PCARA Update

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Cortlandt Contributions – KB2CQE

Thanks to some very dedicated members, PCARA now has three new antennas to use at the Town of Cortlandt Town Hall. Through the efforts of Joe, WA2MCR, Malcolm, NM9J, Ray, W2CH, and Marylyn, two dual band (2m/70cm) verticals and an 80 meter dipole now reside in the attic of town hall. The antennas just happened to be tested a week after their installation during the peak of Tropical Depression Ivan and performed just fine. A job well done! Thank you!

Joe WA2MCR, Marylyn and Ray W2CH unwind coaxial cable at Cortlandt Town Hall. (See page 2 for details.)

PCARA will be sponsoring a **foxhunt** on Saturday, October 16, 2004 at 3:00 PM. Bob, N2CBH and Mike, N2EAB have volunteered to play the fox once again. If you remember Bob and Mike played the fox at the last PCARA foxhunt and weren't found. This time they promise to make it not as challenging. Details to follow at the October meeting, with rules included in this newsletter.

There is a new repeater upgrade initiative in the works. In order to improve the sensitivity of the 146.670 MHz and 449.925 MHz repeaters, additional equipment is needed. It has been estimated that approximately $1500 will be required to complete the upgrade. We need to investigate ways in which the funds can be raised to achieve this initiative. If you have any ideas or suggestions how this might be done, please feel free to contact one of the officers.

– 73 de Greg, KB2CQE

The PCARA fox returns to the Cortlandt airwaves on Saturday October 16. (See page 5.)

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PCARA Officers

President:
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Vice President:
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Secretary/Treasurer:
Mike Aiello, N2HTT; n2htt @ arrl.net

Town Hall happenings

On successive Saturdays, PCARA members have been making things happen at Cortlandt Town Hall. If you are not familiar with the location, Town Hall is located at One Heady Street, next to Colonial Terrace

Cortlandt Town Hall

Caterers. A visit to Cortlandt Town Hall might remind you of waiting outside the principal's office — that's because the building was originally opened in 1935 as the Van Cortlandtville School.

Saturday September 11 saw a small group of radio amateurs descend on Town Hall, led by Joe WA2MCR. Joe has been liaising with the Town of Cortlandt Department of Environmental Services/Homeland Security for many months to obtain materials and install antennas for emergency use. All supplies were now on hand, with permission for installation.

Greg KB2CQE and daughter show the Comet GP-3 dualband VHF/UHF antenna.

Joe's intention was to install two dual-band collinear antennas for 144/440 MHz followed by an HF antenna optimized for 80 meters, where Statewide emergency nets tend to take place. The VHF/UHF antennas were a Comet GP-3 and GP-5. These are the type where all the interesting 'works' are concealed inside a fiberglass tube. The GP-3 is just 6 feet tall, with a gain of 4.5 dBi (2.3 dBd) at 146 MHz and 7.2 dBi at 446 MHz. The GP-5 is shipped in two sections, with a total length around 10 feet when assembled. Gain is 6.5 dBi at 146 MHz and 9.0 dBi at 446 MHz (See http://www.cometantenna.com). The antenna for HF was a full-size MFJ dipole, cut for 80 meters.

Over 300 feet of coaxial cable had to be unspooled, cut to length and terminated in PL-259 plugs. Your editor had brought along a 150 watt soldering iron for this job, but by the end of the day, we were all wishing that pre-soldered cables had been ordered! The RG-8X patch cables were easy enough to prepare, but the low-loss 9914F "Buryflex" cable for the VHF/UHF antennas was not so easy to solder thanks to the lightweight braid on the "double shield".

NM9J with Comet GP-3 antenna installed in the roof space.

The antennas were all installed in the extensive roof space of Town Hall. Joe and your editor had lots of exercise climbing the steps and pulling feeder into the long area above the administrative offices. Eventually everything was in place; we checked operation and closed up the attic. The cables were coiled up outside the Supervisor's office, ready for action.

Action stations

The aforementioned action began the following Saturday, September 18, when an exercise had been scheduled between Cortlandt Town Hall and an emergency shelter at Carrie E. Tompkins Elementary School in Croton. Club members arrived at 7:30 a.m. to extract antenna cables from the Town Hall ceiling and connect the radios. This was our first chance to measure SWR and carry out a full performance assessment. The VHF/UHF antennas seemed to be working very well.

Meanwhile, Casey K2FIX had volunteered to assist at Carrie E. Tompkins school — as he lives in Croton and knew exactly where the school is located. Communication was established through the W2NYW repeater on 146.67 MHz. Signals were also exchanged with

Joe WA2MCR and Greg KB2CQE set up Greg's field radio at Cortlandt Town Hall on September 18.

