



PCARA Update



Volume 13, Issue 4 Peekskill / Cortlandt Amateur Radio Association Inc. April 2012

Spring awakening

PCARA has taken a club table at the Orange County Amateur Radio Club's (OCARC) Spring Hamfest on Saturday, March 31, 2012 at the Town of Wallkill Community Center in Middletown, NY. For details visit OCARC's website at <http://www.ocarc-ny.org/>. Feel free to bring along any items that you're interested in selling.



L to R: Greg KB2CQE, Karl N2KZ and Joe WA2MCR behind the PCARA club table at last year's Orange County ARC Spring Hamfest.

Hopefully by now you've heard about the upcoming PCARA Foxhunt on Saturday May 12, 2012. The hunt will begin at the Beach Shopping Center in Peekskill, NY and conclude at a local restaurant.

Complete details including starting time and rules will be available at the April meeting (and in the next newsletter). Please come and join us for a great time!

Our next regularly scheduled meeting will be Sunday April 1, 2012 at 3:00 pm at Hudson Valley Hospital Center in Cortlandt Manor, NY. I look forward to seeing each of you there.

- 73 de Greg, KB2CQE



It's Spring - and that means antenna growing time. Here is a wire antenna that suddenly sprouted at WA2MCR.

PCARA Officers

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.

Adventures in DXing

- N2KZ

Faster Than a Speeding Bullet

YouTube videos can change your entire perspective on things! I recently saw a clip, posted by Ray, W2RE, showing his ability to work a CW contest using only a computer keyboard. No paddle, bug or straight key could be seen. Ray programmed basic responses into function keys and simply typed out the callsigns of his correspondents to be included into the stored messages. Needless to say, he could work DX stations just as fast as his fingers could fly across the keyboard. How fast? Blazing!

This system was just a small part of the enormous effort Ray has put into his contesting. With multiple antennas on multiple towers, beautifully designed complex transceivers and endless operating skill, it's no wonder he has reached champion status. Ray's shack is so different than mine that I feel like I am a participant in another hobby!



Ray, W2RE demonstrates how to operate a CW contest in this YouTube video.

There isn't a chance in the world that I could ever approach the speed of a seasoned keyboarder with my straight keys, QRP rigs and homebrewed wire antennas. You might even ask if keyboarding is even really CW or a more complex mode like RTTY. In any case, it is absolutely fascinating to watch. The speed Ray can work CW approaches or surpasses fine phone operators. With the added point multipliers that CW often carries, it's no wonder stations like his rise to the top among their competitors. Take a look and see Ray in action at: http://www.youtube.com/watch?v=NCQWm_XH0PQ.

Legendary contester Joe, WA2MCR, offered this advice on computer-aided CW: "I use a couple of CW programs and they work well for me. It doesn't beat

copying by ear but when you're tone deaf and can only remember three letters, it's a life saver! I've found for copying CW the best that I have used is CWGet by UA9OSV available at: <http://www.dxsoft.com/en/products/cwget>. It is a fully functional program and all you need is to take the receive audio from the radio and feed it into the line-in port on your computer and away you go."

"There is also a companion program called



Joe, WA2MCR looks on as Karl creates hand-crafted CW during PCARA's Field Day 2004 on Bear Mountain.

CWType for transmitting but have never used it. The programs I use for transmitting are built into my logging and contesting software. For general logging I use a program called Logger 32 found at: <http://www.logger32.net>. It's a freeware program and is fantastic. I use it to keep all my logs, plus it keeps track of all awards, has a couple of built-in programs for running various digital modes like RTTY, PSK31, etc. It also has a program for sending CW from a keyboard or from macros. For contesting, I use N1MM <http://n1mm.hamdocs.com/tiki-index.php?page=HomePage>. It is also freeware and has built in programs for running RTTY and CW."

Joe is one of many operators active in the nearby Hudson Valley Contesters group at: <http://www.hvcdx.com/>. You'll find more background information and fun pictures at their site. Brush up on your typing skills! A whole new world of operating is right at your fingertips!

