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St. Paul Radio Club Ground Wave

Jeff Iverson, WB9DAN, Editor
Dale Maroushek, NØPEY, Publisher

KØAGF

www.stpaulradioclub.org
Club Repeater: 145.310 MHz
114.8 kHz Tone
PO Box 9375
North St. Paul, MN 55109

NEWS AND NOTES FOR NOVEMBER 2019 — Volume 79, Issue 11

NEXT MEETING: FRIDAY NOVEMBER 1, 2019.

6:00 PM Board Meeting (all are welcome to attend)

7:00 PM Fellowship and Refreshments

7:30 PM Short Business Meeting with Program following.

Program

Our November program will feature Joe Hibberd, W3QLC on "Ham Radio and Stage Rallies." Joe has been licensed since 1984, first as KA8UYG, then N8FZN as a Tech. He obtained his current call sign, which was originally his father's, when vanity call signs were first issued in 1996.

Joe has been active in stage rallies since 1971. He has been a driver, co-driver, marshal, control captain, net control operator, radio chief, and radio operator.

Joe is a member of SEMARC, SARA, Washington County ARES, and is a VE. He retired in 2015 from Ramsey County after a career of 40 years in environmental public health.

All meetings are in the Commons meeting room in the John R Albers Center at Cretin-Derham Hall High School, 555 Hamline Ave. S., St. Paul MN 55116. From the intersection of Randolph Avenue and Hamline Avenue S., take Hamline southward for 3 blocks. The parking lot entrance is on the west side of Hamline Ave. opposite Watson St. The Albers Center building is about 400 feet west of the lot entrance—use the double-door entrance on the east side of the building.

The November meeting also features our At-Large board member elections. See one candidate's statement farther down in the Ground Wave.

Dale's Details by Dale Maroushek, NØPEY

Do you see that date? November already, two months until 2020. Remember Dec. 31st, 1999? When we sat by our radios ready to provide communications when the world failed because the computers calendars didn't have a 2 as the first digit. Well, maybe not that stupid, but almost.

Odd year November at SPRC means we elect our two at-large Board members. Therefore Orcy and Mike should be campaigning to be re-elected, if they want to continue in office. Nominations and volunteers are also accepted right up to the election process. Be sure to attend and cast your ballot for a Board member that will help propel SPRC into the next years.

The SPRC 10 meter Friendly Net and the 2 meter net are doing very well. Surprising turnout this week, 11 on 10 and 9 on 2. Take some time and put it on your calendar to sign in on Wednesday nights. We have fun and help with problems or interesting stuff.

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Need a last Hamfest to get you through the winter? Get a group together and a van, pack an overnight bag. After the meeting, load up and head to Milwaukee, stop along the way for a nap. Hit the fest early, then go over to Ham Radio Outlet (formerly AES) for some shopping. Back in the van and home for a long nap.

I do hope the guys at the Pitcairn Island Dexpedition are spending our contribution wisely. Please let the club know if you make a contact.

Radio wise, that's about it for now. The garage has been cleaned and sorted, with free stuff leaving off the curb at the end. I had the first fall fire to clear out the burnable branches and debris from the summer. I did the fall exchange from summer, snow blower up, tiller back, etc. Still need to do many more projects before the holiday.

Holiday? Thanksgiving! Food paradise! Traditional, ethnic, experimental or fusion is the question. I've been out on the Internet and finding some very interesting and functional time and equipment saving recipes. We usually serve about 20 but prepare for 30+, which means take home packages for all and they always get mixed up. Which means we end up with more or less of something (as do the others) than planned. After all these years, we know what the pallets of the crowd are happy with. We serve people from age 5 to 96. We should put the kids and great grandma together for fish sticks with mac and cheese. The teens would happy with sliders and fries, and the adults (although regulated by gastronomical ingestion regulation) would be happy with the usual menu. I try to introduce a new "item" each year, be it animal or vegetable. They were tried, win some and lose some. I loved Emeril back in the early seasons of the Food Network and I think I found a new southern method of making green beans that will "kick up" the usual hot dish with a big "BANG".

