PCARA Update

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An eventful month

The **PCARA Third Anniversary** Special Event Station N2T that was in operation on May 3, 2003 from Blue Mountain Middle School in Cortlandt Manor, logged more than 150 contacts. To date we've received nearly 40 QSLs and requests for certificates. Thanks to all of those who were able to come out and help celebrate our third anniversary. It is still amazing that in such a short time so many antennas and radios can be set up and ready for operation.

The **Foxhunt** on May 10, 2003 was a success! Everybody had a really great time! Karl, N2KZ was the first to find the fox, followed by the team of Ray, W2CH and Marylyn, W2CH-XYL, and Mike, N2HTT brought home 3rd place. There were several home-made tape measure Yagis that worked really well. The hunt was followed by a late lunch at a local diner, where the enthusiasm for the next hunt was quite evident. Karl's prize for first place was the honor of planning the next foxhunt. Thank you Malcolm, NM9J, who organized the event and played a very good fox!

Field Day 2003 will be held at Perkins Memorial Point on Bear Mountain, the weekend of June 28-29. We are planning on running class 2A with the possibility of an additional solar powered station courtesy of Mike, N2HTT. We can always use a few more operators, so please consider signing up for a couple of hours on June 28th or 29th. Who knows, if we get enough interest maybe we could run 3A! We've had a great time the last two years doing what we all love to do, as well as exercising our emergency preparedness. To sign up for Field Day, please contact Bob, N2CBH, n2cbh @ arrl.net or Greg, KB2CQE, kb2cqe @ arrl.net.

Finally, tickets for the **PCARA Annual Raffle** are still on sale. There are 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 June meeting and up until June 29, 2003.

I hope to see each of you at the June 1st meeting at Hudson Valley Hospital Center at 3:00 PM.

— 73 de Greg, KB2CQE

Technician Class

PCARA's Technician Class came to its conclusion on Wednesday May 14 with a V.E. Test Session. As a result, the following Tech class members were granted Technician licenses by the FCC on May 19, 2003:

Michael Boyd	KC2LKZ
Janette Aiello	KC2LLA
Mark Trovato	KC2LLB
Sharon Leslie	KC2LLC

At the same session, Adam Schechter, KC2JNW successfully upgraded from Tech w/HF to General.

Thanks to the Volunteer Examiners who participated in this test session: Armen N2PLZ, Karl N2KZ plus NM9J. Thanks also go to the hard working instructors during the Wednesday evening classes — including Bob, N2CBH, Mike N2HTT, Will KC2FYY and Joe KR2V.

Congratulations to all the successful candidates — and special congratulations to the three Tech Class graduates who are also family members of existing PCARA members — Janette Aiello, Mark Trovato and Sharon Leslie. — NM9J

Happy faces from Tech Class members at the May 14 test session. L to R: Sharon Leslie and Mark Trovato show off their CSCEs with Karen Trovato, WA2CVU.

Special Event Station

PCARA's Special Event Station celebrating the club's third anniversary took place at Blue Mountain Middle School on Saturday May 3. The callsign used was **N2T**.

Blue Mountain Middle School's flagpole supported one of the G5RV antennas.

One of the big advantages of Blue Mountain Middle School is that a fully-equipped radio station was set up ready to go, thanks to teacher and President of the school radio club, Bill Machonis, AA2NU. The school's HF beam antenna was not functioning this time, but the trap vertical was in fine shape.

The school has a flag pole, tree and light pole just waiting to support some antennas — so it wasn't long before a pair of G5RV's were in place for the lower frequency bands. To complete the antenna collection, a 10 meter vertical was attached to a nearby storage container.

Bob N2CBH and Greg KB2CQE on 20 meters.

Our three stations were on the air for six hours from 9:00 A.M. to 3:00 P.M. Most of the activity was on 20 meter SSB, using the school equipment. We also worked a good number of stations on 40 meters with Mark, AB2MI's TS-520. Karl, N2KZ plugged in his morse key for some CW QSOs and there were several contacts on 15 meters. Meanwhile Mike, N2HTT brought along his QRP setup and installed his own antenna on the school grounds. By the end of the day there was a total of 150 QSOs in the log.

