PCARA Update

Volume 21, Issue 5 Peekskill/Cortlandt Amateur Radio Association Inc. May 2020

Pet sounds

Due to the state of affairs resulting from the current COVID-19 crisis, there currently aren't too many things going on. The number of activities canceled outnumber those taking place. Our monthly meetings have been replaced by virtual on-air meetings, PCARA Breakfasts postponed, the May 9th PCARA Spring Foxhunt has been nixed, and regional Hamfests (OCARC Spring Hamfest) have been rescheduled. Most V.E. Test Sessions have been canceled as well.

"Copper" guards the KB2CQE Go-Box during a Roundtable Net. [KB2CQE pic.]

So, what **do** we have going on? Well, we have the nightly **Roundtable Nets**, evenings at 7:30 p.m. on the 146.670 MHz repeater. The nets have been very well attended, with even yours truly breaking out the **Go-Box** to join in a few times!

The Stay-at-Home PCARA 20th Anniversary Special Event was held on Saturday April 18, 2020 from 10:00 a.m. to 4:00 p.m. local time, on 20 and 40 meters. Thanks to the efforts of Joe WA2MCR, Bob N2CBH, Charles N2SO, Karl N2KZ, Lou KD2ITZ and David KD2EVI more than 180 QSOs (CW and voice) were made. A beautiful Special Event Station Certificate was designed by Malcolm NM9J which included some early history from PCARA's beginnings. Thanks to all who helped make the event such a great success. Even through tough times, you made it work! Please look for more information and history about PCARA's beginnings in this month's newsletter.

Our next monthly "on air" meeting is scheduled for 3:00 p.m. on Sunday May 3, 2020 on the 146.670 MHz W2NYW repeater. We will use the same basic format as last month with reports of officers, directors, and committees, followed by Field Day arrangements, unfinished business, new business, open forum, and then close the meeting returning the repeater to normal amateur use. Hope to hear you there. Please join us!

"Mr. Cookies" was the unlicensed assistant while Lou KD2ITZ operated 40 CW in the 20th anniversary celebrations on April 18th. [KD2ITZ pic.]

Until we meet again please be careful and stay safe. Remember that we're all in this together and together we'll prevail.

- 73 de Greg, KB2CQE

Contents

PCARA Board

From Y2K to SARS-CoV-2

Peekskill / Cortlandt Amateur Radio Association had its beginnings in the early 1990s when Greg KB2CQE installed an Icom UHF repeater on a hilltop site to cover the City of Peekskill and surrounding area. On Labor Day weekend 1999, Bob N2CBH installed a 2 meter repeater on 146.67 MHz at the same site with assistance from KB2CQE and WA2ZOA. Coverage of the 2 meter repeater was more extensive than the 449.925 machine, reaching across the River Hudson and as far south as Long Island, NY.

With arrival of the 2 meter repeater, Peekskill / Cortlandt Amateur Radio Association (PCARA) was established to promote amateur radio activity in the City of Peekskill and surrounding Town of Cortlandt. Meetings began at the Mohegan Diner then moved to Dining Room B at Hudson Valley Hospital.

PCARA was incorporated in the State of New York as a non-profit community service organization on April 19, 2000. Some of the activities undertaken in the Association's first year included establishment of a web-site, ARRL Affiliation, introduction of repeater auto-patch, club call sign, participation in Kids' Day, Jamboree on the Air, and Boy Scout Trekoree. Discussions proceeded with Candlewood ARA as they were sharing the two meter repeater frequency at the time. You can read more about the beginnings of PCARA in early editions of the *PCARA Update* newsletter edited by Joe, KC2DWP, later KR2V.

PCARA's founding officers Bob N2CBH, Joe KR2V and Greg KB2CQE operate during an early Special Event Station at Blue Mountain Middle School.

Twenty years later, PCARA is still going strong, with activities continuing — despite the novel coronavirus SARS-CoV-2 and the disease it causes, COVID-19.

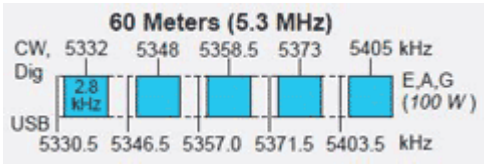
- NM9J

Adventures in DXing

- N2KZ

Excellent Experiment

Great things come to those who ponder and procrastinate and plot and plan! I first launched onto **60 meters** using the only antenna I had that would load up on the band: my trusty 40 meter dipole.



The performance was rather pathetic. Even on a good day, my VSWR was between 4 and 5 to one. Ouch! Fearing damage to my 100 watt transceiver, I operated at 25 watts or less. Still, the on-air results were impressive. My best QSO was with Henry, OU5U in Vemmelev, Denmark.

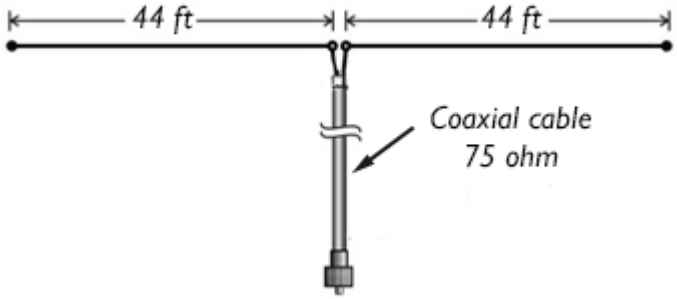
Henry OU5U.

Now I was filled with plenty of incentive to improve. I gathered all the necessary parts and purchased a 100 foot roll of #10 wire ready to be cut to the required lengths. Sitting in my trunk was another dumpster dive scrap of discarded video coaxial cable. After some searching through my house, I recovered some beautiful unused PL-259 connectors left over from a Radio Shack distress sale a few years ago. I even found a couple of UG-176 reducers to perfectly match my cable to the PL-259s. I was all set to make a fine dipole similar to so many others that had brought me joy in the past.

FCC regulations suggest that the maximum field strength for 60 meter amateur operations should not exceed the equivalent of 100 watts presented to a standard dipole. I considered my options. What might be a good antenna for this unusual band? A dipole? As you would imagine, the signal propagation found on 60 meters is a nice blend of what you might expect on 80 and 40 meters. My initial intention was to fly a very sturdy 60 meter dipole up as high as I possibly could. It was a perfect and logical solution!

My biggest challenge was a physical one. Where would I hang the antenna outdoors? Being a QRP aficionado, I have always enjoyed the simplicity and efficiency of a no-compromise and carefully cut-to-frequency dipole. In my eyes and experience, no baluns, no loading coils and no fancy feedlines are necessary. The coax directly connects to the dipole wire elements with the coax center conductor to one and

unbraided wire to the other. Trimmed precisely to your operating frequency, it creates a nearly no-loss sky-hook! Poetry!



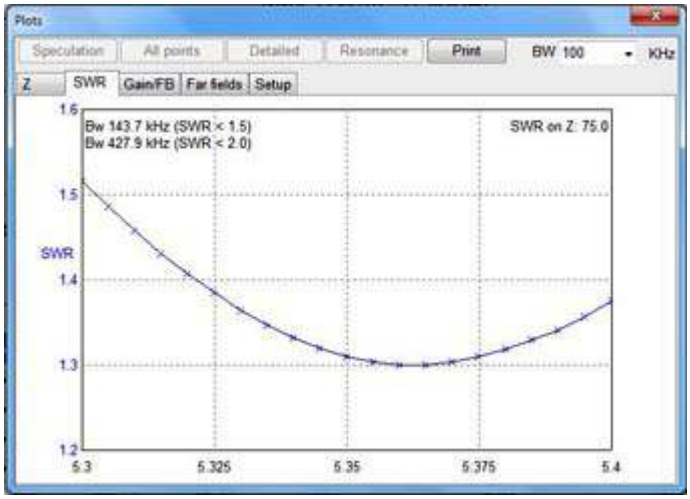
Simple half-wave dipole for 60 meters, 5.3 - 5.4 MHz.

