



The

# RADIOGRAM

When All Else Fails ~ Amateur Radio Works



August 2013 ~ Official Newsletter of the Portage County Amateur Radio Service, Inc. (PCARS) ~ Vol. 8 No. 8

~ 2013 Officers ~

President - Tom Sly - WB8LCD  
 Vice President - Bill Fraedrich - WB9LBI  
 Treasurer - George Proudfoot - K3GP  
 3 Year Trustee - Erica Pelz - AE8YL  
 2 Year Trustee - Bob Hajdak - N8QE  
 1 Year Trustee - Sandra Getty - KD8JCY

~ Meetings & Net ~

2<sup>nd</sup> Monday of  
 each month. 7pm  
 Thursday night  
 Club Net at 8 pm  
 on 146.895

PCARS Incorporated  
 Nov. 1, 2005

First Meeting  
 Nov. 14, 2005



ARRL Affiliated  
 April 20, 2006

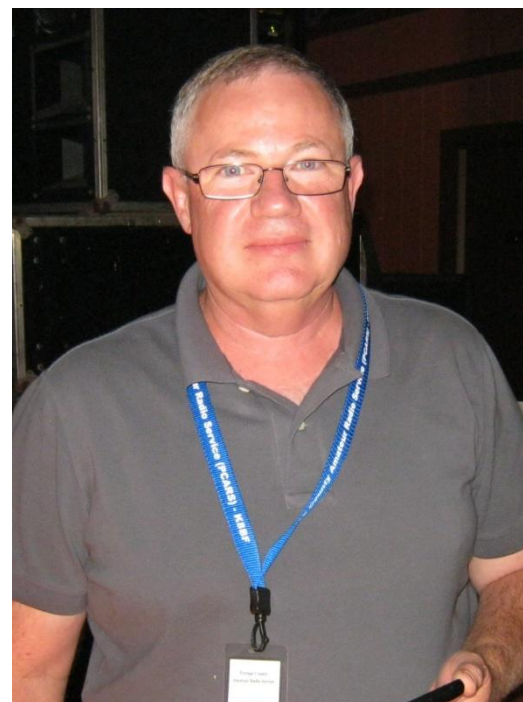


Special Services  
 Club  
 March 22, 2010

## From the President

In his inauguration speech on Friday, January 20, 1961, President John F. Kennedy said "And so, my fellow Americans: ask not what your country can do for you—ask what you can do for your country." That line has been quoted often. (The whole speech was actually very good, you can read it at <http://www.bartleby.com/124/pres56.html>) As PCARS continues to grow, we are in a similar situation in that with all the programs and activities we have for the benefit of all members, we need more members to be involved with the operation of the programs and activities of the club. Right now, there are some people in the club who do an awful lot of the "heavy lifting" that has to be done to keep an organization of our size moving. None of them do so grudgingly, they all do it as an act of giving back to a great hobby that has given them untold hours of fascination and enjoyment.

I want to ask each one of you to look at all the activities of the club and see if there is not a spot where you could "plug in" and help out. Some suggestions: 1. Thursday night net control operators. 2. PCARS net manager. 3. Tech and General upgrade class teachers. 4. Education manager for the classes each year. 5. FYAO chairman. 6. Field Day chairman. 7. Club picnic chairman. 8. SIG leader or presenter. 9. Columnist for the Radiogram. 10. Liaison to other local clubs. I'll stop here, but there are lots of opportunities to give back to your hobby and your club. Your participation is appreciated, encouraged and will make you a better ham, as well as making PCARS a better club. If you would like to pursue an opportunity to serve PCARS, please let me know.



Tom, WB8LCD

As you have probably already heard, this actual newsletter that you are holding in your hands right now, was the winner of the Ohio Section Newsletter contest – For The Second Year In A Row! Congratulations to Parky as editor, and to everyone who has contributed in the past year. That puts the Radiogram in the running for the Great Lakes Division newsletter conference, winners to be announced at the Great Lakes Division Convention to be held Saturday, August 3rd, in Columbus. If you can, go to the conference to support the Radiogram, Parky and PCARS. It will be well worth the trip.

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Visit the PCARS Website at: <http://www.portcars.org>



### *From the President* (continued from Page 1)

Since the deadline for this issue of the Radiogram is prior to our club picnic, I sure hope you will be there! And, the next big PCARS events are the Cruise In, and then Ohio State Parks on the Air contest. The Cruise In is always a fun time. Bringing your family or loved ones is encouraged.

Lets fill that A&W parking lot with PCARS members and friends. Let everyone you know know that they are invited! Same with OSPOTA, if you aren't already planning an operation, get it on your personal agenda. Ask around, there's probably some other operations working as teams that would welcome your participation with them. Let's make sure that on Saturday, September 7th, PCARS rules the airwaves with OSPOTA!

I got involved with ham radio because of the fascination I had as a kid with how radio works. That fascination still exists. I got involved with PCARS because I wanted to share that fascination with a group of like minded folks, and have a great time doing it. The fun is there to be had, but you won't experience it unless you jump in and get involved. And I know for sure, once you jump in, you're going to be awesome!

72/73,

**Tom, WB8LCD**  
PCARS President



## ***RADIOGRAM Wins Ohio Section Newsletter Contest***

While on my way home from work on July 9th, our club President Tom, WB8LCD called and told me to read my e-mail as soon as I got home, and then to call him. My first thoughts were something went wrong at the club site, or one of our members was in the hospital, or some other tragedy had occurred.

So when I arrived home and checked the e-mail, I didn't see a message from WB8LCD, but I saw the one that the Ohio Section Manager had sent **"WINNERS ANNOUNCED - 2013 OHIO SECTION NEWSLETTER CONTEST"**. Well I figured that it must be one of the clubs that we know had won. When I got down to the winner - I was so surprised and yelled out "Holy Cow" (or something to that effect...). I quickly checked to see the date on the email was correct - sure enough. Wow, I am so surprised at this. I really appreciate this honor, more than you can imagine.

The Ohio Section had changed the rules and dropped the 5 year waiting period for a previous winner - so our newsletter is the first Ohio Section club newsletter to have won two years in a row! Amazing !

I'll be in Columbus on August 3<sup>rd</sup> to pick up this nice award for PCARS and will bring it back to hang up in the club radio room for all to see. It sometimes amazes me when on that last Friday of the month I manage to get the newsletter out (usually around midnight or 1:00 am) and sometimes the page count is up around 25 for a monthly newsletter. I must say that I start on the new newsletter just as soon as I send out the current newsletter. I figured it out once and I usually put 8 to 15 hours in on each newsletter trying to get it 'just right'. I appreciate ALL of you that have contributed to The RADIOGRAM - your help is very much appreciated. The more articles you send in, the merrier - so keep sending in those articles to share with all of the newsletter readers.

Here's the email that Section Manager Frank Piper, KI8GW sent out:

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Thanks to all the clubs who sent their newsletters to Public Information Coordinator Jack Sovik, KB8WPZ. Jack submitted all of the newsletters received to independent judges shortly after the deadline of June 30th. The results are in!

Before I announce the winners, please let me read a little note I prepared (now just don't skip this and go straight to the winners...that would be cheating...)

The quality of the newsletters submitted made it difficult for the judges, which is a really good problem to have! Club newsletter editors put a LOT of time and energy into their publications, and take great pride in their work. I for one am proud of every newsletter in the Section! Newsletters are the lifeblood of a club, keeping the members up to date on information, and are also a great tool for informing the public on Amateur Radio activities. If not for the club newsletter, our hobby would be hidden in the shadows.

Club newsletters have come a long way, from the hard copies, printed by dot-matrix printers, and snail-mailed to every member, to sophisticated works of art, processed by publishing software, converted to PDF, and sent out across the internet. Many new Hams come to the hobby simply by visiting a club website, and reading the history of newsletters.

Since there is no Section Conference this year, I am announcing the winners in this Section E-Mail. The Winners will be contacted this week on how to receive their certificates.

So, without further delay (I really need a drum roll sound effect here...), here are the winners of the 2013 Ohio Section Newsletter Contest (in ascending order):

THIRD PLACE: "CARA COMMUNICATOR" - Cambridge Amateur Radio Association - Editor: Lyn Aflman, N8IMW

SECOND PLACE: "Q-FIVER" - OH-KY-IN Amateur Radio Society - Editor: Susie Scott, N8CGM

**AND THE FIRST PLACE WINNER OF THE 2013 OHIO SECTION NEWSLETTER CONTEST IS ....  
"THE RADIOGRAM" - Portage County Amateur Radio Service - Editor: Tom Parkinson, KB8UUZ**

"THE RADIOGRAM" will be submitted as the official Ohio Section entry into the Joseph J. Phillips, K8QOE Newsletter Award for the ARRL Great Lakes Division. The winner will be announced at the ARRL Great Lakes Convention and Columbus Hamfest, being held August 3, 2013 in Columbus, Ohio. for more information on the Convention and Hamfest, visit <http://www.arrl-greatlakes.org/convention.html>

Congratulations to the winners, and a heartfelt thanks to each and every club newsletter editor who keeps the word of Amateur Radio spread across the world!

**73, Frank J. Piper, KI8GW  
ARRL Section Manager, Ohio**

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So, Thanks to all of **YOU** that have helped make this newsletter number one again! Hopefully we can keep it going and keep getting better.

73,  
**Tom, KB8UUZ**  
PCARS Newsletter Editor

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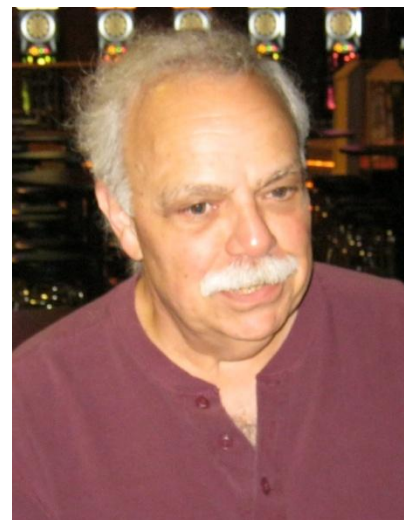
### ***PCARS Antenna Special Interest Group***

This month the Antenna Special Interest Group will be meeting on Tuesday, August 20th at the Club Site. The meeting will begin at 7:00 pm. All PCARS members are invited to attend. If you are considering building a new antenna system at your QTH please feel free to stop in and discuss your plans with the group.

In preparation for OSPOTA, this month's special discussion topic will be NVIS Antenna Systems. If you are going to effectively communicate with all the Ohio State Parks from any location in Ohio an NVIS antenna is essential (or at least a really good tool). If you have had success with a particular NVIS antenna come to the meeting and share you experience with the group. We will also look at propagation models to see if we can predict which band will be the hottest this year.

As always, the floor will be open for discussion of any antenna topic by members attending the meeting.

See you all there.



73, **Tony, WA8AR**



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## Commentary

Congratulations to Tom (Parky) Parkinson, KB8UUZ, editor of the PCARS Radiogram, for the newsletter's unprecedented second consecutive award as the best newsletter in the Ohio Section. Parky puts hundreds of hours into producing the newsletter and his efforts really pay off in the quality of the publication.

As editor, he exercises sound judgment when he decides which material is appropriate for publication. This is not simply a bulletin board where a PCARS member can post whatever he or she feels like. The newsletter is the public face and voice of PCARS and what goes in the newsletter reflects on the club, its mission and its history. The newsletter is hardly the place for outrageous claims, unfounded allegations, or personal attacks on other members.

Much like the newsletter editor, the elected PCARS board has the responsibility to ensure that the club's operations and activities and its members' conduct is also consistent with the club's mission. Activities or conduct that are disruptive or divisive, in particular, cannot be condoned.

At its monthly meetings, which have always been open to all PCARS members, the board conducts the business of the organization. We have always kept the business meeting separate from the social monthly membership meeting, much to the appreciation of the membership. The board's meeting minutes are the record of its actions. Most of the board's business is fairly routine, though some issues are especially challenging. If you have questions about the board's operations you can always ask one of the trustees or officers and you can count on them for honest answers.



Some members of the board were also founding members of the group and have played a substantial role in its development and growth. The board members have collectively contributed thousands of hours of service to the club. They take their responsibilities seriously and appreciate the trust and confidence that you have placed in them. You can be sure that when they act unanimously on an issue that there are sound reasons for their decision.

Over 250 people have been members of PCARS during its seven and one-half year history. They have been a very diverse group, fairly typical of the ham radio community in general, and, overall, have shown a grasp of the club's history and purpose and have been respectful of it. We have always worked to make everyone welcome, but try as it might, PCARS can't be all things to all members; there are limits.

Like the American Express ads used to say, membership is a privilege. It is not a license to disparage the club or engage in irresponsible and unfounded personal attacks on the integrity and motives of committee volunteers or board members. If someone has such a negative view of what we are doing, it's probably the time for them to move on and start a group that meets their personal needs. We wish them the best in that endeavor.

*Jim, KC8PD*

## Mark Your Calendars

On the calendar for upcoming meetings and activities are:

- Aug 12<sup>th</sup> - **PCARS Meeting** - 7 pm - Eddie Stevens KD8FTS, Building a Better Go Kit
- Aug 21<sup>st</sup> - **PCARS Ham Cruise-In**, A&W in Ravenna - 6 pm - see flier for details
- Aug 24<sup>th</sup> - **Ohio QSO Party** - Club site - 11 am until midnight - see flier for details
- Aug - **August Project: Potato Gun** (Date TBA)
- Sept 7<sup>th</sup> - **Ohio State Parks On The Air** (OSPOTA) Contest - see the flier for information
- Sept 9<sup>th</sup> - **PCARS Meeting** - 7 pm - Bob Winston W2THU, PRB-1 and Other Legal Stuff
- Oct 14<sup>th</sup> - **PCARS Meeting** - 7 pm - Jim Kvochick WB8AZP, Topic TBA
- Nov 11<sup>th</sup> - **PCARS Meeting** - 7 pm - **ELECTIONS** - Rod, WN8R - Vertical Antennas
- Dec 9<sup>th</sup> - **PCARS Christmas Party** - 7 pm - Rumor has it that Santa Claus will be there

### *Special Interest Groups - Every Month at the Club Site - 7 pm*



- First Tuesday - **Digital** Special Interest Group
- Second Tuesday - **QRP/CW** Special Interest Group
- Third Tuesday - **MARS** Special Interest Group and the  
- **Antenna** Special Interest Group
- Fourth Tuesday - **DX & Contest** Special Interest Group
- Fifth Tuesday - **Linux for Hams** Special Interest Group



*Fourth Thursday - Net Night at the club site - 6:30 pm*

## PCARS VE Test Sessions

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

**August 3<sup>rd</sup>, October 5<sup>th</sup> and December 7<sup>th</sup>**

### 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 (**drivers 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: The original (**and one copy**) of any current (unexpired) amateur radio operator's 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.
  - Pre March 21, 1987 Technician license (this provides credit for the Element 3 (General) exam).