Adam, KC2JNW operates his Icom IC-718 with Ray, W2CH and Marylyn looking on.

The Special Event coincided with Ray, W2CH's birthday and Marylyn had brought along a large cake for everyone to join in the celebration. There was some concern that the candles would set off the school's smoke alarm -- but Ray was able to blow out the flames before anything unfortunate happened.

There will be a certificate available for all stations who contacted Special Event Station **N2T** — just send a 9 x 12 inch SAE to PCARA at PO Box 146, Crompond, NY 10517.

License Plates

Old-style "Liberty" and new-style Ham Radio license plates.

If your vehicle has "Ham Radio" plates, take a look at the design. The older "Liberty" plates have been phased out by the NYS Department of Motor Vehicles and replaced by "Empire State" plates. The DMV says "If you have Liberty plates on your vehicle after April 1, 2003, you must replace the Liberty plates with Empire State plates... On May 1, 2003, law enforcement officers can issue a ticket to any driver who has not attached the Empire State plates to their vehicle."

The DMV does not seem to have been replacing older Ham plates automatically. If you still have "Liberty" plates, I would contact the DMV Custom Plate Unit on 1-800-364-7528. For details on ordering "Ham" plates see: *http://www.nydmv.state.ny.us/emerg.htm.*

PCARA Foxhunt

PCARA's first ever foxhunt took place on Saturday May 10, on National Foxhunting Weekend. Our group of hunters gathered at the top of the Beach Shopping Center car park, waiting for the first transmission. At 3:00 P.M. precisely, NM9J came on the air from an undisclosed location with a five minute transmission on 146.565 MHz FM simplex.

The hunters, who were all using directional yagi antennas, took an initial bearing then set off to find the fox. Transmissions continued every ten minutes on 146.565 MHz – giving the hunters more opportunities to stop and take bearings on the hidden transmitter.

It took a while, but the first hunter to find NM9J was Karl, N2KZ. You can read Karl's account of the hunt in the next article. Here are the official times:

First place:	42 min	Karl, N2KZ
Second place:	1hr 5 min	Ray W2CH & Marylyn
Third place:	1hr 18 min	Mike, N2HTT

Greg, KB2CQE presents Karl, N2KZ with the first place certificate in the PCARA foxhunt.

The "hidden" station was located by the Panas Tennis Courts at Walter Panas High School, on Croton Avenue in Cortlandt Manor. NM9J was running 5 watts FM to a horizontal dipole, mounted above the vehicle roof on an ex-CB antenna. The location, at 518 feet above sea level in front of a long metal fence, had been chosen to put a good signal into the "Beach" starting point.

Karl had bent one rule by not beginning from the Beach Shopping Center at 3:00 PM. The reason for his delay was a car fire blocking Route 202. In view of the circumstances, Karl was declared the winner and presented with his certificate at the New City Diner, where all the hunters gathered after the event.

Everyone said they enjoyed themselves and wanted to know how soon the next fox hunt would be organized. The rules state that Karl will be fox for the next event — and he has already started looking for suitable hiding holes. Late summer or fall could be a likely time for the next DF hunt.

Mike, N2HTT shows the Yagi based on steel measuring-tape that he used to find the fox.

If you did not take part in PCARA's first fox hunt, you might want to think about joining in the next one. The equipment you will need is a 2 meter receiver, a directional antenna and some technique for close-in searching when signals are very strong. Yagis made from steel measuring tapes and the MFJ-762 step attenuator proved popular. Tuning to the 3*f* harmonic on 439 MHz was also in use during close-up tracking.

Perhaps you don't want to leap in and out of a vehicle waving your Yagi antenna around — in which case, why not join a team? Team members with local knowledge, driving and map reading skills can be a valuable asset. And at the end of the day, everyone gains some good, practical experience of tracking down a hidden transmitter.

