PCARA Update

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Cue it up!

PCARA held its final 2018 ARRL Field Day Planning Session on June 20th at the Town of Cortlandt **CUE** (Cortlandt Upper-Teen Entertainment Center) in the Cortlandt Town Center at 3131 East Main Street (Route 6) in Mohegan Lake, NY. The CUE is a very nice, large, bright space in the rear of the Cortlandt Town Center near the movie theater with tables, chairs, sofas, ping-pong table, pool tables, and satellite TV. We wish to thank Director John Palmiotto and Coordinator Colleen Anderson from the Town of Cortlandt Recreation Department for their assistance in arranging for PCARA's use of this facility. We look forward to using the CUE for future PCARA activities and functions.

PCARA participated in **2018 ARRL Field Day** on June 23-24, 2018 at Walter Panas High School in Cortlandt Manor, NY. Turnout was very good and setup was completed in record time. This year we rented a van that was used for one operating position, while tarps were placed over the third base dugout to serve as the other. Antennas consisted of a G5RV, a multiband dipole and a 6 meter Yagi with rotor. New this year was an aluminum portable mast kit for the VHF antenna courtesy of Mike W2IGG, that simplified the antenna raising significantly. Further details for PCARA 2018 ARRL Field Day are included in this month's edition of the *PCARA Update*. Thanks to everyone who participated! We couldn't have done it without you.

Karl N2KZ operates 6 meter CW with Bob N2CBH logging during ARRL Field Day. David K2WPM is on 40 m at left.

Just a reminder that we're in our **Summer Break** now and that our next scheduled meeting is on Sunday September 9, 2018. During the break the **Old Goats Net** at 8:00 p.m. on Thursday evenings will continue as will the **PCARA Breakfasts**. The next PCARA Breakfast is on Saturday July 14, 2018 at 9:00 a.m. at Turco's in Yorktown Heights, NY. Also look to PCARA Yahoo! Groups for any additional announcements or activities (such as possible road trips, e.g. *USS Slater*?).

The following are some Hamfests to help you get through the Summer 2018 hiatus:

- Sunday Jul 1: Metro 70 Hamfest, Knights of Columbus Mansion, 139 North Broadway, White Plains, NY.
- Sunday Jul 15: Sussex County ARC Hamfest, Sussex County Showgrounds, 37 Plains Rd, Augusta, NJ.
- Saturday Aug 18: Ramapo Mountain ARC Hamfest, St. Catherine RC Church, 112 Erskine Rd., Ringwood, NJ.
- Sunday Aug 26: Candlewood ARA Western CT Hamfest, Edmond Town Hall, 45 Main St., Newtown, CT.

Enjoy your Summer, and I look forward to seeing each of you and sharing your Summertime adventures at the September 9, 2018 meeting at 3:00 p.m. at New York-Presbyterian / Hudson Valley Hospital in Cortlandt Manor, NY.

- 73 de Greg, KB2CQE

Contents

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Adventures in DXing

- N2KZ

No Tower Necessary

Cellular service does not *require* tall communications towers. A technique called antenna *concealment* has been around for over twenty years. Instead of antenna installations beaming from high above tree level, cellular antennas can be concealed beautifully into building facades, street lighting fixtures, church steeples and other clever solutions. It can be done!

Standard cell tower, beaming out from well above tree level. (Location - Furnace Woods Fire Station, Cortlandt Manor.)

Radio frequencies for cellular use share the same characteristics as visual light. Use of a cellular tower is like placing a tall floor lamp in a living room to provide illumination to a wide area with simplicity. No homeowner would enjoy this choice. A single floor lamp is ugly to see and the resulting light is harsh and filled with shadows. You may be able to see in the dark but it won't be pretty!

Now try several lighting fixtures placed thoughtfully around a room. Your result will be purposeful even illumination without dark spots in the most visually attractive way. Cellular service is no different. Using concealment techniques, you can place cells with multiplicity directly where you need them instead of hoping that a one-tower solution will suffice. Most of all: A tall tower will not forever spire above your heads and destroy your view.

We are not talking about impossibly ugly faux pine trees here. Tasteful and appropriate stealth concealments are used on college campuses and around museums, outdoor arenas or any place where aesthetics take precedence. They meld into the architecture and landscaping completely without notice. Certainly, cell service and tower providers love the tall tower approach. It is rapid and economical and gets the job done with comparatively little effort. Yes, concealment requires more work and cost but long-term satisfaction and civic preservation are well worth it.

Pinus cellulosus.

Today's Standard

Today's standard design for cellular service is to create a wash of signal coverage from one location that is high in natural physical location. The Federal Aviation Administration requires all towers 200 feet or higher *above ground* to comply to strict specifications regarding tower lighting, specific tower paint colors and patterns and other safety concerns. Cellular providers do not want to tangle with The FAA. This explains why few cellular towers ever exceed 200 feet in height.

FAA has strict lighting requirements and paint schemes for towers above 200 ft agl.

Amateur radio operators know just how important height can be in operation performance. This is especially true with frequencies in the UHF range and above where cellular service takes place. Although cellular towers usually never exceed 200 feet above ground, the physical site where they are built has no boundaries. The sky is the limit — literally! A 190 foot tower atop a 2000 foot peak is still out of the auspices of FAA regulations.

Alas, choosing a cellular tower site is much more complex than just height! The name of the game in the cellular world is to maximize **MOU**s (minutes of use.) Providers look for ways to increase the number of calls they sell. They can expand signal coverage to areas not previously served. They can add additional cells to handle more simultaneous calls. They can fill signal coverage holes to eliminate dropped calls. Some larger providers now consider installing coverage into lightly trafficked rural areas to create complete coverage especially along interstate highways and other well used arteries. Tower site selection has become quite complex in calculation!

Designers of cellular facilities have a lot to consider: Will the site be able to 'see' the surrounding areas that need to be covered? Can the necessary antennas be mounted at an optimum height? Can the tower site be easily accessed? Will existing structures block the 'view?' Most of all... Will the new tower be a good investment financially?

Also, full-fledged cell sites usually have connectivity directly to their main telecommunications network via wired IP connections or via fiber-optic links. Where it is cost-prohibitive or difficult to connect directly, a technology called **DAS** (distributed antenna systems)

can be a useful compromise solution.

DAS systems actually act as repeaters of established cellular sites. A nearby 'donor' cell site provides the input to a DAS. In turn, the DAS returns its reply information back to the mothership cell site. Using DAS, you can gain access to a cellular network without being directly connected to the master cellular system.

For example, DAS systems can provide office buildings with cellular service where it would otherwise be unavailable. Wall or ceiling mounted DAS antennas can be placed throughout every floor to distribute and grab signals. The signals then reach donor cells via rooftop antenna installations. The connection is made!

