



# PCARA Update



Volume 4, Issue 7

Peekskill / Cortlandt Amateur Radio Association Inc.

July 2003

## Field Day fun



Field Day 2003 was a big success! We had an excellent turnout, and increased our score for a second year in a row! At the conclusion of Field Day we held the drawing for the annual raffle. One of the Icom IC-T2H Sport 2 Meter Transceivers went to Charles Gentile, WA2WGJ, and the other was won by

Roy Spangenberg, KC2DMH. Congratulations to both!

Our next big event is the Foxhunt scheduled for September 21, 2003 at 3:00 PM. Karl, N2KZ is playing the fox. The hunt should last about an hour followed by a get-together at a local restaurant. To sign up, or for any questions, please contact Karl, N2KZ at n2kz @ arrl.net. Please consider joining us.

I hope to see each of you at the July 13<sup>th</sup> meeting at Hudson Valley Hospital Center at 3:00 P.M.

— 73 de Greg, KB2CQE



June 28 sunset over Bear Mountain, where PCARA's Class 2A entry in Field Day was well underway. See page 2 for Field Day report and pictures.

## Annual raffle

PCARA's annual raffle is held to offset the cost of the club's insurance bill and to keep the dues low. This year's drawing was held on Sunday June 29 at the conclusion of Field Day.

Mike, N2HTT carried out the drawing, with the following results:

**First prize:** Icom IC-T2H Sport 2 meter transceiver — **Roy Spangenberg, KC2DMH**

**Second prize:** Icom IC-T2H Sport 2 meter transceiver — **Charles Gentile, WA2WGJ**

Congratulations to our two lucky ticket-holding members. Incidentally, Roy's winning ticket was numbered **73**.



Mike, N2HTT draws the winning tickets at the end of Field Day.

## 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

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# Another night on Bear Mountain (FD 2003)

Field Day 2003 was a little different from PCARA's previous efforts in 2001 and 2002. Although there were fewer people taking part, the score was quite respectable. We did not have the pouring rain of 2001 or the powerful heat of 2002 — in fact, the weather was ideal, apart from a brief rain shower on Sunday morning. Just as in 2002, the summit of Bear Mountain is still suffering from a lack of running water, so the facilities were a little spartan. Nevertheless, FD chairman Bob N2CBH, Joe WA2MCR and Jim, N2KLC stayed overnight on the mountain to keep things humming.

Sunspots have declined since the solar max of 2000 — and this was reflected in significantly less activity on the upper HF bands. Fortunately the lower frequencies and VHF took up the slack.

Antennas for the VHF station were supported on a pole provided by Clint, KB2ZRJ. Ray, W2CH's 144 /430 MHz horizontally polarized beam was mounted above an inverted-V wire dipole for 6 meters. This simple 6 meter antenna performed surprisingly well with Ray's Yaesu FT-897, providing plenty of contacts into the surrounding states — mostly call areas 1, 2 and 3.



*Clint KB2ZRJ, Jim N2KLC, Greg KB2CQE and Ray W2CH prepare the VHF antennas. Bob N2CBH adjusts a guy rope.*

The 40/80 meter station employed a traditional G5RV antenna courtesy of Joe, WA2MCR. This 102 foot long antenna also worked well, with large numbers of contacts on both bands.

On 20 meters, a new wire antenna was being tried out. This was a “one masted sloop” as featured in *QST* for April 2002, page 44. The design is a full wavelength square loop for 40 meters, fed and supported at the highest corner. The loop slopes down toward the ground at an angle of 30 degrees to the horizontal. This antenna showed an excellent SWR on 40 meters and 20



*Joe, WA2MCR operates the 20 meter station.*

meters, but the performance on 20 meters left a lot to be desired. Better results were obtained with a 20 meter delta loop antenna, which was hastily erected after the sloop had shown its lack of oomph.

To be fair to the sloop, it did allow some good overnight contacts on 40 meters after the 40/80 meter station had moved down to 80 meters. However, in your Editor's opinion, the sloop's performance on 20 meters was a disappointment and the search for a good multiband antenna for 40/20/15 meters continues.

