CAARA NEWS

Cape Ann Amateur Radio Association
Gloucester, Massachusetts
JULY- 2025 EDITION

PRESIDENT'S COLUMN
By Brandon- NQ1W

Dear fellow members of the Cape Ann Amateur Radio Association,

What an incredible Field Day we had! It was a resounding success and a truly fun event for all who participated. The energy and camaraderie were palpable, and it was a fantastic showcase of what our club and amateur radio are all about.

An event of this scale doesn't happen without a great deal of hard work, and I must thank our club Field Day Committee Chairperson, Jim Barber, K1TT. Jim's dedication and organizational skills were instrumental in making the weekend run so smoothly.

A huge thank you also goes to Thomas Andersen, AA1TS, and Jon Cunningham, K1TP, for keeping us all well-fed and happy by supplying the delicious food and expertly running the grill.

I also want to extend a heartfelt thank you to William Poulin, W1ZL, for his outstanding efforts in helping to get some very special guests to join us. We were honored to welcome Jon McCombie N1ILZ Section Head of the EMA Division of the ARRL, the esteemed Mayor of Gloucester Gregg Verga, and our very own member emeritus, Bruce Tarr N1UIU, the MA Senate Minority Leader. Bruce graciously presented us with Field Day Resolutions from both Governor Maura Healey and the State Senate, a wonderful recognition of our club's activities.

Our on-air presence was truly remarkable, thanks to the tireless efforts of Chris Winczewski, W1TAT, and Jim Barber, K1TT, who pulled an all-nighter to make hundreds upon hundreds of contacts for the club. Your dedication is truly appreciated. I also want to recognize Ron Beckley, N1RJB, for his important role as our Red Cross representative and Safety Manager, ensuring a safe and secure event for everyone.

Of course, there are so many others, too numerous to name, who contributed their time and talents to make our Field Day a success. Whether you helped with setup, teardown, greeting visitors, scoring contacts or in any other way, your contributions were invaluable.

One of the most rewarding aspects of Field Day was seeing the excitement of our neighbors and visitors. For many, it was their first time on the air and a chance to get a tour of what, to them, might have just been a mysterious building whose purpose was not clear. It was a pleasure to demystify our hobby and share our passion with the community.

As we move into the heart of summer, we will be taking a short break. There will be no July members' meeting. We will return in August with a meeting that will feature the Nominating Committee to discuss the upcoming leadership vote in September. This is an important meeting for the future of our club, and I encourage you all to attend.

I wish everyone a happy and active summer. I hope you all find plenty of time to get on the air, work on projects, and enjoy all that our wonderful hobby has to offer.

73,

Brandon Hockle, NQ1W

President, Cape Ann Amateur Radio Association

CAARA Newsletter
Cape Ann Amateur Radio Association
6 Stanwood Street
Gloucester, MA 01930

CAARA Newsletter is a monthly publication of the Cape Ann Amateur Radio Association (CAARA).

It is the policy of the editor to publish all material submitted by the membership provided such material is in good taste, relevant to amateur radio and of interest to CAARA members, and space is available. Material is accepted on a first come, first serve basis. Articles and other materials may be submitted by internet to Jon at jpcrockport@gmail.com . If possible, material should be in Word format. Material may also be submitted as hard copy to Jon-K1TP or any Club Officer.

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Jon Cunningham- K1TP Editor
Dean Burgess- KB1PGH Reporter

Welcome to CAARA:

CAARA, an ARRL affiliated club, operates the 2 meter W1GLO repeater on 145.130 MHz with antennas located on the ATT cell tower in the Blackburn Industrial Complex in Gloucester Massachusetts. It has an average effective radius of 60 miles, and serves Eastern Massachusetts, Cape Cod, Rhode Island, Southern New Hampshire, and maritime mobile stations.

CAARA also operates the W1GLO repeater on 224.900 located at the CAARA clubhouse.

