

THE NEWSLETTER OF THE KINGS COUNTY RADIO CLUB



January 2015

Volume 2, Issue 1

Next Club Meeting:

February 10th, 2015 at 7:30PM
(Snow and sleet will remain,
no doubt, at the top of the list
of planned discussions.)

Our weekly Nets meet on Sunday at 11 AM on 28.380 (10 meters) and
Tuesday on 146.730 PL 88.5 (2 Meters)

Next Club Activities:

Our Annual Field Day Planning
Marathon continues in earnest.
Try to come to our upcoming
meetings so that you can put
your *two cents worth* across on
the subject.

VE Exam Session: January
25th 2015 at 1PM – Tell your
friends who are interested in
finally getting that license
they always wanted, and per-
haps consider upgrading your
license to one with greater
band access!

Further details will be posted
on www.KC2RC.com and
www.KingsCountyRadio.com as
they develop.

HR 4969—Going, Going, Gone!

Well, with the adjournment of the (extremely productive and successful)
113th Congress this past December, it seems that HR 4969—The Amateur
Radio Parity Act of 2014 was never voted out of committee, was never
considered by the full House of Representatives and is as dead as 10 meters
at the very trough of the Solar Sunspot Cycle!

But never fear, HR 4969 is dead (may it rest in peace), but that does not
mean the idea is dead! The ARRL will, no doubt, be speaking to HR 4969's
sponsors and co-sponsors and a new Bill with a new HR number will take its
place for 2015. We all must be ready to respond to it with polite letters to
our National Representatives to *motivate* them to enact this Bill into Law!

I hope we all have better luck on our second attempt!

To stay up to date on this, go to: <http://www.arrl.org/hr-4969>

Contents

- HR-4969 Gone, But Not Forgotten
- KCRC Sponsored VE Exam Session!
- You Won't Be Able to Take Your Obsolete Electronics Out With The Trash
- All Of Issues Of Popular Electronics Are Now Available
- Minutes of our January Meeting
- The Cranky Editor
- Antenna Basics, Part 4
- Closing Comments

KCRC Sponsored Volunteer Exam Session

The Kings County Radio Club will be sponsoring another VE Exam Session!
It will be held at the Executive Dining Room of The Methodist Hospital on
January 25th, 2015 at 1PM. Although walk-in registrants are allowed, it
would be best to contact the VE Coordinator John, WK2J, at johnsreales-tate@yahoo.com to let him know you are interested and to get any de-
tails. Remember to bring your photo ID, your \$15 in exact change, your
number 2 pencils and your wits!

The Kings County Radio Club is at www.KC2RC.com or
www.KingsCountyRadioClub.com

KCRC is an ARRL affiliated club (see: www.ARRL.org)

Taxes Go Up, Yet Services Go Down— You Gotta Love New York City!

Well, congratulations to all of us! Effective January 1st, 2015 we can no longer just place old electronic equipment at the curb and let our esteemed Sanitation Men (and Women) cart off our obsolete electronics. If you live in an apartment house, you may be able to arrange a special pick up day, but those of us who live in smaller homes will have to carry it some other place to get rid of it. I can just see people trying to balance their old 50 inch flat screen TV as they take it on the bus for the recycling depot!

Gotta love this beautiful city!

Ever Feel Like Thumbing Through Those Old Copies Of Popular Electronics You Read In Your Youth?

Well, now you can! Well, at least *virtually*. There's a new website, www.americanradiohistory.com and along with an enormous variety of old publications that wrote about *The Radio*, are the entire archive of *Popular Electronics*! If you were anything like me, you almost inhaled each monthly copy—perusing all the things that could be soldered into reality! I still swear that I have the two consecutive issues of the January and February 1975 issues somewhere in this house (written by a ridiculously young William Gates, Jr.) about a new kit, the Altair 8800—the micro-computer that started our Personal Computer Revolution! (You can find it at <http://www.americanradiohistory.com/Archive-Poptronics/70s/1975/Poptronics-1975-01.pdf> , and <http://www.americanradiohistory.com/Archive-Poptronics/70s/1975/Poptronics-1975-02.pdf> if you are interested!)

Have fun re-living the past!