– Malcolm, NM9J

Adventures in DXing

–N2KZ

Saturday, May 10th was the day of the first PCARA foxhunt. Early in the morning, I went into my garage to search for an old Yagi antenna I saved from the trash in 1985. It was originally used for broadcast auxiliary use on 161.64 MHz to pick up wireless microphone signals when I worked for ABC's Wide World of Sports on the road. When ABC decided to switch to microphones that operated on UHF, the antenna became obsolete. How could I let a Yagi antenna die? I saved it and it went into the abyss called my garage. Later, it was used for remote pickup of a wireless

Karl, N2KZ shows the 161 MHz broadcast auxiliary antenna he adapted for the 2 meter foxhunt.

cueing system used by the David Letterman show at CBS. Now it was time for its next chapter of history!

It had been bent over the years and it certainly was dirty. I completely disassembled it and cleaned it up with several Brillo pads. I made all the surfaces shine like new. I put it back together and then adjusted its gamma match to the foxhunt simplex frequency 146.565 MHz. It tuned up nicely with very little reflected power. I attached a white PVC pipe to it as a non-conductive handle, and I was all set to hunt.

I experimented with it as a receiving antenna. The first thing I learned was to produce good peaks and nulls; you need to have tight plumbing. The receiver itself has to be in a metal case where it is shielded and immune to hand capacitance and random pickup inside the receiver. All your feed line connections must be tight too. The entire signal needs to arrive from the antenna alone. My feed path was my four element Yagi to a length of coaxial cable and then a bunch of adapters allowing the inclusion of an inexpensive Radio Shack variable attenuator with F fittings made for TV antenna systems.

I delegated my Radio Shack scanner to monitoring duty. Its plastic case was very leaky and allowed too much random pickup. Instead of direction finding, I used this scanner along with one of my mag-mount whips as a method to hear the fox when I was in motion dashing to take a new heading. My Icom IC-T7H dual band HT would be the main fox receiver. It had a signal strength meter and was much more RF-tight than my scanner.

My Yagi and PVC pipe handle just barely fit into the back seat of the N2KZ-mobile, my trusty Toyota Camry. A word to the wise: Make sure that the place you stow your directional antenna is free and clear. I kept tangling its elements in all the assorted junk I had piled up back there!

I programmed my scanner and my Icom HT for the primary fox frequency and a couple of steps each side of primary: 146.555, 146.560, 146.565, 146.570, 147.575 and the primary's 70 cm harmonic, 439.695. The frequencies on either side of the primary proved to be a waste of time, but not the harmonic!

I started out with grand ambition to be an early arrival at the Beach Shopping Center, ready to hunt! I allowed an hour for what should have been a half-hour trip. It was not meant to be. Cross-county traffic on a Saturday on Route 202 is bad enough. As I arrived in Yorktown, I almost immediately became a participant in a parking lot now forming on Route 202. Time was running out and steam was building in my car! Oh, was I aggravated!

I called ahead on my HT to the fox, Malcolm NM9J, and told him I was not going to be able to check in. Malcolm was sympathetic but brief. He was about to do a quick test with the check-in site before the hunt began. I was resigned to doom!

Just minutes before the start of the hunt, I discovered the cause of the traffic jam. A small car had caught on fire right under the bridge where Route 202 passes under the Taconic State Parkway. The police were diverting all westbound cars north onto the Taconic. I reached the Taconic at about 2:55 pm, just five minutes before the hunt began.

I raced up the parkway and made the first logical exit, Route 6 adjacent to the Jefferson Valley Mall. In my mind, I was so far away from the fox; I might as well have been in Kansas. Of course, Route 6 was a crawling traffic jam, as well. Just as I reached Route 6, the hunt began. I pulled over on the road's shoulder and got a bearing of due south.

Referring to my map of Westchester, I jumped off Route 6 quickly and headed south. By the time the next broadcast came from the fox, I had raced into the parking lot of Lakeland High School. My reading was still due south. One thing was apparent quickly: The County of Westchester presumes you know what road you are traveling on. They only display road signs for cross streets, not referencing the road you are on. This deficit makes finding your position on a map quite difficult in an unknown neighborhood. Just another aspect of the fox hunt challenge!

