

Q-FIVER

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



From the President's desk....

Wow... where has this year gone! I apologize that I haven't had the opportunity to write many articles this year but I have been battling High Blood pressure issues! Like many of my fellow "Baby Boomers" it is time to get a CPAP machine. That wonderful machine that once I am hooked up to it my sleep is supposed to actually recharge me and make me feel like a new man! This guy is hoping that it isn't just a ploy and that it really works!

Why is the above important to me you ask, why should you care? Because August and the beginning of September are busy months for OH-KY-IN, ARS. There isn't any time for cat naps, or complaining that you are bored, it is time to get off of your couch and get involved! By the time you get this newsletter a couple of these events will be over but I implore you to mark them on your calendar and join us next year! Come join the camaraderie of working an event with the OH-KY-IN group and have fun with volunteering and working contests!

First event that is near and dear to so many hearts not only in our club but in the community the **Cystic Fibrosis Foundation Bike Ride**. What a fun and rewarding event! If you work one of the three rest areas that we provide communications for you are going to meet parents, friends, and family of someone who actually has Cystic Fibrosis and hear first-hand just how much your help is appreciated. Once you hear what their loved one has to go through or might go through on a daily basis you will understand just how important what you do means to them!

On this event we offer many opportunities...you can be Net Control Operator, communication operator at one of the three rest areas, SAG vehicle operator which allows you to drive the course and help bike riders that have equipment or health problems and need to be taken back to the Start/Finish line. On the rest areas we like to break it up into 4 hour shifts depending on how many volunteers we get. I know that I would

(Continued on page 4)

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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

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2016 Committee Chairs and Appointments

Newcomers/Elmers Net..... Robert Gulley AK3Q
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Special Publications Jo Haltermon KD4PYS
Fox Hunters Dick Arnett WB4SUV
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WebMaster Ryan Williamson W1RYN
Silent KeyBruce Vanselow N8BV
Tech Talk Net MgrBruce Vanselow N8BV
K8SCH QSL MgrGerry Weimer KD8ASL
TV/RFI Dick Arnett WB4SUV

Come out to the Annual Oh-Ky-In Hamfest on September 17th!

September Calendar

Sun Sep 4	7:00 PM	Newcomers/Elmers Net, 146.67, Topic: What is Antenna Reciprocity and Why Does it Matter? —NCS Robert AK3Q
Tue Sep 6	7:30 PM	Club Meeting in St Bernard - Home Brew night
Wed Sep 7	9:00 PM	Tech Talk, NCS Robert AK3Q
Sat Sep 10	10:00 AM 1:00 PM	Mobile Foxhunt, starting at Mt. Storm park in Clifton—talk in on 146.670 Brunch Bunch at McCoy's Place located at 6008 Springdale Road, 45247
Sun Sep 11	7:00 PM	Newcomers/Elmers Net, 146.67, Topic: Experimenting with Small Antennas —NCS Robert AK3Q
Wed Sep 14	9:00 PM	Tech Talk, NCS Brian K4BRI
Sat Sep 17	8:00 AM	Hamfest—Aiken High School
Sun Sep 18	7:00 PM	Newcomers/Elmers Net, 146.67, Topic: Computer Modeling Software —NCS Robert AK3Q
Wed Sep 21	9:00 PM	Tech Talk, NCS Dale, KC8HQS
Sun Sep 28	7:00 PM	Newcomers/Elmers Net, 146.67, Topic: Computer Modeling Software —NCS Robert AK3Q
Tue Sep 27	7:00 PM	Board of Directors meeting
Wed Sep 28	9:00 PM	Tech Talk Net, NCS George N3VQW

(Continued from page 1)

really appreciate your help next year and if you are interested drop me an e-mail at Michael.sien@zoomtown.com and I will answer any questions you might have!

The next event that will have come and gone by the time you are reading this is the **Ohio QSO Party**. Why sit at home and work this contest when you can come down to Ross Park in St. Bernard, Ohio and join in the fun! We offer Food, fun, and radio time not to mention networking with some of your fellow hams! We have a great time every year...come down and join us!

Here is an event you will be able to participate in...Come join us at the **OH-KY-IN, ARS 3rd Annual Hamfest**:

When: September 17, 2016

Where: Aiken High School – 5641 Belmont Ave. Cincinnati, OH 45224

Time: 8 AM to 1 PM

Talk-IN: 146.670 MHZ (PL 123)

This is an indoor and outdoor flea market and will be open rain or shine! Are you interested in getting a table to sell your equipment? Well I can hook you up! It is only \$5 so send me an e-mail at the address above and I can get your spot reserved! We will also be giving Exams starting at 8:30, along with an ARRL Forum, a Fox Hunt, and door prizes. Hope to see you there!