It's So Quiet

I recently drove my wife's 2009 Toyota Prius hybrid to work. After a couple of runs to and from Stamford, Connecticut, I noticed something big was missing. I usually travel in a 2004 Toyota Corolla and I listen to AM broadcast radio quite a bit during my commutes. I know every turn and crag and I know when to expect an earful of overhead A/C line noise.

The Prius wouldn't hear from it! Where did the noise go?

I was doubly amazed. There are some points where the overhead noise could only be termed 'oppressive.' Even strong FM stations would suffer from crackles and buzz. The Prius' radio was entirely deaf to it. Only the radio stations could be heard. How could it discern the good from the evil so well? Bob, N2CBH, floated a good theory during the PCARA's Old Goat's Net: 'Maybe Toyota is filtering all the noise because it's a hybrid car.'

Using a portable radio, I probed around the Prius and found very little noise. The back of the car was nearly silent. The area around the hood showed just a hint of computer noise. Inside the cab, the display created a fairly good racket, but only at close range. The Prius radio uses a short helically-wound antenna mounted on the rear of the roof. The radio itself is under the back seat! It is controlled by the touch-screen display in the center of the dashboard. You can even control it by voice commands!

Prius radios are manufactured in the Shenzhen, Guangdong suburb of Hong Kong. I wasn't able to find any details about what noise-cancelling scheme was employed here, but it was obvious that something technologically advanced was going on. This may have been my first real encounter with advanced digital signal processing. Whatever the design, this radio employs an amazingly good noise canceller. When I went back to my older Corolla, I really missed the buzz-free listening found in the Prius. What a difference it made!

As a sidecar to this revelation, I also had the occasion to drive the Prius through the South Bronx and Manhattan scanning the dials. The amount of illegal pirate stations operating during PM drive-time was amazing.

Besides the Spanish-speaking religious pirate on 1710 AM (<http://www.smjrc.com/>) from the Iglesia Pentecostal Church on Webster Avenue in The Bronx, there must be a dozen and a half FM pirates on the air, all Spanish and usually with lively dance music.

The technical quality of these stations varies from OK to painful-to-listen-to! It doesn't seem like anyone

cares about their extra-legal status. You'll find them on all the 'unused' frequencies, particularly 95.1, 104.7,



Iglesia Pentecostal Church in the Bronx, with its own 'home brew' AM radio tower mounted on the roof.

93.7, 94.1, 95.9 and so on. Most of these stations have been on the air for months or even years 24/7/365 without any interruption. The 1710 AM station has been preaching for over 15 years from just north of the Botanical Gardens and Bronx Zoo. My only question: Is anyone listening?

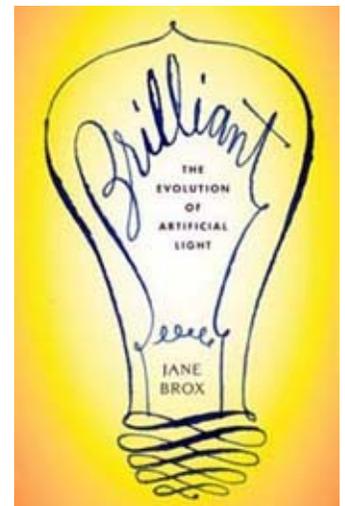
It's Brilliant

Have you seen the light? I chanced upon a wonderful book at my local public library a few days ago. 'Brilliant' by Jane Brox is a fascinating chronology of the development of artificial light. Starting with lamps devised by cave men, it progresses through 40,000 years of human experimentation and implementation. Jane's style is inquisitive and anything but dry. She did her homework and culled it into a great read you are sure to enjoy cover to cover. I learned a great deal from this book!

The story is not as predictable as it may seem. 'Brilliant' not only studies the history of a wide variety of photon emitters but carefully considers how light has affected society and ultimately how profoundly it has changed the entire lifestyle of man. You'll hear about refining the burning flame, (be it oil or wax or gas,) generating and harnessing electricity, developing many different types of lamps and



Touch-screen display for Prius car radio.



what the future may hold. By the way, this book also demonstrates how important all of this history was to an invention called radio.

