



PCARA Update



Volume 14, Issue 3 Peekskill / Cortlandt Amateur Radio Association Inc. March 2013

Springing up

PCARA has registered for a club table at the Orange County Amateur Radio Club (OCARC) Hamfest on Sunday April 14, 2013 at the Town of Wallkill Community Center in Middletown, NY. Details are available on the OCARC website: http://www.ocarc-ny.org/hamfest_2013.shtml. Feel free to bring along any items that you might want to sell, and we could always use a little help with manning the table.



Flashback to last year's Orange County ARC Hamfest on March 31, 2012. L to R Ray W2CH and Greg KB2CQE at the PCARA club table.

We will be holding a Fox Hunt during one weekend during May or June. we're just not sure which weekend. The exact date depends upon the Fox's very busy schedule, and a very eventful hamfest/contest season. Karl, N2KZ, the winner of last year's hunt, will be playing the part of the Fox in this year's hunt. We hope to nail down a date at the March meeting that can accommodate most everyone. The date will be posted on the PCARA website.



Finally, PCARA is planning on participating in Field Day 2013 on the weekend of June 22-23, 2013 at Walter Panas High School in Cortlandt Manor, NY (pending final approval

from the Lakeland School District). Please start checking you schedules to see if you might be available to join us for a few hours. We especially need volunteers for the over-night hours and wrapping up on Sunday afternoon. Any time you could share with us would be greatly and sincerely appreciated. Thanks!



Our next regularly scheduled meeting will be Sunday March 3, 2013 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

PCARA Officers

President:

Greg Appleyard, KB2CQE, kb2cq at arrl.net

Vice President:

Joe Calabrese, WA2MCR; wa2mcr at arrl.net

Contents

Springing up - KB2CQE	1
Adventures in DXing - N2KZ	2
Hamcation® visit - W2CH	4
Wireless generation - NM9J	5

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

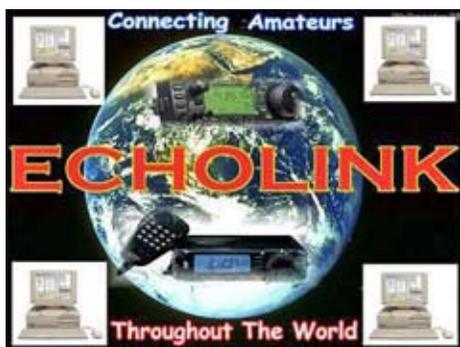
Hear the Echo

It's lonely at 5 am. I get into my car to go to work and immediately put my 2 meter transceiver on scan mode and begin my search for the awake and living. Good things come to those who wait. If you listen carefully, you may hear conversations from far, far away. One morning, I really heard DX. I chanced upon voices from across the pond!

Loud and clear, a roundtable conversation of hams with callsigns from the United Kingdom filled my speaker on the unlikely simplex frequency of 146.58 MHz. As I drove towards midtown Stamford, their signals became strong and dominant. I wasn't sure what I was hearing, but it sure was interesting!

I followed the amateur radio credo: 'Listen long and then listen more.' Every other morning or so,

British hams would once appear back on 146.58, but I would never hear any activity during the day. I finally discovered the origin of this miraculous reception. One of the mainstays of the Stamford Amateur



Radio Association (SARA), John WB1GRB constructed an Echolink node using a Kenwood TM-281 transceiver connected to a Dell desktop computer. With a fine antenna and 65 watts output, John provides a powerful link to the world for those who know the secret!

In a nutshell, Echolink is a computer program that provides an Internet link connecting transceivers, repeaters, computers and smartphones all over the world. Any combination can make a connection! If you have a handheld HT that can reach an Echolink node, you can connect with anyone in the Echolink universe. The opportunities are nearly endless!