The 40/80 meter station employed a golden oldie Kenwood TS-530 transceiver provided by Joe, WA2MCR. This ran well on both SSB and CW. Unfortunately the NM9J CMOS Superkeyer proved to be incompatible with the 20+ year old keying circuitry of the Kenwood, so a World War II vintage RAF Bathub Key 10A/7741 had to be substituted.

On Sunday afternoon, Mike N2HTT connected his Yaesu FT-817 to a solar panel and battery for some QRP natural power contacts. Following the rules for a class 2A entry, we took the main 20 meter station off the air while Mike sent his 5 watts of CW into the crowded airwaves. By the end of the day at 1800Z, Mike had contacted seven stations and earned an extra 100 points.

We earned additional bonus points for emergency power, media publicity, set up in public place, information booth and copying the W1AW Field Day Message.

The points are still being totaled, but here are the provisional scores for Field Day 2003, along with the previous years' figures for comparison.

	2001	2002	2003
Peekskill/Cortlandt ARA, W2NYW			
QSOs:	450	718	<b>734</b>
Power:	2(<150W)		
Participants:	16	15	<b>11</b>
Total score:	1,540	2,096	<b>2,330</b>
ARRL Section:	ENY		

- NM9J

# Rochester Hamfest

*The following is Ray, W2CH's account of the Rochester Hamfest, Computer and Hobby show plus ARRL Atlantic Division Convention, held May 30- June 1, 2003.*

This was the 69th year of the Rochester Hamfest and Computer show. Marylyn and I drove up to the Rochester Hamfest Convention on the south side of Rochester, about 330 miles from Croton, NY. We left home on Wednesday May 28, and stayed a night at a hotel near Monticello.

We then drove up Route 17 and Interstate 390, to the Holiday Inn Rochester South. This was the main hotel for the Hamfest, and is about 1½ miles from the Hamfest site at the Monroe County Fairgrounds. We checked in and dropped off our ticket stubs for the various prize drawings during the Hamfest. They say it is one of the largest conventions and computer shows in the northeast. Up to 8,000 have attended in the past from the U.S.A and nearby Canada. We spoke for a while with hams at the convention table at our hotel.

The next morning, Friday May 30, 2003, we arrived at the convention and parked there. Outside at the flea market, sellers were ready or still setting up. There were some tents for a few vendors, such as East Coast Amateur Radio, from Tonawanda, NY, (near Buffalo), and local amateur radio clubs. There was quite a variety of sellers, such as for Heathkit rigs and Zenith Transoceanic receivers, along with a bright yellow one seater electric three-wheeled vehicle selling for \$9,000. I guess it would be cramped for operating mobile! There even was a "traffic light" and "power line insulators" for sale. Maybe they would be useful for the "electric vehicle". Actually, there were more flea market sellers on Saturday, when the largest number of attendees were at the hamfest. Unfortunately, it started to rain during mid morning Saturday, which put a damper on flea market traffic. The rain only eased up on



*Marylyn admires a three-wheel electric vehicle on sale at the Rochester Hamvention for \$9,000.*



*Here's a vendor who seems to have cornered the market for Zenith Transoceanic receivers.*

Sunday morning. Actually, Sunday was not too interesting, with most flea market sellers gone, and some of the dealers and others having already left. We did not stay too long that day and left that morning for home.

Now, more about the sellers in the convention hall, called the "Dome Arena". This area did not open until noon on Friday. I would say the arena was only half full, with dealers and sellers. There were other exhibitors such as for medical treatments, slot machines, auto windshield repair and some crafts. Of course there were amateur and computer sellers. Some of the amateur dealers or exhibitors were Ham Station, WBOW, Webster Communications, Radio Shack, Fluidmotion Antenna Systems, Battery Tech, Batteries America, CQ Communications, Radio Bookstore, Ramsey, Chicago Computers, The Rochester DX Association, MARS, ARRL, DXCC, and QCWA. There were no displays by major manufacturers such as Yaesu, Icom or Kenwood.

There were VE Exams, DX Card Certification and various programs such as ARRL, MARS, and NWS Skywarn Training Forums.

