

Q-FIVER

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



Pizza at the Annual Christmas Party!

For the December meeting, members are encouraged to bring a dish to share, and maybe a two liter soft drink. Pizza, ice, plastic utensils, and paper plates will be provided. Only minimal business will be conducted, as this is our annual Holiday Party.

In terms of elections, written ballots will be used. Nominations were closed at the November meeting, so no further nominations can be made. The President may ask for a motion for an election of the officers, as there is but one nominee for the officer positions. Election of the Directors must be by written ballot because there are five nominees. It is likely that more than one ballot will be needed.

The following door prizes will be awarded to members whose ticket is drawn from the accumulation of all of the split the pot drawings held in 2016. The following are some of the door prizes:

- Yaesu FTM-100DR
- Yaesu FTM-3200DR
- Yaesu FT-60
- Baofeng UV-5R (3)

There may be additional door prizes donated by members. If you have something you would like to give away as a door prize, it would be welcomed!

There will also be an auction of some of the club's equipment that has been determined to be excess. It will be a silent auction. Silent auctions are conducted in writing. An "auction sheet" will be in front of each radio. It will contain a minimum opening bid on each sheet plus a minimum dollar amount for each further bid. Only paid up members of OH-KY-IN may bid. Members will be encouraged to bid on any radio(s) they wish to purchase - and to go back to raise the bids as they wish. The President will announce the end

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2016 Board of Directors

President

Michael Sien KD8SOH (513) 312-0691 Michael.sien@zoomtown.com

Vice President

Ryan Williamson W1RYN w1ryn@w1ryn.me

Secretary

Ted Morris NC8V (513) 731-3451 nc8v@hotmail.com

Treasurer

Brian DeYoung K4BRI (859) 635-3095 k4bri@arrl.net

Directors

Bryan Hoffman KC8EGV (513) 851-0525 hoffgroup@gmail.com

Gary Coffey KB8MYC (513) 382-3879 kb8myc@fuse.net

Robert Gulley AK3Q..... ak3q@ak3q.com

Trustee/Licensee

Bruce Vanselow N8BV (513) 251-1555 n8bv@juno.com

Past President

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 Ciufo 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 MgrFred Schneider K9OHE
WebMaster Ryan Williamson W1RYN
Silent KeyBruce Vanselow N8BV
Tech Talk Net MgrBruce Vanselow N8BV
K8SCH QSL Mgr Bob Frey WA6EZV
TV/RFI Dick Arnett WB4SUV

The monthly mobile foxhunt is back and better than ever! The December mobile foxhunt will be December 10th, starting at 10:00 AM—setup will begin about 9:30. We will be listening on the 146.670— repeater if you need directions.

December Calendar

Sun Dec 4	7:00 PM	Newcomers/Elmers Net, 146.67, Topic: Christmas Gift Ideas (For Dropping Hints, Notes, Something other than a Tie!) —NCS Robert AK3Q
Tue Dec 6	7:30 PM	Club Meeting in St Bernard - Christmas Party! Pizza, elections, equipment auction, door prizes
Wed Dec 7	9:00 PM	Tech Talk, NCS Robert AK3Q
Sat Dec 10	10:00 AM 1:00 PM	Monthly Mobile Foxhunt—start at Mt. Storm park in Clifton—setup 9:30—talk in 146.670 Brunch Bunch at Longhorn Steakhouse in Dent, 6620 Harrison Avenue, 45247
Sun Dec 11	7:00 PM	Newcomers/Elmers Net, 146.67, Topic: What's Indispensable in Your Shack? —NCS Robert AK3Q
Wed Dec 14	9:00 PM	Tech Talk, NCS Brian K4BRI
Sun Dec 18	7:00 PM	Newcomers/Elmers Net, 146.67, Topic: Planning for the New Year —NCS Robert AK3Q
Wed Dec 21	9:00 PM	Tech Talk, NCS Dale, KC8HQS
Sun Dec 25	7:00 PM	Newcomers/Elmers Net Merry Christmas (No Net)
Tue Dec 27	7:00 PM	Board of Directors meeting
Wed Dec 28	9:00 PM	Tech Talk, NCS George N3VQW

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of bidding, allowing time for members to make final bids. Payment may be by check or cash. Radios will be delivered to the winner bidder of each radio. If payment is made at a later date, arrangements for payment and delivery can be made at the end of the meeting

This is the equipment on hand for auction. More details will be emailed during the week of Thanksgiving.

