



PCARA Update



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Fall forward for radio

We keep packing them in! We had another full house for the **October 2019 PCARA Membership Meeting**, with 14 in attendance, and we still have new members showing up as a direct result of our PCARA V.E. Test Sessions. At the meeting we learned that all repeaters are performing as intended and that financially we're still operating in the black — an excellent



Charles N2SO explains remote operation of his Elecraft K3 transceiver at the October meeting.

way to end the year! As a highlight of the meeting, Charles N2SO gave a demonstration of his remote Elecraft K3 station that permits operation of his home HF rig from anywhere in the world wherever there is Internet connectivity. Thanks Charles.

The weekend of October 19-20, 2019 was very busy for PCARA. We started on Saturday with the **PCARA Breakfast** at Turco's at 9:00 am. Attendance was a bit light but we still had a great time! At 10:00 am the **NY QSO Party** started and PCARA's best were on hand at Joe WA2MCR's home station. The contest ran until

10:00 p.m. that evening. A full report on the contest and participants can be found in this month's edition of the PCARA Update.

On Sunday October 20, 2019 WECA and PCARA provided communications support for the **39th Annual Harry Chapin Memorial Run Against Hunger** at Croton-Harmon High School in Croton-on-Hudson, NY. PCARA members in attendance included Malcolm NM9J, David K2WPM, Lou KD2ITZ, and Tom WB2NHC (who was also doing double duty as a member of WECA). We covered 7 of the 8 station locations during the 10K Run. David K2WPM and Lou KD2ITZ had a

Dual Band J-Pole set up on top of the Croton Dam. Lou and David's presence generated interest in amateur radio among some of the EMTs on duty. WECA member Kathleen KC2VCT rode along in the Trail Car with the APRS unit, Tom WB2NHC operated Net Control from the RACES Vehicle back at Croton-Harmon High School while Malcolm NM9J expertly manned the station on Quaker Ridge Road. There were no incidents to report and the event went smoothly from a communications point of view. This is the 6th year we've participated in this most commendable event for our local communities, and here's looking forward to the 40th Annual Harry Chapin Memorial Run/Walk Against Hunger in 2020. [Full report on page 6, -Ed.]

At the November 3, 2019 **PCARA Membership Meeting** we

will be joined by ARRL Hudson Division Director **Ria Jairam N2RJ**. It has been just a year since Ria was elected Director so please consider bringing along any questions you want to ask concerning the League.



Hudson Division Director Ria N2RJ (right) will be visiting PCARA on November 3.

Continued on page 2: →

Contents

Fall forward for radio - KB2CQE	1
Getting started with FT8	2
Adventures in DXing - N2KZ	3
Run Against Hunger 2019	6
Holiday Dinner	8
Hidden transmitter hunting - WA2NRV	9
Lithium laureates - NM9J	10
Topographic maps - NM9J	11
V.E. Test Session	13
New York QSO Party 2019	14
NanoVNA – mini review - NM9J	15
Yahoo! Groups will remain - KD2ITZ	17
Foxhunt University	17

Another major item on the agenda for the November meeting is nominations for the **Board of Directors**. In this odd-numbered year the nominations are for three Director positions, each with a term that runs two years. Please direct your suggestions/nominations to the Board.

The next **PCARA Breakfast** will take place at 9:00 a.m. on November 16, 2019 at Uncle Giuseppe's in Yorktown

Heights, NY. Wait, WHAT? Don't panic! It's the same place but with a different



name and management — Turco's was bought out by the Uncle Giuseppe's chain and the name was changed on October 21. After a good breakfast at Uncle Giuseppe's we will be holding a **PCARA V.E. Test Session** at the John C. Hart Memorial Library in Shrub Oak, NY at 11:00 a.m., so please spread the word! We've had excellent results from the V.E. program with quite a few new Hams and new PCARA members. If you have any questions or need further information, please contact Mike W2IG.

On Tuesday November 19, 2019 at 7:00 p.m. at the Town of Cortlandt CUE Room in the Cortlandt Town Center (3131 Main Street, Mohegan Lake, NY) there will be a presentation on "**Getting Started with FT8**" by PCARA member Masa Maeda JR1AQN. This program will be based on a presentation that Masa gave at Pacificon 2019. Please consider joining us to learn about FT8 and other digital modes. Thanks Masa for this great learning opportunity!



Masa JR1AQN pictured with Lou KD2ITZ at Field Day 2019.

Looking forward to December, we have our **Annual PCARA Holiday Dinner** on

December 1, 2019 at the Cortlandt Colonial Restaurant, 714 Old Albany Post Road, Cortlandt Manor, NY. The festive fare will be the same as last year at a similar cost of \$43.00 per head (there was an increase in Westchester County Tax — how surprising). Please look for a copy of the menu in this month's edition of the *PCARA Update*.

Our next regularly scheduled **Membership Meeting** is on Sunday November 3, 2019 at 3:00 p.m., at New York-Presbyterian / Hudson Valley Hospital in Cortlandt Manor, NY. I look forward to seeing each of you there.

- 73 de Greg, KB2CQE

PCARA Board

President:

Greg Appleyard, KB2CQE; kb2cqe 'at' arrl.net

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Net night

Peekskill/Cortlandt Amateur Radio Association holds a weekly net on the 146.67 MHz W2NYW repeater on Thursdays at 8:00 p.m.

Join net control Karl, N2KZ for news and neighborly information.

Getting started with FT8

On Tuesday November 19th, 2019 there will be a PCARA presentation at the Cortlandt 'CUE' Community Room. Masa JR1AQN will give a talk at 7:00 p.m. entitled "Getting Started with FT8". This is based on Masa's recent presentations at Pacificon 2019 on "FT8 for Beginners" in the Digital Academy series and "Study on Actual Usage of FT8 in the US and Japan". Pacificon is the ARRL Pacific Division Convention.

Radio stations around the world are using FT8, FT4 and JT9 for digital contacts, HF contests and text messaging. These weak-signal narrow-band modes are included in the latest version 2.1.0 of WSJT-X, programmed by Joe Taylor K1JT and his Development Group. WSJT = Weak Signal Communication, by K1JT. See the WSJT home page:

<http://physics.princeton.edu/pulsar/K1JT/> .

BIO: Masa Maeda, JR1AQN, has been licensed since 1969. He is interested in HF digital modes, such as RTTY, PSK31, JT65 and FT8. Masa is an active Ham with W2/JR1AQN in NY and W6/JR1AQN in CA. He is a member of PCARA in NY and the Silicon Valley Japanese Ham Club (SVJHC) in CA. Masa is an active article writer for *CQ Ham Radio*, a magazine in Japan, where he reports on U.S. ham activities.

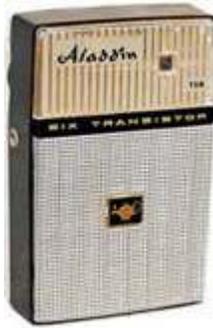
The **CUE / Community Room** is located within the Cortlandt Town Center shopping complex, alongside the rear entrance to Regal-United Artists' movie theatres and the NY State Police Satellite Station. This is the same location used for PCARA's Antenna Workshop in April 2019. Take the access road alongside Old Navy, then drive past the U-Haul parking area to the cinema parking lot.

Adventures in DXing

- N2KZ

Radio classics

Have you ever encountered Aladdin? “Peer into this box and listen closely!” he might say. Little did you know that your little plastic box could transport sounds and voices from very far away. Here one minute and gone the next, your experience will be unique time and time again. Is the legend on the box



a clue? What do you think the letters “S O N Y” really mean?



Yes, DXers enjoy the random pleasures of these modern miracles called radios. In their simplest form, there is very little for you to control. Continuous tuning insists that your experience will always be capricious. Why depend on repetitious and routine digital presets when there is so much to reveal and

discover in the great amount of ether in-between? What will appear today in the vast world of wavelength Neverland? Touch the tuning knob and adventure begins!

Simple tuning and listening can also be thought as visiting a beloved bookstore. Every shelf has a multitude of things to offer, many you have never seen before... but they are all delights. You never just browse two or three favorite shelves and leave. You need to look around!

Simple and blessed, little radios are really just like books. They will never require computers or Internet connections. They exist without large current demands existing for days, weeks or even months on common batteries. Always at your beck and call, these marvels of resonance and resolution are at your command. You can begin to explore at any time. Come, my friend! They are waiting for you!