There was the K7BV "DXpedition to East Timor". (Marylyn and I saw his presentation at the DX Awards Banquet at the Boxborough, MA, New England Division Convention last August). There was an Atlantic Division Awards Banquet on Friday at the Holiday Inn. We attended it, with about 80 others. Along with the dinner, there were awards presented by the Atlantic Division Director to the Atlantic Division Amateur of the year, and an Award for Technical Achievement.

Overall, the hamfest was interesting, but it was not heavily attended, nor were there many dealers or manufacturers present at it.

As stated earlier, Marylyn and I left on Sunday morning, and returned home that afternoon. We did stop at the Roscoe, NY diner for lunch.

— words and pictures by Ray, W2CH.

# Dayton 2003 — WB2HNA

The one other time I attended the Dayton Hamvention® was about twenty years ago. I looked forward to my second trip. Like a pilgrimage to Mecca during one's lifetime, hams must try to make at least one trip here.

The trip started at 7 A.M. on Thursday May 15. Jim, N2KLC drove his van, minus the middle seat, which made it like a big stretch limo. Well... maybe not, but we did have a lot of room for "stuff" to bring home. Bob, N2CBH was the navigator. Greg, KB2CQE, and I manned the back seat. The van was aimed west. Somewhere in Pennsylvania, we spoke to Karl, N2KZ on 40 meters. Our route took us south of Pittsburgh, through a slice of West Virginia, on to Ohio. I always wanted to see Wheeling. We passed a few other hams with call letter plates and spoke to a few of them on "52". Driving in and out of rain, we stopped for lunch and gas. The van made a left turn to go south in Columbus, and before we knew it...we were rolling into the Dayton city limits around 5 P.M. The radio chatter on "52" picked up. Big black clouds were parked right outside the city. We checked into the Ramada Inn North and went to dinner.

Getting up early on Friday, we had a big breakfast, and we were off to the Hamvention grounds, which were about ten minutes away from the hotel. We got there around 7 A.M., parked in the least muddy parking area, and milled around in the fog waiting for the gates to open. Our communications strategy was to use the output frequency of one of our 440 repeaters as our private simplex frequency as we wandered the grounds. You must remember that the other 25,000 hams there had a similar idea, but we were lucky. No one else seemed to be using our 448.725MHz/PL combo, so we were good to go. I used my covert FBI style earbud and



*Is Greg, KB2CQE wondering whether to take this Hummer H2 home from Dayton as the new Cortlandt radio vehicle?*

stealth microphone with my HT, so it looked like I was talking to myself as I walked around. Probably a few thousand people there **were** talking to themselves, so I fit in pretty well.

As soon as the gates opened, we started the assault on the outside flea market spaces. Each of us methodically strolled the lanes of the market, eyeing the goods, trying to be the first to see the thing we might need. One of the things I enjoyed was seeing old rigs, keyers, or HTs that I had once owned over the years. Since I have been a ham since 1968, I have gone through lots of equipment. Almost every piece of equipment that I ever owned was there in the flea market. There were plenty of vintage pieces for sale at pretty high prices. National, Collins, Hallicrafters, Hammarlund, and Heathkits were well represented. One saw zillions of HTs, Motorola commercial mobile rigs, VHF and UHF repeaters, antennas, hardline, connectors, and tubes. Several vendors had computers and software for sale. I got into a good discussion with a guy who was trying to sell CD copies of his book on Aliens.

After walking around the flea market for about five hours, we grabbed lunch (hot dogs) inside Hara Arena and sat inside. It felt great to get off my feet. One of the great things you can do at the convention is take a good look at all the people attending. While combing the flea market, I usually kept my head down with my eyes scanning the tables like a military mapping satellite over enemy territory. I usually only glanced at people as they bumped into me, backed into me, or ran into me with one of the many motorized scooters which were in use there. It was pretty fascinating to just watch everyone else. There were a few guys with antennas on the top of their batting helmets, but compared to my first trip, this crowd was pretty tame. (It's funny, it also rained the other year I went.)

After lunch, it was back to the outdoor tables. I managed to cover almost all of the spaces on Friday.



*Gary WB2HNA, Jim N2KLC, Bob N2CBH and Greg KB2CQE wandering the fleamarket on a rainy day at Dayton 2003.*

That turned out to be a good plan, since Friday was the best day WX-wise, with the sun actually coming out in the afternoon for a few hours. Our legs told us that we had walked enough at a certain point, so we carried our “stuff” to the van and left for the hotel. After another good dinner we turned in pretty early. (Notice all the eating?)