1 Kenwood TS130SE HF Transceiver, PS30, AT100, MC50 microphone. With manuals.

1 Kenwood TS440S HF Transceiver with microphones. No power supply or manual or power cable. Manuals available on the Internet.

1 Kenwood TS450S HF Transceiver. There is no audio out on receive. Not tested further although it appears to transmit. No power supply or manual or power or power cable. Manuals available on the internet.

1 Yaesu FT 1000MP solid state HF transceiver with Power supply w. cables. Microphone and remote control keypad. No manual. When last used there were intermittent antenna connectors and the radio shorted out the built in antenna tuner.

1 Dentron MT-2000A 2KW antenna tuner, no manual.

Manuals are available on the Internet.

Fred Schneider K9OHE
Equipment Manager

October 2016 Meeting Minutes

President Michael Sein KD8SOH called the meeting to order at 7:30 PM, beginning with the Pledge of Allegiance and continuing by welcoming guest Jim Wood. All told there were 41 attendees. Self-introductions followed. Kitty Hevener W8TDA is learning about DMR. Mark Mohr KC8SGP has taken on new NCS duties of a net he's involved in and won't be able to make any Monday evening events.

Michael KD8SOH announced we would go through our business meeting first this evening, to facilitate Q&A and discussions with our presentation on Winter Field Day.

Minutes: Secretary Ted Morris noted one correction to the October minutes; the Split the Pot award went to Jim Wolford KG4DSR. The minutes were approved pending that correction.

Treasury: Brian DeYoung K4BRI presented his October Treasury report. Notably, the new rigs approved last month have been acquired with appropriate accessories, slightly under budget. The Cheviot Harvest Home Festival organizers provided a donation in thanks for our general helping services. An Arcom DRIX Interface has been acquired to complete our needs.

Silent Key: None reported

Brunch Bunch: Bruce Vanselow N8BV announced the next Brunch Bunch event would be Saturday, November 12th, at 1:00 P.M. at the Skyline Chili in St. Bernard, just across Vine Street from the St. Bernard City facilities our club uses for meetings and classes.

Technical: Brian K4BRI reported the 146.925 and 146.670 machines are doing well. The 146.625 station is on the air covering the Eastern part of our area pretty well. We are not using our final configuration yet, however.

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Brian travelled with Dennis McGrath WB8IMY to put new 440MHz equipment into operation at Hughes High School. Unfortunately, the unit would not remain powered up and will have to be shipped back to Yaesu.

Education: Mike Niehaus KD8ZLB reported on our current classes, now in their fourth week, with testing scheduled for November 19th.

Next spring we will again have a full complement of courses; the Extra Class license sessions will begin February 13 and the Technician and General Class sessions will begin March 13. The Tech and General classes will be held again at the American Red Cross building off Data Ave., while a site for the Extra Class meetings is still being arranged.

Mike noted that we can always use new or additional instructors for all three of our license class offerings, noting we have a small pool of folks who consistently give of their time for these classes. One discussion posited the value of our conducting classes *for prospective instructors*, to help folks get up to speed. Contact Mike at KD8ZLB@gmail.com to discuss these ideas further. Kitty W8TDA reported that QCEN and OH-KY-IN have a long history on partnering to do one-day license classes, so that idea could be floated again now.

Cincinnati Preppers Expo: Michael KD8SOH announced we enlisted 17 possible new students for our spring license courses.

Fox Hunt: Brian K4BRI announced there would be *no November fox hunt* this month, with the next scheduled hunt December 10th at Mr. Storm Park. As usual the start time will be 10:00 A.M. *sharp* with setup beginning at 9:30 A.M. Anyone needing to borrow equipment or arrange a ride-along should contact Brian in advance.

Tech Talk Net: This Wednesday 9:00 P.M. gathering on the 146.670 repeater continues to be popular, but new listeners and participants are always welcome.