Yesteryear's little AM/FM radios were limited to about 100 possible channels per band with many left unoccupied. Unless you found yourself in one of the world's great metroplexes, there might be only a few or even just one station to receive. This lack of choice may sound restrictive but, on the contrary, it actually created large communities of listeners all attending the same performance at the same time. Everyone was listening to the local station. If you tuned in each evening, you would have plenty to talk about with neighbors or around the water cooler or at the store the

next morning. When was the last time you did that?

I remember vacationing in the mountains of Western Massachusetts in the mid 1950s. During the day, my two transistor reflex would pick up just one station: WMNB 1230 AM in North Adams. Everyone listened to this station because it was the only one you could hear! They had a monopoly on the area's advertising market. No other firm could deliver messages with such immediacy. WMNB was the place to be — and we all listened to it daily!

Ah, but there was so much more to enjoy! I learned early to always keep my transistor in my pocket wherever I went. There was so much to hear!

Little radios might also endear you to radio personalities. Chance upon BBC Radio Scotland's Gary Innes on 810 kHz for traditional Scottish dance music as you “Take the Floor!” Be careful! You may long to hear accordions, fiddles and drums jiggling and reeling on a daily basis as long as you live!



Decades ago, there was “The Station of the Stars” over Radio Luxembourg on 208 meters (1439 kHz)



Radio Luxembourg broadcast AM pop from Europe to Great Britain starting at 7 p.m. in English.

playing pop music to the delight of the young and the young at heart every evening. Later on, ex-pirates John Peel and Tony Blackburn took to the air on the newly liberated BBC Radio One. Rock ‘n’ Roll will never die!

On this side of the pond in New York City, we listened to AM top 40 with Murray the K, Dan Ingram, and ‘Cousin’ Bruce Morrow. Hyped announcing and corny jingles, sounders and sound-effects made for fast paced listening, jam-packed with non-stop mayhem.



Murray the K was on WINS-AM in 1965.

Dee-jays were insightful, clever and very entertaining. What fun it was!

Starting in the mid 1960s, FM “free form radio” brought us more personal and intimate presentations by design emceed by legends like Scott Muni, Rosko and ‘The Night Bird’ Allison Steele. We also enjoyed several generations of ‘Rambling with Gambling’ hosted by - father (John B.), son (John A.) and grandson (John R. Gambling) - on WOR 710. Can you imagine passing your legacy to

namesake after namesake creating a total of 91 years of continuous morning radio?

Other classic New York shows also had loyal audiences: “The Make Believe Ballroom” on WNEW-AM and “American Airlines — Music ‘Til Dawn” on WCBS-AM. The signature of these shows were the familiar voices of their hosts — friends to many, many people all listening at once. As time progressed, radio personalities were no longer limited to one area market. Nationwide American networks were developed to bring us overnight shows with Herb Jepko’s Nitecap show and the unstoppable Larry King. At his peak, Larry was heard on over 500 stations around the United States.



Larry King with RCA Type 77 microphone.

Music can be a signature, as well. To any shortwave listener of most any era, there could be only one broadcaster who could claim: “**This Is London**” followed by the theme of the ‘Lillibulero’ march heard at many a tattoo. If you lived through this era, you will always remember similar repetitious musical loops played to help listeners find specific shortwave stations through the relentless fading and static. These ‘interval signals’ made our searches for DX stations almost as easy as digital frequency entry. It was quite a time, indeed!

Look to <http://www.intervalsignals.net/> for an encyclopedic collection of these memorable tunes!

Oh! The voices and music we would hear! Imagine a set of young ears listening with Bakelite headphones to sounds transmitted from Cairo, Ghana, Tokyo or Australia. Listener mailbag shows became most popular. Write a letter to a favorite station and — who knows? — they might read your name and comments on the air... from the other side of the world! Little radios are more like Aladdin’s Lamp than you might ever imagine.

Fast forward about 50 years: Modern day devices have filled our magical airwaves with impenetrable noise. Wide-area Internet access continues to supplant familiar over-the-air transmitters. Why continue to



William Roscoe Mercer, better known as Rosko, broadcast on WOR-FM and WNEW-FM.

operate high powered radio stations when you can hear everything in perfect quality over the Web?

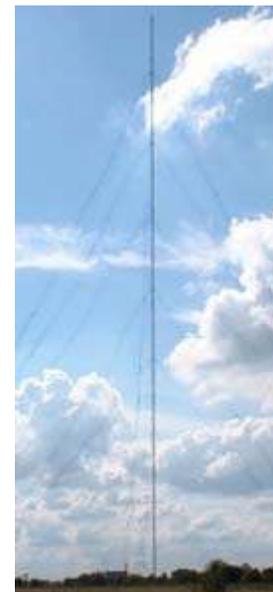
The former listeners of Radio Australia and Radio Cook Islands could offer you some contrary opinions. Not everyone in the world has Web access (yet!) Pacific islanders sorely miss the authoritative news and features offered for decades and decades by Radio Australia that came to an end in 2017. The fight to restore this service still continues.

Radio Cook Islands on 630 kHz tried nobly to serve their Northern and Southern Island groups with local news, sports and weather like no other station. Their transmitter and tower became aged beyond repair. RCI’s rotting and rusty tower was demolished to satisfy safety concerns. The initial thought was that they could suffice relying on just local FM translators. Not so! Many, many listeners, especially living on distant islands, lost their only connection to the outside world.



Months later, RCI returned to 630 kHz at lower power and an abbreviated short antenna to the cheers of many — especially the outliers. The service may continue to improve its medium wave coverage as enthusiasm builds. No different in Ireland where the long wave station that began as Atlantic 252 and morphed into RTÉ 1 long wave continues their struggle to stay alive. Decades long listening habits should be honored until the last. The lesson here: The outcry of loyal listeners may save a signal from extinction even if it has already been pulled off the air!

With radio being a business and modern finances often desperate, decisions to curtail long wave and medium wave broadcasts can be difficult and maybe painful. The business aspect of radio is also a hard pill to swallow for aspiring and youthful budding radio talents filled with enthusiasm to produce artful memories on the air. Heavy commercial loads during peak listening hours and long breaks in music continuity can really throw cold water upon the hearts of new deejays and their listeners. I know this lesson well. Radio is a business. Money keeps it alive. All else



RTÉ Radio 1 LW mast in Summerhill is 815 ft high.



is gravy when the bankrolls are full! Get used to it, kid!

As we enter the third decade of the 21st century, another pill to swallow is the onslaught of the Internet and what happens when listeners suddenly have thousands of stations and podcasts to choose from instead of just a handful. An often spoke phrase: “Analog dollars have turned into digital dimes” (or even pennies or even less!) A harsh reality is that broadcasting over-the-air is expensive!

Consider the cost of keeping a 50,000 watt glowing day and night. Transmitters are not completely efficient, so even more energy is needed to keep big broadcast stations going. Big stations demand big staffs with salaries and benefits. Broadcast studios and offices are dear and real estate and tall towers absorb money like oversized sponges. With audio streaming servers, you could eliminate costly energy expenses and add worldwide coverage to your broadcasts with the flip of a switch.

RF is expensive and not ecologically ‘green.’ RF also demands a lot of green (money!) Newspapers and broadcasters are all being squeezed by shrinking income and shrinking audiences. Ask young people about broadcasting. They don’t own radios. They don’t listen to radios. Most everything arrives to them via YouTube, Instagram or instant messaging. The world is changing so we must adapt!

I confess. Over the past few years I have nearly abandoned listening over-the-air to hear ‘radio.’ Why battle static when I can hear not one but four services of Radio New Zealand in perfect stereo over the Web. My car now has Internet radio integrated into its sound system. How many people listen to BBC Radio Scotland on their way to work in Stamford, Connecticut, USA? At least one does! I tune in to WJR Detroit, KFI, Los Angeles, MVY Radio from Martha’s Vineyard, Massachusetts and 107 One from Ann Arbor, Michigan as I ride along anywhere my car can reach. It is miraculous, entertaining and so easy to do!

Where do you look to find ‘radio’ in the years to come? You need several apps to get you started: BBC Sounds (still called BBC iPlayer outside the UK,) Global Player (for Capital FM, Heart, Smooth, LBC, Classic FM and more,) Ireland’s RTE Player and Canada’s CBC Listen. For America’s offerings, try: TuneIn (American and international stations by the hundreds,) Radio.com for the Entercom, CBS and Westwood group,) iHeart Radio (hundreds of stations owned by iHeart, public broadcasters and more) and Streema’s newly re-branded Simple Radio (similar



to TuneIn and now offering all the CBC radio stations recently dropped by TuneIn.) American news can be found on-demand on the CBS News Radio site and CNN audio — also available on TuneIn.