Saturday morning was also overcast, so we took the opportunity to cruise the remaining outdoor spots as quickly as we could. It started to rain after a few hours, lightly at first, but getting steadier as time went on. A lot of vendors had plastic sheets covering their items, but many did not. I saw some vintage radios and a lot of commercial radios getting soaked in the rain. There were some bargains to be had at this point as some of the sellers realized they might be running out of selling time. Bob found a Kenwood transceiver and scooped it up.

Greg and I shot inside to wander around; both on the main floor of Hara Arena and in the several adjoining exhibit areas. The major vendors (Kenwood, Icom, Cushcraft, MFJ, AES, and some others) were inside on



*The major vendors were inside on the main floor.*

the main floor. Yaesu, Heil Sound, KJI Electronics, and hundreds of other vendors that you typically see in the back of QST were located in the adjacent exhibit areas. Most had pretty good prices or show specials. I picked up a VHF-UHF mobile rig from AES. It was somewhat crowded inside since most people got out of the rain, but many people I spoke to said it was not that bad since attendance was down from 35,000 people a few years ago. I also bought a few hundred feet of copper wire for a 40-meter loop antenna I might try, some rotor cable and some connectors.

We all agreed at some point on Saturday afternoon that we had all reached saturation and had had enough. We took our goods to the van and tried out several items that we picked up. After dinner we got ready to set out early on Sunday for the trip home.

The return route brought us farther north in Ohio before heading east. We took Rt. 80 into NJ and headed



*Bob N2CBH and Jim N2KLC carry their trophies back to the van.*

north toward home. Bob made a few contacts on HF and the time went pretty fast. The van also went pretty fast. I always wanted to see Akron.

Even though you may read comments from others on some of the message boards about the rain, the declining attendance, the lack of bathroom facilities, and the dwindling condition of the Hara Arena, I still had a good time. There was so much to see, I didn't attend any of the seminars. I took the time to talk to a lot of the guys behind the tables telling them “I had one of those when I was about nineteen”. That usually started a nice conversation. I ran into a few people I knew. It was also good to walk around getting bathed in RF from every direction and covering most of the RF spectrum. Next year I'll wear my tin foil cap and drag a ground rod, sparking, behind me.

— words and pictures by Gary, WB2HNA

## HOT Quiz

How good is your knowledge of the **History of Technology**? Read through this script for the next Bames Jond movie and see how many chronological errors you can spot...

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Flashback to 1973... Opening shot shows exterior of a U.K. missile control room with tower and microwave dishes. Bames Jond glances at his digital watch then pulls out a handi-talkie – the LCD display shows 145.750. Jond talks into the radio, waits for the reply then slips into the control room. There are numerous consoles with red LED readouts, green radar displays and a color TV tuned to BBC1 television. A technician sits in front of the console, with a Sony Walkman covering his ears. Music from the cassette stops him hearing Bames Jond's approach. Jond overpowers the technician and flings him out of the way. He begins dismantling the control room, ripping equipment from

racks and pulling circuit boards from the guides. There is a cascade of tubes, transistors and chips falling to the floor.

Jond stops at a telephone – he taps out a number and speaks into the handset. After pausing for a second he looks around the room and spots a notebook computer connected to the console. He ejects the floppy disk, pockets it then smashes the PC against a digital frequency counter with glowing Nixie tubes.

His mission complete, Jond leaves the control room by a side door. He steps into his Sinclair C5 and zooms away at top speed, with the wind blowing in his hair...

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**So...** how much do you remember about the technology of thirty years ago? Here's a closer look at the points you might have picked up...

**Digital watch:** If Bames Jond had a digital watch in 1973, the chances are he would not have just glanced at the dial. Checking the time needed two hands — one to wear the watch and the other to press the button to turn on the LED display (LED=light emitting diode). Early LED watches were very expensive — and only affordable by secret agents and policemen like Lt. Theo Kojak. The real James Bond used a Pulsar LED digital watch in the movie *Live and Let Die* (1973) while his Rolex was being repaired by Q. Seiko did introduce the first liquid crystal display (LCD) watch in 1973 so it is just possible that Bames Jond might have had one... but LCD watches did not become widespread until after 1977.