John links his WB1GRB Echolink node to a



*Kenwood TM-281A 144 MHz,
65 watt FM transceiver.*

conference group known as IRELAND based on the northwestern coast in Donegal. A conference is quite different than a basic one-to-one link. Conference links can handle many, many users at one (hence the name) allowing grand world-wide conversations to take place with a multitude of hams all at once. The IRELAND conference



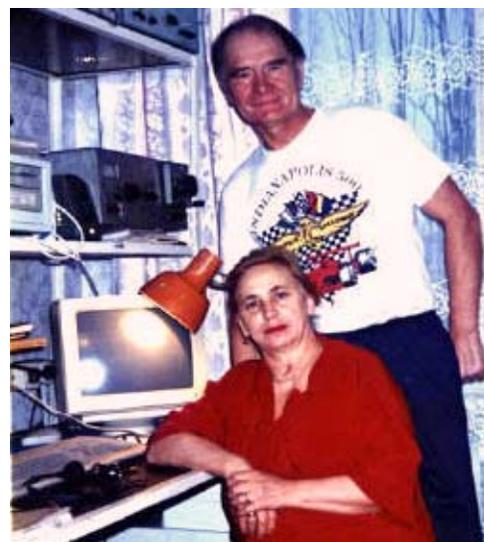
is one of Echolink's most popular featuring the ability to handle as many as 6009 participants! Many other node owners also link into the Ireland conference creating an amazing network of coverage.

You can also link in individually with a computer or smartphone using the free Echolink app. You must register as a licensed amateur to participate. Get started at: http://echolink.org/register_data.jsp. Imagine using your smartphone as a transceiver to complete armchair copy QSOs around the world from wherever you may be. What an exciting and amazing high tech. approach to ham radio!

I should emphasize the 'worldwide' component of this concept! The days that have followed have been particularly astonishing. I had a fine conversation one morning with a couple daytripping in County Donegal in a seaside town named Bundoran. (It's just south of Ballyshannon along the sea.) John and Patricia, MIOAHI and MIOBML, were touring around the Irish seashore in their car talking to me going to work in Connecticut!

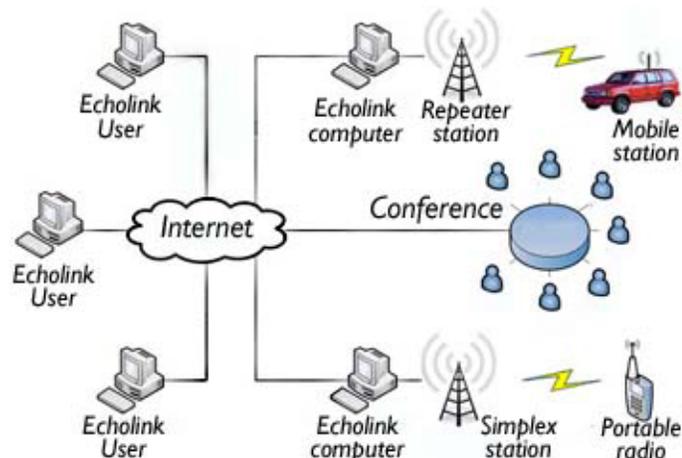
A few mornings, I have had interesting talks with a ham just outside of Moscow, Victor UA6LA. We have chewed the rag about all sorts of things. Both of us really enjoy CW.

Victor sent me an entertaining home movie of his first CW QSO of the new year. He has a remarkable talent of sending CW with his voice! Victor can verbalize CW sounding like he swallowed a kazoo. I still laugh when I see it.



*Victor, UA6LA has the strangest
CW contacts.*

Echolink can also serve as a quick way to assemble hams for a variety of reasons. Many amateur radio groups have established conference groups providing a venue for on-air meetings: AMSAT, SBE (Society of Broadcast Engineers,) NASA (for International Space Station events,) SKYWARN for weather enthusiasts and even DAWGGONE for sled dog race fans. Many, many geographical groups exist, too (like the very popular IRELAND group.)



Echolink can connect various types of user over both amateur radio and the Internet.

