Rochester DX Association

President's Letter

How's DX?

Not much out there it seems but some may be driven by others believing that it's so actually?

Maybe not what a "peak" in the cycle may be but there has been some fairly good things on if you care to look for it.

Signals are down, no argument there and you did utilize some kind or receiving antenna when you had the opportunity (bog, etc)?

At home, I strung a less than optimal "beverage" through the trees in my backyard, only about 300 feet, switchable (E/W) but it has provided the ability to hear some of the real light stuff. With the receive antenna capability on the FT-1000d, it's been a joy to hear the otherwise undecipherable signals (on the G5RV) come up out of the noise. Granted, not like at W2CCC where 4, 570ft version really make a difference but enough to actually call and hear the replies.

FT8 seems to be all the rage and I go there when I have a few minutes if I can't find something else but it'll never replace a good split, CW pileup.

Back from my 27th straight Dayton and as I mentioned to several folks, I've never seen more HF rigs in the flea market. Is the ham population aging, no DX, FT8? Several former "contest level" rigs were very reasonably priced (for Dayton) such as TS-850 and K3. There were "stacks" of TS-440's at one table. The biggest buzz was the K4... most radio booths in the vendor area look like "raised" floor computer rooms these days, just no racks... glad to see far less computer equipment outside though.

Got some "quality time" with Paul, N2OPW and Raj, N2RD over dinner (as well as Mark, K2QO and Dick, K2ZR from Buffalo).

FD is in a few weeks and I know Vic, K1PY and many others have met to plan our 2019 effort. Several additions, some "tweaks" and past success setups will highlite this year's outing.

The club can use everyone's support – you don't have to be a high speed CW op to be more than helpful. Many useful "hints and kinks" can be learned at the FD site, items you can use at your own station. We've done a great job the last few years and I would suspect the same will happen in 2019.

After that, you can use learned skills in the IARU contest 13-14 of July. That's the last significant HF contest of the “season” and allows for CW and SSB operation.

As we wind down the 2018-19 year, thanks to the BOD and all those who presented. Great programs and record setting meeting attendance numbers. Many that have served over the last few years will be returning so I'm looking forward to yet another great season in the RDXA.

We're not done yet though... we have the ROC City hamfest on 24 August and if all works out, the 2019 Annual Combined “Awards” Banquet that evening. More on that as it transpires.

Best DX es 73,

Chris, K2CS

President, Rochester DX Association

2019 RDXA FD

			13	14	15	16	17	18	19	2018
			3A	3A	3A	3A	3A	3A	3A	K4JJ
CW	80		342	409	320	354	358	335	444	202
	40		1062	959	976	945	1028	881	963	709
	20		545	654	322	508	677	678	635	660
	15		167	178	168	110	297	167	132	267
	10		15	0	14	0	0	2	0	174
			2131	2200	1800	1917	2360	2063	2174	2012
	HF FT8								70	
	GOTA CW		0	0	0	0	0	0	0	0
	GOTA FT8								1	
	VHF CW		40	37	38	31	61	33	2	2
	VHF FT8		3	0	0	0	0		83	
	SAT CW		3	0	0	0	0		9	
	TOT CW		2177	2237	1838	1948	2421	2096	2339	2014
PH	80		172	449	351	365	151	138	163	197
	40		510	765	796	563	352	374	174	215
	20		223	351	276	201	583	388	911	451
	15		24	120	43	0	83	35	34	331
	10		8	24	0	0	128	107	0	337
			937	1709	1466	1129	1297	1042	1282	1531
	GOTA		289	150	126	133	264	227	138	500
	VHF PH		129	57	96	68	118	114	8	39
	SAT PH		0	0	1	0	0	0	5	28
	TOT PH		1355	1916	1689	1330	1679	1383	1433	2098
QSO	80 HF		514	858	671	719	509	473	607	399
	40 HF		1572	1724	1772	1508	1380	1255	1137	924
	20 HF		768	1005	598	709	1260	1066	1546	1111
	15 HF		191	298	211	110	380	202	166	598
	10 HF		23	24	14	0	128	109	0	511
	MAIN		3068	3909	3266	3046	3657	3105	3456	3543
	ALL		**3532**	**4153**	**3527**	**3278**	**4100**	**3479**	**3772**	**4112**
PTS	CW pts		8708	8948	7352	7792	9684	8384	9356	8056
	PH pts		2710	3832	3378	2660	3358	2766	2866	4196
	QSO pts		11418	12780	10730	10452	13042	11150	12222	12252
	BONUS		2030	1730	1550	1850	2050	1830	1890	2290
	TOT pts		**13448**	**14510**	**12280**	**12302**	**15092**	**12980**	**14112**	**14542**
	PLACE		1	1	4	2	1	2	TBD	1