**Handi-Talkie:** Handi-talkies were not unknown in 1973, but an HT with a liquid crystal display would have been out of the question. Jond would have had to wait until 1980 for a Kenwood TR2400. Could Jond have used a repeater on channel R6 in 1973? The answer is yes – the U.K.'s first amateur repeater, GB3PI, was licensed in 1972 from a site near Cambridge, moving to Barkway in 1973.

**LED Displays:** Could the control room have had large red LED displays in 1973? It certainly could — the first commercial LEDs were introduced by H-P and Monsanto in 1968 and by 1973 a wide selection of point source and 7-segment displays was available. See [http://www.maxim-ic.com/appnotes.cfm/appnote\\_number/1883](http://www.maxim-ic.com/appnotes.cfm/appnote_number/1883)



7-segment red LED display.

**Color TV:** Would the technician have been able to watch color television in 1973 Britain? Yes — BBC1 television began color broadcasts on UHF in 1969. BBC2 television had been pioneering UHF transmission



*This Sony Walkman cassette tape player dates from 1984. (It still gets used from time to time to give VE code tests.)*

since 1964, switching to color in 1967.

**Walkman:** The technician might have been engrossed by the TV, but he would not have been wearing a Walkman in 1973. The first Sony Walkman did not appear until 1979, becoming popular in the U.S. and U.K. during 1980. It employed magnets containing a cobalt-samarium compound for the tiny headphones and for the tape drive motor. A villain disguised as a milkman wore a Walkman in 1987's Bond movie *The Living Daylights*.

**Components:**

Could there have been a stream of tubes, transistors and chips in 1973? Yes — this was a period when tubes were still in widespread use, especially for high power output stages. At the same time, integrated circuits were beginning to appear alongside discrete transistors. You could find all three component types inside a TV set or amateur transceiver of the time.



*A mixture of vacuum tubes, transistors and chips (integrated circuits) from the '70s.*

**Phone:** Would Bames have been able to tap out a number on a 1973 telephone? Perhaps in the U.S.A., but in the U.K. a touch-tone pad would have been highly unlikely. Push button phones were rare, and early models relied on slow pulse-dialing rather than the immediacy of DTMF touch-tones.

**Notebook computer and disk:** This one is definitely ahead of its time. The IBM PC did not appear until 1981 — and the first clamshell-style laptop computer was 1982's UK-designed GRiD 1100 Compass. See: <http://www.griduk.com/History.htm>. If Bames Jond had found a floppy disk thirty years ago,

he would have had some difficulty pocketing it – 1973 floppy disks were all of 8 inches in diameter! The 5¼ inch size did not appear until 1976. Sony introduced the 3½ inch disk in 1980. See: <http://www accurite.com/FloppyPrimer.html>

**Frequency counter:** Frequency counters were becoming more common in 1973. You could purchase a Yaesu YC355-D for \$289 or a Heath SM-110C for \$795. The older Nixie tube displays were starting to be replaced by 7-segment LEDs. The Nixie tube was a neon discharge device with the electrodes for digits 0-9 spaced one above the other.



Here's the G3VNQ counter from the 1970s period, it's a Heathkit IB-1101 100 MHz digital frequency counter with five Nixie tube display, available from 1972 to 1975.

**Sinclair C5:** The stylish Bames Jond would never have been seen dead in one of these transport devices, let alone zoomed away — and he would have had to wait 12 years till 1985 for one to come along. The Sinclair C5 was a tiny electric vehicle made by the same Clive Sinclair who brought you the Sinclair/Timex ZX80 microcomputer. Once described as a “motorized hip bath”, the C5 had a top speed of 15 mph and was perceived as a highly unsafe failure. Its equivalent in the 2000's might be a Segway HT (human transporter) — but that's another story!



Sinclair C5 electric vehicle.

So... the only items that were completely impossible in 1973 were the 2 meter HT with LCD display, Sony Walkman, notebook PC and C5. The no-touch digital watch and fast-dial touch tone phone would be highly doubtful.