Wait...I know what you're thinking! Hey Michael it is Festival time is OH-KY-IN, ARS involved in any local festivals? You are in luck! We are volunteering to help out this year at **Harvest Home Fair**. We still have shifts available for Saturday September 10th and Sunday September 11th. You will get to park on the Fair grounds and when your shift is done enjoy the fair. If you're interested send me an e-mail and I will get you added to the list.

Are you still bored? Not to worry do I have just the thing for you! The **Ohio State Parks on the Air** is coming up September 10th keep a look out on OH-KY-IN web-site for more information to come! It is a great time to get your NVIS antennas out and work the Ohio State Parks.

Thanks for reading my article and sharing with me all the fun things that keep me busy. Like I said in the intro I hope that CPAP machine is all that it is cracked up to be! Have you just gotten your license and you're asking yourself now what? Come join us at our next meeting the first Tuesday of the month at 7:30 PM in St. Bernard find me and I will be glad to answer that question for you!

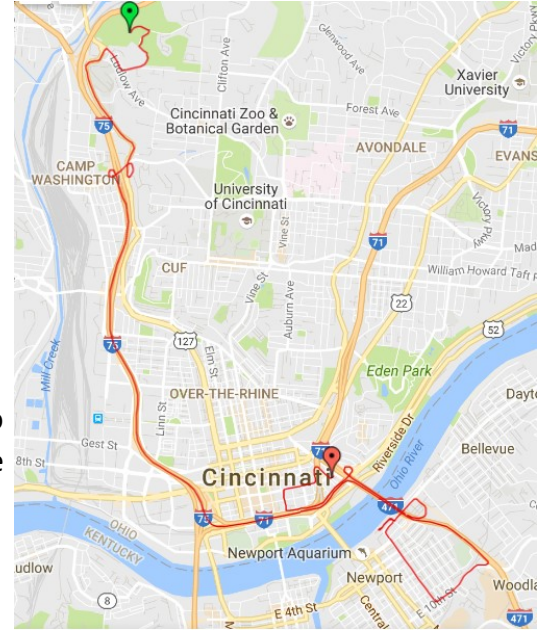
There are so many fun and exciting activities to do in Amateur Radio. There are still so many things as a club that we want to introduce and accomplish in Amateur Radio with our club members. All we need is you! Come join us won't you?

73's and until next month!

Michael Sien – KD8SOH

Foxhunting and ARDF

The August monthly mobile foxhunt had 4 teams, and the competition was fierce! Our first bearing was 145 degrees, which always makes your heart sink because it is right down the Ohio river near Lunken airport and I always choose the wrong side of the river to be on. So we sped off on the highway thinking we would head up 471 and take bearings from there. As soon as we got across the river, it pointed back towards downtown—U turn! I stopped near the river just to check that he was actually back in Ohio, and right at the river's edge, it still said north. Coming back over the bridge onto 3rd street—I see Phil's truck underneath the highway off of Eggleston. So it is just a race to see who can get there first—Of course, WE DO. The interesting fact on this hunt is that we all found him within 1 minute of each other, but we didn't all take the same route.



Brunch Bunch

The next Brunch Bunch will be held **Saturday, September 10th**, at 1pm. The location for September is McCoy's Place located at 6008 Springdale Road, 45247, in Colerain Township. McCoy's Place is at the corner of Springdale Road and Symmesridge Lane and directly across the street from the intersection of Springdale and Daleview Roads.

McCoy's Place does not have a website however I do understand that they do have a Facebook page. A google search provides several websites with information about McCoy's Place, some of these provide the McCoy's Place menu.

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 Elmer's Corner : Taking Tube Radios for a Test Drive

By Robert Gulley AK3Q



The first time I had a chance to operate a radio from the 1960s I couldn't believe the difference in the feel of the radio's dials and switches. Being a child of the transistor age I became accustomed to lightweight radios, plastic switches, and soft spinning dials. Turning the tuning dial on an old Hallicrafters or an old Swan HF transceiver was like feeling the whole radio was a mechanical marvel, and I instantly fell in love with the feel.

This month I am going to take a step back in time to look at tube radios with the hope that you will find the same thrill I did as a newcomer, or perhaps rekindle your romance with these mechanical marvels from your past.

