PCARA Update

Volume 4, Issue 4 Peekskill / Cortlandt Amateur Radio Association Inc. April 2003

Quite a few things –KB2CQE

As many of you know, the Cortlandt Town Board has passed a resolution authorizing the creation of a Town of Cortlandt RACES. A *Town of Cortlandt RACES Service Plan* has been drafted in keeping with the FEMA Guidance (http://www.fema.gov/library/civilpg.shtm). If you are interested in participating, the next RACES planning session is scheduled for 7:00 PM, April 10, 2003 at the Town of Cortlandt DES (167 Roa Hook Road, Cortlandt Manor, NY. Roa Hook is the first left past Camp Smith on Bear Mountain Bridge Road, heading towards Bear Mountain Bridge from Annsville Circle). We will be meeting with Jeff Tkacs, the Town of Cortlandt Coordinator of Homeland Safety and Security.

Just a reminder that the PCARA Third Anniversary Special Event Station will be in operation on May 3, 2003. Station **N2T** will be on the air 9:00 AM to 3:00 PM from Blue Mountain Middle School in Cortlandt Manor. Operators and laptops are still needed. There will also be a GOTA (*Get On The Air*) station, so bring your friends or anyone who might have an interest in amateur radio.

Bob N2CBH, Joe KR2V and Greg KB2CQE enjoy operating the Special Event Station during PCARA's previous visit to Blue Mountain Middle School in April 2001.

The Technician Course being held at HVHC is a success! The course has been very well attended and has been going smoothly. A very **big** Thank You to all of our instructors who have freely given of their time and talents in order to allow PCARA to provide this type of service to our communities, and to introduce a new generation to amateur radio!

PCARA has received permission from the Palisades Park Commission to hold our Field Day 2003 activities at Perkins Memorial Point on Bear Mountain. This year Field Day is the weekend of June 28 - 29. To sign up for Field Day please contact Bob, N2CBH at *n2cbh @ arrl.net*.

Tickets for the PCARA Annual Raffle are now on sale. There will be two 1st place prizes this year. Two ICOM IC-T2H Sport 2 Meter Transceivers are being raffled off. Tickets are $5.00 each, with a limit of 100 tickets to be sold. The winners will be drawn on June 29, 2003 at Field Day 2003. Tickets will be on sale at the April, May, and June meetings and from Joe, KR2V (*kr2v @ arrl.net*).

PCARA is sponsoring a Foxhunt on Saturday, May 10, 2003 at 3:00 PM. Malcolm, NM9J has volunteered to organize the hunt as well as play the Fox. The hunt should only last about an hour and will be followed by a get-together at a local restaurant. Further details (not too many) will be provided at the April Meeting and on the PCARA website.

PCARA has taken a table at the Orange County Amateur Radio Club Hamfest on Saturday, April 5, 2003. Members are welcome to bring any items they would like to sell. If you are successful in selling any of your boat anchors, all we ask in return is that you consider making a small donation to PCARA to help offset the cost of the table.

As you can see there are **quite a few things** going on. I hope to see each of you at the April 6th meeting at Hudson Valley Hospital Center at 3:00 PM.

— 73 de Greg, KB2CQE

PCARA Officers

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Greg Appleyard, KB2CQE kb2cqe @ arrl.net
Vice President:
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Discover six meters – yes, we have DX! — N2CBH

Have you visited six meters lately? This band is available to all Technician, General, Advanced and Extra class licensees. Six meters is an often-underutilized VHF band that at times exhibits HF characteristics. This makes it an exciting band for all amateurs. Tech operators may think they are missing out on DX because they don't have access to the HF bands. Well, six meters can be a great DX band. Whether or not you are new to the hobby, six meters can be a lot of fun.

Six meters for the U.S. radio amateur is precisely 50 MHz to 54 MHz. This is four megahertz worth of spectrum where you can operate virtually every mode available. Like the HF bands, the lowest segment is reserved for weak signal mode CW. Next there is spectrum for SSB/RTTY/data and then FM/repeater operation. There is a lot of room for all kinds of operation.