Results courtesy of Vic K1PY

Short Subjects

- Ken Hendrickson pointed out this article on Tuning Electrically Short Antennas and the compromises involved.
- Did you know the FCC licenses some receive-only stations?
- Ken also sent in this link about a ham, WS2L, who lost his license after making unauthorized transmissions. He deserved it. <sad trombone sound>

FT8 presentation by Dave K2DH at our April meeting

Charles Lempke NN2L 2018 NYQP Low Power Mixed category winner

Jeff W2FUspoke about remote operation at the May Meeting

K2CS VHF/UHF Tower Project

First antenna going on former K2FR (KB2SF) tower

First two up

K2LM 222 antenna next

Thanks to Charlie, WB2HJV and John, WB2BYP for their help

K8GP 432 antenna ready to be placed at the top of the mast

New path cut for cable to go from the shack to the tower

Completed stack with 432, 222, (k2axx) M2 2m and 6m beams

Measuring Cable Attenuation using an Antenna Analyzer

Raj Dewan, N2RD

May 2019

Like you, I have many old cables laying around and in use. Some of them have been outdoors for more than a decade. I recently wanted to check them out to make sure that they were still functioning well.

There are two things to check: Cable defects that result in impedance change, and cable defects that result in an increase in attenuation (or both). The former is sometimes easier to detect, especially if the SWR increases as a result of having a bad connector or cable deformation. The Time Domain Reflectometer is the ideal tool for detecting impedance changes. I presented on this a couple of years ago.

Increase in attenuation because of cable deterioration, water ingress being a common cause, is particularly insidious as it makes the apparent SWR seem better! Yes, a bad cable can make an antenna appear better than it is. You just won't make as many QSOs.

Detecting an increase in cable attenuation is harder. You can measure the power output at the rig and then at the antenna and directly calculate the attenuation. But getting the power meter at the antenna end is generally not easy. You could remove the cable from service and do the power test. Here is an alternative that just requires that you put a 270 Ohm resistor at the antenna end and measure the SWR. I put a 270 Ohm resistor (1/4w, as short leads a possible) on a BNC connector. With some adapters, I can use it with any cable connector.

Here is a table that show the cable attenuation as a function of the SWR (50 Ohm Cable, terminated with a 270 Ohm resistor):

SWR	Attenuation (dB)	SWR	Attenuation (dB)
5.4	0.0	**2.6**	1.9
5.2	0.1	**2.5**	2.1
5.0	0.1	**2.4**	2.2
4.8	0.2	**2.3**	2.4
4.6	0.3	**2.2**	2.6
4.4	0.4	**2.1**	2.9
4.2	0.5	**2.0**	3.1
4.0	0.6	**1.9**	3.5
3.8	0.7	**1.8**	3.8
3.6	0.9	**1.7**	4.2
3.4	1.0	**1.6**	4.7
3.2	1.2	**1.5**	5.4
3.0	1.4	**1.4**	6.2
2.9	1.5	**1.3**	7.2
2.8	1.6	**1.2**	8.8
2.7	1.8	**1.1**	11.6