Over many years I have created quite an antenna farm at my QTH: Five dipoles are already in the air covering the most popular bands for CW operation: 80, 40, 30, 20 and 10 meters. The 40 meter dipole is also useful on 15 meters. Lots of wire is already floating from the trees to the roof and beyond. Could I squeeze just one more antenna out there?

Multiple wire dipoles were already supported from the chimney stack at N2KZ.

At nearly 90 feet across, a full-sized 60 meter dipole is quite an elephant to hide in the jungle! I spent a lot of time looking up into my trees dreaming of a site for new construction. The more I thought, the more I discouraged myself! Procrastination went on for a long time! Unfettered in my quest, I consulted my good friend and wizard, Malcolm, NM9J, for guidance, encouragement and calculations. No matter how we tried to sway the antenna design numbers with one scenario or another, each antenna leg always needed to be just shy of 44 feet long.

Time passed. Maybe it was the weather or the coming of spring foliage, but something de-tuned my 40 meter dipole to the point that it would no longer tune to 60 meters. I found that antenna interaction might have something to do with it. My Yaesu transceiver has two coaxial inputs. Depending on which two antennas I attached to the rig, I was sometimes able to persuade almost resonance if luck was with me. This



SWR predicted by MMANA-GAL software for a dipole 87.6 ft long, 33 feet above ground, resonant at 5.36 MHz.

was not a long-term plan!

Daunted and discouraged on a dreary overcast day, I had to find a way back to continue my adventures on 60 meters. With a lot of time available at home and few distractions, I decided to create a test dipole just to verify the design. I began with the remainder of a discarded 15 meter dipole. A short 25 foot piece of simple RG-58 coax was still rolled up outside my shack window waiting for new purpose. *Carpe diem!*

It wasn't hard to find some wire to create the dipole elements. I started by measuring out two lengths of about 45 feet inside my house on this rainy day. Three pieces of scrap rope completed my requirements. The rain outside subsided and I began my build.

With only 25 feet or so of coaxial cable, the placement of the antenna was quite limited. I also had to consider that I required at least a little height so that I could mow the lawn with my tractor without too many contortions. I wanted to avoid collisions with passing deer at all costs! I also needed a solid point of flight where the antenna would not be pulling directly on the coax. A nearby hook used to drape the feedline from my 20 meter dipole did the trick. Now the antenna center was higher and away.

Armed with a wire stripper, a wire cutter and a roll of black electrical tape, I forged ahead seeking results. I connected the wire dipole elements to the coaxial cable by simply twisting the wires together and then folding them over to create at least a little physical strength.

I wrapped both dipole element-to-coax connections with electrical tape and proceeded to find points of support for the ends of the dipole. I compromised using a tree branch just over my head at one end and a country fence post at the other. I pulled up the center of the dipole using a piece of rope cast over a very convenient overhead tree branch and then created more support by wrapping the wires with Ty-Wraps® to the

center rope so my jury rig would not immediately pull apart.

My hopes (and my antenna) were not high! Looking at a newly formed dipole up only about seven feet, I expected very, very little. As expected, the antenna elements were a little long. A couple of trims really did the trick. I found a sweet spot where my match was about 1.3:1. We had only just begun. I later made the effort and actually soldered the connections and re-wrapped them with electrical tape. Now my SWR was down to 1.2 to 1 — quite acceptable, if you ask me! The final antenna legs measured 41 ft 11 in and might be a little bit short. The high end of 60 meters (5405 kHz) had a very slightly better match than the lower end (5332 kHz.)

New NVIS antenna for 5.3 MHz at Karl's location.

I finished my construction just before the rain returned. The time had come to see if this bird could actually fly. As you might expect, 60 meters was rather quiet on a weekday afternoon. I resorted to listening to myself using my laptop computer to connect with several remote SDR receivers. I just about fell off my chair when I heard my strong signals as received in Milford, Pennsylvania (near Port Jervis, New York) and Highland Falls, New York (near West Point.)

I dared to dream and looked further to another SDR outside of Ottawa, Ontario. My signals were still solid! SDRs in Richmond, Virginia and Lima, Ohio still could resolve my signal but predictably weaker. Why was this antenna working so well?

It wasn't until three nights later that I fully appreciated what I had created. I was tuned to 60 meter USB channel 2 — 5346.5 MHz — and heard a pack of stations off in the distance all with '4'-area callsigns. Far away, I say! I waited for a break in the conversation and threw out my call sign. Everyone at the other end stopped. Mike, W4MAF in Richmond, called back and wondered who I was. I replied that I was experimenting with a new antenna and my QTH was 45 miles north of New York City. Mike's response: 'New York City? Really? You have some signal!'

This began an hour-long roundtable discussion bringing in a group of other friends from Virginia to the frequency so they all could work 'the guy in New York.' I felt like a celebrity! Edward, N2WXN from Middletown, New York also jumped in and then a good friend from Michigan, Tom, N8ERV (one of the original Old Goats) gave me a call to inflate my ego further. Echoing everyone else, Tom was wondering how I could put a signal like mine all the way into Yale, Michigan. I was wondering, too. At the very end of the get-together, I worked George, N2DCB, using a 20 watt portable rig down in Brooklyn. Another nice signal report was recorded in my log. It was quite a night!

I still didn't fully appreciate what I had created, but I could see that the results were remarkable. I managed to crowbar one more antenna onto my property and get great results, to boot! I began research to unveil how this miracle had materialized.

Near Vertical - Near Miracle

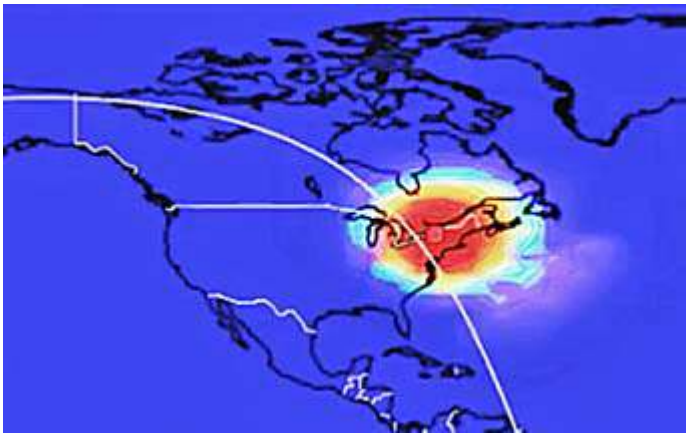
With no intention or direction, I had stumbled upon something 5 megahertz operators have known for decades. Unknowingly, I actually constructed a **N**ear **V**ertical **I**ncidence **S**kywave (NVIS) antenna to perfect specification. After you are introduced to this design, you'll see how many other people and organizations have also found this fascinating. It really is a perfect antenna for 60 meter operations.

Here's the theory in a nutshell: The NVIS dipole or inverted-V needs to sit very close to the ground. Opinions on the best 'sweet spot' vary from 6 feet to about 15 feet above dirt. Some have found that laying down a counterpoise wire or wire grid directly on the ground underneath the dipole actually increases the antenna's gain.

The low position of the antenna forces your signal to focus straight up into the air. The curvature of the Earth and the irregular nature of the ionosphere creates slight angles of dispersion fanning your signals out preventing a useless exact 180 degree bounce directly back to your QTH. It is similar to how a lamp's light disperses when you add a lampshade. Expect a signal range out to about 600 or more miles from a competent NVIS installation.

