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# St. Paul Radio Club Ground Wave

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## KØAGF

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

## NEWS AND NOTES FOR SEPTEMBER 2017 — Volume 77, Issue 9

### Monthly Meeting

September 8, 2017  
UST OWS LL54  
7:00 pm Socializing  
Membership Meeting 7:30 pm

### PROGRAM

### The DX Engineering Story

Our September program will be a presentation of "The DX Engineering Story" via a Skype call with DX Engineering.

DX Engineering is an Ohio manufacturing and marketing company that specializes in products for Amateur Radio. Their staff includes more than a dozen active hams.

### Exposing Young People to Ham Radio Allan Klein, WØNLY

We need to find ways to get young people interested in becoming hams. Here is one idea--but does it make sense for us to try it? What do you think?

We were recently contacted by Gina Jacobson, who works for a non-profit operation called "Success Beyond the Classroom." SBC sponsors a three-day program, called "Creativity Festival," in January for kids in the 3<sup>rd</sup> – 5<sup>th</sup> grades. Their ages would be around 8 – 10 years

*(Young People, Continued on page 2)*

### Field Day 2017

The Mining Amateur Radio Club  
FIELD DAY  
at the park formerly known as "Tartan"  
23, 24, 25 June 2017



Photo post card courtesy of Tim Burd, WD9IGX

St Paul Radio Club and Mining Amateur Radio Club members participated in ARRL Field Day at "The Park Formerly Known as Tartan" for, probably, the last time. Ed Jacobson (WBØVHF) brought his newer motor home to house the CW station. A good time was had by all with very little unpleasant weather. Although we didn't have the full-club picnic, Dale Maroushek (NØPEY) and George Power (KØGCP) kept the operators and other volunteers fed with a little help from their friends. See stats on page 5.

The OWS building is located on the University of St. Thomas (UST) South Campus.

From I-94, take Cretin Ave south about a mile to Grand Ave. Turn right, then park in the ramp on your left or the surface lot on the right. In general, on-campus parking restrictions are not enforced after 6:00 p.m. on Fridays, but do not park in spots with parking meters unless paying or displaying a handicapped placard.

Enter the building just north of

the parking ramp and take the elevator (in the hallway to the right) or stairs to the lower level. LL54 is not far from the stairs.

For detailed maps, see [www.stthomas.edu/campusmaps](http://www.stthomas.edu/campusmaps).

OWS: Owens Science Hall

Contact Kim Schumann in Disability Services at 651-962-6315 or [kjschumann@stthomas.edu](mailto:kjschumann@stthomas.edu) for any accessibility requests.

*(Young People, continued from page 1)*

old. Gina's father was a ham. She wondered if we would be interested in demonstrating something about ham radio at this year's Festival. Here is what she wrote:

The festival is held at the University of Minnesota each year in the Ted Mann Concert Hall and adjoining spaces. The focus of the festival is creative thinking and doing. Each year, we put together a roster of professional people from the arts and sciences to work with our young students. Kids learn about different careers and are encouraged to consider the importance of creative thinking. We stress that it is a skill that is vital in all professions and in all that you do, no matter your age or interests.

If your group is able to join us, the dates for this year's festival are January 9 – 11, 2018 (Tuesday, Wednesday, Thursday). The time commitment is roughly 10 a.m. to 1:35 p.m.

Your group would be responsible to lead three 55-minute sessions each day – same session content for every session/every day as the group of students varies each session and each day. Typically we have 1500+ students from 60+ schools join us over the three days and they are curious, energetic, and quite open to learning new things!

## UST Tobacco-Free

UST's St. Paul and Minneapolis campuses are tobacco free.

In the St. Thomas policy, "tobacco" is defined as any lighted cigarette, cigar, pipe, clove cigarette, hookah smoked products, electronic cigarettes and any other smoking product, as well as smokeless or spit tobacco, also known as kip, chew or snus. Promotion, sale and distribution of tobacco products and merchandise, including any items carrying tobacco logos, also are prohibited on the campuses or at any university-sponsored events.

I'd love to brainstorm with you about ideas for session content. As we discussed, we'd like the 55 minutes to include some background info about you (and others), how you got interested in radios, the importance of the technology, etc., and then a whole lot of time each session in hands-on activities of some kind. I do have some funds for supplies.