The 443.700 repeater is now on the ATT cell tower in the Blackburn Industrial Complex with greatly enhanced performance running in fusion mode and linked to 10 other repeaters in the New England area.

The Association is one of the few amateur radio clubs that has its own clubhouse. Located at 6 Stanwood Street in Gloucester, with a variety of HF stations with beam, vertical, or G5RV antennas.

Amateur radio exams are held on REQUEST at the CAARA clubhouse. Anyone who is considering a new license or an upgrade, is welcome to test with us. Currently pre-registration is necessary. Contact the head of our VE team Bill Poulin- WZ1L if you have any questions about monthly testing.

Monthly member meetings are held on the second Saturday of each month at noon except for July and August.

Each Sunday evening at 9:00 PM, the club operates a 2 meter fm net on 145.130. This is an open and informal net which disseminates club news and prepares operators for emergency communications work. All are invited to check into the net as club membership is not a requirement.

The club is open every Wednesday from 10- Noon for CAARA members and interested parties to stop by and socialize, as well as use the extensive collection of ham radio gear.

This newsletter is published under the auspices of the Cape Ann Amateur Radio Association (CAARA), However, all content is the work of individual contributors and may contain ideas, opinions or views not necessarily shared or supported by the CAARA Board of Directors or the membership.


Phone Station
W1GLO
FIELD DAY 2025


Phone Station
W1GLO
DANGER
HIGH VOLTAGE

THE EMCOMM MINUTE

By Dean- KB1PGH

So this months column will be a short one. So a few weeks ago I did a portable HF op session with the Yaesu Ft 710 and a Buddipole and I spent a couple hours and got a few contacts.

I tried 10 and 6 meters but no luck.

As you can see in the photo my son Cliffy showed up for a bit for emotional support since 6 meters was dead. I was able to make a few contacts and here`s the list of the QSO`S .

1 7255 The Ecars Net
2 14325 W2PE Little Rock Arkansas
3 7255 W1WQM Thrusher Memorial
4 7262 NJ2BB Battleship New Jersey
5 14288 KR4BVK A parks on the sir station
6 7180 N3TDK Pennsylvania
7 7238 K3SAV Nuclear sub savannah in Baltimore
8 14227 W1E Evelina Goulart Boat out of Essex Mass

Well a couple weeks later the ARRL Field day event arrived so I operated from my house for a couple hours. So I was able to try on 10 meters and as you can see in photo I have the Buddipole set up for 6 meters as well.

The Buddipole tuned in Great for SWR in 10 and 6 Meters but too bad the band conditions were pretty dead.

I have to say for the top of a sunspot cycle the band conditions have been bad for a few months now.

So for next month Ill do a quick look at the Yaesu Ft 5DR dual band handheld which I just purchased.

73, Dean KB1PGH

Noises on the Night

by Curtis- AA3JE

There was a reason I did not go into OB-GYN. When awaked from deep REM sleep, I am a bit confused. (Actually more than a bit.) Since OB-GYN consists of waiting, waiting, waiting, then everything happens at once, the rulers of the hospital think you can work two eight-hour shifts and then rest next to the delivery room. This strategy was, I think, that you would gently rest next to the delivery room, arise, deliver a baby, do the paperwork, then gently sink back to sleep. This practice has since been discontinued, with sign of relief from delivery room nurses all over the country. They never actually used their stethoscope as a kind of impromptu "Flail", but they threatened.

So please accept that I wake up slow, and hard. So when I was sleeping, and my wife nudged me, it had little effect,

"WAKE UP!" in high soprano and a boot in the back did the trick.

"What is it?" I mumbled.

"The Bear is on the porch again. I heard the huge thump."

"The bear is in the woods; there is no bear on the porch."
"I hear the terrible snuffling!"

So I got up, assisted by a gentle foot in the small of my back, and went to look.

There was a very small racoon on the porch.
I heard a suspicious terrible snuffling behind me.
"It's a baby! Much too small to be away from its mother."
"OK, racoon on porch. Case closed. Not a bear."

"It needs food."