**Robert, N8RLG**  
PCARS VE Team Liaison

## PCARS Yahoo Site

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/>.



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## Hamfest Calendar

**08/03 - Great Lakes Division Convention & Columbus Hamfest - Location: Aladdin Shrine Center - 3850 Stelzer Rd - Columbus, OH 43085 - <http://www.columbushamfest.com> - Contact: James Morton, KB8KPJ - 1317 Blocker Dr. - Heath, OH 43056 - Phone: 740-928-7790 - Email: [kb8kpi@hotmail.com](mailto:kb8kpi@hotmail.com)**

**09/08 - Findlay Hamfest** - Location: Hancock County Fairgrounds - 1017 East Sandusky Street - Findlay, OH 45839 - Website: <http://w8ft.org> - Contact: Bill Kelsey, N8ET - 3521 Spring Lake Drive - Findlay, OH 45840 - Phone: 419-423-3402 - Email: [hamfest@kangaus.com](mailto:hamfest@kangaus.com)

**09/22 - Cleveland Hamfest and Computer Show** - Location: Cuyahoga County Fairgrounds - 164 Eastland Road - Berea, OH 44017 - Website: <http://www.hac.org> - Contact: Glenn Williams, AF8C - 513 Kenilworth Road Bay Village, OH 44140 - Phone: 440-835-4897 - Email: [af8c@arrl.net](mailto:af8c@arrl.net)

**11/03 - Massillon Hamfest and Auction** - Location: Massillon Boy's & Girl's Club - 730 Duncan Street SW - Massillon, OH 44646 - Website: <http://www.w8np.org> - Contact: Terry Russ, N8ATZ - 3420 Briardale Drive NW Massillon, OH 44646 - Phone: 330-837-3091 - Email: [truss@sssnet.com](mailto:truss@sssnet.com)

**11/16 - Indiana State Convention (Fort Wayne Hamfest and Computer Expo)** - Location: Allen County War Memorial Coliseum - 4000 Parnell Avenue - Fort Wayne, IN 46801 - Website: <http://www.fortwaynehamfest.com> - Sponsor: Allen County Amateur Radio Technical Society - Contact: ACARTS Fort Wayne, W9INX - PO Box 10342 Fort Wayne, IN 46851 - Phone: 260-579-2196 - Email: [chairman@fortwaynehamfest.com](mailto:chairman@fortwaynehamfest.com)

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## Headwaters Adventure Race - Mantua Village

PCARS volunteers worked the communications for this triathlon-style race on July 13th. Terry, KB8AMZ and I were stationed at WATERSTOP 2 for the Biking Leg of the race.



Terry, KB8AMZ & Amy, KD8SKL

Due to record high water the canoe/kayak portion of the race was cancelled, and the route was changed. Our station worked as a team with the two race volunteers at the water table, a sheriff's deputy controlling street traffic, and Terry and I on the net.

Luckily Terry has more radios than wheels on his car so we were able to monitor the Cross band Repeater as well as the direct connect. I had a great time and am looking forward to the Black Squirrel August 3rd!

*Amy, KD8SKL*



## Free Light Bulbs

Well, not exactly free. If you are FirstEnergy customer you have already paid for these with your monthly bill. Here's the story.

An energy efficiency program that has been adopted in Ohio requires electric utilities to take steps to reduce energy consumption. One of the options for the utilities is to distribute more energy efficient electric devices such as CFL light bulbs to consumers. The Public Utilities Commission of Ohio (PUCO) approved this program and, pursuant to Senate Bill 221, the utility can pass the cost on to its customers.

So whether you realized it or not, a small fee has been added to your electric bill to fund this program. Ultimately, FirstEnergy collects the fee no matter whether its customers ask for the "free" bulbs. Not to be too cynical, but FirstEnergy makes out if these kits aren't ordered, both from the fees that it pockets now and the extra electricity that gets used in the future.

You can learn more about the program and order your bulbs by going to [www.energysaveOhio.com](http://www.energysaveOhio.com). Under the "For Your Home" Incentive Programs list, click the link for the Energy Conservation Kit. That will take you to the page where you can order the kit. You can also call 1-888-225-8996 for information and ordering. You will need your account number from your FirstEnergy bill.

The kit includes nine CFL bulbs: 3-100 watt equivalent, 2-75 watt equivalent and 4-60 watt equivalent, plus two LED nightlights and one smart-strip/surge protector. It takes about 10-14 days for the package to arrive once you have ordered it.

No sense in passing this one up. Not only will you save money in the long run, you will get what you have already been paying for.

*Jim, KC8PD*



**Editor's Notes:** Jim gave out this info on the PCARS net July 18<sup>th</sup> & I e-mailed him asking for the website. Jim sent me this info to share this with everyone that may have missed it. I've ordered my kit. Do PCARS a favor - when you get your kit, try out the various light bulbs and check your radio to see if these newer bulbs are generating any unwanted RF that would interfere with your HF operations, or if you don't have any problems at all. Let me know one way or the other and I'll put the info in the newsletter for all PCARS members.





## Contest Calendar

| August 2013                    |                                |
|--------------------------------|--------------------------------|
| 10-10 Int. Summer Contest, SSB | 0001Z, Aug 3 to 2359Z, Aug 4   |
| North American QSO Party, CW   | 1800Z, Aug 3 to 0600Z, Aug 4   |
| ARRL August UHF Contest        | 1800Z, Aug 3 to 1800Z, Aug 4   |
| Maryland-DC QSO Party          | 1600Z, Aug 10 to 2400Z, Aug 11 |
| NAQCC Straight Key/Bug Sprint  | 0030Z-0230Z, Aug 14            |
| SARTG WW RTTY Contest          | 0000Z, Aug 17 to 1600Z, Aug 18 |
| North American QSO Party, SSB  | 1800Z, Aug 17 to 0600Z, Aug 18 |
| ARRL Rookie Roundup, RTTY      | 1800Z-2359Z, Aug 18            |
| Run for the Bacon QRP Contest  | 0100Z-0300Z, Aug 19            |
| Hawaii QSO Party               | 0700Z, Aug 24 to 2200Z, Aug 25 |
| Ohio QSO Party                 | 1600Z, Aug 24 to 0400Z, Aug 25 |

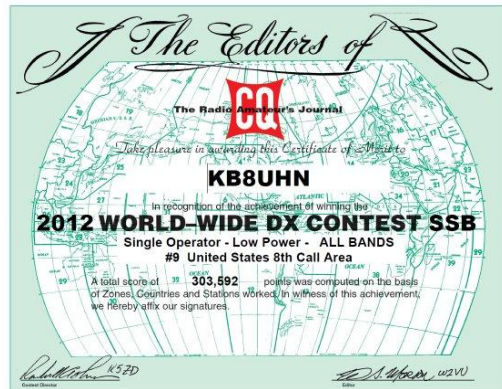
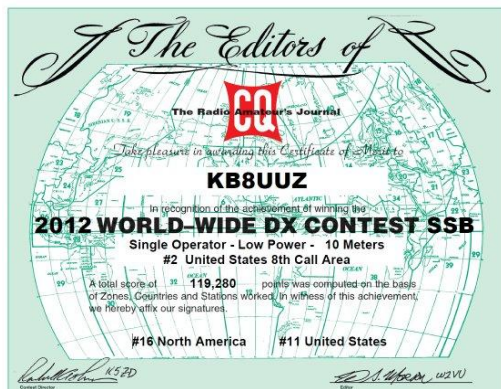
Google the Contest Name - Read the Rules & Have Fun. YES - There are MANY More Contests out there - Check the Internet

## Congrats

Congrats goes out to four PCARS members that were awarded certificates for the 2012 CQ World-Wide DX Contest - SSB:

### KB8UUZ

Single Operator - Low Power  
#2 in the 8<sup>th</sup> Call Area - 10 M  
#16 North America  
#11 United States



### KB8UHN

Single Operator - Low Power  
#9 in the 8<sup>th</sup> Call Area - All Bands



### W8KNO

Single Operator - Low Power  
#10 in the 8<sup>th</sup> Call Area - All Bands

### W8RID

Single Operator - High Power  
#35 in the 8<sup>th</sup> Call Area - All Bands

## Happy Birthday PCARS Members

PCARS members having a birthday in August:

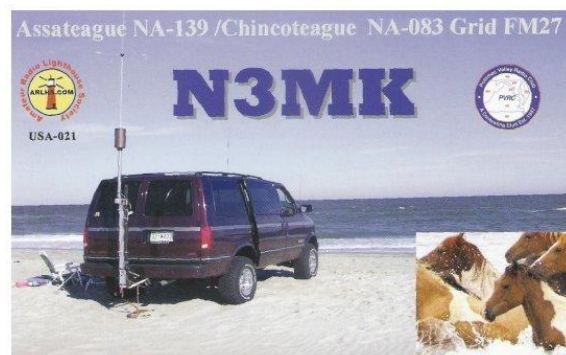
|        |          |         |
|--------|----------|---------|
| N8WWG  | Kenneth  | Wyckoff |
| KD8OKK | Rosemary | Cibella |
| n/a    | Vee      | Ward    |
| KD8SDF | Amanda   | Kephart |
| KD8SJC | Tom      | Trojan  |
| WD8RAY | Ray      | Woods   |
| KD8PTQ | Mark     | Ladd    |
| W8RJG  | Ron      | Good    |
| KB8TUY | Mike     | Ryan    |

|        |        |             |
|--------|--------|-------------|
| N6TL   | Randy  | Wilson      |
| K8GI   | Rick   | Patterson   |
| KB8VJL | Al     | Atkins, Sr. |
| KD8JCY | Sandra | Getty       |
| AC1TT  | Jim    | Moon        |
| KD8CGH | Robert | Benedict    |
| NC8T   | Paul   | Tait        |
| W8JFQ  | Robert | Davet       |

## Paper Chase

Last month, I mentioned that memories are recalled when you receive a QSL card. I received one last month from N3MK. It was not important because it was a new county or that it was on six meters. The thing that got me was it was from Chincoteague Island, Virginia.

What makes Chincoteague Island so memorable? Two herds of wild horses make their home on an adjoining island, Assateague Island, which is separated by a fence at the Maryland-Virginia line. On the island are small but sturdy, shaggy horses which have adapted to their environment over the years by eating dune and marsh grasses and drinking fresh water from ponds. While they appear tame, they are wild, and Park Rangers urge visitors not to feed or pet them. The Maryland herd is managed by the National Park Service. The Virginia herd is owned by the Chincoteague Volunteer Fire Company. Each year the Chincoteague Volunteer Fire Company purchases a grazing permit from the National Fish & Wildlife Service. This permit allows the Fire Company to maintain a herd of approximately 150 adult ponies on Assateague Island. The Fire Company controls the herd size with a pony auction on the last Thursday in July. Each year tens of thousands of spectators come to watch the Saltwater Cowboys swim the pony herd from Assateague Island to Chincoteague Island.



Assateague Island Horses

My daughter, when 10, attended St. Joseph's School in Mantua and her teacher was Miss Hobbs who had come from Chincoteague Island. My daughter would continually come home and tell me that the teacher told them again about the Ponies of Chincoteague. So when I received the QSL from N3MK, I smiled. I do not know if it were because of the ponies or thinking of my daughter, and by the way she is 43 today.

Remember you have to get on the air, work contacts to have the memories.

Hear you on the air!  
**Joe, W8KNO**

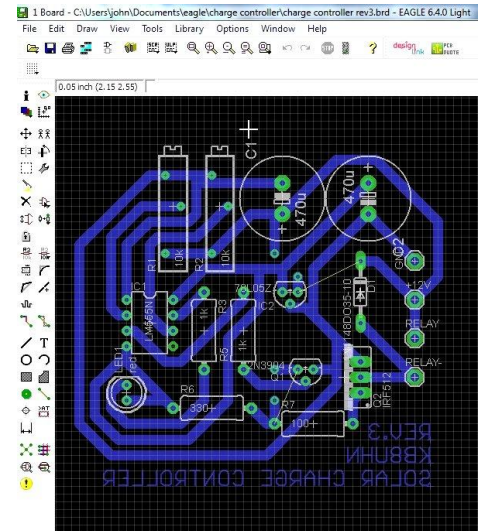


## Circuit Boards - Home Made

Have you ever wanted to make your own circuit board? Have an idea for a circuit, or maybe you wanted to copy a circuit out of a magazine? I'll take you through the method I have had success with. You may find that is a lot easier than you think. Everything described here are ideas I picked up off of the internet and refined down to the methods which worked best for me.

On the internet, I found a schematic for a solar charge controller that I liked, but it needed some changes for my application, and there was no circuit layout. I happened upon a website that offers free CAD software for making printed circuit boards ([www.cadsoftusa.com](http://www.cadsoftusa.com)). The program is called Eagle PCB Software, and once again, it's free.

It took a while to learn how to use the software, even though they provide an excellent tutorial, but it was well worth the time. Create your design in the schematic window, using the extensive component libraries. From there you send it to the layout window, where you place the components on the board where you want them and rout the circuit traces. The schematic window and layout window are now synchronized, so if you want to make changes to your schematic, they will automatically be updated on the layout.



The Eagle software is fully functional and allows you to print your layout to scale. The only limitation to the free version of the software is limited board size.



So now you have a circuit trace that you need to transfer to copper clad circuit board material. I've tried some methods in the past that weren't very easy. They were expensive, used chemicals that you can't get at the hardware store, and they were messy. Not for the average person who just wants to make simple PCB's a few times a year. Here's a quick and easy way.

