TCDXA
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Minnesota

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Inside this issue:

Gray Line Staff

KØAD
KØIEA
KØJUH
WØBV

The Year of 53 Weeks
WØGJ Moves to Iowa

by Glenn Johnson, WØGJ

Having lived in northern Minnesota for 25 years, moving to another state for a job change should be a fairly simple thing to do….unless one has an antenna farm.

Back in 1989 when we moved to Bemidji, MN, I initially had a single tower. We built a home and a tower was part of the "antenna allowance" in the building financing. It was a Rohn 55G with a rotating base at 90 feet and two stacked TH7s and a 3-el 40m beam at the top (150 ft), or about 170 ft above the lake we lived on.

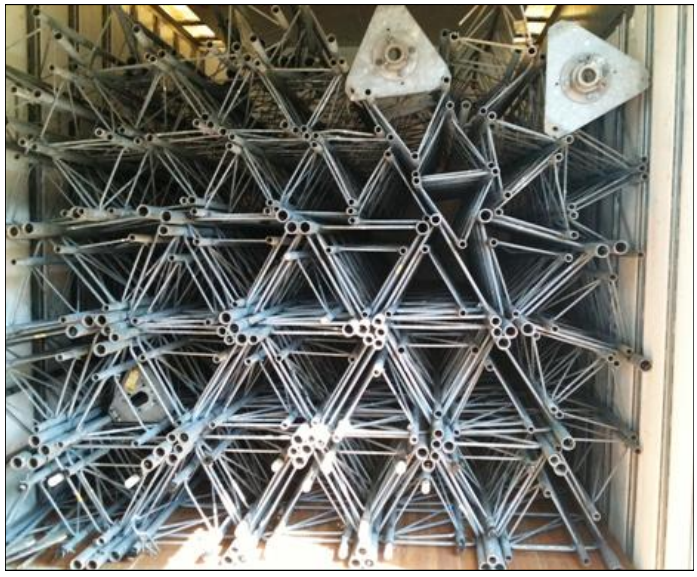
When a Minnesota-based ham radio dealer went out of business a few years later, the TH7s were replaced with a pair of 20m monobanders, and 15m &

10m monobanders. A new 4-el 40m was put on a separate 140 ft tower. The two TH7s were put on a separate rotating Rohn 25G tower, spaced for maximum gain on 15m. A single 160m vertical (Rohn 25) and three 4-squares (80, 40 & 30m) were added. And, some smaller towers with a single TH7 and 6m beams. Yes, there was some haphazard planning, but things seemed to come together for a contest/DX station.

The shack for many years was a pair of Icom 756 Pro IIs and various amplifiers.

A few years ago in Visalia, I heard a talk by Tom Taormina, **K5RC** titled "***Is 3 dB Worth a Divorce?"*** This summer, Tom completed the **W7RN** Comstock Memorial Station (www.w7rn.com), a project over six years in the building. It includes 3/3 80m Yagis! There was a lot of common sense in Tom's talk about getting the most out of relatively simple improvements, where the point of diminishing returns begins to limit practicality.

I started working in Decorah, IA in early 2010, working part-time and commuting to/from Bemidji, MN every 2-3 weeks. We decided to make the move permanent when we had an empty nest. And, as retirement approached, we wanted to down-size things. During the commutes, I had a lot of time to think about planning a new QTH. We wanted a "good location" as every ham dreams of, but these are hard to find. For two years, we looked and found nothing available.



910 feet of tower in the moving van.

One day, the retiring administrator of the clinic I worked for dropped by my office and asked if I was still looking for a place. He and his wife had decided to sell and move to another state when he retired a couple of years hence. I went out to visit the site and couldn't believe what I saw. They lived in the middle of 68 acres on top of the tallest hill in the area, with a commanding 360 degree view.

The Decorah area of NE Iowa is quite hilly and is the so-called "driftless area." The last glacial flow went around this area and didn't smooth it off. Also, "the hill" is on the rim of a giant 3.1 mile diameter meteor crater!

The house is a 2007 ranch style, with everything we need on one level; perfect for when we get old and need wheelchairs. There is a walkout lower level with spare bedrooms; perfect for guest ops!

We identified with the parable in the Bible, where the man finds the perfect treasure in a field, and he sells everything he has to buy the field it's in. Matt 13:44-46.

We took possession at the end of July 2012. In mid-August 2012, **KC1XX** and crew were in Minnesota, and we spent almost three days taking down all of the antennas & towers in Bemidji. During the third week of August, the moving van packed up things and we made the move from the Dakota Division to the Midwest Division. I was fortunate to have a ham in the Bemidji area willing to buy anything I wanted to part with. He took all of the HF antennas, except for my favorite M2 4-el 40m and 4-el SteppIR (20-6m) Yagis.

During two years of planning, my goals were:

1. Have a competitive contest/DX station.
2. Keep it simple.
3. Get that extra 3 dB (or so) without a divorce.
4. This is my "retirement station," where I will spend my final years….with my first wife!

Sounds easy, but the details are legion:

1. Minimize the loss of crop land (we cash rent the crop land).
2. Preserve Mama's view from the main area of the home….maybe this is #1 priority! If Mama isn't happy, no one is happy.
3. Have an SO2R, M/S, M/2 station. No thought given to multi-multi.

4. Easy access: shack to antennas, operators to sleeping rooms, etc.
5. Keep everything modular for easy trouble-shooting and for change-outs/upgrades.
6. Use existing tower hardware.
7. Main (run) antenna tower and multiplier antenna tower.
8. Flexible, easy to use/install HF antennas.
9. 30m beam; as 30m is one of my favorite bands.
10. Improve the 80m 4-square. (I think my Bemidji 4-square could have worked better.)
11. Phase two 160m verticals (one worked great! But, a 4-square??)

I spent a year playing with HFTA terrain analysis software planning tower locations, antenna placements, etc. I poured over aerial photographs and maps. Our county's only antenna restriction is that the base of a tower must have 110% set-back from a property line.

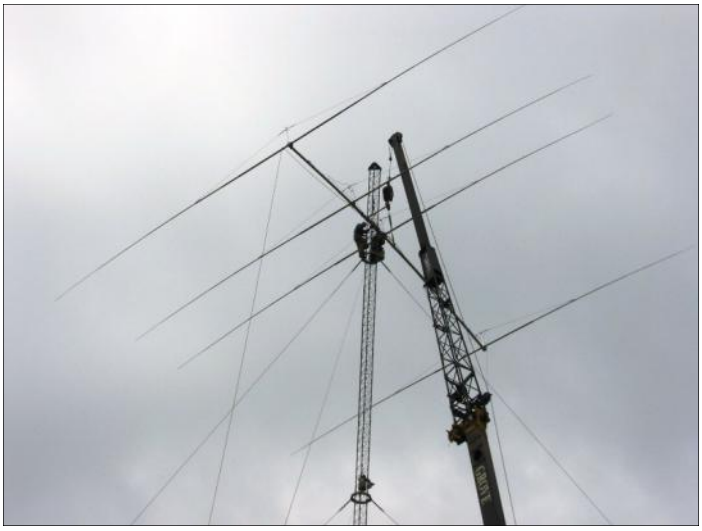
Aerial view of property.

The crest of the hill is 100 feet to the north of the house and the main view from the rooms is to the south—perfect. My side of the house gets the antennas and Vivien's side of the house gets the view. The shack (11 ft by 16 ft) was used as an office, and is on the north side of the house, near the front door and at the top of the basement steps….easy access for guest ops and for access to the towers.

I wanted to rotate the main tower from the ground this time. I used **KØXG**'s rotating base (with prop pitch motor) and four guy rings. The tower base is 120 ft from the shack, and is almost 4 ft high, with 160 ft of Rohn 55G above. The guy rings are at 40, 76, 112 & 148 ft. In the pictures you will see the KØXG boom mounts, which make "landing" booms to the side of a tower a piece of cake. *Installation - check*

HFTA had a very sweet spot for the 4-el 40m beam between 150 to 155 ft in almost every direction. It was amazing to see some significant path degradations even at 160 ft to many areas. Higher is not always better. With a guy ring at 148 ft, and easy to stand on, the 40m boom bracket was placed at 152 ft, perfect working height. *Effective – check.*

KØXG rotating base for Rohn 55G.



Mounting the 4-el 40m beam at 152 ft on the 160 ft-tall Rohn 55G.