There are about 30 kids in each group, and we would "teach" 3 groups per day. One big question, in my mind, is what could we do with 30 kids in 55 minutes that would plant a seed about the fun of ham radio.

We already have a 10-minute ARRL video about how hams volunteered to help in a wildfire situation – it's the one narrated by Walter Cronkite. It is professionally produced and pretty dramatic. It provides a good introduction to ham radio.

Hands-on is certainly one of the best teaching methods, especially for young kids. What about having the kids build something? Assuming there would be just one or two of us adults, and 30 kids, I don't think we could have them solder anything. It would be too dangerous. But we could have them build something using solderless methods, like connecting things with Fahnestock clips or even alligator clips. What could they build? Remember, we are talking about 30 kids per session, 3 sessions per day, and a total of 3 days. That would be  $30 \times 3 \times 3 = 270$  kids in total!

We could have them build a "Blinky" sort of thing that had a battery, an LED, and some sort of timing device that would turn the LED on and off. Could we have a resistor-capacitor circuit that determined how often the LED blinked? Could we use a variable resistor to let them vary the frequency of the blinking?

Or, we could have them build a simple circuit with a crude "key" that lit

up a LED instead of a loudspeaker when the key was depressed. That could lead into a demonstration of Morse Code.

But 270 of either of these projects? That is really too many for us to partially assemble in advance. If you figure the cost of a battery, battery holder, LED, and switching mechanism, that has to be at least \$3.00 per kid. Times 270 kids, the cost would be \$810. That's way too much for us to spend on kids this young.

We could demonstrate a ham station in operation. We could set up a station and operate it, either on HF (like 40 meters), or on VHF. 2 meters would certainly be reliable, but is it interesting enough to just talk with a nearby ham? Could we use one of those "link" services to connect with a ham in a more distant location? The beauty of 40 meters is that we could talk with someone far away, at least in a different state. We could have each of the kids talk into the mike and ask a question of the ham on the other end of the QSO. It would take a little effort to set up a transceiver and an antenna, but it wouldn't be impossible.

What else could we do? Are any of these ideas good enough to justify the time and effort? What do you think? Please respond with your thoughts, and also whether you might be available to help on January 9, 10 and/or 11 in the middle of the day, at the U of M in Minneapolis. Please send your responses to [allankmn@cs.com](mailto:allankmn@cs.com).

## FACEBOOK USER?

Look for our group:

"St. Paul Radio Club"

## Presidential Ponderings

Since my move, I have very little ham related stuff happening—I have no HF antennas and my 2m/440 base cannot get into the SPRC repeater unless propagation surprises me. I'm still looking for other options.

I've only been up any towers a couple times this summer.

I did help out a little on the rowing regatta at the start position, but had very little to do. Most traffic was on their "primary" radios; in the past the rented radios just did not do much for them, making the hams helping look very good.

The awards dinner catered at the parks pavilion was very good. It was a good time--just if there was more to do at the start position time would have flown by ;)

Also got a package from the ARRL for the tailgater we are putting on at Bob's (KØIKV), including band chart, etc., handouts and three ARRL store coupons to be given away--two \$25 and one \$50.

Again we're looking for a few hands to set up and take down the tables. Bob will handle the refreshments.

See you Friday as we begin the next season of meetings to get us through the winter .

73 de John, KDØCAC

### **Looking for contributions 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!).**

**Send your contributions to WA6ZMT@ARRL.net**

## Dale's Details

### Dale Maroushek, NØPEY

That was a fast break between meetings wasn't it? Just four months ago it was May which brought me the Memorial Day RV/new boat trip out to Spicer, Minnesota. My son Kirk (NØQND) picked up a used family activity boat so we had faster and more convenient water transportation. Great fun skipping over the waves quickly, but it didn't help our fishing record at all. Kids three, adults zero.

I'm hoping that our record of something going wrong during vacations every year has been fulfilled. Although the boat was well taken care of and serviced by Pro shops, somehow the trailer bearings were overlooked to the point of total destruction, with the brakes close behind. Secondly, WE neglected to check the tire pressures, and found the inside right rear had a valve extension problem, and was out of air since... we're not sure. Duh!

