

Q-FIVER

The Official Newsletter of the OH-KY-IN Amateur Radio Society



Greetings!

The OH-KY-IN Amateur Radio Society will proudly be conducting its annual ARRL Field Day event on Saturday and Sunday, 25 and 26 June 2016 at our usual Mitchell Memorial Forest location. Setup will be on Friday, 24 Jun starting at 2pm (24 hours before actual operation). Please come on down to the park for a weekend full of amateur radio at its best! Field Day is a yearly ARRL Contest that starts at 2PM on Saturday and concludes at 2PM on Sunday.

As Field Day Chair I am honored for our Club as we put on the best Field Day operation in the area. With the hard work of so many of you throughout the years, it has gotten to the point that planning each year's event gets a little easier every time. That's due to the fact that we've gotten so good at this that there is very little we need, or would like to change. So this year, we will once again go forward with our same planning as the last few years, but of course, it is an open discussion. Suggestions and comments are always welcome.

We will again be operating five stations:

SSB Station 1: 10,15,20,40,80M

SSB Station 2: 10,15,20,40,80M

CW Station, 20 and 40M

6 Meter/VHF/UHF Station

Digital Station

GOTA (Get on the Air Station)

We will also have demonstrations for our bonus points in Solar, Satellite/Digital/APRS and National Traffic System operations among others. If there is any amateur radio technology you would like to bring out to demo, this is the perfect place!

Field Day is a great annual event geared to veteran and beginner operators alike, and of all ages. Anyone, regardless of their skills are free to sign up for any station and there is always someone available to help you along. The GOTA station is a great place for those interested in amateur radio (but have not yet been licensed) to get introduced to the fun of what most often becomes a lifelong hobby!

Come out and join us for a great time of fun, food and camaraderie. The annual Field Day Picnic will start at 6pm on Satur-

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2016 Board of Directors

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Fred Schneider K9OHE..... (513) 729-0945 fschneider@fuse.net

OH-KY-IN Repeaters

146.670 (-) Clifton

146.625 (-) Edgewood, KY

146.925 (-) Colerain Twp

443.7625 (+5) Clifton

A CTCSS (PL) tone of 123.0 Hz is required for access to all OH-KY-IN repeaters. All repeaters also transmit a CTCSS (PL) tone of 123.0 Hz

APRS on 144.390 mHz

K8SCH-10 Edgewood WIDEn

K8SCH-9 Clifton WIDEn

Packet on 145.010 mHz

K8SCH-7 Digipeater

For membership information, please contact Nathan Ciufo KA3MTT, 6323 Cinnamon Ridge Dr, Burlington KY 41005, (859) 586-2435 or Email membership@ohkyin.org. Renewals of Club Memberships are due by the end of March. Permission is hereby granted to any amateur radio group to quote or reprint from this publication, if proper source credit is given, unless permission is otherwise reserved.

THE Q-FIVER is now mailed & e-mailed, it's hoped, a week before the club meeting.

Normally copy deadline is the weekend before that. Please send your submissions for THE Q-FIVER (including notice of upgrades & callsign changes) to Brian K4BRI

These may be: snail-mailed to or dropped off at 6901 Backus Drive, Alexandria KY 41001 or telephoned to (859) 635-3095 any time



Oh-Ky-In Life Members

John Phelps N8JTP

Kenneth E Wolf N8WYC

John W Hughes AI4DA

Karl W Kaucher KJ4KWR

Howard Hunt NG8P

2016 Committee Chairs and Appointments

Newcomers/Elmers Net..... Robert Gulley AK3Q
Technical CommitteeBrian DeYoung, K4BRI
ARPSC Representative.....Jerry Shipp W1SCR
Volunteer ExaminersBrian DeYoung K4BRI
QCEN Representative Pat Maley KD8PAT
Membership Nathan Ciufu KA3MTT
Fundraising Bruce Vanselow N8BV
Education Michael Niehaus KD8ZLB
Repeater Control Ops Mgr Bruce Vanselow N8BV
PIOTed Morris NC8V
Librarian Howard Alban KD8WOY

Q-Fiver Editor Brian DeYoung, K4BRI
Field Day..... Eric Neiheisel N8YC
Historian Dale Vanselow KC8HQS
Special Publications Jo Haltermon KD4PYS
Fox Hunters Dick Arnett WB4SUV
Equipment Mgr Brian Fulmer KC8FJN
WebMaster Ryan Williamson W1RYN
Silent KeyBruce Vanselow N8BV
Tech Talk Net MgrBruce Vanselow N8BV
K8SCH QSL MgrGerry Weimer KD8ASL
TV/RFI Dick Arnett WB4SUV

Foxhunting is cool! Come check it out, ride along or try it yourself. The May fox-hunt will be on Saturday, May 14th—and there will be a on-foot foxhunt at the Dayton Hamvention—Saturday May 21st at 5PM at Sinclair Park.