Newcomers & Elmers Net: Recently moderator Robert Gulley AK3Q facilitated discussions about batteries, and next week plans part 1 of a discussion on Reading Propagation Banners. The net meets every Sunday evening at 7:00 P.M. on 146.670.

Website: Webmaster Ryan Williamson W1RYN reported is and assistant webmaster George Gardei's N3VQW goal is to get up and running fully on WordPress. Send content right now to webteam@ohkyin.org to get mounted. George commented that while the new site will be using WordPress, a popular blogging site, the format will not resemble a blog per se. Content providers who learn how will be able to easily load and update content without having to through one of the webmasters each time. George has about half of the content from the previous site crossloaded to the new site. He noted he'd like to locally-oriented "About Ham Radio" content featured, rather than rely on our old direct links to ARRL pages.

They are hoping to be pretty well done by mid to late November. You can view the beta website at ohkyin.org/wp as it progresses.

QCEN: Pat Maley KD8PAT reported their last meeting covered DMR. The next meeting will be Friday, November 18, at the Red Cross Building; the radio shack opens at 5:30 for operating and conversation with the meeting following at 7:00 P.M.

ARES/HD ARG: Brian KC8EGV noted the biggest upcoming event for planning purposes is the trial of a UC Police Officer involved in a fatal shooting last year. ARES may be called upon to help out at the EMA or other locations.

Joint monthly meetings of ARES and the Health Department Amateur Radio Group take place every 3rd Tuesday of the month at 7:00 P.M. at the Hamilton County Health Department, 250 E. Taft Blvd. Brian hopes to offer more training activities and guest presentations at these monthly meetings.

OLD BUSINESS

Sound System: Michael KD8SOH apologized again for the delay in resolving this matter, due to his recent illnesses, but has some helpers lined up now to get the bugs worked out.

NEW BUSINESS

Nominating Committee: The committee, led by Shawn Grubb KE8BBC, Ryan Owens AC8UJ, and Fred Schneider K9OHE, has completed their work. Fred presented the report after lauding his fellow committee members for having done so much of the work.

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The Committee's slate of nominees for the December Election included

President	Michael Sein KD8SOH
Vice Pres.	Ryan Williamson W1RYN
Secretary	Fred Schneider K9OHE
Treasurer	Brian DeYoung K4BRI

Board of Directors (one opening, 3 year term)

Mike Niehaus KD8ZLB
George Gardei N3VQW
Bruce Vanselow N8BV
Ted Morris NC8V
Steve Crase N8PUP

Fred then asked for any additional nominations from the floor for President, and Michael asked successively for each position, and for each there was a move to close nominations, a second, and unanimous approval to do so.

These names will constitute the slate of candidates for the election held at our December 6, 2016 meeting.

Cincinnati Preppers Expo: Expanding on his comments at the opening of the meeting, Michael KD8SOH explained that our effort this year included four booth spaces, an operating HF station, and operating 2M station. At any given time, we had about 9 volunteers actively engaged with visitors. In fact, tonight's guest, Mr. Jim Wood, met us through the event. Kitty Hevener K8TDA led a session on "Ham Radio 101," and Dick Arnett KB4SUV and Bob Frey WA6EZV hosted fox-hunting activities. Kitty thanked Michael for the loan of his laptop to keep everything running, and Dick and Bob for their efforts.

ARRL Sweepstakes: Brian K4BRI announced that this weekend is the CW run for this contest, and the third week of November is the SSB portion. We have traditionally scored well as a club and Eric Neiheisel N8YC has again offered the use of his home and facilities to operate from. More operators can still be scheduled in and are welcome.

VE Session: Brian also reminded us that testing for all license classes will be held November 19th at 9:00 A.M. next door in the lower level of the St. Bernard City Hall.

December Meeting Reminders: Michael Sein KD8SOH and Fred Schneider K9OHE recapped activities to take place at next month's meeting.

Elections: We will select our 2017 officer and director position holders.

Silent Auction: Fred K9OHE will gather the older equipment which the club is selling off, get them tested to the degree possible, and plan a Silent Auction to be held throughout the evening. Fred will send out descriptions of the sale merchandise ahead of time. At the meeting, there will be an open bid sheet by each item, where the bidder's name and amount of the bid will be visible to all. Only club members may bid, and all merchandise sold must be paid for and removed by the end of the meeting.