"It is illegal to feed wild animals in New Hampshire."

"It's a baby."

I looked at the racoon, the racoon looked at me. We mutually agreed not to mess with each other.

So for the next two days, my wife put dried and fresh fruit on the porch. The routine was the same, every night. The racoon started in the trees, crawled up my dipole, shifted to the roof, walked to the edge, jumped to the porch, ate the fruit and left.

"They like oatmeal."

"How do you know?"

"Grannynet. Internet group of Grandmothers."

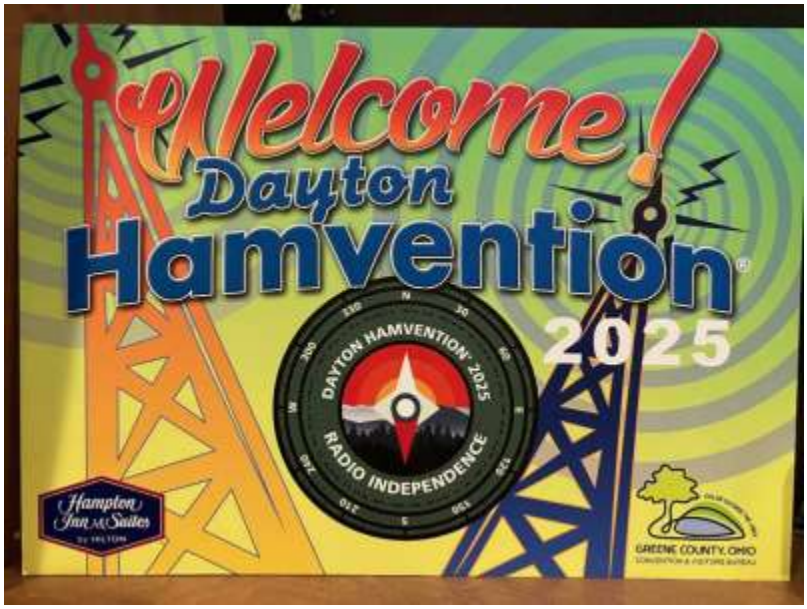
So for the next week, I put out bowls of oatmeal. This led to nightly games of "Racoon bowling" when they emptied the bowl and used it for sporting games. It was stainless steel. Very noisy stainless steel.

And each time, I was awakened, "So you won't miss it." Eventually the racoon grew, and we stopped then nightly circus.

They had moved on to the hummingbird feeders.

Dayton – Xenia Hamvention 2025 – A Personal Perspective

– Jeff Cohen KC1JSN



There are many articles, videos and posts about this year's Dayton Hamvention to be found. The focus is generally on the newest Icom, Yeasu or Kenwood radio, ARRL events and seminars and other important goings on for the hobby. My perspective on Dayton (and Orlando) is a little different so I thought I would share my experience there and what makes it such a fantastic trip and event for me, and I am sure many others.

I was first licensed in 1978 thanks to two friends of mine who were in my trade school electronics class, Tom - K8TK and Jerome - K8LF. We all lived in Jackson, Michigan and our teacher, Mr. Sims was also a ham (sk). The teacher arranged for a school bus to drive us to the Detroit FCC field office and I passed my Technician tests. Tom and Jerome let me use their stations leading up to my licensing and helped me to get my Globe Scout Deluxe and S-53A station on the air.

I moved back to MA and we lost touch until about 5 years ago when, on a whim, I looked them up on QRZ. One letter and one email later we were reconnected and planning to meet some 40 years later at Dayton. This has now become an annual reunion and Jerome also attends Orlando so we meet there along with members of his Williamsburg, VA club of which I am a member. So for me, Dayton and Orlando are a way to stay connected with lifelong friends who happen to share the hobby and to meet club members of theirs and also CAARA and other local clubs. Were it not for my tendency to collect things, that would be enough of a reason to attend every year.