This rooftop DAS (Distributed Antenna System) extends wireless cellphone coverage into an unserved building. [N2KZ pic.]

Similarly, DAS technology can also be used to push signal coverage to small cells instead of running expensive fiber or straight Internet connections to each and every point. Realize that DAS connections do not have the throughput of a fully connected site. DAS systems are limited in just how many conversations can be handled at any given moment.

Two to Tango

When you think about it, the cell service providers (or independent tower owners) are only one half of the bargain needed to establish a traditional classic tower site. Real estate investors suddenly find great value in rocky points where houses would be difficult to build or residential zoning criteria cannot be met. All you need is approval from a local town board and tower building can commence.

Rocky points may have great value.

Speculators can buy otherwise undesirable strategic high altitude properties and then market the space for communications use. Odd-shaped leftover lots can suddenly become gold! Tower site land rentals can bring thousands of dollars a month to land owners. Cellular carriers can then churn in quite a boat load of money renting their tower's facilities to competing cellular providers or other communications providers (i.e. two-way business radio) who need to expand their coverage but don't have tower access. Money creates more and more money!

Another economical method of squeezing in a cell site is to piggyback with an already existing (and possibly already ugly) structure. Adding cellular panel antennas and semi-flex transmission cable to a water tower, high-tension power tower, factory building, billboard or even a silo could be a reasonable compromise where the idea of a cell tower cannot be negotiated. The owners of these sites are suddenly rewarded with unexpected rental income. It's a win-win situation... at least in the eyes of the cellular companies and space renters. We get to see and endure the unappealing results!

Cell phone antennas on Town of Cortlandt water tank at Croton Park Colony.

If the potential tower operators cannot seal a deal, there is one last piece of bait: Offer local public service users (police, fire and ambulance corps) access to the new tower. This strategy often eases local boards into agreeing to new construction.

Can owning and operating communication towers really be big business? One of the leaders in this game is American Tower Corporation based in Boston, Massachusetts. ATC owns 170,000 sites in 13 countries. ATC's net assets are worth over 34 billion dollars. Verizon Wireless, America's biggest cellular provider, is an equal behemoth in its assets and profits. Your high cell phone bills support some very lucrative businesses!

AMERICAN TOWER®

It is all about money. Smart strategy equates to lots and lots of business from the least expensive facilities possible. No wonder that the single, under 200 foot tall, cell tower is so popular. No need to be discreet and aesthetic. Just get the job done! The populace will get used to it! Or will they? Nothing decreases residential real estate property values than a tall cell tower within view. There has to be a better way... and there is!

Clever Concealment

This is the year 2018. We have come a long way since the first attempts to make cellular towers look

like cheap artificial Christmas trees. Search the Internet and you will find several companies that market concealments for cellular use. A leader in this field is **Stealth® Concealment Solutions** headquartered in North Charleston, South Carolina. They have built a fascinating business designing, producing and installing cellular concealments since 1992.

Stealth truly makes cellular installations disappear. Using materials that are nearly transparent to RF radiation, you'll find their work impersonating water towers, church steeples, clock towers, street lighting, flag poles and chimneys. Their ability to blend in with building facades is simply artful. Why deface the look of your neighborhood or village when attractive installations are available?

Stealth Concealments disguised as a water tower (top) and as a church steeple (below).

Another reason to turn to concealed solutions is proximity. Why try to serve an entire community with one tall tower eyesore when smaller more local cells could be used with greater accuracy and greater reliability to end users like yourself? If you need to fill holes where current coverage won't reach, wouldn't it make sense to install a series of street light cell sites instead of trying to wash it down with signal from a far off site?

Stealth has installed over 20,000 concealed cellular sites nationwide. The key to their success is in the materials they use. *Enhanced StealthSkin V* panels are manufactured with sandwich panel geometry. FRP (fiberglass reinforced plastic) skins are laminated to an extruded polystyrene core using an ICBO (International Conference of Building Officials)-approved adhesive. Advance into high microwave frequencies and the formula changes: *"In this case, ABS (acrylonitrile butadiene styrene polymer) is used instead of FRP, along with polystyrene"*. (See Malcolm NM9J's article regarding fiberglass radomes in the April 2015 edition of *PCARA Update.*)

Street light concealment.

Remember: Concealments are not limited to just small cell installations. Full sized cell installations can be camouflaged as well as smaller area delivery points.

What makes Stealth's building materials so invaluable? They are nearly transparent to fragile UHF and microwave transmissions. Their concealments have very little effect on cellular signals with negligible attenuation. Normal building materials would otherwise reflect and/or attenuate microwave signals rendering them unusable. It is a breakthrough in technology that literally clears the air for all who now can't see cellular installations. Stealth even has panels that can replace the look of steeple windows and similar looks. You can view a collection of pictures of Stealth's many installations at:
https://www.stealthconcealment.com/gallery/.

Tri-sector antenna support on monopole tower.

Change is inevitable and the future always brings change. Stealth and other companies who provide concealments will literally alter how the world will appear moving forward. Elimination of three-sided tripod antenna farms at the top of cellular towers would certainly improve the sights we will all see. Maybe someday 'cell phones' will not automatically correlate with 'cell towers.' There are better alternatives! Until next month, 73s and dit dit de N2KZ 'The Old Goat'

Field Day 2018

Getting ready

In preparation for ARRL Field Day, Joe WA2MCR had once again obtained permission from Lakeland Central School District for PCARA's entry to be located at Walter Panas High School. Following discussion at the May and June PCARA meetings, a special Field Day Planning meeting took place on Wednesday June 20th at the **Town of Cortlandt Community Room**. Thanks to PCARA's Community Outreach Committee, Lou KD2ITZ, Jared KD2HXZ, Fred KD2GJJ and Greg KB2CQE, the Town of Cortlandt has agreed to make this room available for occasional club activities. The Community Room — also known as the CUE room (Cortlandt Upper-Teens Entertainment Center) — is located within the Cortlandt Town Center shopping complex, alongside the NY State Police Satellite Station at the rear entrance to United Artists movie theatres.

Planning meeting at Town of Cortlandt Community Room.

During Field Day 2017, antenna erection on Saturday morning was delayed by breezy conditions, blowing launcher lines away from the High School light poles. For 2018, pole stringing was arranged for Friday evening, June 22nd in order to speed Saturday set-up. Despite checking the New York Elite Baseball schedule, we arrived to find a baseball game in progress — this turned out to be the Greater Hudson Valley Baseball League, with Mt Pleasant Wildcats playing the SKD Aces.

