



THE CHERRY JUICE

cherryland amateur radio club traverse city, mi

February 2011

Coming Club Events

February 22nd Club Meeting

This month's program is another bi-phasic program. Russ **K8RUS** will be demonstrating Programmable Micro Controllers and Ernie **K8RCT** will give a demonstration of radio cloning and programming. This should be a fun night and as always Don **N8QX** will bring us up to date on club activities and Joe **W8TVT** will sum up the swap! Where: The lower level cafeteria in the Governmental Center on Boardman near the intersection of Boardman and Eighth. 7 p.m. Cookies and coffee available.

Tuesday Project Nights

Where: At the club station in the lower level of the Salvation Army Building located at the NE corner of Barlow and Boone. 7 p.m. Every Tuesday except the 4th Tuesday of the month which is reserved for the regular club meeting.

Club Officers
President
Don N8QX

Vice President
Hope AA8SN

Recording Secy
Russ K8RUS

Corresponding Secy
Dave K8WPE

Treasurer
Ward N8WK

Directors

Ann KA8YJ

Chuck W8SGR

Mike W8VPC

Cherry Juice Editor
Dave N8CN

CLUB NETS

MESH NET
8 pm Monday
146.86 MHZ

SMASH NET
9 am Sunday
3.935 MHZ



ARRL Affiliated Club
#1082

Forward Waves

VE EXAMS:

Big Rapids, MI. Saturday, March 26, 2011.
Ferris State University. West Commons Building, Room 109. Walk-In OK. 4 p.m.
Contact: Patricia McKay 231 527-1688

Cadillac, MI. Saturday, May 7, 2011.
Wexauke ARC Hamfest. Cadillac Jr. High. 500 Chestnut St. 10:30 am. Limited Spaces. No Walk-In. Contact: Alan 231 829-3433

HAMFESTS:

Saturday, March 19, 2011. Marshall, MI.
Crossroads Hamfest. 8 am til ? Marshall Activity Center. 15325 W. Michigan Avenue. TI: 146.660. Contact: John W8JRD 269 339-1908 or crossroadshamfest@gmail.com

Saturday, April 2, 2011. Lowell, MI.
Amateur Radio Group of Youth in Lowell Hamfest. Lowell HS. 11700 Vergennes St. 8 am til ? VE Exams at 10 am. Walk-In OK. TI: 146.62 (PL 94.8) or 145.270 (PL 94.8) Contact: AL at 616 450-4332

Reflected Waves

February 1991

The February swap was attended by 257 happy hams. The net to the club was \$940.00. On February 14th, it became possible to earn an amateur radio license without learning Morse code and passing a code test. Passing the Novice and Technician Theory tests will qualify one for the No-code Technician license with phone privileges from 50 MHz up. This was the most controversial FCC ruling since incentive licensing in the 60's.

February 2001

This years swap was poorly attended due to the "threat" of severe weather that never materialized. Only 225 hams were brave enough to ignore the repeated warnings of the local forecasters to "stay home". Those that did venture out were rewarded with a good time and ready access to the "swappers" and the major vendor ComDac. The February club meeting was a tour of the local repeater sites with comments by Chuck **W8SGR**.

SWAP REPORT 2011

It seems as though more and more activities in Traverse City area are being scheduled for the second weekend in February. Taking place this year were the Comedy Arts Festival, the Vasa Ski Race, the Winter Microbrew Festival and the Indoor Folk Music Festival, not to mention the Cherryland Amateur Radio Club's 38th Annual Swap & Shop. What a great weekend!

Fifteen people met for dinner at Elk's Club on Friday night. Included in this group were **K8RUS**, **W8SGR**, **AA8SN**, **K8WPE**, **W8PIT**, **N8UUJ**, **N8CN**, **W8WK**, **K8CAK**, **W8KAN**, **N8RRR**, **W8TVT**, and **W8VPC**. Out of town guests included **W8DW** & **KD8MML**.

Due to a scheduling conflict the gym was not going to be available until 9 PM. However, at 7 p.m. **W8TVT** met up with **N8RST** Gerry, to unload some of the kitchen provisions and get the coffee pots ready for the next morning. Also there to help was the Weaver Family including **KB8RDI**, **KC8EXD**, their daughters Autumn and Alyssa and their friend Lilly.

