

# Radio Amateur News & Views

The Official Journal of the Radio Amateurs of Northern Vermont

NOVEMBER 2003 Vol. 13 No. 11

# WIRELESS LANs ON 2.4 GHZ The November 11<sup>th</sup> RANV Meeting

We have another great **RANV** meeting for you! Last year, Brian N1BQ introduced us to Wireless Internet linking, also known as *WiFi*. For our November meeting, we will go into the details of Wireless Local Area Networks (*LANS*) on 2.4 GHZ. Johannes KB1JDT of Summit Technologies will give a presentation on this unique method of linking which is taking the industry by storm. First, we will see a PowerPoint presentation which will give us the basics of wireless. Then, Johannes will have an array of stuff for hands-on inspection. Some of the hardware will include: an array of 2.4 and 5 GHz antennas, a WiFi switch and router, 2.4 GHz radios, RF sniffer tools and last but not least, a microwave spectrum analyzer to show us what it all really looks like. The demonstrations will include wireless connectivity from a Pocket PC to a laptop and wireless remote control of PowerPoint. In addition, Johannes will talk about signal path analysis – the most important piece of all of this. If there is no line of sight path, there is no connection.

For several of us considering going wireless, this will be a very useful meeting to collect all sorts of information and ideas. For everyone, it will be another meeting chock full of information on today's emerging technology. We all hope you will join us. Don't forget, the evening's festivities start at 6 PM, November 11th with Snax at Zacks (*Zachary's Pizza on Williston Road*), and moves to the meeting, starting at 7 PM at the O'Brien Civic Center, 113, Patchen Road, South Burlington.

# **ELECTIONS**

Pursuant to the By-Laws of the Radio Amateurs of Northern Vermont, enclosed in this month's newsletter is your ballot for election of officers. Families receiving one newsletter will receive the correct number of bonafide ballots.

Nominations for officers come from the membership, or *(much of the time)* people are asked to run. We have found one candidate for each office. However, any club member in good standing, who agrees, can be written in.

Brian N1BQ has agreed to continue as president. Bob KB1FRW has agreed to continue as VP/Treasurer and Dave W1DEC will run for Secretary.

Please show your support for our officers by voting. Either bring your ballot to the meeting, vote by E-mail, or immediately mail your ballot.

And remember our motto, vote early and vote often!

## RANV HOLIDAY PARTY

Mark Tuesday, December 9th on your calendar! That is the date of the Gala RANV Holiday Party. The Party will once again be hosted by Mitch and Debbie at their Essex QTH. RANV will be providing the eats. We are always open for suggestions for new and novel munchies! Activity will get underway at 5:30 PM and will include eating, telling tall tales, eating, playing with radios, eating, watching videos and eating. Over the next few weeks please let Mitch know who is coming and what you would like to bring. This is very important to allow us to plan the correct amount of

See you at the Holiday Party!

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#### **OUR LAST RANV MEETING**

by Bob KB1FRW, VP

September's joint meeting with the Central Vermont Amateur Radio Club started at the Jockey Hollow restaurant in Barre with a round of delicious grinders and socializing with CVARC hams. I found the conversation to be most interesting when a CVARC member explained the trouble with using a computer clock oscillator to build an offset attenuator. It shows the value in getting out and meeting others.

We then drove down to SB Electronics at 131 South Main Street. SB Electronics is the former Sprague Capacitor Plant. They are famous for their "orange drop" capacitors we see in many electronic devices. Ed N1UR bought the facility a few years ago and was our host and tour guide.

Ed spoke for a few minutes about his company and some of the special things that his plant did that made it able to compete in the world capacitor market against offshore companies that use inexpensive labor. The special things that SB Electronics does include custom value capacitors in small or large quantities, high precision above normal, custom marking and special assemblies that include resistors to build RC timing circuits.

SB Electronics only makes film capacitors, which are basically a metalized film and an insulating film rolled up together like a roll of paper towels. Leads are welded to each end of the roll and the assembly is heated and dipped several times in the trademark orange coating.

