't worry. It's also about amateur radio.



The priest was Father Maximilian Kolbe. In 1938 he and the members of his Polish monastery built a religious shortwave radio station with the call sign SP3RN. My CW loving friends will be pleased to know that the license required the knowledge and use of Morse code. The station included an HF transmitter borrowed from the German army as well as homemade antennas. The Friars even used early vacuum tube condenser microphones!

You can probably guess the role the Nazis play in this story. They didn't really appreciate his anti-Nazi publications or that he sheltered Jews in the monastery. In 1941 the Nazis shut down the monastery and sent Father Maximilian to Auschwitz concentration camp. He was executed later that year when he offered himself as a replacement for a fellow prisoner who had been condemned to death.

Why am I sharing this story? Because Father Maximilian's passion for physics and technology, as well as his personal courage in the face of evil, has been a great inspiration for me since I was young. I took him as a personal patron while pursuing a career in technology. Father Maximilian believed that science could be used for good, even in a world that seemed filled with bad. As I operate my modern day ham radio station, I stand on the shoulders of giants like James Clerk Maxwell, Guglielmo Marconi and Hiram Percy Maxim among many other scientists and engineers. I also know that I stand on the shoulders of practitioners like Father Maximilian who used radio to make the world a better place.



In honor of Father Maximilian, a group of hams started an HF net, the Saint Maximilian Kolbe Net, in 1988. You can find more information about it at: www.saintmaxnet.org.



PCARS K8BF

The Club that puts the FUN in Ham Radio!



Paper Chase

Joe, W8KNO



SAN FRANCISCO HISTORY SERIES SPECIAL EVENT - N6E

THE 80TH ANNIVERSARY OF THE GOLDEN GATE INTERNATIONAL EXPOSITION - 1939, SAN FRANCISCO



The San Francisco - Oakland Bay Bridge was completed in 1936 followed by the Golden Gate Bridge in 1937. During the construction of the San Francisco - Oakland Bay Bridge, an artificial island was constructed, Treasure Island, and was the site of the Golden Gate International Exposition. Treasure Island later became a Navy Training Center.

EVENT DETAILS: Feb 15, 00:00, UTC to Feb 24, 23:59, UTC, 2019 21.265, 14.265, 7.265, 3.815 +/- QRM

QSL INFO: Direct Only - Your card and Self Addressed Stamped Envelope (SASE) to:

**N6E - WILL PATTULLO
161 PRESIDENTIAL CIRCLE
HEALDSBURG, CA 95448 USA**

Check Your Ham License

Daryl, WX1DER



On one net, I asked "*Without looking at your ham radio license, do you know its expiration date??*" 95% of the respondents said "*NO*". At a license exam session I did awhile back, one examinee, who thought he had a General Class license was **SHOCKED** to find out that it had actually been expired over 2 years, and as a result, it was **WORTHLESS**. He had to start completely over, exam wise.

Obviously, operating without a license can get a Notice Of Violation or worse from the FCC. For that matter, the same applies to ones Drivers License, etc.

I personally don't think it's that much to ask to know the expiration of one's licenses... ham radio, drivers licenses, or otherwise. Not knowing it could cause real problems.

Make Ham Radio a Habit

Dan, KB6NU



Every week, I get an email newsletter from Penguin Random House called *Signature*. *Signature* includes links to articles about books and writing. Being a writer, I clicked on the link to “5 Good Writing Habits You Need to Learn Now.” As I was reading the article, it occurred to me that the advice could also apply to amateur radio.

So, with apologies to the author, Lorraine Berry, here are five things you can do to make ham radio a habit:

1. **To get on the air more, set up a time to do it.** If you enjoy getting on the air, but never seem to be able to find the time to do it, you need to put it on your schedule. Set aside the time a couple of days, or a week, or even a month in advance, and you’ll be more likely to do it. If you set up a regular time every week, pretty soon it will be a habit.
2. **If ham radio is important to you, create an environment that encourages you to do ham radio.** To make ham radio a habit, you really need a place that’s set up to do ham radio. If you have to dig out and set up your equipment every time that you want to get on the air, you’re just not going to do it. You need a “shack” that makes it easier for you to engage in the hobby. Jim Richards, K8JHR, gave me some great advice back in 2012 on where and how to set up a shack.
3. **Create temptations that reward you for your new habit of ham radio.** For me, being able to operate is reward enough, but you may want to reward yourself with a beer or some ice cream after an operating session.
4. **Make it easy to practice the habit of ham radio.** This is related to #4. Your shack should have everything you need to easily do whatever ham radio activities you enjoy doing. If you enjoy operating, then it should have a nice operating desk. If you enjoy building, then set it up so that all of your tools are readily accessible. The easier it is to do, the more likely it is that you’ll do it.
5. **Start with the Two-Minute Rule for new habits and continue from there.** The “two minute rule” is a tool to help you overcome procrastination. The idea is to allot just two minutes to a task that you’d like to complete or a skill that you’d like to develop. It’s a small commitment, but enough to get you started, and the idea is that once you’re started on a particular task or project, continuing work on that task or project becomes a lot easier. Not only that, those two minutes could easily become a half hour or an hour once you’ve gotten the ball rolling.