For DX use, NVIS antennas certainly would not be optimal. DXers want to send their signals just as far away as possible using focused gain antenna designs with low-to-the-horizon radiation. Unfortunately, these low angles of take-off from DX antennas create a several hundred mile donut around the originating QTH where your signals won't be heard. How can you reach the first 600 miles?

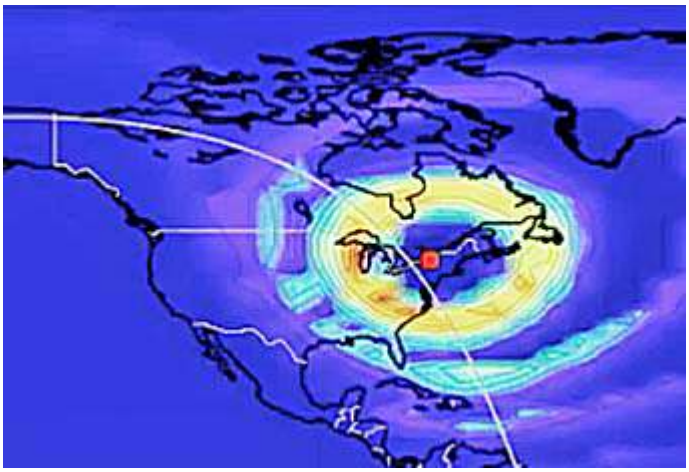
60 meters has a personality all its own. The majority of signals heard here are from North America or surrounds. A 600 mile range would place your signals into Central Michigan, Indianapolis, Cincinnati, Charlotte,



Signal pattern from an NVIS antenna reaches out to about 600 miles. *[Pics: 'Military HF Radio - lesson 3' by Matthew KF4WZB, https://youtu.be/PBQ0c1_3Ugw.]*

Atlanta and almost to Nashville. Northern Ontario, Quebec and Atlantic Canada should all be within reach.

I am quickly discovering that this 600 mile limit is theoretical. With a little skill and persistence, I am now capturing stations into the amateur radio 5, 7 and 0 call areas. California is my next challenge! Those familiar with 5 MHz propagation have found that NVIS daytime operation thrives between 8 MHz and 5 MHz. Night coverage is best from 1.8 MHz to 5 MHz. 60 meters is perfectly positioned for 24 hour a day continuity!



Propagation pattern for a normal HF antenna, optimized for low-angle radiation, leaves a ***skip zone****, not reached by any sky wave.*

More Miracles

Just last night, I enjoyed another thrill on 60 meters. Tuned to USB channel one — 5330.5 kHz — I heard two stations off in the distance. One station had a distinct British accent. After adjusting all the DSP filters to be found on my Yaesu FT-dx1200, I could hear his pleas of "CQ DX." My rig's filtering was brilliant, pulling out their distant signals with a dash of DSP echo (producing thrilling theatrical effect!) I called back with all my might... and they actually heard me!

After a couple of 'over... over' and 'again!... again!' shouts, their callsigns were in my log. It was Chris, VE5CJB in Lloydminster, Saskatchewan and Dave, VA6DJ in Lloydminster, Alberta. Two provinces at once! It seems the town of Lloydminster sits right on the provincial border north of Calgary and east of Edmonton. At approximately 2000 miles from my QTH, I have great new hope for my NVIS dipole as a DX antenna. What a night!

Chris VE5JCB.

Memories of my recent visit to Yosemite National Park in California came to mind while researching NVIS antennas. Yosemite is hard to penetrate with any kind of RF signal because you are constantly surrounded by rock. Ah, but there is one direction that is unencumbered. Look up to the skies! Now I know an antenna that could get a signal out of there with ease. No problem. Use NVIS!

You Decide

Experimenting with NVIS antennas opens a whole new world of adventure for you. Low dipoles are very easy to construct and install. You can mount them without even climbing a ladder. NVIS offers communication with areas you may not have been able to reach before. Low power is no problem: NVIS is known for very low noise levels and infrequent QSB fading. You'll also enjoy having a really nice match with your coaxial cable. At very low heights, dipoles have been known to show impedances at nearly 50 ohms. No tuners, baluns or matchboxes needed.

On 60 Meters, there is always a lot of FT-8 and other digital traffic on Channel 3 — 5358.5 MHz — that I bet you haven't worked yet, especially on this band. Don't forget: NVIS antennas can be constructed for 80 meters and 40 meters too. Just think how a NVIS antenna could increase your contest count! Adventure is out there waiting for you. Experiment with a NVIS antenna. You might discover many a happy surprise!

Until next month, 73 es dit dit de N2KZ 'The Old Goat.'

Mick LB6BG.

P.S. More 60 meter madness.... I just worked VO1NA Joe in Torbay, Newfoundland and LB6BG Mick in Stavanger, Norway! - N2KZ.

ACME Give Back Where it Counts

Reusable Bag Program

PCARA has been selected to be a part of the ACME **Give Back Where it Counts** Reusable Bag Program. The program facilitates contributions to the local community while supporting the environment. For the month of May, each time a $3.00 reusable bag is purchased at the ACME store located in the Cortlandt Town Center (3105 East Main Street, Mohegan Lake), $1.00 will be donated to PCARA, unless otherwise directed by the customer. Each bag has an attached **Giving Tag** that allows the customer to select a nonprofit to receive a $1.00 donation, by submitting a code on the web. If the request is not made within seven days of purchase, the contribution goes to PCARA by default. This is a great way to raise awareness, support the environment, and fundraise for our club. To learn more about this program, please visit http://acme.bags4mycause.com . PCARA is grateful to ACME for this exciting opportunity to be a Reusable Bag Program beneficiary.

Acme Give Back Where it Counts bag.

ACME Giving Tag.

- Lou, KD2ITZ

A Whole New World

– N2KZ

The world has changed so radically in the last month. Suddenly, we are all confined to home — or — we are bravely continuing our routine to complete essential tasks. City streets are empty of vehicles and people. Skies are clear of pollution. Immediate families are reuniting in ways previously only seen during summer vacations or reunions.

Some of us have been furloughed from our usual routines and professions. We worry about where we will next see monetary income and what our savings and investments have become. To avoid looming infection, we have planned new strategies to acquire food and needed supplies. Negotiating deliveries has become a matter of survival. What is going on?

Spending all your time at home changes your life. Cars rarely leave your driveway. Even if you are still going to work, there is no traffic to battle on the highways and the skies above are a shade of blue you have never seen before. Dress casual is the new norm. Your laptop and cell phone are always on! Ah, if you are a DXer, there are other things that are now always on!

To retain your sanity, it is best to find yourself a new routine. As enticing as it might be, it is probably a good idea not to stay in your pajamas or sweats all day! While you're at it, it would behoove you to bathe every day, too! Don't get lazy! Having three meals a day, at a regular interval, may improve your chances of survival, as well. One other thing: Will I be able to get a haircut ever again? The troll you see in your bathroom mirror is really you. Oh, no!

The troll in the mirror?
[Jim Dale, 'Carry on Screaming'].

Being in self-quarantine has its challenges! With no place to go, I find myself never taking my reading glasses off. The farthest thing I can really see is usually no more than about 25 feet way, so why bother! I exercise my cars by driving them around the block once a week. Friends who lease their cars are loving the fact that they have stopped putting *any* mileage on their vehicles. Less than 12,000 miles a year? No problem!