You can augment all of these choices by loading the apps of individual broadcasters. You’ll find these on my presets: Radio New Zealand, Fréquence3 (France,) Hawaii Public Radio, SR Play (Sweden,) and even WLEW Bad Axe, Michigan. The two leaders in podcast distribution are Apple’s Podcast app and iHeart Radio (“Now #1 for podcasting.”) You can also try Stitcher, PodcastOne and NPR’s (America’s National Public Radio) podcast sites. There is so much to listen to!

Important note: Internet sites can be geoblocked, rendering them unavailable in certain places around the world. This may also affect listeners streaming local stations from time to time. For instance, a major New York City station, WCBS-AM 880 broadcasts Yankee baseball games. When the play-by-play is on over the air, the usual newscasts continue on their Internet stream. WCBS does not have the legal right to distribute Yankees coverage out of market — and — they do not want to manage elaborate schemes to geoblock their stream outside of New York City.

This strategy may have a couple of ulterior motives. If you want to ignore the Yankees and still hear news coverage, you can go to the WCBS Web stream. Major League Baseball wants to make more money. MLB insists that baseball play-by-play is considered premium content and will only allow access by subscription. Similarly, if you always want to hear any audio content without noise, static and interruptions when aged transmission facilities fail, you will head to the stream as well. I think the industry is subliminally training the public away from ancient (and financially expensive) RF technology! The message: “Use the stream. It’s better for you and it saves us money.”

Another note to consider: All of these miraculous advances in technology have brought previously unheard of access to the general public. Just build a small studio in the spare room of your home and you can broadcast along with thousands of people like yourself — and — compete with the biggest established stations out there. It is the dream of full and complete public access come true.

What an amazing world in which we live! No matter how it is delivered, the lemonade called radio will always be tasty and enjoyable. You just need to know how to squeeze the lemon. Close your eyes and use your imagination! What will happen in the future? You will begin to find out today! Stay tuned.

Until next month, Happy Thanksgiving and good DX de N2KZ ‘The Old Goat.’



Run Against Hunger 2019

The 39th Harry Chapin Memorial Run Against Hunger took place on Sunday October 20th. For a sixth year, radio support was provided by PCARA in a joint operation with Westchester Emergency Communications Association (WECA).

The first Run Against Hunger, held annually in Croton-on-Hudson, was organized to commemorate singer-songwriter Harry Chapin who had long supported the cause of combating hunger in the USA. Harry Chapin died in an auto accident on Long Island in 1981. Proceeds from the Annual Run Against Hunger are donated to local organizations including the Croton-Cortlandt Food Pantry, the Croton Caring Committee and Caring for the Homeless of Peekskill.



Greg KB2CQE had met with the Run organizers on Sunday October 13th to discuss requirements and any changes. The three events would take place over the same course as previous years, but start times had been modified once again to allow timing pads to be moved between races.

Sunday start

Sunday October 20th dawned with a cold, dry morning. Temperature was only 41°F as David K2WPM and Greg KB2CQE arrived at Croton-Harmon High School shortly after 7:00 a.m. The Westchester County RACES truck arrived shortly afterward and was set up in its traditional high spot above Old Post Road, in front of the school buildings. WECA members at the school included Alan N2YGK, Public Services Director Kathleen KC2VCT and Emergency Services Director Tom WB2NHC.

Your editor was hoping to repeat the newsletter's coverage of previous years by joining Al K2DMV at several race locations. (Al had informed Greg that he would not be available for



Map shows Run Against Hunger locations near Croton-Harmon High School.

this event, but I was not aware of it at the time.) As 8:00 a.m. approached, I arrived at the north end of the Croton Gorge Trail, closely followed by Lou, KD2ITZ. Lou was intending to visit the RACES truck at Croton-Harmon High School before going on to his allocated post on the 10K Race.

5K Run/Walk

Start time for the 5K Run had been moved forward from 9:00 a.m. to 8:30 a.m. The route begins at Croton-Harmon High School then proceeds down Old Post Road South via Truesdale Drive to Cedar Lane, returning north on Nordica Drive and Truesdale Drive to the start of the Croton Gorge Trail at Silver Lake Parking Lot. The Silver Lake Water Stop 1 was manned by Robert N2TSE. The route then proceeds for a half mile through the woods to the Mile 2 marker at the end of the Trail where vehicle entrance is blocked by a large rock.

Shortly after arrival, I was joined by a group of Cheerleaders and additional helpers who would guide runners from the trail around the curve onto Cleveland Drive. An official photographer also arrived to picture the arriving runners. In the absence of Al K2DMV, I checked in with Net Control as operator for 5K Stop #2. Net Control was operated throughout the day by Tom, WB2NHC from the RACES truck using WECA's 2 meter repeater, 147.060 +0.600 MHz, PL 114.8 Hz.



L to R: Greg KB2CQE, David K2WPM and Lou KD2ITZ visit Tom WB2NHC who was operating from the Westchester County RACES truck. [KD2ITZ pic.]

At 8:41 a.m. Robert N2TSE identified the first runner to pass Silver Lake as Bib Number 606, John Walsh. Four minutes later, the same runner passed my own position at the other end of the trail — #606 would go on to claim second place in the event, finishing the 5K race in 21 minutes.

Many more runners and walkers passed by — and Croton-on-Hudson Police had an officer on bicycle, tracking runners along the trail. At 9:22 a.m. a shiny, new All-Terrain Vehicle from Montrose Fire Department followed the last walkers, squeezing past the rock

at the Trail Head. I was able to report bib numbers of the last two 5K walkers to Net Control. A total of 189 runners and walkers completed the 5K event in times ranging from 21 minutes to 57 minutes.



Runners in the 5K event pass Cheerleaders and Guiders at the 2 Mile marker on the Croton Gorge Trail.

10K Race

The main event of the day is the 10K race which starts from Croton-Harmon High School then sweeps around Croton-on-Hudson, north on Cleveland Drive to Gerstein Street, crossing Route 129 at Wood Road then proceeding along Batten Road into the Town of Cortlandt and across the New Croton Dam. The route then turns south along Quaker Ridge Road, crossing the River at the low spot on Quaker Bridge Road, then returning to the High School via Route 129, Jacoby Street and Cleveland Drive.

The organizers had requested radio coverage for their Shadow, for the Trail Car and for seven Mile Points/Water Stops around the course. Six out of the seven posts were filled by a combination of WECA and PCARA personnel.

Greg KB2CQE had relocated from the High School to his customary spot at Water Stop #1 on Batten Road. Radio stations around the 10K course had all been asked to report Bib Numbers of the first three runners to Net Control for forwarding to Run Organizers via their radio shadow. Run organizers Mike Grayeb and Jud Ramaker keep up a running commentary over the public address system outside the High School, in between recordings of Harry Chapin's familiar songs.

Water Stop #2 at the southeast end of the Croton Dam was manned by Lou KD2ITZ and David K2WPM. They were using Lou's "Go Box" and David's Arrow J-Pole antenna mounted on a tripod stand. Only 15 minutes after the 10:00 a.m. start time, Lou and David reported leading runners passing Post 2.

Post 3 at Croton Dam Road and Quaker Ridge Road was manned by Steve KD2OFD who was also identifying on APRS.



Lou KD2ITZ and David K2WPM had a great view from Water Stop 2 atop the New Croton Dam. [KD2ITZ pic.]

Your editor had been asked to move from Croton Gorge to Water Stop #3/Mile Post 4 at the entrance to the Danish Home, 2125 Quaker Ridge Road. I was familiar with this location from two years ago. I was joined by leaders and youngsters from Cub Scout Pack 28 of Croton-on-Hudson who set up a table with cups and water containers ready for the runners. The adults were concerned that the table was exposed to vehicle traffic, so I loaned the Cub Scouts my supply of orange safety cones.



Cub Scout Pack 28 set up Water Stop #3 on Quaker Ridge Road, near Mile Post 4.

The first runner came into view and passed by without needing any refreshment.

This was Bib Number 457, Kerry Dyke, who went on to win the 10K race in a time of just 38 minutes. I waited for the next two runners then transmitted bib numbers to Net Control. They were followed by many more runners — and since the temperature had warmed to 50°F, many took a drink of water from the outstretched hands of the Cub Scouts.