Thanks to some intense self-help work on the subject I have learned that I am not a ham hoarder, I am a curator! Whew. I like big iron and I cannot lie so every year I head straight for the Dayton flea market, bypassing the latest offerings in the vendor buildings to see what radios and test equipment are for sale at prices so low I can't refuse. Do they do anything that my existing stuff doesn't already do? No, but that's the wrong question. Are they built by a manufacturer not currently represented in my shack, storage room or elsewhere in my small footprint? Do they look cool? Does a good friend have one and now I can, so we can share the experience? Was the price so low that……..Now you get it, I hope.

Every year I drive my Dodge Magnum wagon to Dayton (and Orlando) with 5 empty plastic tubs, just in case I buy something. And who am I kidding? The tubs are always full for the return trip and the Magnum's springs and fully compressed. To be fair, every year I have a small shopping list for Dayton. This year I wanted a specific antenna to add 1200 MHz to my bands-I-don't-use-but-can list, a 1X6 coax switch so I can add all of the new radios to my antennas, a Paradan Dual Antenna Disconnector and some 40m crystals. Most of these are new enough that I need to buy from the vendors and while there, get this year's Yaesu hat. I always find the items on my short list. The real magic happens at the flea.

Dayton is like every other ham-vention, cation, xposition except bigger. Way bigger. It is about 17,000 steps to cover the flea section, not including doubling back to find the items you decided not to buy and then realized

you had to have. And of course you have to do this all 3 days because on day one not everyone is set up, on day two everyone is set up but by the end some are lowering prices and on day 3 there are legitimate free piles! In addition to the flea market are the many buildings with vendors, events and seminars, sections for youth activities, groups like ARRL, ARISS and AMSAT and ham radio clubs from around the world and of course testing areas. A well-stocked food court provides anything from barbeque to burgers to hot dogs, not the widest variety but very good $20-ish lunches. Warning – you will not find a Dr. Pepper anywhere on the grounds, I know, I asked.

The flea market has the expected sellers; commercial radios, military radios, things that have nothing to do with radios, test equipment, entrepreneurial antenna designers, tower and hardware parts and mostly assortments of radios one or more generations before the ones for sale new in the buildings. It has been

interesting over the years to see the state of the art rigs from the 2000s drop in price as SDR rigs take their place. That radio you couldn't bring yourself to buy for thousands of dollars years ago is now everywhere for $500 +/- but as you look at it you find that it is huge, does what your existing radio does at twice the size and is already obsolete (not that obsolete is a bad thing). Old radios like the Kenwood 520 can sell from free to $500 as sellers decide what they are worth vs. what they feel they ought to be able to get for them. The variations in price track more emotionally than based on condition. R390s were over $1,000 a few years ago and now sell in the $250 range except for those sellers who are still convinced they are worth $1,000. Of course every connector, cable, adapter you need is there as well as tubes (except perhaps for the one you need).

My haul from this year included a Morrow WBR-5 receiver (looks very cool), an SBE linear amplifier to go with my newly activated SBE33 rig (and looks very cool), a Globe Scout Deluxe with the original case (wow)

and an HP8590 spectrum analyzer with the Cable TV measurement option (no way!). Of course I have no room for any of these but as any good curator will tell you, that is not an issue.

I look forward to seeing my friends again next year, filling my shopping list and finding those unexpected items I absolutely need. And maybe see all of my favorite radios selling for next to nothing. Oh, and there is the guy with the tower on his head!

ARRL Announces Logbook of The World® Systems Upgrade

ARRL's Logbook of The World® (LoTW®) is the 2nd most popular benefit among members. It is also an extremely popular service internationally for non-members, as it is the primary means for providing confirmations for ARRL Awards, such as DXCC and Worked All States.

As a part of the ongoing modernization of the ARRL systems infrastructure, LoTW will be receiving major upgrades to the operating system it is running on, the relational database system it uses to store and access logbook and awards data, and server hosting, where it will be fully migrated to the cloud. These changes will, among other improvements, ensure LoTW performance needs can be better met based on user demand.