Echolink is a highly developed application combined with a comprehensive network of hams' nodes. The system is truly worldwide. There is a node nearly everywhere: 100 nodes in Australia and 13 more in New Zealand, for example. You can link in by reaching a node with your VHF/UHF transceiver or by a direct link over the Internet using a computer or smartphone. Read all about Echolink at <http://www.echolink.org>.

Although Echolink may be the most popular Voice Over I.P. solution, many other similar applications exist. The PCARA hosted an Internet Radio Linking Project (IRLP) node on one of our 70 cm repeaters with equipment provided by Malcolm, NM9J. Using just my handheld HT, I worked stations in the U.K. and New Zealand. VOIP can be a lot of fun!

Zello? Are You There?

A newcomer to the voice over I.P. world is an application known as Zello. This program emulates the experience first introduced by Nextel allowing you to use a smartphone like a one-on-one walkie talkie. Press the big on-screen button to transmit and release to listen. It's that simple. The app and its usage are absolutely free! One small problem (at least for some of us:) It doesn't allow you to have a user name with a one by two callsign (like N2KZ.) There is a five character minimum. I became 'N2KZ!'

Zello is very immediate, allows big groups to join in a conversation and is very private if you want it to

be. Search the Zello universe and you'll find a handful of groups under 'ham radio' and 'amateur radio.' Some ham radio repeaters are linked in, too. Zello is certainly not just limited to ham radio. There are many, many other interest groups to join in, too: turtles, baseball, and even Pokemon. Search the system and see what you can find...or start your own group!) Zello is available via the iTunes app store or directly at <http://www.zello.com>.



'Zello' on smart-phone.

Oops - Don't do this!

I discovered a horrible fact recently. If you plop 50 or more watts of RF into a tiny 2N2222 transistor, it probably will not survive! Years ago, I built a classic Tuna Tin II 40 meter transmitter which employs two 2N2222 transistors. This could be the most common and well-known transistor ever made. I was preparing to use my Tuna Tin on 7040 kHz with my Heathkit HW-16 CW transceiver as a receiver. I remembered that I had not disconnected the key of the HW-16, preventing it from blowing up my Tuna Tin II. So I reached behind the transceiver and (of course) touched the key sending a nice big killer pulse of RF to the defenseless TT2. (Curses!)



Metal can 2N2222

I looked far and wide around my house and found a few close equivalents to try, but not any genuine metal-cased 2N2222s. Around the same time, Henry, KB2VJR, mentioned on The Old Goat's Net that he was working on a long wave receiver project and was also looking for an analog component, a LM385 IC chip in a 8-pin DIP package. Every supplier Henry queried only had the surface mount version of the device. Obtaining the old-fashioned DIP version would require a long wait from vendors.



Under tumbleweeds of dust, I found a cache of old components at work that satisfied both our needs. This must be the year 2013: even 'analog' I/C devices are now obsolete! I remember, back in the early 1960s, when my Dad introduced me to the miracle of the all-

purpose 2N107 PNP germanium transistor. I built simple radios and AM transmitters with them. My microphone was a high output carbon cartridge from a telephone handset. I got a lot of mileage out of those little guys that looked like black top hats. Now we rely on teeny, tiny surface-mount devices to bring us all the electronic miracles we now expect.



Caps and bangs

One thing remains true: There are still many electrolytic capacitors in this world. At work, I service flat-screen TVs in my spare time. Two things bring them down: Switching power supplies that have under-rated capacitors and small assemblies known as TCON (timing control) boards. TCON boards control all the technicalities necessary to make the huge displays appear. Tiny flea-sized fuses end their lives but are very easy to repair. Switching power supplies almost always include 10 volt capacitors that can not handle the transients

fast switching power supplies produce. You'll see the failed ones all puffed up or even exploded. Another quick repair! – and I always replace them with 16 or 25 volt versions for lasting results. I don't want to fix it twice!