June was all Field Day, much smaller now and very repetitive, but still a challenge that is hard work and fun all in one. Our FD gear is stored at my place and in Dallas' (NØLKD) garage--easy to grab and go. Since "The Park Formerly Known as Tartan" and the old trailer home are gone, Mining's gear is stored in Isanti at Joe's (NØJOL) farm. So I got Jonathan (KØCAR) to loan us his trailer a week early. A group went up the weekend before and retrieved the needed gear into the trailer which then waited until the next Friday to be loaded with my gear and food to make the run out to Lake Elmo.

The small rain storm on Saturday was uneventful and the rest of the weekend was fine weather. Scoring was up on CW and down on SSB, normal on VHF and GOTA. The first FD for Ed's (WBØVHF) new 43-foot land yacht was great, until Murphy checked in at the end. Seems the

driver's chair swivels all the way around and was set that way for the weekend. When they tried to electrically turn it back, nothing happened. After about an hour, the problem was found, a power wire was a bit too short and had become disconnected as the seat swiveled. Quick fix once found by the crack(ed) squad of Hams.

Sadly for me, my 93 year mother had a stroke but has recovered well since. She is now a walking 94 year old at the Ramsey County Nursing Home here in Maplewood. Currently she needs full care, but if/when she is able, she may move in with my sister in Vancouver, WA. The Hastings home is being slowly cleared and will be up for sale soon. What to do with the flower gardens is still a question. This is my new full time job now.

I understand many of the members were busy with Public Service work with the MS bike runs and other events they volunteered for. I know George (NØGCP) was been all over playing radio support for many groups. Ask him, he will tell you.

August was another Regatta on Lake Elmo. A MARC event, this was a four-year rotating event that is now going to be a two-year rotation, so we can plan on doing it again in 2019. When the weather is nice, this is a super event to get involved with. I helped with the first one, missed the second, and really worked this one, with six shifts at two hours each over the two days plus the banquet shuttle run. In a (large) nutshell, there are over 100 races in shells (\$20 to \$100K+) that hold one, two, four or eight rowers (teens to adults, mostly females) in 400-Meter sprints and 1000-Meter and 2000-Meter races with usually four to six boats in each race. The race has their own radio network, and the hams have a VHF simplex net and a D-Star digital net for race results. We support four positions, Control Command (the interface between us and them), Results (the RV located inter-

*(Details continued on page 4)*

*(Details, Continued from page 3)*

face where the race results are logged and posted by them), Start boat and Finish boat (the fun spots).

I have never worked the Start boat, but unless a problem above the race official's capabilities occurs, we just announce the start of each race on our net with race number and distance, if available. The Finish boat we man is only at the 2000 Meter line, the 1000 M and 400 M races require that finish boat to move and they send their results via photos on the Internet.

Their referees, a team of three or more helpers, man these positions for six+ hour shifts. The pontoon has a small Bimini top but sun screen and skin cover are high on the list of things to bring. Rain gear too--they race until lightning or wind/waves force a stop. The job is to maintain communications with the VHF net and coordinate the race results via the D-Star net on the computer. The Refs hand you the results in some format and you enter them into a small notepad form which is then transmitted to Results. Now that the nutshell is the size of an ugly fruit, let's move on.

So we have this eclipse coming up, as I'm writing now. First total one in a long time and seven years before the next one. My son Kirk is also a telescope guy so we started planning this RV trip back in Feb. I suggested a viewing site in Nebraska, open land and clear skies. Outvoted, I designed a trip to the longest total coverage, two minutes forty seconds, in Hopkinsville, Kentucky. I did some research and found that they were extending a festival through the eclipse on Monday, and that "spaces" for viewing were rentable for fifty dollars on up. Our camping reservations are on the west side near Benton, Kentucky, Sunday night, and Clarksville, Tennessee, Monday night. All this is in the totality area but not quite at the center.

I'll admit right now that my old credo of the six Ps was not followed. Prior Planning Prevents Piss Poor Performance. According to the latest online news estimates and talking to the Clarksville Park, between 100K and 300K people will be in this 100-mile area for viewing. Traffic will be a nightmare at times-- taking in Hopkinsville is out of the question, as I see it now.

Then I missed the traveling extension factor and 40<sup>th</sup> anniversary of Elvis' death. We planned for nearby visits in the area...so must have others...so the lines may be long. The Elvis anniversary totally forgotten but we will see what happens, we have a whole day in Memphis so we should be good.