Procurement of food items brings more challenges. *With an abundance of caution*, my family has been using alternative sources to purchase groceries. We discovered a food service distributor that now offers retail sales and a local dairy to provide milk, eggs and orange juice. As a supplement, we also resort to Internet

sources like Target and Walmart. A sometimes-harsh lesson: You can't always get what you want!

The importance of food has gained the spotlight for so many of us. When opening your refrigerator doors, you no longer just 'grab 'n' go.' You consider how many eggs remain, how much orange juice is left and who else in your family may be counting on your possible choices. Common items, like bananas, have increased in value and now become coveted treats instead of a regular routine to be counted upon. The Walkers shortbread bakery in Scotland is closed! To this Scot, this is a crisis!

Walker's Scottie Dogs — pure butter shortbread in a dog-shaped cookie tin.

Cleaning around the kitchen has its own rewards. Aha! An ancient can of peeled tomatoes with an expiration date of 2012! A packet of oatmeal, partially eaten and folded over from another era now forgotten. Strange objects that no longer have any identity at all. A small gooey pond of something that resembles molasses or sauce that defies attack by scrubby sponge and cleaner spray. Is any day better than this?

The most coveted items missing in action are toilet paper, paper towels and disinfection wipes. As silly as it sounds, each TP square now has enormous value! Now that we are a few weeks into the full-blown COVID-19 crisis, these items are carefully rationed in most stores. One roll or maybe two are allowed per customer. No more and often less! Completely empty and ransacked store shelves are a sign of the times. We are washing and cleaning and then washing again. Staying inside in quarantine is 'the new normal.' How things have changed in a very short time!

Revelations Resound!

If you are in full furlough, you may feel like you have lost everything. Actually, what you have gained is a dress rehearsal for retirement. How many times have you wished you were home when some once-in-a-life-time event was being watched or heard by many others? Staying up late or getting up early to work the American West Coast or deep into the Pacific Rim is now no effort and no problem. Endless waiting for international analog TV E-skip rewards the very patient DXer! (Would you believe there was a nice VHF E-skip opening on April 15th?) Participating in every net conceivable and watching DX spotting sites all day is certainly within reach. *Always look at the bright side of life!*

I find myself rediscovering forgotten items of long ago. Deemed essential by my wife, I am cleaning out our office, our basement and our garage. Behold! I can now see the floor in our office! "Honey, did you know the office is carpeted? It's blue!"

New discoveries bring motivation and even joy to an otherwise hum-drum day. How many times recently have I exclaimed "I remember that", "That's where that cable went!" or "Wow! The power supply for my old router!" You always wanted to be an archeologist! Here's your chance!

Another great find: The 1983 vintage Sony TV in my office still works! I had a couple of left-over video/audio baseband to RF channel 3 modulators lying around... and now they have a purpose! I hooked up a Roku box and an old DVD player and now I am all set. It's a Sony Trinitron standard definition 4 × 3 with a 13 inch SD screen and a remote control. (Wow!)

Office TV is Sony Trinitron with Roku box and DVD player.

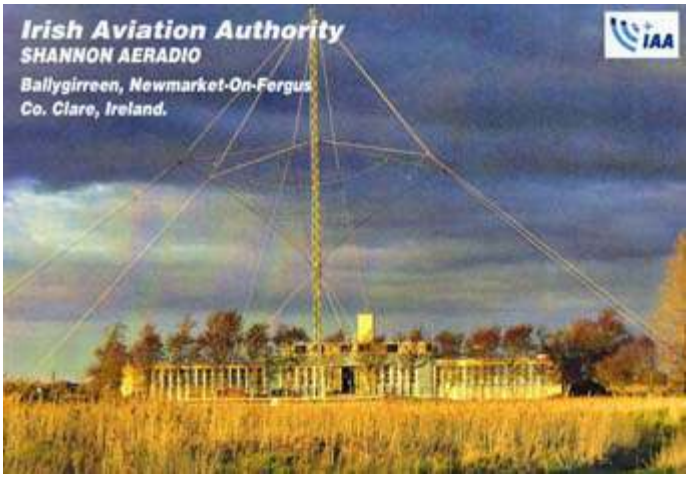
My household radios and televisions are getting a lot of attention. Suddenly, I have almost endless time to discover new features hidden within my complicated Yaesu transceiver. The hundreds of stations available during twice-daily grey-line skip periods at dawn and dusk are now filling my logbook. Newfound bands are becoming good friends. (Have you tried the channelized 60-meter amateur radio band lately?) The possibilities are endless!

The RF being heard in our house is not limited to external signals. During our quarantine, my wife works from home upstairs. I can be found on the main floor, the basement or even out in our garden. We now communicate with **Family Radio Service** (FRS) hand-held walkie-talkies all day long. We are not alone! If you scan these channels around 462 and 467 MHz you'll hear many other families using

these frequencies and kids yelling and screaming to entertain themselves. Chaos fills the airwaves!

Odd curiosities are now recognized and analyzed. Can someone please decipher for me the mysteries of **4XZ** in CW on 6607 kHz? The Israeli Defense Force knows! Broadcasting from somewhere near Haifa, you'll hear them forever testing sending 'VVV DE 4XZ' with strong authoritative signals at night into North America. You may catch their cryptic five-letter word group missives (example: LMHTH DYUSR NHQME LMXYK TOWTM RPEFI) but keep in mind that even the coded word groups require careful handling. They follow the Hebrew reading standard of right to left progression instead of the left to right progression we consider standard. What is it all about? I don't know. Do you? Have a listen for yourself: Many airchecks of 4XZ can be found on YouTube and at: https://www.numbersstations.com/military/israel/4xz.

I have also become reacquainted with the VOLMET upper sideband weather stations I often use as propagation beacons. You'll hear a woman's voice emitting from Shannon, Ireland on 5505 kHz and 8957 kHz and a male voice from its 'across the pond' twin in Gander, Newfoundland on 6604 kHz and 10051 kHz. My local New York Radio used to share the same frequency set as Gander but the transmitters in New York are now cold, dark and permanently retired. Don't spend time trying to listen to VHF aircraft frequencies above 108 MHz. There are no planes in the air! Come back at a much later date.



*The Shannon Aeradio station, also known as **Shanwick**, is located north of Shannon Airport in County Clare, Ireland. Oceanic Air Traffic Control is located at Prestwick in Scotland, hence the name Shanwick.*

Encyclopedic listings of all sorts of eccentric utility stations can be found at: http://dxinfocentre.com. The captain of this ship is William Hepburn, an ace 'DC to light' DXer who also offers a brief fascinating blog: http://dxinfocentre.blogspot.com. His frequency lists are quite complete and a fine reference to all. Bill also provides links to tropospheric skip forecast charts and real-time DX maps showing worldwide amateur radio QSOs in progress from around the world. Hearty applause is due here. DX Info Centre needs to be on every DXer's computer bookmark list. What a wonderful reference site and DX aid!

Another old friend is the last survivor of what used to be a bevy of Canadian simulcasters that used to fill the 49 meter broadcast band. CFRX (CFRB 1010) Toronto still holds onto 6070 kHz with a news / talk format. It now broadcasts with about 900 watts with an omni-directional pattern intended primarily for Canadians abroad. Back in the 1960s I best remember CFRX (CFCF) Montreal 6005 kHz and 6130 CHNX (CHNS) Halifax along with CBC Radio One relays on 6160 from Vancouver, BC and St. John's, NL.

QSL card from Canadian broadcaster CFRX/CFRB.