— Malcolm, G3VNQ, NM9J

## Wondering when your dues are due? — Mike, N2HTT

Those of you who have been at meetings that I've attended have no doubt heard me make vague promises about reorganizing the membership records, and issuing dues statements. This spring has been unusually busy for me, and getting the membership records together has been a slow process — one which has taken longer than it should. It now appears that I will be able to get our dues notices in July, and there will be some changes. Here's what to expect:

**No more autopatch fees, basic dues increase.** Until now, we have had a policy of collecting \$20.00 basic dues, and an additional \$20.00 for personal autopatch access. With the next dues cycle, this will change. There will be no additional dues for autopatch access, it will be available to anyone who wants it. The basic dues rate will increase to \$25.00, the increment covering our expected annual phone bills, plus the additional usage from open autopatch.

**Dues due date.** In the month of July, dues notices will go out. In the past dues were due annually, on the anniversary of your joining the club. In this year, all due notices will go out in July and January. If it has been longer than 12 months since your last dues payment, the amount shown in your dues statement will be prorated to bring your “anniversary” month to July. If your anniversary month is sometime between August and January, you will get your dues notice in January 2004.

**Notice a new notice...** As much as possible, I am going to try to use email to send out dues notices. The process will work like this:

- 1) Members with email addresses listed will get their dues notice sent to the listed email address.
- 2) Members without any email address listed will get a paper statement sent to their mailing address.
- 3) By August, anyone who has not replied will get a paper statement sent out.
- 4) By September, after two statements have been sent, if I haven't heard from you and I can't get in touch, I'll drop your membership. (But before I do that I'll try everything I can think of to get in touch. Even FM simplex....)

Your renewal notice will list all the information I have on file for you, along with some preference questions, such as: do you wish to publish your email address, etc. Please mark up the notice to correct or change any of the listed information, and return it to me with your dues payment. You can catch me at meeting, or mail the renewal to the club PO Box address.

In the coming months I hope to be able to provide better information services, such as a members-only roster, with the information on the renewal returns. Thanks to all members for their patience with me as I try to get this job under control.

— N2HTT

# Peekskill / Cortlandt Amateur Radio Association

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**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

\* except July

## PCARA Calendar

**Sun Jul 13:** July meeting, 3:00 PM. HVHC.

**Sun Sept 21:** Foxhunt.

## Hamfests

**Sun Jul 13:** Sussex County ARC Hamfest, Sussex County Fairgrounds, Plains Rd., off Rt 206, Augusta NJ. 8:00 A.M.

**Sun Aug 3:** Tri-State ARA Hamfest, Matamoras Airport Park, Matamoras, PA. 8:00 A.M.

**Sat Aug 16:** Ramapo Mountain ARC Hamfest, American Legion Hall, 65 Oak St., Oakland NJ. 8:00 A.M.

**Sat Sep 6:** Saratoga County R.A.C.E.S. Association Hamfest, Saratoga County Fairgrounds, Ballston Spa, NY., 7:00 A.M.

**Sun Sep 7:** LIMARC Hamfair, Briarcliffe College, 1055 Stewart Ave., Bethpage, NY. 9:00 A.M.

**Sun Sep 14:** Candlewood ARA Hamfest, Edmond Town Hall, Rt 6, Newtown CT, 8:30 A.M.

## VE Test Sessions

**Jul 6:** Yonkers ARC, Yonkers Police Dept., 1st Precinct, E Grassy Sprn Rd, 9:00 A.M. Contact: D. Calabrese, 914 667-0587.

**Jul 15:** W5YI VEC Pel Hams, Pelham Doronco Town House, 20 5th Ave, Pelham, NY 10801, 7:30 PM. Register with Michael Ciferri (914)738-5775.

**Jul 21:** Columbia Univ ARC, Watson Labs, 612 W 115th St. New York, NY, 6:30 p.m. Contact Alan Crosswell, 212 854-3754.

**Aug 3:** Yonkers ARC, Yonkers Police Dept., 1st Precinct, E Grassy Sprn Rd, 9:00 A.M. Contact: D. Calabrese, 914 667-0587.

**Aug 7:** WECA, Fire Training Center, Dana Rd., Valhalla, NY. Register with Sanford Fried, (914)273-2741, N2SF@weca.org.



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