What dramatic changes occurred! Jane's chronicle beautifully describes the slow conversion from the flickering of gas to the warm, mellow and solid glow of the incandescent lamp. Her book brought me a new understanding of life during the turn into the 20th Century. Come visit the 1893 Columbian Exposition in Chicago where 200,000 incandescent lamps all shone at once! I also acquired an appreciation of New York's Niagara region where Nikola Tesla flexed his abilities to generate and distribute electricity to light the world. The Niagara's importance has continued for many decades.



New England author Jane Brox.

Remember the lessons learned from the massive blackouts of 1965 and 1977? Could today's New York City survive without Niagara's endless energy? Do we now have too much light? (Ask an astronomer!) What will evolve from CFLs and LEDs?

'Brilliant - The Evolution of Artificial Light,' by Jane Brox is published by Houghton Mifflin Harcourt. It's available through Amazon, Barnes and Noble and all major booksellers and ready for loan at the Hendrick Hudson (Montrose), Chappaqua, Mount Kisco and many other local libraries. See the light and learn all about it! It's 'Brilliant!'

Three for Free

The PCARA has lots to offer you and it's all free! You'll find an archive of over ten years of the award-winning *PCARA Update* newsletter on-line at the PCARA web site www.pcara.org. Listen in and join in to the talk of the town each Thursday night at 8pm for The Old Goat's Net over the PCARA 2 meter repeater (146.67 MHz,) over the Internet at: <http://www.radioreference.com/apps/audio/?feedId=3186> or via many PC, Apple and Android apps such as 5-0 Radio and TuneIn. Check out our Facebook page for the very latest news, DX tips and interesting reads. Not enough? Our monthly meetings and great events (like our upcoming foxhunt and ARRL Field Day) all welcome you! Join the fun! You'll be glad you did!

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



Liverpool look-back

Your editor has been looking back through photo albums and reminiscing about radio events back home, some 35 years ago. There is a tie-in with fox-hunting, so stay to the end!

Repeater revolution

In the mid-1970s, UK VHF and UHF phone operation was making a change from AM to FM. In northwest England, the area's first 2 meter FM repeater was licensed in April 1976. The UK FM Group Western's repeater **GB3MP** came on air from the Independent Broadcasting Authority TV mast at Moel-y-Parc in North Wales.

This site is 1063 feet above sea level at the northern end of the Clwydian Range of hills. The TV mast rises a further 750 feet above ground in order to bring Welsh TV service to the hills and valleys of North Wales — but it also covers a major part of north-west England, bringing an alternative choice of viewing to BBC and ITV.

Coverage of the GB3MP two meter repeater on European channel R6 (145.75 MHz, -0.600) stretched from the North Wales coast across the industrial heartland of Liverpool and Manchester, then northward along the Lancashire coast to the southern tip of the Lake District. This large, heavily populated area provided a lot of activity, so GB3MP was always busy at drive times and beyond.

Sounds of the seventies

Bear in mind that in the "BC" 1970s — before personal computers — analog techniques were dominant and synthesized radios were a few years away. For mobile operation as G3VNQ/M, I had a crystal-controlled Icom IC-22A transceiver for two meter FM, mounted in a VW Beetle. In addition to commercial equipment like Icom, radio amateurs were



*Moel-y-Parc TV mast in north Wales, housing the early two meter repeater **GB3MP**.*



Icom IC-22A FM transceiver

also making use of surplus radio telephone equipment, with Pye Telecommunications being the most popular brand. At various times, I had an AM Pye Cambridge for 2 meters, an FM Cambridge for 430 MHz, a Pye Vanguard for 4 meter AM, and a trunk-mounted Pye Westminster, which I used mobile on 430 MHz FM.



G3VNQ VW Beetle with multiple antennas.

This was also a time before the CD player, so if you wanted to listen to the Beatles in your VW Beetle, it would require an audio cassette or 8-track tape.