So, armed with this advice, I’m expecting you to get on the air more in 2019. I’ll be listening for you.

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 Ham Radio License Plates Wanted !!!

Dig out an old 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 69 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 Yahoo Group](#) site. Then you'll have an old plate to bring in to get hung up as a **permanent part of PCARS history**.



From the Ohio BMV:

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

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

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

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

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

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

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

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

PCARS is on YouTube

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

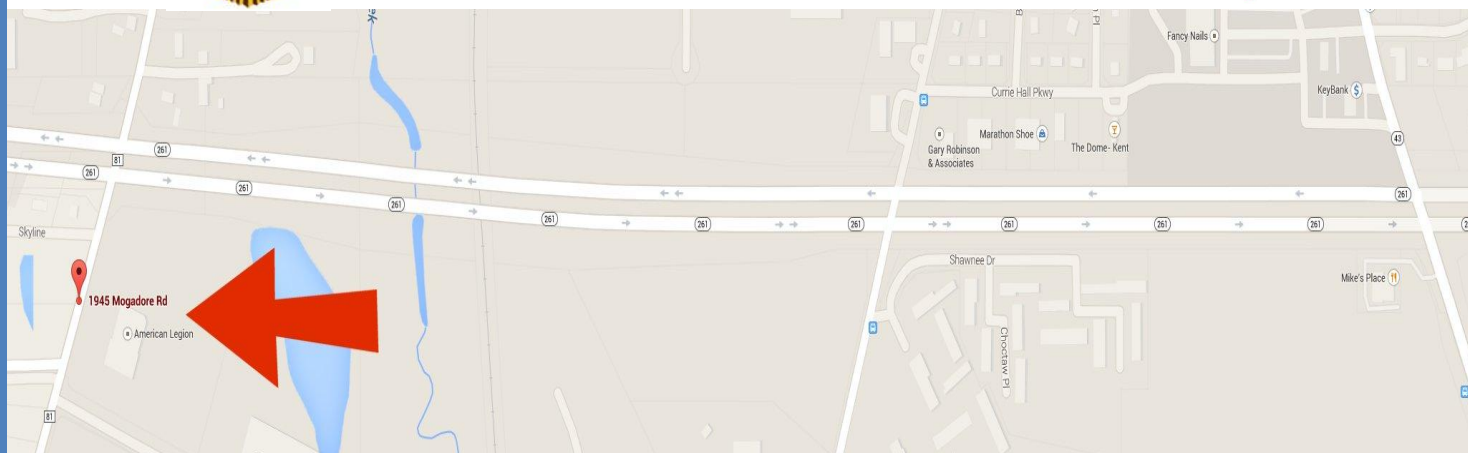


PCARS Meetings

The Portage County Amateur Radio Service (PCARS) 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.

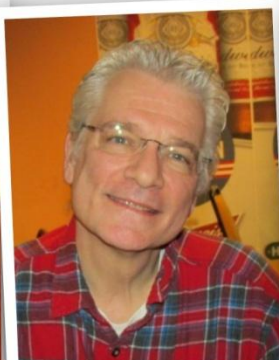
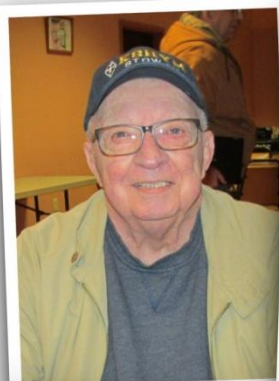


*The picture on the left shows
The American Legion Post 496
as viewed from Mogadore Road.
(looking East)*