When conditions are right, contacts can span the continent and further. Weather conditions can often play a role in six meter propagation. The troposphere acts as a conduit in which six meter signals can become trapped and reflected within, often over hundreds and sometimes thousands of miles. This phenomenon is referred to as tropospheric ducting or just ducting. This can affect two meters and even UHF. A temperature inversion can create the conditions for ducting to occur. Normally, the ambient air temperature decreases at about three degrees Fahrenheit for each 1000 feet of altitude. During an inversion, the temperature of the air in a layer above another is higher, not lower as is normally the case. This inversion causes a refraction of waves in such a way as to cause them to bounce back and forth within the layer over long distances. This allows communications over hundreds and sometimes thousands of miles. *[6 meters is also affected by other modes of enhanced propagation including sporadic-E, tropospheric scatter, F2-layer ionospheric reflection, aurora and meteor scatter - Ed.]*

Six is usually a line-of-site local band, so don't be disappointed if you give it a listen and find no activity. When conditions heat up, it's DX all the way and signals will boom in.

How do you know when six will be open? One great way to know if six meters is open for DX is to watch TV! That's right. Channel 2 is just above six meters with a visual carrier set at 55.25 MHz. When conditions are good for six meter DX, local channel 2 signals from a TV antenna will be affected by other channel 2 signals from different parts of the country. These are signals that are ducting in from other locations. The signals will heterodyne with one another leaving a picture that flickers and looks like someone has put a Venetian blind in front of your screen. The sound will often have a shrill beating noise. You may see this condition on channel 4, 5 and sometimes channel 7. The higher the channel this effect is seen on, the higher the frequency that propagation will be enhanced. So, if you see channel 7 rocking and rolling as described, it's a good bet that DX conditions will be favorable all the way up to two meters.

Normally, channel 2 will be the channel most affected. This is a great time to turn on your rig and give a listen to six meters. You will hear stations exchanging calls, signal reports and instead of QTH you will hear an alphanumeric exchange of what is called a grid square number. For example, I might answer a call – "K6SUY, this is N2CBH, foxtrot nancy 31". FN31 is the grid square for my QTH. The grid square system divides North America into sections that are easily identified on a map. There are operators who collect grid squares so if you are going to operate up there it is a good idea to know the square you are operating from. To find out where your grid square is go to: http://www.arrl.org/locate/ where the ARRL has a handy grid square locator that can help.

What kind of equipment is needed for this band? Like many other bands, one can get on six meters with a minimal investment and a simple antenna. Of course, better equipment and antennas will provide better results, but not always. I've heard it said it said that when the band is open, all you need are a couple of watts and a wet noodle and you can work the world. Well, almost. My six meter set up is rather modest. I have a Ten Tec 6N2 transceiver with a 20 watt PEP output in SSB mode. For an antenna I use a home brewed dipole. With this set up I have made contacts to Europe and the west coast of the U.S. I have also made maritime mobile contacts into the Pacific Ocean. This has been when the band is really jumping. Often, conditions don't allow these kinds of contacts but this doesn't mean six meters can't be a fun and challenging band.

Ten-Tec model 526 "6N2" all-mode VHF transceiver, as used by N2CBH, covers six meters and two meters.

Even when conditions are considered normal, contacts can be made over fifty to one hundred miles in distance. Six can be a great local band for direct contacts. Equipment is readily available. You might even

already own a rig with six meter capability. The venerable Icom IC-706 and Yaesu FT-817 have six meter all mode capability. The new Icom IC-T90 portable has six meter FM capability. Antennas can be home brewed or purchased for a modest price. A beam is recommended if you are interested in "working the world" on six meters. Always check out hamfests before buying something new.

Icom's latest IC-706 Mk IIG transceiver includes 6 meters in its 1.8-450 MHz coverage.

