

Q-FIVER

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

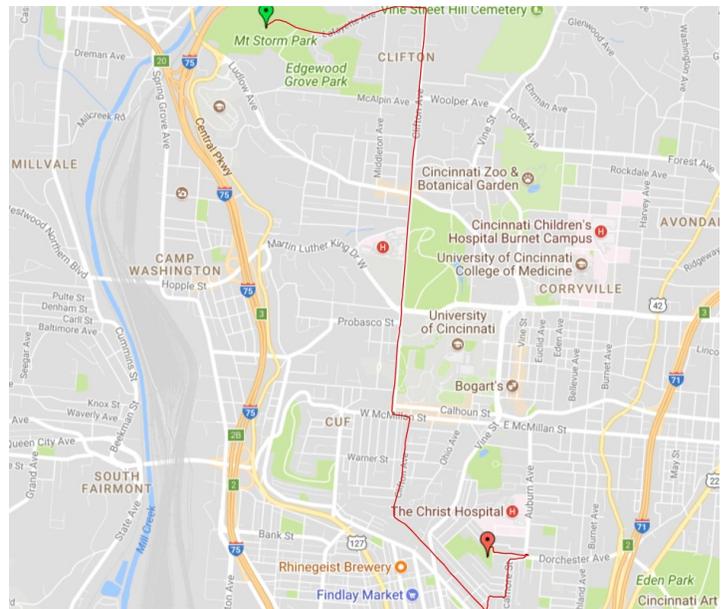


Cha-changes in the Foxhunt

We have decided to make some changes to the monthly foxhunts, and hopefully they make things better for all. The first big change is that I WON lol.

We will now use staggered starts so we are not all rushing out of the park in a mad frenzy—each team will start 3 minutes apart and the fox will record this, and figure out each teams time.

We are also going to alternate the hunt format each month, and have a mobile hunt on even numbered months, and an on-foot ARDF style hunt on odd-numbered months. In November, we will have an easy ARDF style foxhunt at Sharon woods, near the main building. We will start at the normal 10:00 AM, and we will have loaner gear available. Come give it a try—it is a great skill and some good exercise.



<i>Team Name</i>	<i>1st</i>	<i>2nd</i>	<i>3rd</i>
Brian, K4BRI and Marji, KJ4ZKC	3	2	1
Dick, WB4SUV and Janie, KJ4VCW	3	3	
Bob, WA6EZV		1	2
Bill, KA8TWB			1

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OH-KY-IN Repeaters

146.670 (-) Clifton

146.625 *(-) Edgewood

146.925 *(-) Colerain

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

** Fusion Repeater*

APRS on 144.390 mHz

K8SCH-10 Edgewood 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 R Kaucher KK4KRK

Howard Hunt NG8P

Fred Schneider K9OHE

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 ARPSC Representative.....Jerry Shipp W1SCR
 Volunteer ExaminersBrian DeYoung K4BRI
 QCEN Representative Pat Maley KD8PAT
 Membership Nathan Ciufo KA3MTT
 Fundraising Bruce Vanselow N8BV
 Education Michael Niehaus KD8ZLB
 Repeater Control Ops Mgr Bruce Vanselow N8BV
 PIOTed Morris NC8V
 LibrarianHoward Alban KD8WOY

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 WebMaster George Gardei N3VQW
 Silent KeyBruce Vanselow N8BV
 Tech Talk Net MgrBruce Vanselow N8BV
 K8SCH QSL Mgr Bob Frey WA6EZV
 TV/RFI Dick Arnett WB4SUV
 HamFest Gary Coffey KB8MYC

November Calendar

- Wed Nov 1 9:00 PM Tech Talk, NCS Robert AK3Q
- Sat Nov 4 9:00 AM VE Test Session in St. Bernard
- Sun Nov 5 6:30 PM Newcomers/Elmers Net, 146.67,
 Topic: **Working Satellites (Guest Nathan KA3MTT!)**
- Tue Nov 7 7:30 PM Club Meeting in St Bernard—Topic: **Homebrew night—show off your projects!**
- Wed Nov 8 9:00 PM Tech Talk, NCS Eric N8YC
- Sat Nov 11 10:00 AM Monthly ARDF style Foxhunt, at Sharon Woods
 1:00 PM Brunch Bunch at **Ron's Roost, 3853 Race Road**
- Sun Nov 12 6:30 PM Newcomers/Elmers Net, 146.67,
 Topic: **What Motivates/Discourages You Getting on the Air**
- Wed Nov 15 9:00 PM Tech Talk, NCS Dale, KC8HQS
- Sat Nov 18 4:00 PM ARRL Sweepstakes begins, runs until 4:00 PM Sunday
- Sun Nov 19 6:30 PM Newcomers/Elmers Net, 146.67,
 Topic: **Technician License Review**
- Wed Nov 22 9:00 PM Tech Talk, NCS George N3VQW
- Sun Nov 26 6:30 PM Newcomers/Elmers Net, 146.67,
 Topic: **General License Review**
- Tue Nov 28 7:00 PM Board of Directors meeting at My Neighbor's place –3150 Harrison Ave.
- Wed Nov 29 9:00 PM Tech Talk, NCS Kitty W8TDA