I jumped back on the Taconic and flew down to Route 202, then headed west. Time was flying by. I needed a place to stop. I pulled into the driveway of a parking lot near the Panos Diner and took another reading. The fox was still nearly due south.

In a perfect situation, with some practice, it might be actually possible to get two headings during one three minute fox broadcast, but you have to be very

fast! Don't wait until the entire transmission is complete! Get going! Be ready to receive when the fox begins to transmit again. Jump into your car and run two minutes in the direction of your bearing and quickly take another bearing. I never reached that goal, but I did listen to the relative strength of the fox as I was on the move.

I dismissed the ruler, protractor and map triangulation technique immediately. As a one-man band, I wanted to hunt concentrating on speed. I could interpolate my bearings to the map with good accuracy due to the tight peaks my 4 element Yagi could produce. This technique saved me precious time.

Another hint: Know thy neighborhood! Route 202 to me was an endless string of small stores and their parking lots. The street signs were poor, and I had a very hard time finding a path to go further south. I traveled east on 202 and passed McDonald's approaching the large shopping center before I found a road south. I entered a little neighborhood stopping at Mark and Ellen Streets for the next fox call. Now I had a bearing of due west. I didn't wait for the end of the transmission. I looked at the map and guessed that Malcolm the fox was either in a small nearby park or at Walter Panas High School. I arrived at the park just as the fox left the air. No one was there!

I scrambled to the high school and drove into the nearly empty parking lot. No cars had a noticeable antenna, except for one car with a vertical mag-mount whip. I was thinking: "OK, wise guy. Where are you?" I was out of the car, with Yagi in-hand and ready, when the fox came back on the air. My attenuator couldn't bring the signal down. I switched my HT to its rubber duck antenna and changed frequency to the 70 cm harmonic. I still had a grand signal. I ran around the parking lot like a mad man and saw Malcolm sitting at the end of the parking lot behind the tennis courts. Aha!

It was just after 4 pm when I drove up to the fox site. Malcolm was still on the air giving me a thumbs up sign. He was using a little horizontal dipole that was mounted aloft at the top of a vertical Hamstick. When he left the air, he said I was the first one there. I was amazed! I quickly moved away and headed to the diner parking lot where we planned to meet after the hunt.

Karl, N2KZ tracks down the fox by the Panas tennis courts.

The PCARA fox hunters display their directional antennas.

The other hunters eventually arrived at the diner, too. Everyone had their own adventure to share. Ray, W2CH and his wife Marylyn arrived second. I hadn't realized it, but I had passed them on the road during my impassioned sprint to the high school. "You really looked like you knew where you were going!" Marylyn chuckled. Mike, N2HTT, Greg, KB2CQA, and Wires, KC2FYY and his Dad all arrived shortly thereafter. Malcolm finally emerged from his fox den with awards for the team of Ray and Marylyn and myself. All of us had great fun! I learned a great deal listening to everyone's experiences.

The antenna of note was an interesting design of Yagi created from metal measuring tape bands to create an array that is extra flexible and transportable for fox hunting. Greg, Mike and Wires all had home-brew renditions of this design. Ray and Marylyn used a dual band Yagi. We took some fun team pictures in the parking lot with our fox hunting gear, and then we headed into the diner for a fine meal and hour of storytelling and comparing notes. I didn't want to say 'goodbye'!

So, because of my great luck in fox hunting, I become the next fox. I won't reveal much, but I will say this: I have a good spot for my fox den picked out within the Town of Cortlandt. I will certainly be just a little sneakier than Malcolm for Fox Hunt 2. Join the fun, and see if you can catch me! The date and time will be announced soon.

–73 de Karl, N2KZ, "The Old Goat."

Dodgy* ducks and wacky whips — NM9J

Not too long ago I was taking part in a PCARA event, guiding a sports parade across the streets of Yorktown. I was having a terrible time getting a good signal into the 146.67 W2NYW repeater with my handi-talkie – even with full power and an extended after-market antenna.

Later on I found out that the after-market antenna was not performing very well, so I went back to the original "stock" Icom rubber duck.