May Calendar

Sun May 1	7:00 PM	Newcomers/Elmers Net, 146.67, Topic: Dayton HamVention —NCS Robert AK3Q
Tue May 3	7:30 PM	Club Meeting at St Bernard Recreation Hall, 120 Washington Avenue.
Wed May 4	9:00 PM	Tech Talk, NCS Robert AK3Q
Sun May 8	7:00 PM	Newcomers/Elmers Net, 146.67, Topic: DMR vs. D-STAR —NCS Robert AK3Q
Wed May 11	9:00 PM	Tech Talk, NCS Brian K4BRI
Sat May 14	10:00 AM 1:00 PM	Mobile Foxhunt, starting at Mt. Storm park in Clifton—talk in on 146.670 Brunch Bunch at Frisch's restaurant in Norwood
Sun May 15	7:00 PM	Newcomers/Elmers Net, 146.67, Topic: Setting Up Dedicated Monitoring Posts —NCS Robert AK3Q
Wed May 18	9:00 PM	Tech Talk, NCS Dale, KC8HQS
Sun May 22	7:00 PM	Newcomers/Elmers Net, 146.67, Topic: Ham and Raspberry Pi - What a Meal! —NCS Robert AK3Q
Tue May 24	7:00 PM	Board of Directors meeting
Wed May 25	9:00 PM	Tech Talk, NCS George N3VQW
Sun May 29	7:00 PM	Newcomers/Elmers Net, 146.67, Topic: Getting Ready for Another Field Day —NCS Robert AK3Q

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day with burgers, metts, brats, dogs, and snacks. Please bring a side dish or a desert to help build the feast. Bring your friends and family out to see what's going on and to join us for the fun! Also, please feel free to pitch a tent Friday and/or Saturday night and stay the whole weekend if you like...a good number of us have been doing it for years. There is nothing better than the sound of QSOs through the night having a duel with the crickets!

I will have signup sheets available for all stations at the June Membership Meeting. If you would like to sign up and can't make the meeting, just contact me and I'll get you on the roster.

A FIELD DAY ORGANIZATIONAL MEETING is tentatively being planned for 6pm before the June Oh-Ky-In membership meeting (7:30 PM) on 7 Jun. All are welcome to attend.

Putting in an early plea to our planning is to note that every year we are always looking for campers/rvs for our Field Day stations. They make things much more comfortable and most importantly add rain and wind protection for the equipment. If you know of anyone who has a pop-up camper, RV, or any type shelter for us to use, please feel free to contact me.

Visit the ARRL's website for a wealth of information on Field Day at: <http://www.arrl.org/field-day>

I will be sending out more info soon as we continue to develop this year's event.

Thanks and see you soon!

Eric, N8YC

ARDF

Local Ham Wins US Championship

Dick Arnett of Erlanger won his Division's Gold Medal April 9 at the US Amateur Radio Direction Finding (ARDF) Championships held in Killeen, TX. Arnett, callsign WB4SUV, earned 2nd place in two more competitions, and 3rd place in a fourth. Winners of the 2016 and 2015 Championships will be considered for the ARDF Team USA entry at the 18th ARDF World Championships in Albena, Bulgaria, this September.

ARDF combines radio skills with orienteering, and some ARDF events are called "fox-hunts." The "fox" in this case is a hidden amateur radio transmitter, which operates only briefly every few minutes. In that time contestants must check the direction of the signal while moving through a designated area. With several "sightings," the ham can "zero in on" (triangulate) the fox location and register the find. There may be one or many foxes to find in each competition. Contestants are scored on number of foxes found and elapsed time.

Arnett competed in the Men's 70+ Division, and won the "144 MHz (VHF) Classic Distance Competition," gained 2nd place in both the "3.5 MHz (shortwave) Classic Distance Competi-

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tion” and “3.5 MHz Sprint Competition,” and earned 3rd place in the “Fox-oring (low power) Competition.”

Other area award winners include Marji Garrett (KJ4ZKC), Alexandria, 2nd Women’s 60+ VHF Classic; Mike Minium, Oxford, 2nd Men’s 50+ Fox-oring, and 3rd Men’s 50+ VHF Classic; and Matthew Robbins (AA9YH), Sharonville, 3rd Men’s 21+ Fox-oring, 3rd Men’s 50+ 3.5 MHz Sprint, and 3rd M50+ 144 MHz Classic. Brian DeYoung (K4BRI), Alexandria, also competed.

Arnett, Garrett, and DeYoung are members of the OH-KY-IN Amateur Radio Society, which meets the 2nd Tuesday of the month at the St. Bernard Municipal Center and holds monthly fox-hunts usually on the 2nd Saturday of the month. OH-KY-IN (ohkyin.org) helped sponsor the US Championships.



Minutes of the April, 2016 Regular Meeting

OH-KY-IN AMATEUR RADIO SOCIETY MINUTES OF APRIL 5, 2016, REGULAR MEETING

The meeting was **Called to Order** at 7:30 P.M. by President Michael Sien KD8SOH, commencing with the Pledge of Allegiance. Forty attendees included two guests, one spouse, and our speaker from WARN.

