PCARA Update

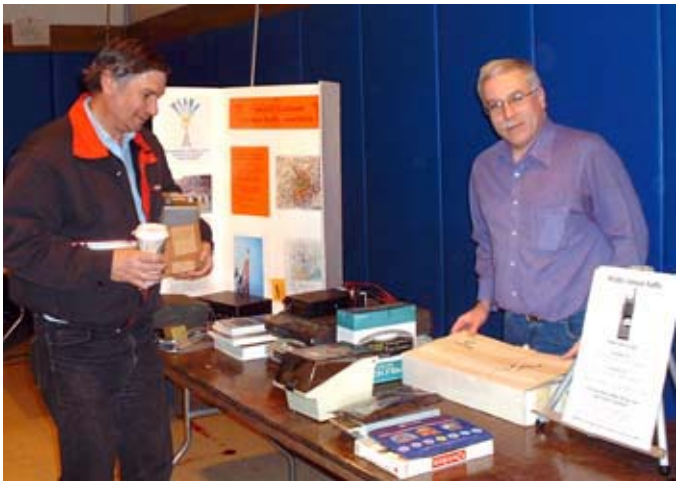
Volume 4, Issue 5 Peekskill / Cortlandt Amateur Radio Association Inc. May 2003

Special Events

The PCARA Third Anniversary Special Event Station will be in operation on Saturday May 3, 2003 from Blue Mountain Middle School in Cortlandt Manor. Station N2T will be on the air 9:00 AM to 3:00 PM. Set up will begin at 7:00AM. Remember that there will also be a GOTA (Get On The Air) station, so bring your friends and/or anyone who has an interest in amateur radio.

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. Complete details will be provided at the May Meeting as well as on the PCARA website *(and see page 3 –Ed)*.

Field Day 2003 will be held 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. Last year we increased the number of contacts from 450 to over 700. We will be running class 2A, and with a few more operators could improve our score for another year (as well as exercise our emergency preparedness). Please consider coming out to operate. We've had a great time the last 2 years!



Greg, KB2CQE (right) mans the PCARA club table at the Orange County Amateur Radio Club hamfest in New Windsor on April 5.

Will (Wires) KC2FYY explains VHF/UHF operation and repeaters to the PCARA Technician class on April 23. The class concludes with a V.E. Test Session on Wednesday May 14 at HVHC.

Tickets for the PCARA Annual Raffle are still 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 May and June meetings, and from Joe, KR2V (kr2v @ arrl.net).

We have a few things to keep us busy for the next couple of months. I hope to see each of you at the May 4th meeting at Hudson Valley Hospital Center at 3:00 PM.

– 73 de Greg, KB2CQE

PCARA Officers

President:
Greg Appleyard, KB2CQE kb2cqe @ arrl.net
Vice President:
Bob Tarsio, N2CBH; n2cbh @ arrl.net
Secretary/Treasurer:
Mike Aiello, N2HTT n2htt @ arrl.net

Adventures in DXing 4

– N2KZ

Last fall, a good friend gave me an old Heathkit HW-7 QRP transceiver. It is four pounds of fun – a little rectangular box covering 40, 20, and 15 meters on CW. The input power is about three watts on 40 meters, so on a good day you are delivering about two watts to your antenna. I have had some great results with it on 40 meters working many stations on QRP without great effort. My main rig is a Heathkit HW-16 that runs 90 watts on 80, 40, and 15 meters, so I've become acquainted with those bands and their propagation.

My little HW-7 is my ticket to the world of 20 meters! As a new ham, I have had little operating experience beyond what my HW-16 can provide. Unfortunately, I took ownership of the HW-7 QRP rig just when winter weather began making it difficult to

Karl's latest acquisition is this 30+ year old Heath HW-7 QRP transceiver.

put up a new antenna for 20 meters. Spring is finally here, and so is a new dipole in my trees.

I knew the weather was going to be good one Saturday morning. I started early at 5:30 a.m. carefully measuring and soldering the dipole's elements in my basement. Three dog bone insulators, purchased at the recent Orange County hamfest, became an integral part of the antenna. Add a 50-foot hank of coaxial cable and the dipole was born. I quickly drilled a feedhole through my office wall and fed the coax through.