It did not take too long for the Trail Car to come into view, behind the last 10K runner. Radio coverage and APRS tracking were being provided from inside this vehicle by Kathleen KC2VCT. Once



Kerry Dyke, #457 passes Water Stop 3.



Many runners took a drink of water from outstretched hands of the Cub Scouts at Water Stop 3.

the Trail Car had passed, Net Control advised Post 4 that it could secure — allowing the Cub Scouts to tidy up their water post and pick up all the plastic cups that runners had thrown into the street.

The 10K event crosses the Croton River at a narrow bridge, continuing around to Mile 5 at Niles Road and Quaker Bridge Road. There I encountered Russ, N2AMP just as he was securing. The next station was at Water Stop 4, on Jacoby Street where Robert N2TSE was located. Larrie W2UL was also involved before and after the race. A total of 187 runners completed the 10K event with times ranging from 38 minutes to 1 hour 29 minutes.

Fun Run

The final event of the day was the one mile Fun Run which begins on Cleveland Drive, south of Veteran's Corners then follows Cleveland to Gerstein Street where the turn-around point is located at CET (Carrie E Tompkins) Elementary School. With the event about to start at 11:45 a.m. — fifteen minutes later than the previous year — there was a lack of radio operators in a suitable position. Greg KB2CQE volunteered for duty and drove to the turn-around point where he reported appearance of first runners at 11:55 a.m. The final walker passed the turn-around at 12:16 p.m. and headed back to the finish at Croton-Harmon High School.

Final thoughts

Once more, a combined effort by volunteers from WECA and PCARA was able to provide support for the Harry Chapin Run Against Hunger, making sure that effective communications were available for the Run Organizers and providing coverage up and down the Croton River Gorge and surrounding area. This is not an easy task as the terrain can make for difficult radio communication, as evidenced by the spotty cell phone coverage. Fortunately there was no need for any emergency messages over the amateur air-waves.

Greg KB2CQE thought that Run Against Hunger 2019 had gone more smoothly than in previous years, possibly as a result of all our previous experiences.

In a message to participants, Kathleen KC2VCT wrote: "Thanks again for all your support. Feeding hungry people is not easy, but your part in the event will definitely translate into many, many meals. Thank you all, we couldn't have done it without you."

- NM9J

Holiday Dinner

The 2019 PCARA Holiday Dinner has been arranged for the same location as previous years, at the **Cortlandt Colonial Manor Restaurant**. The event begins at 5:00 p.m. on Sunday December 1.



Cortlandt Colonial Manor Restaurant & Catering.

The restaurant is located at 714 Old Albany Post Road. Take the Bear Mountain Parkway to the Highland Avenue exit, then head north. Proceed down Highland Avenue and across the bridge. The restaurant and parking lot are immediately on the left.

The dinner menu is 'Package Number Three' as in previous years.

Open Soup and Salad Bar
Soda, iced tea and soft drinks (unlimited)

**** choice of: ****

Prime Ribs of Beef – House Specialty
Grilled New York Strip Steak
Grilled Pork Tenderloin Medallions
Jumbo Shrimp with crabmeat stuffing
Chicken — Marsala, Chardonnay, Sherry or Madeira
Penne ala Vodka, traditional or w/grilled chicken
Custom Cake – Chocolate Mousse

Cost will be ~\$43.00 per head including service, but not including any alcoholic drinks.

Hidden transmitter hunting – WA2NRV

[Stan WA2NRV is a staunch supporter of V.E. Testing for the Westchester Emergency Communications Association (WECA) and more recently on behalf of PCARA. Here he recounts recent experiences during a PCARA Foxhunt for members of WECA. – Ed.]

I have been looking for transmitters in unknown locations for about 50 years. Mainly emergency locator transmitters on downed aircraft or false alarms which could be anywhere — including moving UPS trucks. Through the years in the Civil Air Patrol (CAP), with the experience gained I became pretty good at it. We had to be good since lives could be at risk. I often teamed up with Dwight N2FMC — who I would want looking for *me* if I were in trouble.

Recently I have been setting up hidden transmitter hunts for WECA. I have also been teaching CAP and WECA members how to locate the transmitter during our fox hunts. I had not hunted myself recently. I did drive teams around during a hunt but they told me where to go. This was because I knew where it was. They all did well locating the fox in short time.

I did go on a hunt with another club recently, riding with one of their members. We were a team both inputting our suggestions.



Stan WA2NRV is at right while Karl N2KZ (left) holds the Yagi at the start of PCARA's Fall Foxhunt on Sept 28.

Their club runs the hunt differently than WECA. Their fox transmits for a period of time then is off for a period of time where the WECA fox runs continuously. We took our first shot from the starting location. We drove in the direction while the fox was off-air. For the next try we each saw different directions. He was using a beam antenna and I was body shadowing. We agreed to follow the beam. During the next few tries we went round in circles with some semi-strong signals and some very low. We did not find the fox.

I thought about it while driving home and I realized we were in a bowl. The signals we were chasing were reflections. When driving in the direction of the fox we were closer to the hill bottom, blocking the signal and lowering the signal strength.

I had screwed up not following the instructions I give everyone else. Like a new ham, getting excited about finding the fox we ignored proper procedures.

We should have gone to the highest point around and taken a sighting. Next to a high spot at a 60 degree angle from the first followed by a third high spot another 60 degrees off.

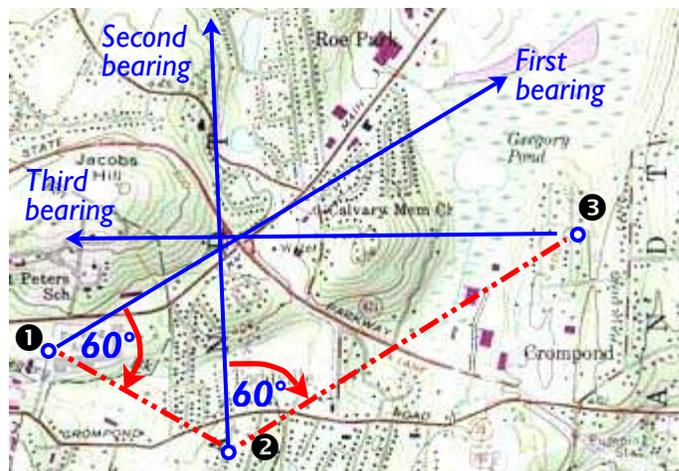


Drawing a line on the map after taking a radio bearing. [Pic by Masa JR1AQN]

At each sighting we should have drawn a line on a map from that point in the direction we were looking. That resulting point would have put us in the correct area. Then we could do the same thing again or just start using signal strength while the fox was transmitting.

Evidently we should **“Do as I say not as I do.”**

- 73 de Stan WA2NRV with red face



Stan's recommendation is to take a first bearing from high spot ① toward the hidden transmitter, then move at an angle of 60° from this first bearing to high spot ②. Take a second bearing then travel at 60° from this second bearing to high spot ③. Take a third bearing.

[WECA's next Hidden Transmitter Hunt, organized by Stan, is scheduled for Saturday, November 2 beginning at 10:00 a.m. at the Fire Training Center parking lot in Valhalla. Please contact Stan, WA2NRV 'at' Weca.Org or Jim AC2IL 'at' Weca.org for details and to confirm your participation. - Ed.]

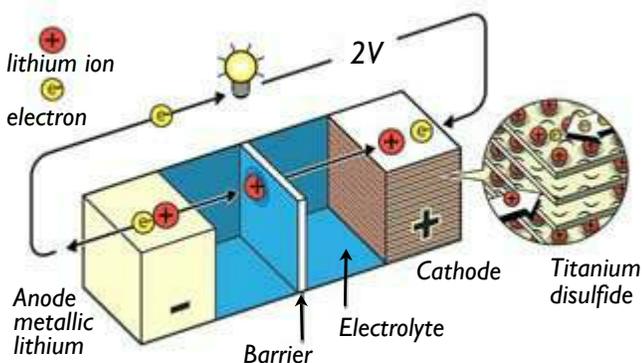
Lithium laureates

The Nobel Prize in Chemistry for 2019 was awarded on October 9 to three chemists from the USA, UK and Japan for their work — which led to the **Lithium-Ion battery**.

Stanley Whittingham is an English chemist, educated at Oxford University. He crossed the Atlantic to Stanford University, worked for Exxon from 1972-84, then worked for Schlumberger before becoming Professor of Chemistry at SUNY Binghamton. While at Exxon he developed a battery based on titanium disulfide (TiS_2) as cathode and an anode made of metallic lithium and aluminum. Along the way Stanley Whittingham developed the idea of taking a layered structure of one material and incorporating an ion or molecule of a different material in between the layers, a technique known as intercalation. In the battery developed at Exxon, lithium ions (Li^+) could be stored between layers of the titanium disulfide cathode. As the battery was discharged, lithium ions flowed from the metallic lithium anode through the cell to the titanium disulfide cathode.