Winter Antenna by Scott Holisky NØAR

Winter is just around the corner (unless you live in Colorado!) and it might be time to think about an antenna for the season.

My back yard has just enough room for a 40 meter dipole. Anything more and it went beyond the property lines. So getting on 80 or 160 meters was always a compromise situation. One blustery Saturday I was out raking leaves and asked the neighbor if it would be okay to put up a temporary pole and a wire across his back yard to mine for the winter. The big 400 foot loop idea was forming. The other neighbor is a ham, he's not on the air much so it didn't take much arm twisting to secure another spot for a temporary support pole. I was set!

A couple of weeks later it was cold and raining, a perfect day to put it all up. In a week it would snow and no one would be back in their yards for months! The wire was run and the ladder line was brought into the shack. I was hooking up the tuner, heard a station in Europe calling CQ on 40 meters and not getting answers. So with the K2 at 5 watts I gave him a call and had a quick exchange! It sure looked like it was going to be a good winter for radio! I installed that loop every winter for years. The neighbors knew it would be down in early spring and it was an easy sell every year.

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About Christmas time a plate of cookies is a good reason to knock on the neighbors door and say thank you again. Let them know how well the wire is working for you.

With the lack of sunspots the best bands are our lowest frequency ones. If you don't have an antenna that works well, now is the perfect time to do a bit of out of the box thinking and find a way to improve it.

My go-to antenna wire has been the 17 gauge Aluminum electric fence wire. It's cheap and will hold up well if you don't try and hang the weight of large coax from it. Once in the air you can hardly see it. Fleet Farm sells it by the 1/4 mile spool. When you are done with that type antenna, just wind it up and drop it in the recycle or spool it up and use it again next year.

I didn't get to mention the long wire antennas that ran over the tops of trees in my yard and across the street to the neighbors. Next time. Oh and do use a static bleeding device on those!

Building Blocks – Jay Maher NJØM

Snow flurries in early October are the shot across the bow warning us to hurry up and get those outdoor projects wrapped up. There is always just too much to do this time of year. Eventually winter puts a clamp on our ambitions and leaves us with a bit more time for hobby activities. I have a backlog of projects for the bench that I am excited to finish so in one sense I would welcome the cold. Unfortunately, my basement is mired in the long process of being reorganized into a more usable Version 20.0 and is still buried in chaos. How do we accumulate all this? Are we not listening to NØPEY's advice and divesting or at least planning to do so?

I have been divesting (a bit), but mostly reorganizing. One of the products of decades of collecting electronic and mechanical parts and gizmos is that things get spread out over different locations and storage schemes. This is even more of a danger if you happen to acquire other people's parts collections and add them to your own. I can't tell you the number of the little parts drawer units I have except to say it is too many to manage. As I try to consolidate the collection, I have moved some of it to a more compact system you might want to consider. I picked up a few boxes of small coin envelopes at a sale a while back. The ones I bought are plain kraft envelopes about 3.5" x 5.5" but other sizes are available. If you try this out, shop around as the prices vary widely. Mine fit in boxes made for 4x6 index cards or something similar. I found an inexpensive option was a media storage box at Ikea (the Fjalla, 3.99) which fits nicely on a shelf. Index card dividers inside can help organize the envelopes (see picture). This system works well for leaded components where you'd like to keep them separated but don't want to devote a whole drawer to a few loose parts. The opaque envelopes and filing can slow you down in assessing what you have on hand but perhaps a running total could be noted on the outside of the envelope. If you'd rather see your parts in these boxes, I've also used ziplock sandwich bags with a 4x6 notecard inside for support. They seemed a bit flimsy to me since they were just 1.5 mil thick but YMMV. I