K2FIX on the KB2CQE 449.925 MHz repeater, though UHF strength was not as good in Croton. Simplex communication on 2 meters was *not* possible.

Karl, N2KZ was standing by to test signals on the HF bands. Although both stations heard each other on 80 and 40 meters, signal strength was not high – possibly because of the skip distance and Karl's Katonah location being 12 miles off the southeast end of the dipole.

Saturday September 18 was the day the remnants of Hurricane Ivan swept through the North East, with high winds and several inches of rain, the majority of which seemed to fall during the exercise period. As the exercise was winding down, a group of visitors arrived at Town Hall dressed rather formally for a wet Saturday morning! This was a wedding party concerned more with getting bride and groom spliced than with the wires hanging from the ceiling outside the Supervisor's office. In the event, Casey K2FIX was called on as a wedding witness, and Town Supervisor Linda Puglisi not only officiated at the ceremony but also witnessed our table full of radio equipment needed for emergency communications.

Thanks to the radio amateurs who participated in this exercise, and special thanks to Joe WA2MCR, who made all the arrangements for acquisition of antennas, installation and access to the Town Hall.

– NM9J

Sanford Fried (SK) 1929 - 2004

– N2KZ

Sandy Fried, N2SF, passed away on Monday, September 13, 2004. The Westchester ham radio community has lost a good friend and mentor. Sandy was an inspiration to all who knew him. He was 75 years old and was first licensed in 1949.

When I think of Sandy, I see him sitting in the basement offices in the Emergency Operations Center in White Plains.

He would always be the first to open the doors for the VE sessions or WECA (Westchester Emergency Communications Association) meetings. Dressed in his signature navy blue jacket, he was always quiet and relaxed and happy to see everyone who attended. You could feel the joy he had just from enjoying life.

I first met Sandy at the EOC in October of 1999. Sandy was one of the three VEs who gave me my first ham exam. I remember his big smile when I passed the test. He looked at me and said: "So, are you going to go for your Extra?" This was Sandy's subtle way of saying: "Don't stop now, kid!" You should have seen his smile when I came back two months later for the code exam!

Sandy was the personification of joy. He loved helping people and loved being around his pals. I recall serving as a VE with him at a Red Cross center a couple of years ago. Sandy had just bought a new Radio Shack HT. He couldn't wait to show it to me and demonstrate all the features. It was a very interesting rig, but it was more fun seeing how enthusiastic Sandy was about his new gear.

Sandy Fried, N2SF (photo courtesy of WECA)

Sandy was very active as liaison between WECA and the Westchester County emergency services for many years. He led the organization and training of legions of amateur radio operators to provide emergency communications during hurricanes, floods, blackouts and other disasters. Sandy enjoyed teaching as an 'Elmer' to anyone who was willing to learn.

Sandy was a seasoned ham with a superb background as a radio operator. He first became a ham in 1949 while serving as a Navy radioman in Long Beach, California. Sandy also served at naval bases in Ponce, Puerto Rico and Thurso, Scotland as well as operating maritime mobile from the USS Springfield in the Mediterranean Sea. He ended his naval career at The Brooklyn Navy Yard retiring as a Master Chief Radioman after a career of nearly 30 years.

In the past few years, Sandy's health was not the best and it was frustrating to him not to be able to be as active as he would like. He devised a clever way to continue to help new hams. In March of 2003, Sandy

taught a General Class license course over the air via the WECA repeater. Using the ARRL license manual as a textbook, Sandy did quite a job tutoring from his QTH. I wish I had taped the sessions to share them in years to come. Sandy was unstoppable!

Besides his work with WECA, Sandy was a pivotal figure in the local chapter of the Quarter Century Wireless Association. Membership requires at least 25 years in amateur radio and a clean FCC record. It exists as a fraternal group of mature radio operators who serve as mentors to newcomers. Sandy was anxious to get me interested in the QCWA and invited me to join their weekly on-air net. I had only been a ham about a year and a half and a long way from meeting the quarter century requirement for membership. I knew Sandy had been a ham for over fifty years, so I tried a silly strategy. I asked him, during the weekly net, if he would let me borrow half of his seniority to join the club. We both enjoyed that laugh!

My recollections of Sandy tell his story well. It is hard not to smile when you remember him. His grand spirit and enthusiasm will live on within everyone he encountered. His encouragement and simple happiness will inspire me for years to come. I wish I could shake his hand just to see him smile one more time. His key may be silent, but his joy lives on.

— Karl Zuk N2KZ

Two steps forward

The NM9J shack has a mixture of equipment old and new. The new radios are switched on almost every day, but some of the old anchors are there for sentimental reasons, and do not see service quite so often.