The Music of Radio: Two Pioneers of Spread Spectrum Radio

or the Chance Meeting of a Torpedo and a Player Piano Roll
by Justin Patrick Moore, KE8COY

In wireless communications spread spectrum radio is a transmission technique where the frequency of the signal is intentionally varied. This gives the signal a much greater bandwidth than if its frequency had remained constant. In the conventional transmission and receiving of signals, the frequency does not change over time, except for small fluctuations due to modulation. The signal is kept on a single frequency so two people communicating can exchange information, or so a listener in the broadcast bands knows exactly where to go to find his favorite station.

That is all fine and dandy for typical uses of radio. But as radio has developed the inventors and researchers who expanded the state of the art found a couple of hitches that made it problematic for certain types of signals to remain parked on one frequency. The first was interference caused by deliberate jamming on the desired frequency. This category also included other non-malicious interference coming from transmissions on nearby frequencies. The second issue with using only one frequency in a communication is when the information being transmitted is of a sensitive nature. Constant-frequency signals are easy to intercept. The military and others can make use of codes and encryption to veil transmissions on single frequencies, but codes can be broken. Radio researchers found that another layer of communication security could be added by the use of frequency-hopping which was the first technique established in spread spectrum radio.

Though attributed to multiple inventors, the first patent for frequency hopping was granted to actress Hedy Lamarr and composer George Antheil in 1942 for their "Secret Communications System" that was designed to protect Allied radio-guided torpedoes from being jammed by the Axis powers. Both Hedy and George are most remembered for their main fields of activity, movies and music, but they



each had a touch of the polymath inside of them, and their other passions allowed them to make a significant advance in the radio arts.



Hedy was born in 1914 in Vienna and started training in the theater as a teenager in the 1920's. By the age of eighteen she had married her first of six husbands. Friedrich "Fritz" Mandl was a wealthy ammunitions manufacturer whose weapon systems later gave her inspiration for the patent. During this time

she had started a career in film in Czechoslovakia with the 1933 film *Ecstasy* which became controversial for its frank depictions of nudity and sexuality. Hubby Mandl got a bit ticked off by these movie scenes and attempted to stop Hedy from continuing her career as an actress. In her autobiography *Ecstasy and Me* she claimed that she was kept virtually a prisoner in their Austrian castle home. She wrote, "I knew very soon that I could never be an actress while I was his wife.... He was the absolute monarch in his marriage.... I was like a doll. I was like a thing, some object of art which had to be guarded—and imprisoned—having no mind, no life of its own". And Hedy had a keen mind with natural talent for science and invention.

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Both Mandl and Lamarr had Jewish parents, but Mandl also had business ties with the Nazi government, to whom he sold his weapons. Mussolini and Hitler were among those who attended the lavish parties Mandl hosted at their Schloss Schwarzenau castle. Hedy would accompany him to his meetings where she got to associate with scientists and professionals involved in military technology. It was at these conferences where her interests in inventing and applied science were first sparked.

As her marriage grew unbearable she decided to flee to Paris where she met movie mogul Louis B. Mayer who was scouting for talent. With all the trouble brewing in Europe he found it easy to persuade her to move to Hollywood where she arrived in 1938 and began work on the film *Algiers*. She was in number of other popular feature films, including *I Take This Woman* (1940), *Comrade X* (1940), *Come Live With Me* (1941), *H.M. Pulham, Esq.* (1941), and her most famous role in Cecil B. Demile's *Samson and Delilah* (1949). After starring in the comedy *My Favorite Spy* (1951) with Bob Hope her acting career started to peter out.