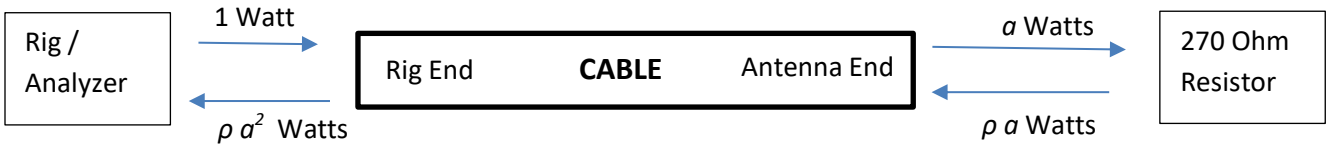
SWR Vs Cable Attenuation (dB) for 50 Ohm cable terminated with a 270 Ohm resistor

Tips:

1. This method of measuring attenuation is really good for low levels of attenuation typically seen at HF.
2. Even if you do not want to measure the attenuation exactly, you can keep track of the health of your feedlines by measuring and keeping track of the SWR at mis-matched parts of the band. So, for example, my 40m dipole is cut for 7.015 MHz. I measure the SWR at 7.250 MHz (about 2.5) and make note of it. If I want to check on my feedline attenuation, I just repeat the measurement at 7.250 MHz. If the SWR is lower, then my feedline has gotten bad. This check, coupled with a SWR check at the antenna resonant point (7.015 Mhz), provides me a good comprehensive check on the health of the antenna and feed line.

Theory:

Suppose that the cable attenuation factor is *a* (unknown). If we put 1W into the cable at the rig end, only *a* watts (where $a \leq 1$) appears at the antenna end. When an antenna is not matched to the cable impedance, it will not absorb all the power. It will send ρ (Greek letter rho, representing the reflection coefficient) proportion back to the rig. The power coming back suffers another attenuation by the factor *a*. So, the reflected power seen at the rig/analyzer end is $\rho\, a^2$ Watts. The picture below illustrates this situation.



SWR and the reflection coefficient are directly related: $\rho = \left(\frac{SWR-1}{SWR+1}\right)^2$.

The SWR for a 50 Ohm cable terminated with a 270 Ohm resistor is 5.4. Using the equation above we get ρ = 0.4727.

Now let us turn to the rig/analyzer end. Suppose that the analyzer provides an SWR of 3.4. That means that the reflection coefficient seen by analyzer is 0.2975 (using the same formula as above.) The reason that the reflection coefficient at the resistor end (0.4727) is different that at the analyzer end (0.2975) is because of the attenuation (squared, once for each direction). Hence the attenuation factor of the cable is $\sqrt{0.2975/0.4727} = 0.7933$. Hence the attenuation in dB is - 10 Log 0.7933 = 1.00 dB.

This is the typical attenuation of 100' of RG213 at 2m.

A Note on a VHF Noise Problem

Jack WA2CHV

An Elmer of mine once told me that the path to a successful DX station involved four steps, in order of decreasing return on investment:

1. Get the local noise floor down
2. Get the best possible antenna
3. Improve your operating skill
4. Increase station output power

While this short note doesn't involve DX operation per se, it is an example of bullet #1 on that long-ago Elmer's list. It may also help someone else facing a similar issue.

I recently wished to join a Wednesday-night net on the 444.85-MHz ("85") repeater from the home QTH. I have previously used the 85 repeater exclusively with the rig in my vehicle. An increase in the noise level when working 85 was always noted when the vehicle was pulled into the attached garage at the home QTH. This was erroneously (as will be seen) attributed to the vehicle roof-mounted antenna contacting the raised metal garage door.

To join the Wednesday-night net an HT was used inside the home QTH for the first time. A buzz-saw-like noise broke squelch[1] across the entire 440-MHz band anywhere in the house. Increasing the squelch threshold on the HT did not help. The 85 repeater could be heard only with some difficulty.