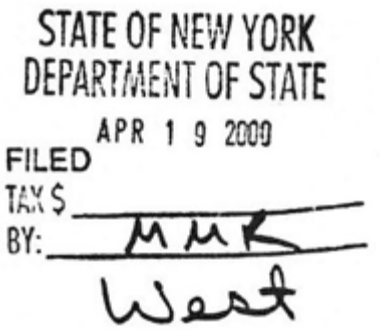
All this and so much more to remember from days gone by. Where is that 1974 edition of *The World Radio and TV Handbook* I used to have? Trying to enjoy this odd adventure in time, I remain an Old Goat...

- Karl N2KZ

Special Event Station –

April 18

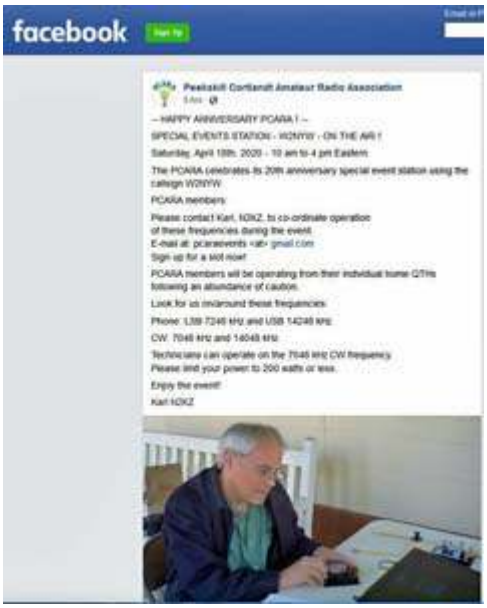
This year — 2020 — is the **20th Anniversary** of the incorporation of Peekskill/Cortlandt Amateur Radio Association. Our original Certificate of Incorporation is stamped "April 19 2000" by the State of New York, Department of State.


STATE OF NEW YORK
DEPARTMENT OF STATE
APR 19 2000
FILED
TAX $
BY: MMK
West

Part of the planning for PCARA's 20th Anniversary was to be a **Special Event Station** during April 2020 — with members joining together at a suitable location to erect antennas, set-up a temporary station and operate for several hours, just as in previous Special Events.

Unfortunately, the awful effects of the novel coronavirus SARS-CoV-2 and the disease it causes, COVID-19 put a stop to all these plans. The "New York State on PAUSE" Executive Order of March 20 closed all non-essential businesses and canceled or postponed non-essential gatherings of individuals of any size for any reason. When in public, individuals had to practice social distancing of at least six feet from others. The stay-at-home order was recently extended to at least May 15.

As an alternative to getting together to celebrate the 20th anniversary, a suggestion was made to organize a **Special Event Station** with members practicing **social distancing** by operating from their own home stations. It was too late to request a one-by-one call and seek publicity in *QST*… but there were alternatives. Karl N2KZ publicized the event on Facebook with a large number of hits (943!) and prepared an announcement for the Special Event section of ARRL's web site.


facebook

Peekskill Cortlandt Amateur Radio Association

– HAPPY ANNIVERSARY PCARA ! –

SPECIAL EVENTS STATION - W2NYW - ON THE AIR !

Saturday, April 18th, 2020 - 10 am to 4 pm Eastern

The PCARA celebrates its 20th anniversary special event station using the callsign W2NYW

PCARA members

Please contact Karl, N2KZ, to co-ordinate operation of these frequencies during the event.

E-mail at: pcaraevents <at> gmail.com

Sign up for a slot now!

PCARA members will be operating from their individual home QTHs following an abundance of caution.

Look for us on/around these frequencies:

Phone: LSB 7245 kHz and USB 14248 kHz

CW: 7048 kHz and 14048 kHz

Technicians can operate on the 7046 kHz CW frequency.

Please limit your power to 200 watts or less.

Enjoy the event!

Karl N2KZ

Karl publicized the Special Event Station with announcements on PCARA's Facebook page.

04/18/2020 | Peekskill Cortlandt Amateur Radio Association (PCARA) 20th Anniversary Celebration

Apr 18, 1400Z-2000Z, W2NYW, Crompond, NY. Peekskill Cortlandt Amateur Radio Association (PCARA). 7.235 14.235 7.048 14.048. Certificate & QSL. PCARA, P.O. Box 146, Crompond, NY 10517. Certificate and QSL available by mail or e-mail. Please provide 9x12 envelope with sufficient postage for unfolded certificate. mail@pcara.org

Special Event announcement from the ARRL web site.

Club call sign trustee Bob N2CBH gave his approval for the use of **W2NYW** by PCARA members. Operation would be on 40 meters and 20 meters using SSB and CW. Karl coordinated allocation of the operating slots by time, mode and band. He also distributed an information sheet to operators.

Big day

Saturday April 18 began on a cold spring morning. The outdoor temperature of 39°F would have been quite chilly for hauling up antennas at a school or library — even if one had been available. Your editor was monitoring the 40 meter frequency of 7235 kHz LSB where David KD2EVI was scheduled to begin operations at 10:00 a.m. EDT. David was not immediately heard and instead Bob N2CBH took the slot. Soon Bob's log was filling with stations from North Carolina, Michigan and Virginia. Bob made a total of **40** contacts on 40 meters.

Meanwhile Joe WA2MCR had begun operations at 10:00 a.m. on 20 meter phone, Karl N2KZ was on 20 meter CW and Charles N2SO was handling calls on 40 meter CW.

Charles N2SO operating during the Special Event. [N2SO pic.]

Joe made a total of **88** contacts on 20 meter SSB using his ZS6BKW multiband dipole antenna, with many QSOs to Florida. Charles N2SO made a total of **32** QSOs with his Elecraft line-up on 40 meter CW and 20 meter CW including DX to England, Cyprus, Spain and Cuba.

Karl N2KZ was using a straight key, but he also had 'canned' messages describing the Special Event stored into CW text memories of his Yaesu FTDX-1200 transceiver.

Lou KD2ITZ was assisted on 40 meter CW by a furry tone generator with keen hearing named "Mr. Cookies". Lou was exchanging SKCC (Straight Key Century Club) numbers and spotting W2NYW operations on DX clusters.

40 meters was relatively tranquil at the beginning of operations on Saturday morning, but there was additional activity to come. Ten other Special Event stations were listed on ARRL's database including "Safe Return of Apollo 13 – 50th Anniversary" and "World Amateur Radio Day 2020". ARRL's Contest Corral listed ten contests for April 18, including the Michigan QSO Party and Ontario QSO Party, starting at 12 noon and 2:00 p.m. Eastern respectively.

The N2KZ station during PCARA's April 18th Special Event. New 60 meter NVIS antenna is just visible through the window. [N2KZ pic.]

Your editor found the designated 40 meter frequency of 7235 kHz already in use at 1:00 p.m. on Saturday and had to slide down to 7.2325 MHz, followed by 7.238. Calls were received from several club members including N2EAB and N2HTT.

Thanks to all operators who sent their logs to NM9J. Operators included Joe WA2MCR, Charles N2SO, Bob N2CBH, Karl N2KZ, Lou KD2ITZ, David KD2EVI and Jon N2NBR. Here is a list showing the number of contacts achieved.

Operator	Band(s)	Contacts
Joe WA2MCR	20m SSB	88
Bob N2CBH	40m SSB	40
Charles N2SO	20m CW, 40m CW	32
Karl N2KZ	40m CW, 10m SSB	8
Lou KD2ITZ	40m CW	7
Malcolm NM9J	40m SSB, 40m CW	7
David KD2EVI	40m SSB	5

Requests for commemorative certificates and QSL cards have already started to arrive by e-mail. The certificate and QSL are now available in electronic format (PDF) for home printing or as a printed document. Contacts desiring a paper copy are asked to send a 9" × 12" SASE to: PCARA, PO Box 146, Crompond, NY 10517. Readers who worked W2NYW and desire an electronic certificate may contact NM9J by e-mail.