Local repeater

UHF repeaters were just beginning to come on air in the UK, and a group of radio amateurs from the Merseyside area decided they would like a local machine of their own. Meetings were held with the UK FM Group Western in a country pub, and a new UHF repeater was planned to cover the City of Liverpool and its surroundings.

There were two immediate problems — where to put the machine and what equipment to use? Several members were employed by the Port Authority and Arthur G3YCX found a promising site at the new Seaforth container port. Our technical guru Ken, G3WIC was looking for suitable equipment that could be placed in a radio room alongside Port Authority transmitters — so I volunteered my UHF Pye base station.

Heavy metal base station

That Pye base station was being used in my Southport shack on 430MHz FM. A year or so earlier, Ainsdale Radio Club had taken its annual road trip from Southport to the Leicester Amateur Radio Show in the East Midlands. There I had spotted a Pye F450T base station in its original cabinet, complete with 19" rack-mount transmitter and receiver. This base



Pye F450T base station.

station was a 1960s design, intended for use with portable Pye Pocketfones, as deployed by many UK police forces. After negotiating successfully with the dealer, I struggled back from the exhibition to the car park with this large, heavy unit, brought it home on the club coach and set it up for crystal-controlled simplex operation on 433.200 MHz FM.

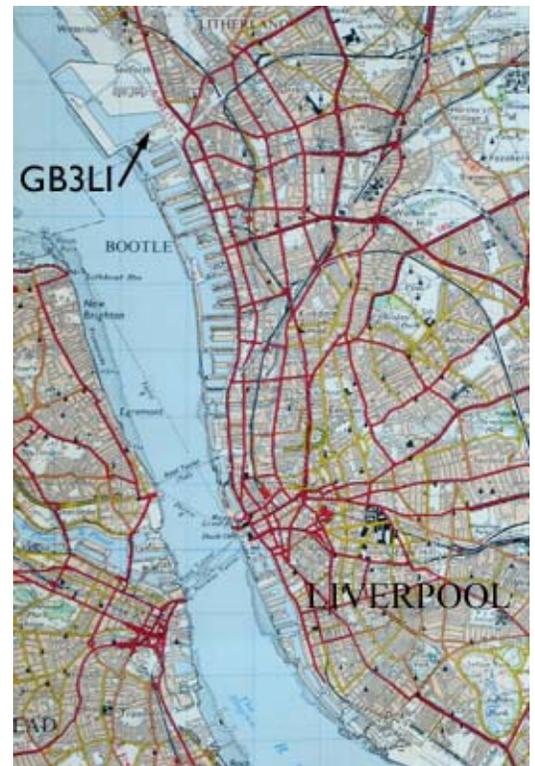


Leicester Amateur Radio Show was held at the Granby Halls.

After I handed the base station over to the repeater group, Ken, G3WIC went to work and converted it to repeater use. He removed the varactor-multiplier UHF power output stage and replaced it with a transistor PA. As I recall, the receiver was improved with a sensitive preamp, and the repeater control function was achieved with more of Ken's wizardry. Then, one damp Thursday morning, on October 27th 1977, a group of radio amateurs gathered at Seaforth dock in north Liverpool to complete the installation and inaugurate the new repeater.

Mersey memories

A little history here — Liverpool has been Britain's western looking seaport for almost 300 years. A long line of adjacent docks has been built alongside the River Mersey, stretching from Dingle in the south to Bootle in the north,



1974 Ordnance Survey map of Liverpool shows docks on River Mersey stretching six miles from Dingle to Bootle. GB3LI repeater is located to the north at Seaforth Dock.

handling both passenger and cargo traffic. Some famous names from the past include the Huskisson Dock, Canning Dock and Albert Dock. There has been a constant flow of ships across the Atlantic between Liverpool and the east coast ports of the USA. One early influence on the Beatles was the availability of 1950s US rock music, brought back on phonograph records by Liverpool seamen.



Seaforth Grain Terminal. Storage silos are in the foreground with 300 foot tower building at rear right.