Minutes of the January 2015 KCRC Meeting, January 13th, 2015

The monthly meeting was called to order by our Vice-President, Mitch N2RGA (our new President Howard, N2GOT was unable to attend due to a Cold—get well soon!). Also present at today's meeting were Past President Eddie W2DEV, Treasurer Richard KA2KDQ, Secretary Juan KC2QNK, Robert AB2LO, and Roy AC2GS.

Over the past month we gained two new members, Manny AA2XY and John WJ2K!

Dues were collected from Eddie W2DEV, Steve W2GOP and Elmar K2EL. Please get your 2015 membership dues to Richard, KA2QNK, our Club Treasurer as soon as possible. We are able to take your dues payments through our new PayPal account at treasurer@Kingscountyradioclub.com. Using PayPal to make these dues payments is as easy as it gets, but for any technophobes out there a check will still do!

10 Meter Net—Juan KC2QNK reported that the Net had 129 unique contacts since last month's report, including nationally New Jersey, North Dakota, Texas, Minnesota, South Dakota, Florida, Missouri, Louisiana, Idaho, Oklahoma, Iowa, Puerto Rico, Arizona, Georgia and Pennsylvania. We also made contact with the Caribbean, Turks & Caicos Island and the Isle of Skye near Scotland!

2 Meter Net—Richard, KA2KDQ reported that the 2 meter Net has been lightly attended recently, probably due to the Holiday Season. Hopefully it will now have more check-ins... Everyone is invited! Mark it on your calendar for all Tuesdays but the second Tuesday of the month at 9 PM! The frequency is listed at the top of the Newsletter's first page.

Treasury Report—Presently our Club has a healthy balance of \$1,586.19!

Old Business—Final preparations of setting up a PayPal account for the Club, in order to simplify the payment of annual dues should be finalized before the next meeting. ***(Effective January 15th, 2015 KCRC has a PayPal account at treasurer@Kingscountyradioclub.com! Your 2015 Membership Dues are already due! Dues can be submitted to Richard, KA2QNK, either using the very convenient PayPal account, or in person during our monthly meeting, or it can be mailed to him (his address is listed on the Club Web site).***

The Repeater was discussed. Winter's inclement weather has delayed the planned replacement and reposition of the Repeater's new antenna, recently purchased for \$150, until the Spring thaw is upon us. We discussed that we need to address our re-application with Metrocor to arrange for modifying the Repeater's listed call name to reflect that it is now KC2RC, rather than KB2NQT when it was owned and operated by John Przychocki, before he moved to Florida and donated it to the Club. Plans to swap the Repeater's ID chip are on hold pending a consideration to replace the Repeater itself with a newer one.

An offer from Yaesu to purchase a new DR-1X Digital/Analog Repeater for \$500 (regular list is \$1,699) was discussed. It is a 50 Watt Repeater, capable of Yaesu's new C4FM "Fusion" digital voice protocol, but can also be used for normal analog FM mode. The offer is only available until March 31st, 2015. Eddie W2DEV volunteered to investigate the technical details and will be reporting back at the next meeting for further discussion. The availability of a more robust and flexible form of remote control capability was brought up and we will need to know if the Yaesu Repeater would make that easier or harder to accomplish.

Field Day was discussed. Although it was generally agreed upon to continue to have it at Floyd Bennett's Field, it was suggested that we investigate better locations within that park to use as our base of operations.

Our Newsletter was discussed and we were advised by *The Editor* that this issue would be available to all members by the end of this week. Another plaintive request was made from *The Editor* for contributions from the general membership in the form of photos, bits of information or a discourse of a member's experiences in any aspect of this great hobby. If you need it a bit polished, never fear, *The Editor* is here!

New Business—A new membership drive was brought up. Mitch, N2RGA volunteered to look into the most efficient means to extract a list of new Amateur Radio licensees from the metropolitan area. A summary of the Club goals and what we have to offer is already available on our Club Web site. Mitch volunteered to review this list of goals and edit a version which could be mailed to new licensees, to motivate them into investigating if our Club might be a powerful resource in their new hobby. One of our Club's many goals is the educating and assisting of new members to our Amateur Radio society.

Our new membership cards were completed and laminated and handed out to members present at the meeting. The means of dispersing cards to members that were not present has not yet been determined.

The annual membership roster was mentioned. It was decided that it should be made available to the general membership by the 2nd quarter of the year.

