



PCARA Update



Volume 5, Issue 6

Peekskill / Cortlandt Amateur Radio Association Inc.

June 2004

Foxes Having a Field Day!

PCARA is sponsoring a foxhunt on June 6, 2004. The hunt is open to anyone interested in participating.



The fox(es) will be ready to go again on Sunday June 6. Rules are on page 7.

We will meet at the Beach Shopping Center in Peekskill (see website at <http://www.pcara.org> for directions) at 2:30 PM for registration and distribution of the rules. At 3:00 PM the first transmission from the fox will take place, and the fun will begin. The hunt is scheduled to last about 1½ hours, and will be followed by the June meeting at a local restaurant announced by the fox on the 2 meter repeater (146.670 MHz).

Tickets for the PCARA Annual

Raffle are still available. Only 100 tickets are being sold for a chance to win a Yaesu VX-2 Dual Band HT. Tickets are only a \$5.00 donation each and are available from Malcolm, NM9J. The winning ticket will be drawn at the conclusion of Field Day 2004 on June 27, 2004.

PCARA will be participating in Field Day 2004 from Perkins Memorial Point in Bear Mountain State Park, June 26-27. We will be running class 2A, and also have a solar powered station courtesy of Mike, N2HTT. If you have a few

hours to spare please consider joining us on June 26 or 27. To sign up or if you have any questions, please contact Bob, N2CBH (n2cbh@broadcast-devices.com).



Many of you may have received membership renewal notices via email. Please make any changes or corrections to the information and forward it to Mike, N2HTT. Please don't forget to send your dues to the P.O. Box. Thank you.

I hope to see you at the Foxhunt as well as the June 6th meeting at...(?).

— 73 de Greg, KB2CQE



Bob N2CBH and Luigi N2CWV look after the PCARA club table at the Bergen ARA Hamfest on Saturday May 29. Two heavy Motorola Micor transceivers belonging to PCARA were finally sold!

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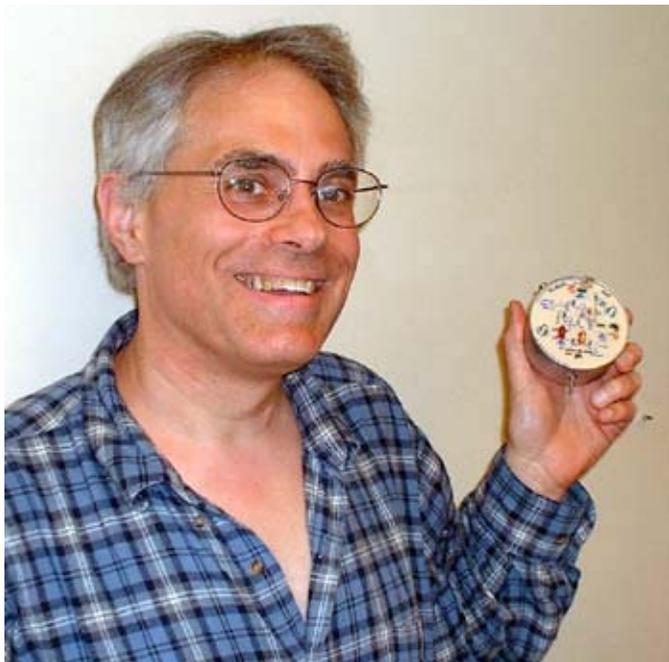
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Adventures in DXing

A review of my new Tuna – Karl Zuk, N2KZ

You will not believe how far you can go with a third of a watt until you try it! With a handful of parts, and a couple of hours of work, you can be on the air with the amazing Tuna Tin 2: a tiny 350-milliwatt transmitter that will bring big smiles! The rig fits like a glove into a used tuna or pet food can and weighs about two ounces. Assembly is quick and easy and operating it is even more fun!



Karl, N2KZ shows off his Tuna Tin 2 QRP transmitter.