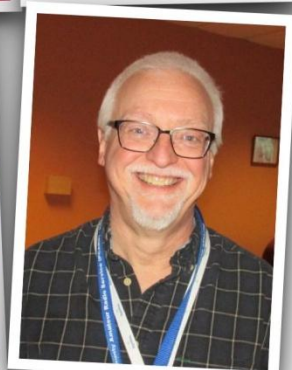
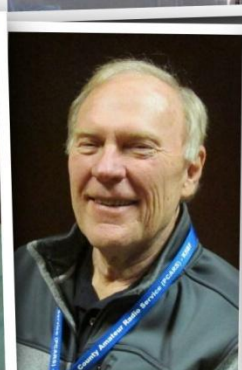
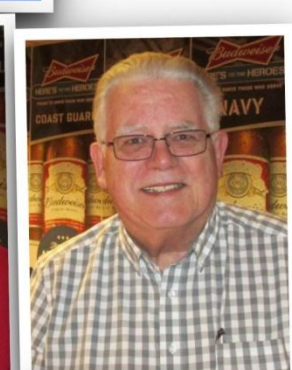
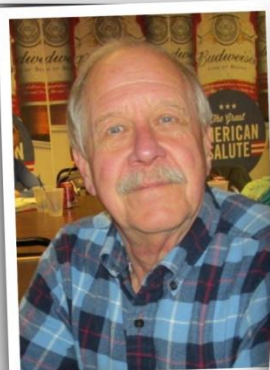
The menu consists of your basic burger / dog / chicken sandwiches, wings, fries, onion rings, and salads. There is also an appetizer selection as well. Adult beverages are available and costs are in line with what you would expect at most bar-restaurant facilities.

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.

Photos from the PCARS January Meeting



14
Jan
2019



PCARS Meeting



14
Jan
2019

PCARS Meeting



PCARS Meeting

14-Jan-2019

~ Amateur Radio Instruction Class ~

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

is sponsoring an Amateur Radio **Technician** course

that will enable *You* to obtain

Your FCC **Technician** license as an

AMATEUR RADIO OPERATOR



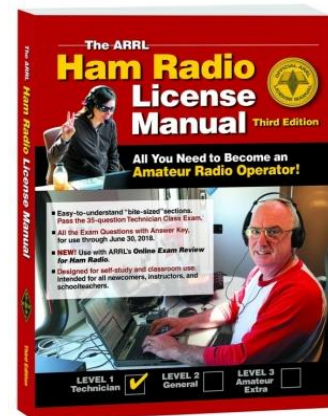
When: Wednesday evening 7:00 p.m. – 9:00 p.m.
February 6, 2019 through March 27, 2019
8 weeks. Official Amateur Radio License testing
will be held at the end of the course (Mar 27th).

Where: At the **PCARS Club Site**
Radio Room located in the
Dietrich Building
705 Oakwood St. in Ravenna

Registration: First night of class

Cost: **\$25.00 Registration fee.**
(No Registration Fee for PCARS Members)
\$30 Text – “Ham Radio License Manual”
(text may be purchased first night of class)

Information: Contact Jim Wilson, AC8NT
e-mail at: jawilson@j3solutions.com
phone at: **330-342-8149**



As a licensed **Amateur Radio Operator** you will be able to

- **Contact other ham radio operators in the area and around the world**
- **Serve your community – ham radio operators are the critical communication link during disasters and emergencies**
- **Participate in a fascinating and rewarding hobby**

THERE WILL BE A FIVE STUDENT MINIMUM (or no class will be done)

Contact Jim Wilson, AC8NT to make your reservation NOW

Jim Wilson - AC8NT, at jawilson@j3solutions.com or by phone at 330-342-8149

Portage County Amateur Radio Service, Inc.



PCARS - K8BF

14th Annual

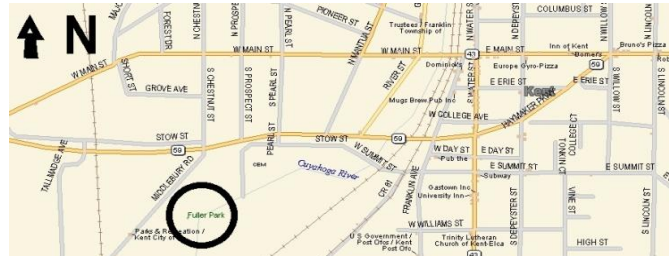
"Freeze Your Acorns Off" (FYAO) Special Event Station



Where: *Fred Fuller Park - 497 Middlebury Rd., Kent, Oh
at the Roy Smith Shelter House*

When: *Saturday - Feb. 9, 2019
Set up: 9 am*

Operating Time: *10 am - 3 pm EST*



We will be active on CW & Phone in the General areas of the 6, 10, 15, 20, 40 and 80 meter bands (Repeater & Echolink on the K8SRR echo link node for a certificate) and anything else we can get working. Club Call Sign **K8BF** for a certificate. Other participating stations will be using their own callsign/FYAO, or calling "CQ FYAO" (only stations at the Freeze Your Acorns Off event should use the /FYAO designator). Yes, we'll be braving the cold snowy weather of North Eastern Ohio to set up QRP stations using portable power and antennas.



