



# PCARA Update



Volume 5, Issue 8

Peekskill / Cortlandt Amateur Radio Association Inc.

August 2004

## Substitute

Alert readers will recall that the March issue of *PCARA Update* was marked by a President-free front cover. Greg, KB2CQE was busy becoming a father for the second time and, unable to contribute his usual column, he had invited your editor to fill the gap. Well it's happened again — the missing contribution that is, not the presidential paternity.

Standing in for Greg, let me first remind you that PCARA will have a club table at the Tri-State Amateur Radio Association Hamfest in Matamoras, PA on Sunday August 15. Greg tells me that he has been rearranging the contents of his shack and he will have a lot of items to dispose of. Best arrive early to take advantage of any member-only discounts! Doors open for sellers at 7:00 a.m. and for buyers at 8:00 a.m.

I may have a few items to put on the club table myself. During my ongoing search for the perfect FM tuner, I've picked up a bunch of second hand AM/FM tuners — and the pile needs reducing. You can be pretty sure that the performance of an external tuner will be superior to the 50 cent tuner built into your hi-fi receiver, music center or surround sound system. If you would like to improve reception of WNYC-FM, or WNYE-FM (on 91.5 MHz, where BBC World Service

plays overnight), then we should talk.

PCARA also has an option on a table at the Ramapo Mountain Amateur Radio Club "Ham Radio and Computer Flea Market" on Saturday August 21 in Oakland, NJ. If the weather is good, this is another pleasant location so perhaps see you there? This time last year at Ramapo Mountain, I picked up an inexpensive 500 MHz Compaq Deskpro computer for the PCARA IRLP node.

That IRLP computer is still running, but I have to report that activity on node 4214 is not as high as it used to be. Perhaps it's because the KB2CQE/R repeater on 449.925 MHz is still suffering from crackly reception on weaker signals, or it may be that 2 meters is a more practical band for this type of activity in our hilly terrain. The latest FCC Notice of Proposed Rule Making would allow auxiliary stations to operate on 2 meters above 144.5 MHz, except for 145.8-146.0. In addition to legitimizing Kenwood's Sky Command system, this rule would facilitate IRLP operations on 2 meters.

I know there is a lot going on at this time of year — including vacations — but perhaps we'll see you at the August PCARA meeting on Sunday August 1 at HVHC?

— Malcolm, NM9J



*PCARA table at the Tri-State ARA Hamfest in August 2003. L to R Sean KC2IDN and his father Joe KR2V, Bob N2CBH and Mike N2EAB.*

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## PCARA Officers

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Secretary/Treasurer:

Mike Aiello, N2HTT;      n2htt @ arrl.net

# VHF opening - W2CH

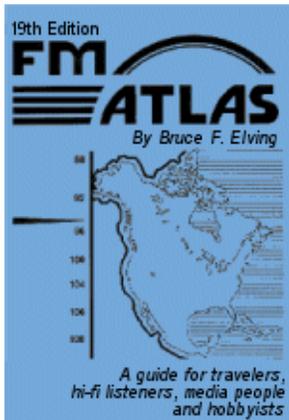
On July 6 2004, we were up at the Hotel Raleigh, near Monticello. Around 4:00 p.m. I picked up an FM broadcast station on 101.1 MHz from Memphis, TN. I later picked up FM stations from Florida, Alabama, Mississippi, Louisiana, Texas – and the last was KOMA-FM, 92.5 MHz from Oklahoma City, OK until it faded out around 10:00 p.m. EDT.



The Amateur Radio Newslines (<http://www.arnewslines.org>) reported DX on 2 meters on the same date. N4JQQ in Memphis TN described an incredible opening to the North East, working at least 20 new grid squares. K2ERG in Rochester NY reported hearing Florida working into West Texas, Oklahoma.

I think I was able to pick up so many DX stations July 6 because there are very few FM stations audible in Monticello, NY. It appears that most of the DX stations that I picked up are running 100,000 watts ERP.

- Ray, W2CH



**Note from Editor:** If you are interested in identifying North American FM broadcast stations from near and far, one very good source of information is the *FM Atlas* by Bruce Elving. The 19<sup>th</sup> edition was published in 2003. Stations are listed in frequency order and geographical order, with details on height, power and program format. Station locations are indicated on full-

page state maps.

Here's a typical *FM Atlas* entry for station KOMA under frequency 92.5:

OK Oklahoma City	Coma 92.5
KOMA-FM	\$ 300 100000

The "\$" indicates stereo, 300 means antenna height is 300 meters above average terrain (984 feet) and the 100000 is the effective radiated power (100 kW).

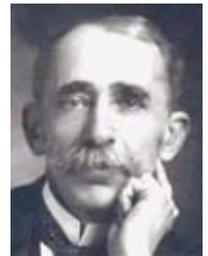
Price of the *FM Atlas* is \$21.00 plus \$2.00 shipping. For ordering details see: <http://members.aol.com/fmatlas/home.html>.