These days, everybody has access to a laser printer. Laser printers do not use ink. They use toner. Toner is a kind of plastic that gets heated and melted to the page being printed. Unlike ink, which soaks into the paper, toner just sticks to the surface without soaking in. So this toner can be removed from the paper and transferred to your copper PCB.

So you are saying "I don't have access to a laser printer". Sure you do. Most commercial copy machines use toner. Post Offices, grocery stores, office stores, etc. have copy machines for the public. Just ask the clerk if you can use your own paper.

Yes, use your own paper. You will need to buy some higher quality paper. Standard copy paper is not tough enough to support the transfer process. Don't buy high quality photo paper because it has some gooey substance on the back. Ten dollars for 100 sheets is what I paid. You can print from Eagle to any printer, or use a magazine article with the layout and take it to the copy machine.



Now you have a circuit trace on a high quality piece of paper printed with toner. Remember that old clothes iron you have on the shelf in the closet? Don't throw it away yet. You will need it to transfer the toner to the copper.



Take your bare copper board and clean it with steel wool. Make sure it is clean and don't get any fingerprints on it. Tape your circuit pattern to the board, face down. Toner against copper. Now iron the paper to the copper. The iron will get hot enough to melt the toner and make it stick to the clean copper clad. Iron for about four or five minutes, making sure you have heated all of the areas you want transferred. This is why you shouldn't use photo paper. The iron melts the goo and makes a mess.

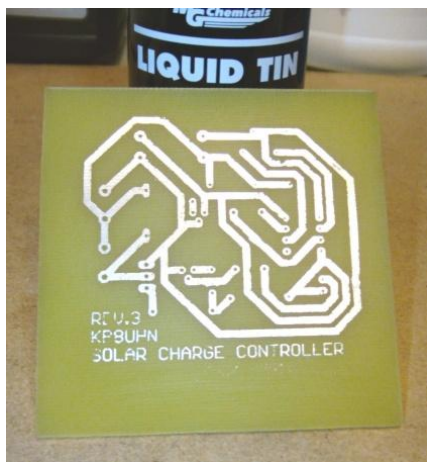
Let your board cool and soak it in water to soften the paper. Carefully remove the paper while running water on it and inspect the board.

It may take a little practice to get the transfer just right. If you didn't get a good transfer, just clean the copper and try again. If you just

have a trace or two that didn't turn out well, use a fine tip permanent marker to rout the trace.



The etching process is quite simple. You will need some hydrogen peroxide, muriatic acid, and rubber gloves. I found a product called "muriatic acid next" which doesn't produce harmful fumes. Mix two parts peroxide to one part acid. I use a shot glass to measure. Mix the two in a plastic container and add your circuit board. Agitate the container by slowly rocking it back and forth. After a few minutes you will see the copper starting to disappear. Agitate long enough to etch away all of the unwanted copper, then wash with water.

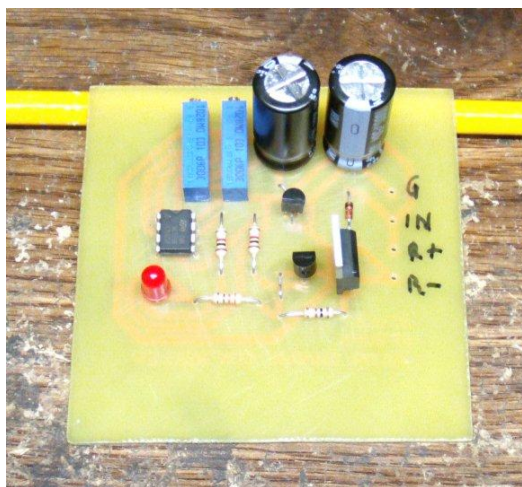


You can now clean the toner off the board with the steel wool or nail polish remover. Beautiful, isn't it? I use a dremel rotary tool with a small drill to drill the holes for the components.

The last step is optional. There is a product called "Liquid Tin". It makes your board look more professional and makes for very easy soldering. Just pour some liquid tin in a clean plastic container and soak your PCB in it for a few minutes. Pour the leftover liquid tin back in the bottle for next time.

Thanks to all of the ideas I learned from the internet, I now have the solar charge controller that I needed.

*John, KB8UHN*





## 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! If you would like to order by mail contact the club Treasurer: George, K3GP at: [K3GP@portcars.org](mailto:K3GP@portcars.org)



## PCARS Thursday Net Control

Thank you all for helping with this! Anytime you are unable to take the net, please give me as much advance warning as possible!

| August |        |
|--------|--------|
| 1      | KB8UUZ |
| 8      | NR8W   |
| 15     | KC8PD  |
| 22     | N8QE   |
| 29     | WB8LCD |

| September |        |
|-----------|--------|
| 5         | KB8UHN |
| 12        | KD8FDK |
| 19        | K8IV   |
| 26        | WB2DFC |



The PCARS net is **Fun** - tell your friends to check in via RF or EchoLink! If you have not been a Net Control Operator for PCARS and would like to give it a try, please contact me at: [WB8LCD@portcars.org](mailto:WB8LCD@portcars.org). Everyone who is a club member is welcome to have a turn!



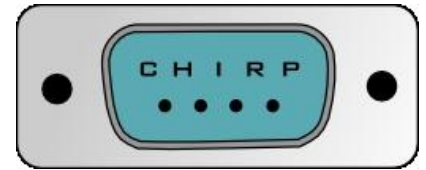
## ***Don't Tweet – CHIRP!***

I may be a little late to this game, so apologies to all of you who have already discovered and are using CHIRP. But if, like me, CHIRP is news to you, let me recommend that you take some time to check it out.

Most all of us have radios that can be programmed using a computer, which can be a whole lot easier and faster than working from the keypad on the radio. Unfortunately, for each of your radios you have to obtain the appropriate software, some of which is freeware while the others come with a licensing fee.

Each program is different, some (usually the ones you pay for) being better than others, and you have to learn (and often re-learn) how to use each program. Wouldn't it be great to have one program that worked for all of the radios?

Well that is the goal of CHIRP, which is free, open-source software. As it is described on its web site, <http://chirp.danplanet.com/>, "It supports a large number of manufacturers and models, as well as provides a way to interface with multiple data source and formats." The web site currently lists over sixty radios that it can be used with.



The software is easy to download and install and there is a Beginners Guide and FAQ's to help you out. Watch for radios that are "in daily builds." That means that the program is being revised regularly for that rig. Check for the updates. You can also sign up for their mailing list for information about revisions, etc.

Of course, no matter which radio you are using you will need the correct interface cable. Whether you have a brand new radio or one that has been programmed, you will need to do a "Download from Radio" operation first. You can then start editing the file. One suggestion is to always save that initial configuration that you downloaded so that you can return to it if ever necessary.

This is not meant as an endorsement for CHIRP and you may already have programming software that you are more than satisfied with. But it never hurts to explore some other options and check out the handiwork of hams with programming skills that provide neat stuff like this for free. We appreciate all of their efforts and say "Thanks!" to them.

73,  
***Jim, KC8PD***



## ***Swap-N-Shop***

**FOR SALE: AMR ATR-20 Ameritron 1.2 KW PEP Antenna Tuner**, brand new - purchased for \$429.99 and never used for \$325.00 plus shipping.. A friend of mine returned my Johnson matchbox so I don't need this unit.

Contact Bud at [K8MSF@portcars.org](mailto:K8MSF@portcars.org) or call: (419) 281-1408 [11/02/13]

**FOR SALE: 40' Heavy Duty Self-Supporting Tower** – 37 inches wide at the base, 18 inches at the top \$250  
**Used Rohn 25G** - tapered top section w/rotor plate \$40

**Andrew 22' Superflex FSJ4-50B jumpers** with N-male & DIN-male connectors. (9 Remaining) \$20.00 Supplied w/extra N-male for building a custom length N-male to N-male cable \$30.00 ea. (6 Remaining)

**Andrew UHF Male Connectors** for 1/2" LDF4-50A new, \$20.00 each. (2 Remaining)

**N-male to N-male barrel connectors** \$5.00 each. (4 Remaining)

**Hubbell - HBL5366** 20 Amp 125 Volt plugs \$6 (5 available)

**Hubbell – HBL2611** NEMA L5-30P Twist Lock 30 Amp 125 Volt plug \$10

**New In Box GE Contactors:**

GE CL01A400TJ Contactor 4 poles rated 25 A @ 600 V, 120 Volt Coil \$25.00 (2 Available)

GE CL01D310TD Contactor 4 poles rated 25 A @ 600 V, 24 Volt Coil \$30.00 (2 Available)

GE CL25A300T Contactor 4 poles rated 32 A @ 600 V, 120 Volt Coil \$35.00 (2 Available)

Bolt on Auxiliary Contact Set for any of the above contactors with 1-N.O. & 1-N.C. Set of contacts \$2.00 each

**1/4" Plate Glass** for desk or table top, Great for radio bench measures 42" x 68" cost \$152.00 - Asking \$50.00

**Ferraz-Shawmut ULTRASAFE® Fuse Holders** DIN Rail Mount, Blown Fuse Indicator \$1.00 each (8 Remaining)

**Station Ground Bars** - military surplus MADE IN U.S.A. by COLE HERSEE of Boston, MA. \$8.00 ea. (Only 8 left)

**Weller 8200 Soldering Gun** – last of the good ones with the tip nuts, with carrying case, spare tips and tools, \$45.00

I also have a small supply of connectors for 1/2" Superflex, 1/2" Heliax and 7/8" Heliax . Contact me with your needs.

**Contact James at [KD8VT@portcars.org](mailto:KD8VT@portcars.org) or call 330-206-4909** [10/02/13]

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**Editor's Note:** Ads for PCARS members run for 3 months then are dropped from the listing UNLESS you send it in again. Each ad will have an expiration date that looks like: [10/02/13] This will help keep the listings current.



## ***CQ World Wide DX Contest Rewrites Its Rules***

The sponsor of the CQ World Wide DX Contest has completely rewritten the contest rules (<http://cqww.com/rules.htm>), effective with this fall's SSB and CW weekends (RTTY is not affected).

"The CQ WW DX Contest rules have evolved for over 50 years," said Contest Manager Randy Thompson, K5ZD, in announcing the updates July 1. "Changes in technology, operating practices and enforcement efforts caused the rules to become increasingly complex." The primary goal of the rewrite, he said, was "to make the rules simpler and easier to understand." The rewrite already has generated considerable online discussion. One change offers a "Classic Overlay" category for single-operator, all-band entries. "The Classic Overlay category is intended for the radio purists who want to participate in the most traditional way," Thompson explained. Entrants will use a single radio and operate without outside assistance, and only the first 24 hours of actual operating time will count toward the operator's score. Also new is a "Rookie Overlay" category for operators licensed 3 years or less. The CQ WW is doing away with the "Xtreme Contesting" and "Team Competition" categories, and "Checklog" is now listed as a noncompetitive entry category.



The rewrite creates two categories of Club Competition - US and DX. Entrants must log contacts as they occur and may not edit their logs after the contest ends. The updated rules also address "unsportsmanlike conduct," such as having an excessive bandwidth, and disqualifications. "Red and Yellow cards have been removed in favor of one action - disqualification," Thompson noted. The SSB event takes place October 26-27, the CW event November 23-24.

***CQ World Wide DX Contest Website***





## EmComm Column

Everyone remembers the poster captioned “I want you!” with Uncle Sam pointing his finger directly at the viewer. It was a classic and very compelling recruitment poster for the military services.

Well, to paraphrase the poster, “We Need You!” That’s right, your local amateur radio emergency and public service teams need your membership and participation.

On behalf of the Portage County EMA’s Communications Unit/RACES team let me tell you that I don’t think that you can find a better opportunity to become a valued volunteer for your community. While the Comms Unit can always operate under RACES rules if circumstances require, its strength is in its ability to perform a wide variety of tasks which can also include the use of both public safety and amateur radio equipment.



The Comms Unit staffs the county’s Mobile Command Post when it is deployed and CU team members have the opportunity to work and interact with other county teams such as the Dive Team, Urban Search and Rescue, and HAZMAT, plus all of the police and fire departments. A number of the CU members have also become members of the county’s Incident Management Assistance Team.

The Comms Unit conducts biweekly training nets, meets monthly for regular training, and holds quarterly drills. The training can be an excellent way of expanding and developing your practical and technical skills as an amateur radio communications volunteer. If you have an interest in joining the Comms Unit, please talk to me at a PCARS meeting or event or send me a note at [kc8pd@portcars.org](mailto:kc8pd@portcars.org).

The Amateur Radio Emergency Service (ARES®) of Portage County can also benefit from your active involvement as an ARES® member. It conducts its own biweekly training nets and also conducts Skywarn nets during severe weather events.

Mike DiCarro, KD8FLZ, is the ARES® Emergency Coordinator for Portage County and his team has become very active, providing communications support for up to a half dozen events each year. Special event communications are a great training opportunity as well as a fun way to provide valuable service to the community that is very much appreciated by the event organizers and is also personally rewarding.

Mike would welcome you as an ARES® member and you can contact him at [kd8flz@portcars.org](mailto:kd8flz@portcars.org) for more information. It is important for him to have a roster of regular and active participants that he knows he can count on.

Like I said above: **“We Need You!”** Let us hear from you.

