



# Cleveland Chapter One NEWSLETTER

Established 1951

Spring Quarter 2024

W8LYD 146.850 PL 110.9

<http://qcwa-cleveland-1.org>

## Join Our Spring Luncheon at the FireHouse Grille & Pub in Willoughby Hills

Saturday, 13 April 2024, at Noon

*What happens when an IT guy  
switches careers to become an over  
the road truck driver?  
And he's a ham!*



A few years ago, well known LEARA trustee, **Eddie Stevens, KD8FTS**, left his IT career behind in order to fulfill his yearning to drive another kind of rig, an 18 wheeler! Whether it was a “mid life crisis” or simply wanderlust, Eddie accomplished his goal.

KD8FTS is an accomplished raconteur and he has many interesting tales to share with us.

Join us for live music, 50/50, door prizes, and comradery. Bring a friend!

The FireHouse is located at 2768 Stark Dr., Willoughby Hills, OH 44094

*Please RSVP to [w2thu@arrl.net](mailto:w2thu@arrl.net)*

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### Our Winter Luncheon The 10 Worst Antennas



ARRL Ohio Section Youth Coordinator K8ZT

**Anthony Luscre, K8ZT**, drove through snowy weather to give a live presentation on the 10 worst antennas. Not surprisingly, first on the list is no antenna at all, followed by an antenna still in its package and an antenna assembled, but not installed!

Anthony's presentations are always entertaining and informative and our chapter is grateful to K8ZT for another fine program which was also zoomed. If you missed his program, visit [k8zt.com](http://k8zt.com).

### *Future Luncheon Dates*

*July 13, 2024, October 12, 2024,  
January 11, 2025, April 12, 2025*



## Cleveland Chapter One Newsletter

**Editor:** Robert M. Winston, W2THU

**Distribution:** Fred Freer, K8IG

**Roster changes:** Notify Secretary Marc Barnett, KA8CPB < wireless.marc(at)gmail.com>

**Meetings:** Second Saturday of January, April, July, and October at FireHouse Grill & Pub

**Dues:** \$10.00 per year if you want this Newsletter mailed to you via USPS. Dues are free if you are 80 or older or accept this Newsletter via email only. **Copyright © 2000-2024** by Cleveland Chapter One QCWA. All rights reserved.

## Chapter One Officers

**President:** Robert M. Winston, W2THU; (216) 924-3314, <w2thu(at)arrl.net.>

**Vice President:** Fred Freer, K8IG; (440)446-8000, <k8ig(at)arrl.net>

**Secretary:** Marc Barnett, KA8CPB; (440) 476-8800, <wireless.marc(at)gmail.com>

**Treasurer:** Jim Arcaro, WD8PFK; PO Box 324, Wickliffe, OH 44092; (216) 337-2793 <jgarcaro(at)juno.com>

## Operational Group

**Membership reporter:** Open

**Net controls:** N8ZT, N8QE

**QCWA Journal reporter:** K8IG

**License trustee:** N8ZT

**Awards chair:** Open

**Chief radio officer:** K8QOT

**Chapter musician:** WB8ADF

**Webmaster:** K8ZGW

**Sunshine reporter:** Open

*Please notify Secretary Marc Barnett of any changes in your address, e-mail etc. so your roster information can be kept current.*



## *New Members & Friends:*

**Jeannie St. Marie, KC8MNW**, a longtime friend of Chapter 1, has now been licensed 25 years and is a life member of QCWA!

Welcome! New members are announced and invited to call in on our Wednesday night nets at 8PM. Presently, we are using the NORMA repeater, 147.015 MHz, PL 110.9.

## *Happenings:*

**Bob Hajdak, N8QE**, operating single op low power finished #10 in the 8th Call Area for the 2024 World Wide RTTY WPX contest, and #4 in Ohio for the 2023 ARRL September VHF contest. Bob is looking forward to greeting QCWA members at Hamvention. The QCWA booth will be located in Building #5, Booth 5310. so please stop by and say hello.

**Jeff Covelli, WA8SAJ**, reports that he has been doing a lot of things at his QTH. He wrote an article in *Electric Radio* titled: *Service Notes for the Drake 2-A & 2-B Receiver* in the March/April 2024 issue. He also purchased a new Tiny SA Ultra 4 inch spectrum analyzer/generator at R&L Electronics in Cincinnati, Ohio. (See Jeff's article on p.3 of this issue.)