Bulging electrolytic capacitors

Times change, but modern electronics always remains a miracle. Just look what is inside even a modest ham transceiver!

An additional tip: I discovered an unlikely place to find a wide variety of audio cords, accessories, tubes, audio taper pots and a wide variety of knobs for your next project: music stores. I visited a local Guitar Center store that had a wide selection of all sorts of audio adapter cords, microphone cords and other widgets way beyond the scope of your local Radio Shack. Even more impressive was their selection of knobs intended to replace those missing from guitar amplifiers and such. Some were beautifully made with numbered legends, fancy knurls and other attractive features that would look great on your equipment. How about a knob that looks like a skull? They have them! It's definitely worth a look!

Until next month, happy trails de N2KZ 'The Old Goat'



Hamcation visit - W2CH

Ray W2CH describes a recent visit to the Orlando, Florida area with Marylyn, KC2NKU.

We arrived at Orlando on February 7, just before the snowstorm hit back home in New York. At first the weather was pleasant, with temperatures in the low 80s and it remained good throughout the Orlando Hamcation®, which we had last attended in 2003.



Orlando Hamcation, main commercial building.

The Orlando event is a good-sized regional convention. The main exhibitor building has most of the vendors of new equipment, with some others in a different building. There was a separate Swap building for flea market vendors, though the majority were outdoors, near the RV area.



Outdoor flea-market area - Collins 75S-1 and 32S-1.

The photos were mostly taken on Friday Feb 8 when there were fewer people, compared to Saturday which was much busier. The large grassy area for parking was pretty full around 9:00 a.m. when the Hamcation opened for its second full day on the Saturday. We did not go back for the shorter day on



Indoor exhibitor building. [Photos by W2CH]

Sunday Feb 10 as we had already seen what we needed.

I bought an extra battery pack for my Icom ID-31A HT, and some Sanyo NiMH cells from WWW Batteries. At GRE/Alinco, their representative helped me with programming my GRE PSR-800 scanner. I saw a few vendors with Chinese radios, though not the (recalled) AnyTone 5888 dual band mobile.

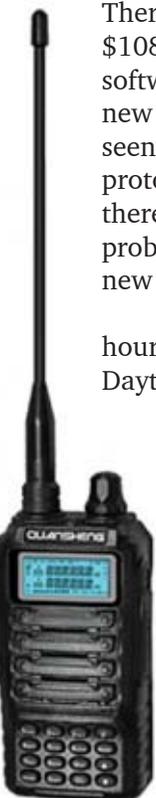


AnyTone 5888 VHF/UHF mobile

There was a dual band HT by Quansheng for \$108.95, or \$139.00 with the programming software and cable. Kenwood did not have the new TS-990 model on display — the model seen on “Ham Radio Now” video was only a prototype. Yaesu did not have its digital radios there — “Ham Radio Now” said they would probably be shown at Dayton. There were no new models from Icom.

On Sunday we left Orlando and drove an hour north to visit friends in Deland. We saw Daytona Beach, where the Daytona Speedway was getting busy with race trials for the Daytona 500 on February 24.

Later in the week, the weather became cloudy and cooler, and by Wednesday night we had rain. When we left Deland on Friday, it was only 55 degrees, dropping to freezing over the weekend at Orlando. So it was lucky the Hamcation was not held that following weekend. Anyway you look at it, Florida is better than Westchester during a snow storm. We returned from our trip, February 15, landing at Westchester County airport at 7 p.m.