Here are some upcoming opportunities to volunteer for public service events as well as the contact information for each event:

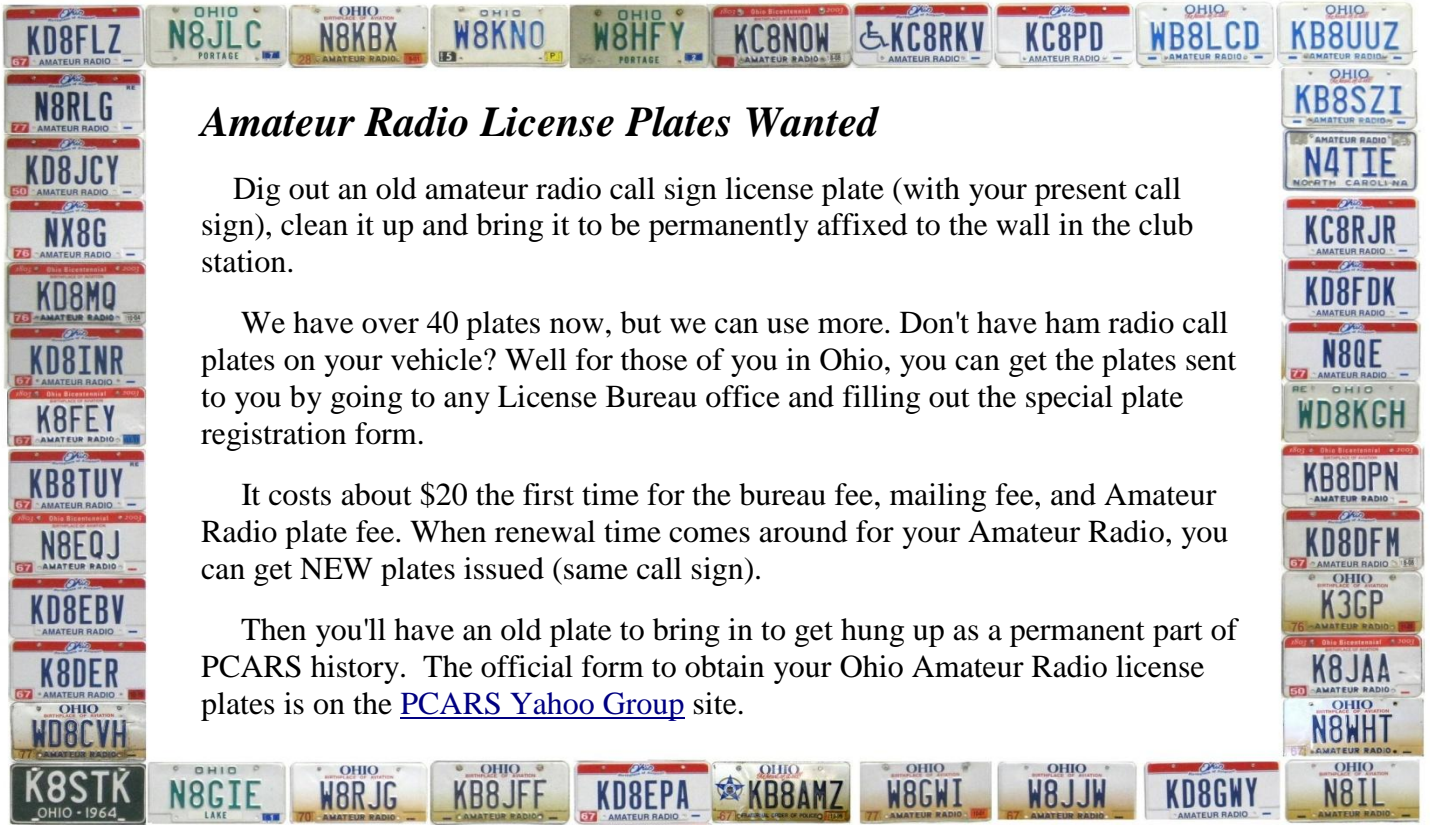
- **Bellefaire Biathlon**, 8/25, contact Gay, WB8VNO, [wb8vno@portcars.org](mailto:wb8vno@portcars.org)
- **Ravenna Parks and Recreation – Balloon-A-Fair Chase**, 9/21, contact Sandy, KD8JCY, [kd8jcy@portcars.org](mailto:kd8jcy@portcars.org)
- **Mantua Potato Stomp**, 9/7, contact Jim, KC8PD, [kc8pd@portcars.org](mailto:kc8pd@portcars.org)
- **Ravenna Parks and Recreation – Got Bike**, 10/6, contact Mike, KD8FLZ, [kd8flz@portcars.org](mailto:kd8flz@portcars.org)

73,

**Jim, KC8PD/AAR5AI**

**Radio Officer, Portage County OHS/EM Communications Unit/RACES  
DEC, ARES® District Five**





## Amateur 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 club station.

We have over 40 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.

It costs about \$20 the first time for the bureau fee, mailing fee, and Amateur Radio plate fee. When renewal time comes around for your Amateur Radio, you can get NEW plates issued (same call sign).

Then you'll have an old plate to bring in to get hung up as a permanent part of PCARS history. The official form to obtain your Ohio Amateur Radio license plates is on the [PCARS Yahoo Group](#) site.

## PCARS Meetings

The Portage County Amateur Radio Service (PCARS) meetings are held the **2nd Monday** of each month.

Meetings are at:

**Stringz & Wingz**  
1543 State Route 303  
Streetsboro, OH 44241  
[www.stringzwingz.com](http://www.stringzwingz.com)



**PCARS meeting - 7:00 pm**  
**Second Monday of**  
**Every Month**



## Greenland YL DXpedition 2013 - OX5YL

From the 16th to the 20th August 2013 there will be five YLs from different countries activating amateur radio from Kangerlussuaq in Greenland. The last YL expedition in 2010 was very successful.

In August five YLs will try again to give more radio amateurs around the world a chance of getting either a new country or a YL country in their log. They will be on the radio with call OX5YL around the clock to try to give as many as possible the chance of working YLs from OX-land.

All of the YLs have good training in working pile ups. Let's only hope for good propagation whilst on Greenland. With YLs from so many different countries we can serve you hams out there in addition to English, also on Scandinavian languages, German, Japanese and Korean - if needed.

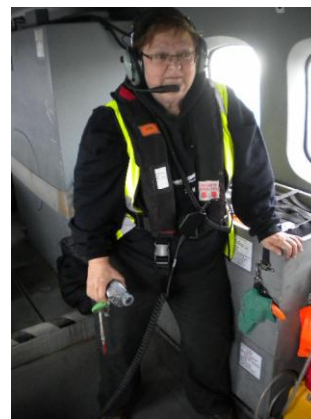
YLs are especially urged to come on the bands those days. For the latest information on the YL DXpedition to Greenland, go to: [http://home.online.no/~la6rha/indeksside\\_2.htm](http://home.online.no/~la6rha/indeksside_2.htm)



**JR3MVF - Kyoko Miyoshi**



**HL1KDW - Do Sook Chae**



**LA6RHA - Unni Elisabeth Gran**



**WA0WOF - Kay Eyman**



**SM6KAT - Solveig Nordberg-Jansson**

OX5YL QSL manager: Chantal Beer PA5YL - QSL is okay via the buro to PA5YL or direct \$2 + SAE - address on QRZ.com.

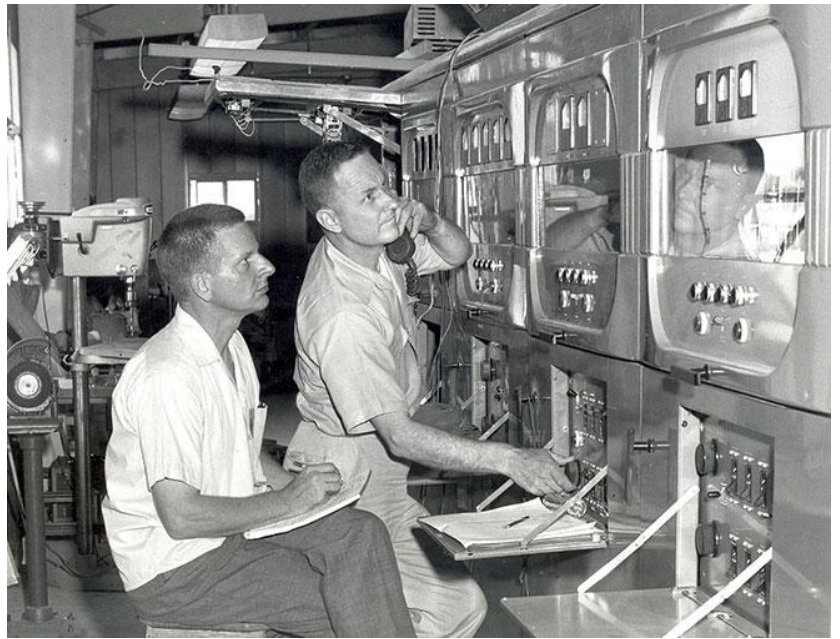
*Jane, K8JAA*



## ***The Most Important Radio Station You've Never Heard of Marks 50 Years on the Air***

Every night, while millions of Americans are fast asleep, clocks and wristwatches across the country wake up and lock on to a radio signal beamed from the base of the Rocky Mountains. The signal contains a message that keeps the devices on time, helping to make sure their owners keep to their schedules and aren't late for work the next day.

**Engineer David Andrews (left) and technician Robert Oase (right) are shown by the WWVB transmitter in 1963. Credit: *NIST***



The broadcast comes from [WWVB](#), a station run by the National Institute for Standards and Technology. WWVB marks half a century as the nation's official time broadcaster on July 5. Together with its sister station, [WWV](#), which is about to hit 90 years in service, NIST radio has been an invisible piece of American infrastructure that has advanced industries from entertainment to telecommunications. (WWV's broadcast includes a wider range of information, including maritime weather warnings and solar storm alerts).

Most people aren't even aware that these stations exist, but they have a rich and fascinating history. Their future is uncertain, however, as newer technologies threaten to make them obsolete.

NIST is the government agency charged with developing the technology standards that underlie everything from data encryption to cholesterol tests. "We're in the business of weights and measures," said John Lowe, who directs NIST's time services from Boulder, Colorado.

At first glance, it's unclear why the people who test bulletproof vests and smoke detectors would be in the radio business. But as broadcast technology blossomed through the first half of the 20th century, the government quickly recognized the need to standardize radio. Manufacturers were churning out equipment left and right to deliver information over the air, but no one was ensuring that a particular frequency was the same in Maine as it was in Malibu.

Enter NIST, the folks who determine the length of a second. A radio signal is really defined by time, the number of peaks in a wave that pass by a point every second. The FM band, for instance, occupies the airwaves between 87.7 and 108 megahertz (MHz), or millions of cycles per second. Making sure that the dial on the radio in someone's home or car matches the broadcast signal demands that stations and receivers all agree on the same standard second.

WWV began broadcasting reference frequencies for signal calibration using equipment not that different from the chunk of quartz in a modern wristwatch. These days, though, a bit of quantum physics keeps the nation's signals in sync. Cesium-133 atoms within the NIST-F1 atomic clock oscillate a frantic 9,192,631,770 times per second, acting like the pendulum of a grandfather clock. By tuning into that oscillation, NIST defines the basic unit of time, and by extension, frequency. Over the years, the reference frequencies have been so finely calibrated that they are accurate to beyond a single cycle in a trillion.



**Engineer Matthew Deutch and technicians Douglas Sutton, Glenn Nelson, and Bill Yates (left to right) are shown with one of three WWVB transmitters as it broadcasts the station's signal in 2013. Credit: *NIST***

Thanks to this ability to fine-tune broadcasts, AM and FM commercial radio exploded during the 1960s and '70s because more precise signals meant that more stations could be crammed into a particular range of frequencies. Listeners now had access to more music and programming than ever before. In a way, Lowe says, rock 'n' roll owes a small debt to the atomic clock.

In 1965, two years after going on the air, WWVB set out on a new mission to broadcast accurate time to the whole country. This seems downright quaint in an age when one can broadcast a photo of a sandwich halfway around the world in less than a second, but at the time it was revolutionary. Radio-controlled clocks let Wall Street traders certify stock trades down to the second, and power plants could avoid brownouts caused by out-of-sync switches. Heathkit, a popular manufacturer of hobby electronics kits, even sold an "atomic clock" you could build at home. It wasn't a true "atomic clock" of course, but it did receive a signal from one. Those were high times for time radio.

Then came the internet. And then GPS. The very industries that WWVB helped build suddenly threatened to make it obsolete.

Today, stock traders rely on computerized trading algorithms that measure success in milliseconds, choosing to synchronize their servers with NIST's internet-based time service instead of WWVB. And since GPS satellites carry their own atomic clocks, nearly all of today's time and frequency needs are served from space. For proof, look no further than the phone in your pocket, delivering time beamed down from orbit.

Despite these challenges, Congress thinks NIST's time radio broadcasts are still essential to national infrastructure and recently granted \$16 million for signal enhancements (Lowe says they only used \$100,000 and were proud to return the rest).

WWVB's value might have a lot to do with the type of signal it broadcasts and its location. While most commercial radio waves measure only a few meters between peaks, WWVB's low frequency signal results in a whopping five kilometer wavelength. These long-wavelength signals can reach around the curvature of the Earth by bouncing off of the highest layers the atmosphere. On a clear night, a radio-controlled watch can pick up WWVB's 60 kHz signal as far away as Patagonia or New Zealand.

**WWVB's four north towers supporting the broadcast antenna wires in the center. Credit: *NIST***





The electromagnetic weirdness doesn't stop there. Large wavelengths require large broadcast antennas, and NIST's signal relies on a wire mesh suspended over their 400 acre antenna field. The soil chemistry beneath the antenna grid outside Fort Collins, Colorado is highly alkaline, which makes it a good conductor for electricity. Because it conducts so well, NIST can actually use the Earth as part of their antenna.

The ability to put out a continent-spanning time broadcast, Lowe explains, is what has kept WWVB going this long. Inexpensive clock radios and wristwatches, marketed as "atomic clocks", could be set each night by NIST's master signal. Yet despite this promise, radio-controlled timekeeping these days is mostly relegated to nightstand novelties.

But Lowe thinks that NIST's time radio will continue to find new uses. "Imagine all the alarm clocks in a hotel," Lowe explains. "They are notoriously wrong." WWVB's newly amped up time signals can penetrate buildings with ease — something that can't be said for GPS.

Lowe foresees a new world of applications for his time broadcast. Out of sync traffic lights will keep traffic flowing. Sprinkler systems will be immune to Daylight Savings errors, conserving water and avoiding penalties caused by watering during prohibited times. The eternally imminent "wired home of the future" will rely on every appliance and electronic device knowing exactly what time it is, and Lowe insists the days of clocks blinking "12:00" could be a thing of the past.

Despite these possibilities, it remains to be seen if WWVB can stay ahead of ever-cheaper GPS technologies.