**Bob Winston, W2THU & Jeannie St. Marie, KC8MNW** recently visited the QCWA Suwannee Chapter 62 in Ocala, FL.

**Ed Zorn, KE8ZZ**, is looking forward to watching the total eclipse of the sun on 8 April 24, looking through his ISO certified glasses along with XYL, Carol.

## *Sunshine:*

**Mary Freer, XYL of Fred Freer, N8IG**, continues to recover slowly from apparent complications of surgery. Thoughts and prayers are appreciated.

## The Tiny SA Ultra Spectrum Analyzer

by Jeff Covelli, WA8SAJ

Recently I had been looking at a Nano VNA, but I put it off for now, since I have a new Comet CAA-500 MKII antenna analyzer and it works great. As I looked around, I spotted this interesting different model, the Tiny SA Ultra spectrum analyzer and it showed some promising features I could use around the ham shack for troubleshooting interference and many other applications.

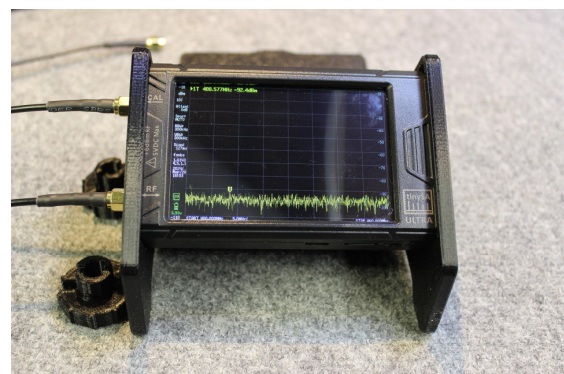
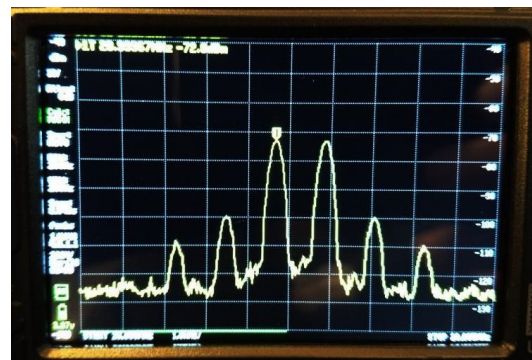
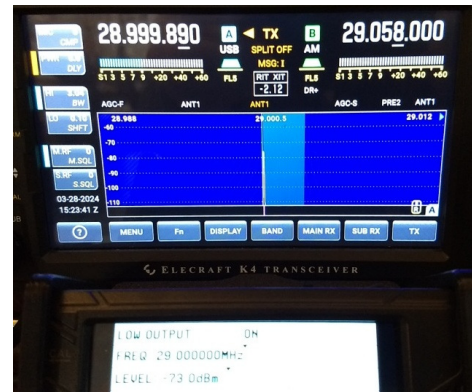
One very recent problem I have been having is what I also saw in the newest QST magazine about Over the Air TV (OTA); this is after I purchased and fixed my problem using the Tine SA. Wow, how about that for timing. I used both high-pass and 5G filters from Channel Master and they work great and this is seen using the Tiny SA.

There are many knock offs that are around these days and this is also true for this unit, so if you are buying one, use only the USA seller and that is R & L Electronics in Cincinnati. I would also recommend getting many different SMA to various connector adapters or better yet small cables. I use a sacrifice cable with a double female, so the SMA connector on the SA does not get loose from on and off connections which will cause it to break loose! Here is the main web site: [tinySA | Main / HomePage](http://tinySA | Main / HomePage)

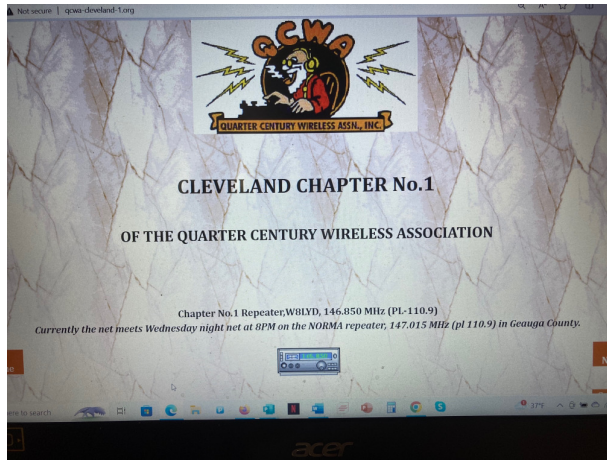
I used this to check all my Blue Tooth, Wi-Fi, Key Fob's, anything wireless. The R.F. generator is also very good, compared to my IFR-1200 Super-S service monitor at a retail price of \$25,000 when new, so this unit for \$139 is a bargain. If you are looking to mount the unit, there is a ham in PA [KC3UDZ - Callsign Lookup by QRZ Ham Radio](#), John can make a 3D printed mount for you. He also has mounts for other radios etc.