Quansheng TG-UV2

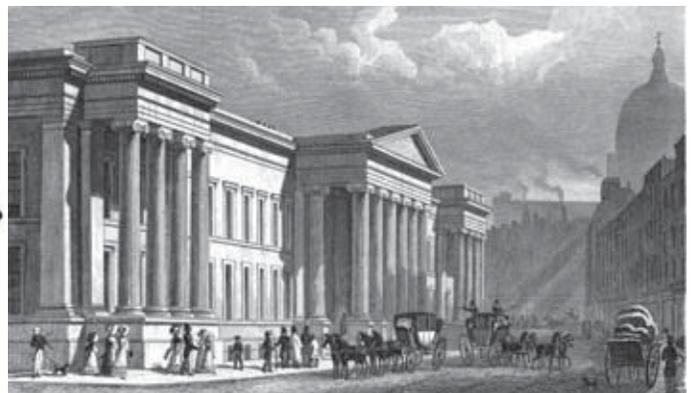
You could still see remnants of the snow when we returned.

- Ray, W2CH

Wireless generation

In our modern world of handheld radios, pocket-sized smartphones and everything connected to the Internet, I like to think back to how it all began. It’s interesting to tie technological developments with family members who would have been affected.

Take granny for example — born during the reign of Victoria, into a world of gaslight and horse drawn vehicles, she would have been a child in 1896 when a young Guglielmo Marconi arrived in London from Italy and began to demonstrate the practical applications of wireless. Marconi was using an induction-coil spark for transmission and a simple ‘coherer’ RF detector for reception. His first demonstration in July 1896 at the General Post Office Building in St Martin’s-le-Grand covered just a few feet, but distance was increased to



General Post Office HQ Building in St Martin’s-le-Grand, London, near St Paul’s Cathedral (19th century print).

300 yards, then to almost a mile, passing through the walls of the building without any visible means of support.

Marconi’s first public demonstration took place at Toynbee Hall, London in December 1896.

In May 1897, Marconi demonstrated transmission across water, from Flatholm



Guglielmo Marconi and his apparatus for telegraphy without wires, pictured shortly after his arrival in England at age 22.

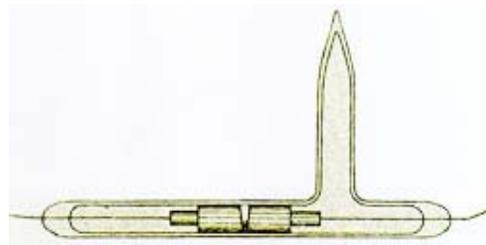
Island in the middle of the Bristol Channel to a receiving station, three miles away at Lavernock Point in South Wales. On top of the cliff, Marconi had set up a 90 foot pole with a zinc cylinder on top of the pole, connected by copper wire to his apparatus, which was grounded by running another wire down to the beach and dipping into the sea, 60 feet below the cliff.



Drawing by Marconi's chief assistant George Kemp of the setup for experimental transmissions across sea water between Lavernock Point, South Wales and Flatholm Island in the Bristol Channel.

Initial reception was unsatisfactory until Marconi moved his equipment down to the bottom of the cliff, extending the antenna wire to a total length of 150 feet. Signals now became fully readable. Motto — if you have a quarter wave vertical antenna, feed it against ground at the base. For a subsequent test across the entire Bristol Channel, kites were used to support the antennas.

Marconi's techniques at the turn of the twentieth century relied on a powerful, broadband, spark transmitter operating into a large antenna. Marconi's receiving stations also used large antennas — but they



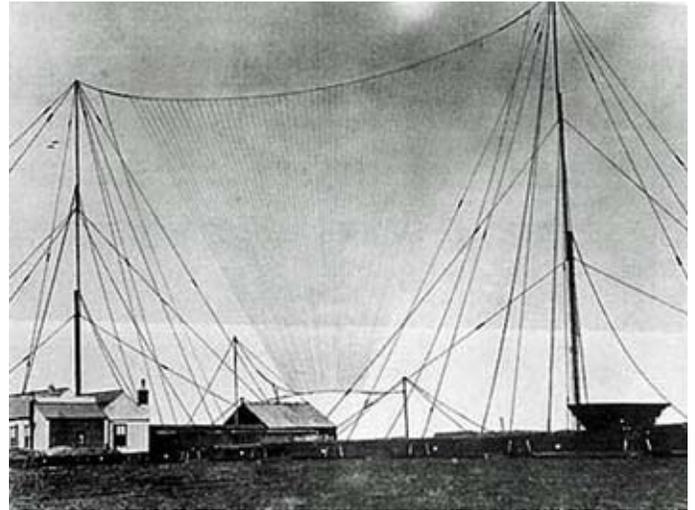
Marconi coherer. A small amount of metal filings (Ni/Ag) are held in an evacuated glass tube between wedge-shaped silver electrodes. Radio frequency energy causes the filings to 'cohere' or cling together, allowing current to pass.