Recently I fired up my trusty, 21 year old Yaesu FT-902DM. The FT-901/902 is an interesting SSB transceiver design because it stands astride the older and newer techniques of frequency generation. In the traditional design, a low-frequency analog VFO (variable frequency oscillator) is mixed with a crystal oscillator to generate the local oscillator frequency. In the newer approach, the oscillator is digitally synthesized by frequency-dividing a VCO (voltage controlled oscillator) then phase locking to a frequency-divided master oscillator. The FT-902DM includes both techniques!

Yaesu FT-902DM classic HF transceiver

Part of the 902 design dates back to 1978, when Yaesu introduced the FT-901 as a six-band, 160 - 10 meter HF transceiver. After WARC-79, the World Administrative Radio Conference that brought us three new amateur bands, Yaesu introduced the FT-902DM, adding the new WARC bands at 30, 17 and 12 meters.

The FT-902DM frequency control drives a rotary tuning dial. The digital frequency display is above. To the left is the "Mark" switch for 100 kHz crystal calibration.

The "D" in FT-902DM stands for **digital** readout – the transceiver shows the transmit/receive frequency on a 6-digit amber LED display. Below the digital display is a dual-speed illuminated rotary dial, driven by the tuning knob. Just in case you're not sure about the frequency, there is a "mark" switch that turns on a crystal controlled 100 kHz marker – allowing accurate dial calibration.

That digital frequency display on the FT-902DM is quite different from the digital display on a modern radio. The FT-902DM displays the *actual*, measured frequency of the local oscillator, less the 8.987 MHz intermediate frequency. Compare this with the display in my Kenwood TS-430S, which is really showing the settings of the programmable dividers for the phase lock loops… while also computing what we are really interested in – the resulting frequency. All those calculations of division ratios and display data require a speedy microprocessor, so this newer type of fully digitally synthesized transceiver did not appear until around 1983.

The "M" in the FT-902DM stands for **memory**. My top-of-the line radio from 21 years ago had **one**, single memory for its VFO. Here's how it worked. Below the frequency control knob is the "M" (for memory) button. Press this button and digital circuitry memorizes the current frequency count for the 5.0 - 5.5 MHz VFO.

This stored count is then used to control a separate VCO, locking it to the current VFO frequency. After tuning the frequency dial away, if the "MR" (memory recall) button is then pressed, output is switched from the tunable VFO to the locked VCO and the previous frequency is effectively recalled. Quite an achievement for 1978!

Compare this single VFO memory to more modern radios with their 100+ digital memories, each of which can store frequency, band, mode and even PL tone.

Obviously the FT-902DM has quite a few shortcomings compared to its newer brethren. There is no general coverage receive, no band memory, no built-in antenna tuner, and no direct frequency entry. The VFO is free-running and drifts a little after switch on.

In accordance with my "two steps forward, one step back" theory of amateur radio evolution, there are several things the FT-902 does well that more modern radios **cannot do**. First of all, the FT-902 has a **preselector** – a pair of sharp, permeability-tuned resonant circuits in the input and output of the receiver's MOSFET RF amplifier. In your editor's view, a preselector is much more effective at rejecting strong, nearby signals than the switched bandpass filters in use today, each covering a range of several megahertz. I'll admit the preselector is one more control you need to adjust while tuning the band, but it's a small price to pay for superior rejection of QRM.

Another item on the FT-902 front panel that does not appear on modern radios is the "**width**" control. Turning the "width" knob changes the frequency of the I.F. mixers' 19.7 MHz VXO. This effectively slides the bandpass characteristic of the first crystal filter past the bandpass of the second crystal filter, narrowing the overall passband on either the low or high frequency side to reduce interference. Continuously variable bandwidth is a very useful feature in amateur radio — where interfering signals can pop up almost anywhere. A modern radio like the Kenwood TS-870 can also reduce bandwidth with its I.F. digital signal processing, but it does so in discrete steps, for example from 3.0 kHz to 2.8 kHz to 2.6 kHz to 2.4 kHz. Sometimes the setting you need falls between the steps – then it's time to bring back the FT-902!

The final farewell feature of the FT-902 is the **RF speech processor**. This circuit clips the SSB waveform on transmit, then passes the clipped signal through a second crystal filter to remove resulting RF harmonics. The result is a very useful increase in intelligibility without increasing the bandwidth. By comparison, my IC-706 has a straightforward AF speech compressor. I still like RF clipping best! (I used to have very good results in the 1970s on SSB with a Datong RF clipper.)