When you hit the air with a Tuna Tin 2, it's like a time machine to the past. You'll go back 40 years and recall the days when Novice operators were obligated to operate only with crystal control. Your Tuna Tin 2 operates on one and only one frequency: 7040 kilohertz. It's the unofficial standard frequency for QRPp (very low power) transmitters. Your receiver stays locked on 7040 and you listen and listen for someone calling CQ. You find yourself replying to calls that are even a few kilohertz off your frequency. "Maybe he'll hear me; you never know!" Good things come to those who wait!

My first Tuna Tin 2 QSO was a breeze! I called CQ for just a couple of minutes and got a nice strong reply from Dave, KB2KBY, up in Palmyra, New York near Rochester. We had an enjoyable long rag chew with armchair copy at both ends. I kept staring at the little can wondering to myself: "How is this happening?" The rig consists of two 2N2222 transistors, three inductors

and a few other parts. A basic crystal-controlled Pierce oscillator tickles a "power amplifier" producing about 450 milliwatts of DC input power. RF output measures about 350 milliwatts. It's just one step up from the power of a garage door opener!

I have been operating my Tuna Tin 2 for about a week using a vintage boat anchor for a receiver. It's a military surplus R-390A/URR using 37 tubes. It is quite a contrast from the Tuna Tin 2 with two tiny transistors. The results have been admirable. I have worked eight states in ten QSOs. I have shared two good rag chews with my new friend KI4DEF, Kevin, in Washington, North Carolina. Kevin was using a one-watt transmitter also designed by Doug DeMaw. I joked with him, during our first QSO, asking why he was using so much power!

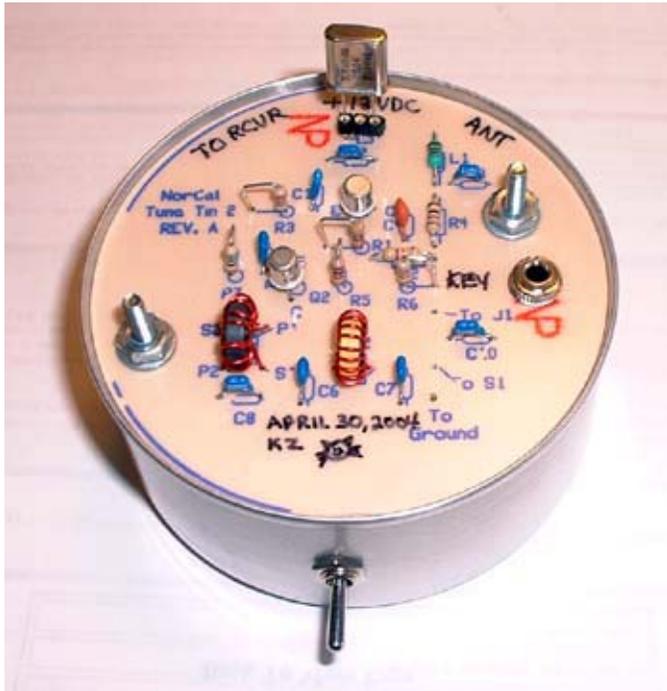
The sophistication of the R-390A/URR receiver is a distinct advantage when operating a fixed frequency transmitter. 7040 kHz can sound like CB Channel 19 at times, and having a razor sharp set of selectivity filters really helps pull out the signal you seek. I also discovered a small community of hams who are riveted on this frequency. It is unusual to hear the exact same people on the air day after day, but on 7040, familiarity is the rule much more than the exception.

Operation of the Tuna Tin 2 is easy and effortless. Each time I have called CQ I have gotten an answer fairly quickly. I know the TT2 is working when I see my field strength meter just barely budging on transmit! The note is remarkably clean with no "whoop" and just a slight amount of click. Eight batteries serve as my 12-volt power source. My antenna is a homebrew dipole up about 30 feet. My smiles are continual!