More recently, I realized that I've accumulated quite a collection of after-market antennas for dual-band HTs over the years, so I thought it might be interesting to compare their performance. For a first test I simply used my MFJ-259 antenna analyzer to find the resonant frequency of each whip. I plugged each antenna into the connector on top of the MFJ-259 then adjusted the frequency for minimum SWR, noting the frequency from the built-in counter.

Antenna	Resonant freq
Base loaded monoband duck	137 MHz
Icom IC-Z1A stock	145 MHz
Icom IC-W32A stock	146 MHz
Generic half-wave telescopic	146 MHz
MFJ-1712 ¼-wave telescopic	148 MHz
Pryme RD-98	156 MHz
Opek HR-12	160 MHz
Diamond RH77CA	161 MHz
TSC-2301 (Taiwan)	163 MHz
Comet SH-55	168 MHz

SWR check

The two stock Icom antennas and the telescopics are the only ones resonant in the 2 meter band. The remainder are from 7 to 17 MHz off-frequency. (Your 2 meter HT may reduce power when operating into an antenna so far from resonance.)

The next step was to measure the SWR of these antennas in an HT-like situation. I connected each antenna directly to a small SWR bridge through an angle adapter then connected the bridge to an Icom handi-talkie. The coaxial feeder between the SWR bridge and the HT was isolated with ferrite chokes so as not to become part of the antenna system. Results are shown in the following table.

Antenna	SWR 146	446
Base loaded duck	1.2:1	3.0:1
Icom IC-Z1A stock	1.3:1	2.0:1
Icom IC-W32A stock	1.8:1	2.5:1
Generic half-wave telescopic	1.1:1	3.0:1
MFJ-1712 ¼-wave telescopic	1.8:1	2.8:1
Pryme RD-98	2.5:1	2.0:1
Opek HR-12	4.0:1	2.0:1
Diamond RH77CA	3.0:1	1.7:1
TSC-2301 (Taiwan)	4.0:1	1.6:1
Comet SH-55	6.0:1	1.8:1

For the most part, the further the antennas are from resonance, the higher the standing wave ratio.

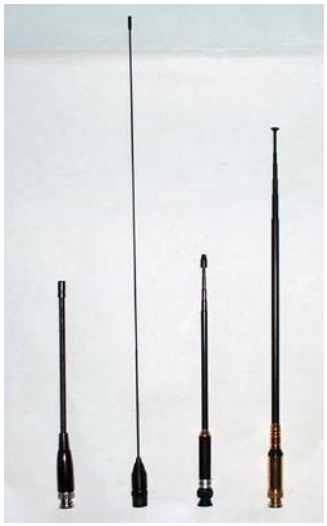
A selection of ducks and whips. Left to right: base loaded monoband duck, IC-Z1A stock antenna, generic half-wave telescopic, Pryme RD-98, Opek HR-12, Diamond RH77CA, TSC-2301.

The final test was to measure the field strength produced by each antenna. I don't have any fancy equipment for accurate field strength measurements in volts/meter… just a couple of absorption wavemeters tuned to 146 MHz and 446 MHz. The relative field strength readings below are for each antenna plugged into an IC-Z1A handi-talkie on high power, running from a 7.2 volt battery:

**Note: "Dodgy"=British slang for "risky, doubtful"*

Antenna	Field strength 146	446 MHz
Base loaded duck	8	0
Icom IC-Z1A stock	5	4
Icom IC-W32A stock	4	4
Generic half-wave telescopic	11+	0
MFJ-1712 ¼-wave telescopic	10+	0.1
Pryme RD-98	7	2
Opek HR-12	4	0.1
Diamond RH77CA	4	2
TSC-2301 (Taiwan)	4	0.5
Comet SH-55	3	5

The best combined performance on both 146 MHz and 446 MHz came from the two stock Icom antennas. The after-market dual-band antennas generally produced similar signal strengths on 146 MHz but were worse on 446 MHz. When you think of the price, the longer length and the way they make the radio top-heavy, these after-market dual-band antennas are a poor bargain in my view.