Fortunately the Friday game finished at 8:00 p.m. just as the sun was setting. As soon as the field was free, Charles N2SO deployed his CSV19 pneumatic antenna launcher (http://akbeng.com) to send tennis balls and line soaring over the light poles. Charles' aim was excellent and it was only the third pole inside the left-hand dugout that needed multiple tries. The lightweight line was used to pull stronger twine over the poles ready for set-up on Saturday morning. Meanwhile, Bob N2CBH was pulling the first tarpaulin over the dugout by third base. Thanks to everyone who helped — including Lou KD2ITZ, whose portable compressor kept Charles' launcher fully charged with air.

Charles N2SO launches the first line over a light pole.

The big day

As a result of earlier discussions, Joe WA2MCR had only rented a **single** cargo van from U-Haul at Cortlandt Town Center. Because of the baseball on Friday evening, loading of the Ford Transit 250 van was delayed until Saturday morning. As a result, setup at Walter Panas High School was moved from 8:00 a.m. to 9:00 a.m.

We were concerned that there might be another baseball game on Saturday morning, but fortunately the field was empty. Another concern was the weather. NWS's forecast for the weekend included near-certain showers with thunderstorms and heavy rain in northern Westchester. Fortunately we only encountered a few spots of rain during the cool, humid Saturday, fol-

Rental van parked near the school.

lowed by a cold, misty overnight and warmer Sunday.

More than ten members were available on Saturday morning so set-up tasks were divided. The rental van was unloaded then parked on a concrete pad near the school ready for set-up of the first HF station. Bob N2CBH and helpers pulled additional tarpaulins over the third-base dugout to keep off rain and filter the sunlight. This site would house the second HF station plus the free VHF station allowed by entry class 2A. Additional push-up shelters, tables and chairs were provided by Charles N2SO and Mike W2IGG to keep visitors comfortable during the event.

Additional tarpaulins were installed over the dugout to protect the HF and VHF stations.

Antennas

For VHF, Mike W2IGG had brought along an ex-military 36 ft portable tripod antenna mast with 4 ft tubing sections made of aluminum. (See: http://www.militaryfieldgear.com). The guyed mast was pushed up section by section, an easier process than pulling up the bull float handle mast which had broken in half during Field Day 2017. Joe's three-element Yagi for 50 MHz and Yaesu rotator went on top of Mike's mast.

Henry KB2VJP and Fred KD2GJJ help raise the tripod antenna mast for VHF.

Despite suggestions for beams from NE2Q and KD2ITZ in the June newsletter, antenna arrangements for the HF bands were similar to previous Field Days. A 102 ft G5RV wire antenna was strung between the light poles along the N-S foul line, while the multiband "fan" dipole for 40-10 meters was raised over the baseball infield, between the inner light poles. Joe, WA2MCR had brought along an inverted-L wire antenna for overnight use on 160 meters and other low-bands. This was raised using a pulley strung to the 3rd base light pole, with the far end supported by fiberglass poles strapped to the fence. Antenna ground was provided by the wire mesh fence plus three wire radials laid out across the grass.

David KD2EVI prepares to raise the multiband dipole for 40-10 meters.

Equipment

Transceivers for HF and VHF were all provided by Joe WA2MCR. Inside the rental truck was Joe's Icom IC-7410 HF transceiver connected to the G5RV antenna. Under the dugout tarp, the second HF station made use of Joe's Yaesu FT-1000MP transceiver. This was wired to the multiband dipole for 40-10 meters or to the inverted-L. For 6 meters, Joe had brought along his Icom IC-7000 multiband transceiver. The first station worked on 6 meters as a test was in Illinois — a good sign for VHF propagation.

Joe WA2MCR checks the Icom IC-7410 and logging computer in the rental van.

Individual bandpass filters from W3NQN were available for all stations — including for the first time a 6 meter bandpass filter for the somewhat noisy IC-7000.

Computer logging relied once more on N3FJP's software for ARRL Field Day – version 5.8. This had already been tested by NM9J and WA2MCR on notebook computers attached to the "PCARA" network using wired and wireless connections. The notebook

computers were all set up for Joe's USB Interfaces from microHam which allow serial communication with the transceivers. This allows the N3FJP logging software to poll the radios for band and mode information as well as sending canned CW messages.

An alternative way to send and receive Morse code was brought along by Charles, N2SO in the shape of a Hamcrafters K44 CW Keyboard — as used at the NY State QSO Party in 2017. (See http://www.hamcrafters2.com/K44.html).

Charles N2SO tests his K44 CW keyboard with the Yaesu FT-1000MP transceiver located in the dugout.

Emergency power was once more provided by Bob N2CBH. Bob's Honda EU2000i inverter generator ran throughout Field Day without a glitch. For bonus points, all transmitters had to be connected to the emergency power source — along with the logging computers when they were controlling or keying the radios.

Bob N2CBH refuels the Honda EU2000i generator.

By some miracle, all equipment was up and running by 12:30 p.m. on Saturday afternoon, a full 90 minutes before Field Day proper was scheduled to start. This must be a record set-up time, allowing for a leisurely lunch before the event began. David K2WPM was even able to test his colorful kite.

They're off!

At 2:00 p.m. EDT Field Day operation began with Lou KD2ITZ on 40 meter SSB, Joe WA2MCR on 20 meter SSB and Mike W2IGG on 6 meters. The weather stayed cool and overcast, with temperatures only reaching 65°F on the first day — so no extra cooling was needed.

Lou KD2ITZ operates 40 meter SSB on Saturday

HF conditions were not good on Saturday, with stations being worked relatively slowly, dropping to a minimum rate around 2300 (7:00 p.m. EDT). After sunset, nighttime propagation took over, the first HF station moved down from 20 meters to 80 meters and the QSO rate improved. Greg KB2CQE shared the first night shift with Matty WB2JCC while Joe WA2MCR continued operating phone and CW throughout the night, including two contacts on 160m. Henry KB2VJP brought coffee and cookies at midnight during an operator lull. There was another increase in activity at 2:15 pm EDT when Charles N2SO returned to work CW stations on 40 meters.

Evening operation inside the rental van on 80 meters. L to R: Lou KD2ITZ, Matty WB2JCC and Jay NE2Q.

Your editor (NM9J) went back to the site around 7:00 a.m. on Sunday morning to find Charles still working 20 meter CW in the rental van and Mike

W2IGG on 40 meter phone. After Charles left, I settled into the van and continued on 20 meter CW. David KD2EVI returned around 9:00 a.m. and took over on 20 meter SSB with Mike W2IGG.