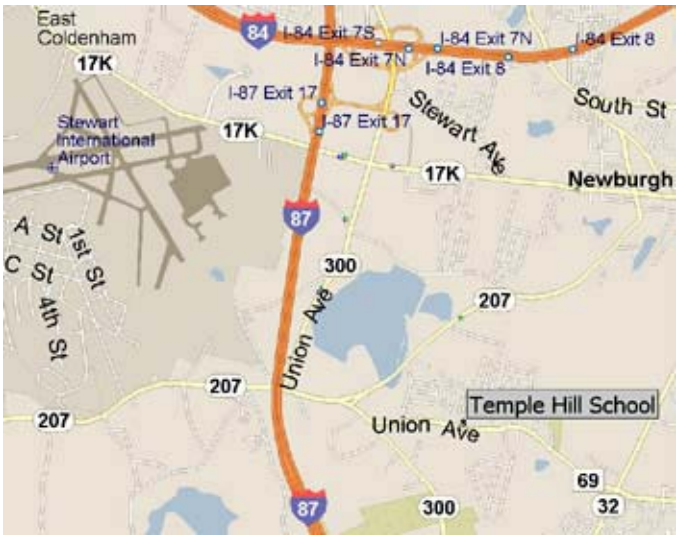
Six meters is really the DX band for virtually every ham. No-code Techs and up all have full access to this wonderful band. Check out your existing equipment because it may have six meter capability. Antennas are easy to make, consult the ARRL handbook for details. A dipole will get you started. Six meter dipoles are compact so, if space is limited, six meters may be your ticket to long distance communications.

Next month I hope to talk about building some simple antennas for six meters. Stay tuned!

– 73 de Bob, N2CBH

Club Table

PCARA will have a Club Table at the Orange County Amateur Radio Club's Spring Hamfest and Computer Fair, scheduled for Saturday April 5, at Temple Hill School, 525 Union Ave., New Windsor, NY. Doors open at 8:00 a.m. For more details on the Hamfest, visit http://www.bestweb.net/~ocarc.



Technician class

PCARA's latest Technician class began on Wednesday March 12 at Hudson Valley Hospital Center. The class size is around ten people — with a good proportion of youngsters. In addition to instructors Bob, N2CBH and Malcolm, NM9J, several PCARA members including Wires, KC2FYY and Joe, KR2V have come along to support the students in their efforts. In addition, KC2FYY has been encouraging more of his family members and friends to become radio amateurs! As the class proceeds, additional PCARA members will be taking their turn as instructors.

Bob, N2CBH explains circuit components to Technician class members.

There will be a VE test session at the conclusion of the Technician class on Wednesday May 14.

Two meter Repeater

Don't be surprised if you find the PCARA 2m repeater W2NYW/R on 146.670 MHz running without encode PL. Turning off the transmitter's 156.7 Hz encode tone protects against some intermittent interference that is currently under investigation. In addition, there is less need to use tone squelch while you are receiving 146.67 nowadays thanks to reduced channel occupancy. Of course, you will still need to transmit 156.7 Hz PL tone on the repeater's input frequency.

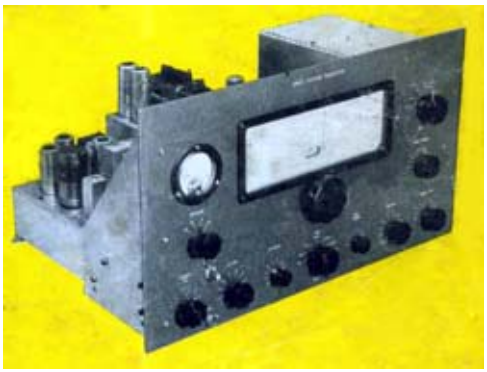
Hint: on your mobile transceiver or handi-talkie, program two adjacent memory channels for the frequency of 146.67 MHz, one with tone squelch turned on (CTCSS decode) and the other with tone squelch turned off. That way you can choose whether or not to monitor for presence of PL tone with a flick of your channel control.

Two steps forward – NM9J

"Two steps forward, one step back"… or is it the other way round? Sometimes I have my doubts about technological progress – especially when applied to amateur radio.

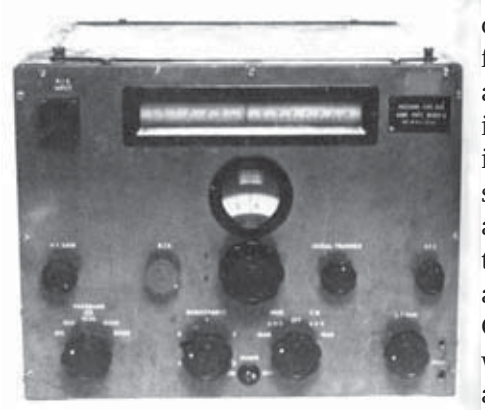
Step into my time machine and we'll pay a visit to my amateur radio station in the U.K., shortly after I was licensed, to see how far we've advanced… and how far we've fallen behind.