The tour started in the winding room that was full of machines with rolls of film on them. All the machines were automated and some could wind a capacitor to a set capacitance; a feature allowing SB to hold tighter tolerances in a production run, yielding a better product.

The next area had machines that make the leads and put them on long paper strips in preparation for welding to the rolls of film. We moved to the coating room and saw how the orange coating is applied. This is a very interesting process where a tray of powdered coating has air blown in the bottom until the coating is like a fluid. Then the capacitors are hung upside down over the powder, heated and dipped into the powder repeatedly until the coating thickness is sufficient. The heating causes a small amount of powder to melt and adhere to the capacitors every time they are dipped, thus building up the coating.

Ed showed how the excess coating was removed from the leads in a special sandblasting cabinet that SB developed. We saw the area where the leads are welded on, and then the final testing area. We were surprised to learn that each and every capacitor is tested before being shipped prior to being packaged for delivery to the customers. Right near the final test area are stations used to do custom work on the capacitors.

We then returned to the lunchroom for snacks. Ed showed us a component assembly for a new improved Tazer stun gun that SB Electronics helped develop. Ed was quite proud of the accomplishments of his facility and justifiably so, as it is a feat to compete successfully in this world. Ed also presented us each with a large bag of Orange drop capacitors for our future projects. Thanks Ed.

#### THE PREZ SEZ

by Brian N1BQ, President

Club elections are upon us. Bob, KB1FRW, and I are running again for President and VP and Dave, W1DEC is running for Secretary. The running joke is that the elected officers are the ones who couldn't run away fast enough. But this is not a joking matter.

RANV has just renewed its status as an ARRL Special Service Club. During the process, it was said of RANV that it was a "dynamic and active club actively promoting amateur radio in Vermont." This is no accident. It reflects the work of a number of our members. We try each month to present interesting meetings and organize interesting activities. Sustaining this momentum requires input from more than just the handful of usual suspects. I suppose I would run again for president next year as well, but it seems to me that there must be, among our members, at least one person with ideas, vision and leadership who could step up and take the helm. New ideas are the fuel to keep RANVs engine running. If you don't want to make the commitment to being a club officer for a year, maybe you can come to a Steering Wheel meeting and give us some of your ideas for club meetings.

The coming months promise some great meetings. This month, Johannes KB1JDT will be talking about 2.4 GHZ networking devices and December will be the Holiday party. In January, I will be doing a live demonstration of Software Defined Radios. Dave W1KR returns in February with an update on building Morse code keys. In March, Mike N1JEZ will talk about the AMSAT-Echo satellite which is planned to be launched in that month.

## **Contacting RANV**

In Person: Meeting, November 11, 7pm,

O'Brien Civic Center

113 Patchen Rd, So. Burlington

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Please send submissions for the newsletter to the editor, W1SJ.

#### THE WORLD'S MOST HERALDED RADIO FAILURE

by Mitch W1SJ

The other day, I was reading my copy of *Radio Guide*, a publication directed to those in the Broadcast industry. Instantly, my eye caught the lead article, "What Did Marconi Hear?", by Donald Kimberlin. This article raised the question of whether Marconi's experiment to bridge the ocean with radio waves was a dismal failure. Curiously, I read on, thinking it was just a bit of sensationalism to sell a publication.

As avid users of the radio spectrum, we all know that the first transatlantic signal received was an experiment run by Marconi in December of 1901. Marconi was selling the idea of his wireless technique, invented in 1895, to many non-believers. He built a super station in Poldhu, England, on the southwest tip of the island. In St. John's, Newfoundland, he set up a receiving sta-

tion using a long wire flown from a kite. Both stations were near cable offices, where messages were sent to set up "skeds". The idea was to have Poldhu send strings

of the Morse code "S". After several days of failure, on December 12th, 1901, Marconi claimed to have copied an "S" from Poldhu and the rest is history.