It was during the height WWII and her career when she was also grew bored with acting. Hedy had complained that the roles given to her required little challenge in terms of technique or the delivery of lines and monologues. Mostly the films she had starred in cast her for her beauty rather than her talent and ability. Stifled by the lack of more demanding roles she found an outlet for her intellectual capacities through the hobby of tinkering and inventing which was nurtured by her friendship with aviation tycoon Howard Hughes.

Lamarr had some ideas about using radio controlled torpedoes in the war effort. To help her in its implementation she eventually tapped composer George Antheil, who had also found success in Hollywood scoring films. Antheil had been a part of the Lost Generation, and like many of his contemporaries such as Ernest Hemingway, he had moved to Europe after the horrors of the first World War to live a bohemian and artistic life amidst the cafes and salons of Paris in the 1920's. It was during this time period when he composed his best known work *Ballet Mecanique*. It began its life as an accompaniment to the Dadaist film of the same name made by Fernand Léger and Dudley Murphy, with cinematography by Man Ray. The techniques Antheil developed in this composition were to be key to the success of his shared frequency hopping patent.

Ballet Mecanique was scored to use a number of player pianos. He described their effect as "All percussive. Like machines. All efficiency. No LOVE. Written without sympathy. Written cold as an army operates. Revolutionary as nothing has been revolutionary." There are no human dancers. The mechanical instruments are what make it a ballet. Antheil's original conception was to use 16 specially synchronized player pianos, two grand pianos, electronic bells, xylophones, bass drums, a siren and three airplane propellers. There were a number of difficulties involved in this set-up that broke away from traditional orchestral arrangements. The synchronization of the player pianos proved to be the largest obstacle. Consisting of periods of music and interludes of relative silence created by the droning roar of airplane propellers. Antheil described it as "the rhythm of machinery, presented as beautifully as an artist knows how."

Besides composing Antheil was a writer and fierce patriot. He was a member of the Hollywood Anti-Nazi League and wrote a book of predictions about WWII titled *The Shape of the War to Come*. He also penned a newspaper column on relationship advice that was nationally syndicated and he fancied himself an expert on the subject of female endocrinology. His interests in this area was what first brought into contact with Hedy. She had sought him out for advice on how she might enhance her upper torso. After he proposed that she could make use of glandular extracts their conversation turned to the kind of torpedoes being used in the war.

Lamarr was herself a staunch supporter of her adopted country, though she didn't become a naturalized citizen until 1953. Using knowledge she gained from her first marriage with the munitions manufacture she had the

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insight that radio controlled torpedoes would excel in the fight against the Axis powers. However the radio signals could easily be jammed and the torpedo sent off course. Working with Antheil she devised their "Secret Communications System".

The action of composing for the player pianos helped Antheil with one of the aspects of creating their system, which had a striking resemblance to the still top secret SIGSALY system. It is best described in the overview of their patent number 2,292,387: "Briefly, our system as adapted for radio control of a remote craft, employs a pair of synchronous records, one at the transmitting station and one at the receiving station, which change the tuning of the transmitting and receiving apparatus from time to time, so that without knowledge of the records an enemy would be unable to determine at what frequency a controlling impulse would be sent. Furthermore, we contemplate employing records of the type used for many years in player pianos, and which consist, of long rolls of paper having perforations variously positioned in a plurality of longitudinal rows along the records. In a conventional player piano record there may be 88 rows of perforations, and in our system such a record would permit the use of 88 different carrier frequencies, from one to another of which both the transmitting and receiving station would be changed at intervals. Furthermore, records of the type described can be made of substantial length and may be driven slow or fast. This makes it possible for a pair of records, one at the transmitting station and one at the receiving station, to run for a length of time ample for the remote control of a device such as a torpedo. The two records may be synchronized by driving them with accurately calibrated constant-speed spring motors, such as are employed for driving clocks and chronometers. However, it is also within the scope of our invention to periodically correct the position of the record at the receiving station by transmitting synchronous impulses from the transmitting station. The use of synchronizing impulses for correcting the phase relation of rotary apparatus at a receiving station is well-known and highly developed in the fields of automatic telegraphy and television."

Although the US Navy did not adopt their technology until the 1960s the principles of their work continue to live on and are now used in everyday devices such as Wi-Fi, CDMA, and Bluetooth technology. Spread spectrum systems are also used in the unregulated 2.4 GHz band and on some walkie-talkies that operate in the 900 MHz portion of the spectrum. Other spread spectrum techniques include direct-sequence spread spectrum (DSSS), time-hopping spread spectrum (THSS), and chirp spread spectrum (CSS).