After a few Tuna Tin 2 QSOs, you'll gain confidence in your creation. I've given up sending my call as "N2KZ/QRPp" as a plea for attention. Now, I just toss in my rig designation and see if there is a reaction! Some people cheer when they hear "Tuna Tin 2." Some people don't care! It may be even more fun when you blend into the din of 40 meters without notice! Operate with an electronic keyer at a hot speed and you'll increase your camouflage further! If they could only see what you are transmitting with, they wouldn't believe it either!

Each Tuna Tin 2 includes the unique signature of its builder. Thousands of these little transmitters have been built and each one is a slight variant on the original design. Many different cans have been used as chassis. They were originally packed with dog food, cat food, pork and beans, soups and, of course, tuna. The layout of the connectors and switches are all slightly different. There are also several suggested modifications for the circuit including adding a Tick keyer and isolating your code key from the power circuit using a third transistor. Isolating the key is supposed to eliminate "chirp" and clicks in the transmitted CW note. I

found the two transistor original circuit to be pretty clean in output, so I opted away from the third transistor. With three transistors, I might have to call it a Tuna Tin 3!



Close-up of Karl's Tuna Tin 2 QRP transmitter shows the transmit/receive switch mounted at the front of the can and 7040 kHz quartz crystal at the rear of the etched circuit board.

I added a very simple modification using a DPDT switch, instead of a SPDT switch, to switch from transmitting to receiving. The original design simply switches the antenna connection to the transmitter or to your external receiver using a common ground buss. I added a second connection to eliminate the chance of keying the transmitter while you were connected to the receiver in "listen" mode. I break the connection to the key prohibiting you from transmitting when you are not connected to the antenna. There is plenty of RF leakage to your receiver while you are in "transmit" mode. You can tune your receiver exactly to the frequency you are transmitting and listen to how you sound on the air. It's better than side tone!

My Tuna Tin 2 has sentimental value on two levels. An old friend, Doug DeMaw, W1CER/W1FB (SK), originally designed the circuit almost thirty years ago. Before Doug passed away, we worked together on a communications magazine called *Monitoring Times*. Doug was always known for his kindness and his interest in nearly everything electronic. A frequent contributor to *QST*, he was a prolific author, inventor, and inspiration for several generations of amateur radio operators. It is an honor to keep his designs on the air!

The chassis I built my Tuna Tin 2 into was the last

can of cat food eaten by my companion of 21 and a half years named Goldie. She passed away on April 14th, just a couple of weeks before I completed this project. I'll always think of Goldie the cat and Doug every time this rig hits the air. Homebrew projects become even more special when they can be associated with great times and people.

The original Tuna Tin 2 project was described in the May 1976 issue of *QST* magazine. It is currently available from Rex Harper, W1REX, at P.O. Box 160, Limerick, ME 04048. The kit costs \$18.00 including shipping. Simply send a check to Rex in his name and your kit will arrive shortly thereafter. The New Jersey QRP club and The NorCal QRP club have also sold kits for Tuna Tins in the past. For the complete Tuna Tin 2 manual see: <http://www.njqrp.org/tuna/TT2%20Manual%20revB.pdf>. The original Doug DeMaw article from *QST* can be seen at: <http://www.arrl.org/news/features/1999/0615/1/tt2.pdf> and the follow-up article from March 2000's *QST* is at <http://www.arrl.org/tis/info/pdf/0003037.pdf>. Finally, you can see a picture gallery of over 40 different renditions of the rig at <http://electronicsusa.com/tt2.html>. The kit took approximately four hours to complete with long consideration and thought. You could easily build one in an hour if you have built one before. It is a simple joy.

Join the fun next weekend!

If you want to hear a Tuna Tin 2 in action, tune in next weekend (June 5-6) to 7040 or 14060 kHz! I will be representing the Fists CW club using their club call sign, KNOWCW, on Saturday, June 5 and Sunday, June 6, 2004. Only my Tuna Tin 2 and Rock Mite transmitters will be used during the event. My power output will not exceed half a watt! Please drop by and join the fun! For more information, see: <http://www.fists.org>.