Peekskill/Cortlandt Amateur Radio Association

Hereby certifies that
Amateur Radio Operator
Stan WA2NRV
has successfully contacted
Special Event Station
W2NYW on April 18th 2020.

PCARA's stay-at-home Special Event Station can be judged a success, with more than **180** contacts who are now well aware of our 20th anniversary.

- NM9J

NOAA Weather Radio

On March 18th, the National Weather Service in New York made the following announcement.

Public Information Statement
National Weather Service New York NY
518 pm EDT Wed Mar 18 2020

...The NOAA Weather Radio NYC KWO-35 installation and testing continues...

Work continues on NOAA weather radio station KWO-35, operating on a frequency of 162.550 MHz from the Empire State Building in New York City.

The transmitter is now operating at full power and is undergoing final testing. Once these tests are concluded and deemed successful, further information on test completion will be provided through a public information statement. We continue to get closer to NOAA weather radio station KWO-35 being able to return to full operation at its new location.

This followed an earlier announcement on March 5th, 2020 that KWO35 was operating at reduced power on the first of two new antennas at the Empire State Building. Full power for KWO35 is 750 watts.

After being mostly off-air or inaudible in our area since November 2017, KWO35 is back to its previous strength. It's time to re-tune your weather radio to 162.55 MHz, make sure the receiver's SAME* code is set to 036119 for Westchester (if it is SAME-enabled) and stand-by for the next test transmission at ~11:00 a.m. on Wednesdays.

***SAME** = Specific Area Message Encoding.

Overhead power upgrade

Significant work has been taking place on the Peekskill/Cortlandt border to upgrade the electrical power distribution infrastructure. Several members (including your editor) live near these developments and have been keeping an eye on the activity.

Con Edison's contractor **Northline Utilities LLC**, headquartered at Ausable Forks, NY is a provider of construction services to electrical utilities in the northeast. They specialize in safely rewiring and rebuilding existing *energized* transmission lines at any voltage, without interrupting power.

Northline Utilities has been upgrading Con Edison's poles and wiring along Conklin Avenue — on the border between Peekskill and Cortlandt — then eastward along Route 202 toward Crompond Plaza.

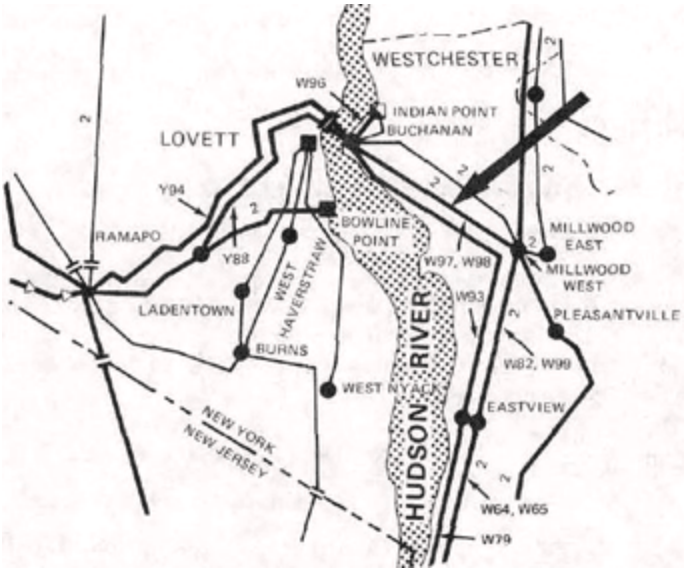
Transmission system

Con Edison's power distribution system has been discussed in these pages before — See "Power Trip", *PCARA Update* December 2012, pp 5-7, published in the wake of Tropical Storm Sandy.

Power from generating stations is supplied to Con Edison over high voltage transmission lines supported on tall metal towers at voltages of 138 kV and 345 kV AC. This high voltage is stepped down to medium voltage via transformers located at **transmission substations**. The substation at Buchanan is connected to nearby Indian Point nuclear generating stations and to the Charles Point waste-to-energy facility. A pair of 450 ft towers at Verplanck and Tomkins Cove alongside the Hudson provide additional connection to power sources west of the river. (Indian Point Unit 2 is scheduled to shut down on Thursday April 30, 2020. Indian Point Unit 3 continues until April 2021.)

Con Edison transmission substation at Buchanan, NY.

The transmission substation at Millwood is connected to power sources in upstate New York and Canada through a series of tall towers and high voltage cables which cross Rt 202 near Mildred E. Strang Middle School in Yorktown. Buchanan and Millwood are interconnected — the high voltage lines cross the Taconic State Parkway south of Pines Bridge Road, Exit 9. There are additional HV connections to the Con Edison substation at Eastview.



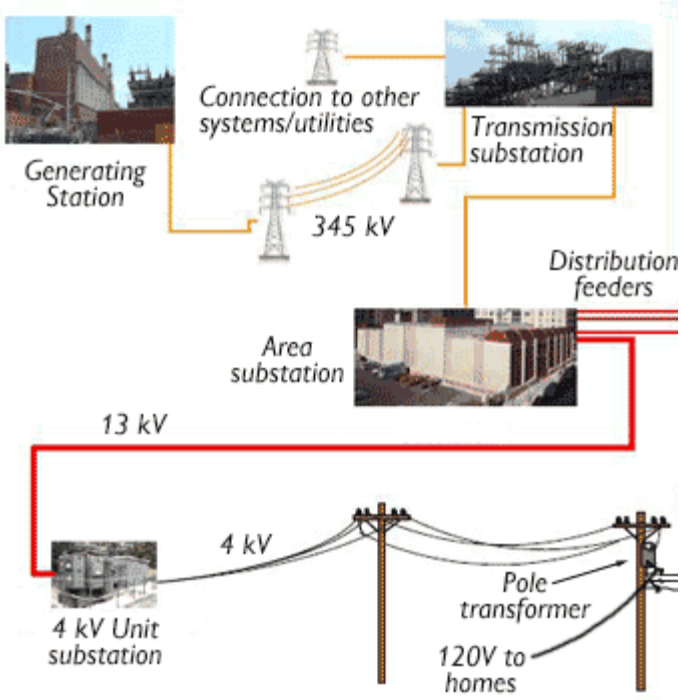
High voltage lines as described in DOE report "The Con Edison Power Failure of July 13 and 14, 1977". Arrow shows where lightning struck the 345 kV lines from Buchanan to Millwood, initiating the outage.

From the transmission and area substations, medium-voltage primary feeders distribute power to the local area. In Westchester County, most distribution takes place *overhead* and Con Edison sends its three-phase 13.8 kV supply from area substations along major routes supported on familiar wooden utility poles. The distribution feeders are located *below* Con Edison's primary and secondary conductors at the top of the pole, but above the Telephone Company and Cable TV communication wires. The 13.8 kV supply is reduced to 4.33 kV at **unit substations**. These are mostly tucked away behind shrubbery or sometimes underground — an example is located near Cortlandt Town Hall at the corner of Oregon Road and Heady Street.

From the unit substation the 4 kV three-phase supply is distributed on three live wires supported at the top of utility poles along with a fourth neutral conductor which is usually below. For side streets — which only need a single phase supply — one of three live conductors is extended via fusible link down the street at the top of more utility poles, along with a neutral conductor.

The final step in the journey is to reduce the 4 kV supply to 120 volt single phase for households or

208 volt 3-phase for industrial premises. This is accomplished by pole-mounted distribution transformers known as a "pole pigs". A single-phase pole transformer can feed 120-0-120 volts AC to 10-20 households using secondary wires suspended between adjacent poles and drop cables from pole to house having two insulated aluminum conductors twisted around a bare-metal neutral.