This article reconstructs the history and technical parameters and draws the conclusion that Marconi never received England on that day. He may have heard what he thought was an "S", but it could not have come from across the ocean. I was skeptical about all of this, but when I finished the article, I had a chill going down my back. Based on the facts, they were right! Marconi could not have copied England. This event, one of the defining gospels of radio engineering, DID NOT OC-CUR! Think of it. What if the walls of Jericho did NOT come tumbling down? (Perhaps, it was the walls of nearby Underhill?). What if the Romans did not use a dipole structure for crucifixions, but instead used a yagi? (Lots of folks would have yagis dangling from their necks?). Blasphemy indeed!

We all need to keep in mind that radio was in its infancy then. There were no tunable transceivers or phone or CW, for that matter. Radio waves were generated by high-powered alternators throwing sparks into a tuned circuit and then an antenna. Receivers were rough, at best. Spark gap technology was not known for long ranges. And little was known about propagation. Many years after this event, Marconi estimated the frequency of the Poldhu transmitter to be in the low end of the AM Broadcast band. Current day antenna specialists, after reviewing photos of the Poldhu station, confirm that antenna would cut off at 850 KHz.

"This event, one of the defining gospels of radio engineering, DID NOT OCCUR!"

Anyone familiar with the low end of the AM band knows that D-layer absorption limits daytime range of these frequencies to 200 miles at best. Under the best daytime conditions, I can hear WBZ 1030 KHz from Boston, over a 180-mile path, but not any of the New York stations over a 270-mile path. And all of these stations run 50,000 watts.

Marconi claims to have heard Poldhu at 12:30 in the afternoon. He heard a spark transmitter running a couple thousand watts over 2100 miles where no one today can hear anything on those frequencies more than a couple of hundred miles in daylight. How was this possible?

Marconi claims to have removed some equipment from his receiver which amounted to the equivalent of a low pass filter. One would surmise that Marconi heard harmonics and components (spark has plenty of those) extending into the shortwave frequencies. However, the problem with this theory was that the low pass components were in place at Poldhu, stopping any frequencies above 850 KHz. Another interesting piece of information has become known. December, 1901 was at the dead low of the sunspot cycle, with a sunspot number at 0 and the solar flux running a paltry 64. Plug these numbers into a propagation prediction program and a path between Newfoundland and England would be downright tough on any frequency.

Another piece of evidence was that the duty cycle of the Poldhu transmitter was turned way down. Instead of the characteristic "buzz-buzz-buzz" of the letter "S", it was more of a "click-click-click". Historians agree that Marconi really be-

lieved he heard the "clickclick-click". However, instead of coming from England, some experts believe he heard three clicks emanating from lightning

static crashes, likely from the tropics. Listen carefully on any receiver and you will hear clicks and pops all the time. With the absence of local noise in Newfoundland, the lightning crash theory becomes the most plausible explanation.

Marconi had no independent entity verify his results. He was unable to reproduce the results. Eventually, he reduced the frequency to 30 KHz and ran 300 KW to get across the ocean. Some 20 years later amateur radio operators, running considerably lower power received signals across the Atlantic, using frequencies below 200 meters – roughly near the present day 160-meter band.

Famed radio expert John Belrose, VE2CV has a paper with more interesting details, which is found at: http://www.telecommunications.ca/ Edited\_Manuscript.pdf.

#### AMATEUR SATELLITES – SWORDS INTO PLOWSHARES

by Mike N1JEZ, VT AMSAT Coordinator

I am sure you are wondering what swords and plowshares have to do with amateur satellites. The relationship was born in 1990 when the US and USSR signed the Start treaty to reduce strategic offensive weapons to agreed upon numbers. The USSR seized upon the opportunity, and rather than dismantle and crush the ICBM missiles, they would convert some of them into launch vehicles for small to medium satellites. One hundred and fifty SS-18 (Satan) missiles are allocated for the conversion. The International Space Company Kosmotras was established in 1997 to market the launch service for the missiles now known as Dnepr.