After receiving strong signal reports with 350 milliwatts of power, you may find yourself wondering how little power can be heard. Build the "Micronaut," also known as the "Mini-Tuna." With only one 2N2222 transistor, you'll be transmitting with about 70 milliwatts by simply coupling a tiny Pierce oscillator to your antenna. A few hams have completed successful QSOs with powers as low as several hundred microwatts. How low can you go? Don't let the fun get by you! Try a Tuna Tin 2!

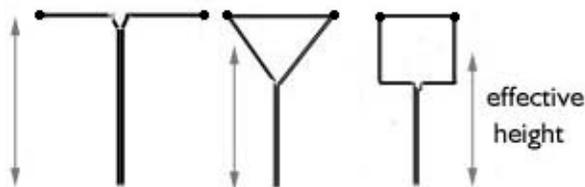
– Karl, N2KZ



Perfect FD Antenna?

Here's an episode in my continuing search for a perfect Field Day antenna. You may remember that in 2003 I was fixated on loops! We erected a sloping loop antenna based on an April 2002 *QST* article by KI8GX, "A One-Masted Sloop for 40, 20, 15 and 10 Meters". SWR was excellent on 20m and 40m but the performance on 20m left something to be desired. We finally switched to a vertical delta loop for 20 meters.

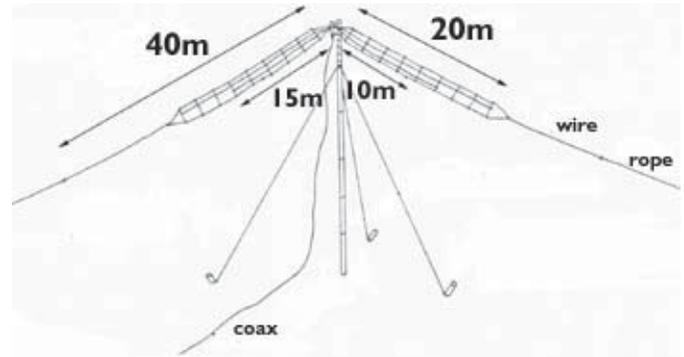
I had seen a couple of articles suggesting that if you only have two support points to suspend a wire antenna, it makes more sense to pull up a half wave dipole than a quad loop or delta loop. That's because the average effective height of the loop antenna will always be less than the height of the dipole – so the loop's low-angle radiation will not be as good.



Dipole effective height versus Delta Loop and Quad antennas.

I set out on a fresh search for the perfect Field Day antenna. With the sunspots as they are at present, I decided that performance had to be optimized on 20 meters and 40 meters. Depending on conditions, there might be some activity on 15 and 10 meters, but these bands would be secondary to a good 20m/40m design. The antenna should preferably have a 50 ohm coaxial feed on all four bands so it could be used without an antenna tuning unit if necessary.

There are several possibilities, including the W5GI Mystery Antenna reviewed by Mike N2HTT in *PCARA Update* for November 2003. The solution I settled on was the multiband dipole described by K0GPD in *ARRL's Antenna Compendium* volume 1, under the title "A Great 10 Through 40 Portable Antenna". This is a



K0GPD multiband antenna has parallel dipoles for each of the bands 40m, 20m, 15m and 10m.