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picked up some 4x6 ziplocks in 4 mil thickness from CML Supply and they are much more substantial. I have purchased CML's small ziplocks (2x3 and 3x3) in the past and they are great for retaining small quantities of hardware and not losing them to the paw through "assorted" drawer. Incidentally, they are a good supplier of solder paste and supplies for surface mount work. Some things (like ICs) don't lend themselves to being kept in envelopes and so the small drawers won't go away. When I get carried away with stuffing a drawer, I find the addition of a bit of stiff thin cardboard (think milk carton or pizza box) keeps the drawer from getting hung up (see picture). Cut it to fit inside the drawer and overlong so a short bit can be folded down inside the front of the drawer. A nice, substantial paper cutter is very handy in the shop and can be bought used for very little. I use the one pictured for cutting up copper clad pc board and making little copper clad squares and strips for Manhattan construction as well.



One last comment in case it hasn't come to your attention. Yahoo Groups is essentially shutting down in mid-December and deleting content. Many groups are migrating to another location such as groups.io. I know EMRFD is in the process and the Softrock group moved long ago. I doubt there are any of you out there with any unfinished projects (ahem) but if you are relying on any Yahoo files in various groups, you might want to have a look.

Candidate Prospectus by Benjamin John Otto KE0RFZ

It has been brought to my attention that the club will be holding an election for the 'director at large' board position.

I would like to submit my application to the club for consideration, and with that in mind, I'd also like to offer a few details about myself and my interest in amateur radio.

In 2017 I became a technician and in the following 2 years I earned my general and extra upgrades. My FCC grant is only a couple years old, but my interest in electronics has been lifelong. As a youngster I recall not having toys as neighboring kids had, but instead used telephones, coffeemakers, radios, wire, extension cords and any CE I could find that my mother would permit me to obtain from Goodwill.

I consider it great fortune I was able to parlay my insatiable interest in electronics into a viable career. I am employed in the low voltage industry where on any given day I'm

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working on CCTV, audio/video, voice, data, alarms and other interesting things.

Some of my other interests include history, politics and music.

As a younger ham I believe I could provide a fresh perspective to the Saint Paul Radio Club. I have been involved with the auction and field day. As an engaged member I feel a vested interest in promoting and building the club from within and from outside with growth.

In that interest, I'm willing to volunteer the personal time the position and the club requires. Thanks for considering me and until we next meet, 73!

Editor's Notes by Jeff Iverson, WB9DAN

First of all, I would like to thank everyone who did not show interest in the SB-200 I advertised last month. After extolling its virtues, I decided I would rather keep it and I was saved the embarrassment of telling an interested buyer that I really didn't want to sell it after all. Here are some of the reasons: I know who built it - I did. Back in Hudson in the 1970s another ham in town decided he wanted one, but didn't want to build it. So he purchased it and paid me a fee to build it. Fast-forward 25 years or so and I contacted him and asked if he still had it. He said no, he was no longer active and had given it to another ham. I contacted that ham and asked if he wanted to sell it. He said no, but was interested in trading if I had something he might want. I offered a 10 foot section of Rohn 25g and he said that would be fine. So I don't have a lot invested in it. Adding about \$200 and some time for the Harbach mods and I would have a 600 watt amplifier that should last a long time. 600 watts will give me about $(10 \log 600/100 = 7.78 \text{ db})$ of signal gain. [Going from 600 watts to the legal limit only adds $(10 \log 1500/600 = 3.98 \text{ db})$ of additional gain.] Additionally, I found out that the spare pair of Svetlana 572b's sell for about \$150, so I was asking not near enough for the package.

The tree trimmers have come and gone, so I got my 80 meter OCFD back up for the winter. It tunes on 80, 40, 20, and 17 meters with the rig's built-in tuner.

Speaking of 80 meters, I would appreciate a schedule sometime with folks around town. I just cannot hear the Friendly Net guys on 10 meters. I would like to see how 80 works. Send me an email. I am home all day most days of the week.