Next, I climbed up to my roof to assess where the antenna should fly. I already have three dipoles and a rotatable UHF TV array up there. My attic holds seven more antennas covering VHF and UHF TV, FM, scanner frequencies and 2 and 6 meters. I picked the path most in the clear from my chimney to a distant tree.

I tied one rope to the chimney and then attached another rope to the other dipole element. I temporarily hoisted it slightly in the air and covered all the four exposed metal areas with gobs of clear silicone gel. Getting the far end up into the tree is the fun part!

I couldn't use a slingshot or fishing reel this time because I was much too close to a power line. My wife bought a screened tent last summer constructed with several small pieces of light gauge pipe that assembles together. I used every section that I could fit in one length to create a pipe nearly 30 feet long! I tried raising it with no problem.

I had to add some weight to the rope end to make the rope fall after I got it over the chosen branch of the tree. I used my kooky water bottle technique. I fill a small water or soda bottle about half way and tie the end of the rope to the bottle top. Then, I Scotch-tape the rope to the top of the pole. I raise the pole up, get the water bottle over the branch of choice, and wiggle the pole until the Scotch tape breaks loose and the water bottle coasts down to the ground. Your rope is accurately hung! Call me crazy, but this technique works well.

I adjusted the ropes to my liking and hoisted the antenna high up into the sky. I hurried inside, attached the coax to the rig and it tuned to 20 meters perfectly. No ATU necessary. I heard someone calling CQ and I answered. He heard me! It was W4VAC from Memphis, Tennessee giving me a 589 RST report. I replied to Chuck that this was my first 20 meter contact and I was using a Heathkit HW-7 with two watts. He interrupted sending "HI HI" in laughter. Chuck asked me what rig was I *really* using. I confirmed that it was a Heath HW-7 constructed back in 1972. Both of us were thrilled. A very FB QSO. A few days later, in just one hour, I worked Oregon, Washington and Puerto Rico. Great fun!

So now, the world of 20 meters awaits with many more challenges to come. My HW-7 has a direct conversion receiver that loves to provide "tunable hum" and an undercurrent of shortwave broadcaster audio due to front-end overload. I have already modified it to dramatically reduce the deafening stock CW side tone it had. Receiver front-end modifications will follow hopefully improving the sensitivity and selectivity along with adding adjustable RIT.

In the meantime, watch out world! My QRP flamethrower signals are heading your way!

CQ DX de N2KZ/QRP – Karl

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. Antenna erection begins at 7:00 A.M., with station setup commencing at 8:00 A.M.

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 Foxhunt Rules

Saturday May 10, 2003

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

This fox is ready to go into hiding...

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: **New City North (formerly Panos American Diner)**, 3825 Crompond Road (Rt 202), "Peekskill" (near Curry Honda).

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

Mt Beacon Hamfest

Bob, N2CBH demonstrates a Motorola Micor transceiver on the PCARA Club table at the Mount Beacon ARC Hamfest, April 27.

Icom IC-2720 review–NM9J

The IC-2720H is a new dual band mobile transceiver from Icom, transmitting on 144 and 440 MHz FM. This transceiver was announced in early 2002, but it took some time for stock to become available on local dealers' shelves.

The IC-2720H sells for around $350. This is quite a lot more than Icom's two-band mobile transceiver, the IC-207H, which costs around $225.00. However, the IC-207H only receives on one band at a time, while the IC-2720H has separate receivers capable of listening to two different frequencies at the same time.

You may remember Icom's previous dual band model, the IC-2800H. This radio was a lot more expensive than the 2720, $450-$540, because it included a 3 inch color LCD display in the permanently-detached 5½" x 2¾" control head. The IC-2720H has a smaller

Icom's IC-2720H dual-band FM transceiver with the control head mounted to the transceiver body.

control head (5½" x 2"), that cannot be clipped onto the front of the transceiver body. If you want to attach the control head to the transceiver, you'll need to purchase an optional MB-85 combination bracket and short separation cable. The resulting "combination" is more functional than elegant, in your editor's opinion.

The transceiver body is a very impressive metal casting, 7 inches long and weighing 3 lb. Air is drawn from front to back by the rear mounted fan. In a mobile setting, the correct place for this large chunk of metal is probably under the passenger seat, with the control head mounted on the dash. Take care choosing the mounting position for the control head – even though the LCD display is large enough for worn, boomer eyes, the clarity may be less than ideal if you are viewing *from the left*. Apparently Icom designs its displays for mounting in left-hand drive vehicles, where the steering wheel is on the right, as in Japan and Great Britain.