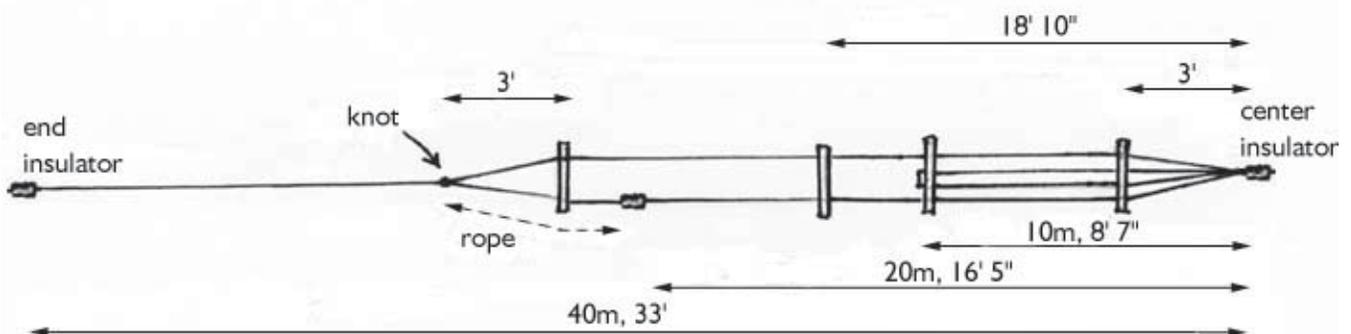
paralleled dipole design with separate wire elements for 40, 20, 15 and 10 meters connected through a 1:1 balun to the common coaxial feeder at the center. The wire elements for adjacent bands are separated with wood or plastic dowels 5¾ inches long.

My first attempt showed some drawbacks with the original design. The wire elements were only 1¾ inches apart and their lengths tend to interact with each other – adjust one pair of wires for resonance and the adjacent pairs are thrown off frequency. In addition, the close spacing reduces the effective bandwidth even on 10 meters.

I made some changes to the design – first of all the 15 meter element had to go. I'm not expecting a lot of 15m activity this Field Day, and the 40 meter dipole should be resonant at roughly three times its fundamental 7.15 MHz frequency. With one dipole removed, the others could be spaced farther apart for less interaction. Since our main interest is 20m and 40m, these dipoles were spaced as far apart as possible.

The bandwidth of the 10 meter dipole, positioned between the other elements, was still rather narrow (200-300 kHz) so I "fattened" it out by using two wire elements connected in parallel at both ends. (See the diagram.)

Most of the raw materials for this antenna came from that well known radio resource, *Home Depot*. A 500 ft reel of 14 gauge stranded copper wire covered



One half of the multiband dipole Field Day antenna, as modified from the K0GPD design. The second half would be a mirror image to the right.

with black PVC insulation and a thin nylon coat cost me \$20.00. The wooden dowels were replaced with foot-long plastic spacers cut from a 10 foot length of ½ inch diameter CPVC plastic pipe from the plumbing section. A 100 foot reel of 14 gauge solid copper insulated wire provided plenty of 6 inch wire lengths for securing the wire dipoles to the spacers. The center insulator and end insulators came from the usual amateur radio dealers.

If you would like to try out the antenna yourself, here are the wire lengths that need to be cut:

- 14 gauge stranded copper wire:
- Two lengths 33 ft 10 inches (40 meters/15 meters)
- Two lengths 17 ft 7 inches (20 meters)
- Four lengths 9 ft 2 inches (10 meters)

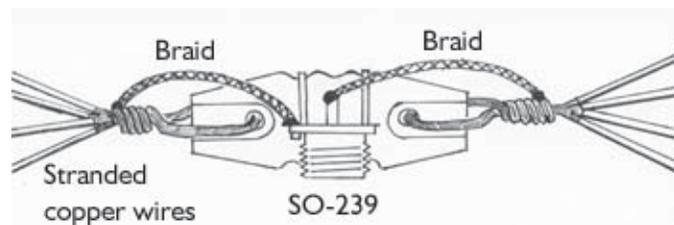
You will also need two lengths of 3/32" Dacron (polyester) rope, around 6 ft long, to support the ends of the 20 meter dipole. Additional rope will be needed to suspend the dipole from trees or poles.

Incidentally, the 14 gauge stranded wire and 3/32" polyester rope make a good combination when it's time to pull the antenna out of storage — since they both resist snags and kinks.