As Sunday got under way, more operators appeared, the weather warmed up and conditions improved on the HF bands. Lou KD2ITZ operated 20 meter CW from the van. As six meters opened up to Florida and Kansas, the HF stations were able to move up to 10 meters and 15 meters to make a fresh batch of contacts.

Ye editor operates 40 meter CW with Lou's junior op Vincent looking on. [KD2ITZ pic.]

Welcome visitors

In addition to all the PCARA members and friends who came to watch and operate, we had a special visit early on Saturday evening from ARRL ENY Section Manager John Fritze K2QY and Linda K2QYL. They had worked their way south from Albany, visiting clubs on the west side of the River Hudson then crossing over to visit WECA and Yonkers ARC. John reported that everyone had been complaining about poor HF conditions on Saturday and the weather north of Westchester was wetter.

ENY Section Manager John Fritze K2QY (standing) watches David KD2EVI and David K2WPM operating 40 meter SSB.

Forty minutes later, we had a visit from another ARRL official when Ron Fish KX1W and Carol arrived. Ron is the Affiliated Club Coordinator for the Eastern New York section and both visitors enjoyed a tour of the PCARA Field Day site.

On Sunday afternoon, Charles N2SO arranged for three of his grandchildren to pay a visit to Field Day. Ethan, Gillian and Maya each sat in at the second HF station under the supervision of Todd, N2MUZ where they all made successful contacts on 15 meter SSB.

Todd N2MUZ supervises Maya, granddaughter of Charles N2SO for 'Youth Activity' while Ethan and Gillian look on.

Tear down

Despite the warm, sunny weather on Sunday, the skies began to look threatening and smartphone weather predictions suggested rain was on the way. The 6 meter antenna was disassembled around 12:30 p.m. as activity had dropped off. Ken W1YJ reported that 10 meter SSB activity was fading, so the first HF station in the rental van was switched off and the G5RV antenna disconnected. As soon as the 15 meter station had completed its Youth Activities, this transceiver was also taken off-air and the associated computer/file server secured.

A good number of PCARA members then began the task of disassembling stations, taking down tarps and shelters, dropping antennas, rolling up cables and stowing equipment in trucks and in the U-Haul van. By 2:30 p.m. the field was completely clear and Joe WA2MCR drove the rental van back to his home for unloading by more members. The final step was to return the van to U-Haul at Cortlandt Town Center.

The NWS weather forecast for Field Day weekend was not completely wrong. Temperatures rose to 80°F during Sunday afternoon and heavy rain finally came at 7:30 p.m. that same night.

Murphy muscles in

There were no collapsing antenna poles during Field Day 2018, but Murphy's law was still in effect with a couple of unexpected incidents (in addition to the Friday night baseball game). Under the dugout tarp, the six meter band proved to be *very* quiet early on Sunday morning, when the only signals heard on the Icom IC-7000 were a couple of birdies. Joe spotted the cause — the IC-7000 was *still* connected to the

inverted-L antenna for monitoring 160 meters. Reconnecting the 3-element Yagi brought about a great improvement in 50 MHz activity.

Over in the rental van, Joe's Lenovo notebook was wired to the IC-7410 via USB port for polling transceiver data, and it also had a Wi-Fi connection to the "PCARA" network for central logging. At 7:00 p.m. on Saturday evening the Lenovo computer decided to carry out a long, compulsory update to its 'Windows 10 Home' operating system followed by a restart. This was despite there being no connection to the Internet — update files must have been downloaded prior to Field Day. As a result, the station was out of action for a significant period, long enough for an emergency standby logging computer to be brought in and set up. (In your editor's opinion, Microsoft Windows 10 Home is not suitable for 24-hour critical activities as there is no control over restart time outside the Windows Update "Active hours" period.)

Bonus bonanza

PCARA missed out on the 'Media Publicity' bonus and just missed a 'Satellite QSO' this year, but we made up with other bonuses. Points were claimed for copying the **W1AW Bulletin**, for **Emergency Power**, for a **Public Location** and for a **Public Information** booth with club information. Karl N2KZ arranged an announcement on the PCARA Facebook page for the **Social Media** bonus. For the **Alternate Power** bonus, Mike W2IGG had charged batteries from solar power, then connected those same batteries to the IC-7410 transceiver for eight CW contacts made by Lou on 20/10 meters. Mike originated messages for the **Message Handling** bonus with radio help from Al K2DMV. As a result of 15m SSB contacts made by Charles N2SO's three grandchildren, points were claimed for the **Youth Participation** bonus. Results were sent to ARRL using the Internet for the **Web Submission** bonus. As a result, PCARA's Field Day submission in 2018 includes a total of **910** bonus points.

Pulling together

Your editor kept a running tally of members and friends who came along to Field Day to assemble, operate and otherwise assist. This year's total was **22**, the same number as in 2017. Thanks to all who contributed in any way!

Here is a summary of the claimed points for PCARA Field Day 2018 (bold column) along with a comparison of scores from previous years and a breakdown of 2018 contact numbers by band.

Peekskill/Cortlandt ARA, W2NYW, Class 2A

	2002	2003	2004	2005	2007	2008	2009	2011	2012
QSOs:	718	733	968	853	1019	1109	694	879	968
Power: 2 (<150W)									
Partcpts:	15	11	12	10	14	10	10	14	15
Tot scor:	2,096	2,328	2,996	2,798	2,906	3,460	2,746	2,602	2,920

	2013 (Class 1A)	2014	2016	2017	**2018**
QSOs:	775	722	816	813	**733**
Power:	2 (<150W)				
Participants:	14	16	19	22	**22**
Total score:	2040	2460	3018	2734	**2894**

2018 breakdown by band, in order of number of QSOs:

40 meters - 316 QSOs; 20 meters - 202 QSOs
80 meters - 126 QSOs; 6 meters - 38 QSOs
15 meters - 26 QSOs; 10 meters - 21 QSOs
160 meters - 2 QSOs

Final FD thoughts

Field Day is an amazing operation. A large number of PCARA members and friends bring along a variety of equipment including shelters, tables, chairs, computers, radios, keyers, launchers, feeders, antennas, masts, generator, ladder, cables, fans, refreshments and band-aids. Members demonstrate their operating and logging skills plus their encouragement for others to join in. *Cameraderie* is present in abundance! Somehow all the physical items are integrated, together with our radio experience, resulting in plenty of QSOs, lots of bonus points and very few accidents.