I acquired a 4-el, 20 to 6m SteppIR antenna several years ago and had it on a TIC ring at about 60 ft in Bemidji. That antenna played almost as well as the 5/5 20M stack above it! At Dayton one year, I listened to a talk about "The Poor Man's Stack," which described that a 3 or 4-element tribander at about 60 ft was within 1-2 dB of stacked monobanders. I can confirm this is the case. The other nice thing about the SteppIR is that in a couple seconds, the antenna can be reversed to check long path

or even changed to be bi-directional. *Flexibility – check.*

The best bang for the buck is a 2-element beam. Each additional element gives up to .75 – 1 dB more gain, then rapidly diminishes and physical factors become extreme. Since I had such good luck with the 4-el SteppIR, I decided to put the old one on the multiplier tower and get three new ones for the main tower. These are not huge, and I can handle them myself. True, they are mechanical and there will be maintenance issues at some point, but even fixed element antennas have maintenance issues. Regardless, on a rotating tower, any antenna can be fairly easily trammed up and down between guy wires, unlike an antenna on a mast above guy wires. *Maintenance – check.*

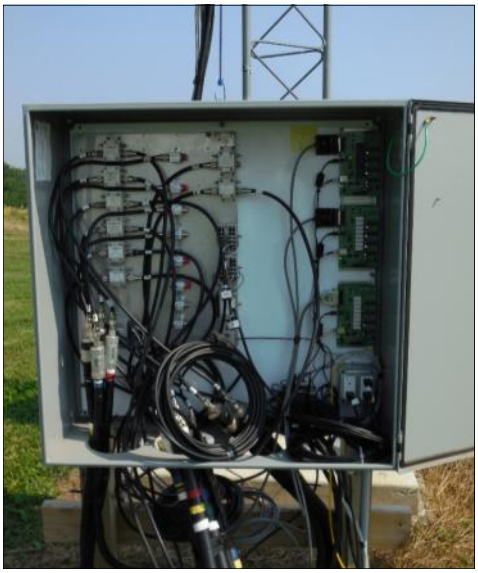
20m is the toughest band for competition and stacked antennas for that band would sure be nice. I modeled HFTA for about every conceivable configuration for not just 20m, but also 17m to 10m. The heights of 78 ft and 114 ft were wonderful on 20m to just about everywhere, and 42 ft worked well to the Caribbean. The other bands fit in nicely, with rare exceptions. The top two positions showed some degradation on 12m & 10m, but 42 ft was nice!

I have the Dunestar 800 phase controller that can select any single or any combination of the three antennas. Regardless of the HFTA analysis which works with the average signal paths and angles, the real world, as we know, is very dynamic, and signal paths and incoming signals vary, sometimes quickly. The SteppIRs and the phasing system sure make it fun to play with DX signals! The middle SteppIR is on a TIC ring for independent steering. With my antenna switching setup, I can leave each SteppIR on a single band or combine them. *RUN antenna Flexibility – check.*

Prepping the SteppIR elements.

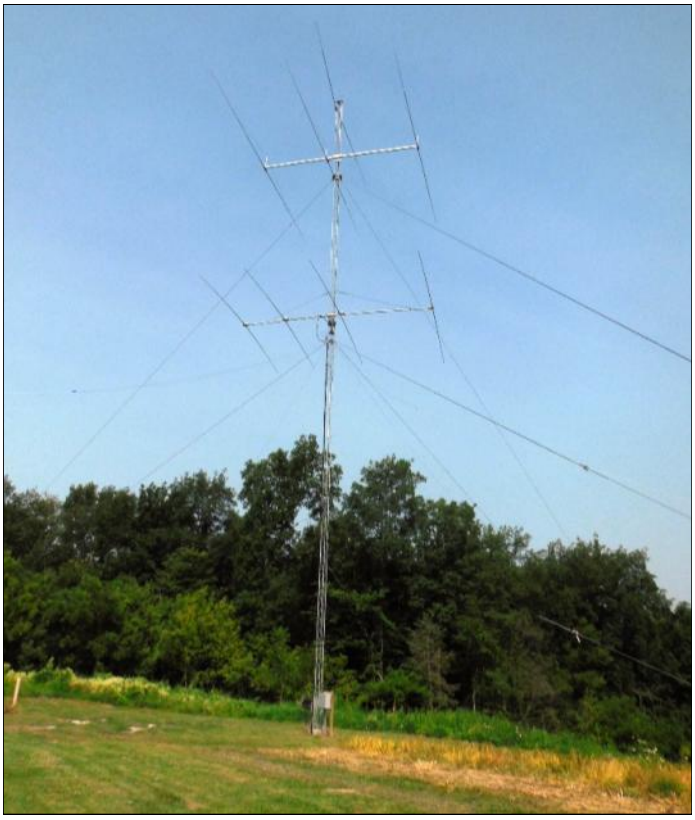
WØGJ Shack
showing antenna switching and phasing controls

Adding the three 4-el SteppIRs to the 160 ft tower.



View inside the NEMA box at the base of the Rohn 55G.

The rotating Rohn 25G tower is 540 ft from the shack; 600 ft to the rotating bearing at 60 deg. There is a guy ring at 30 ft, 60 ft and at 92 ft. A T2X Tail-twister rotates the 50 ft "mast" above it. At 62 ft is the old 4-el SteppIR. At 96 ft (4 ft above the guy ring) is a 3-el 30m full-size Optibeam monobander. I thought HFTA would have optimized this beam higher, but, again, trusting the software, 95 ft was about optimum for all directions. At 112 ft is a 40m rotating dipole for multipliers…..maybe a 2-el 40m some day. At 60 ft is an inverted-V for 60m.
Multiplier beam and 30M beam – check.



The rotating Rohn 25G: 4-el SteppIR at 62 ft, 3-el 30m Optibeam at 96 ft and 40m dipole at 112 ft.

The 80m 4-square center is about 600 ft away from the shack, about 1100 ft east of the multiplier tower. Insulated bases are about a foot above the concrete pads. Each tower is 60 ft Rohn 25G, with a "stinger" for tuning at the top. Each vertical has two gull-wing elevated radials. SWR is less than 2:1 across the entire 80m band. The phasing system is the new Array Solution 80m 4-square controller. I also have a 75m dipole suspended from the 112-ft guy ring on the big tower. It is cut for 3.850 mHz, but also has an interesting dip at exactly 3.520 mHz! Go figure. *Flexible on 80M – check.*

80m 4-square.

As many of you know, I like 160m! In Bemidji, I had a single full-size elevated radial 160m vertical. I placed First Place World four consecutive years in the QRP category of the ARRL 160m contest, and have several other QRP plaques from other 160m contests. For "another 3 dB," I used the rest of my supply of Rohn 25G to put up two full-size 160m verticals with insulated bases at 25 ft for elevated radials. The total height for each is 154 ft. They are in a pasture SE of the house, 850 ft from the shack, and can be seen from the house living area. I think it is a most beautiful view…..but mama isn't too happy. But hey, beauty is in the eye of the beholder. She is getting used to it now and she "sees through and beyond them, but I still can't!

I use the Array Solutions phasing control and with the verticals spaced ½-wave apart using 3/8-wave electrical feedlines, I can beam 75 deg, 255 deg, end-fire (E-W) or broadside (N-S). There are two to four S-units difference between end-fire and broadside!

We got the last of the towers up as the snow was falling last December. The phased 160m verticals were the only antennas operational last winter. I finished the phasing and coax only hours before the ARRL 160m Contest. I did have the rotating 25G up at that time, and had a 160m inverted-V at the 115-ft level. I did A/B testing between the two, and even though the inverted-V was a killer, it was nothing compared to the verticals!
160m "beam" – check.
Divorce – no check …..yet.

160m phased verticals.

It is one thing to have a single "low" tower and one radio. As one gets more radios and antennas, there is a logarithmic curve in the complexity. ALL guys are Philystran. There is no steel. I borrowed a trencher for my Bobcat, and have over 2000 ft of trenching. Everything is buried, including control lines. I've used over 3000 ft of 7/8 in CATV hardline. Yes, it is 75-ohm. Some runs need 75:50 baluns at one end, or maybe both. Others I've tuned/trimmed for a match. I bought this surplus for the same price as one would pay for good RG-213. My loss on 160m is 0.3 dB for an 850-ft run!

I came into possession of some surplus LDF 7, tons of LDF 6 and some LDF 5 Heliax. I use LDF 6 & 7 for the 40m beam and the calculated loss is something like 0.09 dB! LDF 6 is one long run for the 80m 4-square. For the two rotating towers, I have buried spare runs of hardline and control cables. The only coax in use is for jumpers from hardline to lightning protection or rotation loops.

All buried feedline is hardline, and all feedline up the towers is hardline. The SteppIRs all have the remote driver/lightning protection boards, and use CAT5e cable runs instead of control wire. I have I.C.E. & Polyphaser coax and control line lightning protection at each end of every feedline and control line run. Every antenna feedline comes into the shack to an A/B switch. I've used dozens of Cinch-Jones plugs on all control lines for modularity and troubleshooting. I have a standard wiring color scheme. In the trench between the main tower and house are ground rods every 10 feet. Many more are around the house and "service box." An electrician helped me redo the wiring/grounding of the house. There is a 110Vac outlet at the base of the two rotating towers and at the phasing boxes of the 160m & 80m arrays. All towers and house have common grounding. We've used nearly four dozen ground rods grounding the towers and the house. *Redundancy – check.*

The view inside the NEMA "service box" mounted on the outside wall of the house.