Relatively Speaking

I realize what I consider old is not *really* old—the term “old” is always a relative one. The oldest radio I own comes from the 1950s, but I am working on that, slow but sure. Really old radios would come from the '30s and '40s, and ancient ones would be from the '20s or earlier. Fortunately, radios from the '50s and '60s abound, and many parts are readily available for repair.

One of the first things you would notice about older radios is the heft of these things—these are not called “boat anchors” for nothing! Metal cases and metal parts abound, and the size of virtually all of the components are far larger than their modern counterparts. Some radios used slide rule dials and string for tuning, with rather intricate stringing patterns.

The advantage to slide rule dials is more room for other components while keeping the unit smaller over all, but the accuracy of the vernier dials is noteworthy. Most well-made older radios had gear reduction systems in them to make tuning easier. The Swan 350 I own actually has a fast and slow/fine tuning dial—the outer ring moves through the band quickly, while the inner knob is a fine tuning adjustment.

Tubes

For some folks “tubes” represent a return to an age they never knew and do not want to know. For others it brings back fond memories of sitting in the warmth and glow of their radios on a cold winter's evening. Then there are folks like me who missed the “golden age” of radio, and who want to experience even a small sense of that time.

Old radios are not much different than modern radios in many respects, other than the tube circuitry and their controls. While the tuning of the radio (tuning here refers to balancing power/impedance issues for the vacuum tubes) requires a bit of a learning curve, almost everything else is what you would expect from a solid state radio (without the menus!).

Tube radios need time to warm up and to stabilize. A common complaint for these radios is that they drift off frequency over time. Typically, the amount of drift after warming up for 30 minutes is minimal, and I have not noticed much drift at all, even though Swan 350s were often called Swan 3-drifties! Any tube radio will need time to stabilize, and even modern solid state radios can experience a bit of drift.

Of course the first thing to do with any tube radio is to read the manual, particularly if you do not already have a lot of time operating your particular unit. Even if you think you know what to do, enjoy the manual. Unlike modern manuals, older manuals are almost a radio education in themselves as there is often radio and antenna theory summarized in a well-written style. There can also be a description of how the major components work which can help you understand the design flow/logic of the radio, and instructions on alignment and calibration.

Vacuum tubes (or valves for the British) once so ubiquitous such that every corner drugstore had a tube checker, can be a bit of a mystery to modern ears. Plate currents, grid currents, and load currents are things we don't have to worry about with modern radios, but if one never experiences a tube radio, this part of the magic stays forever hidden behind the curtain.

(Continued on page 7)

Tube Basics

Without going into a long technical section on tube operation, the basic idea of a tube is that electric current comes into the tube, usually glass, and travels through a vacuum. There are electrical conductors (electrodes) which take the electrons from a heated filament and cathode (by means of thermionic emission) to a plate, the rate of which is controlled by a grid, and an amplification of the current results.

This basic tube was referred to as a triode tube. Advancements in field led to adding more grids to produce the tetrode (4 elements) and the pentode (5 elements), with the Pentode being the most commonly used in radio. The additional electrodes allowed for more control over the current, reduced capacitance, and greater amplification.

This control is determined by adjusting plate and grid current/voltage levels—thus the controls on vacuum tube radios. Adjustments must be made in the proper order, and this often become confusing for the newcomer without following the instructions in the manual. After using the controls for a while one can tune up the radio fairly quickly, but if you are like me, a few weeks away from it and I am getting out the manual once more.

Using an Old Radio

Warm up time is always needed for older radios, but if a radio has been sitting for a long time it is always advisable to bring it up to full power slowly, using a Variactor or similar device. Giving an old radio a 110v “shock” could easily blow out some of the components in the radio.

By slowly raising the power voltage you also might be able to coax weakened capacitors back to life, sometimes referred to as reconditioning a capacitor. When slowly raising the power you may not see the tubes begin to glow until you are at half power, or they may be very dim. As power is increased the tubes should have an orange tint to them and be reasonably bright, but not like looking at a light bulb. If a tube does not glow it may have lost its vacuum or not be making proper contact in the socket. Another possibility could be a heater to cathode short circuit. This could also cause one or more tubes to be significantly brighter than the others. You may need to check some tubes, or all of them, to locate a problem.

Assuming everything powers up correctly, give the tuning dial a spin and see what comes in. Most controls not related to tuning up the power amplifiers will be familiar to you, such as AF control, RF control, AGC, and the like. Of course if you are only using a receiver, virtually all of the controls will be familiar since you will not have to worry about transmitting/amplifying tubes.