The time-impaired should rest assured that even the folks behind WWVB don't always keep perfect time. WWVB broadcast engineer Matt Deutch admits he is sometimes late. "But I know exactly how late I am," he said.

The ubiquity of mobile phones means that most people now look to their pocket or purse instead of their wrist when asked for the time. As essential as time is to their lives, most Americans simply don't think about, where it comes from, only that it's always there. When it comes to keeping Americans on schedule, WWVB has quietly succeeded for half a century. As for what the future holds, only time will tell.

*Dave, NF8R*

<http://www.wired.com/wiredscience/2013/07/wwvb-time-radio/>



# 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**

## News from the Ohio ARRL Section

### Great Lakes Division Convention

The 2013 GLD Convention will be held in Columbus, OH on August 3, 2013. The convention will be held in conjunction with the Voice of Aladdin ARC hamfest. Dave Sumner, K1ZZ will be present along with a slate of other Great Lakes Division and Section officials from Kentucky, Ohio and Michigan.

Convention information is here: <http://arrl-greatlakes.org/convention.html>

Here is a list of the forums that will be held at the convention:

- Public Service - 08:30 ·
- Propagation Forum - Carl Leutzelschwab - 08:30 ·
- Amateur Radio License Testing - 09:00 ·
- National Traffic System Forum - David Maynard - 09:30 ·
- Club Growth - Kitty Hevener - 09:30 ·
- Voice of America VOA - Jay Adrick -10:30 ·
- OSSBN Bi-Annual meeting - open to all - 10:30 ·
- ARRL Forum - 11:30 ·
- ARRL Banquet - keynote speaker - David Sumner - 13:00 ·



Wouff Hong - Ohio Section volunteers - After Banquet · QSL Card Checking - Keith Kemper, N8KOL will be on hand · Local Club information booths

Don't forget the Banquet with Dave Sumner, K1ZZ as keynote speaker. This will be a great opportunity to hear Dave speak about the state of Amateur Radio. We hope to see you there!

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### FROM THE PUBLIC INFORMATION COORDINATOR

We have finished the announcing of the winners of the newsletter competition for 2013 and they are:

|              |                   |                                       |
|--------------|-------------------|---------------------------------------|
| #1 97 points | The Radiogram     | Portage County Amateur Radio Society. |
| #2 96 Points | Q-Fiver.          | OH-KY-IN Amateur Radio Society.       |
| #3 93 Points | Cara Communicator | Cambridge Amateur Radio Assoc.        |

Hats off to all of the winners and also to all of the entrants. You all should be very proud. The judges were impressed and surprised with the ease of reading from what they thought would be a very technical group of newsletters. They said how much information about people was contained in these newsletters. They reminded me that other “non radio operators” may read and may give up reading if too technical. “Know your readers.”

73,  
**Jack Sovik, KB8WPZ**  
ARRL Public Information Coordinator – Ohio

## **OHIO QSO PARTY and OHIO STATE PARKS ON THE AIR ARE JUST AROUND THE CORNER**

### **OHIO QSO PARTY**

The Ohio QSO Party is an opportunity for amateur radio operators around the world to celebrate the great state of Ohio. Sponsored by the Mad River Amateur Radio Club, The Ohio QSO Party will run from Noon to Midnight, EDT on Saturday, August 24, 2013.

A new category for this year will be an EOC (Emergency Operations Center) category. Local ARES / RACES groups will want to take advantage of this opportunity, and get your local EOC stations on the air! For full information, visit the Official Ohio QSO Party website at: <http://www.ohioqp.org>

### **OHIO STATE PARKS ON THE AIR**

The Ohio State Parks On The Air, sponsored by the Portage County Amateur Radio Service, will be hosting their annual event on Saturday, September 7, 2013.

For rules and other important documentation, visit their official website at: <http://www.ospota.org>

Both of these Ohio events are excellent opportunities to enhance your operating fun, and also a great way to show off our hobby to the public! Work with your local clubs, and see who can take the lead on these operating contests!

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### **SPECIAL EVENT STATIONS IN OHIO**

- 08/10/2013 | Salt Fork Arts & Crafts Festival - Aug 10, 1400Z-2200Z, W8VP, Cambridge, OH. Cambridge Amateur Radio Association. 14.260 7.235. Certificate & QSL. Cambridge Amateur Radio Association, PO Box 1804, Cambridge, OH 43725. Celebration of Salt Fork Arts & Crafts Festival. 8th Special Event in CARA's year-long 100<sup>th</sup> Birthday Celebration. QSL. Certificate available for anyone who works ALL 12 of CARA's monthly Special Events of 2013. [www.w8vp.org](http://www.w8vp.org)
  - 08/17/2013 | Alliance, Ohio Carnation Days Festival Aug 17, 1400Z-2100Z, W8LKY, Alliance, OH. Alliance Amateur Radio Club. 14.240 14.045 7.240 7.045. Certificate & QSL. Alliance Amateur Radio Club, PO Box 3344, Alliance, OH 44601. [www.w8lky.org](http://www.w8lky.org)
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### **FROM THE SECTION MANAGERS DESK**

I have a few kudos I want to pass along this month,

First, congratulations to Portage County Amateur Radio Service, OH-KY-IN, and the Cambridge Amateur Radio Association for their placing First through Third, respectively, in the Ohio Section Newsletter Contest. I'll be presenting the awards to PCARS and CARA at the Great Lakes Division Convention on August 3rd and to OH-KY-IN when I visit their club meeting on October 1st. It's always a good time when I can publicly recognize work that is being done for the benefit of Amateur Radio.

Second, a dedicated group, led by SEC Matt Welch, W8DEC, has been presenting an emergency communications conference in Northeast Ohio for the past 3 years, and this past year's event, which was held on July 13th, did not disappoint. I have been hearing great things from the attendees, and it's always good when a team can pull off a quality event like the Great Lakes Emergency Communications Conference. Please mark your calendars for Saturday, November 9th, when the All Ohio ARES Conference will be held in Reynoldsburg. I have no idea how Matt finds the time to put such quality events on, but we're glad to have his energy here in the Ohio Section.

I have been working with the Great Lakes Division and the Voice of Aladdin ARC staff on the planning side of the Great Lakes Convention and Columbus Hamfest. If you can, please plan to attend on August 3<sup>rd</sup> in Columbus. ARRL CEO Dave Sumner, K1ZZ will be present, along with the Great Lakes Division, and of course the Ohio Section Cabinet. We look forward to seeing all of you in Columbus!

I had the pleasure of speaking at the Delaware Amateur Radio Associations July meeting just this past week. I spoke of the importance of being an "evangelist" for Amateur Radio. With the recent creation of the Educational Outreach and Radio Scouting ASM positions, it's going to take all of us to participATE, demonstraATE, and educATE to the public how Amateur Radio is just as significant now as it ever has. I don't want to take the wind out of the E. Mikes sails, but clubs need to start working on the three "ATES" that I just listed. ARES and NTS groups especially need to take heed to this, as they are the most visible during the public service events and on the air every evening passing traffic. Take a look at your 2014 activity calendars, and see if you "ATE" enough for Amateur Radio!

Now I'm off to see if anyone ATE that list slice of pizza that was left in the fridge... all this talk made me hungry.... 73!



***Frank, KI8GW***  
ARRL Section Manager - Ohio



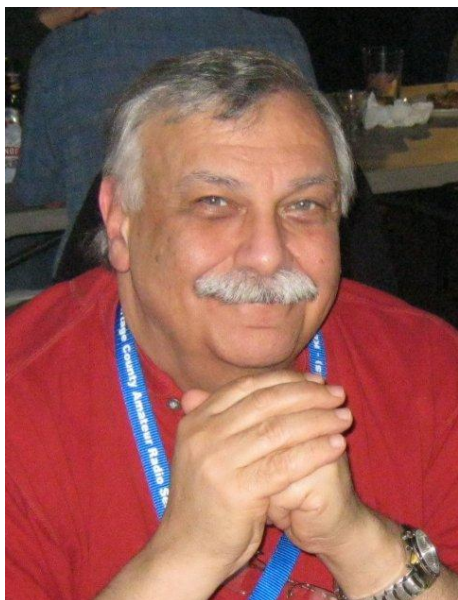
## ***Charlie the Tuner's HF High-Lites***

August is here and that means that Fall is right around the corner. Boy, has this year moved fast. I hit full retirement age in July and that is also a shock. Wasn't just yesterday when I went to AES and bought a Kenwood TS-570SG to start back into HAM radio? Nine years ago??!!

Well, I have had a lot of fun since then and expanded my shack and I am sure that a lot of you have added to your shack in the last 9 years.

We had a very informative DX/Contesting SIG in July. I reviewed the latest DX info regarding the IOTA contest held July 27-28, with the other 10 attendees. It was a good group and we covered several topics. There were a huge number of islands that were activated for this contest. Many more than in recent years and some of those present took notes. So I'd like to see what you heard and worked during the contest. Let me know and I will post the reports in this column in September.





And if you're not busy working DX on the 4th Tuesday in this month, come and join us and put your two cents in.

I want to thank the following for the forecast reports for this month and beyond: the Northern Ohio Amateur Radio Society,

Northern Ohio DX Association, Ohio/Penn Packet Cluster Network (especially Tedd Mirgliotta – KB8NW) for the following DX and IOTA information.

And as always, this report could contain "Pirate/SLIM" operations or busted call signs. Please do yourself a favor and adhere to the old adage of "Work First Worry Later" (WFWL).

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**3DA0, SWAZILAND.** Roger, ZS6RJ reports that there will be a 3DA0ET DXpedition to Swaziland taking place between November 18-27th. He mentions that the team will be finalized sometime next month after everyone over on the EU side is back from their holidays. This will include their roles etc... along with the Web site and QSL information. Roger did provide the aims of the DXpedition, which are:

- \* To participate in the CQWW DX CW Contest (November 23-24th) as a Multi-2 category contestant.
- \* To give as many folk as possible a new entity or band/mode slot, providing CW, RTTY and SSB.
- \* To address the often-neglected need for digital modes via a full time dedicated RTTY/PSK station running from the start for the entire duration of the DXpedition.
- \* To operate 160 meters through 6 meters.

**9G, GHANA.** Jeff, W7JVN/9G5AC, reports on QRZ.com [edited]: "My wife Beverly (WB7NLY) and I have been called to a church mission in Ghana, Africa. I thought it would be nice to be on a DXpedition here so I brought my Yaesu FT 857 radio with me and have set up a humble little station at my house. I have a 20 meter inverted V dipole antenna mounted on a 30 foot bamboo pole. The natives here use these poles to mount a small UHF TV antenna on. Every house has a bamboo pole antenna. Some are longer than the one I found, but I thought I was very lucky to find that one. I use a 12 volt battery off my generator for power for the radio. Who needs power in the house as long as the radio will work? I will get on 20 and 15 meters SSB whenever I get a chance and when the bands are open here. With the antenna I have and only 100 watts, I don't think I will have a big signal out of Ghana but I have made several contacts so far with good reports. I will be in Asamankese, Ghana (which is in the bush), for about 16 months. Date of this post is July, 2013. I am looking forward to working as many stations as possible, and I hope you are one of them.... 73 Jeff 9G5AC"

**9H, MALTA (Correction).** Nakanishi, JJ2NYT, will be active as 9H3N (not 9H1N) from Malta between August 2-5th. Activity will be holiday style on 40-10 meters using CW and SSB. QSL via his home callsign.

**9H, MALTA.** Emma, M6JDH, active as 9H3EH from Mellehia from July 22 to Aug 28. No other details provided.

**9M4, WEST MALAYSIA (LH Op!).** Members of the Melaka DX Team will be active as 9M4LHU from the Pulau Undan LightHouse on Undan Island (AS-097) some- time in August (around the ILLW event). QSL via 9M2ESM direct.

**C82, MOZAMBIQUE (Press Release #3).** The following was sent out on July 16th [edited]: "This has been a busy month for the C82DX team. With only 90 days before we are QRV we have filled the remaining operating positions and added several individuals to our off site support team. Joining us are such well known DXers as Bill/K1MM, Bruce/W6OSP, Charlie/NF4A and Wild Bill/N2WB. Our South African contingent now includes Pierre/ZS6PJH Chairman of the Pretoria ARC. Low Band ops remain the primary objective and we have secured both Titanex and Battle Creek Special verticals. We have also obtained the sponsorship of Array Solutions with one of their new shared apex loop array RX systems and W3YY FSK/CW interfaces. They join ICOM (our main equipment supplier with IC7600s) and

SteppIR (CrankIRs) as our major donors to our DXpedition. During the day we will operate all HF bands including 6 m. Our website has been expanded by our webmaster, K6MM. If you haven't been there lately, please visit, [www.c82dx.com](http://www.c82dx.com), where you can learn more about our plans. Tom, N4XP and Don, N1DG -- DXpedition Co-leaders"

**E5, SOUTH COOK ISLANDS.** Fabio, IZ0YIV, will be active as E51YIV from the following islands between October 9-17th. His tentative schedule is: Oct 9-13th - Rarotonga Island (OC-013), Oct 13-17th - Aitutaki Island (OC-083). Activity will be holiday style, possibly on 20/17/15m (he has not yet decided), using SSB and the Digital modes (RTTY, PSK, JT65 and JT9 mainly). QSL via his home callsign, direct, by the Bureau or via eQSL or LoTW.

**H40, TEMOTU PROVINCE** (Update). Sigi, DK9FN, will once again return to the Temotu Province for a fifth time and be active as H40FN, but this time from Lata, Nendo Island (OC-100) between December 21st and January 10th (2014). QSL via DK9FN (not HA8DD) effective from July 1st, direct or by the Bureau. More details will be forthcoming.