In the shack, I have a large operating desk with plenty of elbow room and plenty of room for two operating positions. (See photo on page 4.) There are two rigs: Icom 7800 (with Acom 2000A) and Icom 7600 (with Icom PW-1), almost ergonomically identical. I have the DX Solution Smart Antenna Switches (SAS-6) for each radio. These are controlled by the radio, and each radio automatically picks from an A/B switch the desired antenna. There is an automatic default for each band that can be overridden with the push of a button. These also choose the proper band pass filter (Dunestar 600s). A microHAM MK2K+ is used for SO2R. *Flexibility – check.*

I officially *COMPLETELY* finished this project one year and one week after we started taking down things in Bemidji. I've spent hundreds of hours planning, and it seems like even more on the tower and in the trenches (literally). I've checked and double checked each connector and connection at every step of construction and assembly. Everything is labeled and organized. I've kept an "engineering notebook" of everything I did with descriptions and

dates. I've been extremely pleased with the effectiveness of everything. I've added a lot of new band countries, especially with that killer 30m beam! It still catches my breath to watch that big tower rotate with all of those antennas on it!

Finished – check. 53 weeks start to finish.
Satisfied – check.
Would I do anything different at this point? No!

I want to thank author Patrick McManus, my favorite outdoor writer for some "help" with my project. He says the critical number of guns to own is four. If you have one, two or even three guns, your wife can count them. If you have four or more, it is "just all those guns!" So, you can go out and buy more and she will never know, because it is still "just all those guns, radios and antennas." Vivien will never notice the 160m verticals. Or, if I decide on "just one more antenna"……..
Divorce – no check.

I also want to thank Tom Taormina, **K5RC** for a lot of the inspiration for this project; Dean Straw, **N6BV** for his HFTA program; **KC1XX** & crew for dismantling the old station; P & K Antenna for helping get the new towers up; Richard Bennett, **KØXG** for his help with the rotating tower components and boom brackets; Paul Bittner, **WØAIH** for his help with me on the tower (I mean me helping Paul), as a crane lifted the Yagis up to us; the many TCDXA/MWA, EIDXA and local hams who helped, some who donated many hours of help and most importantly, to my wonderful wife Vivien for her continued support. I'm still married to KL7YL, the real love of my life for 39 years.

Now, I *AM* looking forward to retirement in a couple of years… to enjoy the bottom of the current sunspot cycle……..I'm ready. I'm especially looking forward to this upcoming contest/DX season.

What a LONG year it has been - 53 weeks, to be exact!

+3 dB - Check
Divorce….No check!

73!

Glenn, WØGJ
w0gj@arrl.net

My *amazing* tower guy Paul, WØAIH first licensed in 1949.


Vivian, KL7YL and me.


Checking the morning long path!

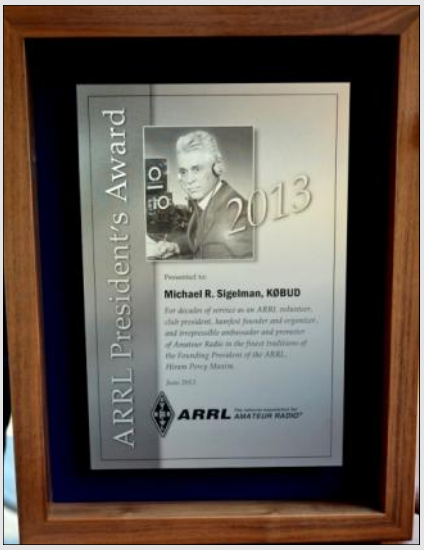
Member News

Mike, KØBUD Receives Prestigious ARRL President's Award!!!

On July 31st, ARRL Dakota Division Director Greg Widin, **KØGW** invited the Division to join him in honoring TCDXA Vice President Michael Sigelman, **KØBUD** of Golden Valley, Minnesota, recipient of the **ARRL President's Award**. The award cites Mike for "decades of service as an ARRL volunteer, club president, hamfest founder and organizer and irrepressible ambassador and promoter of Amateur Radio in the finest traditions of the Founding President of the ARRL, Hiram Percy Maxim."

Greg, KØGW (left) presents the ARRL President's award to Mike, KØBUD.

As ARRL President Kay Craigie, **N3KN** explained in a letter accompanying the award, "The award is presented to ARRL members who have shown long-term dedication to the goals and objectives of ARRL and Amateur Radio, and whose support of individual programs and/or goals has been above and beyond the normal efforts of ARRL members. It is presented only to those whose truly outstanding efforts have benefited ARRL and/or Amateur Radio operators in the state, the region or the nation."



The presentation took place following the Twin City FM Club's summer picnic. Among those on hand to honor the recipient were former Dakota Division Directors Jay Bellows, **KØQB**; Tod Olson, **KØTO** and Howard Mark, **K3HM**, as well as other prominent members of the Twin Cities ham radio community.

Left to right: Greg, KØGW; Jay, KØQB; Mike, KØBUD; Tod, KØTO and Howard, K3HM.

Mike with his XYL Judy, **NØOEL**.

Member News

WØAW is QSY to New QTH in W9 Land

Mary Lou and Gary on the dock of their retirement lake home.

Long time TCDXA member Gary Hosler, **WØAW** and XYL Mary Lou are currently making plans for the move to their retirement home near Hayward, Wisconsin.

In preparation for the move later this year, Paul Bittner, **WØAIH** and Paul Husby, **WØUC** stopped by Gary's current QTH in Wyoming, MN and took down his 100-foot Rohn 25G tower and two stacked Yagis (2el/40 over 4el/20).

Gary is planning a crank-up 70-foot tower for the new QTH.

Please join us in extending our sincere wishes to Gary and Mary Lou for a long, happy, and healthy retirement at their beautiful home on the Chippewa Flowage.

Paul, WØAIH and Paul, WØUC prep for dismantling Gary's 100-ft. tower.

Paul, WØAIH starts up the tower with three tool bags.

Paul removes the beams.

Paul begins tower disassembly.

Gary examines his now empty tower base.

The new QTH of WØAW/9.

TCDXA Monthly Meeting Location Will Move to Plymouth, MN in November.

Since 2005, TCDXA has been holding its monthly meetings at the Sunshine Factory Restaurant in New Hope. The Sunshine Factory will be moving to a new location at 4100 Vinewood Lane in Plymouth. This new location is 3.5 miles west of the current location. Our last meeting at the current New Hope location will be in October.

According to management, they are planning to be operational at their new location sometime in November. If everything goes according to plan, the November and December meetings will be held at the new location. Stay tuned for updates. And, you can check for updates at: http://www.esunshinefactory.com/relocation.html .

Design drawing of the new Sunshine Factory.

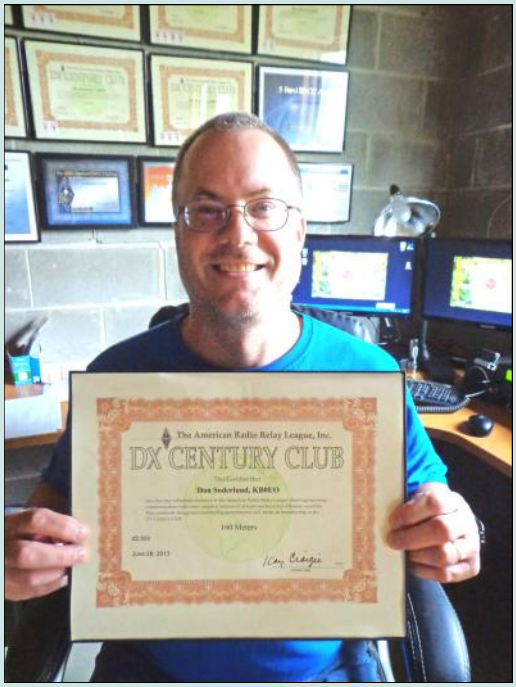
Drive-by shooting of construction progress courtesy of KØAD.

2013 TCDXA DX Hoover Award

is presented to Dan Soderlund, KBØEO

The prestigious "*Hoover Award*" is presented annually to the member who has best emulated the power of the Hoover vacuum system when chasing DX. Like a Hoover, he doesn't miss a thing – nothing gets by him. If it's rare DX, it ends up in his log like dust in a vacuum bag.

Congratulations Dan!



Dan is holding his just-issued 160 meter DXCC certificate. Proof positive of his Hoover ability.

Thirty Miles From the Equator, Between Two Mountains: The 2013 ARRL CW DX TEST

by Bill Dean, WØOR

My wife Christine and I decided we wanted to try out something a bit out of the ordinary to escape the Minnesota winter of 2013.

Christine has, for many years, produced Spanish language videos for publishers of school textbooks. In doing so, she has become familiar with most of the Spanish speaking nations of Latin America. Early last year, while setting up some video shoots for one of her clients, she learned that Ecuador has recently become something of a magnet for Gringo expats. The word was that not only is the climate just about perfect, but basic living expenses are generally far below what one encounters in the U.S.