In my time off the air I have been doing some computer playing. The first is with Ubuntu, a "flavor" of the Linux operating system. It's been a while since I played with Linux and it has come a long way.

The second thing has been a product from Oracle called "VirtualBox." The product is free and it allows you to create a virtual machine on your desktop in which you can run different operating systems. I have a Windows XP "guest" on my Windows 10 "host"

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that allows me to run some older 32-bit software that does not run on 64-bit Windows 10.

Special thanks to Ralph Bierbaum, N0AWN, who obtained permission to reprint the QST article on antennas.

73, Jeff, WB9DAN (jaiverson@juno.com)

Can you contribute to the Ground Wave?

It's nice to have the "regulars," but it would be even nicer to include tales, advice and whatnot from other St Paul Radio Club members (or non-members!).

Please write your contribution in a Microsoft Word (.docx) or LibreOffice Writer (.odt) document and send it as an email attachment. (Copying text from the body of an email does not always work so well).

**Send your contributions to
jaiverson@juno.com**



**Look for our group:
"St. Paul Radio Club"**

CDH is Tobacco-Free

Cretin-Derham Hall is a tobacco-free school. Tobacco includes any kind or form of tobacco, nicotine products, e-cigarettes, cigarettes, cigars, chew, snuff, plugs, etc., prepared in such manner as to be suitable for chewing or smoking in a pipe or other tobacco-related devices.

Remember that Ground Wave want-ads are free to members. Please send them 2 weeks prior to the meeting so that we can work out the wording, layout, etc.

**Send your ads to
jaiverson@juno.com**



By Van Field, W2OQI

HF Antennas 101

Here are 10 tips and truisms that every ham should know.



1. An antenna does *not* have to be resonant to work. The only reason to make an antenna resonant is to eliminate the need for an impedance-matching device such as an *antenna tuner*. Actually, a non-resonant wire dipole antenna fed with open-wire line and an antenna tuner is a great multiband antenna. See the article "The Classic Multiband Dipole Antenna" by WB8IMY in the March 2004 *QST*.

2. Two wires are needed to power a lamp. The same is true of your antenna. The best antenna configuration calls for feeding energy from the transmitter to a balanced antenna, such as a dipole. If you can do this with a balanced, parallel-wire feed line, so much the better. However, many of us choose coaxial cable for convenience sake. The problem with coaxial cable is that it is not a balanced two-wire feed line. In fact, coaxial cable can be said to consist of *three* wires: the center conductor, the outside of the shield and the inside of the shield. RF travels on the surface of a conductor. In a parallel wire arrangement (such as ladder line), there is a balanced RF field between the two conductors. But with coax, the field is between the center conductor and the inside of the shield. This leaves outer surface of the shield braid free to get into trouble. Since it is connected to one side of the antenna, the outer braid becomes part of the antenna and the result can be RF feeding back to your station (see W2DU's excellent book, *Reflections II*). This is the reason some hams prefer to use a 1:1 balun (*balanced-to-unbalanced transformer*) at the center of the dipole to isolate the unbalanced coaxial feed line.

3. Antenna "gain" is derived by shaping and aiming RF where you want it to go. For example, so-called "beam" antennas get their name from the fact that they concentrate RF energy in a particular direction, like a flashlight. Other types of antennas, including wire antennas, can exhibit "shaped" radiation patterns (and therefore gain) as well. Take a look at the latest edition of *The ARRL Antenna Book* and you'll see what I mean.

4. The function of an antenna tuner is to effect a match between the output of a transceiver and the input of an antenna system. Modern transceivers can only deliver full power into a 50 Ω load. Antenna tuners are variable-impedance transformers that allow you to transform the antenna system impedance (which can be almost anything) to 50 Ω for the transceiver. Some antenna tuners exhibit a wide impedance-matching range. Others, such as the ones typically built into HF transceivers, have quite narrow ranges.