Field Day takes place at a time of year when many other activities can divert dedicated operators. Some familiar faces were missing for part of Field Day 2018 thanks to compulsory weekend work schedules, essential travel, household duties, family commitments and graduation ceremonies. We thank everyone who *was* able to join in, whether for a few hours or most of the weekend. This includes: Joe WA2MCR, Lou KD2ITZ (accompanied by Vincent), Charles N2SO (plus grandchildren), Mike W2IGG, Greg KB2CQE, Bob N2CBH, , Al K2DMV, Henry KB2VJP (accompanied by K9 Alice), Fred WB2GJJ, Karl N2KZ, David KD2EVI, David K2WPM, Jon N2NBR, Todd N2MUZ, Carl KC2OOJ, Matty WB2JCC, Jay NE2Q, George WB9YRR and Ken W1YJ. We could not have done it without you!

One suggestion for next time — Field Day puts a lot of responsibility on one particular person to arrange the site, rent the van, deliver all the radio equipment plus tables and chairs then work a large number of contacts all round the clock and put it all back. Thanks Joe! Perhaps we can spread some of that load in 2019.

- NM9J

Dan and the Coach - N2KZ

Years ago, legendary sportscaster **Howard Cosell** would pre-record his commentary 'Speaking of Sports' every afternoon around 4:30 p.m. for playback on the air at 5:25 p.m. The physical recording would be made in ABC Radio Network Studio 6 that served the Contemporary and FM Networks as an announce booth. ABC Radio had an interesting studio layout. When you arrived on the 5th Floor of 1926 Broadway, you would immediately see 'The Fishbowl' consisting of two tape editing studios – 5T and 6T. The news broadcasts would emanate from Studios 5 and 6 directly adjacent on each side of the Fishbowl.

There wasn't one person on our entire floor that did not love **Dan Ingram**. Certainly, we knew the crew downtown where the WABC studios were and they knew us. We would do anything we could to help Dan with his show. Cosell was the ultimate star – icon – legend. Sometimes, The Coach would actually come up to Studio 6 and record his show in person, but most days he would voice his reports from his Manhattan apartment.

Dan Ingram (1934 - June 24, 2018) was an irreverent, witty disc-jockey on WABC-AM and WCBS-FM.

We had installed a low-tech solution called an 'Auto-Mic.' You would call a dedicated phone line and Cosell's microphone would go on complete with IFB. We controlled the mic. He didn't! We had a running policy to roll tape at a given time regardless if Cosell was ready so we would never upcut his performance. Cosell was remarkable. Unscripted, his brilliant mind would always produce a perfect 3 minute and 30 second commentary timing out to the second. The classic sign-off: "This is Howard Cosell… Speaking of Sports!"

Every weekday, The Coach would come into his apartment office, sit down at the desk and get ready for his show. As tough and terse as he could be, he was human too. He would hum a few notes. He would call to his wife Emmie. He would make comments to whomever his AD was back in Studio 6. And if he was in a good mood, he would sing!

It started small. We fed a few of Cosell's humming sessions down to the Ingram crew and they sneaked them onto to the air just before Cosell's show at 5:25 with Ingram's brilliant quips. We already were dying of laughter. After the first success, we now waited for anything we could grab to keep Ingram's jabs at The Coach going. One day, we got bold!

The Coach sat down at his desk and starts to sing 'New York, New York!' Don't worry! Tape WAS rolling! Of course, we fed the entire song down to Dan and history was about to be made. It gets to about 5:23 p.m. and everyone at Radio Network was listening to WABC. Dan rolls the tape of Cosell doing his Sinatra imitation and we laughed so hard tears came down off our faces.

The best was yet to come! Everyone congratulated themselves and operations returned back to normal. About half an hour later, who bursts out of the elevators? Howard Cosell! And, boy! Was he angry! The guys in The Fishbowl saw him immediately and we all ran for cover. You could hear Cosell's impassioned voice yell "I want to know who the hell did this and I want them fired!" "Where is that tape?" Of course, we all pleaded stupid and innocent. Oh, jeez! After blowing his volcano, Cosell finally went home.

Howard Cosell (1918 - 1995) was a legendary sports journalist who "told it like it is" on WABC radio and television.

Our supervisors, of course, tried to identify the guilty at both ends — WABC and the network. Investigations were made and depositions were recorded. Strangely enough, after a safe period passed, we still fed Dan and crew goofy things we would record off Cosell's auto-mic. After all, in our own little way, we were helping Dan be Dan. He didn't just inspire us. He was our voice and our savior from our everyday troubles and woe. We were so blessed to have Dan Ingram as part of our lives for decades. So long, Kimosabe. Thanks for bringing us joy!

- Karl, N2KZ - June 25, 2018.

Summer of '68

Been there, done that

Vintage equipment spotted at recent hamfests has included the BC-221 frequency meter and National HRO HF receiver. This type of equipment — popular when I was first licensed in the U.K. — continues to trigger amateur radio memories from long ago.

BC-221 frequency meter.

Fifty years ago

Let's pay a visit to the summer of 1968. This was a highly significant year in world history. North Korea had captured the electronic surveillance vessel *USS Pueblo* which had been operating from international waters in the Sea of Japan. ARRL members can read the inside story in "A Ham in the People's Paradise" by Ralph, K1SCQ, *QST* February 1971 (pp 55-57). North Vietnam launched the Tet Offensive against South Vietnam. Martin Luther King and Robert F. Kennedy were both assassinated. In technology, Boeing introduced their first 747 "Jumbo Jet" and Apollo 8 became the first manned spacecraft to orbit the moon. On a lighter note, the Beatles' animated movie "Yellow Submarine" was released by the Fab Four 50 years ago.

In the summer of 1968, my Southport station, G3VNQ, was much as in 1967 (as described in *PCUD* for March 2018), with the G2DAF SSB transmitter, CR100/B28 receiver and Geloso converter still going strong. As well as the HF bands, I had a growing interest in long-distance VHF operation, using the 4 meter (70 MHz) AM transmitter and 2 meter SSB transverter.

Geloso G209 RX dial as used on KW/Geloso HF bands converter. Geloso was based in Milan, Italy.

I was still commuting by rail three times a year between Southport and college in Eastern England. The normal break from June to October was interrupted in 1968 by the "**Long Vac Term**" a four week period of additional instruction during July-August to prevent northern chemists from soaking up too much sun. As a result, there is a gap in my summer log entries from July 8th to August 5th.

Fabulous four meters

A couple of significant contacts took place on 4 meters just before Long Vac Term. At the time, 70 MHz was allocated as an amateur band in the UK, Eire and Gibraltar only. On June 14, I was lucky enough to work **ZB2VHF** on 70.26 MHz AM. ZB2VHF was normally operated as Gibraltar's VHF beacon station, but whenever there was a band opening, operator Ossie could change to 2-way communications. Incidentally, the very first G-station to work ZB2VHF on 70 MHz was **Dave, G3RIK** one year previously in June 1967.