It didn't take a lot of arm twisting for her to convince me to give Ecuador a try. A year earlier, I had satisfied a lifelong desire to learn a second language by spending two months in a Spanish immersion school in Guatemala. Going to Ecuador would give me a chance to use and improve my newly acquired language skills and, of no less importance, provide an opportunity to get on the air from a new DX location.

So, during the summer of 2012, we started looking for a place to rent for the winter. The website: www.VRBO.com (Vacations Rentals by Owner) listed a number of rentals in Ecuador. We considered the city of Cuenca, but eventually decided on a two bedroom condo in the village of Cotacachi, some two hours north of Quito, near the Pan American Highway.

Licensing

It turned out licensing wasn't as simple as I thought it would be. The United States and Ecuador have a reciprocal licensing agreement. This is supposed to make it easy to obtain a ticket to operate in each other's countries if you are licensed in your own. These reciprocal agreements don't necessarily mean that you can just go there, turn on your radio and begin operating. One is supposed to notify the authorities, provide documentation and wait for official permission to operate.

The town of Cotacachi, pop. 9,000, nestled in the Andes between two of Ecuador's highest Andean mountains,

I started by going to the ARRL. They maintain a web page that offers information on foreign licensing. There is also a page that lists the various countries within which U.S. amateurs are permitted to operate, based on a reciprocity agreement. Here's a link to the page: http://www.arrl.org/reciprocal-permit .

In the case of Ecuador, as in many other Latin American countries, the handling of reciprocal licensing has been delegated by the Ministry of Communications (MC) to a radio club. Curiously, while the capital city of Ecuador is Quito, the club handling these duties is in Guayaquil. Information from the ARRL listed **HC2FN** as the current president of the club.

In November of 2012, I found his email address on QRZ, and sent him a message detailing our plans. It took awhile before I received a response, but what he told me was that I would need to send copies of my license, my passport, my picture, a list of equipment and serial numbers and a letter from my radio club president attesting to the validity of my request. (I'm not sure what someone would do if they weren't a member of a club. I guess he would have to join one.) Pat Cain, **KØPC**, then president of TCDXA, kindly signed a letter. I forwarded the documents and waited.

Receipt of the documents was acknowledged. As the weeks passed, I sent a couple of emails asking about progress, but received no response. Finally, with only about two weeks remaining before our planned departure, I sent a desperation email. I was simply told everything had been submitted to the MC. But still there was no word.

We flew into Quito on January 26th aboard a Delta flight from Atlanta. Because the city was socked in with fog, we circled the airport for about an hour before landing. When we finally got on the ground it was almost midnight. There was a huge crowd waiting for customs and immigration. Apparently, several other flights had been delayed by the fog. When it cleared, one plane after another disgorged its passengers, creating near chaos and long lines. That may have created an advantage. As we finally cleared customs, nobody even looked at our luggage, nor were the officials interested in my carefully prepared papers.

Following a few days sightseeing in Quito, and a two-hour drive through some spectacular Andean scenery, we arrived at our new digs in Cotacachi. Our rental was on the second floor of a three-story building in a walled complex of attractive units. Four buildings each contained eight apartments. The beautifully-kept gardens on the grounds were teeming with color. There were even some trees near our window where I thought I could string some wires. It looked good.

Some of the local color!

I made one last desperate attempt to obtain permission to operate and just in time received an email from the club president saying I had permission to operate as **HC1/WØOR** under the reciprocal agreement.

Operating Expectations Denied

It turned out that our first week in Cotacachi coincided with the MNQP. By the time we got settled, there were only about two or three hours left in the contest. I thought I would see if I could hear anything. There was no time to put up any kind of antenna. I had some pre-cut dipoles for each band from 40 down to 10 meters, so I threw a 20 meter dipole across the floor, set the radio up on the dining room table, and listened. Lo and behold, I heard some Minnesota stations calling CQ around 14050. No signals were better than about S4, but I heard six or seven stations. I tried to call everybody I heard. Frankly, I was surprised when Ron, **NØAT** actually came back to me. Eventually, before the contest ended, I worked two other stations: Dan, **KBØEO** and Ron, **KØTC**, racking up a grand total of 18 points! At least three guys grabbed a multiplier nobody else could claim! I was amazed I got out at all, as the building was concrete with meshed steel reinforcement rods. It must have been like operating inside a cage. As I was to learn later, just about anything works when you are at the equator!

At first, things looked good for operating at the condo. Before we booked, I had asked the rental manager if it would be OK. He said he didn't think there would be a problem. There were two trees right

outside our dining room window, far enough apart to put up a G5RV or a windom. But, I was soon to learn that I was about to create quite a stir.

That next week, I went outside with some coiled up wire and was measuring when our neighbor in the unit below came out and asked what I was doing. I cheerfully told him. His first reaction was friendly. But, after a bit, he came back and said "no can do." This guy was from Canada, and was the owner of his unit.

Turns out, he notified the president of the homeowner's association, who appeared with him. Soon, there was a gathering of glaring faces. I was told in no uncertain terms that I was not to put up any kind of antenna, and that association bylaws prohibited anything being put outside a window. So, that was that. As a renter, I was told, I had no rights.

Plan B

We always had in mind the possibility of purchasing a small condo unit in Ecuador for use in the winter. Prices are very reasonable now, but with the growing popularity of Ecuador as a retirement destination, we had been concerned about future price escalation. This happened for gringos in Costa Rica and Panama. So, one of our objectives was to look at real estate. When we discovered how ham unfriendly our condo complex had proven to be, we rejected the idea of searching for a similar situation. They also didn't allow pets, and we wanted a place we could bring our dogs.

We were referred to a real estate agent, who turned out to be a retired woman with more than 30 years experience. It just happened that she had received a listing for a small house that very morning. We were eager to see what was available. After looking at a few places that didn't meet our criteria, she brought us to the house. I like to say it passed the 15-second smell test. It had a beautifully-kept garden, a fenced backyard and was situated next to some very tall trees—the only ones in the entire housing complex, known as San Miguel Homes and Gardens.

In retrospect, our instincts didn't let us down. We signed a purchase agreement that very day. Our reaction was that if we didn't buy it, someone else would get it and it would be gone. Later, we found out that people who were shown the house immediately after us made an offer. But, by the time they put in their offer, ours had already been accepted.

The house passed the 15-second smell test.

The backyard.

100 foot high trees support the 40 meter dipole.

Looking toward North America.

Buying real estate in Ecuador is fairly easy for foreigners. There is less paperwork than we are used to here, and closing costs are significantly lower. As soon as our offer was accepted, I asked the owner's permission to use the house as a base of operation for the upcoming ARRL DX contest, which was prior to the closing. He readily granted it. A day or two later, he sent me an email saying that we would not be able to go into the house again until after the deal was closed. I suspect he had second thoughts about allowing someone into the house. But, he was kind enough to honor his first grant of permission.

I really had no antennas with me other than the wires I had cut. But, I had used similar dipoles a year earlier in Guatemala, and they had played well. However, there, I had the advantage of third-story height.

Here, the one-story house was only about 14 feet high. And, with very little time available, I really didn't think I could get antennas for 10, 15, 20 and 40 up in those trees. Plus, I had no help. So, I opted for first trying to get the 40 meter dipole up as high as possible, and then I would see if I had time to figure out something to do with the others.

There was a back patio with an overhead pergola at about 10 feet. The timbers seemed to offer about the only convenient place close enough to my radio to hang my dipoles. I only had two baluns, and had already used one for the 40 meter dipole. I knew the height of the pergola above ground would be a negative factor, but with so little time, I thought I'd give it a try. As it turned out, the arrangement I ended with worked far better than I ever expected.

What I did was hang the balun from a spot near the center of the patio, and ran a fan dipole for all bands from 20 down to 10 meters along some of the wood structures, taping the ends to the boards. The photos will tell the story better than I can.

Local time in Ecuador is the same as Central Standard Time in the U.S. Just prior to the contest, 20 sounded pretty good, so I started there. Believe it or not, my first contact, which was not prearranged, was once again with Ron, NØAT. Not surprisingly, he had a very good signal, so I knew the band was open to the U.S. What I didn't know was how my signal was playing with such a low-slung antenna. But, I soon found out I had nothing to worry about. I started running stations and, in the first 40 minutes, had already worked 90 contacts.

Then, the band suddenly died. I tried 40, then 15 but, both bands were marginal. I went back to 20 and managed 125 QSOs before quitting for the night. I had no antenna for 80, and 40 was not good. So, I called it a night much earlier than I had planned.

The next day and night were a very different story. 20 and 15 were open more or less all day. And, the second night, 40 was much, much better.

Ten meters never really opened on Saturday. Signals to the northern U.S. were strong for awhile on Sunday afternoon. And, when the band was open, I was able to pile up very good rates. But, conditions were fickle.

All-in-all, considering the antennas I was working with, I was happy with my results. I managed 862,800 points; good-enough for second place in Ecuador. Here is the breakdown:

Band	QSOs	Mults
160	0	0
80	0	0
40	413	52
20	324	50
15	486	52
10	215	46

My K3, power supply and computer.