Health and Welfare: Harry Davis WA8LOJ is in the hospital.

Announcements: Kitty Hevener W8TDA commented on some recent discussions on the club repeaters, regarding “Third-Party Traffic.” Since Kitty formerly worked for the ARRL on FCC rule interpretation, she wanted to clarify some of issues mentioned in those discussions.

Third-party communications in our environment occur whenever there are two hams communicating, and a third person is involved as well (typically a non-ham), *and* the communications are *on behalf of* the non-ham (or other third person).

For example, at a public service event, an event official asks you to call in to the organization their need for some supplies delivered to your location. Typically, you (the ham) call another communicator (another ham), relay to him/her the official’s request (third-party communication), and that ham delivers the message to yet another event official (third-party communication again). Note the third-party may or may not “speak” on the radio; a child talking at the parent’s rig is a third-party to the parent-ham and distant-ham communication. Radiograms are frequently exchanged on behalf of third-parties.

Note that the child can’t even say “Hi!” to the other ham if that ham is operating under the jurisdiction of a country with which the U.S. does not have third-party treaty arrangements in place. [*Some countries which regulate their telephone/telegraph/radio services differently from the U.S. regard amateur third-party communications as a potential loss of regulatory income. A list of countries with which the U.S. does have third-party agreements can be found at <http://www.arrl.org/third-party-operating-agreements-NC8V>*]

There is no need for a guest on the air to ID “as” a third party; the control operator just needs to be sure to properly ID the station per regulations.

Program: Michael KD8SOH next introduced Mike Nie W8VMX of the Weather Amateur Radio Network (WARN), who shared the background and organization of the SKYWARN system in general and WARN in particular. Mike became involved with weather reporting as far back as the 1980s.

SKYWARN is implemented around here somewhat differently from lots of other places, particularly due to our tri-state nature. (Many others are organized within state boundaries.) Also, *this* SKYWARN program is affiliated only with the National Weather Service.

*** The emergence of Doppler radar in the late 1980s changed the emphasis of previous severe weather reporting, making computers a major part of the process over the simpler radar-based functions.... *** This allowed weather radars to be moved further out from cities, eliminating “ground clutter” interferences. For example, Wilmington’s NWS site lies within a triangle formed by three big Ohio cities, Cincinnati, Dayton, and Columbus.

There are several NWS centralized sites (“hubs”) around Ohio, and each may have multiple amateur radio weather reporting networks (“sections”) covering their included counties. WARN covers Southwest Ohio, Northern Kentucky, and Southeast Indiana, encompassing 17 counties, while Wilmington covers 52 counties in total.

Mike recapped briefly the type of information that bears notifying the net, criteria more explicitly brought out in SKYWARN reporting training. These include

- Winds of GE 50 mph, or causing *significant* damage (e.g., noting specifically limbs (of what size and condition) being brought down);
- Rain GE 1 inch per hour, *measured*;
- Hail GE 1/2” diameter (although NWS issues alerts only for hail GE 1” in diameter, at 1/2” they can begin to correlate the patterns with their radar pictures helping them “see” the bigger stuff if/as it comes along);

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- Flooding; and
- *Persistent* organized cloud rotation patterns.

Observations that are *not* valid reporting criteria include

- “It’s cloudy/dark”;
- “It’s raining here/windy/stopped raining”;
- “It’s clearing up here”;
- “We’re getting ‘a lot’ of lightning”; and
- Similar not-specific, not-measured, or purely subjective conditions.

Mike then emphasized what we as hams bring to the table, noting

- We can report weather observations with *better coordination*;
- We can report with fewer duplications;
- We can help verify questionable reports;
- Our efforts reduce the meteorologists’ workloads
- We are *not dependent on telephone lines*.

WARN was once located in the NWS facilities at the Greater Cincinnati and Northern Kentucky International Airport (CVG), then when those offices relocated to Wilmington WARN moved first to Mt. Adams and now is housed in the Kenwood offices of WLW radio 700AM. Mike’s subsequent PowerPoint images of prior and current station setups—and where they sit in relation to WLW’s newsroom work areas—helped emphasize the immediacy of WARN’s efforts.

WARN’s primary frequency is the 146.880- repeater, with the generous support of the Cincinnati FM Club. The Northern Kentucky NKARC repeater on 147.375+ is added when NKY weather conditions warrant. The station console, customized from a donated Harris design, hosts Yaesu and Icom rigs but Mike noted those are aging and they will eventually want to replace/upgrade them. He gave thanks to Clear Channel Communications and WLW 700, and Harris Corporation for their contributions.

New technologies WARN and NWS are following include

- NWS Chat (like a private Internet Relay Chat with the NWS family);
- D-Star (WARN may acquire some Icom D-Star digital radios when they next upgrade);
- Real-time Observations using real-time radar Apps on PCs and smartphones to share NWS radar data with the public;
- Social media (e.g., Facebook and Twitter: “@CincySkywarn”); weather event, though. accounts via outlets. Mike noted they do while they do have a webpage they are moving more toward distwhile they do have a webpage (www.warn.org) they are moving increasingly toward distributing information via social media outlets—Note, however, they do *not* check their social media accounts *during* a weather event.
 - While Internet *feeds* may go down, with multiple feeds available to contact/draw from, this is an increasingly important part of their resource mix.
- While WARN and NWS don’t use APRS information directly, many of the individual reporting hams do work with APRS applications.