The usual diagnostic procedure was followed. Sequential flipping of the circuit breakers in the basement panel board quickly isolated the source of the noise to the family room. The family room contained lights, a media-center computer, and a large-screen LED TV used as the display for the media-center computer. Powering down the media-center computer eliminated the noise.

Successive amputation of appendages from the media-center computer identified the media center's HDMI (not DVI) video output to the large-screen TV as the source of the noise. Surprisingly operating large-screen TV as a stand-alone TV without the media center turned on (but still connected) did not produce the noise. Changing the image sent from the media center to the large-screen TV altered the character of the buzz-saw noise. Disconnecting the interconnecting 12-ft long HDMI cable from the media center computer eliminated the RF noise.

[1] I do not understand how an apparently random noise source could "break through" tone-coded squelch.

Based on the forgoing troubleshooting "junk box" ferrite beads were added to the ends of the HDMI cable as common-mode chokes. Unsurprisingly this did not help, as the ferrite characteristics were unknown. A new, known high-quality HDMI cable[2] with integral common-mode chokes at both ends was purchased and installed. Although the precise mechanism is unknown, this new cable eliminated the noise. Subsequent reinstallation of the original HDMI cable reintroduced the noise. The new HDMI cable was then permanently installed. The noise experienced on the car rig in the garage also vanished.

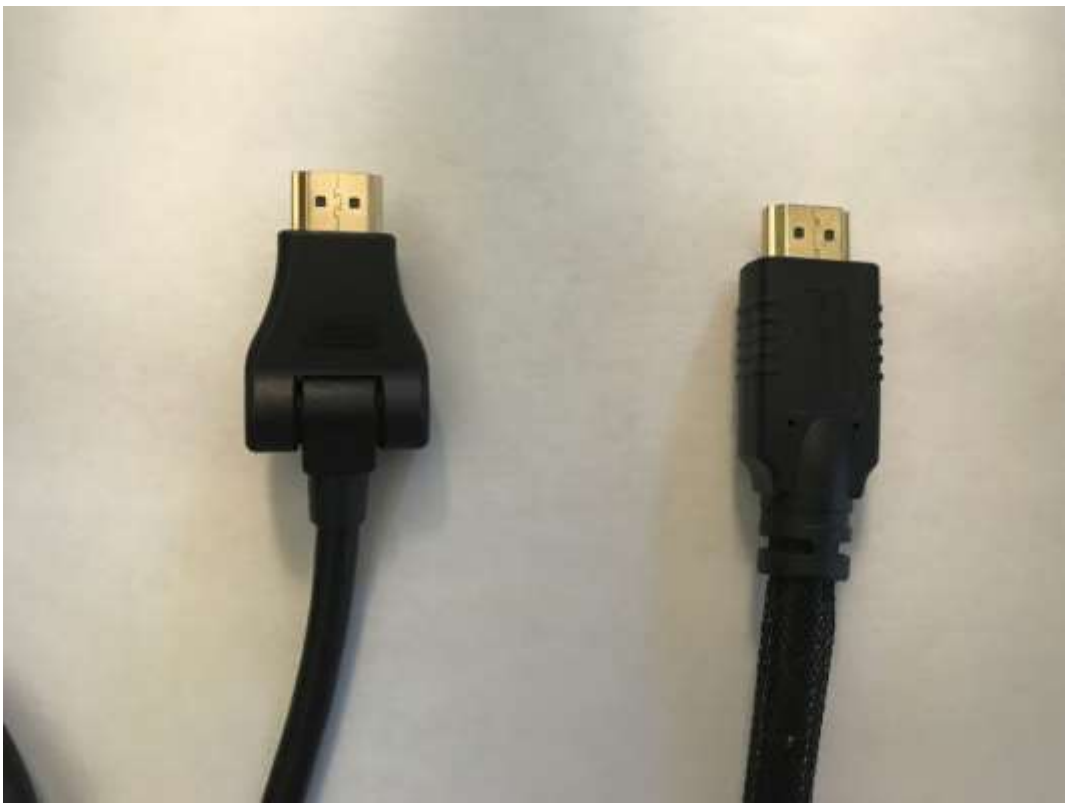


Figure: HDMI Cable ends. Old noisy cable on left, new, quiet cable on right.