Post Script

We remained in Ecuador until the 7th of April, at which time we flew back to the States. I was not able to operate again from HC land. In late April, we closed on the house in absentia. So, we are now the owners. On our next visit, I will be free to operate as I please.

Unless one has a permanent resident visa, one is only able to remain in country for 90 days per year. We decided not to return in 2013; instead, we are renting the house out. Christine flew back down after the closing and prepared the house for rental, and that arrangement has turned out well. We have an excellent retired American who is our manager, and who lives close by in the San Miguel development. There is 24/7 security, and the entire complex is walled and gated.

We definitely plan to return in 2014. I doubt if I will put up a tower, as it would be an eyesore for the neighbors and for renters. But, those tall trees and the outstanding propagation so near to the equator are inviting me to get back on the air. In the meantime, I hopefully await action on my application for a permanent HC1 call.

I hope to work you next year from between two mountains and 30 miles from the equator.

73,
Bill, HC1/WØOR

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The Daily DX - is a text DX bulletin that can be sent via email to your home or office Monday through Friday, and includes DX news, IOTA news, QSN reports, QSL information, a DX Calendar, propagation forecast and much, much more. With a subscription to The Daily DX, you will also receive DX news flashes and other interesting DX tidbits. *Subscriptions are $49.00 for one year or $28.00 for 6 mos*.

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TCDXA Welcomes our Newest Members!

Steve Riggs, K8FZY of Dennison, OH

Ray Day, N6HE of Rancho Palos Verdes, CA

The MWA Contest Corner

Gaining More Contest Operating Tiime

by Al Dewey, KØAD

Getting Rid of Time Wasters

In 2010, I attended a contest seminar at the Visalia DX Convention in California. During this seminar, one of the presenters talked about what he called "Contest Time Wasters." I can't remember who the presenter was, but he made a point during his talk that has really stuck with me. He listed on a couple slides a number of things that he called "Time Wasters" during a contest. His list included manual antenna tuners, manual tune amps, SteppIR antennas, manual antenna switches, manually switchable band pass filters, manual rotor controllers and a number of other things.

Taken individually, one might ask, "How big a deal can these things be?" Many of them take just a few seconds to do. But, if you add the time taken for all of these things over the length of a contest, you are certainly talking many minutes. The QSOs that you might have made during these lost minutes could be the difference between winning and losing in your category.

More importantly, a number of these things can lead to mistakes, especially when you're tired. How many of you have spent a few minutes on a new band before you realize you forgot to switch the antenna or maybe you forgot to switch in the band pass filter for that band? I know I have.

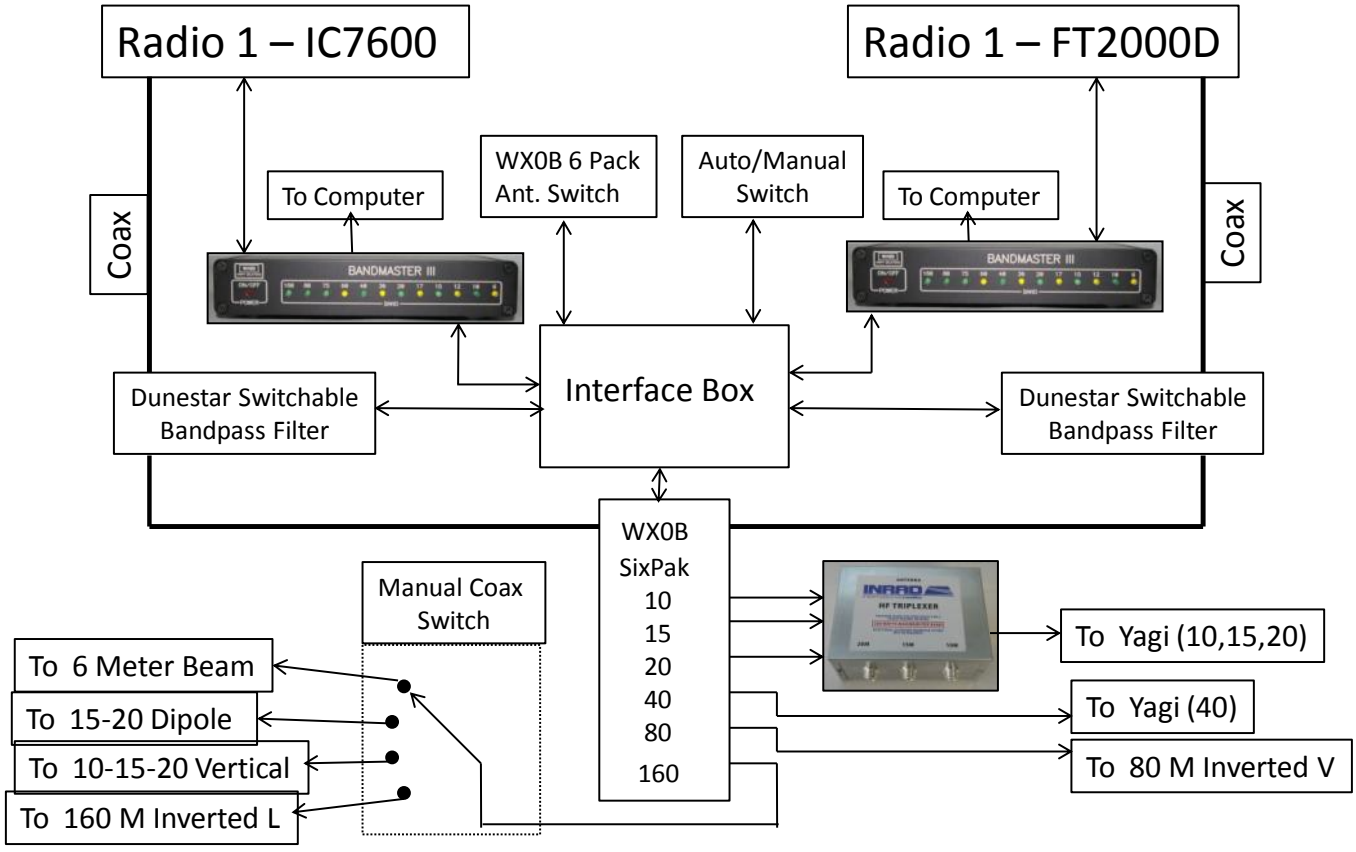
I first attacked the simple things on this list. I had used a Heathkit SB220 amp for years, but was thinking about getting rid of it due to TVI / RFI in the neighborhood. So that was easy. I sold my SB220, and decided I was going to become a low-power contester.

Next, I decided to get rid of my external antenna tuner. The time to switch my tuner to a new band and tweak the settings (even if I had them color coded on the tuner) was costing me time. I concentrated my efforts on making sure all my antennas had good SWR on their own. The only exception was to keep one tuner for my 40 meter Yagi. I keep it in line on the 40 meter coax and tweak it just once at the beginning of the contest, depending on whether I'm doing CW, RTTY, or SSB.

The next thing I addressed was automatic switching of my Dunestar band pass filters. I had two Yaesu radios at the time, so I built a band decoder for both radios based on a little board available from **W9XT**. I described this project in the September / October, 2011 issue of the ***National Contest Journal***. This worked well at switching the band pass filters, and was one less thing that I had to worry about.

The last remaining "time waster" for me was the manual antenna switch on my **WXØB** switchbox, which allows switching any antenna to either radio. In 2012, I won a WXØB Bandmaster 3 Band Decoder at the Dayton Hamvention. I let this sit in the box for a while after I got home, but eventually took it out and looked at the manual. I realized that this was just what I needed to automate my antenna switching. I discovered that the Bandmaster 3 had *two* relay outputs for each band. Because of this, I decided to retire the homebrew band decoder and use the WXØB Bandmaster to switch *both* my antennas and my band pass

Figure 1. Diagram of automated antenna and filter switching setup at KØAD



filter. In fact, I decided to order a second Bandmaster 3 from WXØB, so I could fully automate both radios. Because there was so much stuff I needed to wire together, I bought a little box, and put a bunch of terminal strips inside for wiring things together. Then, I put jacks on the box to plug in both band pass filters, both Bandmaster band decoders, the WXØB 6 Pack antenna switch and the 6 Pack antenna switch control box. The final addition was a small auto / manual switch, which allowed me to override the Bandmaster band decoder, and switch in an antenna manually with the switch box. It also allows me to switch out either of the band pass filters, in case I ever want to do that.

The final setup is illustrated in Figure 1. I have used this fully automated setup in several contests, and I truly feel I have gained some contest minutes by not having to worry about antenna or filter switching, anymore.

Software Time Savers

Another way you can save valuable minutes over that length of an entire contest is by optimizing the setup of your contest logging program. Exactly how to do this, of course, is dependent on the program you are using. Here are a few of the things I do to save time. Although I use **N1MM** for contesting, most of these time saving features are supported by other contest logging software.

1.) Use the "Super Check Partial" feature. When you're typing in a call under marginal conditions, a list of similar calls will be displayed to help you figure out who it is.