P 33 GREETINGS FROM GIBRALTAR
Gibraltar, a British Colony since 1704, is a bold mountainous promontory 3 miles long, ¾ mile broad, 1,396 feet high protruding into the Mediterranean and joined to Spain by a narrow isthmus.

TO RADIO G3VNQ
CONFIRMING QSO OF 14 JUNE 68
AT (TIME GMT) 1352 - 1354
FREQ 70·26
YOUR R 4 S 6 T -
MY R 5 S 8 T -
Tx 15W Rx CON + ARSS
Æ 4 EL 20' ASL PSE/TNX QSL
73's
DE Ossie
A. C. OSBORNE,
DEVIL'S TOWER, R.A.F. NORTH FRONT

Published & Copyright, The Rock Photographic Service, Gibraltar

June 1968 QSL from ZB2VHF, Gibraltar.

In June 1968 a group of radio amateurs from northwest England that included Dave G3RIK organized a DXpedition to the Republic of Andorra, prefix PX, now C3. Andorra is located on the border between France and Spain. The group had requested permission to operate on all bands from 160 meters to 2 meters and were surprised to receive permission to use 4 meters. Operating from a height of 8000 feet they attempted to make tropo contacts back to the UK without success. Fortunately on June 23 there

Location of Andorra and Gibraltar, 800 miles and 1200 miles respectively from from Southport.

was a Sporadic-E opening — the first station worked in the UK was my onetime neighbor Ray, G3NKL, marking the first ever PX-to-G QSO on 70 MHz. Ten minutes later, I was in the PX1RI log as contact number 4, working the station at 18:30 GMT on June 23.

QSL card from PX1RI for 70 MHz contact #4 on June 23, 1968.

The North West group made use of a converted Bedford QL Signals vehicle from World War II for their VHF DXpeditions. Vauxhall Motors' Bedford subsidiary manufactured tens of thousands of QL trucks for the British Army and they were used in a variety of roles during WWII. I remember being shown around the radio version, which had operating benches and its own generator, by team-member Les G3PUO at the first Preston Mobile Rally, organized by Preston Amateur Radio Club on September 1 at Preston North End Football Club.


Bedford QL Signals truck used by North West group of radio amateurs on various DXpeditions including the PX1RI visit to Andorra in June 1968. [Pic: G3RIK]

Floral drive-in

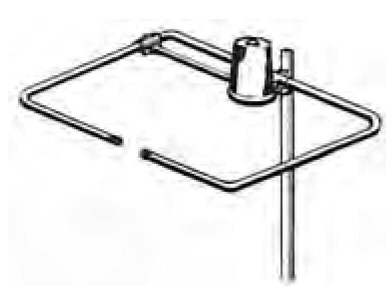
I had been taking driving lessons around Southport and finally passed the U.K. Driving Test in 1968. Now I could go mobile and drive myself around! That driving licence came just in time for the Radio Society of Great Britain's "Official Regional Meeting" which took place in Southport on Sunday September 29, 1968. At the time, RSGB divided the country into 17 regions, with Region 1 being North West England. Ainsdale Radio Club secretary Norman G2CUZ had been coopted by Region 1 Representative Basil O'Brien G2AMV to organize the event. Location would be at Southport's Floral Hall, situated between the Promenade and the Marine Lake.


Southport's Floral Hall as pictured in the 1960s, between the Promenade and Marine Lake. Nowadays it is part of the Southport Theatre and Convention Centre.

Norman recruited most of Ainsdale Radio Club's membership to take on various support roles for the event. My own part was to set-up and operate a "talk-in" station. Talk-in was an important aspect of amateur radio events in the days before GPS, Google Maps and repeaters… Mobile stations who had never visited a location before could call the talk-in station to ask for directions and guidance with any traffic problems.

Mobile operation was surprisingly popular in the 1960's, though bands and equipment were a little different from today. "Top band" or 160 meters had a large following, because of good daylight range using AM and relatively low power. Mobile antennas for 160 were a little awkward, consisting of a base-loaded or center-loaded whip antenna. Two meter AM was also popular, usually with a converted commercial radiotelephone such as a Pye Ranger. The transmitter would be crystal controlled, while the receiver would have been modified for continuous tuning. This meant the talk-in station had to continuously tune the 144-146 MHz band for incoming mobiles. Horizontal polarization using a 'halo' antenna was employed by mobiles for compatibility with horizontally-polarized home stations.


Pye Ranger mobile radiotelephone had vacuum tube transmitter and receiver.


J-Beam square halo antenna.

Four meters

(70 MHz) was another band for mobile operation in the U.K. Ex-commercial radio telephone equipment was in use, alongside ex-military radios such as the Marconi B44. (See "Anyone for 4 metres?" *PCARA Update*, September 2013, p 5-9.) Thanks to a ready supply of war-surplus FT-243 crystals on 7806 kHz, AM operation was standardized on a calling frequency of 70.26 MHz.

REGION 1 (NORTH WEST)

OFFICIAL REGIONAL MEETING

SUNDAY, 29 SEPTEMBER, 2.30 p.m.

Lunch or Snacks are available in accordance with visitors' own requirements. The two restaurants are licensed and a car park is available.

Council will be represented by

Messrs J. Petty, A. D. Patterson and H. E. McNally.

Attractions include trade shows and in the evening there will be a lecture and demonstration on "Video Tape Recording" by Ron Ratcliffe, G3XIM.

FLORAL HALL, SOUTHPORT

"Talk-in" stations from 10 a.m. will be 160m, G3SZV/A, 4m, G3XIM/A and 2m, G3VNQ/A.

TICKETS. 15/- includes the cost of a "high tea" at 5.30 p.m. and may be obtained up to 23 September from

G2CUZ, 34 Sandbrook Road, Ainsdale, Southport, Lancs. or

G2AMV, 1 Waterpark Road, Prenton, Birkenhead, Cheshire.

Announcement in Sept 68 RadCom for RSGB Official Regional Meeting at Southport.

Our Club Chairman Gerry, G8QG not only helped arrange the meeting venue, but also assisted with antenna supports. Early on Sunday morning Gerry, myself and others were up on the roof of the Floral Hall assembling a small scaffolding tower. This would support VHF antennas as well as one end of a long wire for 160 meters.