[2] Vendor name provided upon private inquiry

Raising My End Fed Antenna

David Pfonner AC2VE

The weather finally cooperated with me and I was able to raise my antenna another 3 feet.

With the help of my friend Bobby Shackelford, I was able to remove my unsightly, PVC antenna posts with rigid metal collapsible posts.

I have a 152 foot long end fed antenna that starts at the about 22 feet high. The coax box is mounted on a standard TV antenna J pole. From there the antenna cable runs down to a clothes line post, then to a second clothes line post, then around the back yard until it returns to the first clothes line post.

This is the old set up, how my day started:

The two lengths of PVC pipe on each post were mounted with hose clamps. Bungee cords were used to allow the wire to give and take in the wind.

The new set up replaces the PVC pipe. A round 1 inch pipe is mounted in a U shaped utility strut channel. The round pipe can be lowered by sliding the pipe down the channel. This will allow me to make adjustments using only my 3 step ladder. I do no wish to work on anything higher than what my 3 step allows.

This is what the pipe and channel assembly looks like:

This is the post height when fully retracted.

This is not me on the ladder. I only use the small three step.

This is what the wire to pole connection looks like. Still using bungee cords. Springs and pulleys will come later.

After raising the antenna wire, I found the tree limbs were now in the way and had to be trimmed. The pole height is now about 13 feet when fully extended.

You can see the post extended to its full height.

Preliminary tests show I can now use my internal tuner to tune all bands except 160 meters. I still need my MFJ-929 tuner for that band. Without a SWR meter I do not know how much to add or subtract from the existing wire length to "tune in" on 160 meters. When I get a SWR meter I will be able make the wire length adjustments easily by lowering the pole to a height that I can reach. Plus, I now have a more stable mounting and less unsightly mounting arrangement.

Digilent Analog Discovery 2

John Hall AC2RL

The Digilent Analog Discovery 2 is a multipurpose test instrument the size of a hockey puck that provides:

- Oscilloscope: 2 channel 100 MS/s 14-bit 30 MHz
- Signal generator: 2 channel, 14 bit, 12+ Mhz sine, square, triangle, and arbitrary waveforms. AM and FM modulation
- Network Analyzer: 1 Hz to 10 MHz Bode, Nyquist and Nichols plots
- Spectrum Analyzer : 2 channel
- Logic analyzer: 16 channel, 100MS/s 1.8V, 3.3V and 5V
- Impedance analyzer: arbitrary frequency sweep. Impedance, admittance, Inductance, Capacitance, Phase
- Protocol analyzer: UART, SPI, I2C
- Pattern generator: 16 channels 100 MS/s
- Power supplies: 0 to -5V, 0 to +5V2.1W up to 700 mA/channel
- Programmable: Javascript and Windows API static library with C-style linkage.

Analog Discovery 2 with BNC breakout and flywires

It connects to a Windows, Mac or Linux computer through a USB-2.0 interface. The supplied Waveforms 3 software provides its user interface and functionality. The base unit's connection to the circuit under test is via a 30-pin connector and it has an accessory board that provides standard BNC connectors for the oscilloscope and signal generator

I have owed one for a little over a year and have found it to be a robust, flexible tool for my bench. While not as fast as many of today's digital scopes, it meets most of my needs very well. When I was them at Hamvention, I told them that they should bring out a "VHF Discovery" that does the same thing but goes up to 200 MHz or so! Most of my work with it has been analog. I haven't had an opportunity to use the digital logic analyzer or pattern generator yet.