At 9PM the set up crew arrived but we had to wait around for a half hour until the gym was ready for us. What a crew! We had 16 people there to help. We were finished in about 45 minutes. It helps to have an experienced group. And this year the "pillar of the parish" **N8CN** was with us for guidance and direction! Those involved were **KC8ZAP**, **N8WK**, **KB8RDI**, **W8SGR**, **W8QPO**, Maria, **KC8UPR**, **N8UL**, **N8QX**, **K8RCT**, **K8WPE**, **N8OUZ**, **N8CN**, **W8TVT**, **W8VPC** & **K8RUS**. The crew set up about 42 tables with a couple of chairs for each table. Thirty-nine tables were pre-ordered which included four tables for club use. After things were set up we turned out the lights, locked the doors and went home for a "long winter's nap".

I was back there at 6AM to unlock the doors, turn the lights back on, and plug in the coffee pots. Waiting for me was **AB8RV** (he wanted to make sure he got a good table)! Other vendors started arriving about a half hour later. **N8CN** was there to set-up the 50-50 raffle and **N8UL** took control of the repeater table. Ward **N8WK** was there to sell tickets and collect the table rental fees. Maria Mellberg and **KB8RDI** assisted Ward. Joe **N8OUZ** was there to make sure only those people renting tables were allowed in early!

Russ **K8RUS** brought the Emergency Services Van, affectionately called the "barge" to show it off and act as the talk-in station for the swap. Don **N8QX** brought in his PA system and made announcements to the group throughout the morning. **KD8NVU**, Neil Touran of Petoskey won the main door prize which was a Yaesu FT 1900. He also won a \$50 gift certificate from ARRL. It was his lucky day! He thought he would have a hard time convincing his wife that he didn't buy these items. CARC member Gwen Sanford **K8GWN** won the Westmountain Radio Anderson Power Pole crimping tool. There were other door prizes passed out but the major items were the radio, the crimper tool and four gift certificates donated by ARRL. Speaking of ARRL, Dale Williams **WA8EFK**, the Great Lakes Section Manager was kind enough to make the long drive from Dundee, MI to promote and represent the ARRL which sanctioned our swap. The 50/50 winner was Paul **KB8UYM**. Paul has been a big help in our kitchen for many, many swaps!



Busy we were!!

Gerry **N8RST** again headed up the Food Service Department. The week before the swap she is out purchasing all the food items that will be sold that morning. All of the breakfast rolls were consumed by the hungry crowd. Many cups of pop and coffee were also sold. Not to mention the plates of chips, hot dogs and Sloppy Johns! Yes, Sloppy Johns. Couldn't be called anything else as John **KB8GGK** has been making up these hamburger delights from a secret recipe for many years. They are a big selling item at our swap. Gerry reports an income for the club of \$187.56. Assisting Gerry, as always, was her faithful crew of Paul **KB8UYM**, Nancy **KB8VEH**, Janet **N8RRR**, Marilyn **N8UUJ**, Bill **W8PIT**, Steve **KB8RID** and his wife Lisa **KC8EXD** and their daughters Autumn & Alyssa plus their friend Lilly. They were all around to help with the clean up chores. My special thanks to them.

And speaking of Gerry, she announced that this would be her last year as food service chairman. In checking through club records I find that she took over the food service activities from Pat Ford back in 1994. So for 17 years she has been doing this job! Our special CARC Thanks to you Gerry for a job well done. For special considerations, Lisa Weaver **KC8EXD** has agreed to be next years food service chairman. She and her family have helped with this activity for the past few years and is aware of what is needed. The special consideration is that Gerry pass on John's special receipt for his Sloppy Johns mix. (We will see what

happens!) I should mention that for many years John and Gerry were the main cooks for the club field day feast. Our thanks to you both for your many years of service to the CARC.



Cafeteria was always busy!