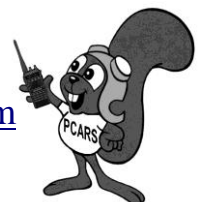
A beautiful color (suitable for framing) 8" x 10" certificate is available if you contact K8BF on 2 meters FM or EchoLink and send your QSL **with a large SASE** to the club call trustee:

Amy Leggiero, KD8SKL - 6229 Gladys St Unit B - Ravenna, OH 44266

So, from the comfort of your warm radio shack - give us a contact while we're out freezing. We'll need all the contacts we can make to help keep us warm. Your support will be very much appreciated!



Check PCARS out on the web at: www.portcars.org
Questions? Contact Chuck, W8PT at chuckw8pt@gmail.com



Registration Open for Four Days In May



Registration is Open for QRP-ARCI Four Days in May 2019

Registration (<http://adatab.duckdns.org/QRPARCI/registration.cfm>) now is open for the QRP Amateur Radio Club International “Four Days in May” (FDIM), Thursday – Sunday, May 16 – 19, at the Holiday Inn, Fairborn, Ohio. The annual FDIM event for QRP enthusiasts and builders takes place in conjunction with Hamvention®. Registration begins the evening of Wednesday, May 15.

Most of Thursday will be taken up with seminars, “meet the speakers” opportunities, and an open room for casual show and tell. Most of Friday and Saturday are open to attend the Hamvention and visit the QRP-ARCI Toy Store.

Friday evening activities typically include “show and tell,” vendor displays, and a homebrew contest. Saturday evening features social activities and a banquet, while Sunday is open for Hamvention. Attendees are invited to display their QRP-related projects at FDIM. One evening will feature vendors offering QRP-related products, with some offering FDIM discounts. Dress is casual for all events.

Reservations and special room rates for FDIM will be available after January 1 through the **QRP-ARCI website** (<http://www.qrparci.org/>). For more information, **contact** FDIM 2019 Chair Norm Schklar, WA4ZXV (fdim@qrparci.org).

Registration Open for CTU 2019



Registration now (<https://www.contestuniversity.com/registration/>) is open for 2019 ConTest University (CTU), Thursday, May 16, 2019, at the Crowne Plaza in downtown Dayton, Ohio. This is the day before Hamvention® opens in Xenia.

More than 7,500 students have attended CTU sessions over the last 13 years in eight countries, and more than 100 CTU professors have shared their contesting experiences. The faculty lineup, posted on the CTU website, includes several new and returning members. Newcomer Bryant, KG5HVO, will present ideas for attracting youth into contesting, while Dan, N6MJ, and Chris, KL9A - the gold medalists at WRTC 2014 - will present advanced operating papers.

Not teaching but on hand to field questions will be CTU stalwart Frank, W3LPL. The 2019 CTU Dayton course outline will be posted soon. Scholarships (paid registration) are available for CTU attendees through a grant from the Northern California DX Foundation (NCDXF - <http://www.ncdxf.org/>) for students age 25 and younger. Click the “**Contact Us**” tab on the CTU website.

CTU Dayton 2019 registration information is on the **CTU website** (<http://contestuniversity.com/>). Prospective attendees who have given or will give a talk about Amateur Radio to any club, hamfest, or other group since May 16, 2018, qualify for a \$10 registration discount. Choose the “Registration with Club Talk Discount” option.

Thanks & 73



Parky, KB8UUZ
PCARS Newsletter Editor



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 with plenty of activities. So chip in and send your report in to keep this newsletter great throughout 2019 and beyond.

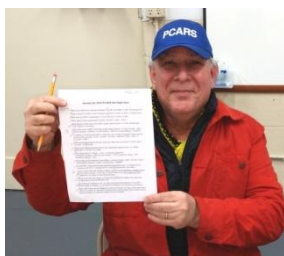
Thanks go out to the contributors for this month's newsletter:

AC8NT, AC8QG, KB8UUZ, WB8LCD, KA4KOE, AB1FM, Dan Maloney, KA8TOA, K8CAV, KB8AMZ, WA8EFK, W8WTD, W8PT, WA8AR, W8KNO, WX1DER, KB6NU, The ARRL and the World-Wide Web.