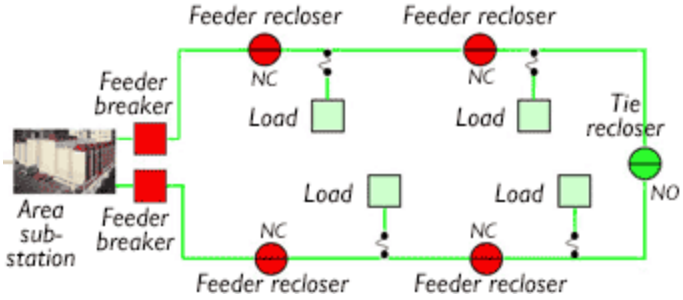
Overhead electricity transmission and distribution in Westchester [after Con Edison presentation.]

Post-Sandy improvements

Hurricane Sandy struck the East Coast in late October 2012, becoming a post-tropical storm that reached the New York City region on October 29. The city was affected by flooding of communities, subways and road tunnels. Large parts of the city lost electricity for several days or more. Further north, Westchester was mainly affected by high winds that brought down trees across power lines and pulled down utility poles.

After Sandy, Con Edison undertook a four year program to harden its electrical infrastructure against a future storm of similar intensity. Most improvements took place within New York City where flood walls were erected around vulnerable equipment and water-tight doors were installed for substations and generators. Meanwhile, underground equipment was specified to be submersible.

For overhead distribution, Con Edison makes use of an "auto-loop" design in which the overhead feeders surrounding a given area are fed at *both* ends from an area/unit substation. As well as circuit breakers at the substation, the design makes use of **reclosers**, devices that can detect a fault current, cut off supply for a short period of time to allow a transient fault to clear then reapply full voltage. This minimizes the number of customers affected by an outage.



Con Edison overhead autoloop system for 4 kV, 13 kV and 27 kV feeders. NC = normally closed, NO = normally open. [After Con Ed presentation.]

In Westchester where the 4 kV overhead power lines pass through tree-heavy routes, Con Edison has also installed "smart switches" which are electronically-controlled circuit reclosers with remote control via radio. The unit contains three single phase vacuum interrupters mounted in a single tank. They are controlled by a single microprocessor-based control that can be programmed for different scenarios.

Con Edison "smart switch" or Kyle Recloser is installed on a newer pole at Route 202 and Dimond Ave. The switch can isolate sections of 4 kV feeder under remote control.

In order to reduce the number of customers affected by an outage, Con Edison has divided some large autoloops into smaller loops and improved the auto-loop design. As an example, the Teatown loop in Ossining was one of the worst performing during storms. It has been split into three — the Teatown loop, Terrace loop and Lincoln loop with six new reclosers and 18 Kyle switches (the old brand name for Eaton/Cooper Power.)

Another improvement that Con Edison has tested in leafy Westchester suburbs is sacrificial breakaway hardware and detachable service cables for the over-

Hardware for detachable service drops.

head connection between home and utility pole. If a tree falls on the overhead drop line, the line should detach at the pole rather than at the side of the house, isolating the cable, saving the pole and making restoration of service easier.

In addition, wire and pole sizes were being upgraded. Poles in storm-prone areas would be required to withstand gusts up to 110 mph. Cable by Hendrix Aerial Cable Systems, which is more resilient than previous designs would be employed in tree-heavy areas.

Storms Riley and Quinn

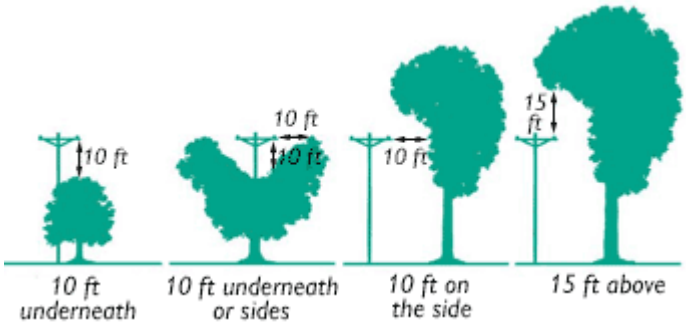
Despite all the work carried out after Sandy, there were more problems to come. On March 2, 2018 a Nor'easter brought 50 mph winds along with rain, snow and sleet. This was followed by a second Nor'easter on March 7 that dropped up to 14 inches of wet, heavy snow.

The storms caused 210,000 Con Edison customers to lose service, with 155,000 outages occurring in Westchester. Most outages were caused by trees falling on wires, with 471 poles damaged and 693 roads closed, many of which were in Cortlandt and Yorktown. Some PCARA members lost power for many days on end, emergency shelters were opened and Con Edison distributed dry ice to keep refrigerators cool.

Town and City representatives were furious about the long delays in opening roads and restoring power so they took their complaints to Con Edison through the County Executive. In addition to the post-Sandy initiatives, Con Edison agreed to bring in more mutual aid and contractors in future. The Utility would identify critical roads to be cleared first and improve communication with local government bodies. Con Edison also undertook improvements to its I.T. systems so that estimated restoration times would be more readily available and more accurate.

Con Edison has existing standards for how close trees can be to their overhead wires. (Though you don't need to look very far to find plenty of wires that are much closer to trees than Con Ed limits!) Many outages during March 2018 were caused by trees nearing end of life, so Con Edison undertook a pilot program in Cortlandt to remove hazardous trees on private property. Trees identified by certified arborists as being a hazard were made known to the owners then — with the owner's permission — removed at no charge. Most people were happy to have these hazards removed from their property.

Con Edison crews extended the program to additional communities in Westchester, including Yorktown, Mount Kisco and Croton-on-Hudson. Some 700 homeowners have given permission for trees to be removed.



Con Edison minimum distance guidelines for trimming trees near power lines in Westchester.

April 13, 2020 – more of the same?

On Easter Monday — April 13, 2020 — a rainstorm with warm southerly winds came howling up the lower Hudson Valley with wind gusts of over 60 mph. In the period before noon, many trees were brought down, and electricity supplies suffered.

At 2:45 p.m. on Monday April 13, Con Edison stated that Westchester County had 34 road closures and 11,200 customers without power, mostly in Cortlandt, Briarcliff Manor, Greenburgh and Yorktown. More outages were reported during the afternoon and the number of blocked roads climbed to 77.

This tree came down across telecom cables at Rt 202 and Northridge Rd on April 13, 2020.

By 9:30 p.m. Con Edison reported that power had been restored to 22,000 customers in its service area, with 7,500 customers in Westchester still awaiting reconnection — mostly in Cortlandt, Peekskill, Yorktown and Ossining. At your editor's location, power went out at 7:10 p.m., coming back at 9:30 p.m.

By Tuesday evening, April 14, Con Edison reported that power had been restored to 25,000 of the 26,000 customers affected by power outages in Westchester. Crews from across Con Edison's territory supplemented by 90 additional contractors were working through the night to complete restoration of service.

The good news is that electrical supplies were restored much faster than in March 2018. The bad news is that so many outages occurred in Westchester *despite* all the Utility's good efforts post-Sandy, Riley and Quinn.

Local work

In the light of all these outages, it is worth re-examining recent work on Conklin Ave and Route 202, which can be seen as a continuing effort to improve system resilience after Sandy, Riley and Quinn.