In 2008 Elyse Singer wrote the script for an off-Broadway play, *Frequency Hopping*, that features the lives of Lamarr and Antheil. It won a prize for best new play about science and technology. Hedy and George's pioneering work eventually led to their posthumous induction into the National Inventors Hall of Fame in 2014.

Sources:

Ecstasy and Me by Heddy Lamarr
https://en.wikipedia.org/wiki/Hedy_Lamarr
The Bad Boy of Music by George Antheil
https://en.wikipedia.org/wiki/George_Antheil
https://en.wikipedia.org/wiki/Ballet_M%C3%A9canique
<https://www.google.com/patents/US2292387>
https://en.wikipedia.org/wiki/Frequency-hopping_spread_spectrum

Suggested Listening:

George Antheil, Ballet Mecanique: Digital Re-creation of the Carnegie Hall Concert of 1927, Conducted by Maurice Peress, Music Masters Inc. 1992.

Suggested Viewing:

Ballet Mecanique: <https://www.youtube.com/watch?v=yrfibt6Bkwc>

It was a beautiful day for a bike ride.

It is such a nice day. The temperature was in the lower nineties but I still felt comfortable sitting in my chair at the water station I was manning just down the ramp from the Purple People bridge. Being between the mall and the parking garage seemed to create a wind tunnel which rewarded us with a nice breeze.

“net control this is race manager” my headset speaks into my left ear.

“race manager, this is net control” comes the response.

“permission to go direct to water station one?”

“go ahead.”

“water station one this is the race manager.”

I push a button that is attached to my lanyard. “Water station one, go ahead” I say into the mic positioned in front of my mouth. I was using a headset so the radio chatter didn’t bother the people around me.

“The last two of the 64-mile route riders: badge number 33 and 184 have passed water station two. Be on a lookout for them and report when they arrive at your position.”

“I will keep an eye out for number 33 and 184. N3VQW.”

“KD8SOH” the race manager identifies.

I get out of my chair. I need to stand up because my knees were starting to get sore from the awkward bend resulting from the sitting angle of the chair I was using. Getting out of the chair is also difficult as my posterior was closer to the ground than my knees were. Manning the station with me at this time was a lady and what I assume are her two teenage daughters. The girls didn’t seem to be interested in what was going on around them and appeared rather bored. Should I talk to them about ham radio? Hmm. No, they seemed content on playing with their smart phones.

Of all the riders that had already passed by, most of them opted to pass our station. A few stopped to get water, and snack on trail-mix, fruit or peanut butter and jelly sandwiches. A few had adjustments done or air pumped into their tires. Today’s bike ride had three routes. A 15-mile route where my station was a turnaround point, a 35-mile route where the riders pass my station first, and a 64-mile route with my station being the last rest stop. All the riders from the 15 and 35-mile routes have made it back to Lunken by now.

This event was the Cystic Fibrosis bike ride, and they have been relying on the local ham radio clubs to recruit radio operators every year. This is the fourth event I volunteered to participate in the last year or so. The first being the Price Hill Thanksgiving parade. The second being for the Red Cross Smoke Alarm Blitz and I also helped with the Amateur Radio Direction Finding Championship back in August.

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During the wait, I chit chat with the lady, show the girls pictures of my dogs and cat, and listen to the radio chatter and the repeater and net controller do the required identification every 10 minutes. The repeater's identification in Morse code was too fast for me to copy, so I have no idea what the call letters were as the repeater was not one I normally use.

Two riders on the 64-mile route zip by but they were not the riders I were looking for.

"Net control, this is KD8ZLB, may I have permission to go direct with water station one?"

"Go ahead."

"Water station one, this is KD8ZLB."

"KD8ZLB, go ahead" I respond.

"Did those two riders pass by yet?"

"No, they have not."

"Alright. What is your water situation there?"

"We have plenty of water"

"Once those two riders pass by, you should be ready to secure your station. Please set aside a case of water. I will be there in 10 minutes to grab it."

"Alright, you can have two cases if you want, N3VQW."

"KD8ZLB"

Time to sit down. I had pulled something in my back a few weeks ago and my lower back was starting to ache badly. About 10 minutes later the riders that we were looking for arrived. They decided to stop for some refreshments and to cool down.

"Net control this is water station one" I speak into the mic.

"Go ahead water station one."