Then we have the return run, many miles and time to cover without many side lines. Will the RV hold together? Will the ladies finally learn that not all the food has to be brought from home in the small fridge? Will we check tire pressures daily? Clothes do not have to change daily and can be rotated since no one who saw you in Kentucky will see you in Mississippi, etc. To be continued...

August 27<sup>th</sup>, after the eclipse!

Since this is getting too long, I'll only talk about the eclipse itself. Fearing the worst of crowds and traffic, we worked a deal with the Benton Park to stay there until afterwards. They say it will take about 90 minutes from beginning to end. That make for a slow wait, but it creeps over the sun as we watch through our #14 welding glass. The slowness causes you to start noticing what nature is doing as the light diminishes. At about 50 to 60 percent coverage, you can tell it is dimmer and looks like dusk is coming. The cicadas, that bug that sings from the trees at dusk and dawn but is quiet in light or dark, reacted to the change. With 95 percent coverage the noise grew fast, at totality it stopped and restarted as the moon moved off the path and

stopped again at semi-full light. Note, it is not totally dark-dark at totality, but like when heavy weather rolls in on you. Some of the pets in attendance did the howling thing and some whimpering until it passed. Eerie is the good word, scary for others, and fantastic all around. We had a beautiful Kentucky day, 85 degrees and sunny with 70% humidity, clear skies with clouds to the east. Taking pictures without special gear doesn't give you great results, so Google those and enjoy. We finished packing up and drove on toward Clarksville, Tennessee, to face the congested highways.

Now I'm not sure who or what authority figure predicted all this traffic and congestion, but let me say tax dollars were heavily spent in preparation. Starting in mid-state Illinois, the portable warning signs warned you of possible backups and slow traffic. We were told Kentucky was to have one Trooper every five miles on main totality roadway. They did, we drove by them sitting in twos or threes in the crossovers talking about what didn't happen. Using Google Maps, the only red lines were showing heavy traffic leaving Hopkinsville to the north. Hopefully, in 2024 when the next one comes, they will remember.

It was a great trip back without incidents, and will be covered in the months to come. It's fun to be back where the corn and beans are still green in the field and not brown and dry. Interesting to see what changes when you go 800 miles south.

Update on Mother—she is getting better and feisty, wants to go home with someone soon, but her mind isn't all connected yet.

Dale, NØPEY



## Building Blocks Jay Maher, NJØM

I needed something from the East Bank UMN Science and Engineering Library early this summer and took the opportunity to walk through the radio and communications aisles. *Crystal Clear: The Struggle for Reliable Communications Technology in World War II* by Richard J. Thompson, Jr. caught my eye. First glance gave the impression this IEEE Press book would be as dry as quartz dust but it was nearly 8 p.m. and Circulation was about to close so I added it to my pile.

Who knew the adoption of crystal oscillators by the military was such a massive undertaking and such a risk? The Signal Corps was still leaning toward wired field phones in the late 30s and hesitant to adopt fixed channel radios for a variety of reasons. With a limited number of channels could they be easily jammed? Could enough radios be produced? The Armored Forces were pushing the Signal Corps in the crystal direction though, and tests with police radios from Link and Paul Galvin (Motorola) with the added advantages of FM technology proved their suitability for vehicular operation. With the support of the Air Corps, the direction was clear and the Signal Corps was charged with making it work. It would not be an easy task. Hams and broadcast stations were already on board with crystals, but the manufacturing base was extremely small, having produced only a few hundred thousand of them in the years before 1941. Most were small operations and often started as part-time or basement workshops. Supply of raw material was an issue since the only significant source came from mines in Brazil. How would they keep that flowing in wartime? As the radios were deployed to the field (particularly in hot humid areas) an "aging" problem arose, where crystals would drift in frequency. All of

these problems were solved by an extremely open and cooperative industry and government effort described as second only to the Manhattan Project. By the end of the war the crystal industry had produced around 71 million units. The radios on which they were based proved to be a significant advantage in the war.

Who knew? Well the more experienced SPRC members were probably

aware of all that. If not, or you want to dive a bit deeper, it is a worthwhile read. The book is a little spendy on Amazon so I'd recommend trying inter-library loan if you are interested. If you want to get a taste of it, Thompson wrote an article for QST ("...And We Had Crystals," January 2004) which was a precursor for the book that came out in 2007.