The status of our Club Logo was discussed. The 2011-2014 version has been retired in favor of an interim design from Mitch N2RGA, but we can always change it if a majority of voting members are so inclined. The monthly Newsletter will be providing us mock ups of different design choices and anyone inclined can offer their own version for consideration. Here's a chance to "get creative"!

Towards the close of the meeting, Roy, AC2GS offered a short and simple "show and tell" regarding how a few bits of copper wire, a neodymium magnet and a simple AAA battery could create a fully functional motor. For those that were unable to attend there are Youtubes that show the same principle at: <https://www.youtube.com/>

Our President's message...

Hello fellow members of Kings County Radio Club,

I hope that everyone is doing well and is ready for a good year of operating and having fun on the radio. Those high static levels on 160 and 80 are not so bad now. Many of us have changed into the winter mode of operating and getting back to our indoor projects around the shack. Let's try and be more active on the low bands and participate in our club's ten meter net. I'd also like to see more participation in our club's 2 meter nets on Tuesday nights. We will be conducting more VE test sessions this year than in previous years. If you know anyone who would like to become a VE and participate, please contact John WK2J, our club's VEC liaison.

I hope to get more people active and on the air. If you know anyone that needs help with their equipment or antenna system we should try to give them a helping hand. Our next project for the repeater, will be replacing the old antenna and increasing the height of the replacement antenna. We will work towards this and improving the coverage on our 2 meter repeater once the weather breaks. Once this is done, we also need to discuss investing in a new, up to date repeater system. Let us also bring down more friends and prospective hams to our future meetings, as well. If you have a friend or neighbor that has an interest in amateur radio, bring them down to a meeting.

Even though Field Day is six months away, it is not too early to start planning for it.

Let's make 2015 a great year!

73,

Howard - N2GOT

President, Kings County Radio Club

Sorry, No Email Please, I'm a Ham!

... - - - - - - - . - - - . - - - - . - - - - - - . - - - - - -

Have you ever written to another Ham via email? You find their email address on something like QRZ.com. You write something non confrontational, just some trivial question, and then you send it out *into the aether!* Sometimes you get back a *Server Error* from the domain's mail server informing you that this email address does not exist? Sometimes you don't get any error message, but in fact it is an *orphaned email address*, that was used many years ago, but the individual *moved on* to another email address and hasn't bothered to update his posted email address at major Ham websites on the Internet. Sometimes you hit a notice that your intended recipient only allows predetermined email accounts to get through to them, all others are not wanted and will not be forwarded. Then there are times that you don't get any kind of an error, you just never get a reply, and if you see the guy *in real life* he invariably tells you that "*it must have gone directly into my Spam file bucket!*"

My record with emails to fellow Hams is abysmal. About 90% fall into the *email black hole* category, no response of any kind. Roughly 8% fall into the once and only once category - they respond in a very friendly manner, but if you ask for any further clarification you're back in *the old black hole!* Two percent of the time you can develop a nice dialog with the Ham at the other end, but those are not great odds! Of course commercial emails to Hams offering business services is an entirely different matter - most of the time you get a prompt response.

My initial experience with email, in general, was with fellow computer hobbyists on shared mainframe services like Compuserve, a large, national commercial *Bulletin Board System*. You could correspond with Arab Sheiks, noted authors, white collar professionals and tradesmen. Kind of like the ultimate text based repeater system! Responses were rarely dropped, unless one side stated that they were done with the subject, and the response time was at most in hours, not days, weeks, or months. I suppose I got spoiled from those days, and when non-computer enthusiasts were attracted to these services and email especially, I noticed that the response rate and response times began to suffer. I erroneously thought that the Hams that I had read about in the pages of QST in my youth were technophiles like myself, curious about all nascent technology and they would pounce upon a received email as my fellow computer enthusiast do. I was wrong.

I was wrong about my generalization that ALL Hams are interested in all technology and race to use it all as soon as it becomes available. I guess I was projecting my traits onto others, a common mistake. The only consistent trait I found among operating Hams is the interest to *play with radios!* Although many will carry a large number of HTs hanging from their belts, they might not even consider owning one *Smart Phone!* Perhaps it is the joy of not being that easily reachable, or it is a serious doubt that its technology is worth the expense and the trouble. To me it is the mating of a duplex wireless HT with a computer, enormously more powerful than my older personal computers from the 1980's and 1990's. It's like Haagen-Dazs *Cookies and Cream Ice Cream* - how could that combination go wrong?