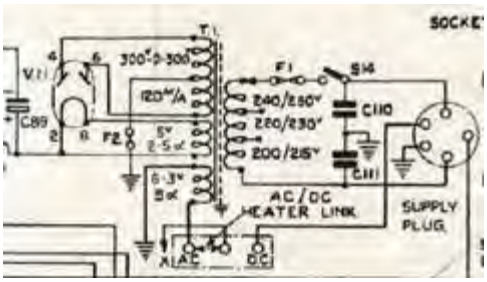
As part of the talk-in station, I had brought along my Marconi B28/CR100 HF receiver, which was used with transistorized converters for the VHF bands. Moving a CR100 is not something you undertook lightly – this Admiralty receiver was housed in a substantial steel case and weighed around 82 pounds. It was powered by 240 volts AC… which reminds me of a slightly shocking experience.

Marconi B28/CR100 receiver.

Denis, G3FNQ was helping with setup of the talk-in stations. Denis was a highly experienced radio amateur capable of mobile operation on most bands from 160 meters to 23 cm. We had some rewiring to carry out as my equipment was standardized on British 5-amp round-pin power plugs while the Floral Hall supply used 13 amp square-pin outlets. I was re-connecting a coaxial cable between VHF converter and CR100 receiver when I received a nasty electrical shock! I was unprepared for this as equipment in my own shack was all grounded through the third pin of the British power plugs.

Denis explained what had happened… when he rewired the CR100 power cable to a temporary plug, he had left off the ground wire as he wasn't sure of my wiring preferences. Inside the CR100 a pair of high voltage 0.01μF capacitors connected live and neutral lines of the 240V AC supply to chassis ground *before* the power on/off switch. This simple filter was intended to bypass any electrical noise on the AC power line to ground.

With the ground wire disconnected at the power plug, the CR100 steel chassis was floating at half the mains supply voltage – 120 volts AC. No wonder I received a nasty shock when grasping a grounded coaxial plug with one hand while holding the chassis of the CR100 with the other!



Part of the B28/CR100 power supply. C110 and C111 are 0.01μF for RF bypass. Can you spot any more safety problems?

Fortunately, no harm was done to the rugged equipment and the three talk-in stations were soon operating as planned. A good number of mobiles were guided into the venue where they could enjoy vendor booths, presentations and a late afternoon meal. Members of the RSGB Council including immediate past-President Barney Patterson GI3KYP addressed the audience. I remember that Ron, G3XIM gave a presentation on video-tape recording equipment that was just being introduced for domestic use by Sony. Ron was an engineer with one of the high-end radio and TV dealers in Liverpool. This was long before video-*cassette* recorders became popular, so recording took place on half-inch reel-to-reel tape.

Sony CV-2000 reel-to-reel video tape recorder.

Up-to-date video

To see an **up-to-date** "video recording" about UK amateur radio, visit the 'TX Factor' web site, http://www.txfactor.co.uk/ and watch their latest Episode 21. Topics includes the Icom IC-7610 transceiver, satellite working, DMR and the RF Shark.

- NM9J

Digital 'scope

At the June 3 PCARA meeting, Richard N1GIL brought along a low-cost digital oscilloscope. The model involved was the **Hantek 6022BE**, available from Amazon and other vendors for approximately $70.00.

The Hantek 6022BE is a dual channel oscilloscope with bandwidth of 20 MHz. Unlike conventional (and more expensive) oscilloscopes, the unit is supplied in a diecast box *without* display or controls. In order to manipulate the unit and display waveforms, the 6022BE is connected by USB 2 cable to a suitable Windows computer which also powers the device. The PC runs Hantek's software — available for download or on CD-ROM — which then simulates the display on the computer screen. Richard had brought along an older notebook PC which was quite adequate for displaying the results.

Hantek PC-Oscilloscope as shown at the June meeting by Richard N1GIL.


Richard N1GIL demonstrates the Hantek oscilloscope at the June meeting.

Prior to the meeting, a request had been made for a signal generator to demonstrate capabilities of the new unit. Bob N2CBH brought along a recently acquired **Rigol DG1032Z** waveform generator. This unit is a 2-channel generator capable of providing sine, rectangle, pulse, ramp and other waveforms over a range of 1 μHz - 30 MHz for a sine wave. The unit has a built-in color LCD display with multiple buttons to select functions and frequencies.


Bob N2CBH adjusts his Rigol DG1032Z waveform generator, with output displayed using Richard's Hantek PC-Oscilloscope (lower right).

Bob checked the bandwidth of Richard's new oscilloscope using a square wave and confirmed that the 'scope's bandwidth really was 20 MHz. He was also able to show what happens to the waveform as odd harmonics became attenuated.

- NM9J

Dayton/Xenia, Ohio trip 2018 – N2CBH

I have been visiting the Dayton — now Xenia — Hamvention® for about 20 years. Since the mid-90s I have made the trek out to the Hara Arena and, starting last year, their new venue in Xenia, Ohio. The site is the Greene County Fairgrounds which is a sprawling location with new buildings and facilities. It is a major improvement over the aging and poorly maintained Hara Arena. Parking is ample, both on and off site — and free of charge, which is an improvement over the Hara Arena where parking was around $10.00 a day. The trip takes about 11 hours with the usual stops for gas, food and bathroom breaks. This year I decided to stay at a really nice hotel instead of the less expensive and threadbare hotels which are in abundance in the area. The funny thing about staying in a nice hotel is that it doesn't feel like Dayton!

Dayton Hamvention®
Sponsored by
Dayton Amateur Radio Association Since 1952

Day One

Friday started out overcast and there was intermittent rain all day. As one can see from the photo I took of the gate, with lots of hopeful anticipation on the

faces of ticket holders, there were clouds in the sky. It stayed that way Friday and Saturday, clearing up on Sunday. Of course I headed home early Sunday so I didn't benefit from the sunshine. The gate opened promptly at 9:00 a.m. and the crowd quickly entered.

Friday morning at the opening gate for 2018's Dayton Hamvention. [All pics by N2CBH.]

One of the first things you encounter is the area where the radio-equipped vehicles are parked. The DARA group's emergency communications vehicle (pictured) and other Emcom vehicles were there for people to peer into. Next are the various buildings that house the new equipment dealers, resellers, and other organizations who want to make their presence known.

Dayton ARA emergency communications vehicle.

The food court is in the center of the building area for convenient access. I must tell you that the food choices were many and the quality of the food offered was a major improvement to the on-site food concessions at Hara. The food at Hara Arena was so bad that I would go off-site for lunch. This isn't really an option at Xenia as the venue is in the middle of a cow pasture, or more accurately surrounded by them.

Food Court at the Greene County Fairgrounds.

Another improvement this year was cell phone coverage. Last year was the first time at Xenia and I think the cell carriers got a rude awakening about the amount of wireless traffic with calls being dropped and sometimes impossible to make. This year the carriers trucked in portable cell sites to bolster the coverage and this strategy worked well.