had no means of electronic amplification. Whatever amount of energy was collected by the receiving antenna was conveyed to Marconi's coherer for detection. Variations in battery current through the coherer were then passed to a morse ink recorder or to

headphones.

As the nineteenth century turned into the twentieth, Marconi was building his transmitting station at Poldhu, in Cornwall, southwest England for an upcoming transatlantic test. He began with a circle of twenty 200 foot masts supporting a wire cone antenna, but most of the supports collapsed in a gale. For the actual test, two remaining masts were used to support a temporary fan antenna. With 25kW of power from an

alternator it is estimated that 12kW was keyed to the antenna. The frequency is not precisely known, but modern estimates put it in the MF region around 800 kHz.



Temporary antenna used at Marconi's Poldhu transmitting station for transatlantic tests in 1901.

Marconi sailed across the Atlantic and set up a receiving station at Signal Hill, St. John's, Newfoundland. In December 1901, using a kite-supported antenna, Marconi's team received Morse signals from Poldhu, 2,200 miles away. The event took place in daylight, and there have been suggestions that successful daytime reception of the Morse code "S" from Poldhu might have depended on short-wave harmonics from the broadband spark transmitter rather than on its fundamental MF signal.

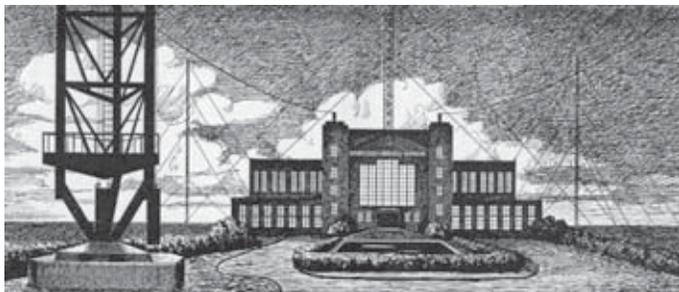
One of Marconi's targets was communication with ships at sea. Before radio, ships leaving port could only maintain contact with semaphore flags or flashing lights. Once the ship had steamed over the horizon, contact was lost until the destination port came into view. Marconi's 1901 transatlantic test results from Poldhu to Newfoundland were still in doubt, so in 1902 Marconi performed a convincing demonstration of long distance reception on board the liner *Philadelphia*, with reception of messages from Poldhu witnessed by ship's officers on a Morse inker up to 1550 miles from the English transmitting station. Reception of the MF signals was much better at nighttime than during the day.

While Marconi was a teenager, in 1904 Marconi's scientific adviser, Prof. John Ambrose Fleming was busy in London, inventing the thermionic diode. (See *PCARA Update* for Aug 2004 and Nov 2009.) Two years later, in New York, Lee de Forest wrapped a third electrode around a Fleming-type tube, then in 1907 he inserted a third electrode into the tube and invented the "Audion", patented in 1908. De Forest intended the device to be used as a more sensitive detector of radio waves, but the "Audion" also allowed electronic

amplification of any kind of signal — including landline telephony.