Cut the ½" plastic pipe into eight 12 inch lengths. Drill holes at ½" from each end and drill two more holes equal-spaced in between. Cut twenty four 6 inch lengths of solid copper wire – these lengths go through the holes in the plastic pipe and are then wrapped around the stranded wire to secure it in place.

Those stranded wire lengths are deliberately over-long. Trim 6 inches of insulation from one end of each wire, thread once through the center insulator then wrap over the bare wire to secure. The dipole is fed by coaxial cable at the center – solder the coaxial connector to the two sides of the dipole using flexible leads made from copper braid.

Lay out the wires on the floor or in the yard and measure the lengths as shown in the diagram. Tie a loose knot in the 20 meter wires for attachment of the polyester rope. For the 20 meter and 40 meter wires,



Dipole center insulator has SO-239 connector secured with nylon ties. Stranded copper wires from dipole elements are twisted together, looped through the insulator then wrapped around six times and secured. Copper braid (removed from coax) is soldered to dipole elements and SO-239.

pass the wires through the end insulators then wrap excess cable length back over itself. Later, you can adjust resonance by untwisting the excess length. Secure the stranded wires to the plastic pipe spacers using 6 inch lengths of solid wire. For the 10 meter dipole elements, trim to size, leaving sufficient overlap to allow removal of 1" of insulation — then twist the ends together and solder.



Wire spacers made from plastic pipe

When all connections have been made, secure the wrapped wires with short lengths of vinyl tape. Take the antenna outside and suspend in the clear as high as is convenient. Choose a flat-top dipole arrangement or inverted-V, depending on your final intended configuration.



Twist end of wire back on itself to allow subsequent adjustment.

Use an antenna analyzer or transceiver plus SWR meter to check resonance in each of the four bands. Starting with the lowest band, 40m/7.0 MHz, adjust for resonance at the desired center frequency by untwisting the stranded wire ends.

Here are initial test results for my antenna at a height of 10 feet, using an MFJ-259 SWR Analyzer:

Band	Resonant freq	SWR	Bandwidth <2:1
40m	7.12 MHz	1.5:1	340 kHz
20m	14.27 MHz	1.0:1	370 kHz
15m	21.8 MHz	2.3:1	1.0 MHz (<3:1)
10m	28.18 MHz	1.2:1	500 kHz

The low SWR results suggest the antenna could be used without a matching unit on 40m, 20m and 10m. The SWR on 15m is higher – probably because of the increased radiation resistance of a 3/2 wave dipole. I am hoping the automatic antenna tuner will be able to cope if we need to go on 15m!

Low SWR is no guarantee of good antenna performance – though there isn't much that can go wrong with a dipole. The real test will come on Field Day.

One final thought – if RF on the outer coaxial conductor proves to be a problem, I have a ferrite choke balun ready to insert at the center of the dipole.

- Malcolm, NM9J

Westchester Airport Emergency Response Drill 2004 — N2HTT

The scene was grim. Black smoke billowed into the sky from several fuel fires burning on the ground. The field was littered with wreckage: luggage, personal belongings, and bits of the cabin. Everywhere there were victims, staggering about, moaning, or worse, lying absolutely still. There was blood and smoke everywhere. And, there was a barbecue scheduled for afterwards.

Okay, the scene I just described was not your worst case airline crash scenario – rather it was the 2004 Westchester County Airport Emergency Response Drill, that my 14 year old son David and I were privileged to participate in as “victims”. The drill, held annually at the airport, provides an opportunity for first responders in the area to practice their response to a mass-casualty event at the airport. EMS, fire and police responders from the airport and surrounding towns respond to an air crash scenario at the airport to hone their skills.



View of “disaster” field. Smoking bus on its side was the “fuselage” of plane. Copyright © 2004 Frank Morganthaler KC2MPK. All rights reserved.