# One hundred years of "hollow state"

Did you know that 2004 is the centenary of the vacuum tube? Those warm-hearted devices, known in Britain as **thermionic valves**, were first put to good use in radio just one hundred years ago.

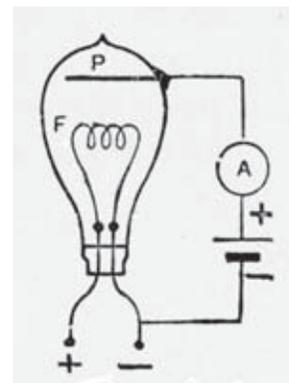
The origin of the vacuum tube goes back to Thomas Edison in 1883. Edison was investigating the blackening of the glass envelope in his electric light bulb and tried adding a second electrode to prevent the effect. He found that maintaining the second electrode at a positive voltage compared to the filament caused a small current to flow.

One of the people that Edison demonstrated the effect to was John Ambrose Fleming, professor of Electrical Engineering at University College London. Fleming investigated the idea further and in 1889 had special lamp bulbs made up by the Ediswan Lamp Works in the UK. He confirmed Edison's observation of current flow with steady voltages, and later observed that when an alternating current was passed through the bulb, only



J.A. Fleming

one half of the cycle would flow.



*Fleming's special lamp bulb with second electrode. When the filament F is heated, application of a positive voltage to the plate P results in current (electron) flow.*

As well as his duties at UCL, Fleming was a consultant to the Marconi Company. He had helped design the high power spark transmitting station at Poldhu in Cornwall, England — the station that Marconi heard in December 1901 in Newfoundland, as the first man-made radio signals crossed the Atlantic from Poldhu to Signal Hill, St. John's, 1800 miles away.

Fleming recognized that a major restriction on the range of wireless reception was the sensitivity of the receiving equipment — which was limited by the rather inefficient "coherer" and "magnetic detector" then in use. In 1904 Fleming had what he described as "a sudden very happy thought" when he realized that the Edison Effect might be used to detect radio frequency waves. He set up an experiment with an induction coil to generate oscillations, then placed a detector circuit nearby containing one of his modified lamps. The galvanometer connected to the lamp indicated a steady direct current — and the first electronic detector was born. (See [marconicalling.com](http://marconicalling.com) and [fathom.com](http://fathom.com))

Fleming called his device an "oscillation valve" or "Fleming valve" because of the way it allowed current flow in one direction only. He applied for a patent in Great Britain on November 16, 1904 and the device was used by



Fleming valve - the first electron tube.

Marconi's Telegraph Company in subsequent years.

Lee De Forest built on Edison and Fleming's invention when he introduced a third electrode - called the grid - that could modify the current between filament and plate. De Forest called his device an "Audion" but it is now known as a **triode**, while Fleming's two-electrode device is called a **diode**.

Another reason you might remember J.A. Fleming is as originator of Fleming's "left hand motor rule", which reminds you of the direction of movement of a current-carrying wire in a magnetic field. Hold your thumb and first two fingers of your left hand at right angles. If your **first** finger points in the direction of the magnetic **field** and your **second** finger points in the direction of the conventional **current**, then your **thumb** is pointed in the direction of **motion** of the wire.

Younger readers might not realize just how far tube technology penetrated during the twentieth century. In mid-century, domestic radio and television receivers were entirely based on tubes. My first amateur radio station of the '60s had an all tube transmitter with an all tube WWII-surplus receiver. My first mobile station was also 100% tube. The only solid state equipment in my station was a crystal controlled marker oscillator on 1 MHz/100 kHz.

One characteristic of vacuum tubes is that they eventually lose electron emission from the filament and need to be replaced. Domestic radio and TV relied on a small army of technicians who spent most of their days driving from customer to customer with a collection of radio tubes, ready to replace failing specimens and returning the family console to full working order. Quite a few of those TV repairers were also radio amateurs.

The change to solid-state receivers in the 1970s and the adoption of surface mount components from the 1980s onward brought about a vast improvement in reliability. When was the last time a TV repairman paid a visit to your home?

- NM9J

## Co-channel neighbors

During the summer months, it is not unusual for familiar frequencies to become busy with unfamiliar communications. Here are details of some of the neighboring stations that share our PCARA 2m repeater frequency. When conditions are good, remember that our repeaters may be providing just as much pleasure (or annoyance) to our neighbors as their stations are giving us. The one thing you can be sure of is that sooner or later the anomalous propagation will fade away - and with it a chance to hear our neighbors in action.

**Southeastern Connecticut Radio Amateurs Mobile System.** SCRAMS operates the W1NLC/R

repeater at Groton, CT on 146.670 MHz with PL 156.7 Hz. Even though this repeater uses the same CTCSS tone as our own W2NYW repeater, its 94 mile separation means we seldom have problems.