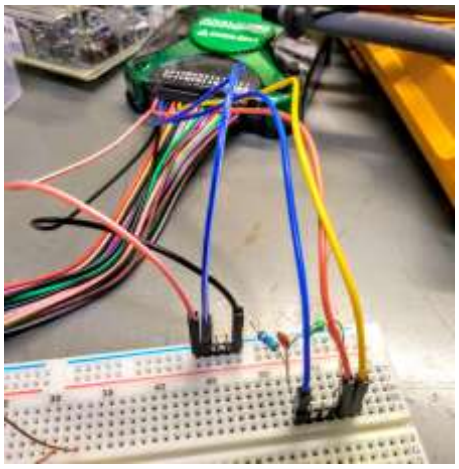
I first heard about the Analog Discovery 2 on the Ham Radio Workbench podcast one of the best podcasts for ham radio makers and homebrewers. It impressed me enough that I took the money I had put away to buy a new Rigol scope and bought the Analog Discovery 2 instead. I haven't been disappointed.

Digilent offers a "Ham Radio Workbench Bundle" that contains the Analog Discover 2, the BNC adapter, two 1x/10x oscilloscope probes, and a number of useful wires and small parts for $339, but the code "HamRadioWorkbench2019" gives you a generous $100 discount and brings the price to $239.

If you're looking for a multipurpose tool for your bench, that is small enough to travel in your laptop bag, consider the Analog Discovery 2.

Characterizing a broadcast band bandstop filter. Clip lead from signal generator. Scope probes on filter input and output. BNC 50 ohm terminator teed on output probe.

Waveforms window showing network analyzer sweeping the filter from 100 KHz to 3MHZ with cursors at strong local AM stations: 1280 and 1370. The stations are -35 dB down vs the bottom of the 160 meter band at 1.8 MHz



Signal generator driving a prototype 50 ohm LC delay line for phasing two receiving antennas. Yellow: Signal generator output. Orange: Scope channel 1. Blue: Scope channel 2

Signal generator (bottom) producing 2 MHz sine wave. Yellow scope trace is input, blue is output. Red measurement cursors show 44.44 nS delay

How I mastered code, etc…

N2BEG (ex WA2LJE)

Way back in the late 70s, a young, snot nosed 14 year old novice tuned around the ham bands on a realistic DX-160. This new world had been opened up to me shortly before when my father got his novice and nervously made CW QSOs with a Knight T60 and a bunch of crystals. (We eventually got a VFO) Along with a surplus BC221 frequency counter to confirm we were actually in the band of choice. (not trivial with this set up.) I was trying to master the "code" or at least enough of it to have a QSO with my hard earned new novice license.

The method my father had adopted was the recommend process at that time of listening to slow code and the actual sounds of the letters and numbers. He had purchased the Ameco code study course. This consisted of a 33 1/3rpm vinyl record which had a pretty well laid out course in its accompanying book, which steadily worked you through the sounds of all the characters and then eventually into groups of random characters. It was in theory a good way to master the language, albeit it tedious and slow… (News flash, there is no way to do it fast!!) I had tried the record method, but I found I liked listening to actual QSOs better, at least for me. It seemed more real and I would always get lost when the record would throw out some random obscure punctuation that I was not familiar with and then lose the next three characters. I plodded away. Eventually my dad arranged for me to try the test. I gave it a shot. I was a wreck and thought there was no way I would come close. I recall just how many characters you write when doing the code portion of the test, it was a lot. I was also cursed by my habit of writing in block letters, which also slows you down. I could barely read my own scribbling I was so nervous. I filled up a couple pages with nonsense… After careful scrutiny, my elmer declared I had passed and that I could do the rest of the test! What??!! I was floored amazed and elated. I better not screw up the rest! After proclaiming I was finished with that part, I had an excruciating wait of what was probably 10 minutes waiting while he scored my test and proclaimed I had passed that as well. I don't recall how well, I still was in disbelief in passing the code part.