The SKYWARN program consistently emphasizes safety. Mike noted

- We are not storm *chasers*, just storm *spotters*;
- Report from where we are, and don’t go looking for trouble spots;
- Do *not* “go mobile” for storm spotting;
- Put our camcorders away; and
- Our safety comes first.

Responding to a question from the audience, Mike addressed apparent rumors regarding WLW tower changes, WARN moving to the Cincinnati-Hamilton County Regional Emergency Operations Center (ROC), etc. He said these sound like pieces of several stories

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are being brought together where no real connection exists. For example, he confirmed that the ROC has plans to make space available for WARN operations, *if*, for example, WLW's facilities should go down.

Another questioner asked about the audio tone sequences heard on the '88 repeater. Mike explained it uses various reset-beep types to signal when events are being announced. These are of decreasing information value, though, since cell phone penetration has become so complete other means are at least as effective.

Mike received great applause and appreciation from the group for his presentation, which ended at 8:37 PM.

Michael KD8SOH moved directly into the business portion of the meeting.

Minutes: Three corrections were noted from the printed version in the April Q-Fiver: correction of Marty Newhall's callsign to KE8CEI; correct Tom Delaney's title to Vice-Director; and correct wording of W8WDS's Ohio State Parks On The Air effort to indicate he is honoring disabled veterans by this project. Minutes approved pending correction.

Membership: We currently have 107 members.

Treasurer: Brian DeYoung K4BRI distributed copies of the March Treasurer's Report, noting there was very little activity during the month.

Silent Keys: None noted, per Bruce Vanselow, N8BV.

Brunch Bunch: Bruce reminded the group our next Brunch Bunch location is the Steak and Shake Restaurant at Race and Bridgetown Roads, at 1:00 PM, this Saturday, April 9th.

Technical Committee: Chair Brian K4BRI indicate there was nothing really new; he has tweaked some audio levels on the 146.925 repeater, and all four repeaters are up and running.

Hamfest: Chair Gary Coffey KB8MYC reminded folks the Hamfest will take place on Saturday, September 19th. The first planning meeting will be Thursday, April 21st, 7:00 PM, at Aiken High School.

Ohio State Parks On The Air: The focal date for this operating event is September 10th, but Will Schram W8WDS is going to work remotely from all 73 Ohio State Parks starting 60 days out before the event. He could use some help with equipment loans, as well as helpers at the setups. On July 7 he will begin operating with special event callsign W8P, at which time he will begin hosting disabled American veterans and getting them on the air, and continuing through all 73 park stops. At the conclusion of his project he will have some giveaways for his volunteers at the parks and those who loaned him equipment.

Will has set up the website "ohiostateparks.gaterunner.com" where he is posting updated information on his routes, schedules, etc.

Fox Hunt: Brian K4BRI reported that 5 teams participated in March. He is encouraged by the new people who are showing up to learn. April's hunt will be set back to April 23rd from the usual second-Saturday date to avoid conflicts with our licensing exam session on that day and the US ARDF Championships the next weekend. The 23rd is also our NVIS (Near Vertical Incident Sky-wave) Antenna Test session, so Brian encourages folks to go fox hunting in the morning then head to Greenhills Commons for the NVIS event.

Library: Howard Alban WD8WOY brought some boxes of books we can borrow and some we can take home for our personal use (they are being weeded from the collection).

Tech Talk Net: Bruce Vanselow N8BV noted that Robert Gulley AK3Q will be the Net Control Station for tomorrow's Net (4/6).

Newcomers & Elmers Net: We are getting 35-40 regular check-ins lately for this Sunday 7:00 PM Net.

Website: Ryan Williamson W1RYN reported that he has released a few updates recently on our Facebook page, and will catch up the website with them shortly.

Digital Group Jerry Shipp W1SCR reported that they have Winlink pretty well thrashed out, and will next work on a Mesh Gateway to HF and the Internet.

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QCEN: Pat Maley KD8PAT reported that our own president, Michael Sein KD8SOH, had visited their last meeting. The program was an update on the Homeland Security ICS-300 course. ARRL Great Lakes Vice Director Tom Delaney W8WTD participated via Skype. Their next meeting is April 15th on Amateur Packet Reporting System (APRS).

ARES: Bryan Hoffman KC8EGV noted nothing much is planned right now for the Public Health Amateur Radio Group; Anderson Township's Regional Operations Center is coming together.

ARES now has an agreement with Delhi Township; provisions for a new repeater have been included in the plans for the new firehouse. ARES would welcome help in formulating procedures, specifications, etc., for the new equipment—contact Pat Maley KD8PAT.