Yet we have technophobic Amateur Radio Operators among our numbers. Guys that would still never

consider having a computer cohabit in their Radio Shacks! Many Hams, that have finally relented to dragging their grandkids old retired PC to operate as a log book, are still running WindowsXP! I have a picture in my *mind's eyes* of them still using VCRs that have 12:00 blinking perpetually because they didn't have the patients to learn how to set the time on it!

Come on people! New technology won't bite you. Give all this new stuff a chance!

The point of this particular article is meant to focus on many Ham's attitudes that almost ALL email, is unnecessary SPAM and should be avoided at all cost. They are wary to ever give out their email address, if they fess up to having one, like there's no such thing as Spam filters, and their Spam filters seem to have a *hairpin trigger* - almost *anything* sends the received email off into the trashcan Bitbucket!

Those people that do admit to an active email existence sound a bit like those cranky guys that tell anyone that will listen how they had to trudge uphill in the mud (both ways) 200 miles to get back and forth from grade school! These days you hear them complain that they often get thousands of emails that they must review. I seriously doubt that people who are not famous get thousands of legitimate emails any day - perhaps multiple copies of sales notices and offers to cure that E.D., that seems to be a lucrative scam. All this crud can be handled with Spam filters, and often is!

So, my parting advice is that we should not hold on so tightly to our email addresses as though they are the tribe's anointed virgins meant for a big ceremonial sacrifice. Share it with your fellow Hams and try to be a bit more responsive to them. After all, part of this hobby is about communicating. Why not communicate with email too!

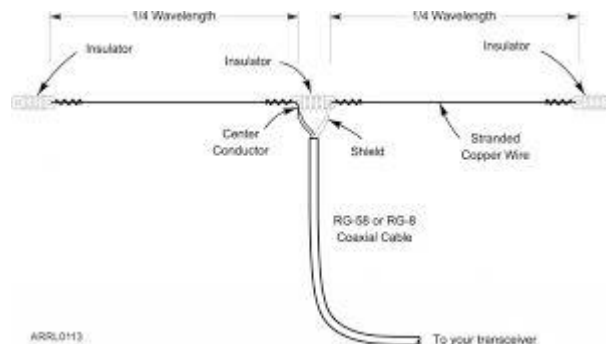
So guys (and gals)... loosen up on the email taboos, eh? Being *open* to other forms of communication won't kill you - if communicating shortened life spans none of us Hams would have made it to this age!

-The (Cranky) Editor-

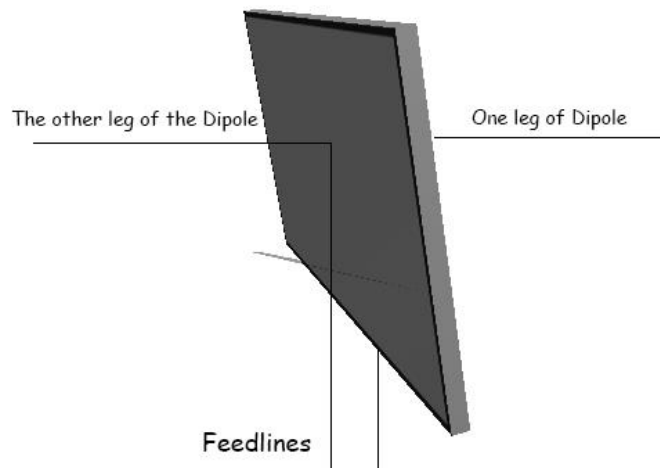
Antenna Basics for Fun (and no profit at all)

(Part Four - $\frac{1}{4}$ Wavelength Verticals - Tricking the Universe with Mirrors)