By writing in one's name and bid, folks can see how the price of items they're interested are trending. Bidders should check often to see if they are still high-bidder or may need to consider rebidding higher. At the declared end of the auction, the highest recorded bid will be final.

Holiday Party: The club will provide pizza and soft drinks, and folks should contribute side dishes, snacks, and desserts to fill in the menu.

The Meeting broke at 8:16 P.M. to prepare for the evening's program.

The Meeting resumed at 8:28 P.M.

Winter Field Day, January 28-20, 2017: Michael Sein KD8SOH walked us through an entertaining PowerPoint presentation on our last year's effort, what and where the fun was and what and where the challenges lay to mount a successful effort.

Winter Field Day is a young project, promoted to challenge hams to carry out the same kinds of emergency-type setups and educational efforts under winter conditions that are so much more familiar to us at summer ARRL Field Day events.

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As with any such effort, we will need helpers to throw antenna lines up into trees, organize operating station locations, etc., but for the Winter exercise only four hours are provided for setup--8:00 A.M.-Noon—before the contest contact period begins. Last year although we took longer than four hours for set up, we had a pretty sweet arrangement, including having all of our logging computers wirelessly linked and a number of HF/VHF operating positions running.

Chef John Phelps N8JTP provided his usual culinary delights for lunch and dinner, and provided much-needed propane heaters to keep the operators from freezing. Although the weather was relatively mild for January, our location atop a small rise in Winton Woods became extremely breezy as the night winds settled in. (Michael and Fred K9OHE will be looking for alternatives sites for this year.)

Despite the eventual cold weather, “a good time was had by all” as folks dropped by to see what we were doing, operate for a few hours, and add to the camaraderie. We subsequently learned that Howie Hunt, NG8P, dropped off to our Park contact a copy of the Q-Fiver highlighting the event. We have always had a strong relationship with Hamilton County Paris Department and we value that relationship.

As one member pointed out, it’s clear that emergencies occur at any time, so this is good practice.

Other Business

Kitty N8TDA reminded us that November 11th is Veterans’ Day and we should recognize that all the stuff we get to do, comes through their efforts and sacrifices over the years.

Split the Pot: We collected \$142 dollars, of which \$71 went to Bruce N8BV.

The meeting adjourned at 8:50 PM.

Since the merger of **Seven Hills Chorus** and **Queen City Chorus**, **Cincinnati Sound Chorus** has delighted audiences with timeless songs like “Cincinnati’s My Town,” “Love Letters,” and now more modern tunes like “Sway” and “Happy.” Join us for a journey through time as we celebrate 10 years of musical highlights!

The Cincinnati Sound Chorus is comprised of 50 singers from ages 16 to 80 who come from a wide range of backgrounds and musical experience — all connected by a love of singing barbershop harmony.

The group is led by Master Director Lynn Hartmuth and is the proud 2016 Fifth Place Medalist in Harmony Heartland Region 4.

CINCINNATI SOUND CHORUS PRESENTS
“This Is Your Life”
AN ANNIVERSARY CELEBRATION

HARMONY HEARTLAND REGION 4
LEXINGTON, KY 2016

Brunch Bunch

The next Brunch Bunch will be held **Saturday, December 10th, at 1pm.** The location for December is **Longhorn Steakhouse in Dent.** This Longhorn Steakhouse is located at 6620 Harrison Avenue, 45247. Longhorn Steakhouse is up on the hill next to Kohls. It's a very short distance from the Harrison Avenue/Rybolt Road exit on I-74.

For a look at the menu or for a map to the restaurant go to: www.longhornsteakhouse.com/locations/oh/cincinnati/cincinnati-western-commons/5189

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



Robert AK3Q

December 2016



I ran across a post in an eham forum on the topic of Elmers where the person was contrasting Experts and Elmers. It was a well-written piece, and the follow-up comments were sometimes equally interesting. More often than not when a person asks a question in a forum or on a chat board or a mail room, experts jump in and (attempt) to show off their knowledge. Obviously, there are real experts in any field, and their input is always useful because it is more likely to be correct. But the so-called experts to which I am referring are the people who do not have an encouraging word for anyone, rather they are typically consumed with trivialities which they hope will impress others. They seek attention, and therefore are *selfish* rather than *selfless*. An Elmer comes alongside to help, instructing when necessary, but always encouraging and allowing mistakes and the learning which comes from those mistakes.