Second hand

The flea market areas are spread around the buildings with the largest in the horse-track circle. This is all on grass and as you can imagine when it rains — and at this flea market it ALWAYS rains — the grass quickly becomes mud. I was prepared — I had brought along **Muck Boots** made by the Muck® Boot Company. These were originally made for mucking out stalls at horse barns but they are the best boots I have ever owned. My feet remained dry and comfortable the entire weekend. Note the pair being worn by the chap in the photo of the R-390 for sale at one of the flea market tables.

R-390 HF receiver on offer in the flea-market area.

The flea market as usual was filled with a variety of stuff old and new. Another view of "stuff" can be seen in the photo with a lot of older HP and Boonton Electronics test gear and power meters. Parts, radios, and other assorted stuff abounded. Military Electronics was another cate-

More flea market stuff.

gory well represented as can be seen in another photo. This stuff dates back to WWII. One of the items was a push-button-tuned tank FM receiver that I actually had at one time. An interesting design and an early use of low band FM for military communications. I wish I had kept mine. I guess if I really wanted another one they are still available!

Military radios were well represented.

People watching

One thing that is amazing about the flea market area is people. You never know who you might run into or a new friend that might be made. During one of the frequent rain events I hovered under a tent with a chap who I got to talking to — a Canadian ham working in the broadcast business. I dropped a few names of people and companies I work with up there and a great conversation was had! Another encounter was a good friend originally from the NY area who lives out in Ohio — Gary Liebisch. Gary works for a company called **Nautel**, a broadcast transmitter manufacturer and good customer of my company **BDI**. I ran into another friend — Steve Uckerman who until recently was director of site engineering for Sirius/XM. You get the idea that this place attracts a lot of technical people, right?

Pulse purchases

So what did I buy? Not a whole lot, but a few things that came in handy. There was a guy with literally two barrels full of high quality silver-plated RF adapters. Two dollars apiece was the asking price. I think I bought about 20 bucks worth. This type of adapter is easily $20.00 or more new. Another little gem I picked up was a Simpson 467 digital multimeter — $20.00 for this item. It has a bit of nostalgia value for me. My first job over forty years ago was in a TV service shop in Rockland County. The owner bought one of these meters and just loved it. I always remember how the boss liked that little meter as it was a far better instrument than the Simpson 260 it replaced. I think of this guy often as he was the first one to take a chance on a young kid with little experience. I just had to have that meter!

Simpson 467 digital multimeter.

I did buy a new piece of test equipment made by a company called Rigol. If you attended the June PCARA meeting you would have seen it. It is an arbitrary waveform generator capable of pulse output — which is why I bought it. At BDI we were asked to develop a pulse-modulation-reading power meter for a company involved in radar work and this instrument helped us simulate a radar path by precisely setting a pulse width and repetition rate that could then be used to modulate a signal generator. Imagine, we simulated a radar transmitter with a Dayton purchase!

Country roads

One thing I need to mention is the journey out and back which accounts for more time than being at the event. Twenty two hours of driving to and from can be very monotonous without radio! For my trip I rented a Toyota Corolla and outfitted it with my trusty Kenwood TS-50 HF transceiver. I also brought my Icom IC-T70A dual band handheld for VHF/UHF coverage. The TS-50 was Velcroed to the dashboard — which proved to be a sturdy mount. So much so that I was a little nervous about removing the radio when it was time to return the car. I was afraid I wouldn't get it off the dashboard!

The antenna I used for HF was a magnetically mounted Hamstick for 40 meters. I brought along other Hamsticks for 10, 17 and 20 meters but ended up only using the 40 meter antenna. I worked quite a few stations on the way out and back and this was actually one of the most enjoyable parts of the trip. I didn't work as much VHF or UHF but the Icom came in handy to listen to the local 146.94 repeater used for talk-in. I also utilized the Icom to monitor NOAA Weather Radio transmissions as thunderstorms out there can be accompanied by tornadoes.

Welcome in

Every year there is some of the usual and some of the unusual. Guys walking around with towers on their heads, scooter collisions, etc. are "usual" events. An unusual and welcome sight was all the youngsters getting started in the hobby. There were many and that is a good and hopeful sign for the future.

If you have never been to Dayton Hamvention, I heartily endorse the idea of planning for a trip next year. Bring your dreams of building a better station, an umbrella and that green stuff!

- Bob, N2CBH

Peekskill / Cortlandt Amateur Radio Association

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Newsletter contributions are always very welcome!
Archive: http://home.lanline.com/~pcara/newslett.htm

PCARA Information

PCARA is a **Non-Profit Community Service Organization**. PCARA meetings take place the first Sunday of each month* at 3:00 p.m. in Dining Room B of NewYork-Presbyterian/Hudson Valley Hospital, Rt. 202, Cortlandt Manor, NY 10567. Drive round behind the main hospital building and enter from the rear (look for the oxygen tanks). Talk-in is available on the 146.67 repeater. *Apart from holidays and July/August break.

PCARA Repeaters

W2NYW: 146.67 MHz -0.6, PL 156.7Hz
KB2CQE: 449.925MHz -5.0, PL 179.9Hz
N2CBH: 448.725MHz -5.0, PL 107.2Hz

PCARA Calendar

(Summer break — no formal meetings in July, August.)
Sat July 14: PCARA Breakfast, Turco's, Yorktown Hgts. 9:00 a.m.
Sun Sept 9: PCARA Meeting, New York Presbyterian - Hudson Valley Hospital, 3:00 p.m.

Hamfests

Sun Jul 1: Metro 70 Hamfest, Knights of Columbus Mansion, 139 North Broadway, White Plains, NY. 8:00/9:00 a.m.
Sun Jul 15: Sussex County ARC Hamfest, Sussex Co Showgrounds, 37 Plains Rd, Augusta NJ. 8:00 a.m.
Sat Aug 18: Ramapo Mountain ARC 40th Hamfest, St. Catherine RC Church, 112 Erskine Rd., Ringwood NJ, 8:00 a.m.
Sun Aug 26: Candlewood ARA Western CT Hamfest, Edmond Town Hall, 45 Main St., Newtown CT. 8:00 a.m.

VE Test Sessions

Jul 12: WECA, Westchester Co Fire Trg Center, 4 Dana Rd., Valhalla, NY. 7:00 p.m. S. Rothman, (914) 949-1463.
Jul 16: Columbia Univ ARC, 531 Studebaker Bldg, 622 W 132nd St, New York. 6:30 pm, Alan Crosswell (212) 854-3754.
Jul 20: Orange County ARC, Munger Cottage, 183 Main Street, Cornwall NY. 6:00 p.m. Contact Joseph J. DeLorenzo (845) 534-3146.

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