W1NLC/R can be heard occasionally, early on summer mornings around Peekskill/Cortlandt and N2CBH reports good reception over the mainly sea path from Groton to the New Jersey Meadowlands. It is worth remembering that when conditions are good, any transmission with the common PL tone could bring up both repeaters simultaneously. Under these circumstances, transmitting with reduced power on a low antenna will minimize interference to our neighbors.

SCRAMS' first priority is "the effective handling of communications in the event of emergencies or disasters". To this end they have repeaters on 53.85 (New London), 146.67 (Groton), 146.97 (Waterford), 223.96 (Groton), 224.26 (New London), and 448.975 MHz (Waterford), all with the same PL of 156.7 Hz. Web site: <http://www.qsl.net/w1nlc>

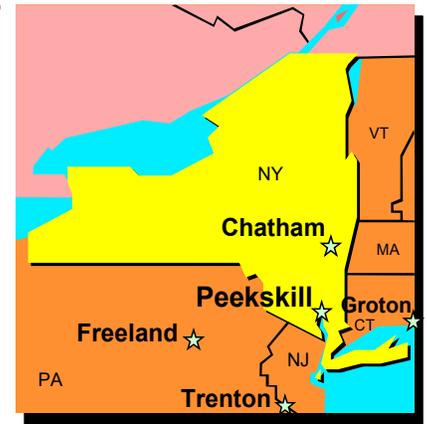
**Delaware Valley Radio Association (DVRA)** in West Trenton NJ operates the W2ZQ repeater on 146.670 MHz with 131.8 Hz PL. Distance from the PCARA repeater is 90 miles, but the different PL tone minimizes interference. This repeater can often be heard in the early morning from high spots on the Taconic State Parkway.

DVRA was founded back in 1931 and today operates repeaters on 146.67 and 442.650 MHz, both with PL tone 131.8 MHz. Web site: <http://www.w2zq.com>.

**Anthracite Repeater Association** in Hazleton PA runs its W3OHX repeater on 146.670 MHz with PL 103.5 Hz from the club's site near Freeland PA. This is over 100 miles from the PCARA site. The ARA club operates another repeater on 449.425 with the same PL. Web site: <http://www.qsl.net/ara>.

The **N2JVE** repeater in Chatham, is in Columbia County NY near the end of the Taconic State Parkway and operates on 146.670 MHz with a PL of 100 Hz. The location was subject of a UNYREPCO site transfer application in 2003. It is around 17 miles south of Albany and 75 miles north of the PCARA repeater location. The rugged terrain around the Hudson valley has so far prevented any interference between these two machines.

- NM9J



Location of PCARA's repeater neighbors on 146.67 MHz.



# Peekskill / Cortlandt Amateur Radio Association

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**Web site:** <http://www.pcara.org>

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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. \* *September meeting delayed one week.*

## 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

**Sun August 1:** August meeting, HVHC, 3:00 p.m.

## Hamfests

**Sun Aug 15:** Tr-State ARA Hamfest, Matamoras Airport Park, Matamoras, PA, I-84 exit 53. 8:00 a.m. **Club table.**

**Sat Aug 21:** Ramapo Mountain ARC Hamfest, American Legion Hall, 65 Oak St., Oakland NJ. 8:00 a.m.

**Sat Sep 11:** Saratoga County R.A.C.E.S. Association Hamfest, Saratoga County Fairgrounds, Ballston Spa, NY, 7:00 a.m.

**Sun Sep 12:** LIMARC Hamfair, Briarcliffe College, 1055 Stewart Ave., Bethpage, NY. 9:00 a.m.

**Sun Sep 12:** Candlewood ARA Hamfest, Edmond Town Hall, Rt 6, Newtown CT, 8:30 a.m.

**Sat Oct 9:** Bergen ARA Fall Hamfest, Westwood Regional HS, 701 Ridgewood Road, Washington Township, NJ. 8:00 a.m.

## VE Test Sessions

**Aug 1:** Yonkers ARC, Yonkers Police Dept., 1st Precinct, E Grassy Sprain Rd, 8:30 A.M. Contact: D. Calabrese, 914 667-0587.

**Aug 12:** WECA, Fire Training Center, 2 Dana Rd., off Rt 9A, Valhalla NY 10595. 7:00 p.m. Preregister with Sanford Fried, (914)273-2741.

**Aug 23:** Columbia Univ ARC, Watson Labs, 612 W 115th St. New York, NY, 6:30 p.m. Contact Alan Crosswell, 212 854-3754.

**Sep 25:** PEARL, Bureau of Emergency Services, 112 Old Rt 6, Donald Smith Campus, Training & Ops Facility, Carmel, NY 10512. 9:00 a.m. Contact NM9J.



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