You can't stop progress – my latest transceiver is better in *most* respects than the FT-902… but sometimes I wish manufacturers would look back at their previous achievements and revive past performance with modern techniques. At the same time, the FT-902 is still an excellent performer – so if you are looking for a starter HF radio or a second transceiver, keep an eye open for a used model at a good price – and try to test the output from the 6146B P.A. tubes prior to purchase.

– Malcolm, NM9J

PCARA Foxhunt Rules

Saturday October 16, 2004

1. Transmission – FM simplex on 146.565 MHz, horizontally polarized.

2. Transmissions start at 3:00 p.m. for 5 minutes, followed by 5 minutes off. Second transmission commences at 3:10 p.m. 3 minutes on, 7 minutes off. The fox will not move during this time. This cycle repeats at 10 minute intervals until the last transmission ends at 4:30 p.m. when the fox will announce its location.

3. The opening transmission will include a time check for watch synchronization.

4. All contestants who wish to be eligible for a prize must book in at the **Beach Shopping Center car park**, in Peekskill before the start. Contestants will count as one team if more than one person occupies a car. (i.e. if three in a car, they don't get first, second and third prize.)

5. No contestant is allowed to move his/her car until the end of the first transmission, so take your time with the first bearing and make it a good one. The transmission will be audible from the start without a super-sensitive receiver.

6. Radio silence will be maintained by all contestants on all frequencies from the first to the last transmission.

7. No excess mileage penalty will be incurred but all contestants are reminded at all times to stay within the law and observe speed limits, parking restrictions etc.

8. The fox will be hidden not more than 5 miles from the start. The location of the fox will not be on property which is inaccessible by car.

9. Upon a contestant finding the fox, please do not shout or in any way give the location away to other contestants. Report your name/callsign to the fox and retire to the place of refreshment immediately. This will ensure that other contestants do not "discover" the fox because a group of people is hanging around nearby. It is requested that you maintain radio silence even though the fox has been found and the fact that you have found the fox should not be revealed to anyone until the place of refreshment has been reached.

10. The first competitor to locate the fox and positively identify him/her will be presented with a certificate. This competitor will be invited to assume the role of fox for the next foxhunt event.

11. Competitors should convene from 4:30 p.m. at the place of refreshment, which will be announced on-air by the fox.

Rules adapted from Bury Radio Society Fox Hunt, Malcolm, NM9J

Peekskill / Cortlandt Amateur Radio Association

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Newsletter contributions are always very welcome!

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 the Hudson Valley Hospital Center, Route 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. ** September meeting delayed one week.*

PCARA Repeaters

W2NYW:	146.67 MHz -0.6, PL 156.7Hz
KB2CQE:	449.925MHz -5.0, PL 179.9Hz (IRLP node: **4214)**
N2CBH:	448.725MHz -5.0, PL 107.2Hz

PCARA Calendar

Sun Oct 3: October meeting, HVHC, 3:00 p.m.
Sat Oct 16: PCARA Foxhunt, 3:00 p.m. Beach Shop Ctr.

Hamfests

Sat Oct 9: Bergen ARA Fall Hamfest, Westwood Regional HS, 701 Ridgewood Road, Washington Township, NJ. 8:00 a.m.
Sun Oct 10: Hall of Science ARC Hamfest, 47-01 111 Street, Flushing Meadows Corona Park, Queens. 9:00 a.m.
Sun Oct 10: Nutmeg Hamfest and ARRL CT State Convention, High Hill Rd., Wallingford CT, 9:00 a.m.
Sun Oct 24: Town of Babylon ARES Hamfest, Knights of Columbus Hall, 400 S Broadway, Lindenhurst, LI, NY. 9:00 a.m.

VE Test Sessions

Oct 3: Yonkers ARC, Yonkers Police Dept., 1st Precinct, E Grassy Sprain Rd, 8:30 A.M. Contact: D. Calabrese, 914 667-0587.
Oct 9: Bergen ARA, Westwood Reg HS, 701 Ridgewood Rd, Washington Twnshp NJ. 8:00 A.M. Contact Donald Younger 201 265-6583.
Oct 14: WECA, Fire Training Center, 2 Dana Rd., off Rt 9A, Valhalla NY 10595. 7:00 p.m. Preregister with Stanley Rothman, (914)949-6838.
Oct 15: Bergen ARA, Westwood Reg HS, 701 Ridgewood Rd, Washington Twnshp NJ. 7:00 P.M. Contact Donald Younger 201 265-6583.
Oct 18: Columbia Univ ARC, Watson Labs, 612 W 115th St. New York, NY, 6:30 p.m. Contact Alan Crosswell, 212 854-3754.
Oct 22: Orange County ARC, Munger Cottage, Riverlight Park, Hudson St., Cornwall NY 12518, 6:00 p.m. Contact Ronald Torpey, (845)783-1692.

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