In the pictures you will see the mount, the two-tone test and R.F. generator into my Elecraft K-4D and it is spot on S-9 for -73

It is nice to see test gear getting less expensive every year as time marches on and this one certainly works for the cost of the unit. By the way U-Tube has many how-to videos about the ultra and the older model which is smaller in size and has not as many features. Have fun with it if you get one.



## Chapter 1 Website Updated



A long overdue update to our chapter website was recently completed. What, we have a website? Yes we do and it is located at [qcwa-cleveland-1.org](http://qcwa-cleveland-1.org).

Some of the changes included clarifying that although we have our own repeater, W8LYD (146.850 MHz, PL 110.9), our Wednesday night nets take place on the NORMA repeater (147.015 MHz, PL 110.9). This was done because the NORMA repeater has better coverage, allowing more net participants, especially on the west and south side of Cleveland and beyond to Medina.

Other changes included updating the officers section, where our secretary, **Marc Barnett, KA8CPB** had been omitted since he took over that position. (Coincidentally, Marc, who is our IT guy, did the updating work. Thank you Marc!).

Our luncheon location was changed from Zoom to the FireHouse Grille & Pub in Willoughby which appears to be very popular with our members. Also, the traditional summer luncheon is now a picnic, whose location will be announced in the summer Newsletter. Thanks to vice-president, **Fred Freer, K8IG**, for securing the Mayfield Village location this coming July.

The number of past Newsletters was reduced from 40 to 4. However, if you have a yearning to read the now deleted issues, contact me or Marc for access.

Finally, the description of reasons to join Chapter 1 was brought up to date, sadly omitting our longstanding relationship with the Cleveland VA Hospital amateur radio station and our former participation in the Ham Radio Promotion Project.

## New Technology (con't from page 7)

Hallicrafters, Heathkit, Drake, Swan, and the Japanese and English quickly saw the benefits of transceiving and introduced stations that copied the Collins capability. Sadly, RME, Hammarlund, and National failed to pick up on the Collins ideas and failed earlier than other manufacturers.



Swan 350 Transceiver

Right after the invention of functional transistors by Bell Labs in 1947-1950, the concept of integrated circuits started to be thought about starting in 1949. In 1958, Jack Kilby of Texas Instruments, a major source of transistors in the early days demonstrated functional hybrid design integrated circuits. His work was picked up by Sprague, a major manufacturer of component parts by Kurt Lebovec in 1958-1959.

At Fairchild, a major supplier of transistors, in 1960, Robert Noyce constructed the first monolithic integrated circuit which soon led to the very first integrated circuit operational amplifier. Fairchild became a significant supplier initially of analogue linear integrated circuits and later of digital integrated circuits.

1968 saw the start of Signal One and Ten-Tec at both ends of the ham radio marketplace. Ten-Tec is still with us; the Asian companies such as Kenwood, Yaesu, Icom, and Alinco have seized most of the USA and European ham radio market after Collins total departure from ham radio after the departure in 1972 and the passing of Arthur Collins, W0CXX.

# President's Perspective

By Bob Winston, W2THU

## Chapter 1 Helping Out at Hamvention? -

I believe that our chapter's assistance at the QCWA booth in Xenia the past two years was the sole reason that QCWA was able to participate in that event. If you recall, the covid pandemic prevented the usual crew from setting up and running the booth to the point that our wonderful organization was ready to forgo Hamvention altogether. Even though past president **Ken Oelke, VE6AFO** was ready, able and willing to be there, he could not do everything alone. But thanks to a dedicated contingent from our chapter, QCWA was present as always, resulting in a lot of meet and greet, membership renewals and new member signups.

New QCWA president, **Tom Loughney, AJ4XM**, has asked for our help again. If you will be attending Hamvention this year, please volunteer for a 4 hour shift. It's a lot of fun to participate from the other side of the table for a change and you also get to sit down for a while! Contact me and I'll forward your availability to AJ4XM.