On the 26th of September 2000, the first commercial launch of the Dnepr rocket took place. Launching from a silo on the Baikonur Cosmodrome in Kazakstan, five small satellites achieved a 650 km circular orbit. Three of the five were amateur satellites (SaudiSat-1A, SaudiSat-1B and TiungSat). This launch vehicle has a proven track record of 160 launches over twenty-five years. There have been three launches of the Dnepr LV rocket deploying 12 satellites into orbit. The launch customers include UK,



USA, Italy, Saudi Arabia, Malaysia and Germany. In addition to being a reliable rocket, Dnepr also offers a very competitive launch price – \$10,000-15,000 (US) per one kilogram (2.2 lbs) of payload.

The rocket employs a cold-launch technique with the missile being ejected from the silo prior to main engine ignition. The rocket was placed in a transport-launch canister made of fiberglass composites, with a steam powered ejection canister in the bottom. You can see the ejection canister to the lower left of the rocket in the picture.

ECHO, AMSAT-NA's (North America) newest satellite (a 9" cube), is scheduled to be launched on a Dnepr rocket in March 2004. This is the ninth amateur satellite based upon the AMSAT-NA microsat design from 1990. This latest AMSAT endeavor has combined many of the most popular, older modes along with some new technologies for the experimenter.

Mode V/U and L/S Operation (2m/70cm and 1.2 GHz/2.4 GHz)
Analog operation including FM voice Digital operation:

Many speeds possible, 9.6, 38.4 and 57.6 Kbps most likely Store and forward mailbox Can be configured for simultaneous voice and data

Best of all this will be the most powerful microsat, using a downlink power of 8 watts. Compare this to the current power output of some of the other micosats:

> UO-14 2-3 Watts SO-41 1 Watt SO-50 0.25 Watts AO-27 0.5 Watts ECHO 8 Watts

ECHO should be usable with a standard handheld from almost anywhere. The orbit will be polar,



providing six passes a day each lasting 10-14 minutes.

Help support this satellite project – Join AMSAT! For more information, contact me at n1jez@amsat.org or go directly to: http://www.amsat.org.

#### STEERING WHEEL

How do all those great meetings get organized? How are club activities planned? How do the bills get paid? These and many other questions are asked and answered at the RANV Steering Wheel meeting. Unlike any other organization, RANV has no Board of Directors or blue ribbon panels. Anyone who shows up at the Steering Wheel (even non-members) has a voice.

What happens at the Steering Wheel? Mostly eating, actually. Also a lot of ham radio chit-chat and scuttlebutt. Somewhere towards the end of the proceedings do we get any work done.

We need your input and fresh ideas. Consider coming to the Steering Wheel at 7PM on the 3<sup>rd</sup> Tuesday of each month at Friendly's in Colchester. It's a lot of fun!

# OFFICIAL FIELD DAY RESULTS ARE IN

by Mitch W1SJ

RANV has again taken Top Ten honors in the ARRL Field Day results, just released on the ARRL web site. The final tally of 10,250 points was good for 7th place, out of 423 entries in the highly contested 2A category. Another 76 points (19 cw QSO's) would have landed us in 6th place. The San Diego DX Group, W6PT, for the second year, ran away with the category with over 14k points, almost 2000 better than the runner up. Our 3368 QSO's was good for fourth place in the category – which means that we were low on CW contacts (or high on SSB). Overall, amongst all 2058 Field Day stations, we were 28th in points and 14th in QSO's. And, most of the scores from Northeast stations were down this year!

So, what does all this mean? Propagation is such that it is fairly impossible to win a stateside contest from the Northeast except for a couple of years at the height of the sunspot cycle. Compared to other Northeast stations, we did very well – first in 2A and 6<sup>th</sup> overall (the other 5 were in much higher transmitter categories). While fine tuning and tweaking could certainly improve our 7<sup>th</sup> place score to 5<sup>th</sup>, even the 2<sup>nd</sup> place entry in 2A was higher then we have ever scored in Field Day. All active contesters know it is not a level playing field!