Back then The Novice exam could be administered by anyone general or above. My elmer, Bob, K2GHF (not the new Bob here who now owns that call), I think was very generous with his scoring of my 1 minute of 'perfect' copy required to pass the 5wpm code portion of the novice test back then. He told me not to worry, "just get on the air, you'll be fine"…. Right.

I had come home from school one day in late April to a find a chocolate cake my mother had baked with "Congrats WA2LJE" written on it with yellow frosting. I had been waiting three

and a half weeks after passing my novice test for the FCC in Gettysburg to mail me my "ticket". (We didn't have instant gratification back then…) I could finally get on the air… or could I?

In the days that followed, I continued to tune the bands, set my frequency, and listen ever intently to signals I could pull out and that were slow enough for me to have a chance at copying and (gulp) answering?!!. I remember how fast these guys were going and thinking I'm never going to be able to do this…I had my cheat sheet next to me and would constantly be double checking myself to see if I got the last letter right. I recall how blazingly fast 5wpm was and how I barely had time to look a letter up before the next one came!! How could I ever have a contact this way?!!

This went on for a while before I worked up enough nerve to call CQ (with my dad in the background, prodding) on 80 meters one day. I nervously banged out a CQ and my call a few times on the old navy knob straight key and after a short pause, was relieved to not hear any reply… but then it came, a strong signal sending my callsign back in near perfect code! Ahhhhh!!! Panic set in… I start sweating and tried to copy the callsign. Luckily my father was there, and he started copying too. I wrote the call down three times, each time with different letters… I was a mess. My father tried to calm me down and convinced me one of the calls I wrote down was the right one and I shakily pounded out a response. My sending wasn't quite as bad as my copying, but close. I had deciphered that I was in QSO with Jeff and he was in some town ending in "grove" in Pennsylvania. I got a 559. Then he sent some additional details. I sent "u r my 1st qso' which he responded with "congratulations" which was by far the longest word I had ever copied. We had a short QSO where to my amazement we discovered that he was also 14 years old and had only been licensed a few weeks!! What are the odds?

After we exchanged 73s, I recall collapsing back in the chair, and thinking about what had just happened. I made my first log entry with WB3GCH in my ARRL logbook. Jeff in Selinsgrove, PA. My father had made his own QSL cards and had designed one for me also. He used rub on letters (he had a ton of those, all different fonts I recall as my OM was an architect) and had even copied a portion of the NY state map to put on the card so people could find Breesport,(don't blink or you will miss it.) I hastily filled out the card and mailed it off.

In a few days I received a card back from Jeff. I wrote a letter back, and we exchanged a few over the coming weeks and set up a sked for a time. His dad had also gotten him into the hobby and I remember being in awe of his fancy solid state radio, a Tempo One… After the shock wore off I began to make QSOs with more and more regularity. Much to my surprise, Bob had been right. The more QSOs I made, the easier it became and the more my confidence grew. I collected cards from states near and far. I remember getting California one day on 40 meters and thinking how amazing it was that my 60 watts made it that far. Then I discovered

the band switch had positions to the right. I tried 15 meters. All of the sudden I could hear strange callsigns that required looking up to figure out where they were. As some of you may know, the Knight T60 had a less than stellar performance record. It suffered from various design flaws, one in particular was very poor harmonic filtering. As a result, I got a couple "special " QSL cards from OOs. These were cards you didn't want, from ARRL Official Observers who heard something wrong or found you out of band, etc. which was a common occurrence using a T60!