Let's take a look at the HF equipment – and the first thing you might notice is just how much of it there is! No compact transceivers here – I have a separate transmitter and receiver – connected to the antenna through a transmit/receive relay. The SSB transmitter is based on the Mark II design by G2DAF, covering all six HF bands from 160 meters to 10 meters and first described in 1964 issues of the *RSGB Bulletin*. Did I say six bands? Yes, the WARC bands at 10, 18 and 24 MHz did not come into existence until after the World Administrative Radio Conference of 1979. The G2DAF transmitter is powered by a beefy power supply kept under the shack table.



G2DAF SSB Transmitter Mk II.

The receiver is an interesting combination. I have an ex-World War II B28/CR100 naval receiver made by Marconi (not Guglielmo Marconi himself – but by Marconi's Wireless Telegraph Company). I've modified the receiver with a product detector for single sideband reception and an S-meter operating off the AGC line. The receiver has variable I.F. bandwidth and performs reasonably well on the lower frequencies, but at HF the stability, tuning and image rejection stink — so I have an Italian Geloso tunable converter ahead of the CR100 receiver, which then runs at a fixed I.F. of 4.6MHz.



World War II vintage B28 receiver, manufactured by Marconi for the British Admiralty.

Operating with this equipment takes some getting used to. The transmitter and receiver do not track frequencies together — so after you find an interesting station with the receiver, you have to "net" the transmitter to the receive frequency. The transmitter has a "carrier" control to introduce sufficient RF at carrier frequency to allow its VFO to be zero-beat to the receiver's BFO. The transmitter has two 6146B tubes in the power amplifier – they have to be manually tuned and loaded after every band change. Power output is over 100 watts PEP.

What are the weak points of this station? First of all it was BIG… not much chance of picking up all the equipment with one hand for Field Day or mobile operation. Second, it was HEAVY – the B28/CR100 was housed in a thick steel case designed to survive wartime use aboard ship. Third, everything was based on **tubes** (or valves as they are known in G-land). The variable frequency oscillators are free-running – so it's best to let everything warm up for half an hour before starting a long QSO. There are pointer dials instead of digital readouts – if you want to know exactly what frequency you are on – tough! I do have a 100 kHz quartz crystal frequency marker to provide calibration points every 100 kHz across the receiver dial. Keep on the correct side of the band-edge marker and at least you know you are in-band.

What about the strong points? There are no broadband receive circuits here... the B28/CR100 has two RF amplifier stages with a four-gang tuning capacitor peaking the front-end tuned circuits. Remember, this station is **all tube** – so no problems at all with overload from strong stations – whether from European 40 meter broadcast transmitters or my near neighbor G3SZV running an 813 amplifier on 20 meters. I can remember plugging a 160 meter transmitter accidentally into the front end of an Eddystone tube receiver… oops! Once the AGC had recovered and the S-meter had unwound itself from the end-stop, the receiver was completely unharmed. (There is a downside to all those tubes — they have to be replaced from time to time, especially the high gain types in the transmitter driver and receiver front-end.) Finally, there is not a single digital circuit anywhere in sight – everything in the radio room is analog – so no PCs, no tuning steps, no multiplexed display squirting RF into the radio room, no clock oscillator and no video monitors radiating time-base harmonics.

Now for the pièce de résistance – I had modified the B28/CR100 receiver so the amplified 465 kHz I.F. signal was brought out via coaxial cable to the Y-amplifier of an equally ancient Dumont oscilloscope. As a result, it was possible to watch the modulation envelope of AM and SSB signals as they were being received. CW stations displayed as on-off carriers with attack and decay evident on-screen. Overmodulation, flat-topping and key clicks were all clearly visible.

The B28/CR100 receiver and Geloso converter I used when first licensed is still operational in the shack of Wilf, G3STT. Look on the right for the B28's dark blue panel with white horizontal tuning scale – just behind the desk lamp.