2.) Use "Call History" or "Exchange" databases from previous contests you have operated. Once you enter the call, the rest of the exchange is filled-in automatically, based on information that was sent in previous contests. This saves you the time necessary to type in the exchange information.

Of course, you should NOT automatically assume the historical exchange data is correct. You still need to copy what is being sent! I might mention that some feel using data bases from past contests is not a fair practice, because it diminishes the need for the contester to actually copy the exchange during the current contest. My view is that you *still* have to copy the exchange. The time to actually

type in the exchange is what is saved, unless the station has new information for this contest. Should contesting really be a typing skill contest?

3.) Use the "Enter Sends Exchange" feature. With this enabled, all you have to do is hit ENTER to send CQ, send your exchange and send QRZ. I don't know if this actually saves key strokes, but it makes it easier to remember what button to push when you are tired. That, in itself, can save some time. As you know, there is a different sequence of things that you send when you are searching and pouncing, versus when you are running. Some software, such as N1MM, will change this sequence automatically when it detects you have tuned the VFO.

4.) Use "Auto CQ" to call CQ on one radio while looking for multipliers on the second radio.

5.) Control rotor from logging program based on callsign entered (Note: I do not do this, but I *do* use presets on my rotor control to save time).

6.) For those who like to use spots from the internet during contesting (and compete in the assisted or multi-op class), your software should be set up so that as you tune across a station, the call is automatically entered into the call entry window. The time necessary to enter the call is saved.

7.) Automatically clear RIT offset. I often use the RIT control to tune in weak callers who might be slightly off frequency or to help separate two stations who might be calling me. When I'm done with the QSO, I always try to remember to clear the RIT control, so I am no longer listening off frequency. Most software logging programs can save having to push this button by using a "Clear RIT" command in your QRZ Function Key Macro.

There are probably many other software-related features that I have not touched on. Just like my station automation feature described above, each one of these things taken separately might not seem like much. But, if you include them all over the entire length of a contest, valuable minutes can be saved.

So, what about you? Are you squeezing every minute out of your contest operating time?

See you in the next contest!

73 de Al, KØAD

TCDXA Treasury Report

September 15, 2013

Submitted by TCDXA Secretary-Treasurer Pat, KØPC

Income:	
Carryover from 2012	3,925.33
2013 dues and donations	3,899.75
Door prize ticket sales	691.00
Refunds and reversals	0.00
Total YTD income	**$ 8,516.08**
Expenses YTD:	
Bank service fees	(0.00)
Website	(132.69)
Office supplies, guest dinners and misc.	(147.12)
2012 Christmas party	(474.14)
ARRL Spectrum Defense Fund	(100.00)
NCDXF Donation	(250.00)
MWA Plaque	(75.00)
DXpedition Donation, 3D2C	(250.00)
DXpedition Donation, TT8TT	(251.25)
DXpedition Donation, AHØ/NØAT	(149.00)
DXpedition Donation, 5X8C	(250.00)
DXpedition Donation, 9U4U	(250.00)
DXpedition Donation 9M4SLL	(500.00)
DXpedition Donation, FT5ZM	(1,500.00)
DXpedition donation, K9W	(500.00)
Total YTD expenses$	**($ 4,829.20)**
Current Checking Balance (11/13/12)	3,686.88
PayPal balance	0.00
Cash on hand	0.00
Total current funds	**$ 3,686.88**

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TCDXA Member Profile

Rick Borken
KØXB

Fifty-two Years and Counting

When I was six or seven years old, my parents gave me a marvelous toy. It was a plastic box with a speaker and a microphone, and it had a second microphone and speaker connected to it on the end of a long piece of wire. You talked as loud as you could into one of the microphones, and the person at the other end might be able to hear you, barely. It didn't have any batteries, so it must have relied on acoustic energy. My best friend Jim (now **KCØAA**) and I spent hours with it. We'd route the wire around corners, into other rooms, through a window to the outside, and talk and talk and talk.

I remember someone was watching us (it might have been my grandfather, but I cannot say for sure), and he told us about ham radio operators. That is when I got the idea of becoming a ham. It took another ten years to get my license, but I've been fascinated with this hobby ever since.

The next big step for me was when I got my first "real" shortwave radio. It was an RME-45 receiver. I had been listening to shortwave broadcasts on my parent's Philco and my great aunt's Westinghouse console radios, but this looked like something a ham would use. It even had a crystal phasing control, whatever that was. I strung a longwire antenna outside, and I spent my free time listening to broadcasts from all over the world. I kept a log, sent reports to the stations received, and started to collect QSL cards. This was also an excellent way to learn geography. (Where in the world are the Windward Islands, anyway?)

As a member of the Boy Scouts, you had to learn Morse code in order to earn a First Class badge. I think I would have learned the code anyway, since I wanted to earn my ham license, but this was an incentive to get it done right away.

My Dad gave me a key and other equipment so I could practice, and it didn't take much time. After all, memorizing twenty-six things is not that hard. My friend Bob was a scout, and wanted to be a ham too. Soon, we were communicating back-and-forth in code. I passed the tests and was licensed as a Novice with the callsign **WNØAPN** from Duluth, Minnesota in September, 1961.

My Dad and I installed my first antenna, and it worked well enough to have fun. I was on the air by November with a used Heathkit DX-40 and my RME-45. Chris, **VE4NE**

(SK) answered my CQ on 80 meters for my very first QSO. By the end of 1961, I had worked eighteen states and provinces in the US and Canada. When I worked **CO2BB** in Havana in November 1963, I caught the DX bug, and worked hams in seven other countries in Europe and South America by the time I left home and went away to college in 1964. I've been an avid DXer, ever since.

In 1962, I passed the General tests and changed my call to **WAØAPN**. I had a DX-40 with a VF-1 VFO (if you looked at it the wrong way, it would change frequency) and an RME-45 receiver.

I wanted to be a physicist from at least the time I was in Junior High. That was my focus in college and graduate school, so I had little time for ham radio. I received my Bachelor's and Ph.D. Degrees in Physics from the Massachusetts Institute of Technology in 1968 and 1972, respectively, and am currently a member of the MIT Educational Council. That means I interview high school seniors who are applying to MIT.

As a graduate student, I received a National Science Foundation Fellowship. I hold three U.S. patents, and have had nine articles published in scientific journals.

Most of my career was with the Honeywell Corporation in Minneapolis and Albuquerque. Proudly, I received the H.W. Sweatt Award from Honeywell for outstanding technical accomplishment. Later in my career, I had the pleasure of overseeing the Sweatt Award program. I retired in 2000 as Vice President in Honeywell's Corporate Technology Office in Minneapolis. Prior to that, I was Vice President of Operations in Albuquerque, a Director of Engineering and a Chief Engineer in Minneapolis, and also held several other engineering and scientific positions.

Before joining Honeywell, I worked in the Physics Department at the University of Wisconsin - Madison, at MIT Lincoln Lab and at MIT.

And now back to ham radio. I finally got back on the air for good in 1970, using a windowsill helically-wound vertical antenna and a Heathkit HW-16 transceiver from our apartment in Boston. On a good day, it might put out 20 Watts on 15 meters, but I was able to work lots of DX, at least it seemed that way to me. I worked fifty-two countries, including Europe, Africa and Japan by the time we left Boston in 1972.

My next QTH was Madison, Wisconsin, where I worked in the Physics Department at the University of Wisconsin. We rented half of a duplex, and the landlord allowed me to put up a dual-band dipole for 15 and 20 meters on the roof. By that time, I had built a Heathkit HW-101, and had fun working DX during the little free time I had. However, the job was much different than I expected, and my career was going nowhere. It seemed like the State treated every other employee better than the University staff. So, I started to look for a different job. The very best thing about that time in our lives was the birth of our daughter.

MIT asked me to return, but Honeywell offered me an excellent position as a scientist in their Systems and Research Center in Minneapolis, so we moved to the Twin Cities in 1977. At first, we lived in a rental townhouse in Brooklyn Park, and it was a challenge again to get on the air. I managed to run a semi-invisible wire up to a tree, which worked as a vertical - sort of.

Working for Honeywell at that time was great. I had a supervisor who I admired, and my co-workers were hard-working and very capable. We were part of a state-of-the art corporate research organization, and, in hindsight, I realized the environment I had enjoyed so much at MIT was much more like a corporate lab than most other academic organizations. I was back in an exciting organization, and I enjoyed it.

When we moved back to Minnesota, I requested and was assigned the callsign, **KØXB**. All the callsigns with my initials were taken, and the X-calls had never before been assigned to hams, since they had been reserved in the past for experimental stations. I thought it was a good choice, and still do. My very first QSO using KØXB was on 2 meters with Hans, **KØHB**.

We bought our first house a few months later in

St. Louis Park. Now, I could finally set up a real ham station. Using my HW-101 and a vertical in a ground plane configuration on the roof, I achieved DXCC by early 1980.