M. Stanley Whittingham. [Pics credit: Royal Swedish Academy of Sciences.]



Early lithium-ion battery developed by Stanley Whittingham while at Exxon. During discharge, lithium atoms in the anode lose electrons and move as positive ions through the barrier and electrolyte to the cathode where they are stored between layers of titanium disulfide.

Unfortunately, this battery design was not very practical because of the extreme reactivity of the anode and cathode materials with air and water.

John Goodenough was born in Germany then moved to the USA where he was educated at Yale and the University of Chicago. He was part of a team at MIT that developed random access *magnetic* memory, then moved to Oxford University in the late 1970s. In 1980 his team established that cobalt oxide, CoO_2 intercalated with lithium ions (Lithium Cobalt Oxide,

Li_xCoO_2) was a much better cathode material for a lithium-ion battery than Stanley Whittingham's smelly titanium disulfide. His battery could be charged after manufacture, then repeatedly charged and discharged. John Goodenough subsequently moved to the University of Texas at Austin where his group went on to identify Lithium Iron Phosphate (Li_xFePO_4) as a less-expensive non-toxic, safer cathode material. John Goodenough is still working at the University of Texas and at 97 is the oldest recipient of a Nobel Prize.



John Goodenough.

Akira Yoshino is a Japanese chemist who was educated at Kyoto and Osaka Universities. In 1981 he was working at the global chemical company Asahi Kasei Corporation, where he was trying to make the lithium ion battery more practical by replacing the metallic lithium anode with graphite-like materials. His first approach was to use the recently-discovered electrically-conducting polymer polyacetylene. This material could be substituted for the metallic lithium anode and would still accept lithium ions as they migrated from the cathode but was not ideal. Akira Yoshino went on to test other forms of carbon/graphite and achieved success with coke obtained by thermal decomposition of petroleum ("petroleum coke"). He carried out safety tests by shorting out his new battery and comparing the results with a lithium-metal equivalent. His design incorporated an aluminum foil collector, a separator membrane and a positive-temperature-coefficient device to act as a safety check against thermal runaway. In 1991 Sony began mass production of lithium-ion batteries in Koriyama for use in the CCD-TR1 8 mm camcorder.



Akira Yoshino.

From those early days, Lithium-Ion batteries have been further developed with improved anode and cathode materials (including John Goodenough's LiFePO_4) to become the lightweight, energy dense, rechargeable products that power our mobile phones, notebooks, computers, tablets, cameras, handi-talkies and power tools today. Battery-electric vehicles such as the Tesla Model S, Nissan Leaf and later models of the Toyota Prius are all based on lithium-ion battery technology.



Lithium-Ion HT batteries (7.2V) by Yaesu and Kenwood.

Topographic maps

I like maps! No matter where you are, if you have a map of the place, you gain a better appreciation of your surroundings.

Topographic maps show the shape of the earth's surface, using contour lines to indicate locations of equal height. Topographic maps also mark physical features such as mountains, valleys, rivers, streams, lakes, roads and power lines — features that can affect radio propagation.

Online topo

Would you like a topographic map of our local area? You have several choices. If you use **Google Maps**, (<https://maps.google.com>) you can navigate to your area of interest then click the Menu button (top left, three horizontal bars).

When the menu appears, click on “Terrain”. You should see contour shading, as though the sun was shining from the northwest corner and — depending on zoom level — you should also see contour lines at 20 ft intervals.



Google Maps shows Jacobs Hill with 20 ft contours and contour shading.

County topo

If you live in Westchester, another way to view Topo maps is to visit the Westchester County map site, <https://giswww.westchestergov.com/gismap/> then zoom into your area of interest. Contour shading should already be on. At the top border of the map, click on “Add map service” then click “2 foot contours”.

In the right margin you should see a checkbox to turn the 2 foot contours on and off, with a slider to darken and lighten their color. You will have to zoom



Westchester County online map of Jacobs Hill summit with 2 foot contours.

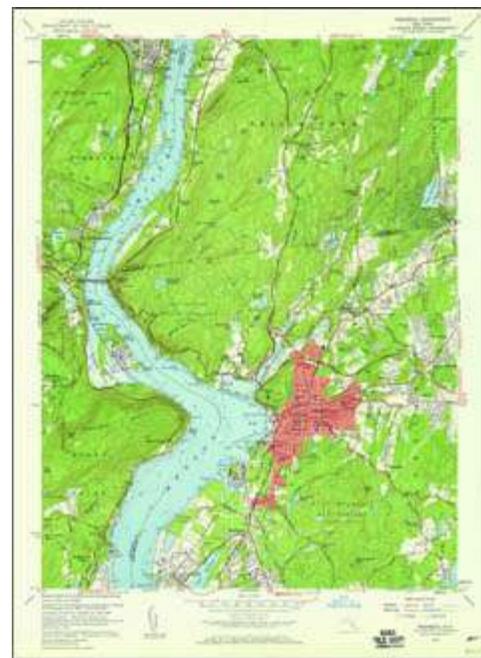
in to a 100 foot scale setting or tighter in order to see the 2 foot contour lines. According to the Westchester County map, the summit of Jacobs Hill (near the Beach Shopping Center) rises to a height of 598 feet.

Hint: the Westchester County online map service also gives access to historic aerial photos. Date range is 1947-2018. Look for the date slider top right above the map to view your location as it was pictured in previous decades.

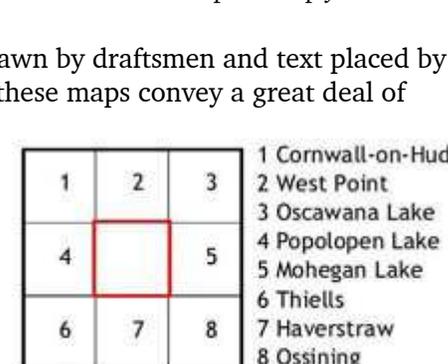
USGS Maps

The “gold standard” in topographic maps comes from the **U.S. Geological Survey**. The USGS topographic maps that people are most familiar with are the 1:24,000 scale **quadrangle** maps, covering an area of 7½ minutes of latitude or longitude on each side of the map. 1:24,000 corresponds to a practical scale of approximately 2½ inches to the mile.

The USGS Map Series that made the most impression was produced from 1945-1992. These quadrangle sheets were based on aerial photography augmented by field survey. Inspectors collected information on items such as survey marks, streams, swamps, trails, boundaries and local place names. Assembly of each map was a **manual process**, with lines drawn by draftsmen and text placed by hand. As a result, these maps convey a great deal of useful information in limited space with an elegant design that makes it easy to absorb the detail. However, these maps were expensive to produce and it



USGS “Peekskill” quad map from 1957.



ADJOINING QUADRANGLES
USGS quad maps adjoining “Peekskill”.

took a long time for the Series to be completed for the entire country.

A different approach was adopted for the new series of **US Topo** quad-range maps, with first versions generated from 2009-2011.

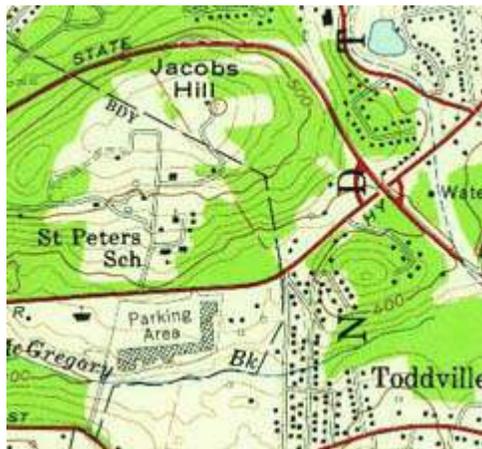
These maps are **mass produced**, using automated processes that draw information from national GIS databases (GIS = Geographic Information Systems data), containing information on elevation, land cover and hydrology — lakes, rivers, streams. However there is limited information on lesser features such as windmills, water tanks, boundaries, power lines, pipelines, railroads, recreational trails, survey marks, buildings, ruins, mines, springs and wells. As a result, the new “US Topo” maps are missing features that made the previous series so useful. In addition, the automation tools that assemble GIS data into a finished map lack the subtle touches of human drafters so the final result is less elegant, with an inferior presentation of features and text placement.