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

January 2019 Net Night Quiz Answers

1	A 0 db	11	C Rick Roderick K5UR	21	C Electromagnetic Energy
2	D 100%	12	D Department of the Navy	22	C 1912
3	B 1914	13	E Little City Grill	23	B OET65b
4	A 2005	14	A McMurdo	24	D 15 is a harmonic of 40
5	C West Virginia	15	B Low Radiation Angle	25	D low loss current path
6	D Dale Williams WA8EFK	16	C Chassis is at ground potential	26	A Reginald Fessenden 12/24/1906
7	C Ed K8IV	17	D Fully Retracted or Nested	27	B OSCAR 1 Launched 12/12/1961 – just 4 years after Sputnik launch
8	B 6 dbd	18	A Technician	28	B 145.80 Mhz
9	B 50 Mhz	19	C 27,941	29	A 5:00 AM
10	C Clarence Tuska – 1WD	20	B Time Constant	30	C Thomas Edison



Winner of the net night quiz. Total score 25.

Rick - KD8WCK

Make Amateur Radio Exciting in **2019**
Upgrade Today!

The ARRL **General Class License Manual**
Level 2
All You Need to Pass Your General Class Exam

The ARRL **Extra Class License Manual**
Level 3
All You Need to Pass Your Extra Class Exam

Discover the many benefits of joining ARRL!

Membership Benefits

Join Us

Menu Ctrl

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



~ 2019 Officers ~		2019 PCARS Appointments & Committees	
President - Jim Wilson - AC8NT Vice President - Nick Wagner - AC8QG Treasurer - Paul Hyland - KE8EGF 3 Year Trustee - Terry Morris - KB8AMZ 2 Year Trustee - Ed Polack - K8IV 1 Year Trustee - Tom Parkinson - KB8UUZ Past President - Rick Kruis - K8CAV	ARRL Awards - DXCC WAS, VUCC, WAC	W8KNO	Joe Wehner
	ARRL Awards - WAS	KB8UUZ	Tom Parkinson
	Club Site Manager/Liaison	K8CAV	Rick Kruis
	Contest Coordinator	W8PT	Chuck Patellis
	EchoLink & Web Guru	K8SRR	Steve Randlett
	Field Day Chairman, 2019	WA8AR	Tony Romito
	FYAO Chairman	W8PT	Chuck Patellis
	Historian	KB8SZI	Peggy Parkinson
	K8BF Callsign Trustee	KD8SKL	Amy Leggiero
	K8BF QSL Manager	KD8SKL	Amy Leggiero
	Membership Chairman	WB8LCD	Tom Sly
	Net Control Manager	KA8TOA	Greg Ash
~ Meetings & Net ~ 2nd Monday of each month. 7pm Thursday night Club Net at 8 pm on 146.895	Net Night - Club Manager	WB8LCD	Tom Sly
	Newsletter Editor	KB8UUZ	Tom Parkinson
	OSPOTA Chairman	KB8UUZ	Tom Parkinson
	Public Information Officer	WB8LCD	Tom Sly
	Secretary	W8NET	Gene Marsh
	Tech, Gen & Extra Class Manager	AC8NT	Jim Wilson
	Volunteer Examiner Liaison	KB8UUZ	Tom Parkinson
	Webmaster	KD8MQ	John Myers



**PCARS
Active
Volunteer
Examiner
Team
Members**

KB8UUZ	Tom Parkinson
WB8LCD	Tom Sly
N8XTH	Deron Boring
N8PXW	Jim Korenz
N8QE	Bob Hajdak
K8IV	Ed Polack
W8RID	Robert Davet
WA8CCU	Al Nagy
NR8W	Russ Williams
W8EZT	Frank Tompkins
AC8NT	Jim Wilson
K8MSH	Mark Haverstock
KA8TOA	Greg Ash
KB3GXB	Jennifer Williams
W8PT	Chuck Patellis
AC8QG	Nick Wagner
N8FUM	Dan Torchia



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 ©2019. The **RADIOGRAM** is an **Award Winning** newsletter: ARRL Ohio Section Newsletter First Place Winner for 2012 AND 2013. Second Place in the Great Lakes Division for 2013. Second Place ARRL Ohio Section Newsletter for 2014. Third Place Winner in the Ohio Section 2015. Second Place Winner in the Ohio Section for 2016. **First Place Newsletter Winner in the Ohio Section for 2017 & 2018 and First Place Newsletter Winner in the Great Lakes Division 2017.** 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

NLC



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