Enjoy the Warmth

I think old radios are a mindset as much as anything—in a world of microwave-type fast food expectations, an old tube radio is like sitting down to Sunday dinner with the family. The pace is laid-back, the conversations are casual, and the atmosphere is warm and inviting. All in all, not a bad way to spend a Sunday afternoon!

The Music of Radio: The Audion Piano and Wireless Fantasies

By Justin Patrick Moore, KE8COY

No man works in a vacuum. Before the industry of radio got off the ground it had been customary for researchers to use each-others discoveries with complete abandon. As technical progress in the field of wireless communication moved from the domain of scientific exploration to commercial development financial assets came to be at stake and rival inventors soon got involved in one of the great American pastimes: lawsuits. The self-styled "Father of Radio" Lee De Forest was involved in a number of infringement controversies. The most famous of these involved his invention of the audion (from *audio* and *ionize*) an electronic amplifying vacuum tube.

It was Edison who first produced the ancestor of what became the audion. While working on the electric light bulb he noticed that one side of the carbon filament behaved in a way that caused the blackening of the glass. Working on this problem he inserted a small electrode and was able to demonstrate that it would only operate when connected to the positive side of a battery. Edison had formed a one way valve. This electrical phenomenon made quite the impression on another experimenter, Dr. J. Ambrose Fleming, who brought the device back to life twenty years later when he realized it could be used as a radio wave detector.

At the time Fleming was working for Marconi as one of his advisers. It occurred to him that "if the plate of the Edison effect bulb were connected with the antenna, and the filament to the ground, and a telephone placed in the circuit, the frequencies would be so reduced that the receiver might register audibly the effect of the waves." Fleming made these adjustments. He also substituted a metal cylinder for Edison's flat plate. The sensitivity of the device was improved by increasing electronic emissions. This great idea in wireless communication was called the Fleming valve.

Fleming had patented this two-electrode tube in England in 1904 before giving the rights to the Marconi Company who took out American patents in 1905. Meanwhile Lee De Forest had read a report from a meeting of the Royal Society where Fleming had lectured on the operation of his detector. De Forest immediately began experimentation with the apparatus on his own and found himself dissatisfied. Between the cathode and anode he added a third element made up of a platinum grid that received current coming in from the antenna. This addition proved to transform the field of radio, setting powerful forces of electricity, as well as litigation, into motion.

The audion increased amplification on the receiving side but radio enthusiasts were doubtful about the ability of the triode tube to be used with success as a transmitter. De Forest had been set upon by financial troubles involving various scandals in the wireless world and was persuaded to sell his audion patent in 1913.

Edwin Howard Armstrong had been fascinated by radio since his boyhood and was an amateur by age fifteen when he began his career. Some of his experimentation was with the early audions that were not perfect vacuums (De Forest had mistakenly thought a little bit of gas left inside was beneficial to receiving). Armstrong took a close interest in how the audion worked and developed a keen scientific understanding of its principles and operation. By the time he was a young man at Columbia University in 1914, working alongside Professor Morecroft he used an oscillograph to make comprehensive studies based on his fresh and original ideas. In doing so he discovered the regenerative feedback principle that was yet another revolution for the wireless industry. Armstrong revealed that when feedback was increased beyond a certain point a vacuum tube would go into oscillation and could be used as a continuous-wave transmitter. Armstrong received a patent for the regenerative circuit.

De Forest in turn claimed he had already come up with the regenerative principle in his own lab, and so the lawsuits began, and continued for twenty years with victories that alternated as fast as electric current. Finally in 1934 the Supreme Court decided De Forest had the right in the matter. Armstrong however would achieve lasting fame for his superheterodyne receiver invented in 1918.

Around 1915 De Forest used heterodyning to create an instrument out of his triode valve, the Audion Piano. This was to be the first musical instrument created with vacuum tubes. Nearly all electronic instruments after it were based on its general schematic up until the invention of the transistor.

The instrument consisted of a single keyboard manual and used one triode valve per octave. The set of keys allowed one monophonic note to be played per octave. Out of this limited palette it created variety by processing the audio signal through a series of resistors and capacitors to vary the timbre. The Audion Piano is also notable for its spatial effects, prefiguring the role electronics would play in the spatial movement of sound. The output could be sent to a number of speakers placed around the room to create

(Continued on page 9)

(Continued from page 8)

an enveloping ambience. De Forest later planned to build an improved version with separate tubes for each key giving it full polyphony, but it is not known if it was ever created.