You can view old-style and new-style topographic maps of our area dating from 1892 to 2016 by visiting the USGS Topoview site,

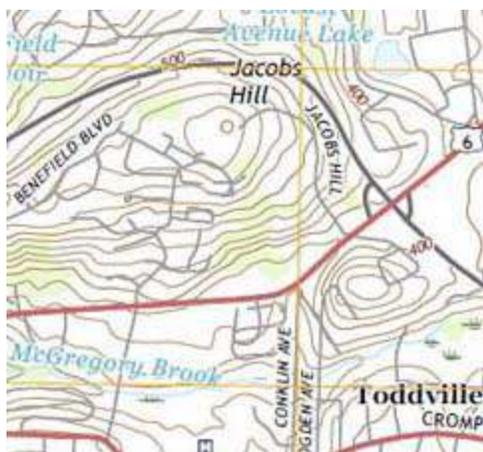
<https://ngmdb.usgs.gov/topoview/viewer/> . Here is a link customized for the Peekskill/Cortlandt area:

<https://ngmdb.usgs.gov/topoview/viewer/#11/41.2876/-73.9165>

Click any point on the on-screen map and in the right margin you should see a list of available topographic maps covering that location... for example “West Point 1892” or “Peekskill, NY 1957” up to “Peek-



Detail from manually-produced Peekskill 1957 quad showing Jacobs Hill with 20 ft contours.



Detail from mass-produced “US Topo” Peekskill 2016 quad showing Jacobs Hill. (Note the lack of boundary, buildings and water tanks.)

skill, NY 2016”. Clicking on the thumbnail picture should open a **jpg** version of the selected map in a separate viewing window. Clicking on the *name* of the map gives various options available for download — including **jpgs** and **pdfs**.

The PDF files for the new-style “US Topo” maps can be quite large (20 MB) and should be opened in Adobe Acrobat or Acrobat Reader. These new maps are in *vector* format, so they can be zoomed-in without losing resolution. They have multiple layers that can be turned on or off. For example under the “Terrain” layer you can turn Shading ON and turn Contours OFF.

The downloadable maps from USGS are **free**, including the new-style “US Topo” maps published from ~2009 onwards. The latest Peekskill Quad is dated 2016.

Hard copy

Maps on the computer screen are convenient, but there are times when a paper map is preferred. You might need a printed map to hang on a wall, roll out on a table, or fold-up for your forthcoming DXpedition.

The free PDF files that can be downloaded from USGS would be ideal for printing — if you had a large-format color printer capable of ANSI D-sized paper, 22" × 34". But it is rare to find a domestic color printer that can load anything larger than legal-size (8½" × 14") paper.

There is a way to print large-format maps on a small printer using Adobe Acrobat or Acrobat Reader 10 or later. First open the Acrobat “Print” dialog using File → Print. Under “Page Size & Handling” you should see a button marked “Poster”. This option prints any large PDF file across multiple sheets of paper to form a mosaic. The technique is called “tiling”, with options to adjust several items.

Tile scale: (choose 100% for an accurate scale map)

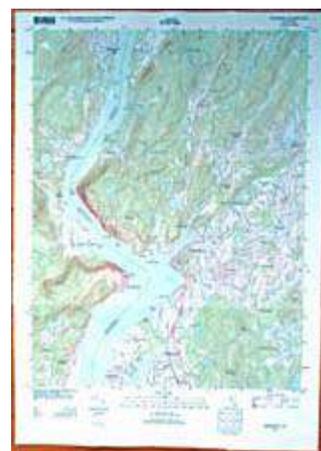
Overlap: gives space to glue pages together

Cut Marks: adds guide marks to help trim overlap.

Labels: adds filename and page number on each tile.

You can print a USGS Quad map — which normally occupies a large sheet of paper sized 22¾" × 30" — on *nine* sheets of letter-size paper, 8½" × 11".

Hint: if you employ the Acrobat “poster” printing technique, use a paper trimmer or guillotine to remove unused parts of the paper sheets with a clean, straight-line cut. Leave enough overlap to fasten

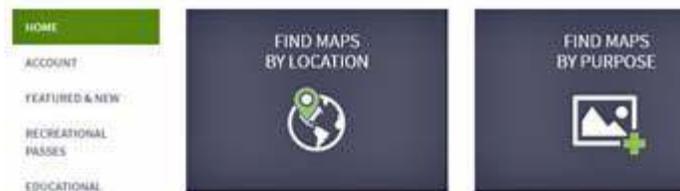


USGS Quad map printed on *nine* paper tiles.

the sheets together with adhesive. As an alternative, attach the nine letter-size sheets to a large piece of card or foam-board to act as backing. This could be an inexpensive way to prepare a large map suitable for a Foxhunt or similar activities.

Pay-for-paper

If you do not want to glue pages together, or if you would prefer a more professional product, you can always order printed maps direct from the USGS Store. Their web address is: <https://store.usgs.gov/>



Detail from “USGS Store” home page.

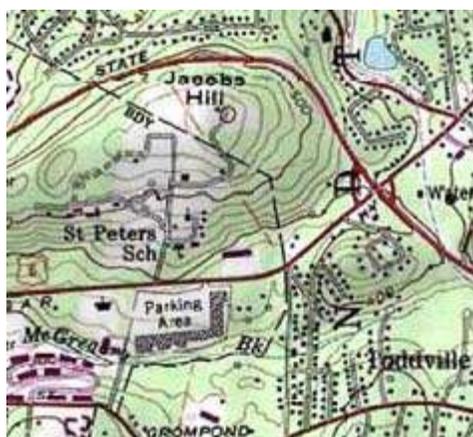
Click on “Find Maps by Location” then use the “U.S. Map Locator” to find the location of interest. For example, if you enter “Peekskill, NY” followed by “View Products” you will see various maps offered, from “2016 USGS US Topo 7.5 - minute map for PEEKSKILL, NY, **Scale:** 1:24,000, **Format:** Flat” to “1981 PEEKSKILL, NY **Scale:** 1:24,000, **Format:** Flat”.

These maps are printed *on demand* by the US Geological Survey and cost \$15.00 each. There is also a handling charge of \$5.00 per order — so it may be worthwhile ordering several maps together. The maps will take a few days to be delivered from Denver, CO, rolled up inside a cardboard tube.

National Geographic

Another source of topographic maps is **National Geographic**. If you pay a visit to their web site, <https://www.natgeomaps.com>, you can select “Trail maps” → PDF Quads. This should take you to a USA map where you can

zoom in to your area of interest, which is covered with small red dots. Each square dot is at the center of a USGS 7.5 minute quad. Click the dot to see the quad name and download a five-page PDF

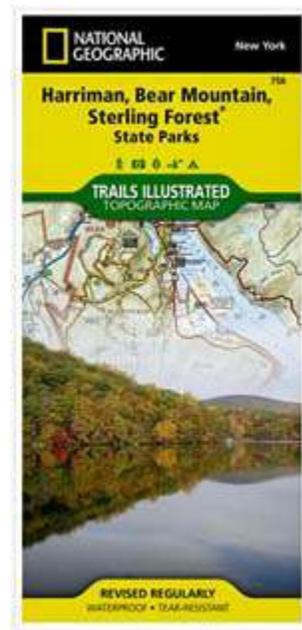


Detail from National Geographic version of 1981 USGS quad showing Jacobs Hill, includes new buildings and hill-shading.

file containing a key-map and four separate pages of the USGS Quad, scaled for printing on letter-size paper. The scale is roughly 2 inches to the mile, *smaller* than the original USGS 1:24000 product.

These maps reproduce National Geographic’s “Topo!” product, previously available on CD-ROM. The maps are taken from the older series of USGS topographic maps with the addition of hill-shading to visualize the topography.

The underlying maps have not been updated by USGS for roughly 30 years — so recently-added features can be missing. National Geographic has a series of “Trails Illustrated Map™” with updated details. These tough, paper maps include contour lines and shading, but they only cover *recreational* areas which are of interest to hikers and tourists. Our own area is partly covered by National Geographic Map # 756, “Harriman, Bear Mountain, Sterling Forest State Parks”, costing \$11.95. You may find a copy at local booksellers.



- NM9J

V.E. Test Session

A PCARA Volunteer Examiner (V.E.) Test Session is scheduled to take place on Saturday November 16, 2019 starting at 11:00 a.m. at the John C. Hart Memorial Library, 1130 E Main St, Shrub Oak, NY. The session follows immediately after the PCARA breakfast at Uncle

Giuseppe’s (formerly Turco’s), scheduled for 9:00 a.m. on the same morning.