Most of you know I host a newcomers and elmers net every Sunday night where we talk about different topics and answer questions of anything amateur radio related (calling all Elmers and Newcomers!). The goal of the net is to bring together newbies with people willing to be elmers, all in an encouraging atmosphere. We started this net with the goal of helping newcomers not only answer specific questions, but also to help them answer the big question: "Now that I have (or will have) my license, what can I do with it?"

As the host, I am always a bit reluctant to answer questions because I do not want to be seen as an expert or know-it-all. I always open up any questions first to the group and then, if no answers are forthcoming or if I believe I can add something meaningful to the discussion, will I provide my "2-cents worth." I am thrilled when Elmers or newcomers offer their advice based on their experiences, as this is the most meaningful aspect of helping one another as we have opportunity.

An article like this gives me a chance to get on my own little soapbox now and again (like I do on my blog for preserving shortwave radio!!) and talk about a topic of importance to me. Elmering is something very near and dear to my heart. We need **more** elmers and **less** experts in our hobby. If you are in a position to be an Elmer, even if only by offering advice or your experience, do it! Real Elmering comes out of a love for the hobby and a desire to help someone out along the path.

When someone posts something in an email, chat room, or forum talking about something exciting they have done or a "first" for them, give them a few words of encouragement. Regardless of how simple, or rudimentary an accomplishment, give them a verbal "pat-on-the-back" or, if in person, an actual pat-on-the-back!

We all took baby steps when first becoming an amateur radio operator, or shortwave listener, or broadcast DX chaser. Share the excitement *just for the excitement it brings to someone else*. And don't say something like, "Oh yeah, I did that a long time ago - it was simple" or some such life-sucking, trivializing comment. Share the moment!

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If you read something useful from someone else take a moment and send them a "thank you" email or post a kind comment. On the air amateurs often refer to praise as receiving "flowers" – recently I heard a net control operator thank a person on the Maritime Net on 20 meters for the flowers, obviously someone had complimented him on his signal or operating skills.

And especially let's remember to compliment new radio enthusiasts on even the smallest successes -- it is how we will ensure our wonderful hobby continues, and all will benefit.

Sharing Successes

On a related note, don't be afraid to post a note about your successes – there really are no trivial successes if the accomplishment was meaningful to you. We can all enjoy the good news, and you might just inspire someone else to try what you did and expand their radio horizons.

We have hundreds of people connected through our OHKYIN email list – that's a perfect place to share your radio adventure, as is the newsletter. Don't assume "nobody will care" – you might just be surprised at how many people *do* care and those who might be inspired to share their story.

And speaking of stories, I would love to see folks write up a little paragraph or two telling their story of how they got into amateur radio, or significant events that happened early in their operating career. I know Brian would appreciate the content for the newsletter, and I bet such a thing might end up the most popular section of the newsletter! I do not know about you, but after this crazy election cycle I have had enough from "experts" bloviating and pontificating; I for one am ready for some kindness to be shared. Let's make the most of every opportunity we can to bring some encouragement wherever we can! Very 73, Robert AK3Q

Part 1: The Vocoder and Voder

By Justin Patrick Moore, KE8COY

Who doesn't remember changing their voice as a kid by talking into a fan? Or sneaking off with balloons at a party or dance to inhale the helium and try to talk like a character from a cartoon? One year for Halloween I got a cheap voice changer toy that had three settings and I remember playing with it for hours. But voice changers weren't always so cheap, and the original was room-sized instead of hand held. The initial reason behind its development had nothing to do with keeping kids amused and was not driven by aesthetic concerns. It was only after Ma Bell and the military had wrapped up their use for the Vocoder that it came to be appreciated for its musical qualities, first by experimental electronic musicians, and later pop, rock and rap artists. The next few editions of the Music of Radio series delves into the story of electronic speech synthesis, from the Vocoder, to the Voder and on to the first text-to-speech computer programs written for gargantuan mainframes. It takes us deep into the stacks of the Bell Laboratory Archives and into the belly of WWII crypto communications before emerging in the 1960's and '70's when the stage was set for mind melting explorations in sonic psychedelia. Just as the Vocoder is still be used for artistic effects the original ideas behind it, compression and bandwidth reduction, continue to be used in new hardware and software applications for radio and telecommunications.