**I18, ITALY** (LH Op!). Members of the Calabria DX Team will activate the Capo dell'Armi Lighthouse (JM77UW, ARLHS ITA-014 and CL-008 WAIL) on Saturday, August 13th. The callsign will be I18LH. QSL via the Bureau to HB9FHZ (USKA bureau). QSL via direct to IK8YFU. Also, log will be upload to eQSL and LoTW. For more info, visit: <http://www.calabriadxteam.it>

**OJ0, MARKET REEF.** Pasi, OH3WS, will be on Market Reef (EU-053) as a voluntary worker between September 21-27th, and will be active as OJ0W during his spare time. Activity will be on 40-10 meters mostly CW. He states that he may be in the SAC Contest (September 21-22nd). QSL via OH3WS, by the Bureau or direct to: Pasi Bergman, Tuulipolku 4, 13500 Finland. ADDED NOTE. A YL Mirja (not Pasi's YL) will be there on the Reef with him and was very interested in HAM radio in Sept. 2012. When they were there last time, she made some QSOs. Pasi states, "I will give her a possibility to make QSOs as a second operator on SSB. It has been a long time since OJ0 was QRV by any YL-op.

**OO, BELGIUM** (Special Prefixes). On July 21st, His Royal Highness Prince Philippe will become the new king of Belgium and His Royal Highness King Albert II has reigned for 20 years. For both occasions, all radio amateurs with a Belgian license will be allowed to use the prefix "OO" instead of "ON" from July 21st until and including September 20th, 2013. Belgian vanity callsigns (with only one letter in the suffix) may not change their prefix. Some vanity callsigns already have an "OO" prefix. A commemorative award will be available for working a number of these "OO" stations.

**OQ4, BELGIUM** (Special Event). Members of the ONZ Oost Kust Radio Club (ON4CLM) and other radio amateurs belonging to UBA clubs and groups will activate the special station OQ4CLM from Knokke between October 16th and November 15th. This is the club's 32nd anniversary activating the special event station. The suffix "CLM" stands for "Canadian Liberation March". Activity is to remind everyone of the 33km march that the Canadian troops did coming from the town Hoofdplaat in Holland to liberate the town Knokke in 1944. Each year, the ONZ uses a different prefix, and this year they were granted the use of the special prefix OQ instead of ON. QSL via ON3AIM. For more information and details about the special event station, visit their Web sites at: <http://www.qrz.com/db/oq4clm> <http://www.oq4clm.be>

**OX, GREENLAND.** Operators Mia/OZ5MD and Bjorn OZ5BD active as OX5M and OX5T, respectively, from Sisimiut, Greenland (NA-018), for at least the next 2 years. Activity will be on 40-6 meters using CW and SSB. QSL via OZ0J.

**PA, THE NETHERLANDS** (Special Event). Look for special event stations PA6SAIL to be active between August 19th and September 10th. Activity will be on the HF bands using CW, SSB, PSK and RTTY. Also 6m and 2m. A special QSL card will be issued for working this callsign. Operations are in supporting the maritime event "SAIL De Ruyter" at Vlissingen. QSL via PA3GEO (by the Bureau or direct).

**P29, PAPUA NEW GUINEA** (Update). Akira, JA1NLX, reports on his Web page that he will be active as P29VNX from Lissenung Island (New Britain Island), in the Bismarck Archipelago IOTA Group (OC-008) between September 7-14th. Activity will be mostly on the IOTA frequencies on 30-10 meters using CW, RTTY and PSK31. His transceiver is a Elecraft KX3 with a small 100w amp into a 1/4 wave vertical with elevated radials. QSL via JA1NLX, direct (w/SASE & 2 USDs) or OQRS (direct (3 USDs) or Bureau). Do not send your QSL via Bureau. He is no longer a member of JARL. All logs will be uploaded on LoTW and the Online Log search available on ClubLog. Akira states, "I will send you QSL via Bureau from GlobalQSL if you request OQRS\_Buro." For more details and updates, watch Akira's Web and Blog pages at: <http://www.asahi-net.or.jp/~yy7aysd/P29VNX-2013.htm> <http://ja1nlx-aki.blogspot.jp>

**S7, SEYCHELLES.** Cesare, I0WDX, will be active as S79WDX from Digue Island (AF-024), in the Seychelles Island group between November 12-23rd. Activity will be 160-6 meters, propagation permitting, using an Icom IC-7000 into a vertical by I1UJX and dipoles for 80 and 160m. QSL via I0WDX direct or LoTW. No QSLs via the Bureau.

**TN2, REPUBLIC OF CONGO** (Update - Date Change). Once again in close cooperation between the DAGOE Foundation, Mercy Ships and 4 Dutch radio amateurs, planning is being done for a DXpedition to Republic of Congo. The Team will stay in Pointe Noire between October 12-24th (not September 28th-October 11th as announced earlier). The team will use the callsign TN2MS (not TN5MS as first announced) for this coming activity. <http://www.tn2ms.nl>

**TO2, MAYOTTE.** Members of the "Italian Dxpediton Team" have announced the callsign, TO2TT, for their upcoming DXpedition to the Island of Mayotte Island between October 3-17th. Operators mentioned are Silvano/I2YSB, Vinicio/IK2CIO, Angelo/IK2CKR, Marcello/IK2DIA, Stefano/IK2HKT, Alberto/IZ2AXF and Mac/JA3USA. HF Pilot station: Fred, IK7JWY. The 6m Pilot station: Sergi, IK0FTA. Activity will be on 160-6 meters using CW, SSB and RTTY. They will have with them four Elecraft K3 w/amps, one Spiderbeam (20-10m), two yagis (20-10m), three vertical antennas (80/40/30m), longwire for 160m and 3 element Cubical Quad for 6m. Online survey for band/mode needs is available on their Web page. For more details and updates, see the following related Web pages: Official website: <http://www.i2ysb.com> Official forum: <http://www.hamradioweb.org>

**TO4, MARTINIQUE.** Thierry, F4BDG, will be active as TO4FM from Martinique (NA-107) between October 5-20th. Activity will be on the HF bands. QSL via EA5GL or on eQSL and LoTW.

**V5, NAMIBIA.** Operators Serge/UX0HX, Max/UZ1HZ and Alex/UT5UY will be active in holiday style as V5/homecalls from Namibia between August 1-8th. Activity will be on 80-10 meters using CW and SSB. QSLs for V5/UX0HX, V5/UZ1HZ and V5/UT5UY are via UT5UY direct or by the Bureau.

**XW, LAOS.** Operators Steve/9M6DXX and James/9V1YC will operate as XW8XZ and XW1YC, respectively, from Laos between September 5-10th. They plan to have two stations on the air. XW8XZ activity will be on SSB and XW1YC will mainly be CW with some SSB. QSL XW8XZ via M0URX and XW1YC via W5UE.

**ZD8, ASCENSION ISLAND.** Marko, N5ZO, will once again be active as ZD8O from Ascension Island (AF-003) during the CQWW DX SSB Contest (October 26-27th) as a Single-Op/All-Band entry. QSL via OH0XX.

**ZD8, ASCENSION ISLAND.** Jorma, OH2KI, will be active as ZD8X in November. Activity will be before, during and after the CQWW DX CW Contest (November 23-24th). Activity during the contest will be Single-Op/Single-Band (10m) entry. Look for him on the bands outside of the contest. QSL via OH2KI.

## **IOTA NEWS.....**

**EU-008.** Operators Andy/M1LOL and Ray/M1REK will be active as MM1REK from the **Isle of Coll** (IOSA NH05, SCOTIA DI12, WLOTA 2123) in the Inner Hebrides group between Aug 5-10. Activity will be on 80-10 m SSB and the Digital modes. QSL via M1REK, by the Bureau or direct. See the Web site at: <http://www.m1rek.co.uk/isle-of-coll>

**EU-049.** Fred, PA1FJ, will once again be active as SV8/PA1FJ/p, but this time from the **Chios Island** (GIOTA NAS-002, MIA MG-025, WLOTA 4103) between August 29th and September 9th. Activity will be on 40-6 meters using CW and SSB and CW. Fred will operate QRP using a FT-817 with a Buddi-Stick/HighEndfed antenna. QSL is preferred via the Dutch QSL Bureau (Box 330, NL-6800 AH Arnhem, The Netherlands).

**EU-064.** A team composed by Geoffrey/F4FVI, Pierre/F4GXS, Johan/F4GTD, Phillipe/F5TRO, Maurice/F5NQL and Nicolas/F8BDB will be operating as TM2NOI from **Noirmoutier Island** between August 9-11th. This is the third IOTA activation by this young team. Activity will be on the IOTA frequencies using SSB, Digi and CW. QSL via the Bureau and direct to F4FVI. For more details, see: <http://www.qrz.com/db/TM2NOI>

**SA-035.** A group of YL operators will be active as YW5RYL from **Los Roques** between November 7-10th. Operators mentioned are Carolina/YV4AW, Maika/YY5ALO, Geraldine/YY2GAL, Laura/YY5OLA, Ramirez/YY5ANG, Mary/YY5MCO and Yumayra/YY5YVR. Activity will be on 160-6 meters using CW, SSB and the Digital modes.

**SA-054.** Members of the Grupo DX Caracas active as YW5X from **Orchila Island** (ARLHS VEN-022, WLOTA 3044) between Aug 1-31. QSL via DM4TI only.

**VP8, FALKLAND ISLANDS.** Andy, M0HLT, is expected to be active as VP8DOH possibly for 2 years. He is now based on the Falklands as an electrician. Activity will be limited between his work commitments. Operations will be SSB only and mainly on the higher HF bands, preferring 10 meters when conditions allow but will try 20 meters and above. QSL via eQSL only or LoTW.

Well, that's the story for this coming month and a few months ahead. As I have been encouraging you HAMs, get on the air and have some fun working DX. Have a great and safe August and see you again in September.

73 and GUD DX!!

**Chuck, W8PT**  
aka "Charlie the Tuner"



## ***Growth of VHF-FM in Northeast Ohio***

***and the formation of The Lake Erie Amateur Radio Association (LEARA)***

### ***PART 1 of 2***

While some of the neighboring paragraphs in this history may seem to jump back and forth or describe unrelated happenings, the best format seemed to be keeping the history in chronological order as much as possible. All the content of this history is believed to be correct, but there are no guarantees. The text which follows may be reproduced provided it is not altered in any way and credit is given to the author as the source. If any person reading it has either additional information or corrections to make, please forward them to the author. I would like to take this opportunity to thank the following people for making contributions to this project; either as suppliers of additional information or as proof readers: Marv W8AZO, Charlie WA8WUU, Fritz K8WLF, Al K8EUR, Dave WB8APD, Gary W3DTN, Al W8HYG and Tom WA8BTN.

Many of the dates of importance were verified with packing lists from International Crystal for crystals purchased either for the equipment to make a new system operational or for the radios I acquired to use it. The earliest of these packing lists are from 1960 when I first received my ham license.

In the Northeast Ohio area, communications for Cuyahoga County Civil Defense (CD) was probably the start of two-meter VHF-FM activity. Around 1957 the U.S. Government purchased crystal-controlled General Electric commercial two-way FM equipment operating on 145.26 MHz for Cuyahoga County CD. This included:

1. two specially-outfitted school busses for use as mobile command posts
2. thirty to forty tube-type vibrator-powered GE mobiles
3. about a dozen tube-type dry battery-powered packsets or "portables" (hardly handhelds, as they weighed about 15 pounds and had about ½ cubic foot volume which consisted of about half electronics and half batteries inside a steel case) and
4. about ten base-station radios on that.

Each CD bus and the land-based command sites were also equipped with an Onan generator for ac power. This equipment was used for drills, weather disasters and other emergencies as well as general hamming and fortunately never



for communications in case of the big bomb. Involvement with CD was the main thing that gave an introduction to many of us who were to be involved with VHF-FM. While the fixed-station sites did not require much work on equipment, there was always something to be done with the CD bus equipment -- at least for those of us who wanted to find an excuse to go to "the bus". Monday nights were "bus nights". We added new (to us) equipment, changed wiring, maintained what was there (since it was full of tubes) or simply swept and dusted. The most fun thing we did was to take the bus to a parade and we went as far as downtown Cleveland from North Randall, where the East Side bus was garaged. We also participated in hospital emergency preparedness exercises and just like today, sometimes went to a site and passed no traffic. The people running the exercise said they found our presence useful but it surely was (and still is) difficult to understand how.

There was also activity on six-meters FM -- even in the mid-fifties. Because technician class amateurs were only permitted to operate on 52.5-54 MHz and most of us experimenting with six-meters were technicians, the very first FM activity in the Cleveland area was on 52.5 MHz using equipment with wide band (15 kHz) deviation. Actually there was no transmitter deviation limiting circuitry and these radios were probably 25 kHz wide but it didn't matter. No one else was on another nearby frequency to be bothered. 52.5 MHz was the lowest and therefore easiest frequency an old piece of commercial equipment could be converted to. A group of amateurs in the Shaker Heights area (Marv W8AZO, Pat W8GRG [SK], Ned W8GKS [SK], Jim K8QOT, Ron W8BBB [SK], John, K8IYM, John, K8QNE [SK], Rich W8GNI and finally Bill K8SGX [after receiving my license in Jan 1960]) converted their own equipment. These were most of the core membership of Heights Area Mobile (HAM), a group active on six-meters FM in the late-fifties. Later they realized that all of their lower transmitter sidebands were outside the band edge (52.5) but almost coincidentally the rest of the country was getting started on 52.525. The first pieces of equipment were obsolete police radios donated by the Shaker Heights Police Department (their technician was also a ham). Most of the old 2-case GE, Motorola or Link equipment being used was so agile that the crystals in use could be moved up 25 kHz to the new frequency. The really old army surplus FT243 crystals that some radios could use were in openable holders and could be lapped down (to raise the frequency) by scrubbing them on a glass plate with a small amount of household cleanser and water. Many old low-band radios did not have a padding capacitor to adjust the crystal frequency simply because it wasn't necessary.