What was different about this drill for me was how I participated. As an active ARES/RACES member for many years in Westchester County, I have participated in many emergency preparedness drills as a ham radio operator. At various field shelters, and at times at the EOC in White Plains or the ARC Chapter House, I have set up radios, passed messages, and put in many hours over the years. This drill was different.

The county emergency management folks who put on this drill strive for as much realism as is possible in putting the first responders through their paces. This means fires to put out, an Incident Command to set up, and most importantly, victims to be located, triaged, and transported or treated on site. It takes a lot of volunteer “victims” to add an air of realism, and this year part of the load was shared by WEVR – the Westchester Emergency Volunteer Reserves. It was as a WEVR that I (and my son

as a “WEVR Auxilliary”) participated in the drill.

The Westchester Emergency Volunteer Reserves got its start last October when the first group of 28 people from all walks of life participated in about 20 hours of classroom and practical instruction in a number of emergency response skills. Modeled after the Community Emergency Response Teams (CERT teams) developed in California after the earthquakes of the 1970’s, WEVR is designed to develop a corps of people in the community who can respond “before the first responders” can reach a mass casualty scene. The idea is to train people in the community to help themselves, their families and their neighbors until the professional first responders arrive. As WEVRs we received training in the following topics:

- Introduction, Disaster Preparedness, Incident Command System
- Disaster Medical Operations: First Aid
- Disaster Medical Operations: Triage
- Fire Safety/Hazardous Materials/Decontamination, Fire Suppression
- Terrorism Overview/Biological Agents/Smallpox, Disaster Psychology
- Light Search and Rescue Operation

Classes are on-going. I’ll tell you about them at the end of the article.

The Airport Drill this year was the first drill that I participated in as a WEVR. Roughly 60 people, some WEVRs and some airport personnel, showed up early on Saturday to prepare for our participation in the drill. Dr. Robert Leviton, who is the director of the EMS response, devised the scenario. It consisted of a small commercial plane carrying about 150 passengers and crew, which crashes on landing, cart-wheeling down the runway and striking a bus on the ground at the end of the runway. The plane fuselage was represented by an old school bus, turned on its side in the practice area. Another decommissioned school bus represented the vehicle struck on the ground. Pans of gasoline provided very realistic fuel fires, and a generator provided power for smoke machines, and a tape loop of screaming “victims”.

Dr Leviton had prepared 140 different victim roles, representing varying degrees of injury ranging from none to death from trauma injuries. Every volunteer victim was given a sheet explaining the injury, symptoms, and a checklist of actions that the EMS personnel should have taken if the victim was to survive. EMS personnel specially trained in “moulage” or make-up, applied putty, plastic appliances, and gobs of very realistic “blood” to provide the victims with realistic looking injuries. I had a huge bruise on my side with protruding plastic broken ribs, simulating a punctured lung and serious internal bleeding. My son David had (in my opinion anyway) the best moulage: a nasty abdominal wound with about a foot of plastic “intestines” protruding. His appliance came complete with a small “blood pump” which allowed him to squirt “blood” on the EMS folks while he was triaged. He was delighted.

We positioned ourselves among the debris on the



Group shot of WEVR victims. Notice nice view of David's intestines. I am the enormous bruised gut you see to the right. Copyright © 2004 Frank Morgenthaler KC2MPK. All rights reserved.

field, and waited for rescue. First to respond were fire fighters who dealt with the fuel fires. Then EMS people began to triage victims in the field, and transport them to the triage area, where ambulances waited to transport victims to the local hospitals, or in this case, the barbecue.

I felt I had something special to bring to victim-hood, as I am a rather large guy (see photo) and it presented something of a challenge to the fire and EMS people who had to carry me on a stretcher from the field to the triage area, and then to a waiting ambulance. I'm sure this is an issue in the real thing as well. It was actually an acting challenge, to convey your "symptoms" to the EMS folks, and see what their response would be. Unlike earlier drills, we victims did not have placards explaining our symptoms to the responders, instead we were called upon to act or tell the responders what state we were in. In my victim scenario, I am pretty sure that I would have survived despite very serious internal injuries, as I was transported to the "hospital" very quickly.