The four best antennas; L to R: IC-Z1A stock, Pryme RD-98, MFJ-1712 ¼-wave telescopic, generic half-wave telescopic.

The only antennas to improve 146 MHz signal strength over the stock Icom antennas are the "base loaded" duck and three physically long antennas: the RD-98, the generic 2 meter telescopic half-wave and the MFJ telescopic quarter wave. Compared with 8 inches for the stock Icom antenna, their lengths are: 17 inches, 19 inches and 42 inches. This isn't exactly convenient if you keep the radio in a coat pocket or clipped to your belt. Still, it could be worth packing one of these antennas with the radio for emergency use when the standard antenna is insufficient.

Most of the antennas show inferior performance on 440 MHz compared with the stock Icom antenna. For the telescopic antennas only, you may be able to improve matters by shortening them slightly. Incidentally, when the telescopic antennas are fully collapsed, the 2 meter performance collapses as well.

Conclusions: your mileage may vary depending on the handi-talkie and type of stock antenna you are substituting… but I found that most of the commercial after-market dual-band (146/440 MHz) antennas are not resonant in the amateur band, show a high SWR and perform poorly. The only antennas worth buying in my view are the physically long Pryme RD-98, the MFJ-1712 telescopic quarter wave for 2 meters and the generic half wave for 2 meters.

- Malcolm, NM9J

Ham Central

Ham Central's store at Neptune Road in Poughkeepsie will be closing its doors for the last time on June 28, 2003. During a recent visit, available accessories were on sale for 30% discount.

Ham Central has been a good friend to amateur radio over the past eleven years, for the purchase of items large and small, for guiding prospective hams toward local clubs, and for advertising hamfests and classes. Jack, Eric and Ed — we'll be sorry to see you go.

Dayton 2003

Several PCARA members made a combined trip to the Dayton Hamvention® over the weekend of May 14-16. The picture below was provided by Gary, WB2HNA. We may have a detailed Dayton description from the participants in our next *PCARA Update* newsletter.

Gary WB2HNA, Jim N2KLC, Bob N2CBH and Greg KB2CQE enjoy themselves on a rainy day at Dayton 2003.

Field Day 2003

Don't forget! Field Day 2003 is Saturday-Sunday June 28-29 at the summit of Bear Mountain. Planning begins at the June 1 PCARA meeting.

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

Sun Jun 1: June meeting, 3:00 P.M. HVHC.
Sat-Sun Jun 28-29: Field Day, Bear Mountain State Park.

Hamfests

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.
Sun Jun 8: LIMARC HamFair, 9:00 AM, Briarcliffe College, 1055 Stewart Ave., Bethpage, NY.
Sat Jun 21: Raritan Valley RC Hamfest, 7:00 AM, Piscataway HS, Piscataway NJ.

VE Test Sessions

May 30: Orange Cnty ARC, Munger Cottage, Riverlight Park, Cornwall, NY 12518. 6:00 P.M. Ronald Torpey (845)783-1692.
May 31: Bergen ARA, Westwood Reg HS, 701 Ridgewood Rd, Washington Twnshp, NJ. 8:00 a.m. Don Younger, 201 265-6583.
Jun 1: Yonkers ARC, Yonkers Police Dept., 1st Precinct, E Grassy Sprn Rd, 9:00 A.M. Contact: D. Calabrese, 914 667-0587.
Jun 9: Split Rock ARA, Hopatcong HS, Hopatcong, NJ. 7:00 P.M. Contact K2GG@arrl.net.
Jun 12: WECA, Fire Training Center, Dana Rd., Valhalla, NY. Register with Sanford Fried, (914)273-2741, N2SF@weca.org.
Jun 16: Columbia Univ ARC, Watson Labs, 612 W 115th St. New York, NY, 6:30 p.m. Contact Alan Crosswell, 212 854-3754.
Jul 6: Yonkers ARC, Yonkers Police Dept., 1st Precinct, E Grassy Sprn Rd, 9:00 A.M. Contact: D. Calabrese, 914 667-0587.

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PO Box 146
Crompond, NY 10517