A source of equipment for hams to purchase to get on FM was another problem. One of the earliest hamfests where equipment was available was at the Angola (Indiana) Hamfest. This 'fest was the work of the amateurs of the Tri-C College radio club, W9BF. Northwest Electronics from Chesterton Indiana (near Chicago) brought a truck full of old mostly-Motorola equipment for sale. For you old equipment buffs, it was 30Ds and 50Ds (receiver in one box and transmitter in another) with an occasional 80 or 140D thrown in. In case any of you think you don't have enough space for your mobile now, the trunk mount part of a 60 watt 140D measured 6x16x21" and weighed in at about 50 pounds. Power consumption of this type radio was about 3-5 amps when receiving and 25-30 amps when transmitting and that doesn't include the 250 amp inrush when you key the mike and the dynamotor is getting up to speed. Believe me, it dims the headlights and you don't do this a lot of even receiving with the engine off if you want to start the car later. Then you had to run the power and control cables under the floor mats and seats and mount the control head and speaker and drill through the firewall to connect the 2-gauge "A" cable through its 50 amp fuse to the battery. Don't forget also that many of the old radios were 6 volt so you had to rewire the tube filaments to series/parallel and replace the vibrator power supply power transformer and the dynamotor (this motor-generator puts out the 400-600 volts for the transmitter PA tube(s). If you were getting onto six-meters as many of us did and your radio was 30-36, or 36-42 MHz split, you also had to cut all the air-wound coils and change the loading caps on all the other tuned circuits. This was frequently a cut-and-try procedure and when you were all done, the radio might have some oscillation or low drive in the transmitter or poor sensitivity or "birdies" in the receiver. Now what do you do? While the equipment for sale there was old enough to have loktal tubes in it, at the time, it was only about ten years old and for those of us fortunate to get something moved to the amateur band and tuned up correctly, we had a lot of fun even without repeaters. It was only low- and high-band. (Commercial low-band is considered 25-50, high-band is 136-174 and UHF is 420-512 MHz). There was nothing old enough on UHF to be available surplus in fact UHF wasn't even in use for land mobile communications at the time. This was one of the main sources of FM radios for those of us in Northeastern Ohio in the early 60's. The equipment sold there is now so old (all tubes) and wide-band it doesn't even show up at today's hamfests.

This type of radio and its power consumption is one of the main things that made the Leece Neville Company well known in the fifties and sixties. Among other products, they manufactured quite large automotive alternators (rectifier and regulator external to the machine) which would keep your battery up while using this type of radio in public-safety

service, as well as for those of us who had more than one radio in our trunk tuned to some amateur channel. It was a real prize, for those of us who had them, to find a used Leece Neville alternator.

To give some perspective to band usage and crowding, in public-safety, for example, Cleveland Police (CPD) radio dispatch used a repeater with the input on 37.34 and the output on 37.18 for the entire city -- one frequency pair. Although the repeating function wasn't supposed to be used unless there was an emergency (according to FCC Rules & Regulations), all police calls were considered to be an emergency so the repeater was always functioning. The input they used was on a tower that still stands, known as the Schaaf Rd tower. You can still see it as you drive along I-480 past the CPD Schaaf Rd radio site - - it is the old tower -- the taller one has the new '800' antennas on it. Although there was also a receiver on the old Highland View Hospital clock tower, they had better coverage of the city from Schaaf Rd. The transmitter was at 2221 Payne on one of the two old towers on the CPD headquarters building. As for logging, you might ask, everything was logged with a Soundscribe®. It was a unit manufactured for continuous logging purposes. This audio logging tape recorder used two-inch wide tape similar to that used by the original 1960s transverse-scan broadcast video recorders (RCA VR1000) and, at a m-u-c-h slower rate, swept across the tape to make its single-channel recordings. One tape recorded for 24 hours. The quality of the reproduction was useable but that was about it. Using current technology, the preferred method of recording is to convert the audio to a digital format. This provides the best signal-to-noise ratio and allows the longest recording time on a much narrower tape.

There has always been a general need and desire for better communications. In 1958 or 1959, the first repeater was in the area constructed and installed by Dick Jedlicka, W8PVQ and friends. The transmitter which put out about 300 watts (on 145.26) was in the clock tower at Highland View Hospital (same location used by CPD for their east receiver) which was located on top of the Harvard Rd hill ("the hill") in Warrensville Township (now Highland Hills) in eastern Cuyahoga County. Because the Highland View Hospital site was used by Civil Defense for its main communications control center, the people who worked on the repeater (and were CD members) had access to install equipment at that location. All the transmitting and receiving equipment was tube-type throughout. The receiver on 145.68, along with a preamp and a cavity resonator, were sheltered from the weather in a big wood box located on the catwalk of the green water tower on "the hill". The system operated in the middle of the AM portion of the band and was certainly not appreciated by the amateurs who heard its l-o-u-d signal there. Most of the two-meter activity was from 145.0 to 145.4 since, again, most equipment in use was converted military surplus and the higher in frequency you went, the harder it was to make the conversion work.

The receiver and transmitter were connected by a run of surplus tar-covered army field-phone wire. We pulled the wire through a steam tunnel that interconnected the Highland View and Sunny Acres hospital complexes and then connected to unused "house pairs" of their phone systems. It is also of interest that the repeater output was on the simplex frequency and the input channel was 420 kHz higher. These frequencies in particular were used because they were assigned RACES (Radio Amateur Civil Emergency Service) channels and the repeater was originally installed for RACES communication. These were both excellent locations, but the problem of climbing 100 ft or so up the water tower made servicing the tube-type receiver most inconvenient (and it seemed to develop some type of problem 3 or 4 times a year). Most of the activity was confined to Monday nights around 8:00 when the weekly CD drill was held since this generally was the only time the repeater was on. This type of activity generally did not draw newcomers to FM. There was little enough activity and no one else to control the repeater; so when Dick left the area in 1962 to join the service, repeater operation was discontinued.

To comply with the then-stringent FCC regulation regarding keeping a log of all operation of every ham station (and a repeater is considered a station), all repeater usage was tape-recorded. The FCC relaxed their requirements and this practice was eventually amended to only recording phone patches in the early eighties and finally totally eliminated a few years later. However, in these days of "dirty" transmitter or sometimes-purposeful interference, the information recorded could be of use toward eliminating the situation.

Some simplex activity on 145.26 MHz continued however since many of the county-owned radios were installed in RACES members' private automobiles. There was also some CD activity on six-meters on 53.58 MHz with old two-case Link and Motorola equipment. Other hams had radios on 52.525 MHz, which was and still is the national calling frequency, but did not have any connection to CD.

Since amateurs have always basically been people who would not tend to let a good thing (repeater) be inactive, the transmitting equipment was gathered and reassembled in the CPD Headquarters 5th floor generator balcony and connected to an antenna placed on one of the two old familiar towers on the roof (at 2221 Payne Ave). This made the equipment accessible to an on-site operator for control and repairs. It also provided a location where a phone line for interconnect was available. Since many of the CPD radio operators were also hams, in addition to having 1st class radiotelegraph licensees, (Ed Kissel, Al Ondrecek W8LJI, Ralph Folkman W8AF, Charlie Lohner W8RN, John Van Blargan W8VBU, Dave Eisenberger K8KEM [the main force behind getting and keeping the repeater] and Cy Whittingham [I'm not sure if he was a ham but he always seemed to be there when you called on the phone]) (to send and receive 2, 4 and 8 MHz CW traffic before the creation of LEADS), the repeater could be in operation 24 hours a day. The receiver was moved from the rather inaccessible water tower to a location actually right behind the clock in the Highland View Hospital clock tower. Many problems with lack of current metering and limiting of the screen supply for the 4CX250 amplifier and a lack of understanding of how important this is, resulted in destroyed final tubes and eventually led to shutting this system down.

Due to lightning strikes and wind, antennas on top of the old clock tower transmitter site also developed problems although when they were working, the coverage pattern and general performance were well worth the repairs necessary following an occasional lightning or wind attack. After an unsatisfactory change one Saturday, it was decided to drive back to "the hill" late in the same evening and connect the transmitter back to an old antenna. It proved to be the errand just in time - - the following morning the Palm Sunday April 11, 1965 tornadoes touched down in Pittsfield and the repeater was used for emergency communications pertinent to the disaster. It is interesting to note that with the mobile equipment in use at the time, Pittsfield was about at the limit of the repeater's coverage in spite of the fact that the signal was considerably better than is currently provided on .76. At the time, the best sensitivity receiver along with a good preamp was about 6 to 10 dB less than that easily obtained today and for the most part, the tube and vibrator-powered radios only had 25 watt transmitters. Since there was no surplus UHF equipment for links, there were no remote receive sites. In fact, a remote receiver was not even a consideration at that time.

During the winter of 1966-67, the old power amp was repaired and the previous GE ET-1 exciter was replaced with a GE Progress Line transmitter (still all tubes). The system was sophisticated enough that the transmitter on "the hill" was capable of being operated as a repeater or a direct base station with remote control at Cuyahoga County CD Headquarters at 4200 S Marginal Drive. A "turn off/on box" that counted the number of rings on the phone was built by K8SGX. When you wanted to turn the repeater on, you would call the phone and let it ring 6 times, hang up, recall the phone and let it ring 8 times and hang up. To reverse the process, you would call and let the phone ring first 8 times, then 6 times and the repeater would turn off. Not terribly reliable, but with its dozen-plus relays, it usually worked and control could be accomplished on a phone which was only attended during the day. The box had local on and off buttons on its front for local use. The Cuyahoga County Radio Club was formed around this operation with callsign WA8TZQ and trustee Ed Reilly, W8OKE. Regrettably, the number of volunteers for operating the control diminished from no more than two or three at best to zero so operation again reverted to "Monday Nights" or emergencies. In the months to follow, the CD office was closed and with it went the most important control station.

Slowly, various stories about repeaters operating in the 146 MHz portion of the band began to be heard. Much of the activity was centered around the General Electric facility in Lynchburg, Virginia and the hams who worked there. As early as 1963, there were rumors of several hundred users on a 146.34-.94 repeater in Lynchburg in comparison with our relatively few on 145.26. The activity in Virginia kept spreading and finally arrived in our area, perhaps in 1963. The first new simplex was on 146.94 and its popularity quickly spread to Cleveland. It was a welcome change which would eventually alleviate the continuing interference problems caused by the repeater on 145.26. In the late 60s, there was almost no activity in the 144-145 or 146-148 MHz portion of the band.

Earliest records of the FM Hybanders Club are from March 1968, about a group interested in a privately-sponsored two-meter repeater in the Cleveland area. Several of the hams involved with this venture were the previously mentioned Cleveland Police Radio operators at the central station. This included those who hammed on the low-bands. The repeater was put on the air under Greg Nasiatka's callsign K8VFL with the input on 146.88 and the output on 146.40. It had a homebrew all relay logic autopatch. The autopatch interface which did not actually decode, regenerate or use Touch-Tone® (Bell System's name for Dual-Tone-Multi-Frequency [DTMF]) to perform any functions other than connect or disconnect the patch itself, was located at the receiver site in Seven Hills. This was one of the first Ohio Bell Telephone



areas with operational Touch-Tone® service at the time. The machine and frequency pair was re-coordinated to 146.28-88 under the callsign of WB8CRV in August 1970.

To give an idea of the difficulty of converting and then using commercial two-way equipment for amateur use, the operators in the '70s on two-meters in Lorain County purchased crystals for their radios for 146.98. Many of them would not warp onto frequency so the frequency they operated on, since there were no 'channels', was 146.979. They moved to 146.34-.76 once the repeater was established.

From acquaintances made with these hams on six-meters FM, some of us residing in eastern Cuyahoga County had an increasing interest in moving their repeater equipment from a site in Lorain County that was not as good as Highland View and Sunny Acres Hospital. Since the equipment would cover Lorain from its new location, it was agreed to move it in early 1969. Coverage was excellent from "the hill". Its power output was 400 watts (with antenna gain, it produced about 4000 watts ERP [effective radiated power]. The ERP is now approximately 400 watts.) At that time, the receiver was located at Sunny Acres Hospital in a corner of one of the elevator penthouses.

In 1969, it was decided to form a club around another new repeater with input on 146.34 and output on 146.76. To help support and coordinate the repeater, the Lake Erie Amateur Radio Club was formed with charter meeting held on 27 May, 1969 with 10 members present: Howard Baker K8NHR, Ken Bobel WA8YJW, Mike Cross K8JLO, Marv Grossman W8AZO (secretary), Dick Hartwig K8TEC west VP, Fritz Hemrich K8WLF, Bill Hess K8SGX (president), Don Nelsch K8EIW (east VP), Jim Pracker K8QOT (treas), And Chuck Rennolds WA8WUU. These first meetings as well as the meeting where the club was finally formed were held at many locations with the charter meeting held at the Holiday Steak House (no longer in existence) on old Route 6 and 2 in the Vermillion/Lorain area. Since many of the original members of the club and the old GE equipment came from Lorain County, this was a natural geographic area for meetings, although a bit far for eastern Cuyahoga county residents.

Al Amster W8HYG filed for a license, WB8CQR, which was dated effective November 19, 1969, permitting the club to get a station (the repeater) into operation. Again, the transmitter was put in the Highland View Hospital clock tower and the receiver was in one of the elevator penthouses at Sunny Acres Hospital. There were continuing disadvantages even from the days of 145.26. We were permitted to have the receiver in the elevator machinery room (with antenna mounted on the roof) but were asked to keep it out of the way so it was located in a corner behind the elevator electrical equipment. There wasn't enough space to put anything there much less the receiver - - behind the same equipment we coped with in the days of 145.26 - - exposed flyball governors, electrical equipment and all. The bonus was, of course, a good location for the receive antenna and a nice short transmission line to the receiver. At the transmitter site directly behind the clock face, there were places where pigeons could get in through broken glass in the clock face. They would fly around along with their friends the flies - - millions of them - - dormant on their backs all over the place in the winter and buzzing around your head and in the equipment in the summer.

(End of Part 1 - Part 2 will be in the September Newsletter)

*Bill Hess, K8SGX*

**Editor's Notes:** I was talking with Al, K8EUR about the 'early days' in the Cleveland area with 6 and 2 meters. He gave me this link that details that history which he was involved in and I thought it would be an interesting article for the hams in our club to read. The original is located at: <http://www.leara.org/club-information/history>

*September 7, 2013*

*Ohio State Parks On The Air*



## ***Net Night at the Club Site***

July's Net Night at the Club Site was held on July 25th. More than 15 members were in attendance. Russ, NR8W, ran the net from the club station. Pizza was brought in, there was good conversation, and even some computers got worked on. The high-lite was the Net Night Quiz, compiled by Tom, WB8LCD. The quiz was won by Brian Gardner, N8ZPS. He was awarded 10 tickets for the PCARS August meeting 50/50 raffle. The quiz is included here for those of you who would like to play along at home.