In some cases, Field Day groups gave some insights on how they scored their points. One group who bested us claimed that their GOTA station made 200 QSO's – on cw! That's about 500 points more than we had on GOTA. Time to train some operators!

Here is a listing of the Field Day groups in Vermont and nearby. It is virtually impossible to compare scores across categories. A more meaningful number is how a group did in their particular category by computing the percentile. Seventh place out of 423 entries in 2A puts us in the 99<sup>th</sup> percentile, a position we have held for years. Here is how the other Field groups in Vermont and nearby areas faired:

CLUB	CALL	CAT	QSO	PT	#	тот	%
RANV	W1NVT	2A	3368	10250	7	423	.99
Twin State (NH)	W1FN	2A	2549	9002	9	423	.98
SOVARC	WT1B	3A	1524	4740	42	278	.85
	N1UR	1B-2C	769	2520	2	5	.80
Udder Club	W1MOO	1A	531	1962	35	155	.78
	W1US	2E	1590	1979	5	16	.75
GMWS	N1VT	2A	983	3484	121	423	.72
CVARC	W1BD	2A	342	1684	275	423	.35
BARC	W1KOO	2A	295	1370	316	423	.27
Tesaro (NH)	W1IM	2A	350	1350	311	78	.26

# WEEKEND CLASS NETS 3 HAMS

by Mitch W1SJ

The latest Fall Burlington class was small but it made up for it in enthusiasm. As with most everything else these days, enrollment for ham classes is off. Lack of time, lack of money and family pressures are the usual reasons. In addition, the local media was not very helpful this time around. With the exception of a last minute article in the Essex Reporter (a very successful one), no mention was made of the class, even though I went through great lengths to publicize it. Two of the students enrolled in the class only days before, something I rarely do. However, I had a good feeling that these students had the enthusiasm for ham radio and the willingness to work hard to make it happen. All three passed with flying colors! Be sure to welcome our new hams:

KB1KJQ Derek Adams Williston
KB1KJR Phyllis Petrillo Essex
KB1KJS Steve Pierce Essex

#### HOSSTRADERS & ANTENNAS

by Mitch W1SJ

Hosstraders turned out to be a nice weekend despite some gloomy forecasts. Friday was a bright, sunny day, albeit a bit chilly. Saturday was more cloudy, but the weather held out until after everyone left the hamfest. What timing! I managed to pick up a few odds and ends and bag the Hosstraders Geocache. The most notable buy was a TA-33 JR triband yagi. The owner wanted \$50 and wouldn't budge from this price on Friday. I kept watching it and bided my time. Late Saturday morning, I waited long enough and decided to pounce. I hauled it away for considerably less – \$30. While I never divulge my negotiating secrets, I can say that I made him an offer he couldn't refuse and we'll leave it at that!

Bob KB1FRW brought the antenna back to Vermont and made some repairs on the driven element and boom. The antenna is otherwise very clean. It was erected and tested on the SJ antenna range and it works great – SWR dips right down to 1.0 in the middle of each of the bands. We now have another antenna for the Field Day arsenal which will be put to good use at the GOTA station.

While we had the hardware out, we put the TA-33 yagi (CW) together and test fired it. It's SWR was also quite low. Based on this measurement, I surmise that the higher SWR (2.0) seen at Field Day was due to interaction with the 80 meter dipole. Corrections for this will be in place for next year.