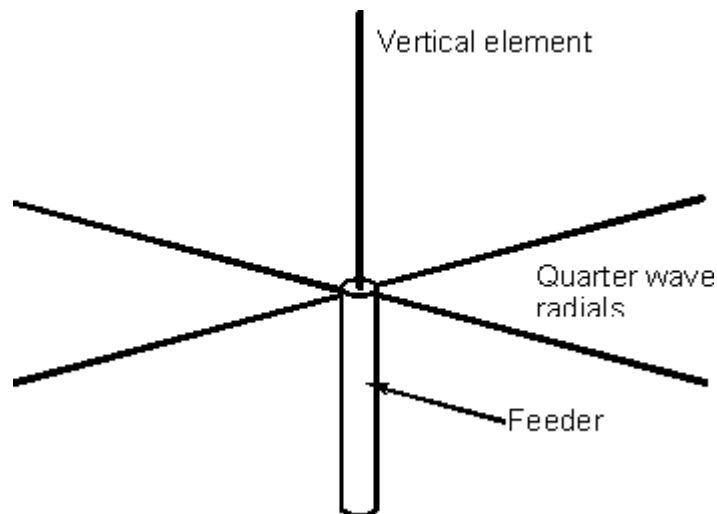
For a proper discussion of the classic $\frac{1}{4}$ wavelength (λ) vertical, let us start with our previously explained antenna, The Dipole. Please refer to previous articles in this series. I will be assuming that you have read and understood the previous articles. They are readily available at the www.KCRC.com or www.KingsCountyRadioClub.com website.



Now, what would happen to our ideal dipole in the vacuum of space if we inserted an infinitely large sheet of conductive metal between the two $\frac{1}{4} \lambda$ monopoles, that the dipole consists of (keep in mind that the sheet of metal DOES NOT touch either monopole)?

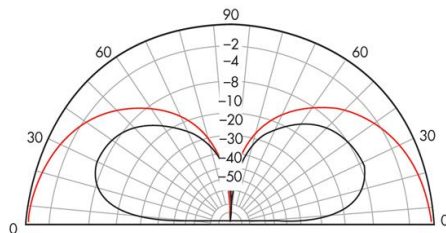


Sometimes nature can be easily fooled. If you take one of the monopoles away and connect that monopole's feedline to the sheet of metal, the Universe acts as though the sheet of metal is a mirror and it creates a "virtual mirror monopole" to replace actual monopole that you removed. As far as the Universe is concerned your *whole* dipole antenna is "sorta there"! Now rotate it in your mind by 90 degrees and make the monopole vertical instead of horizontal and shrink the infinitely long sheet of metal into a bunch of wires arranged radially near the base (usually with a length of something near $\frac{1}{4}$ wavelength themselves) and you have a $\frac{1}{4}$ wave vertical antenna in all its glory!



What's different from the dipole it was derived from? Well, the impedance, for one. Is it going to be that elusive 50 ohm nominal impedance that we Hams are always lusting after? Nope, sorry, the nominal impedance for a $\frac{1}{4}$ wave vertical at resonance is half that of a real dipole - 36 ohms of pure (radiation) resistance, all the inductive and capacitive reactance is cancelled out! Can we "trick" the Universe into making the resonant vertical a 50 ohm impedance device? Yes we can! As you bend the spokes of the radial wires at the base further and further "away" from the upper part of the vertical, the impedance begins to inch up higher and higher. Perhaps you have noticed that more than a few ground plane verticals have radials that dip 45 degrees below their base. The reason why is that, at that angle its impedance IS 50 ohms!

How is its radiation pattern effected? Well, it really isn't affected much at all. You have a sliced "doughnut" (or "bagel") shaped radiation pattern, but since you rotated it in space 90 degrees it is radiating and receiving in a ring ALL AROUND its base. It is considered omnidirectional (but NOT isotropic). There are pluses and minuses for this characteristic - you don't need a rotator, BUT verticals tend to be noisier - you can't null out noise coming from a direction different from the station you are trying to receive, and you can't expect any significant antenna gain from steering a tighter "beam" of radio waves in the specific direction of your intended receiving station. Many people consider $\frac{1}{4}$ λ verticals have twice the gain of a dipole, or 5.19 dBi or 3 dBd, but other people believe the *real* gain is less.



But why did we set this model up in the vacuum of space? Are we just "outer space nuts"? No, it's because things begin to change in the real world as you drop the vertical closer and closer to "Mother Earth"! Elevated verticals can get by with only three or four radials (you can use less, but you will distort their omnidirectional characteristics if you do that). As verticals get closer than $\frac{1}{2}$ wave above ground the story changes. When your vertical lands just above the ground there are new things you have to deal with. Close to the ground, your three or four radials are not good enough to act as that infinitely long mirror. Your radials become very poor reflectors and your antenna becomes more and more coupled to the Earth's

ground, more and more of that RF, that you would like to radiate into the ionosphere, will go into heating your ground locally - it might help with snow reduction on your property but I don't think that many of us really had that in mind!