(Tired of reading.....I'm about finished!) It was a great swap. We didn't have a major commercial vendor. However all the sellers took home fewer items than they brought to the swap. Many people took home a lot of great bargains. There was a whole lot of conversation going on. It is one of the first swaps of the year in Michigan. It is a great time to do a swap as people have recuperated from the Christmas Holidays, have a little bit of cabin fever and are anxious to have some "eye ball contacts". Even with the three inches of new snow we had a great turn out. Ward reports that the paid attendance was 291. This is compared to 280 for last year and 260 to the three years prior to that. Income from the 50/50 drawing was \$122. The donation table brought in an extra \$217 which will be used for expenses for emergency services operations and operation of the "barge".

Hope **AA8SN** and her group of examiners were on hand to provide FCC exams to future ham radio operators. 15 people took various exams. As a result 5 people passed the technician exam, 7 people passed the general exam and three people will be back in a couple of months to try again. Assisting Hope were **W8QKP**, **KE8KX** and **N8HKQ**.

The 50-50 raffle was engineered by Dave **N8CN** and his salesmen were Harry **KB8RIV** and Don **N8QX**. Manning the club repeater table were Jon **N8UL**, Rob **W8REJ**, Harry **KB8RIV**, Chuck **W8SGR** and Brad **W8QPO**.



Harry **KB8RIV** pushing the 50-50 tickets!



Some Happy Swappers!

Soap Box Time. As always I would like to thank all those who helped with the swap activities. Thank you all! I hope I have mentioned everyone. (It is sometimes hard to keep track of all of you!) My special thanks goes to the kitchen crew and especially the clean up crew as their schedule allowed them to "stay after school" to help put the tables and chairs away. Those that I was able to keep track of were **N8CN**, **N8OUZ**, **N8UL**, **KB8RDI**, **N8QX**, **W8REJ**, **K8RCT**, **K8RUS**, the Weaver Girls and Lilly and **KC8ZAP**.

I was home by 1 PM, ready for a nap! 73 de Joe **W8TVT**



Some Aspiring Hams at the VE session

GET RADIALS DOWN

The chase, as I call it, for a better antenna never seems to end with me. The latest is a desire to lay down as many radials as I possibly can, in order to improve the efficiency of my vertical antenna. It's through this chase that I've come to realize that there's a lot of disinformation out there regarding vertical antennas and radials. And the e-mail threads

don't seem to be helping reduce the amount of disinformation.

Case in point... I subscribe to the Butternut antenna e-mail thread through Yahoo. For some of you, this may not seem like such a good idea, if you don't own a Butternut. But if you think about it, the design of a Butternut is pretty similar to other verticals and in addition, it was the Butternut article on radials that got me studying radials years ago, in the first place.

In the thread, a ham out East asked whether he needed radials, since, "I can tune my antenna without radials." And yet at another time, a ham asked if he needed radials, since, "he was receiving just fine." One guy replied, "If you're receiving fine, then don't worry about it."

Unfortunately, they're all demonstrating their lack of understanding of the purpose of radials (sorry guys, no offense). The purpose of a radial system is to keep the efficiency higher for your vertical ground mounted antenna. It's not for the purpose of improving the resonance, or making a better match, but for improving its performance. Don't confuse this with radials on a tower mounted vertical, that's different.

"The way it works is that the capacitance between the vertical radiator and the ground causes return currents to flow along the earth's surface back to the transmitter." - *Ground/Radial Systems, Tech Notes, by Butternut* (author unknown). The radials affect the efficiency of a ground mounted vertical by increasing capacitance.

For those of you who aren't interested in vertical antennas, read on, and I promise to keep this article short and to the point. It's interesting and it applies to other things, like capacitance. I'll hit on the highlights, and I promise not to get too techy. If you want oodles of tech talk, buy the book on verticals. If you're interested in all the details, I'd be more than happy to reply to any e-mail, or refer you to the world's top experts who know this stuff inside and out.

First, you should know that all commercial AM stations in the USA are required to have lots of radials when antennas are mounted on the ground. As I recall, the least is 113. Clearly, this isn't only for receiving. Those stations transmit nearly 24 hours a day. This alone should tell you that there's something good about having them and it's called efficiency (I'd love to hook up my Icom 746PRO to one of those antennas).