De Forest may not have understood how the Audion operated, but around the time that my parents came into the world, the Audion was being scientifically investigated by Howard Armstrong at Columbia University in 1914. Meanwhile, American chemist Irving Langmuir had been working at General Electric in Schenectady on incandescent lamps and showed that the life of a tungsten filament could be extended by filling the glass bulb with argon and coiling the filament. In 1915 Langmuir discovered that de Forest's Audion worked much better as an amplifier when all residual gas was removed and a perfect vacuum filled the glass tube.

During my parents' early years, World War I was taking place, with shortages of food and other deprivations. Developments in radio were being put to practical use for communication with Navy ships at sea and with troops in the field. In place of spark transmitters, Naval ships began to use triode tubes and continuous wave (CW) transmission. Some of the first examples of radio espionage were also taking place, with the UK and its allies cutting the German transatlantic cable lines. As a consequence, Germany had to rely on wireless and its long range station at Nauen, which sent VLF and LF signals to surviving Telefunken outposts and the still-neutral United States. Messages



LF transmitting station at Nauen, near Berlin, Germany.

from Nauen were intercepted by special Marconi teams and passed to "Room 40" at the British Admiralty for decoding and analysis.

My parents were growing up in the suburbs of Manchester, in northwest England. UK experiments with AM broadcasting had begun in southeast England in February 1922. Marconi's Captain Peter Eckersley transmitted 250 watts on 700 meters from a hut in Writtle, near Chelmsford, using the callsign 2MT (Two Emma Toc). In the northwest, electrical engineering company Metropolitan-Vickers came on air in May 1922 from its manufacturing site at Trafford Park in Manchester with 50 watts on a wavelength of 450 meters, from an antenna slung between an old iron water tower and the main factory building. Their callsign was 2ZY.

The experimental broadcasts were regularized with

the founding of the British Broadcasting Company in October 1922. The British General Post Office brought together



Experimental broadcasts from Metropolitan-Vickers Trafford Park station 2ZY began in 1922.

six commercial companies — Marconi, Metropolitan-Vickers, General Electric, Western Electric, British Thomson-Houston and Radio Communication Company. On November 14, 1922 the BBC's first broadcast came from the London station 2LO located at Marconi House in the Strand. Power was 100 watts on a wavelength of 350 meters. BBC transmissions for Manchester began the following day from 2ZY at Trafford Park. In 1923, the BBC transferred this station



BBC station 2ZY at 57 Dickinson St., Manchester.

to Dickinson Street, in the center of the city. The transmitting antenna was suspended between the chimneys of two adjacent power stations. - NM9J

Peekskill / Cortlandt Amateur Radio Association

Mail: PCARA, PO Box 146, Crompond, NY 10517

E-Mail: w2nyw@arrl.net

Web site: <http://www.pcara.org>

PCARA Update Editor: Malcolm Pritchard, NM9J

E-mail: NM9J @ arrl.net

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

Hamfests

Sun Mar 3: LIMARC Hamfest, Levittown Hall, 201 Levittown Parkway, Hicksville, NY. 9:00 a.m.

Sun Apr 7: Southington ARA Flea Market, Southington High School, 720 Pleasant Street, Southington, CT. 8:00 a.m.

Sun Apr 14: Orange County ARC Hamfest, Wallkill Community Center, 2 Wes Warren Road, Middletown, NY. 9:00 a.m. **Club Table.**

VE Test Sessions

Mar 2: Yonkers PAL Ham Radio Club, 127 N Broadway, Yonkers NY. 2:00 pm. Contact: M Rapp, 914 907-6482.

Mar 3: Yonkers ARC, Yonkers PD, Grassy Sprain Rd., Yonkers. 8:30 am Contact D Calabrese, 914 667-0587.

Mar 14: WECA, Westchester Co Fire Trg Cen, 4 Dana Rd., Valhalla, NY. 7:00 p.m. S. Rothman, 914 831-3258.

Mar 18: Columbia Univ VE Team ARC, 2960 Broadway, Columbia University, 115 Havemeyer Hall, New York, NY. 6:30 pm. Alan Crosswell, 212 854-3754.



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