Is there anything you can do about it? Sure, the more radials you add, the better the situation gets. Many of our obsessive compulsive brethren have done extensive experimentation on how many radials are *enough*. The point of "diminishing returns" appears to be past the 36 to 42 number of radials. Of course, if you have a lot of salt water just below the surface of your ground, or you're living on an ocean, you have nature's best radial system already there for you to avail yourself of!

Does a "¼ wave resonant vertical" have to measure ¼ wavelength long (remember that RF travels SLOWER in wire than in free space, so that a quarter of a wavelength on a vertical piece of metal is shorter than it is in the vacuum of space)? No, we can play more tricks on the Universe, but in this case it's much more wary of the games we play, and it demands "a price" for any tricks we may try to use.

We can take a shortened vertical and turn it into "an electrically resonant vertical" by the use of a "tuning network", i.e. a bunch of capacitors and inductors of a specific value in a number of configurations. A simplification of the problem is that at resonance a vertical antenna's inductive and capacitive inductance is cancelled out. As you shrink a vertical below its resonant length you lose more and more of the inductive reactance and the capacitive reactance has a greater and greater net effect, making your impedance mismatch greater and greater with all the awful SWR trouble that we all loathe. You can use "Pi" networks, or "T" networks or "L" networks (or a lot of other kinds of networks). A simpler approach is to put a coil, an inductor, somewhere on the vertical - either at its base, or somewhere in the middle (top loaded coils are usually discouraged for a number of reasons) and sometimes a "top hat capacitor" is crowned at its top. Does it work? Sorta You have to pay Nature's Price - the antenna's Q factor increases, decreasing the antennas acceptable bandwidth and the components will have their own energy losses and will couple with each other causing further decreases in their overall energy efficiency. That's why "Hamsticks" sorta work. They are better than nothing and can "get you on the air", but then so can a light bulb mounted six feet up on the top of a fencepost - if the *Gods of Propagation* are kind to you. Some people swear by Hamsticks, many people I know swear AT them!

What about those verticals that are some other multiple of their resonant wavelength? Something like $5/8 \lambda$ or $1/2 \lambda$ verticals? Well, you'll have to deal with the impedance mismatch such verticals provide - either with a matching network, or a transformer balun. The radiation pattern is a bit different - $5/8^{\text{th}} \lambda$ verticals have a lower elevation angle than the ones for ¼ wave verticals.

Do verticals HAVE TO BE electrically resonant? Well, maybe not directly, you can use the equivalent of a random wire with a very good antenna tuner with as little feed line loss as you can manage. That's what those commercial 43 foot verticals are all about! You can also use "traps" - resonant LC circuits in-line with the vertical, effectively blocking shorter wavelength transmissions from traversing the whole length of your vertical. Some verticals have numerous traps built in. They do work (if they

haven't developed a fault), but they also insert a loss to the antenna system and mean a less efficient radiator of your transmitting power.

What about those ads for "NO RADIALS REQUIRED" verticals? Well, they are usually fibbing to one degree or another. Some just rename radials as "counterpoise" - six of one, half a dozen of the other! Only one counterpoise/radial will get you a vertical that sort of works, but beware of ads for verticals that require no radials or counterpoise at all, unless they are $1/2 \lambda$ verticals - you're getting very close to the antenna quality of that light bulb on a fence post that I mentioned earlier. Half wavelength verticals are an interesting variety that have not been very well researched. They should not require a radial system, but still require some kind of a ground connection. This is a fresh area for experimenters to add to our knowledge of antenna theory.

That's all for today... Any questions?

- The Editor-

Closing statements (from the Editor):

Well, that's it for Issue 1 of Volume 2, I hope *youz guyz* found some of the information useful and/or entertaining.

Here I go again pleading with you guys for ANY contributions—photos, short notes, or even articles on subjects which you are interested in and know more about than the rest of us. Amateur Radio is a wide area of interest and no two Hams have the exact same experience and knowledge in all its diverse aspects. Share your insight with the rest of us.

Or at least tell us what you like reading and what you don't, and subjects you would like to read about in future issues.

I would prefer this all not be just one guys self indulgent "prattling"...

Until the next time...

The Editor (I can be contacted at TheEditor@KC2RC.com)