Homer Dudley, the inventor of the Vocoder, was an electronic and acoustic engineer whose primary area of focus revolved around the idea that human speech is fundamentally a form of radio communication. In his white-paper *The Carrier Nature of Speech* he wrote that "speech is like a radio wave in that information is transmitted over a suitably chosen carrier." This realization came to Dudley in October of 1928 when he was otherwise out of commission in a Manhattan hospital bed. Discoveries are often made from playfully messing around with things, either in horseplay or boredom, and Dudley was keeping himself entertained just as a kid might by making weird sounds with his voice through changing the shape of his mouth. He had the insight that his vocal cords were acting as a transmitter of a periodic waveform. The nose and throat were the resonating filters while the mouth and tongue produced harmonic content, or formants to use linguistic lingo. He also observed that the frequencies of his voice vibrated at a faster rate than the mouth itself moved. These insights went on to have implications for the work he pursued at Bell Laboratories, a true idea factory, where money and resources were thrown at any old project that might bear the AT&T monopoly some form of fruit or further advantage in their already sprawling playground of wires and exchanges. Once recovered and back at work Homer thought his discovery might have an application in the area of compression and he made it his ambition to free up some of the phone companies precious bandwidth hoping to pack in more conversations onto the copper lines. He was given a corner and allowed to go work in it, devoting himself to his obsession.

He exploited his research in the invention of the Vocoder, or VOICE CODER, first demonstrated at Harvard in 1936. It works by measuring how the spectral characteristics of speech change over time. The signal going into the mic is divided by filters into a number of frequency bands. The signal present at each frequency gives a representation of the spectral energy. This allows the Vocoder to reduce the information needed to store speech to a series of numbers. On the output end to a speaker or headphone the Vocoder reverses the process to synthesize speech electronically. Information about the instantaneous frequency of the original voice signal is discarded by the filters giving the end result it unique robotic and dehumanized characteristics. The amplitude of the modulator for each of the individual analysis bands generates a voltage that controls the amplifiers in each corresponding carrier band. The frequency components of the modulated signal are mapped onto the carrier signal as discrete amplitude changes in each of the frequency bands. Because the

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Vocoder does not employ a point-by-point recreation of the wave, the bandwidth used for transmission can be significantly reduced.

There is usually an unvoiced band or sibilance channel on a Vocoder for frequencies outside the analysis bands for typical talking, but still important in speech. These are words starting with the letters s, f, ch or other sibilant sounds. These are mixed with the carrier output for increased clarity, resulting in recognizable speech but still roboticized. Some Vocoder have a second system for generating unvoiced sounds, using a noise generator instead of the fundamental frequency.

To better demonstrate the speech synthesis ability of the decoder part of his invention Dudley created another instrument, the Voder (Voice Operating Demonstrator). This was unveiled during the World Fair in New York in 1939 where Ray Bradbury was among the attendees who witnessed it firsthand. The Voder synthesized speech by creating the electronic equivalent of a vocal tract. Oscillators and noise generators provided a source of pitched tone and hiss. A 10-band resonator filter controlled by a keyboard converted the tone and hiss into vowels, consonants and inflections. Another set of extra keys allowed the operator to make the plosive sounds such as "p" and "d" as well as affricative sounds of "j" in "jaw" and "ch" in "cheese". Only after months of practice with this difficult machine could a trained operator produce something recognizable as speech.

At the world fair Mrs. Helen Harper, who was noted for her skill, led a group of twenty operators in demonstrations of the Voder where people from the crowd could come up and ask the operator to make the Voder say something.

Homer Dudley had great success in his aim of reducing bandwidth with the Vocoder. It could chop up voice frequencies into ten bands at 300 hertz, a significant reduction of what was required for a phone call back in the day. Yet it never got used for that purpose. The large size of the equipment was impractical to install in homes and offices across the country even if it created more channels on the phone lines. For a time Dudley worked at marketing the Vocoder to Hollywood for use in audio special effects. It never made much of an impact there as other voice changing devices such as the Sonovox started being used in radio jingles and in cartoons. Before it could be discovered by musicians Homer Dudley's tool for voice compression had to be put into service during America's efforts in WWII where it was used as part of the SIGSALY encryption program. The details surrounding the coding of the voices of MacArthur and Churchill will be explored in next month's column.