## Ham Radio and the Total Solar Eclipse -

We are very fortunate to be living directly in the path of a total solar eclipse! I am very excited about this event and I have been ever since I learned 7 years ago that I wouldn't have to travel anywhere to experience this phenomenon. Even if cloud cover prevents you from seeing the moon block the sun, you will still experience day turn to night and then back to day around 1530 EDT. I plan on setting up my hf rig outdoors to learn what effect this transition has on hf propagation, while viewing the stars that appear for a few minutes. Since I live in a rural area, I might even see some confused nocturnal animals come out to explore the area.

HamSCI is seeking your participation, too. Local ham **Gary Mikitin, AF8A**, has been promoting their Festivals of Eclipse Ionospheric Science, along with hams at Case Western Reserve University's station W8EDU. Why not join them on the air during the eclipse? Go to [HamSCI.org](http://HamSCI.org) for more information.



AF8A promoting HamSCI & the total solar eclipse activities to Hamcation attendees in Orlando, FL

## Visiting Chapter 62 in Ocala, FL -

While traveling in Florida this winter, **Jeannie, KC8MNW** and I accepted an invitation to visit the Suwannee Chapter. We joined the group at a Chinese buffet which had pretty good food. There we met former QCWA directors **Ken Simpson, W8EK** and his XYL, **Sue Simpson, N8AJU**, who, many of your recall, are native Ohioans who are also members of our chapter.

Ken & Sue used to visit Chapter 1 after Hamvention every year as they motored in their RV around the country. A few weeks later, Chapter 1 member **David Dennis, W8DDD** and Sally, who winter in The Villages, FL, joined the four of us at a seafood restaurant, also in Ocala, where we reminisced and caught up on all things QCWA.



Suwannee Chapter 62. Ken & Sue are standing to the left of the QCWA banner.

As always, I look forward to meeting all of you at the upcoming spring luncheon! 73, Bob.

## New Technology That Moved Amateur Radio Forward by George Mistic, KE8RN

A number of new products over the history of amateur radio moved the technology of ham radio equipment forward. I will try to call out the steps with a major long-term impact. I will start from the end of WWII, as that was the starting point of much of the development that took place in the 1950s, 1960s, and 1970s.

The first great move forward was the 1946 Collins Radio entry into the amateur receiver market with the models 75A and 75A-1. This receiver saw two major steps forward; the use of a crystal controlled first conversion and a tunable IF for the first conversion. This development was done by Collins Radio Company under the guidance of Arthur Collins, W0CXX at that time. This development provided equal readout and frequency stability on all bands from 160 meters to 10 meters, and ultimately beyond. The 75A and 75A-1 doubled the PTO on 11 and 10 meters, giving them double the tuning range and half the readout on 11 and 10 meters. The 75A-2 and 75A-3 used the same scheme while the 75A-4 tuned over 1.0 MHz on each bandswitch position and used the same tunable IF on all bands 160 to 10 meters. The 75A-2, 75A-3, and 75A-4 covered 160 to 10 meters; all were old enough to cover 11 meters, as it was an amateur radio band until 1958, when it became the Class D Citizen's Radio Band [CB band].

All of the Collins 75A family of receivers used the very stable, and with accurate frequency readout, Collins sealed Permeability Tuned Oscillator. The PTO gave readout to 1.0 KHz over a full MHz of tuning; coupled with the crystal first conversion oscillators, frequency readout was better than 1.0 KHz at any frequency below 26.0 MHz on the 75A, 75A-1, 75A-2, 75A-3, and everywhere on the high-end 75A-4. The PTO combined with the crystal controlled first conversion offered less than 1.0 KHz frequency readout from 0.50 MHz to 30.50 MHz on several receivers starting in 1951; a very big step forward.

The next major step forward came from the telephone industry who was looking for a more efficient means to switch and amplify telephone signals consisting of audio frequencies between 200 and 3000 Hz to preserve intelligibility. Three engineers at the Bell Telephone System research laboratory invented the transistor in 1947. The team of Bardeen, Brattain, and Shockley invented a working transistor in 1947 using a germanium, point contact design. In 1948, the same team patented a junction transistor that was more capable. The term "transistor" was picked by a group at Bell Telephone Laboratories via election; the term "transistor" was suggested first by John R. Pierce, a Bell researcher; he came



**GEORGE, KE8RN & XYL Barbara, KB3MPF**

up with the term from the words "transfer" and "varistor." Transistor advances came fast in the early 1950s to the later 1960s.