In his grandiose autobiography De Forest described his instrument as making "sounds resembling a violin, cello, woodwind, muted brass and other sounds resembling nothing ever heard from an orchestra or by the human ear up to that time – of the sort now often heard in nerve racking maniacal cacophonies of a lunatic swing band. Such tones led me to dub my new instrument the 'Squawk-a-phone'....The Pitch of the notes is very easily regulated by changing the capacity or the inductance in the circuits, which can be easily effected by a sliding contact or simply by turning the knob of a condenser. In fact, the pitch of the notes can be changed by merely putting the finger on certain parts of the circuit. In this way very weird and beautiful effects can easily be obtained."

In 1915 an Audion Piano concert was held for the National Electric Light Association. A reporter wrote the following: "Not only does De Forest detect with the Audion musical sounds silently sent by wireless from great distances, but he creates the music of a flute, a violin or the singing of a bird by pressing a button. The tone quality and the intensity are regulated by the resistors and by induction coils...You have doubtless heard the peculiar, plaintive notes of the Hawaiian ukulele, produced by the players sliding their fingers along the strings after they have been put in vibration. Now, this same effect, which can be weirdly pleasing when skillfully made, can be obtained with the musical Audion."

Fast forward to 1960. The Russian immigrant and composer Vladimir Ussachevsky is doing deep work in the trenches of the cutting edge facilities at the Columbia-Princeton Electronic Music Center, one of the first electronic music studios anywhere. Its flagship piece of equipment was the RCA Mark II Sound Synthesizer, banks of reel-to-reels and customized equipment. Ussachevsky received a commission from a group of amateur radio enthusiasts, the De Forest Pioneers, to create a piece in tribute to their namesake. In the studio Vladimir composed something evocative of the early days of radio and titled it "Wireless Fantasy". He recorded morse code signals tapped out by early radio guru Ed G. Raser on an old spark generator in the W2ZL Historical Wireless Museum in Trenton, New Jersey. Among the signals used were: QST; DF the station ID of Manhattan Beach Radio, a well known early broadcaster with a range from Nova Scotia to the Caribbean; WA NY for the Waldorf-Astoria station that started transmitting in 1910; and DOC DF, De Forests own code nickname. The piece ends suitably with AR, for end of message, and GN for good night. Woven into the various wireless sounds used in this piece are strains of Wagner's *Parsifal*, treated with the studio equipment to sound as if it were a short wave transmission. Lee De Forest had played a recording of *Parsifal*, then heard for the first time outside of Germany, in his first musical broadcast.

Wireless Fantasy can be listened to at the following URL (or just search for it in youtube):

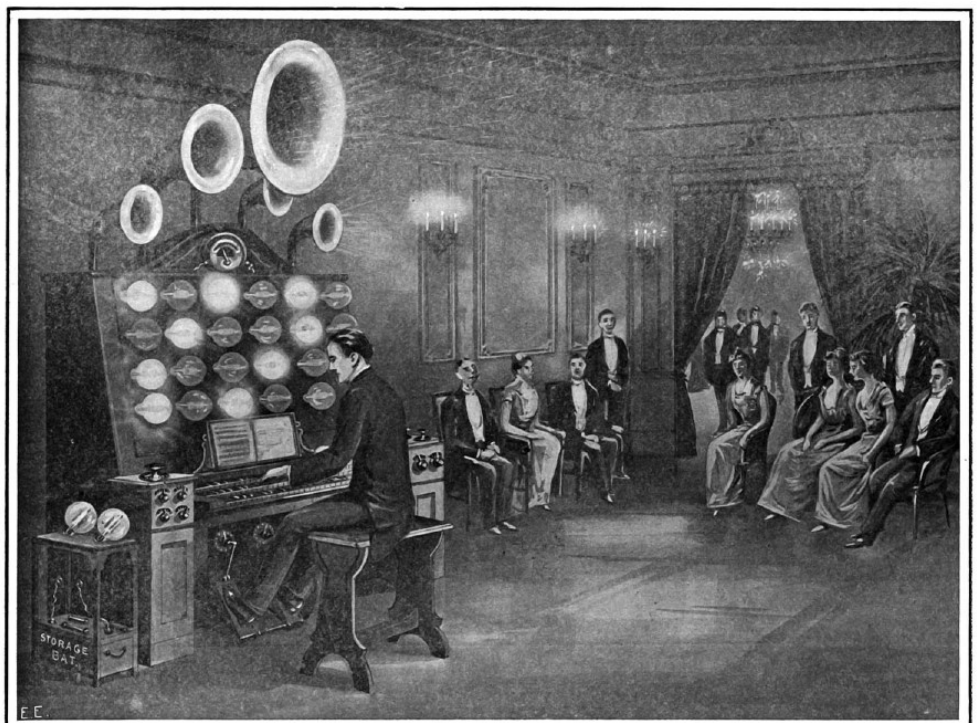
<https://www.youtube.com/watch?v=q936mBiArZQ>. It is also available on the CD: Vladimir Ussachevsky, *Electronic and Acoustic Works 1957-1972* New World Records