The Tristate Medical Reserve Corps Volunteer Summit is this Saturday, April 9th. Anyone who has already signed up to help at the ham radio booth should note setup is 8:00 A.M.

OH-KY-IN's NVIS Antenna Test, in conjunction with the Ohio ARES statewide event, will be held Saturday, April 23rd, in the Commons of Greenhills. Set up for the event is 8:00 A.M.; the event itself goes from 10:00 A.M. into the afternoon or for as long as we care to continue testing. John Phelps N8JTP announced the menu will include pulled pork sandwiches, cole slaw, chips and soft drinks.

Education: Mike Niehaus KD8ZLB thanked the instructors for our recent classes, and reminded us that exams are scheduled for April 16th, 9:00AM in Centennial Hall in St. Bernard (basement of City Hall).

Old Business: Michael Sien KD8SOH noted that we still had trouble during our program getting our wireless mike to work cleanly with the room's sound system, we will keep trying.

New Business: Michael announced that Ted Ryan W8SAI of WLW will lead our Thursday, April 14th, tour of their facility. We should meet in the parking lot at 7:00 P.M.; the address is 710 Tylersville Rd., Mason OH. We expect about 35 folks to attend.

Ryan Williamson W1RYN noted that among future events, we will have a tour of the Hamilton County Regional Operations Center in June, led by member Ed Frambes K8EAF, and a visit to the Voice of America Museum in the fall.

Regarding membership benefits to folks taking our classes and our tests, it was moved and seconded that these membership durations would be the same as per our existing rules, e.g., if joining in the last three months of the year, would get the whole next year. (Mike Klus KD8TMO/Phil Hermann KD8TV) PASSED

Upcoming programs: May, Z98 Low Power FM station, presented by the stations originators; June, Field Day Planning led by FD Chairman Eric Neiheisel N8YC; July, OH-KY-IN Picnic (details TBA).

If we have any home brew projects we'd like to share about, please bring them to meetings to show them off.

Split the Pot: \$53 went to Michael Sien KD8SOH.

Giveaways: Howie Hunt NG8P provided several *Survival Magazine* issues.

The meeting **adjourned** at 9:05 P.M.

Respectfully submitted,

Ted Morris NC8V, Secretary



Elmers Corner: Some Radio Accessories Pt 1 By Robert Gulley AK3Q

Accessories Make the Man (or Woman!)

There is no question that simplicity is sometimes the best of all worlds—just a radio, a dog, and a lot of open space for both, and I can be a happy camper. However, there is also something to be said about having multiple radios, antennas, and various accessories at your disposal to enhance your listening opportunities.

I have a dual-band handheld radio which covers AM to 1.2 GHz, so technically it can hear a whole lot of signals. Even with its broad range of reception, I would not want to depend on it for all of my radio listening. Neither would I want to depend on a bare-bones radio station without some of the many options to broaden my radio enjoyment.

Antennas are not exactly accessories(!), but having multiple antenna options puts them in line with the spirit of this topic, so I will include them here. If you have only have one or two antenna options for your radio station, you really are missing out on a lot of possibilities. Like the radio which cannot do everything well, no antenna can do it all. Sometimes less is more, and sometimes more is more—a lot depends on what you are trying to do.

I have two horizontally polarized antennas for various HF bands, and one vertical for HF, and each antenna has its use. I also have two outdoor VHF/UHF antennas and one in the attic for poor weather conditions. When not in use for severe weather communications, the attic antenna is often devoted to APRS digipeating (more on this in a moment).

Since I am a shortwave fan in addition to amateur radio, I have a random wire antenna which I can attach to various shortwave radios, and indeed have been toying around with the idea of setting up a table to devote purely to shortwave radio and radios, swapping out radios once a month or so to experiment with old and new technologies. Is this going overboard? Perhaps. But then again, perhaps not. I don't want any of my radios to just sit around gathering dust—radios are meant to be used!

Switching Antennas

Unless you are into manually swapping antenna cables all the time, you will want to get some coax switches to change antenna inputs. There are all kinds of switches on the market, but I find I prefer the ones which have the ability to be switched to ground when not in use, as well as having some basic static lightning protection. I realize almost nothing I can do/afford will protect my equipment against a direct lightning strike, but basic protection against nearby strikes and static charges is money well spent in my book.

Switches are preferred to splitters in most cases, as splitters usually reduce signal strength where you do not want it. For sharing one antenna with multiple transmitting radios, you must use switches to avoid damaging the radios. If you must use a splitter between two or more receiving radios, make sure the inherent losses in the system are minimal. Or look into adding a pre-amplifier to compensate for the losses.

SWR/Power Meters

An accessory which is quite useful is an external SWR/power meter, or some combination of the two. I regularly use an external tuner with my main HF rig, and it has an SWR meter and power meter built in. While most modern radios have a built in SWR meter, I like having an external one for accuracy and ease of use.

A tuner for VHF might not be on your immediate radar, but I was able to pick one up a few years ago and have found it useful, especially when working SSB with an amplifier. What might be only a slight VSWR issue at 50 watts can turn into a major one at 150 watts. Modern HF receivers that also cover 2 meters might easily back down power levels if the SWR is more than 1.3:1, at least this has been my experience.