The control head has an ergonomic layout – in other words, it's designed for ease of use. There are separate controls for volume and squelch plus separate frequency dials for each of the two bands, just like the IC-2800H. The six backlit control buttons are clearly labeled on the buttons themselves – no need to peer at tiny print on an adjacent LCD panel. One complaint is that the "monitor" control is the second function of the "Dup" button and therefore requires a one-second push. "Monitor" is one control I use a lot – on Icom radios it switches the receiver to the repeater's input frequency and opens the squelch, so you can listen on input.

The good news is that the IC-2800H microphone (model HM-133) has 25 *more* buttons on it – and one of these has "Monitor" as its prime function. You can control the entire radio from the microphone without touching the control head. As well as stepping the frequency up and down, you can adjust the volume and squelch digitally. The current setting then appears on the LCD panel.

Speaking of the microphone, there are a couple of points about this transceiver's transmit audio. The first is that the radio has a low/high control for microphone sensitivity available through "Initial set mode". The default setting is "low", but most people prefer the "high" setting for that high-quality punchy transmit audio typical of Icom. The second point is that the microphone case has a teeny little hole in the front for sound to pass through on its way to the electret element. Behind the hole is a silicone rubber molding, for those 25 buttons. If the hole in the case does not align properly with the hole in the silicone rubber, very little sound will reach the electret. In that event, you may find it worthwhile disassembling the case and enlarging the hole in the rubber molding.

Disassembled HM-133 microphone. The hole for the electret microphone in the rubber molding may need to be enlarged to align with the matching hole in the front of the case.

The IC-2720H has a "broad-band" receiver – it can receive any frequency between 118 – 550 MHz and 810 – 1000 MHz, with the exception of the cell-phone channels. Entering all those frequency details into the 212 memory channels through the control head is a long job. Like many modern radios, the IC-2720 can be programmed from a PC. You'll need the Icom OPC-478 cable to connect your PC's serial port to the second speaker jack. This is the same cable used with the IC-W32, IC-T2H, IC-2100H and IC-V8000. You'll also need Icom's CS-2720 "cloning software" – this installs

on your Windows 98 or higher PC, allowing frequencies to be entered and permitting data to be transferred to and from the radio.

The usual arrangement for a dual-band transceiver is to have one set of memories for 144-148 MHz on one side of the radio and a separate set of memories for 440-450 MHz on the other side of the radio. The IC-2720 tosses this idea into the trash – instead it has a **single** set of memories that can accept *any* frequency in the receive range – and that single set of frequencies applies to *both* sides of the radio.

This memory scheme takes some getting used to! As well as the usual simultaneous reception on 144 and 440 MHz, so-called "V/V" or "U/U" operation on two channels in the same band is as easy as dialing up the appropriate memories for left and right sides. If you want to listen to the same frequency on both receivers at once that can be easily arranged – it lets you compare receiver sensitivities and S-meter readings.

By the way, I have long mourned the passing of analog S-meters. It's much easier to see what a signal is doing when the meter changes continuously – and it's better for peaking antennas or direction finding. But digital frequency displays led to digital S-meters – with the number of segments increasing with signal strength. The IC-2720 has separate S-meters for each side of the radio. Each meter appears to have 14 segments, but since they turn on in pairs, the meter only has 7 effective levels.

Close-up of left half of IC-2720H LCD display showing the 7-level S-meter.

(This is better than the Alinco DR-605T transceiver, whose S-meters appear to have 8 segments, but since they also turn on in pairs, each meter only shows *four* different levels! Despite this, my verdict on the DR-605T is — an excellent dual band economy transceiver, with no frills, but no performance problems either.)

Any problems with the IC-2720? I would mention the cooling fan, which switches on during transmit, then runs for a full minute after releasing the PTT. You might not notice it under the passenger seat, but it is distinctly noisy on the bench.

Despite the large number of memory channels, there are *no* alphanumeric memory names. This seems an odd omission when even humble handi-talkies have the feature – fortunately it does not worry me. Alphanumeric memories need the extra expense of a dot matrix display, with less clarity than a seven-segment frequency read-out.