The cost for candidates is \$15.00 per exam or retest. A photo-ID is required and your Social Security Number will be needed if unlicensed. Please bring a copy of your current amateur radio license if upgrading.

All candidates are strongly advised to contact Mike W2IG before the test session, using e-mail address: w2igg@yaho.com



John C. Hart Library, Shrub Oak.

New York QSO Party 2019

PCARA's entry in the New York QSO Party on Saturday October 19 was once again hosted by Joe WA2MCR. There had been a small upset three weeks earlier when one of Joe's neighbors had a large tree removed from the back yard — a tree which was supporting Joe's wire antennas. Joe reworked the antenna arrangements days before the contest (with some assistance from your editor) so there was now a ZS6BKW multi-band dipole running east-west for use on 40 and 20 meters plus a Carolina Windom for 80 meters, supported at three points in a 'dog leg' configuration to fit into the yard.

The station was housed in Joe's Sun Room, where work had been going on to renovate the balcony and wooden steps leading up to the deck. Fortunately, access was completed by Saturday morning.

Shortly after PCARA's Breakfast on October 19, Verle W2VJ arrived at Joe's location to assist with operating. Some carpentry work was still underway outside — so headphones were required as Joe and Verle picked up points on 80 meter SSB. Joe's Icom IC-7410 HF transceiver was in use along with computer logging by N3FJP's New York QSO Party Contest Log 1.9.

In early afternoon Nick KD2SKY joined the party while Verle had a run going on, using 20 meter SSB. Nick took over the microphone and worked even more stations. *PCARA Update* readers may recall that Nick (ex-K0COZ) was re-licensed as a result of the July 20 PCARA V.E. Test Session, but he has not yet acquired an HF transceiver. Before Nick departed, Joe loaned him a Kenwood TS-530S transceiver to try out on the HF bands.



L to R: Verle W2VJ logs as Nick KD2SKY operates 80m SSB from the WA2MCR Sun Room.

New York QSO Party was not the only activity taking place on Saturday October 19. DARC's "Worked All Germany" contest and the Boy Scouts "Jamboree on the Air" were also filling the HF bands, not to mention the South Jersey Radio Society Club QSO Party.

During the afternoon, Joe was called on 80m SSB by Wires KC2FYY, operating from Orange County. Will was active in the early days of PCARA. For the evening session, Joe was joined by Lou, KD2ITZ who was busy chasing stations on 40 and 80 meters, phone and CW. Joe's family became concerned at one point when Optimum cable TV and Internet both went out, but we were able to convince them that this was a general outage, unrelated to the RF fields in the immediate vicinity.



Worked All Germany.

After 12 hours of operation, the contest ended on Saturday evening at 10:00 p.m. Eastern, with 330 contacts made.

Final results

Joe provided the following figures, showing the results and claimed score according to the N3FJP contest software.

New York QSO Party 2019, W2NYW WES

Band	CW	Phone	Total
80m	37	78	115
40m	32	104	136
20m	1	78	79

Total contacts = 330

Total points = 36,000

W2NYW contacted 48 out of the available 62 New York Counties, plus 43 States/Provinces — for a total multiplier of 90. There were 70 CW contacts which score 2 points each plus 260 phone contacts, for a total of 400 points. The N3FJP software calculated a claimed total of 36,000 points.

Here is a summary of claimed results from past years, along with the sunspot low year of 2019.

Year	QSOs	Points	Multiplier	Claimed total
2013	300	345	83	28980
2014	463	548	100	54800
2015	292	359	81	29079
2016	352	441	86	37926
2017	432	612	87	53244
2018	392	564	73	41172
2019	330	400	90	36000

From past experience, there may be some modification to these numbers for 2019 after New York QSO Party examines all the submitted entries. Watch for results to be published in early 2020 on the NYQP website: <http://nyqp.org/wordpress/>

- NM9J

NanoVNA – mini review

Readers may recall that in *PCARA Update* for October 2018 there was a review of the *FunkAmateur* magazine FA-VA5 Antenna Analyzer kit. This unit squeezes a lot of modern technology into a small metal box, allowing single port measurement of antennas and other devices over the frequency range of 10 kHz to 600 MHz, with a computer connection available for control and graph plotting. The FA-VA5 works perfectly well standalone from internal AA batteries, as recently demonstrated during re-stringing of antennas at WA2MCR in time for the NY QSO Party.



FA-VA5 vector antenna analyzer.

During the QSY Society meeting on October 1, 2019 there was a short “show and tell” about the “NanoVNA”, a tiny two-port vector network analyzer. Original design work was by @edy555 and ttrfttech, then Chinese suppliers began mass-producing the design in mid-2019. Price of the finished article is as



NanoVNA as pictured on Amazon.

low as \$50.00 and at that point electronic hobbyists and radio amateurs began showing great interest. After seeing the device at the QSY Society, I decided to try one out myself. Online advice recommended choosing a model with shielding over the RF circuits, so I checked on Amazon and found the “AURSINC Vector Network Analyzer 50kHz - 900MHz HF VHF UHF Antenna Analyzer” with metal shielding, battery, and cables — in-stock for \$73.00 with free shipping.

What’s included

One week after ordering, a package arrived with the NanoVNA in a plastic box plus a set of adapters for BNC and PL-259 connectors that I had added to the order.

The items inside the plastic box included the NanoVNA itself, a USB A-to-type-C cable, two SMA (SubMiniature version A) male to SMA male cables, and three SMA terminations for calibrating — short, open (gold) and load (silver). There was also a back-to-back SMA female connector.

One thing was missing from the box — there were



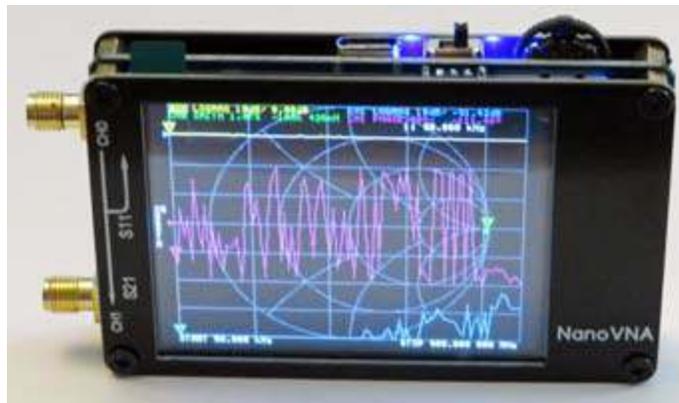
Items included in the AURSINC NanoVNA Vector Network Analyzer.

no instructions whatsoever. Fortunately, I had been checking online and there is documentation plus software available on this Google Drive link:

<https://drive.google.com/drive/folders/1-JViWLBOIzaHTdwdONX2RP8S4EgWxoND>

The English User Guide on Google Drive describes how to charge the built-in 450mAh LiPO battery... simply connect the USB-C data/charge cable to the device and plug the other end into a USB power source (5V). There is a battery LED alongside the USB-C connector which flashes blue during charging then lights steadily when fully charged. An additional “System LED” on the other side of the power switch flickers to show that scanning is underway.

Once the battery was charged, I switched on and saw the tiny color display light up with a startup message, followed by a graphic screen showing four different colored traces. Labeling of the axes is in a tiny font but close scrutiny revealed that the frequency scan on the horizontal scale was covering 50 kHz to 900 MHz (wow!) while the vertical scale was calibrated in 10dB steps in order to show return loss using the first (yellow) trace.



NanoVNA powered up for the first time shows four different traces on the color display/touch-screen.

There are two ways to control the NanoVNA. At the top of the case there is a “multifunction switch”

which acts as a rocker switch to move the triangular marker along each trace, while indicating the frequency at that point. Depressing the switch brings up an on-screen menu and allows items to be selected. The second method of control is via the 2.8" display which also happens to be a **touch-screen**. Tiny touch screens



The protective film over the touch-screen can be peeled off after removing the bezel.

are not compatible with my fat fingers, so I used a rubber-tipped stylus previously purchased for iPhone and iPod use. The touch screen arrives with a protective covering, but this is easily peeled off

after first removing four Philips screws that secure the top bezel.