In the 1970s, international container traffic was taking over from individually-loaded cargo vessels, and Seaforth Dock was opened in 1972 on land north of the earlier docks, with a large area given over to the new container terminal. At the south side of the site stands Seaforth Grain Terminal, the UK's largest cereal import facility, featuring multiple storage silos for incoming grain, which then feed three on-site mills by elevated conveyer.



Seaforth Grain Terminal seen from across the River Mersey.

The grain terminal storage building at Seaforth has a high, rectangular tower block at one end. The radio room is on the top floor of this block. Exiting the top floor by external, open-grid stairway, (which is a slightly scary experience) you reach the roof, where our new, UHF antenna was installed. The antenna was a Pye SA 460 collinear array, with four vertical dipoles arranged around a vertical support tube, clamped to

the outer guard rail at the top of the roof. Height of the antenna was 300 feet above sea level — literally! As you can see from the photos, the roof of the grain terminal overlooks the Irish Sea, the River Mersey and the surrounding city, with an impressive view down into the funnels of the nearby ships, moored below.



GB3LI repeater antenna mounted on the roof of Seaforth grain terminal. That's G3VNZ stood in front, on opening day in 1977.

Radio room

The radio room at the top of the grain terminal was small and functional, housing Port Authority marine radio equipment. Our new repeater was mounted alongside,

on a simple wooden table with a stenciled sign explaining who it belonged to. UK repeaters were licensed at the time by the Home



Left to right, Bill G3DCA, Chris G8GFB and Ken G3WIC installing the Pye F450T base station for GB3LI in October 1977.

Office and we had been allocated UK channel RB10, 433.250 MHz +1.600. The callsign was (and still is)

GB3LI.

“GB” is the UK prefix for all types of special stations. GB3LI was licensed for 25 watts ERP output, and like many UK repeaters at the time it



Arthur, G3YCX adjusts the Pye F450T receiver in the Grain Terminal radio room - in 1977.

required a 1750 Hz tone burst at the beginning of each transmission on the input frequency to open the machine and reset the two minute timer.

Most of the people who were involved with GB3LI were present on opening day including Bill, G3DCA (SK), Chris G8GFB, Arthur G3YCX and G8HLQ. One downside of being inside a grain terminal is that *everything* ends up covered in flour dust, including the radios and the visitors. After checking the output and making adjustments to the repeater, we descended from the tower and set out to find out what the coverage was like. I was keen to find out how well the signal would reach Southport, 14 miles to the north, and whether it would support low power Pocketfone use.

Coverage problem

While the coverage was pretty much as expected across the entire Merseyside area, there was a problem. The squelch control on the repeater had to be backed off much farther than expected in order to mute the receiver. The reason was — another carrier was present on the repeater’s input. As a result, the receiver was only responding to stronger signals, and this was not good for somebody like me who lived at the limit of the repeater’s coverage.

Where was that steady carrier coming from? It was a mystery to repeater group members. The interference did not seem to be malicious... there were no smart remarks or bad language — it was simply an RF carrier present around the clock. The situation was becoming frustrating, so one Sunday afternoon, I

decided to do something about it and organized a one-man foxhunt to track down the source.

As mentioned, equipment for VHF and UHF was not as well developed as today. I needed a portable receiver with an S-meter and a directional antenna — and none of my existing mobile equipment was suitable. So I scabbled around the shack and put together a mix of equipment. I had a 430 MHz transistorized receive converter from my AM days and connected it to my brand new

Yaesu FRG-7 general coverage receiver. This could run off a 12 volt battery. I grabbed a long-Yagi beam antenna and a handful of Belling-Lee 75 ohm



Yaesu FRG-7 shortwave receiver alongside Sommerkamp HF RX, in Southport shack.

attenuators, intended for reducing excessively strong TV signals.

Hunting for high spots

Not sure how satisfactory this set up would be, I set out from Southport with all the equipment on the back seat of the car and headed for high ground near Ormskirk, overlooking the whole of Liverpool. With the FRG-7 receiver connected to the 430 MHz converter, I used SSB mode and tuned the FRG-7 so I was monitoring the repeater’s input frequency on 434.850 MHz. Swinging the Yagi antenna around toward Liverpool, I was rewarded with a weak, steady carrier. This was looking promising!