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I also like having SWR meters inline for VHF/UHF bands to keep an eye on things or to see how changing ends of the bands affects my VSWR on the 440 band. Losses add up quickly here, so it pays to know what's going on.

Antenna Analyzer

An antenna analyzer is an indispensable tool once you have one—you really will wonder how you ever got along without it. I shared the cost with a friend and we just trade back and forth as needed, which cut both our costs considerably. However, now having had one, I see it as being nearly as important as my radio.

An antenna analyzer can tell you a lot about your antenna system, including VSWR, capacitance/impedance changes, the location of a break in your coax, coax length, and much more. It even acts as a signal generator throughout its workable range, as well as on various harmonics.

While an antenna analyzer is useful in the shack, it is even more useful out near your antenna for checking antenna resonance before factoring in a long run of coax.

Another advantage to an analyzer is the repeatability of results so that tracking changes in a setup or over time is easily done. Some units have memory storage and can be hooked up to a computer, while others only give the immediate results—but these can still be logged for later reference.

Monitors and Hubs

I find having two computer monitors for my radio station has a number of benefits. When using logging software I am able to use one side for the logging form, while the other monitor shows me spotting information, previous log book entries, or radio control screens for various functions. Another use when logging is to be able to look at someone's QRZ page or go to their special event station page.

There are many radio-related pieces of software for digital mode use, image transfers, and satellite tracking/communication. You may have streaming sources, reference sources, or any of a hundred other things you would like to be able to see while having something else open. I have used multiple monitors for years and highly recommend it.

Another convenience feature is leaving one or two free USB cables attached to the computer to quickly connect accessories as needed, such as USB chargers, cameras, recorders, and the like. If USB connections are at a premium, there are inexpensive USB hubs available to increase connectivity—just be sure you get what you actually need! Some hubs do not have their own power source and thus divide power from the computer port among everything connected. I prefer units which offer full power to each port.

Next month I will cover some more accessories which I hope you will find useful, but of course each of us will eventually find things specific to our own needs. With Dayton Hamvention coming up this May it is a great time to look for odds and ends which will make operating more fun!

Until next time! 73, Robert AK3Q

Foxhunting

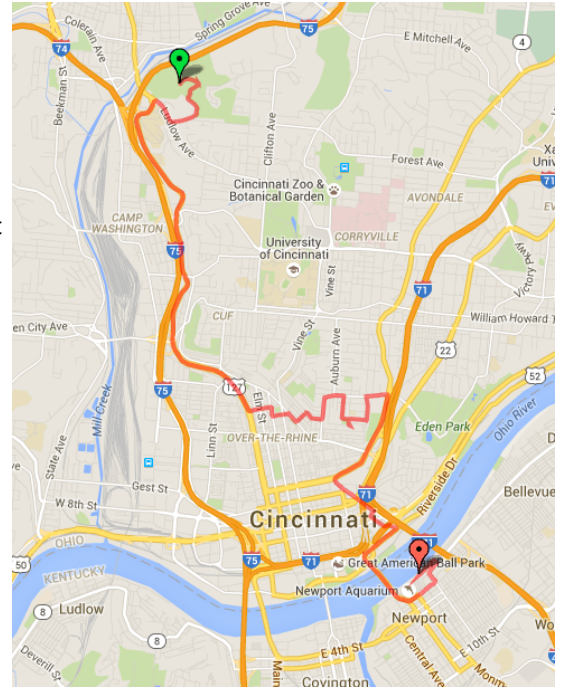
The April foxhunt took place on the 4th Saturday due to scheduling conflicts and me being just too darn busy. Even with the extra time, I still procrastinated and didn't get to work on my antenna at all.

Sure enough, when I got to the park and started setting up, I noticed that the beamwidth of the quad was waaaayyy too wide and it was skewed about 20 degrees clockwise. I started grasping at straws, and got the fine idea of taking off my fancy-dancy electronic compass I mounted to the mast just below the quad. Holy moly, the beam jumped right back into line and performed just like it should. Back to the drawing board for the compass, but oh well.

We had 4 teams for this hunt—Marji and I, Dick and Jane, Bob, and Ron with newcomer Lydia as a ride-along. Good signal from the start, right about 165 degrees—so of course I think downtown.

We head out south down Central Parkway, and right around Findlay St We see a swing east, so we cut across all the way up to WKRC's tower. The bearing swings much more south so we proceed towards the river, ending up right at the Purple People bridge. It definitely says go to KY, so we head across the river and I catch a glimpse of a red truck in the parking lot below the PP bridge. We make a beeline there and yep—there he is. We came in second but much better than previous hunts.

In May we will not only have the regular mobile hunt on May 14th, but also an on-foot hunt near the Dayton Hamvention—5PM on Saturday May 21st at Sinclair park. Also, come to the Foxhunting forum at Hamvention—Friday, May 20th at 2PM in room 3.