Secondly, radials de-tune when they're on the ground. This doesn't mean that they don't work. They still have the "ability" to be the other half of that vertical dipole and provide needed capacitance, but since they're de-tuned, you do NOT have to have them the right length, when they are on the GROUND. Tons of hams believe that radials need to be a 1/4 wave length when they're on the ground, for resonance, and this is simply not true. When a vertical is mounted on the roof, away from the ground, then you should be concerned. But the perfect length when mounted on the ground is much less important.

Third, radials increase the efficiency of a vertical for both receiving and transmitting. This efficiency increases with diminishing returns as you add radials. Simply put, the first few are the most important, and as you increase the number of radials, you get "less bang for the buck". Going from 4 to 20 will help you a great deal more than when you go from 20 to 36, even though you increased the number of radials by 16 each time.

Fourth, many DXers try to get to the magic number of 120 (for zero ground losses), if possible, since the efficiency is nearly maxed out at that number. But the difference of improvement between 60 and 120 is marginal. In fact, the difference between 40 and 120 is marginal, for most of us casual operators. The goal is to try to stop signal loss into the ground and the more radials you have, the better the capacitance, and therefore, less loss. Less loss means greater efficiency.

Fifth, since radials de-tune on the ground, the question about the length of the radials should come to mind. Like the number of radials, with its diminishing returns, this is somewhat true with the length, as well. It does make sense to keep them longer, if you can, but that should not stop you from getting SOMETHING on the ground. We're talking about efficiency, not resonance. So, the more, and the longer, the better. But if you can only get 15 radials on the ground, and they're only 1/10 of a wave length long, this would be MUCH better than zero. And since the returns increase with diminishing gain, again, then we already know that the first few are the most important.

A good rule of thumb is to have them be around a 1/4 wave length long, or at least as long as the antenna is high. That's a practical goal. But getting something on the ground is better than nothing!

Sixth, changing the length and number of radials, when the antenna is on the ground, affects the change in impedance much less than radials do when an antenna is in the air, above the ground. The impedance changes from roughly 50 ohms down to roughly 35 ohms, as the efficiency increases and as the number of radials increase, when your antenna is on the ground. If your 1/4 wave vertical antenna has a perfect match, of roughly 50 ohms, then it's very possible that it's inefficient! A 1/4 wave vertical with zero radials can have a 50 ohm impedance, and it's rather inefficient. 15 of the 50 ohms are actually from 15 ohms of ground resistance and loss. If you have zero ground loss, due to a lot of radials, then you have zero plus 35, instead of 15 plus 35 ohms.

A no-radial antenna would perform poorly in comparison to one with 40 or more radials. With lots of radials, your impedance is about 35 ohms, because the ground loss (resistance in ohms) is zero. It appears to your SWR that the antenna has less of a match when you are using lots of radials and when the antenna is more efficient. This is counter intuitive. It goes against what we'd think. I used to believe that as I increased the number of radials and improved the performance of my vertical 1/4 wave antenna, it should move closer to a better match, meaning that it moved closer to a 50 ohm impedance. But the opposite is true. As it becomes a better antenna, it moves towards roughly a 35 ohm impedance.

I promised to keep this short. I have more to say about ground mounted verticals, and I have a bit to say about a vertical mounted on a tower. But, then I'd be long-winded. Have a comment, or disagreement, drop me an e-mail at w8okn@arrl.net. I crave knowledge about antennas and would love to debate the subject.

Peace, Sean - **W8OKN**

WHITE PINE STAMPEDE

Ernie **K8RCT** and Mike **W8VPC** report that TBARG participation at the White Pine Stampede was effective and appreciated. Here are some pictures from the event. Jim **K8OJP** and Ernie manned one of the road crossings and use The Barge as a warning vehicle—lots of flashing red lights!! We also had nice fresh hot coffee and a place to warm up. Notice the stylish bright yellow jackets! Other participants included Ward **N8WK**, Joe **K8DT** and Vinny **KG8WF**.



“The Barge” on duty!



Creating the road crossing site.

Remember the old "find Waldo" cartoons? You had to search the cartoon carefully to try and find Waldo. Here's the ham radio version...find the HF beam! Yes, this is a picture of my hex beam. Can you see it? My neighbors never even knew I had put up a tower and beam until I told them. Now that's a low profile, stealth antenna!

Ernie, **K8RCT**



Where's the Hex Beam?

<SK>