5. A wire antenna doesn't always have to be center fed. For instance, you can feed a long wire at the end with a two-

wire feed line. Connect one conductor of the feed line, but not the other. You'll need an antenna tuner at the other end of the feed line to provide a 50 Ω impedance for your radio. This type of antenna used to be called an end-fed Zepp. To work well, however, the ground side of the antenna tuner needs to be connected to a network of radial wires, or a counterpoise.

Another old-time antenna is an off-center-fed dipole, called a Window way back when. Cut a wire a half wavelength long, find the center and connect a single wire 14% off center. This also requires a counterpoise for good results. The impedance is about 600 Ω , so you'll definitely need an antenna tuner.

6. A dipole antenna does not have to be perfectly horizontal. That's the way it is usually depicted in books and magazines, but you can bend the legs of the antenna up, down or sideways. The antenna can also be on an incline, or even vertical. The shape of the antenna and its height above ground will affect its impedance at the feed point, so you may need to experiment to obtain a low SWR, if you are feeding it with coax.

7. Vertical antennas shorter than a half wavelength need a ground system. This usually takes the form of radial wires, either elevated or buried. Beware of short vertical antennas that claim to operate without radials. These designs tend to be inefficient. Yes, they "work" in the sense that they radiate some RF, but you'll enjoy much better performance with a good radial system.

8. With vertical antennas there is no such thing as too many radials. The more radials you install, the more efficient your antenna system. Yes, you can reach a point where the benefits of adding more radials levels off, but that number is somewhere around 100!

9. Having a 1:1 SWR does *not* mean you have a good antenna. A 1:1 SWR only means that you have an impedance match between your transceiver and your antenna system. It says nothing about how well your antenna is working. For example, a vertical antenna with a poor ground system can be tuned to the point where you'll measure a 1:1 SWR at your station, but the antenna is so inefficient, most of the RF is being wasted as heat!

10. Always use the best feed line you can afford. Resist the urge to be penny wise and pound foolish. This is particularly true of coax. Better (less lossy) coax will cost more, but this is the cable that is carrying your precious RF signal to and from your antenna. A good investment now will pay off in better antenna system performance.

You can contact the author at 17 Inwood Rd, Center Moriches, NY 11934-3335; w2oqi@optonline.net.

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St. Paul Radio Club, Inc.
 PO Box 9375
 North St. Paul, MN 55109

ADDRESS CORRECTION REQUESTED

SPRC Calendar

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| Fri Nov 1 | 6PM SPRC Board meeting, Commons Meeting Room, John R. Albers Center, Cretin-Derham Hall High School. * |
| Fri Nov 1 | 7PM Socializing followed by 7:30 PM SPRC Membership meeting. Commons Meeting Room, John R. Albers Center, Cretin-Derham Hall High School. See Page 1. |
| Sat Nov 2 | 10AM VE testing. Sun Ray Library, 2105 Wilson Ave., St. Paul. Contact Leon Dill, WØCOE@arrl.net or 651-425-0338. |
| Sat Nov 16 | 9AM SPRC Breakfast. Denny's, 1664 University Ave, west of Snelling. |
| Fri Dec 6 | 6PM SPRC Board meeting, Commons Meeting Room, John R. Albers Center, Cretin-Derham Hall High School. * |
| Fri Dec 6 | 7PM Socializing followed by 7:30 PM SPRC Membership meeting and Holiday Party. Commons Meeting Room, John R. Albers Center, Cretin-Derham Hall High School. |
| Sat Dec 7 | 10AM VE testing. Sun Ray Library, 2105 Wilson Ave., St. Paul. Contact Leon Dill, WØCOE@arrl.net or 651-425-0338. |
| Sat Dec 17 | 9AM SPRC Breakfast. Denny's, 1664 University Ave, west of Snelling. |

* Depending on business to be considered, Board Meetings are sometimes held electronically. Check with a Board member beforehand to confirm a meeting.