I drove into the City of Liverpool to take another reading. Fortunately, this was a Sunday afternoon, so traffic was not too heavy. In an era long before GPS, I was relying on my Ordnance Survey one-inch map of Liverpool, plus a detailed street map. I was also following the foxhunting principle of not driving directly toward the source of the signal, but instead aiming to one side in order to get a good cross-bearing on the source.

Looking for another high spot, I remember parking near Liverpool Cathedral, which stands on a hill just south of the city center. The new bearing pointed



Liverpool's Anglican Cathedral

toward Everton, a heavily built-up area just north of the city. I worked my way along the dock road by the River Mersey and took another bearing. The signal was getting stronger, and the direction was from the east. I set off directly toward the source, only to be stopped by barriers across the road — the street shown on my old map was no longer there, blocked by more recent construction work. Note to self — when you grab a map for a Foxhunt, make sure it's an up-to-date one! I manoeuvred around the obstruction and continued toward the signal source.

Daylight was fading as I drove around Everton. Every time I stopped to take a bearing, the signal was growing stronger and stronger and I had to add more and more Belling Lee attenuators to keep the S-meter on-scale.

Finally, I reached a point where driving around a block near the fire station did not produce any increase in signal strength, and the antenna was pointing straight toward a tall apartment block on high land. I made a note of the street address and drove home.



Belling Lee 75Ω attenuators

Full details of the suspect location were immediately passed on to the repeater group. Some of the members had contacts within the broadcast community as well as the two-way radio industry, and it did not take them long to find the actual source of the interference.

Local radio

Since 1967 Liverpool had been home to a BBC Local Radio station — Radio Merseyside on 95.8(5) MHz. Commercial radio in the UK was a more recent arrival and Liverpool's Independent station "Radio City" had only come on-air in 1974-75 using first 1548 kHz AM, then 96.7 MHz FM. Radio City had mobile units for news gathering, and they were provided with a talkback link from the studio through a UHF transmitter located — guess where — on the same apartment block that my direction finding had discovered. The transmitter ran continuously with mostly nil modulation, apart from occasional short cues from the studio.



I was told that the talkback transmitter was an import and probably not tuned up properly for the UK business band, so there might have been incorrect harmonics of the crystal oscillator present in the output.

As an example of the QRM calculations, a commercial talkback transmitter operating in the UK business band at 447.275 MHz with a fundamental crystal frequency (dividing by 108) of 4.1414 MHz could have a spur falling on $447.275 - (3 \times 4.1414) = 434.8508$ MHz

After word was passed to the radio station engineer, the talkback transmitter must have been re-tuned because interference on GB3LI's input disappeared and the Repeater Group was able to restore the squelch setting to a more normal level.

Long life

Thirty five years later, the UK FM Group Western is still going strong and GB3LI continues in operation.

The "Royal Seaforth Grain Terminal" is still home to the repeater, though in 2003, the antenna had to be replaced and moved off the railing onto a scaffold gantry at the center of the grain terminal roof. By then the base station had been upgraded to a Pye F460. Ken G3WIC is still responsible for the station, with assistance from Southport sangrounder Mark, G4EID.



GB3LI publicity poster as used at UK FM Group Western exhibition booths.



GB3LI was upgraded to a Pye F460, but it's still mounted on that same table.

- Malcolm, G3VNQ, NM9J

Diamond HF mobile antenna

- W2CH

After my unhappy experience last fall with the Yaesu ATAS-120A, (see *PCARA Update*, December 2011) I decided to try another Screwdriver Mobile antenna.

I purchased the Diamond SD-330 HF Screwdriver antenna from HRO. It mounts on the vehicle the same way the Yaesu did, using a PL-259 connector. Frequency coverage is 3.5 to 30 MHz with the longer 47 inch whip antenna provided, or 7.0 to 50 MHz with the shorter 30 inch whip antenna.