Hallicrafters took the first major step forward with receiver selectivity in 1951 with the dual conversion model S-76 that featured a first IF at 1650.0 KHz and a second low frequency IF at 50.0 KHz. Previously, several receiver manufacturers used a single crystal at the IF frequency, often 455, 456, 465, or 500 KHz. The single crystal filter could be used to generate a sharp notch or to improve the selectivity to some degree; the single crystal filter left a lot to be desired in improved selectivity. The 50 KHz last IF was a major step forward in selectivity in 1951.

Collins took the next step in improved selectivity with the mechanical filter in 1952. Mechanical filters used mechanical resonance networks of precision discs that operated at frequencies from about 200 KHz to about 500 KHz. Bandwidths between 500 Hz and 8.0 KHz were made from mechanical arrays of the resonant disks and an input and out transducer to provide a means to expose  
(Please turn to page 7)

*(continued from page 6)*

## **New Technology That Moved Amateur Radio Forward**

an IF signal to the selectivity window made by the mechanical resonance of the precision disks. The 75A-3 amateur radio receiver from Collins Radio Company was the first receiver equipped with a mechanical filter in 1952. The 75A-3 came with a 3.0 KHz wide mechanical filter; it had provisions for two mechanical filters; Collins made an 800 Hz wide filter aimed at CW fans and a 6.0 KHz wide filter tailored to AM double sideband reception.

1954 saw Bell Laboratories, which was still deep into transistor research, announce the first transistors made from silicon; it was more stable and available than germanium which was destroyed by temperatures over 188 degrees Fahrenheit. Philco research was key to developing transistors for use at higher RF frequencies. Transistors were not yet used in many things due to a variety of limitations.

The first transistor radios to be sold to the public came not from Sony in Japan, but from a research group in Indianapolis, Indiana known as "I.D.E.A." which stood for "Industrial Development and Engineering Associates" who released the first transistor radio in 1954 using their marketing name, Regency, as the model TR-1 for \$49.95 retail price [about \$390.00 in 2019 dollars]. The radio used four germanium transistors made by Texas Instruments and used a 22.5 volt battery to get improved high frequency operation [if you can call the AM broadcast band "high frequency"].

1954 saw the first use of crystal lattice filters for selectivity and SSB generation by Hallicrafters with their model HT-30, Hallicrafters first SSB-AM-CW transmitter. This appears to be the first commercial use of a crystal lattice filter employing 6 matched crystals in a small, sealed assembly. The crystal lattice filter was rapidly picked up by other manufacturers including Heathkit, Hammarlund, Swan, Galaxy, Gonset, and others.

1955 saw Collins go to SSB instead of AM and CW for radio communications efficiency with the model 75A-4 receiver and KWS-1 SSB-CW-AM transmitter. Collins campaigned SSB very hard, and it took over most military and government essential communication. Amateur radio started with SSB about 1953 with a few pioneers; the Collins products in 1955 gave SSB the major push it needed to start the takeover from AM and the unsuccessful push for Narrow Band Frequency Modulation [NBFM] in the early to mid 1950s for low band ham radio use.

Collins took another major step forward in 1957 with the invention of the SSB-CW transceiver with their introduction of the KWM-1 20, 15, and 10 meter transceiver. The KWM-1 used earlier Collins ideas like the crystal controlled first conversion and tunable IF for equal stability on all bands, the highly stable and excellent frequency readout provided by the PTO, the use of mechanical filters for selectivity and SSB generation, and the use of product detectors and functional AGC on SSB and CW. I own a Collins KWM-1 and it still works great today on the air.

Collins soon invented the concept of a transmitter and receiver transceiving, in which the transmitter automatically transmits on the receiver frequency. The Collins S-Line consisting of the 75S-1 receiver, 32S-1 transmitter, 312B-4 station console, and 516F-2 power supply in 1958 was the first receiver and transmitter set that would automatically operate on the same frequency or could operate on two different frequencies at the flip of a switch and the turn of a knob. In later years they added the 30L-1 and 30S-1 linear amplifiers, the 62S-1 transverter for six and two meter SSB-CW operation, plus upgrades to the transmitter and receiver for greater operator convenience, especially on CW.

*(Please turn to page 4)*