"Riders 33 and 184 have arrived at water station one. They are stopping here."

"Thank you, please report when they leave."

"Will do, N3VQW."

A familiar white Chrysler SUV pulls up. It is Mike, KD8ZLB, from whom I borrowed a bright yellow vest during last years' Price Hill Thanksgiving parade: which... I haven't returned it yet. Apparently, Mike needed the water for his overheating engine; which was doing a convincing reenactment of Old Faithful in Yellow Stone National Park. He poured three gallons of water into the radiator, much of which immediately evaporated causing water to geyser out of the orifice he was pouring into. After about ten minutes he left taking as case of water hoping it will last him until he got back to Lunken.

The two riders got on their bikes and started on the seven miles remaining to Lunken Field.

"Water station one to net control" I say into the mic.

"Net control, go ahead water station one."

"The two remaining riders have just left. I do believe we are all done here and I am not needed anymore."

"Thank you, George: and thanks for volunteering today. You may secure your station now."

"Your welcome, seventy-three and N3VQW clear."

George W. Gardei



Cincinnati Sound Chorus presents

**Christmas time
Is Here**

an afternoon of holiday harmony



Sunday, December 10, 2017 at 3:00PM

Mayerson JCC, 8485 Ridge Road, Cincinnati OH 45236

\$20 adults, \$10 kids 10 & under

Tickets available from Susie Scott N8CGM or www.cincinnati-sound.org



Brunch Bunch

The Brunch Bunch is a group of amateur radio operators, friends, and family from the area that for more than 6 years have been meeting on the second Saturday of every month for lunch. We meet at 1pm at a location to be announced each month. Even if you've never joined us before, you're more than welcome to come hang out with us! You'll make some new friends, and you'll be sure to have a great lunch!

The next Brunch Bunch will be held **Saturday, November 11th, at 1pm. The location for November is Rons Roost in Bridgetown. Rons Roost is located at 3853 Race Road, next to Steak n Shake. You can't miss the gigantic rooster!**

Selling over 10,000 pieces of chicken each week, Rons Roost has been family owned and operated since 1960. What started out as a 20 seat diner in 1960 has grown to a full service restaurant & bar, along with a separate carry out area & covered patio. Rons Roost is very proud to have been voted Cincinnati's Best Fried Chicken (Cincinnati Enquirer) and also winner of the Best Dish at the annual Taste of Cincinnati.

For a look at the Rons Roost menu as well as a map and directions go to:

www.ronsroost.net

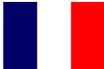
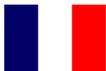
Remember that the Brunch Bunch always meets the second Saturday of every month at 1pm at a location to be announced each month. If you can't join us this month, maybe you'll be available to join us in the months ahead.

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



November 2017 DX Spots de KA3MTT

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		5L3BI - Liberia thru 11-4 	1 VR2 - Hong Kong thru 11-15 	2	3 VK9MA - Mellish Reef Thru 11-16	4 8P9 - Barbados thru 11-12 ----- 3B8HC - Mauritius thru 11-28
5 FG - Guadeloupe thru 11-10 	6 9U4M - Burundi thru 11-17 ----- VP2MDL - Montserrat Thru 11-20	7 VK9AR - Australia thru 11-10 ----- 5H3DX - Tanzania Thru 12-4	8 V4 - St Kitts & Nevis Thru 11-15 	9	10 JW- Svalbard thru 11-13 	11 5K0T - San Andres & Providencia thru 11-25
12	13 J5T - Guinea Bissau Thru 11-26 	14	15	16 TO2SP-St Barthelemy Thru 11-30 	17 3W9CW - Vietnam thru 11-30 	18 V34AO - Belize thru 11-30 
19	20 9G5W - Ghana thru 11-29 	21	22	23 3B9HA - Rodrigues I Thru 12-12	24	25
26 FY - French Guiana thru 12-7 	27	28	29 HC8LU - Galapagos Thru 12-7	30 FS - St Martin thru 12-8 		

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, November 7th at 7:30 PM

Program: HomeBrew *(not the liquid type)*

"November's Club Program is a DIY Night! Share your kits, projects, antennas - anything computer/amateur radio related DIY finished or unfinished, bring along and share! If it interests you, likely it will interest others! Let's see what's been occupying your project bench this year!"

NOTE: The meeting will be DOWNSTAIRS from our normal location. Go to the door at the back of the building

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PLEASE
PLACE
STAMP
HERE