Next Net Night at the Club Site is Thursday, August 22nd. Hope to see you there!

***Tom, WB8LCD***

### **~~~~~ July 2013 Net Night Quiz ~~~~~**

1. What fossil material can be used to generate static electricity?  
A. Coprolyte                      B. Lodestone                      C. Amber                      D. Coal
2. According to the solar observatory in Zurich, Switzerland, the solar cycle that began in what year, is now called the first cycle?  
A. 1492                      B. 1755                      C. 1834                      D. 1904
3. What animal contributed to Galvani's discovery of electrophysiology?  
A. Cat                      B. Frog                      C. Electric Eel                      D. Cow
4. In 1909 the Nobel Prize for the development of RADIO was shared by Guglielmo Marconi and another great scientist. What is his name?  
A. Karl Braun                      B. John Fleming                      C. Boris Rosing                      D. Alexander Popov
5. Which WWII device depended on a miniature battery?  
A. Atomic Bomb                      B. Depth Charge                      C. Heliograph                      D. Proximity fuse
6. What was the original name of the battery company now known as Duracell?  
A. Ray-O-Vac                      B. Mallory                      C. Burgess                      D. Eveready
7. Who developed the "Yagi" antenna?  
A. Hidetsugu Yagi                      B. Shintaro Uda                      C. Jim Lawson                      D. F. Adcock
8. Whose co-worker came up with the terms "Anode" and "Cathode" to describe the electrical polarity of terminals?  
A. Franklin                      B. Farady                      C. Davy                      D. Henry
9. Who came up with the terms "charge" and "discharge"?  
A. Franklin                      B. Volta                      C. Priestly                      D. Newton
10. What is the only band located in the MF Spectrum?  
A. 500 mtrs                      B. 160 mtrs                      C. 2000 mtrs                      D. 60 mtrs
11. At short ranges, the best reception occurs when both the transmitting antenna and the receiving antenna are in the same orientation.  
A. True                      B. False                      C. Maybe                      D. WB9LBI
12. A Leyden Jar is an early example of what type of electrical component?  
A. Vacuum Tube                      B. Inductor                      C. Transformer                      D. Capacitor

13. What company first marketed a portable transistor radio to consumers?  
A. Sony B. I.D.E.A. C. Sharp D. Motorola
14. What is the chemistry of the Plante Cell?  
A. Carbon-zinc B. Lead-Acid C. Zinc-air D. Nickel Cadmium
15. PL-259 connectors are not generally used for UHF transmission line connections because?  
A. They block frequencies above 250Mhz B. It's just the accepted design practice  
C. They display non-constant impedance as frequency increases  
D. none of the above
16. What year was the FCC established?  
A. 1889 B. 1908 C. 1934 D. 1945
17. Where can we insert an inductor in each arm of a short dipole to obtain the best performance?  
A. At the near ends B. At the centers C. At the far ends D. Anywhere I want
18. Baudot refers to:  
A. French Movie Stars B. An international cable code  
C. A measure of digital transmission speed D. A teleprinter code
19. What year did the ARRL stop issuing the Rag Chewers Club (RCC) award?  
A. 1994 B. 1999 C. 2001 D. 2004
20. A very well-known radio and early TV personality was also know as K4LIB on the ham bands – who was he?  
A. Kate Smith B. Freeman Gosden C. Arthur Godfrey D. Lowell Thomas

Quiz answers are: 1-C, 2-B, 3-B, 4-A, 5-D, 6-B, 7-B, 8-B, 9-A, 10-B, 11-A, 12-D, 13-B, 14-B, 15-C, 16-C, 17-B, 18-D, 19-D, 20-C.



## Thanks & 73

All of our members (and others) look forward to getting this newsletter every month, so keep sending those inputs! Thanks go out to the contributors for this month's newsletter:

**WB8LCD, KB8UUZ, WA8AR, KC8PD, N8RLG,  
KD8SKL, W8KNO, KB8UHN, K8JAA, NF8R, KB8WPZ,  
KI8GW, W8PT, K8EUR, K8SGX, CQ-WW-DX, the  
ARRL and the World-Wide Web**

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



**Tom "Parky", KB8UUZ**  
PCARS Newsletter Editor





## Pictures from the July PCARS Meeting





# Amateur Radio Cruise-In



So you think that you have one of the best amateur radio mobile installations to be found? Well here is your chance to show off that mobile rig and have the opportunity to compare it to dozens of others, HF, VHF, UHF, you name it.



On Wednesday, August 21, 2013, starting at 6:00 p.m., the Portage County Amateur Radio Service (PCARS) will be sponsoring an Amateur Radio Cruise-In Night at the **A&W** Restaurant located at 769 East Main Street in Ravenna.



Hams from all over Northeast Ohio will be cruising in to check out the wide variety of mobile radio setups and get some ideas for their own vehicles. Prizes will be awarded for the most unique and the ugliest installations and for the most number of states worked by an HF mobile rig from the A&W between 6:00 and 7:00 p.m. (the station must be capable of "mobile operation" - not fixed portable).

Have you wondered how well screwdriver antennas perform? Confused about how best to run your power cables from the battery to the passenger compartment? How have other hams dealt with all that noise generating equipment in newer cars? Can you work DX from your truck? Need a solution for mounting that remote control head?

Well come on by and get those questions answered while you enjoy a burger, some fries, and a mug of **A&W** root beer. Enjoy an evening of ham radio fellowship and fun and get to know other hams from throughout the area.



Talk-in will be on the K8IV repeater,  
146.895 MHz, PL 110.9

More information can be found at the PCARS web site,

[www.portcars.org](http://www.portcars.org) or contact

Tom, WB8LCD, at [WB8LCD@portcars.org](mailto:WB8LCD@portcars.org) or 330-554-4650



You've heard of the **Ohio QSO Party**

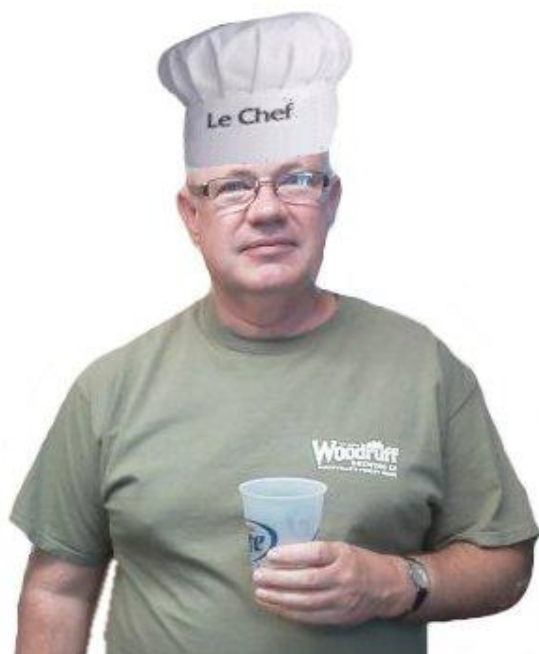


We'll join us at the **PCARS** club site for the

# Ohio B-QSO Party

Mark your calendars for **Saturday, August 24<sup>th</sup> 2013**, the date for this year's Ohio QSO Party. PCARS is going to put **K8BF**, the

club site station, on the air and we are inviting all PCARS members to come on out for some special **Big Fun** that day.



Tom, WB8LCD and Amy, KD8SKL will be hosting the second **Ohio-Burger-QSO Party!**



That's right, we'll be chasing two kinds of

"Q's": on the air contacts and great food fresh off the grill.



**Set up starts at 11 AM Contest starts at Noon and ops will continue until midnight (12 hour contest)**

Burgers will be served at 3:00 pm and everyone is invited to bring snacks or side dishes.



The Portage County Amateur Radio Service, Inc. (PCARS) announces the 6th annual

# Ohio State Parks On The Air



## Ohio State Parks On The Air contest

Saturday, September 7, 2013, from 1600 UTC to 2400 UTC

There are **74** Ohio State Parks  
Make a day of it and join us in the **FUN!**

Visit a beautiful Ohio State Park  
and have some  
Amateur Radio Fun at the same time!



**Rules? Entry Forms? Log Sheets? Ohio State Park Information?**

Check out **all** the details at: [www.OSPOTA.org](http://www.OSPOTA.org)

While you're at it, check out the PCARS web site at: [www.portcars.org](http://www.portcars.org)



# ARRL2014

## Centennial Events & Programs



**ARRL**  
**100**  
YEARS

- **ARRL National Centennial Convention — July 2014**



- **Second Century Campaign for the ARRL Endowment**  
[www.arrl.org/scc](http://www.arrl.org/scc)
- **Yearlong On-Air Operating Event and Awards**  
Plus commemorative publications, regional events, special QST features, and more! Additional details coming soon...

### **ARRL National Centennial Convention at the Connecticut Convention Center in Hartford, July 17-20, 2014**

**Thursday, July 17, 2014**

All Day Training Tracks: public service, technology, radiosport, and more!

**Friday & Saturday, July 18-19, 2014**

- ◆ Exhibit Hall featuring ARRL exhibits, Amateur Radio manufacturers, equipment sellers, and an indoor flea market
- ◆ Dozens of forums & presentations
- ◆ Friday Night Banquet

**July 17-20, 2014 — Tours of ARRL headquarters and WIAW**

Registration opens late summer 2013 (including hotel details)

**Advancing the Art and Science of Radio—Since 1914**

**ARRL2014.org**



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

Meetings: 2<sup>nd</sup> Monday of each month at 7:00 PM

at: Stringz & Wingz - 1543 SR 303 - Streetsboro, OH 44241

[www.stringzwingz.com](http://www.stringzwingz.com)

All are welcome to attend ~ Drop in and say hello!



## "When All Else Fails - Amateur Radio Works"

PCARS uses the K8IV Repeater: 146.895 MHz PL 110.9 ~ Rootstown, Oh or PL 114.8 ~ Kent, Oh ~ EchoLink Node: K8SRR

PCARS thanks K8IV for making the repeater available to area hams and for PCARS activities.

### 2013 PCARS Appointments & Committees

|                                      |                             |                              |
|--------------------------------------|-----------------------------|------------------------------|
| ARRL Awards - DXCC<br>WAS, VUCC, WAC | <b>W8KNO</b>                | Joe Wehner                   |
| ARRL Awards - WAS                    | <b>KB8UUZ</b>               | Tom Parkinson                |
| Club Callsign Trustee                | <b>KB8VJL</b>               | Al Atkins, Sr.               |
| Club Site                            | <b>KC8PD</b>                | Jim Aylward                  |
| Contest<br>Coordinators              | <b>W8KNO</b><br><b>W8PT</b> | Joe Wehner<br>Chuck Patellis |
| EchoLink                             | <b>K8SRR</b>                | Steve Randlett               |
| Field Day 2013                       | <b>K8CAV</b><br><b>W8PT</b> | Rick Kruis<br>Chuck Patellis |
| F.Y.A.O. 2013                        | <b>WB8LCD</b>               | Tom Sly                      |
| Historian                            | <b>KB8SZI</b>               | Peggy Parkinson              |
| K8BF QSL Manager                     | <b>KB8VJL</b>               | Al Atkins, Sr.               |
| Net Coordinator                      | <b>WB8LCD</b>               | Tom Sly                      |
| Newsletter                           | <b>KB8UUZ</b>               | Tom Parkinson                |
| OSPOTA 2013                          | <b>W8PT</b>                 | Chuck Patellis               |
| P.I.O.                               | <b>WA8AR</b>                | Tony Romito                  |
| Secretary                            | <b>KD8SKL</b>               | Amy Leggiero                 |
| VE Liaison                           | <b>N8RLG</b>                | Robert Gurney                |
| Webmaster                            | <b>KD8MQ</b>                | John Myers                   |



PCARS  
Volunteer  
Examiner  
Team

|               |                   |
|---------------|-------------------|
| <b>KC8PD</b>  | Jim Aylward       |
| <b>KB8UUZ</b> | Tom Parkinson     |
| <b>KB8DPN</b> | Russ Anderson     |
| <b>N4IT</b>   | Carl Capps        |
| <b>WB8LCD</b> | Tom Sly           |
| <b>N8XTH</b>  | Deron Boring      |
| <b>N8PXW</b>  | Jim Korenz        |
| <b>N8QE</b>   | Bob Hajdak        |
| <b>W8PT</b>   | Chuck Patellis    |
| <b>K8IV</b>   | Ed Polack         |
| <b>K8QF</b>   | Russ Conklin      |
| <b>WB8VNO</b> | Gay Wands         |
| <b>WD8CVH</b> | Ted Wands         |
| <b>NX8G</b>   | Rex Simmons       |
| <b>N8RLG</b>  | Robert Gurney     |
| <b>AB8AA</b>  | Allan Avnet       |
| <b>K8JAA</b>  | Jane Avnet        |
| <b>KD8FLZ</b> | Mike DiCarro      |
| <b>KE8G</b>   | Jim Blanca        |
| <b>W8RID</b>  | Bob Davet         |
| <b>K8MSF</b>  | Bud Green         |
| <b>KD8LEB</b> | Al Zielinski      |
| <b>WA8CCU</b> | Al Nagy           |
| <b>KB8IHG</b> | Christopher Vince |
| <b>NR8W</b>   | Russ Williams     |
| <b>KD8RJV</b> | Jim Corbett       |
| <b>W8EZT</b>  | Frank Tompkins    |



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This is the **Electronic E-Mail** version of the PCARS Newsletter, **The RADIOGRAM**. The advantages to receiving this way are: You get **COLOR** pictures, **NO** postage needed, and delivered right to **YOUR** e-mail box! If you know of anyone else that would like to receive this newsletter, please have them send me an e-mail. **Are you interested in getting news emailed directly to you?** Send an email to [news-subscribe@portcars.org](mailto:news-subscribe@portcars.org) to join our news emailing list. The **RADIOGRAM** is published every month and is sent only 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.

Portage County Amateur Radio Service, Inc. (PCARS)  
Tom Parkinson - KB8UUZ - Newsletter Editor  
9992 State Route 700  
Mantua, OH 44255



NLC