Bear in mind that this station was put together entirely from secondhand and surplus equipment on a limited student budget. I'll admit that today's HF transceiver is streets ahead in terms of convenience, frequency stability, frequency precision plus sharp receiver filtering — and today's transceiver can be picked up with one hand if need be. My current Kenwood equipment even lets me dial up a "band-scope" showing a panoramic view of the frequency spectrum. But several decades later, I still have not found a combination of equipment that provides the same flexibility of monitoring incoming signals.

- 73 de Malcolm, G3VNQ, NM9J.

Special Event Station

PCARA will be organizing a Special Event Station at Blue Mountain Middle School, 7 Furnace Woods Rd., Saturday May 3, celebrating PCARA's third anniversary. Stations will be on the air from 1300 -1900 GMT (9:00 AM - 3:00 PM EDT). Suggested frequencies are 7.240, 14.280, 21.350 and 28.350 MHz. ARRL has allocated the special call sign **N2T** for the event and there will be a certificate for anyone who contacts the station.

PCARA Annual Raffle

Tickets now on sale!

1st Prize #1:
ICOM IC-T2H Sport 2 Meter Transceiver

1st Prize #2:
ICOM IC T2H Sport 2 Meter Transceiver

Perfect for beginning Techs and great for all Hams

2 HTs are being raffled off this year, each drawn separately

Tickets are $5.00 donation each.
Limit of 100 tickets sold.
Proceeds to help offset our liability insurance premiums and keep our dues low.

Contact **KR2V** or **KC2JDL**
to buy yours today!

Send request and payment to:
KR2V, PO Box 32, Crompond NY 10517

Tickets also available at monthly meetings

Drawing to be held June 29, 2003 at Field Day 2003

PCARA would like to thank GigaParts, Inc. for helping to significantly subsidize the cost of these radios. We mentioned that we were going to raffle the radios off as part of a fundraiser for the club. In the true spirit of Amateur Radio, they reduced the price!

Please visit their web site at: http://www.gigaparts.com

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.

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 Apr 6: April meeting, 3:00 P.M. HVHC.
Wednesdays: Technician classes, 7:00 P.M. HVHC.
Sat May 3: N2T Special Event Stn, Blue Mountain MS.

Hamfests

Sat Apr 5: Orange County ARC Hamfest, 8:00 A.M., Temple Hill School, 525 Union Ave, New Windsor NY. **Club Table!**
Sun Apr 6: Southington ARA Fleamarket, 9:00 A.M. Southington High School, 720 Pleasant Street, Southington, CT.
Sat Apr 26: Roseland ARC Hamfest, 8:00 A.M., West Orange HS, 600 Pleasant Valley Way, West Orange, NJ.
Sun Apr 27: Mt Beacon ARC, 8:00 A.M.,Tymor Park, Unionvale, NY. TSP to Rt 55 East, to County Rt 21-Bruzgul Rd E
Sat May 31: Bergen ARA Hamfest, 8:00 A.M., Westwood Regional HS, 701 Ridgewood Rd, Washington Twnshp, NJ.

VE Test Sessions

Apr 5: Orange County ARC Hamfest, R. Torpey (845)783-1692
Apr 6: Yonkers ARC, Yonkers Police Dept., 1st Precinct, E Grassy Sprain Rd, 9:00 A.M. Contact: Daniel Calabrese, 914 667-0587.
Apr 10: WECA, Fire Training Center, Dana Rd., Valhalla, NY. Register with Sanford Fried, (914)273-2741, N2SF@weca.org.
Apr 18: Bergen ARA & Fairlawn RC, Fair Lawn Cultural Center, 12-56 River Rd, Fair Lawn NJ, 7:30 p.m. Contact Donald C Younger, 201 265-6583.
Apr 21: Columbia Univ ARC, Watson Labs, 612 W 115th St. New York, NY, 6:30 P.M. Contact Alan Crosswell, 212 854-3754.
Apr 21: Split Rock ARA, Hopatcong HS, Hopatcong, NJ. 7:00 P.M. Contact K2GG@arrl.net.
Apr 26: PEARL, EOC Putnam Cnty Office Bldg, 40 Gleneida Ave Carmel, NY. 9:00 A.M. Contact NM9J, 736-0368.

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