In the months that followed I worked lots of stations and was always checking the mailbox after school. One day my father was gifted an old receiver from Bob, a old National HRO 60 with all the coils and a speaker and what a difference that made!! Even by today's standards that receiver is pretty darn good. The manual also had a hand written note in it from the original owner, he had purchased the receiver in 1959 for $549. That was a serious coin in 1959! When my OM got a Pink OO card of his own one day, he decided he had had enough of the T60 and went and plunked down some very big cash and came home with a brand new Drake TR-4CW. I was in heaven…

Eventually my dad wanted to upgrade. I was not ready, but since he was going to drive to Buffalo anyway, he had me bone up so I could take a shot at the general as well. That was quite an experience. I sat in a room with a bunch of old guys as the proctor explained the process. I had to copy 13 wpm to get a shot at the theory. I remember sweating bullets as the code was sent. I wrote down every letter. I handed in my paper and waited with the rest of the guys… after an agonizing few minutes, I was given a blue ticket. I had passed my 13wpm code test! My father had passed as well and after a short congratulatory session, we sat down to take the theory portion. There I was out of my element. I had a good grasp on the rules and regs, but the theory was not under my belt at that time. (Recall there was no internet, no answers or questions published verbatim from the pool like nowadays.) you either knew it, or guessed correctly. I did neither and flunked bad. My father also failed to pass by one question and was not too happy with himself. It was a long quiet ride home. The code was so easy now?! I went back and continued to tear up the novice bands and got my WAS, WAC, my 10-10 number and my Rag chewers club certificate… all before my 16th birthday. Boy was it easy on the Drake!! DX was killer! I was hooked!

In the meantime, my father had studied all of the material he could in the following weeks to get ready to take another shot. He scheduled another day off to go to Buffalo to try again. I got another day off from school as well! I had studied, kind of. There was still a lot of mysterious theory that eluded me. I was perfectly content where I was for the time being. This time when we got there I was convinced to sit and try the 20wpm extra code test since we

made the trip. I didn't plan on that. I recall sitting in that room with the same bunch of old guys again. I was by far the youngest one there and got a lot of glances that seemed to say, 'yeah right kid…like your gonna pass this…' Well, as luck turned out I did pass. (you should have seen them look at me then!) I sat very confidently in the general theory portion of the test. I still struggled with a few questions, but felt I had a shot at passing. Sadly, I did not. Missed it by 2. My father did pass however and was elated to have phone privileges! I honestly don't recall if he ever got on CW again after that. I just remember holding my blue 20 wpm extra code ticket all the way home… I passed the next time at the Rochester hamfest…in 1978.

After I recalled some of this story to Mike, KM2B, as he tries to master CW at his "advanced age", I told him what worked for me. He told me I should write my story down for the newsletter… so here you are. I also took the opportunity to reach out to Jeff, my first contact to see if he was still active. His old call was not in use and his name didn't come up when I searched on QRZ. After a couple of minutes online, I went to Linked In and found his profile. He is now an EE living in Kentucky, has 3 grandkids, a new call and is still active. We have reconnected via email and plan to set up a sked again soon.

My advice in most aspects of this hobby is the same as in life. Just try things. No matter if you are attempting to learn a new mode, build a new antenna or radio gadget, or upgrade. The experience you gain will be your biggest asset to obtaining any goal you set for yourself.

N2BEG

(Ex WA2LJE… try THAT one at 20wpm with a straight key…)

Bonus Field Day Photo Section

Photos by Mark N2YB and John AC2RL


Public Information Booth


W2RDX
PAY NO
ATTENTION
TO
THE HAM
BEHIND THE
WHITE BOARD

Rochester DX Association

Club Station — W2RDX

Club Website —http://www.rdxa.com

This Bulletin is the official publication of the Rochester DX Association and is published Quarterly.

All those with an interest in amateur radio, DXing and contesting are cordially invited to any meeting and to join RDXA. Meetings are held at 19:30 Local time on the 3rd Tuesday of each month, September through June. Meetings are located at the Monroe County Emergency Operations Center located at 1190 Scottsville Rd. Rochester, NY 14624.

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vicepresident@rdxa.com

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Please send all newsletter submissions, comments, and complaints to the editor:
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Membership Dues can be sent via:

Paypal: treasurer@rdxa.com

US Mail:
Mike Sanchez KM2B
8 Piccadilly Square
Rochester, NY 14625

Regular Membership: $25.00

Family, Full time Student or Out of State member: $6.25