The on-screen menu commands are listed in the User Guide — but there is a superior menu map available on Google Drive, put together by AE5CZ. The first thing to do with the menu is to turn off traces that are not currently needed, making the display a lot less crowded. You can also change the trace format from return loss (“LOGMAG”) as used by RF Design engineers to the more familiar VSWR (SWR) to produce an SWR versus frequency graph as used by radio amateurs. (A VSWR of 2:1 corresponds to a return loss of 9.5 dB.) The Smith Chart is also available as one of the trace choices.

The English User Guide is a slim volume covering only the simplest operations, including calibration. Fortunately there are a host of tutorials and demonstrations available on YouTube. I would recommend a series of videos by “IMSAI Guy”, starting with “#350, NanoVNA Vector Network Analyzer”:

<https://youtu.be/THc5ZTxQUSg> . There is another tutorial by Joe Smith: <https://youtu.be/mKi6s3WvBAM> .

The two RF connectors on the NanoVNA are *female* SMA — suitable for the male SMA antennas and cables used with handi-talkies from Japanese manufacturers such as Yaesu, Kenwood and Icom. If you have an antenna with a *female* SMA connector, as employed with Chinese transceivers having a recessed SMA male antenna connector, then an adapter will be required.

I checked various handi-talkie antennas with male SMA connectors using the NanoVNA analyser. The stock antenna for my Yaesu FT-70R shows a low SWR at 146 MHz and a much broader resonance around 500 MHz. Some after-market antennas showed a

higher frequency first resonance around 150-160 MHz with a better dip at 440 MHz. Bear in mind that proximity of any antenna to nearby objects and holding the case of the analyzer — which acts as a ground plane — will modify antenna characteristics significantly.



Yellow trace shows SWR of Diamond SRH519 dual-band SMA antenna. Marker 1 at 153 MHz, next dip at 432 MHz.

I have not yet had a chance to try out more of the NanoVNA’s capabilities. The USB cable can be connected to a Windows PC to allow control from the computer, data transfer and improved graphing on a larger screen. The two-port capability allows components more complex than antennas to be analyzed — for example RF filters, matching networks, attenuators, duplexers etc.

Conclusions

The NanoVNA is a fascinating piece of test equipment, showing just how much capability can be incorporated into a small format at low cost nowadays. The analyzer could be easily slipped into a pocket or added to a tool bag for antenna testing out in the field.

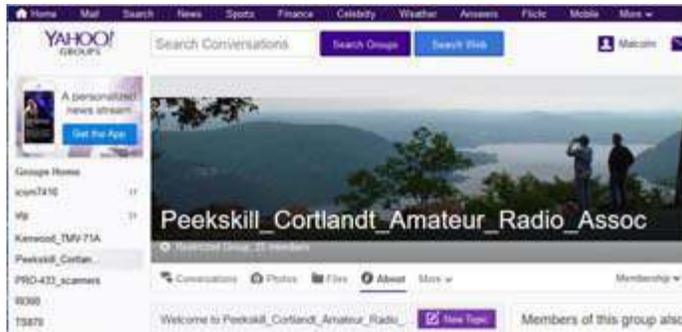
However I would throw in a few *caveats*... The construction is in the form of an etched circuit board sandwiched between two thinner boards. There is limited RF shielding and no protection for the circuit elements against rain and moisture. The touch screen could become scratched and the multifunction control stands proud of the enclosure where it could easily be broken. Keep the unit protected in a pouch or phone holster until needed.

Primary frequency range of the analyzer is 50 kHz to 300 MHz. Above 300 MHz, the coverage relies on the third harmonic ($3f$) of the fundamental square wave frequency and dynamic range is not as good. Apart from modern VHF/UHF handi-talkies, SMA connectors are *rare* in amateur radio — so you will probably need adapters if your device under test has BNC, PL-259 or any other type of connector.

Despite these minor quibbles, the unit is still very good value for \$50.00. How much did your last antenna analyzer cost and could it do one tenth of what the NanoVNA is capable of? - NM9J

Yahoo! Groups will remain - KD2ITZ

PCARA will continue to use Yahoo! Groups despite upcoming changes. Our club has maintained a group for several years and there are over sixty subscribers. Amateurs from inside and outside the local area participate, including several ARRL Hudson Division leaders. PCARA members who still haven't registered are encouraged to join. Instructions can be found on www.pcara.org.



*Yahoo! has announced that starting December 14, 2019 Yahoo! Groups will no longer host user created content on its sites. New content can no longer be uploaded after October 28, 2019. Sending/receiving email functionality is **not going away**, you can continue to communicate via any email client with your group members.*

Anyone who has additional questions about the group can direct them to mail 'at' pcara 'dot' org. As a reminder, the service is open to subscribers who use any email provider. It is not necessary to have a Yahoo! account to participate. Likewise, there is an approval process to prevent unwanted messages.

The upcoming changes affect subscribers who check their messages on the Yahoo! Groups website and not their inboxes. Starting on October 28th, the company states "You'll still be able to communicate with your groups via email." Although the archive of messages and files will be removed from the site before the end of the year, subscribers will receive messages directly in their inboxes, as usual. They will also phase out the "daily digest" option in favor of individual messages. More information can be found on <https://help.yahoo.com/kb/SLN31010.html>. There should not be a need to migrate to an alternative provider, such as *groups.io*. Our club does not rely upon the old messages as a knowledge base.

Please continue to use the Yahoo! Group to communicate with the club. Messages regarding events, technical questions, equipment sales, and club logistics are always welcome.

- 73, Lou KD2ITZ

Fall backward

Daylight Saving Time ends at 2:00 a.m. on Sunday November 3, 2019. Remember to change any of your household clocks and watches that still require manual adjustment.



The change from Eastern Daylight Time to Eastern Standard Time takes place on the same Sunday as PCARA's November meeting — which starts at **3:00 p.m. Eastern Standard Time** on November 3. Be sure to change your clocks, or you might turn up one hour early for the meeting.

Foxhunt University

On October 1st Karl N2KZ gave an encore presentation of Foxhunt University during the monthly meeting of the QSY Society at East Fishkill Community Library. Previous presentations have been made to PCARA and to Candlewood Amateur Radio Association.



Karl N2KZ points the way to a hidden transmitter during Foxhunt University at QSY Society's October meeting.

QSY Society will be holding its own first annual Fox Hunt on Saturday November 16th, beginning 10:00 a.m. at the Poughkeepsie Galleria Mall near Macy's. Participants are asked to RSVP to Scott w2ntv 'at' arrl.net by November 2, 2019. Further information about the QSY Society is available at <https://qsysociety.org/>.

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 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

Sun Nov 3: PCARA meeting, NewYork-Presbyterian /Hudson Valley Hospital, 3:00 p.m. Visit from ARRL Hudson Division Director Ria N2RJ.

Sat Nov 16: PCARA Breakfast, Uncle Giuseppe's (formerly Turco's), Yorktown Heights, 9:00 a.m.

Sat Nov 16: PCARA V.E. Test Session, John C. Hart Memorial Library, Shrub Oak NY. 11:00 a.m.

Tues Nov 19: "Getting Started with FT8" by Masa JR1AQN, Cortlandt Town Center CUE Room, 7:00 p.m.

Hamfests

Sat Nov 2: New Jersey Antique Radio Club Swapmeet-Hamfest, Parsippany PAL Bldg., 33 Baldwin Road Parsippany, NJ. 8:00 a.m.

Fri Nov 29: Fairlawn ARC Auction, Fair Lawn Senior Center 11-05 Gardiner Road Fair lawn, NJ. 6:30 p.m.

VE Test Sessions

Nov 10: Yonkers ARC, Yonkers OEM, 789 Saw Mill River Rd, Yonkers NY. 11:30 a.m. Pre-reg. Walter P. Pastor (914) 826-5571.

Nov 14: WECA, Westchester Co Fire Trg Center, 4 Dana Rd., Valhalla, NY. 7:00 p.m. S. Rothman, (914) 949-1463.

Nov 15: Orange County ARC, Munger Cottage, 183 Main St, Cornwall NY. 6:00 p.m. Contact Joseph J. DeLorenzo (845) 534-3146.

Nov 16: PCARA, John C. Hart Memorial Library, Shrub Oak NY. 11:00 a.m. Contact Michael W2IG on w2igg'at'yahoo.com.

Nov 18: Columbia Univ ARC, 531 Studebaker Bldg, 622 W 132nd St, New York. 6:30 pm, Alan Crosswell (212) 854-3754.

Saturdays: Westchester Amateur Radio Club, 12 noon. Must call Paul Maytan AC2T (914) 237-5589 for details and appointment.



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