We moved to a different house in St. Louis Park in 1986, and Mike, **KØBUD**, Harry, **KØVZT**, Erv, **KØIVO** and Steve, **KØSF** helped me with my first tower and beam. It was a 50-ft. Universal with a KT-34A Yagi on top. I talked to **BY9GA** in China the next day, so I knew it was working. In 1987, Ken **WØKW** helped me make my first RTTY QSO. RTTY quickly became my favorite mode, and I earned RTTY DXCC in 1990. I've worked 323 countries on RTTY, so far.

In 1993, Honeywell offered me a transfer to Albuquerque as Vice President of Operations. This was a complete surprise, but it was a really good opportunity - the kind you don't turn down. A major move like that was disruptive at first, but it turned out to be one of the best experiences in our lives. My wife and I still visit New Mexico as often as we can.

My most memorable QSO from New Mexico was working **RØMIR/1** on the Mir Spacecraft on 2 meter packet. Probably the most interesting thing regarding ham radio was my effort to get a slashed zero on my KØXB New Mexico license plate. It wasn't easy, but I did it. (And I still have that plate.)

New Mexico's population is about one-third of Minnesota's, and I learned that has interesting political implications, because your vote is worth three times as much. Leading up to an election, the Honeywell plant always invited the candidates to spend time in our cafeteria during lunchtime, and they all came. One day, I was eating my bowl of soup, and a person sat down next to me and introduced himself as Senator Pete Domenici. I met him several more times, and also met the governor more than once.

The other thing I found out when we lived in New Mexico was that there are people in the rest of the country who apparently don't know it is part of the United States. That's sad, but true.

The company transferred me back to Minnesota in 1998, and we bought a house in Plymouth. Al, **KØAD** and Scotty, **WAØPLR** helped me with my Universal tower, and I also put up my trusty KT-34A. When I left Minnesota, Mike KØBUD helped me sell my tower and beam to a new ham. His name was

The house we bought in New Mexico was a traditional New Mexican design, with parapets along the side of the flat roof, and the parapets hid my beam. I don't think anyone ever knew it was there. The antenna is an A3S, and that's the Sandia Mountains in the background. The house was at 6,000 ft, and the mountains went up to 10,000 ft.

Don, but I don't recall his callsign. From New Mexico, I often joined Mike's Sunday morning net, and when I told Mike we were moving back to the Cities, he told me Don had never put up the tower and beam. I contacted him, and told him I'd like to buy them back for what he paid me. He agreed immediately, so I can thank him for free indoor storage during the five years we were gone.

Honeywell was acquired by AlliedSignal in 2000. That gave me an opportunity to retire, which I quickly took. Although the newly-formed company used the Honeywell name, AlliedSignal was a much larger company, and dominated the organization. It was time to leave.

After I retired, my wife and I moved "up north" to our home on Lake Vermilion in northern St. Louis County. Soon after we moved, I was pleased to be offered a visiting professorship by a well-known smaller university in the Twin Cities. I would have enjoyed that, but it was not practical, since we had already moved.

I tell my neighbors I'm a professional ham radio operator and a professional fisherman. I can't say my fishing skills are exceptional, but my ham station is the best I have ever had.

My primary rig is a Ten-Tec Orion II transceiver, along with Elecraft KPA-500 and Alpha 87A amplifi-

ers and a 3-element SteppIR Yagi antenna on top of a 60-ft. Universal tower. A sloper for 80 meters and an inverted-L for 160 hang off the tower. Hans KØHB, Steve **WØHT**, Chuck **WØWQ** and Scotty WAØPLR helped a great deal with the tower and antenna. So far, my most exciting QSO from Lake Vermilion has been working **P5/4L4FN** in North Korea on 15 meter RTTY.

My 3-element SteppIR is at the top of a 60-ft. Universal tower. The tower base is in the back of our lot, approximately 50 ft. above the surface of the lake, so the beam is 110 ft. above the lake. It works very well.

We love living on Lake Vermilion, but we both grew up in Duluth, and my wife and I have had enough of severe winter weather in northern Minnesota. So, we spend the winters in San Diego. I bring an IC-7000 transceiver and a small portable vertical antenna with me, and operate from there during the winter. I've worked 209 countries and all forty zones as KØXB/6 with this simple station, which I find amazing. My San Diego operating position is shown in the photo, below.

Overall, I've worked 348 different countries with 336 on cw, 330 on phone, and 323 on digital. I have 338 of the 340 current countries worked so far, but I still need Bouvet and the South Sandwich Islands. I earned a place on the DXCC Honor Roll in 2003, and have also earned 8BDXCC, RTTY DXCC (#315), CW DXCC, Phone DXCC, QRP DXCC, Diamond DXCC, a 2,000 medallion for DXCC Challenge and WAZ.

I hope you can tell how much I enjoy this wonderful hobby. It seems to me that's the whole point – to learn new things, to challenge yourself and have fun.

Good DX,
Rick, KØXB

NØIJ Remote Station Development

by John Baumgarten, NØIJ JBaumgarte@aol.com

A few years back, I retired from my business here in Duluth, and purchased a piece of land right in the middle of the east end of the city. I was planning to install a fairly large antenna system, similar to what I had at my previous residence. However, reality set in. It was obvious because of the environmental challenges at this site, my antenna plans would not be possible.

I also own a family vacation home on Lake Minnesuing, near the village of Lake Nebagamon, WI, which is only 36 miles away from the Duluth home. I did a Wisconsin QSO party operating from there, and it seemed to work pretty well. So, I decided to sell the big tower and most of the antennas from our previous Duluth residence, and concentrate on creating a station in Wisconsin.

I kept two of my Force 12 antennas: a C3 and C4, with the idea of stacking them. The C4 differs from the C3, because it includes a single 40m element. **N6BT** had long touted the effectiveness of stacking these antennas with spacing of 27 ft.

I purchased a power-up, 71-ft tubular US Tower MA series, with an 11-ft extension mast, plus a bracket which would give me the 27 ft spacing with antennas at 82 ft and 55ft. This covered 40 through 10m, and has actually worked very well from the get-go.

U.S. Tower MA series, with stacked Cushcraft C3 and C4.

An 80m inverted-V hung from the 72-ft point on the tower and an inverted-L off the side with 32 quarterwave radials completed the transmitting arrays. I added two bi-directional 290-ft Beverages for receiving, optimized for 80 meters. Clearly, there was room for improvement.

The Beverages indicated the 80m inverted-V was severely lacking punch. And, the inverted-L was interacting with the tower and not working well, even with the buried radials. I went to Dayton that year and purchased four packaged 80m verticals from the "new" DXE company.

With some engineering and sweat help from **WØBV**, I constructed a 4-square in the woods behind the house. Each vertical had 32 on-ground radials, and were phased with a Comtek controller. I located a 450-ft piece of 7/8" Heliax with connectors for scrap value, and suddenly I was in business on 80m.

Now, I could hear just about as well on the 4-square as I could with the Beverages, and we

worked 105 countries in the CQWW CW DX contest! The verticals don't even rise above the thick stand of aspen in which they are located, but they sure seemed to work. It was a TON of work clearing trees on each side of the system to allow the four vertical antennas to tilt up and down.

The south elements of the 80m 4-square in the woods. See the article on page 8 of the November, 2007 edition of the GrayLine for a full description.

Tuning one of the 80m elements.

Next, there was an improvement on 160m, using a homemade knockoff of a packaged vertical antenna called the Gladiator. The radiator was about 38-ft long, with four top hat wires, each about 64 ft, and fed at the 9-ft level. I added four elevated quarter-wave radials and a UNUN. With a lot of tweaking, it was flat at 1,828 kHz. I appreciated the assistance from **KØMPH** to calculate the proper impedance at the feed point. Because of the antenna's location in the yard, I have to take it down each summer. I am able to accomplish this using a DXE heavy-duty tilt base and some very well-marked trees in the woods. It takes about two to three hours each way. This is somewhat of a pain, twice a year, but the antenna performs well for DX and stateside.

Elevated feedpoint for the 160m vertical.

The next move was to improve my 40m DX performance. The 82-ft high 40m dipole worked OK for domestic propagation, but was too narrow-banded, and placed us way down in the pileups, even with 1,500 watts. Another 4-square was built using homemade quarter wave verticals, and was located about 450 ft from the operating position, back in the woods. I obtained another big chunk of 7/8-in Heliax. Happily, we did much better in the DX contests, but the angle of radiation was too low for stateside; something that did not show up on 80m. The 40m 4-square also works very well on 30m, and is even directional.

During this period, we were doing a limited Multi-2 in the CQ and ARRL contests, and I had tried various 2nd antennas for the second station on 10-20m. Nothing worked very well, so the other operators supplied some surplus stuff to take care of their frustrations: John, **AF9T**

One of the 40m 4-square elements.

supplied 56 ft of Rohn 25; Dick, **NØIM** supplied an old Cushcraft A4 and Doug, **AAØAW** supplied a nice 200-ft piece of 7/8-in Heliax to go with a 300-ft chunk I found.