#### **FOX HUNT**

by Paul AA1SU

The final RANV Fox Hunt of 2003 got under way a little late that night. At 6 PM, Mitch was still settling into his Foxhole with Debbie W1DEB. The Fox cleverly kept his transmissions short. I was also listening but could not get a heading on his short transmissions and had to wait until the hunt started at 6:20. I had decided to start from a high point near my workplace in Williston. I went to the Williston Rest Stop on I-89 South. At 6:20 PM the hunt was underway. I took out my trusty tape measure antenna (from a RANV meeting building project) and picked up an S1 reading towards Richmond. So, I naturally headed that way. As, I approached Richmond, the signal was no stronger. I took a left turn and headed for Jericho. I stopped along the way, to take beam headings, but I could not get any significant reading. Once in Jericho, I headed west, back towards Essex; Mitch's home town.

Mitch soon asked how his signal strength was. I went first and said that it was weak. Kayle KB1JOO also checked in from a location close to me and also said that the signal was weak. Fran KM1Z stated that the signal was quite good on Spear Street. Hearing my frustration, Mitch suggested that I head for the ham that was hearing the Fox the best; I agreed and headed for South Burlington.

At Overlook Park on Spear St, the signal was quite strong, but apparently not there. As I headed away in 4 different directions, it dropped off. I then headed for Shelburne Road and worked my way over to a high spot behind IDX. A beam reading from there pointed west towards the lake, but also southwest in some cases. On a hunch, I headed for Bay Road in Shelburne and stopped off at a boat launch. Now the beam heading was pointing North Northwest and stronger. I looked at the map at noticed that Shelburne Point was out

that way. Could the Fox be there I thought? I remembered a hunt a few years ago when John N2YHK hid at the Coast Guard Station in Burlington, and Mitch headed for Shelburne Point by mistake. It turned out he was still the first to find the Fox that night.

I was off down Bay Road and then a right turn towards Shelburne Point. It was a longer drive than I thought, and I was not that familiar with the road. I stopped to take another reading. It was confusing, and I almost left the point. But I didn't and went all the way to the end of the road. This was a dead end and private property. I got out of the car and walked into the Shelburne Shipyard. I soon realized that Mitch was not in there, and that I shouldn't be either! Back to the car quickly, looking for the nearest side street. I found General Greene Drive. Now Mitch could be heard with no antenna on the radio. I had to practice my closein skills, which aren't the greatest. But, as I rounded a turn, there was a car on the side of the road. My headlights lit up the windshield, but there did not appear to be any people inside. Could they be gallivanting in the woods? I turned the car around and pulled right up to the sedan. Soon a head popped up, and then another. I had found them first, much to my surprise.

Soon to follow was Bob KB1FRW who was also confused by the lack of people in a familiar car. Dan N1PEF came along later, followed by Fran KM1Z. Kayle however, was still looking for Mitch in Lake Champlain from the shores of Burlington. At 9 PM, we called it a night, and headed for Friendly's on Shelburne Road to compare notes and eat. Here are the official times:

AA1SU 8:26 KB1FRW 8:41 N1PEF 9:07 KM1Z 9:09 KB1JOO DNF

# FOX HUNTS OVER THE YEARS

by Mitch W1SJ

The Fox Hunt held two weeks ago was the 40<sup>th</sup> RANV Mobile Fox Hunt. This week we celebrate the 12th anniversary of the first RANV Fox Hunt. On November 12th, 1991, we replaced the usual Tuesday meeting with something called a Turkey Hunt, since it was so close to Thanksgiving. President Tom N1EXY was the first Turkey (!?) as he hid in front of Dunkin Donuts, in the Merrill's Parking lot on Williston Road (only a few feet from Zack's, where we meet before today's meetings). Although this is an easy spot to find, it took us a long time to find him. Joe N1DMP was the winner in that hunt, just edging out WB2JSJ (now W1SJ) and a field of other hopefuls. That hunt spurred some Fox Hunt articles in the newsletter, in time for our  $2^{nd}$ hunt, a year later, which moved to Friday night. Joe played the bait and switch game, parking his vehicle in an obvious spot, but took the transmitter with him and lurked behind Walsh Electric in Colchester. This was the first of many "first finds" I had in this series of hunts.