The extra wide receive coverage is always a worry – it stands to reason that a "DC-to-light" receiver front-end with V/V, U/U options is more likely to be affected by strong out-of-band signals than a receiver designed to operate on one amateur band only. There is no secret about intermod performance – all you need to do is compare figures from the excellent product reviews in *QST.* Here's a summary of the results for FM two tone third order IMD dynamic range at VHF (146MHz) with 10MHz separation (the higher the dynamic range in dB, the better):

Model	**Dyn rng**	**Comments**
Yaesu FT-7100M	67dB	Dual band FM
Icom IC-2720H	**78dB**	Dual band FM
Yaesu FT-8900R	80dB	Quad band FM
Kenwood TM-D700A	81dB	Dual band FM – TNC, APRS
Kenwood TM-V7A	81dB	Dual band FM – blue display
Kenwood TM-G707A	81dB	Two band FM
Icom IC-207H	83dB	Two band FM
Yaesu FT-90R	85dB	Dual band FM compact mob
Icom IC-V8000	87dB	Single band (2m) FM
Icom IC-2800H	88dB	Dual band FM – color disply
Yaesu FT-8100R	89dB	Dual band FM – amber displ
Alinco DR-605T	91dB	Dual band FM – economy
Icom IC-2100H	93dB	Single band (2m) economy
Yaesu FT-1500M	100dB	Single band (2m)
Yaesu FT-2600M	101dB	Single band (2m)

As you'll see, the IC-2720H is not very high up the IMD league table. The older IC-2800H was described as "very respectable" in QST – but the wider-band IC-2720H is *10dB worse* than the 2800 on IMD performance. The only consolation – it's not as bad as the original Yaesu FT-7100! Most modern radios have better performance. If you are wondering how relevant these figures are, third order IMD shows how immune a 2 meter receiver would be to strong signals on e.g. 156 MHz and 166 MHz mixing together in the receiver front end to produce a $2f_1 - f_2$ intermodulation product at 146 MHz.

In practice you may only run into IMD problems when the radio is plugged into a large outdoor antenna, or if you have paging and mobile/base stations nearby. I noted some brief spurious signals while monitoring the W2NYW repeater input frequency of 146.070 MHz. Gordon West, WB6NOA reported in the May 2003 issue of *CQ* that the IC-2720H did a "remarkable job" of rejecting out-of-band interference in California and New York City, though he did have to use the 10dB attenuator attached to the squelch control.

My own conclusion – if the detached control panel and band coverage are to your liking, the IC-2720H will probably become a good friend.

— 73 de Malcolm, 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!

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
Sat May 3: N2T Special Event Stn, Blue Mountain MS.
Sun May 4: May meeting, 3:00 P.M. HVHC.
Wednesdays: Technician classes, 7:00 P.M. HVHC.
Wed May 14: V.E. Test Session, HVHC, 7:30 P.M.
Sat May 10: Foxhunt, start Beach Car Park, 3:00PM.

Hamfests
Sun May 25: Great South Bay ARC, Sunrise Mall, Massapequa, NY.
Sat May 31: Bergen ARA Hamfest, 8:00 A.M., Westwood Regional HS, 701 Ridgewood Rd, Washington Twnshp, NJ.
Sun Jun 1: Hall of Science ARC, 9:00 AM, Flushing Meadows, Queens NY.

VE Test Sessions
May 4: Yonkers ARC, Yonkers Police Dept., 1st Precinct, E Grassy Sprn Rd, 9:00 A.M. Contact: D. Calabrese, 914 667-0587.
May 12: Split Rock ARA, Hopatcong HS, Hopatcong, NJ. 7:00 P.M. Contact K2GG@arrl.net.
May 14: PCARA (final Tech Class), HVHC, Rt 202, Cortlandt Manor, 7:30 P.M. Contact NM9J, 736-0368.
May 19: Columbia Univ ARC, Watson Labs, 612 W 115th St. New York, NY, 6:30 p.m. Contact Alan Crosswell, 212 854-3754.
May 20: Pel Hams, Pelham Doronco Town Hse, 20 5th Ave Pelham, NY. 7:30 p.m. Contact Michael Ciferri (914)738-5775.
May 31: Bergen ARA, Westwood Reg HS, 701 Ridgewood Rd, Washington Twnshp, NJ. 8:00 a.m. Don Younger, 201 265-6583.
Jun 12: WECA, Fire Training Center, Dana Rd., Valhalla, NY. Register with Sanford Fried, (914)273-2741, N2SF@weca.org.

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