Sources:

History of Radio to 1926 by Gleason L. Archer, The American Historical Society, 1938

The Father of Radio by Lee De Forest
<https://en.wikipedia.org/wiki/Heterodyne>
<http://120years.net/the-audion-pianolee-de-forestusa1915/>

https://en.wikipedia.org/wiki/Computer_Music_Center



The Audion Piano May Entertain Us in the Near Future With Music Purer Than That Obtainable With Any Instrument Now Available. Also It Will Imitate Faithfully Any Orchestral Piece.

Hamfest

The 2016 OHKYIN Hamfest is less than two weeks away. Once again this year, it looks like it's going to be a great time for everyone. The doors will open at 8:00Am on Saturday September 17th. The Hamfest Committee has done a great job of lining up a host of vendors and flea marketers. There's sure to be something there for everyone. If you have something to sell, come on out! Indoor tables are only \$5.00 each and outdoor spaces are the same. Food will be served throughout the day.

Every paid member of the club should have received, in the mail a ticket to the event. We ask that you sent the ticket stub, along with \$5.00 to Lynn, WD8JAW. By returning your ticket stub, you will be entered for the door prize drawings even if you can't be present. The clubs asks that you return your ticket and entry fee if you can't make the event. This is a major fundraiser for our club.

Speaking of door prizes, Ted, NC8V, has done his usual great job and door prizes are rolling in for various vendors and manufacturers. This year's main prizes will be a Yaesu FT=100D dual band FM/Fusion mobile and also a Yaesu FT-3200 2 meter FM/Fusion mobile. So come on out and win!

There are several events throughout the day, the event flyer can be found on our club's webpage — www.ohkyin.org. Talk-in for the event will be on the 146.670 repeater (pl tone 123). Also, a map is below. Come out and join us. It's a great place to see some old friends and make some new one or even put a face to that voice you hear on the air!



September 2016 DX Spots de KA3MTT

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1 T32AZ - E Kiribati Thru 9-15 	2	3 PJ4 - Bonaire thru 9-24 ----- VP6AH - Pitcairn I Thru 11-25
4	5 FK-New Caledonia Thru 9-12 	6 JT - Mongolia thru 9-12	7 JW - Svalbard thru 9-12 	8 E51Q - S Cook Is Thru 9-19 	9	10 5W0BOB - Samoa Thru 9-17 ----- TO5FP - St Pierre & Miquelon thru 9-20
11	12 V47JA - St Kitts & Nevis thru 9-29 	13	14	15 OY - Faroe Is thru 9-29 ----- D44TUJ - Cape Verde Is thru 9-29	16 JW - Svalbard thru 9-19 	17
18 D66D - Comoros Thru 9-30 	19	20 5W0JHQ - Samoa Thru 9-27 ----- E6 - Niue thru 9-29	21	22	23 MD - Isle of Man Thru 10-4 	24 S79KB - Seychelles Thru 10-8 ----- 5Z4 - Kenya thru 10-10 ----- H44GC - Solomon Is thru 10-3
25 VK9NZ - Norfolk I Thru 10-15	26 S9 - Sao Tome & Principe thru 10-1 	27 T2R - Tuvalu thru 10-4 	28 A35JP/p - Tonga Thru 10-4 	29	30	

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!

The next meeting of the Oh-Ky-In Amateur Radio Society will be Tuesday, September 6th at 7:30 PM

The next meeting of the Oh-Ky-In Amateur Radio Society will be ‘Home Brew’ night. No, that does not mean to bring in your favorite home made beverage (unless it is a beverage antenna), but bring in your latest project, kit, or anything you have built, or are building.

OH-KY-IN Amateur Radio Society

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