All in all, it was fun to participate in the drill, and a good feeling to know that we had helped train folks whose response will save lives in an actual emergency. There really was a barbecue and a souvenir coffee cup for all the participants. It was a lot of fun to exchange stories with victims and responders afterwards. Despite the obvious artificial nature of the drill, it is remarkable how much of an emotional response it evokes on everybody's part.

If you are interested in learning more about WEVR, you can contact Marianne Partridge, who is the Program Manager for Westchester Emergency Volunteer Reserves. Marianne can be reached by email at evr@volcenterwest.org, or by phone at 866-VOL-CALL. You can also learn more about the Volunteer Center by calling 914-948-4452 (x316), or visit their website at <http://www.volcenterwest.org>. New class sessions are scheduled throughout the year.

I would like to extend my special thanks to Frank

Morgenthaler, KC2MPK, who generously gave me permission to use his photos of the event, and Marianne Partridge for helping to fill in some of the background information about the drill.

– Mike, N2HTT

PCARA Foxhunt Rules

Sunday June 6, 2004

1. Transmission – FM simplex on 146.565 MHz, horizontally polarized.
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, which will be announced on-air by the fox. PCARA's June meeting will then take place at the same location.

Rules adapted from Bury Radio Society Fox Hunt

– Malcolm, NM9J

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. * see right column for June Location.

PCARA Repeaters

W2NYW: 146.67 MHz -0.6, PL 156.7Hz

KB2CQE: 449.925MHz -5.0, PL 179.9Hz
(IRLP node: **4214**)

N2CBH: 448.725MHz -5.0, PL 107.2Hz

PCARA Calendar

June 5-6: Fists CW station. (Look for KNOWCW at N2KZ).
Sun June 6: PCARA Foxhunt 2:30 for 3:00 p.m. start.
Sun June 6: June meeting, follows Foxhunt, ***location will be given on-air** 146.565 and 146.67 MHz.
June 26-27: Field Day, Bear Mountain.

Hamfests

Jun 4-6: Atlantic Division Convention, Rochester Hamfest, Monroe Co Fairgrounds, Rochester, NY.
Sun Jun 6: Hall of Science ARC Hamfest, NY Hall of Science, 111 St, Flushing Meadows, Queens NY. 9:00 a.m.
Jun 12-13: Newington ARL Hamfest, Sat - ARRL HQ, Sun - Newington HS, 605 Willard Ave Newington, CT. 8:30 a.m.
Sun Jun 13: LIMARC Hamfair, Briarcliffe College, 1055 Stewart Avenue, Bethpage, NY. 9:00 a.m.
Sun Jul 11: Sussex County ARC hamfest, Sussex County Fairgrounds, Plains Rd. off Rt. 206, Augusta N.J. 8:00 a.m.

VE Test Sessions

Jun 6: Yonkers ARC, Yonkers Police Dept., 1st Precinct, E Grassy Sprain Rd, 8:30 A.M. Contact: D. Calabrese, 914 667-0587.
Jun 10: WECA, Fire Training Center, 2 Dana Rd., off Rt 9A, Valhalla NY 10595. 7:00 p.m. Preregister with Sanford Fried, (914)273-2741.
Jun 14: Split Rock ARA, Hopatcong High School, Rm C-1, Hopatcong NJ. 7:00 p.m. Contact Sid Markowitz, 973 724-2378.
Jun 18: Bergen ARA, Westwood Reg HS, 701 Ridgewood Rd, Washington Twntshp NJ. 7:00 PM. Contact Donald Younger 201 265-6583.
Jun 21: Columbia Univ ARC, Watson Labs, 612 W 115th St. New York, NY, 6:30 p.m. Contact Alan Crosswell, 212 854-3754.



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