It is different from the Yaesu antenna as it is not plug and play. Instead there is a manual, externally-powered tuning control, with frequency-up/down rocker switch. Diamond advises you to lower transceiver output power to 10 watts when tuning up the antenna.

The new antenna worked fine on 40 through 10 meters, but did not tune up on 75 meters. I suspect that is because the lower frequency would require more of a counterpoise for that band. I did not try it yet with the shorter 30 inch whip antenna, which lets one also tune 6 meters, and down to 40 meters.

On HF, I worked a station in Arizona, several Wisconsin QSO Party stations, and a couple of Kentucky stations with good signal reports from some of them.

I tried the antenna on the apartment's balcony, on the same mount as used for the Yaesu



Diamond SD-330 HF screwdriver antenna mounted on Ray and Marylyn's vehicle.



ATAS-120A, but the Diamond was only tunable on the 40 meter band. This was not too important because I am mainly interested in using the new antenna for mobile operation, and will stay with Hamstick antennas on the balcony for the HF and 6 Meter bands.

I think the Diamond antenna, while costing a bit more than previous Yaesu antenna, is of a sturdier design, in common with most of the Diamond antennas which I have used. One suggestion is that a little more capacity on the longer whip might also allow tuning on 75-80 Meters, so I will have to look into that.

I read an article in April 2012 *QST* by Chris, NX4N about HF mobile operation in Florida, describing experiences with various large antennas and tuners on top of a Chevy Suburban. However, a CB-style whip on top of a full-size SUV, with a total height of 13 feet above ground is pretty tall for the NY suburbs. Maybe in Florida the highways are more open and free of obstructions than around here. Meanwhile, the Diamond antenna, with its maximum height of 73 inches, is working fine for me.

- Ray W2CH



Diamond SD-330 manual tuning control.



Another view of Ray's Diamond mobile antenna. [Pictures by W2CH]

Congratulations

Ray, W2CH recently celebrated **50 years** on the air. First licensed in High School from March 2, 1962 with the Novice call WV2ZPD, Ray was WA2ZPD from 1962 to 1997, followed by W2CH. Well done Ray, and thanks to Marylyn KC2NKU for the anniversary donation to PCARA.

Peekskill / Cortlandt Amateur Radio Association

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Newsletter contributions are always very welcome!

Archive: <http://home.computer.net/~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 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. *Apart from holidays.

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 April 1: PCARA monthly meeting, Hudson Valley Hospital Center, 3:00 p.m.

Sat May 12: Foxhunt, 3:00 pm Beach Shopping Ct

Hamfests

Sat Mar 31: Orange County ARC Hamfest, Town of Wallkill Community Center, 2 Wes Warren Drive, Middletown NY. 8:00 a.m. **PCARA Club Table.**

Sat Apr 14: Boy Scout Troop 139/Venture Crew 7373 Hamfest, Conlon Hall, 19 North William Street, Bergenfield, NJ. 8:00 a.m.

Sun Apr 29: Mount Beacon ARC Hamfest, Tymor Park 249 Duncan Road, LaGrangeville, NY. 8:00 a.m.

Sat May 26: BARA Spring Hamfest, Westwood Regional HS, 701 Ridgewood Rd, Washington Township, NJ. 8:00 a.m.

VE Test Sessions

Apr 1: Yonkers ARC, Yonkers PD, Grassy Sprain Rd, Yonkers, NY. 8:30 am Contact Dan Calabrese, 914 667-0587

Apr 12: WECA, Westchester Co Fire Trg Center, 4 Dana Rd., Valhalla, NY. 7:00 p.m. Contact Stanley Rothman, 914 831-3258.

Apr 16: Columbia Univ VE Team, 2960 Broadway, 115 Havemeyer Hall, New York NY. 6:30 p.m. Contact Alan Croswell, 212 854-3754.

Apr 28: PEARL, Mahopac Public Library, Periodicals Room 2nd Floor, 668 Rt 6, Mahopac. 10:00 a.m. Contact NM9J.



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