Sources:

How to Wreck A Nice Beach: The Vocoder from WWII to Hip-hop: The Machine Seaks by Dave Tompkins, Melville House, 2010

The Carrier Nature of Speech by Homer Dudley, The Bell System Technical Journal, Vol. 19, No. 4, October 1940

Fundamentals of Speech Synthesis by Homer Dudley, Journal of the Audio Engineering Society, Vol. 3, No. 4, October 1955

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

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

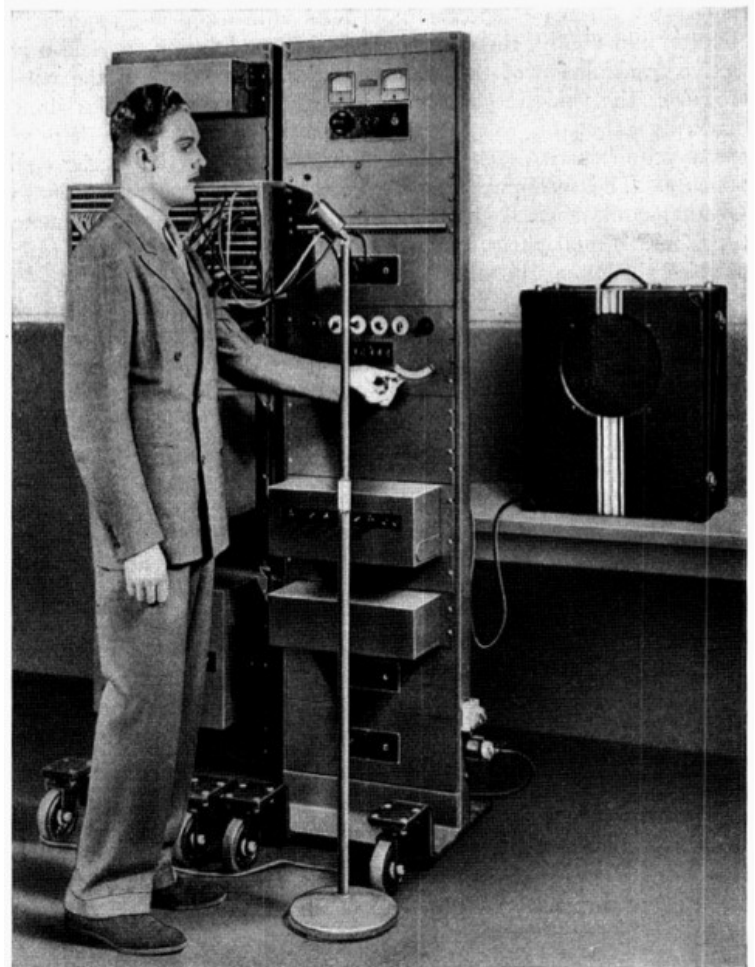


Fig. 4—The vocoder as demonstrated.

December 2016 DX Spots de KA3MTT

Sun	Mon	Tue	Wed	Thu	Fri	Sat
8Q7SP - Maldives Thru 12-3 	9Q0HQ/3 - DR Congo thru 12-25 	VK9NF - Norfolk I Thru 12-3 	ZL7 - Chatham I Thru 12-1 	1 FS - St Martin thru 12-11 	2	3 PJ4 - Bonaire thru 12-15
4	5	6	7	8 E44QX - Palestine Thru 12-12 	9	10 VP5 - Turks & Caicos thru 12-19
11	12	13	14	15	16	17 J68HZ - St Lucia Thru 1-2 
18	19	20	21	22	23	24 
25	26	27	28	29	30 H74 - Nicaragua Thru 1-6	31 

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, December 6th at 7:30 PM

Christmas Party!

Pizza!

Elections!

Door prizes!

Silent Auction!

Good Times!

OH-KY-IN Amateur Radio Society

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