Dick, NØIM and I totally rebuilt the old A4. The tower is broadside to the big tower when pointing NE, and is located back in the woods on a little knob. It works very well. My woods are getting pretty full of antennas!

The rebuilt Cushcraft A4 waaaay back in the woods.

Operating class M/2 in the ARRL SSB DX Contest with John, **AF9T**.

I leave the big tower lowered when I'm not there; this is the primary antenna on the high bands for remote use. The top C4 is selected, and is used mainly for 17m and 12m in remote mode.

All of this was a lot of fun, but I was definitely missing casual DXing. It was especially painful four years ago, when I missed **FT/G**; one of my last two needed. I had spent over 24 hours at the lake station hoping to find an open path to FT/G on any band.

When Elecraft came out with their remote radio package based on the Swedish system, it looked like the way to go, and I purchased one of the first packages. They had a limited manual on this, and the setup was way beyond me. Fortunately, they acknowledged this, and actually have a dedicated guy who very happily works with buyers of this product. It turned out to be a very enjoyable project, and pretty amazing when it actually started working. The K3 system requires only one totally functioning rig. The other, the control rig, needs no RF or DSP components in it.

I have two K3s, so I used them both. The control radio at home in Duluth actually becomes the radio at the station where the antennas are, and, as such, is 100% functional. No computer is needed for the radio portion of the system at either end. I have one K3 with tuner, a 2nd receiver, many filters, etc., and one bare bones K3 with only two good filters. The loaded K3 is at the lake, and the bare bones K3 is at home in Duluth, and directly controls the radio at the lake. This took care of the radio part of the system, but obviously, there was a lot of work to do with the handling of the peripherals.

The full-featured K3 at the lake home.

I heard about Green Heron coming out with little controls called GH Everywhere boxes, which were intended to replace a lot of control boxes and display everything on a computer screen. I purchased two, which gave me sixteen contacts worth of remote switching. I use six to select one of six antennas from the Six-Pack, four to select one of the four Beverages, four for the two Comtek boxes (these are binary and thankfully only use two contacts, each), and the final two to switch on or off two AC switch boxes: one for the two rotors and one for a Palstar auto tuner.

The two Green Heron "Everywhere" boxes.

The tower rotor is an M2, and is easy to control. But, the Ham IV back in the woods needed the Idiom Press EZ card. And, by their own admission, it has a nasty habit of occasionally locking up and needing to be re-powered. I tried a couple of programs to display the rotor controllers, but the best was the N1MM rotor program, which is a stand alone program within the N1MM package. It took me a while to figure out that it can display a multitude of rotors if you have them, and it works well.

The control equipment stack:
Rotor control and antenna selection.

The final step was to use the Alpha Remote software that I already had in my early 90s version of the Alpha 87A. It controls and displays the many parameters of the 87A, and has the added benefit of displaying the output and SWR.

Screen shot of the control functions.

All of these control functions nearly fill a computer screen. But, if I arrange things just right, I can even see the occasionally-used MMTTY display.

As many of you know, I'm still an old DOS guy. My contest programs are still DOS-based. So, I had to get Windows-serious to make it all work. Jeff, **W2RU**, a great guy at Green Heron, suggested I look for a Dell full tower unit like he uses. I found one on eBay for about $90 with XP Professional, and it has been perfect. It has two COM ports, eight USB ports and is extremely reliable. I am using six of the USB ports and both COM ports.

Terry, **WØTVD** helped me get familiar with a program called, Remote Administrator, which allows me to replicate the Dell Station computer at home through the internet. I subscribed to "no.IP.com," so I would not have to worry about dynamic IP issues. It's cheaper than buying a static IP address from your ISP. It could be free, but requires constant vigilance to make sure you're current, so I gladly pay the $15 per year. The Dell even came equipped to reboot to where it was in the event of a power failure, so I don't have to worry about a UPS. Since I leave the big tower cranked down when I'm not there, the A4 is the primary antenna on the high bands for remote use. The top C4 can be selected, and is used mainly for 17m and 12m in remote mode.

This has been an interesting and fun journey. The M/2 contest station still gets used at least four times a year. Now, I have a station that does not have any high maintenance antennas, no neighbors calling with RFI issues and I can look forward to using it from anywhere for many years to come.

73! de John, NØIJ

FT5ZM---$20.00 per minute on the air!

by K4UEE, Bob Allphin, FT5ZM Chief Financial Officer and fundraiser

As Chief Financial Officer and fundraiser for the upcoming FT5ZM DXpedition, I am deeply involved in the subject of DXpedition costs and financing. I have served in the same role for numerous high-profile and expensive DXpeditions to very rare DX entities. Examples are 3YØX, K5D, and HKØNA. However, the article written by Don Greenbaum, **N1DG** and published in several publications is the definitive work on the subject of DXpedition costs and financing. If you have not seen it, it's available on the NCDXF website at: http://www.ncdxf.org/pages/dxresources.html.

Don points out that DXpeditions to the Southern Oceans are the most expensive mainly because they involve a vessel charter. In his study, those charters averaged $260,000. However, three of the six DXpeditions included in that study took place 13-15 years ago, and costs have risen significantly since then. See Ralph - KØIR's article on this website entitled "Why Does This DXpedition Cost So Much?" It details our current, up to date charter vessel costs. They represent 75% of our $400,000 DXpedition budget.

Now, to really put DXpedition costs in perspective, let me share some simple math with you. At FT5ZM, let's assume we are on the air for 14 days. That allows two days for setup and two days for takedown. That equates to 20,160 minutes on the air. If our budget is $400,000 (not including operator travel costs to Perth and back), then our time on the air costs $19.84 per minute. Yes, $19.84 per minute on the air !!!!! Taking this a bit further, let's assume we make 100,000 QSOs, (a worthy goal for a #4 "most-needed"). The cost per QSO works out to $4.00. Yes, $4.00 per QSO !!!!!

Now, for some good news, the DXpedition operators will pay about half of that. This means however, our sponsors, including DX Foundations, DX Clubs and individual DXers worldwide need to pay the remainder.

So, when deciding not if, but how much support you will offer FT5ZM, ask yourself: How many QSOs am I going to make? How important are those QSOs to me? Am I paying my fair share of the costs? Our DXpedition leader KØIR has often joked that if every DXer would give up a cup of coffee for each QSO with FT5ZM and send that money to support the DXpedition, we would not have to worry about our expenses. You know, he's right.

73 and CU in the pileups!

Bob-K4UEE

VKØIR	K5D	K4M	XU7MWA
ZL9CI	VK9DWX	TX3A	S21EA
A52A	FT5GA	KMØO/9M6	J2ØRR
T33C	3D2ØCR	YS4U	J2ØMM
3B9C	E4X	YI9PSE	BS7H
TX9	CYØ/NØTG	ZL8X	N8S
CP6CW	VP8ORK	4W6A	3B7SP
3YØX	VU4PB	T32C	3B7C
K7C	STØR	HKØNA	5JØA
5A7A	3D2C	7O6T	VP6DX
VU4AN	3CØE	NH8S	TX5C
VU7RG	TT8TT	PTØS	9XØR
VK9DWX	9M4SLL	FT5ZM	9U4U

AHØ/NØAT
5X8C
K9W

TCDXA DX DONATION POLICY

The mission of TCDXA is to support DXing and major DXpeditions by providing funding. Annual contributions (dues) from members are the major source of funding.

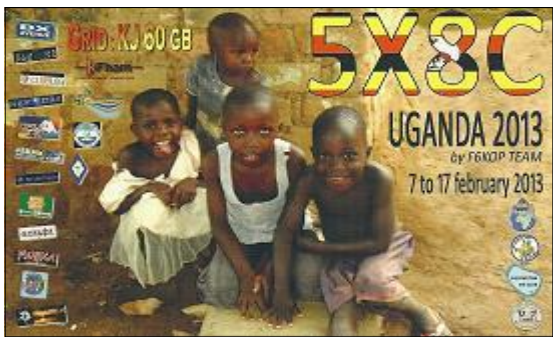
A funding request from the organizers of a planned DXpedition should be directed to the DX Donation Manager, Ron, **NØAT**, TCDXA@n0at.net. He and the TCDXA Board of Directors will judge how well the DXpedition plans meet key considerations (see below).

If the Board of Directors deems the DXpedition to be worthy of support, a recommended funding amount is presented to the membership for their vote. If approved, the TCDXA Treasurer will process the funding..

Key Considerations for a DXpedition Funding Request

DXpedition destination
Ranking on *Most Wanted Survey*
Most wanted ranking by TCDXA Members
Logistics and transportation costs
Number of operators and their credentials
Number of stations on the air
Bands, modes and duration of operation
Equipment: antennas, radios, amps, etc.
Stateside and/or foreign QSL manager
Website with logos of club sponsors
QSLs with logos of club sponsors
Online logs and pilot stations
Up front cost to each operator
Support by NCDXF & other clubs
LoTW log submissions
Previous operations by same group
Valid license and DXCC approval
Donation address: USA and/or foreign

To join TCDXA, go to http://tcdxa.org/.



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