### ARRL Field Day Entry Form

Call Used: W0MR, GOTA Station Call: K0AGF, ARRL/RAC Section: MN, Class: 2A  
 Participants: 34 Club/Group Name: Mining ARC and St Paul RC  
 Power Source(s): Generator, Solar  
 Power Multiplier: 2X

#### Bonus Points:

100% Emergency power	200
Public Location	100
W1AW Field Day Message	100
Natural power QSOs completed	100
Site Visit by invited elected official	100
Youth participation	20
Youth operators=1	
Youth participants=1	
GOTA Bonus	40
Submitted via the Web	50
Educational activity	100
Social media	100
Total Bonus Points	910

#### Score Summary:

	CW	Digital	Phone	Total	
Total QSOs	844	0	579		
Total Points	1688	0	579	2267	Claimed Score = 4,534

#### Band/Mode QSO Breakdown:

Band/Mode	CW		Digital		Phone	
	QSOs	Pwr(W)	QSOs	Pwr(W)	QSOs	Pwr(W)
160m						
80m	7	150			43	150
40m	292	150			78	150
20m	413	150			281	150
15m	91	150			17	150
10m	41	150			21	150
6m					77	150
2m					4	150
1.25					1	150
Other						
Satellite						
GOTA					57	150
TOTAL	844		0		579	

#### GOTA Bonus: GOTA Coach - Double Bonus Points

Name/Call	QSOs	Bonus Points
Leon Dill, W0COE	30	40
Pam Burke, KD9DIY	6	0
Mikhail Titov, N0MLT	6	0
Arek Hojka, SQ2NIE	10	0
Tom Burke, (NONE)	5	0



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

## ADDRESS CORRECTION REQUESTED

- Sat Sept 2 10AM VE testing. Ramsey County Library, 3025 Southlawn Dr., Maplewood. Contact Leon Dill, WØCOE@arrl.net or 651-688-9964
- Fri Sept 8 7PM Socializing followed by 7:30 PM SPRC Membership meeting. UST classroom OWS LL-54. See Page 1.
- Sat Sept 9 9AM Circuit Builders. OSS 415 UST Campus\*
- Sat Sept 9 9AM – NOON Rush City Radio Rendezvous, Rush City High School, Rush City MN
- Fri Sept 15 7PM SPRC Board meeting, OSS 121 UST campus (Alternate location is OSS 415) \*\*
- Sat Sept 16 9AM SPRC Breakfast. Midway Perkins on University Ave east of Snelling.
- Sat Sept 16 After Breakfast. Circuit Builders. OSS 415 UST Campus\*
- Sat Sept 16 8AM-NOON Lake Elmo Tailgate Swapfest, 8247 27<sup>th</sup> St N. Lake Elmo, MN 55042
- Sat Sept 23 9AM Circuit Builders. OSS 415 UST Campus\*
- Sat Sept 30 9AM Circuit Builders. OSS 415 UST Campus\*
- Fri Oct 6 7PM Socializing followed by 7:30 PM SPRC Membership meeting. UST classroom OWS LL-54.
- Sat Oct 7 10AM VE testing. Ramsey County Library, 3025 Southlawn Dr., Maplewood. Contact Leon Dill, WØCOE@arrl.net or 651-688-9964
- Sat Oct 7 9AM Circuit Builders. OSS 415 UST Campus\*
- Sat Oct 7 7AM-Noon TCFM Club Tailgate Swapfest, West Medicine Lake Community Center, 1705 Forestview Lane, Plymouth, MN 55441
- Fri Oct 13 7PM SPRC Board meeting, OSS 121 UST campus (Alternate location is OSS 415) \*\*
- Sat Oct 14 9AM Circuit Builders. OSS 415 UST Campus\*
- Sat Oct 21 9AM SPRC Breakfast. Midway Perkins on University Ave east of Snelling.
- Sat Oct 21 After Breakfast. Circuit Builders. OSS 415 UST Campus\*
- Sat Oct 28 9AM Circuit Builders. OSS 415 UST Campus\*

\*Circuit Builders is each Saturday morning if someone is available to open the lab and there is no conflicting activity. Check the SPRCCB Google Group to confirm that the lab will be open.

\*\* Depending on business to be considered, Board Meetings are sometimes held electronically. Check with an officer or board member to confirm that the meeting will be at UST.