Brunch Bunch

The next Brunch Bunch will be held Saturday, May 14th at 1pm. The location for May is Frisch's restaurant in Norwood. Frisch's is located at 4765 Montgomery Road, just a short distance off the Norwood Lateral (SR 562).

For a look at the menu and a map to the restaurant, go to:

www.frischs.com

Remember that the Brunch Bunch always meets the second Saturday of every month at 1pm at a location to be announced each month. If you can't join us this month, maybe you'll be available to join us in the months ahead.

I'm always looking for suggestions on what restaurant you think might be a good place for the Brunch Bunch to visit soon.

73,Bruce, N8BV



The Music of Radio: The Telharmonium

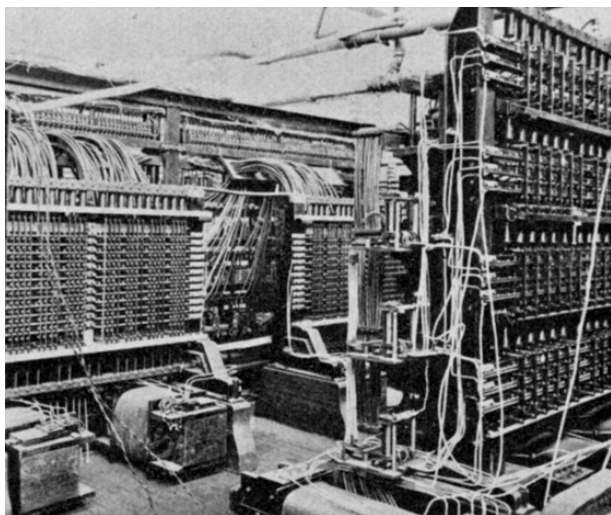
Justin Patrick Moore, KE8COY

Today those of us with access to cell phones and data plans tend to take things like streaming music, news, on-demand videos and face time for granted. Yet the impulse to do more than just talk over the wires has been part of the spirit of telephony since its earliest days. In the 1890's the telephonic playground was still in its infancy and commercial applications for the technology could have gone in many different directions. During this time entrepreneurial types were coming up with creative experiments for using telephones as a news delivery system or for musical entertainment.

Two years after Elisha Gray's playing of the musical telegraph in 1874, other folks decided it would be a swell idea to transmit music concerts along the commercial telegraph lines. This was done initially for the entertainment of the operators. In 1881 the first "stereo" concert was given via telephone. Clément Ader used dual lines to pass music from a local theater to two separate phone receivers. At the time this was dubbed "binauricular audition" a name that for some reason didn't stick. Later in 1890 AT&T was at work on a service to provide music for mealtimes. Though there were some issues with sound quality they stated that "When we have overcome this difficulty we shall be prepared to furnish music on tap." AT&T also had other development plans for the phone lines. Used for business during the day they hoped to "stream" music, lectures, and various oral entertainments to all the cities of the East coast at night.

Stateside most of these types of efforts didn't take hold but a few in Europe did. The first permanent service was an outgrowth of Clement Ader's work, known as the *Paris Theatrophone*. This was a subscription based service launched in the 1890's. The "Theatraphonic network" provided Parisians with "programs dramatic and lyrical" and held its own until 1932. In Hungary the concept of a telephone newspaper caught on, with the *Budapest Telefon Hirmondo*, which began service in February of 1893. It included news reports, original fiction, and other entertainments. Still going strong in 1925 it added a radio station while still offering a telephone relay to customers all the way up to 1944.

It was within this milieu that Thaddeus Cahill obsessed over and created what must be considered the ultimate behemoth of a musical synthesizer, the Telharmonium, a type of electrical organ. It was specifically intended to be played over the phone lines. Amplifiers hadn't been invented yet and the phone receiver was still the only available technology that could make an electronic sound audible. The Telharmonium implemented sinusoidal additive synthesis via mechanical means using tonewheels and alternators rather than an oscillating circuit. The discs on a tonewheel have specific numbers of bumps on the edge. These generate a specific frequency through induction as the bumps move past an electromagnetic coil. Frequency and waveform are determined by the shape of the wheel, the number of bumps on it and how often they pass the tip of the magnet. Using multiple tonewheels a single fundamental frequency can thus be combined with one or more harmonics to produce complex sounds. Later the tonewheel was used in radio work during the pre-vacuum tube era as a BFO for CW.



Cahill is credited with coining the phrase "synthesizer" for describing his instrument. It was patented in 1897. Five years later he founded the New England Electric Music Company with two partners. The Telharmonium or Dynamaphone as it was also called was first demonstrated in 1906. The instrument was a true boat anchor. The Mark I version weighed in at a hefty 7 tons and could be considered light compared to the Mark II and III which weighed around 200 tons, and took up thirty train box cars when shipped to New York for assembly in what Cahill called his "Music Plant". The instrument looked like a power generator and took up an entire floor on 39th

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street and Broadway in New York city. Indeed the machine itself put out 670-kilowatts of power. Each generator rotor produced a pitch and a 60-foot chassis held 145 rotors.