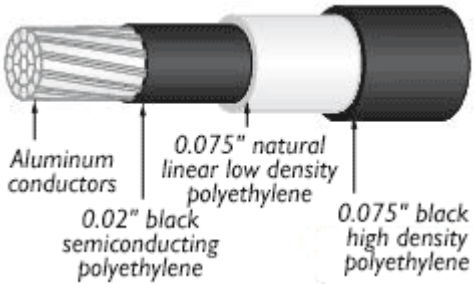
After Sandy, Con Edison installed 1,650 stronger utility poles to Class 1 and H1 standards. The most popular size of H1 pole is 40 ft long, with 6 feet buried in the ground. *Minimum* circumference at the tip is 29 inches and 43½" 6 ft from the butt (i.e. ground level). Modern utility poles are manufactured from Southern yellow pine or Douglas Fir. The new poles installed on Route 202 are taller and wider than previous poles, many of which were very old, cracked and twisted.

New poles ready to be installed along Route 202.

The new poles have a green color caused by impregnation with **copper naphthenate** — a preservative against fungal rot, decay, and wood-boring insects. Copper naphthenate is preferred as a low-toxicity wood preservative over older, more toxic products such as creosote (with its characteristic brown color), pentachlorophenol or arsenicals. Decaying cross arms at the top of the old poles have mostly been replaced with more compact brackets supporting three insulators.

New hardware for 4kV cables.

Con Edison has been replacing older aerial cable with new types that are roughly three times stronger. They report that a good deal of aerial cable installed in the 1970s suffered from deteriorating insulation which allowed water entry — so they are now using improved cable from Hendrix Aerial Cable Systems. The self-supporting aerial cable on the main run of feeders is replaced with 477 kcmil aluminum conductors and new secondary wires are also installed on the new poles. [The kcmil is a measure of wire size for conductors larger than 0 AWG. 477 kcmil means 477 × 1000 circular mils, where 1 circular mil is the cross-sectional area of a wire with 1/1000 inch diameter. In the Hendrix catalog, this covered tree wire has an outer diameter of 1.2".]



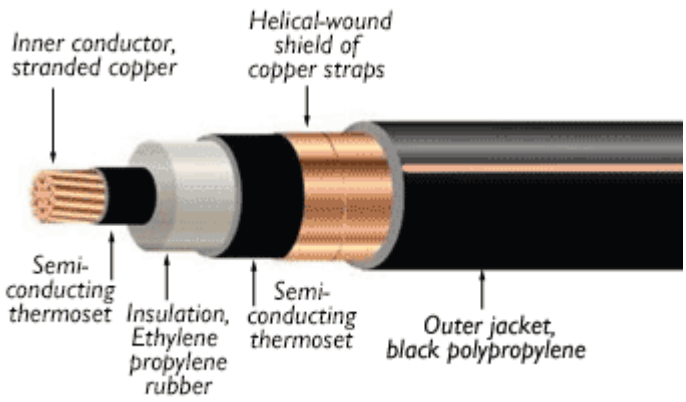
Hendrix Aerial Cable Systems — 15kV Covered Tree Wire.

Insulated copper tap wire for side street is clamped onto one of the new primary phase conductors on Rt. 202.

Newer type 13kV distribution cable is also visible on recently installed utility poles. This cable consists of three *shielded* conductors twisted together and supported inside cable rings on a stranded steel messenger line. Each cable has an inner conductor of 500 kcmil stranded copper covered with a semi-conducting thermoset, followed by an insu-

Newer style shielded 13kV distribution cables are suspended from stranded steel messenger lines using cable rings.

lation layer of EPR (ethylene propylene rubber), another layer of semiconducting thermoset and a helical-wound shield of tinned copper straps. The outer jacket is black polypropylene with three equally-spaced red stripes running down its length for identification.



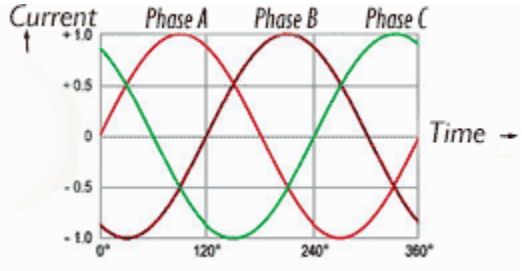
Cutaway diagram of a medium voltage shielded cable. Three of these cables are twisted together for three-phase power distribution.

Smooth changeover

Erecting utility poles and stringing stronger primary cables is not the only work carried out by Northline Utilities. New pole transformers have been added, including newer, rectangular-transformers for three-phase supply, as required by commercial premises along Route 202. New secondary wires carrying 120-0-120V AC from single phase pole transformers to domestic customers along Route 202 have also been installed, using new secondary racks attached to each pole.

Rectangular-shaped pole transformer supplies three-phase 208 V AC to commercial premises along Route 202.

Amazingly, all this work has been carried out without interrupting the AC supply to domestic customers. Bob N2CBH has observed the installers' technique, which is to erect new poles and string new wires alongside the old hardware — with old and new wire connected in parallel for a time. Once the new equipment is operational, old wire can be disconnected, old cross arms can be dismantled, transformers brought down and the top part of the old pole removed, leaving just the stump to support telecommunication cables.



Three phase alternating current. If the voltage between one phase and neutral is 120 V AC, then the voltage between any two phases is 120 × √3 = 208 V AC.

Bob has expressed the hope that all this work with new cable, new insulators and new transformers should quieten down the electrical supply — from a radio frequency point of view.

The old and the new. Utility pole near Crompond Plaza carries older, thin wires with deteriorated covering to the left and new-style, heavy duty primary wires to the right.

Sources

Most of the material for this article has been gleaned from Con Edison news releases, papers, presentations and specifications. Con Edison supplies electricity in parts of Westchester including Peekskill, Cortlandt and western areas of Yorktown. Members who live in eastern Yorktown (roughly east of FDR State Park), Bedford, Lewisboro, North Salem, Poundridge or Somers have electricity supplied by NYSEG — which may have different policies on system resiliency and technical standards.

- NM9J

Peekskill / Cortlandt Amateur Radio Association

Mail: PCARA, PO Box 146, Crompond, NY 10517
E-Mail: mail 'at' pcara.org
Web site: http://www.pcara.org
PCARA on Facebook: http://facebook.com/pcarahamradio
***PCARA Update* Editor:** Malcolm Pritchard, NM9J
E-mail: NM9J 'at' arrl.net
Newsletter contributions are always very welcome!
Archive: http://nm9j.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

NOTE: In view of restrictions on activities as a result of the novel coronavirus (COVID-19) pandemic, many calendar events for May have been canceled. **Check before leaving!**

Sun May 3: PCARA monthly meeting, 3:00 p.m. On-air meeting using the 146.67 MHz repeater.
Sat May 9: PCARA Foxhunt POSTPONED until outdoor gatherings are allowed and diners are open again.

Hamfests (Check before leaving!)

Sun May 3: Orange County ARC Spring Hamfest, **postponed** to Sun Oct 4. ***PCARA Club table***.
Sun May 16: Southern Berkshire ARC Hamfest, Goshen CT **canceled**.
Sat May 23: Bergen ARA Spring Hamfest, Westwood HS, 701 Ridgewood Road, Township of Washington, NJ. 8:00 am.

VE Test Sessions

Most Volunteer Examiner Test Sessions in our local area have been **canceled** because of the "New York State on PAUSE" Executive Order — now extended to May 15 — and similar executive orders in New Jersey and Connecticut. Check ARRL's web site for upcoming V.E. Test Sessions (http://www.arrl.org/exam_sessions/search) and **check** with the named Contact before leaving.

Peekskill / Cortlandt Amateur Radio Association Inc.
PO Box 146
Crompond, NY 10517