The rules for the hunts have remained pretty much the same over the years. The first hunt was held on 146.61, several others on 146.85 and they moved to 145.15 when it came on in 1994. We held 2-3 hunts a year until 1997, when we started following our current schedule. The hunts have always been held in Chittenden County with but one exception. Years ago, RANV had a large number of members from St. Albans (the feared St. Albans contingent) who lobbied for a Franklin County hunt. In August 1995, a hunt was held up north with W1SJ finding N1NZH who was hidden in the Northwest corner of the county, just south of the Canadian border.

FOX HUNTS... continued next page

OFFICIAL RANV 2003 ELECTION BALLOTS							
THREE WAYS TO CAST BALLOT: Vote early and vote ofter							
<ul> <li>Deposit in voting box at start of November 11th meeting</li> <li>Mail to RANV PO Box 9392, South Burlington, VT 05407 no later than Saturday, November 8th</li> <li>E-mail to ranv@sover.net no later than noon Tuesday. You must include serial number in E-mail Write-ins must be: a real living person, a member of RANV, agreeable to accepting the office</li> </ul>							
There are TWO ballots on this sheet for use by family members. Only ballots with bonafide serial number will be counted.							
President	President						
☐ Brian Riley N1BQ	☐ Brian Riley N1BQ						
☐ Write In	Write In						
Vice President - Treasurer	Vice President - Treasurer						
☐ Bob Allen KB1FRW	☐ Bob Allen KB1FRW						
Write In	☐ Write In						
Secretary	Secretary						
☐ Dave Cain W1DEC	☐ Dave Cain W1DEC						
☐ Write In	☐ Write In						
ranv	ranv						

### **CUT HERE!** - otherwise your name will show on the back!

#### FOX HUNTS... continued from previous page

Virtually every town in Chittenden County has been represented in the list of hiding spots, with Burlington, Essex and Colchester the most popular towns. To date, no one has hidden in Huntington. I came close in one hunt, but the actual location was just over the line in Hinesburg. I even managed to hide in Buell's Gore. Boy, was that one heck of a hunt!

Some 75 different hams have participated in the Fox Hunts throughout the years. One hunt was won by the Fox when no one found him after 3 hours. During one hunt, I (fox) found Paul (hunter). That hunt and another were judged to be ties. Probably the best effort goes to John N2YHK, who started a hunt at White River Junction, yet still managed to be the first finder of yours truly, hidden in the park in my back yard!

The foxes have tried all sorts of sneaky stunts to keep the hunters off balance. In 15 of the hunts they hid out of vehicles. In several hunts, yagis and other strange antennas were used. In one of my favorite fox jobs, I roamed the University Mall, providing a moving target!

Contrary to popular belief, I don't win all of these contests. I don't hunt all that much since I've hid in 17 of the 40 hunts. In the remaining 23, I've won 16, placed 4 times, and finished way back 3 times. Bill N1IRO has been a strong force in the hunts, winning 5 of 20. Dan N1PEF, with and without partner N1UWT has won 4 out of 11.

Look for a tabular summary of **RANV** hunt results on the Web site coming soon. In the meantime, get your equipment ready for the next hunt!

# LINUX INTEREST GROUP MEETING

There seems to be more than a little bit of interest in the Linux computer operating system among club members. A few of our members are guite skilled at its use and a number of us have been dabbling. After some discussion with Bob KB1FRW we are going to have an "Linux-Installfest" at his QTH Saturday, November 15th or 22nd. The idea would be that each person bring his computer, monitor, keyboard and mouse and we will supply Ethernet cables and a switch to tie it all together and into Bob's broadband connection. We will spend a number of hours getting each system up and running on the Linux distribution of their choice and port over to each the available ham radio software. Anyone who is interested please contact Brian N1BQ, n1bq@wulfden.org or 899-4527.

# NEXT MEETING: "Wireless 2.4 GHZ LANs" Tuesday, November 11th, 7 PM O'Brien Civic Center

**RANV**P.O. Box 9392
South Burlington, Vt 05407

http://www.RANV.org