One floor up was Telharmonic Hall, a concert space where the instrument was controlled and played. Two to four musicians could sit at the controls to play the Telharmonium from the listening hall. It was a unique arrangement of four keyboard banks each with 84 keys. Before the minimalist composers La Monte Young and Terry Riley brought just intonation back into the fold of Western music, it was possible to play the Telharmonium using just intonation. Just intonation differs from equal temperament in that it occurs naturally as a series of overtones where all the notes in a scale are related by rational numbers. In just intonation the tuning depends on the scale you are using. Equal temperament was developed for keyboard instruments so that they could be played in any scale or key. The Telharmonium through additive synthesis, and the ability to control timbre, harmonics, and volume was an extremely flexible instrument.

Though there was no channel separation the Telharmonic hall was fitted with eight telephone receivers augmented with paper horns. These were arrayed behind ferns, columns and furniture. An electrician at the company suggested splicing the current from the Telharmonium into the arc lamps hanging from the ceiling which then resonated at the same frequency as that being played to create "singing arc." The Telharmonium could also be piped to any number connected to the AT&T phone system.

Thomas Commerford Martin wrote of the new sounds of the Telharmonium as an alliance of electricity with music. Cahill "has devised a mechanism which throws on the circuits, manipulated by the performer at the central keyboard, the electrical current waves that, received by the telephone diaphragm at any one of ten thousand subscribers' stations, produce musical sounds of unprecedented clearness, sweetness, and purity."

Cahill had ambitious plans for his "Telharmony". He advocated that a form of "electric sleep-music" could be tapped at any time for the cure of modern nervous disorders. The electric drones could also be used to relieve boredom in the workplace. But his plans were not to bear fruit in the manner he thought. His instrument sometimes caused interference or crosstalk on the phone lines, electronic music interrupting business and domestic conversation. It also required vast amounts of power. When vacuum tubes started to appear and in the 1920's other less expensive electronic instruments, that did not require the infrastructure provided by Ma Bell, started being built. Finally with the advent of broadcast radio many of these types of ventures ceased to be profitable. No known recordings of the Telharmonium exist.

In the 1930's Hammond patented the electrically amplified organ which was essentially a smaller and more economical version of the Telharmonium. This was much to the chagrin of Cahill's family as the patent on his instrument had not yet run out. Synth pioneer Robert Moog later recognized the genius of Cahill's work and his seminal place in the history of electronic music.

In William Peck Banning's 1946 book, *Commercial Broadcasting Pioneer: The WEA Experiment 1922-1926*, he wrote that "historians of the future may conclude that if there was any 'father' of broadcasting, perhaps it was the telephone itself".

Sources:

<http://earlyradiohistory.us/sec003.htm>

<http://earlyradiohistory.us/1906telh.htm>






<http://www.synthmuseum.com/magazine/0102jw.html>

<http://www.cabinetmagazine.org/issues/9/dewan.php>

<https://en.wikipedia.org/wiki/Telharmonium>

<http://120years.net/the-telharmonium-thaddeus-cahill-usa-1897/>

May 2016 DX Spots de KA3MTT

Sun	Mon	Tue	Wed	Thu	Fri	Sat
<p>1 T88RF - Palau thru 5-5</p> <p>-----</p> <p>PJ7BH - S. Maarten thru 5-8</p> <p>-----</p> <p>YJ0CS - Vanuatu thru 5-27</p>	2	3	4	5	<p>6 FM - Martinique thru 5-11</p> 	7
<p>8 E44QX - Palestine thru 5-15</p> 	9	<p>10 SV9 - Crete thru 5-20</p> 	<p>11 J68 - St Lucia thru 5-22</p> 	12	<p>13 9H3SQ - Malta thru 5-19</p> <p>-----</p> <p>PY0NY - Fernando de Noronha thru 5-23</p>	14
<p>15 YB9 - Indonesia thru 6-1</p> 	<p>16 PJ2 - Curacao thru 6-6</p>	17	18	19	<p>20 PJ2 - Curacao thru 6-6</p> <p>-----</p> <p>VK9NT - Norfolk I thru 5-31</p> <p>-----</p> <p>DAYTON HAMVENTION</p>	21 DAYTON HAMVENTION
<p>22 DAYTON HAMVENTION</p>	<p>23 E51XYZ - S Cook Is Thru 5-28</p> <p>-----</p> <p>FM - Martinique thru 6-3</p> <p>-----</p> <p>ZD7VDE - St Helena Thru 6-5</p>	24	25	26	27	28
29	30	31				

The next meeting of the Oh-Ky-In Amateur Radio Society will be Tuesday, May 3rd at 7:30 PM

OH-KY-IN Amateur Radio Society

Regular monthly meetings are held the first Tuesday of each month at 7:30PM local time at the St Bernard Recreation Hall, 120 Washington Avenue (corner Washington & Tower Aves) in St Bernard, just east of Vine St. Please come in the doors at street level, facing the high school. Visitors are ALWAYS welcome!

OH-KY-IN Amateur Radio Society

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