LoTW will be unavailable from June 27 to July 2, 2025, to complete these upgrades. We will bring LoTW back online if it is available sooner than July 2.

Logbook of The World can be found at lotw.arrl.org. More information about the popular service is available at www.arrl.org/logbook-of-the-world.

If you are a user of LoTW and not an ARRL member, please become a supporter of LoTW by making a $20 (or more) donation to the ARRL LoTW Fund or visit www.arrl.org/donate.

Very 73, and see you on the air!

David A. Minster, NA2AA

CAARAPUBLIC SERVICE

Above: Previous race in Gloucester

Left: Race in Newbury area and volunteer staffing.

Newburyport, West Newbury, and Newbury
sh Location: RiverWalk Brewing Co. 40 Parker
lf Marathon Run = **8:00 AM**
st Newbury K1KKM 2m 146.625 (Dup-) PL1
req:Topsfield N1HSY 2m 147.285 (Dup+) PL

ort Police 978-462-4411 Fire 978-465-4427
ry Police 978-363-1212 Fire 978-363-1112 - Newb
Information and Updates: https://sites.google

ountry Half Marathon Staffing and Logisti

Station Location	Call sign
Net Control	WA1ESU
Start/Finish	WA1ESU
Lead Vehicle / Rover Unit 1	AA1TS
Trail Vehicle / Rover Unit 2	W1PAG
Parker St. and Malcom Hoyt Dr.	K1KL
Mile 1 & 12+ NBPT	
Scotland Rd. and Scotland Hgts.	KC1SJR
Mile 2+ & 11+ Newbury	
South St. and Turkey Hill Rd.	W1NHD
Mile 3+ & 10 W. Newbury	
Moulton St. and Illsley Hill Rd.	N1RJB
Mile 6 W. Newbury	
Garden St. and Indian Hill Rd	KC1PCT
*Mile 7 W. Newbury	
Garden St. and Rogers St.	W1CAF
*Mile 7+ W. Newbury	
Rogers St. & Turkey Hill Rd	K8ZBE
*Mile 8+ W. Newbury	

K1TP SHACK REPAIR

ALINCO DM-330MV

My Alinco 330 power supply which I have never shut off for over 7 years finally needed a a fan replacement.

I couldn't believe how much dust was inside the cabinet. It was on the floor powering the Yaesu FTM400.

The fan was just $10.00 on eBay delivered, still waiting for it. If I bought it from Alinco it was over $25 shipped.

A quick look on YouTube and I found I only had to spring the bottom cover off and there was no need to take off the screws on the front and rear cover.

I have two of these well made power supplies and highly recommend them.

Major Edwin Howard Armstrong and the Superheterodyne Receiver

by Paul E. Krueger, N1JDH

The superheterodyne receiver, invented by Edwin Howard Armstrong in 1918, revolutionized radio technology. This breakthrough solved critical limitations of earlier designs, particularly the regenerative receiver (which Armstrong had also invented), and transformed radio from a complex novelty into a reliable consumer technology.

Armstrong invented the regenerative circuit in 1912 while still an undergraduate at Columbia University. This design was clever but had significant limitations.

In the regenerative receiver, tuning is accomplished using a tunable LC circuit. A single vacuum tube both demodulated the RF carrier to create an audio signal, and then amplified the audio signal. The feedback loop was used to create positive feedback which boosted the detected signal. This feedback loop was the key innovation allowing for increased sensitivity and amplification. It accomplished this by recirculating part of the output back to the input.

Although the regenerative receiver was an improvement over existing receiver technology, it had design problems. Regenerative receivers had poor selectivity, were prone to signal drift, required careful adjustment to prevent unwanted oscillation, and had difficulty with weak signals.

During World War I, Armstrong served as a signal officer in France. There, he conceived the superheterodyne receiver in 1918, addressing the fundamental limitations of earlier designs through a frequency conversion technique.

How the Superheterodyne Receiver Works:

1. RF Amplifier: Boosts the weak radio frequency signal from the antenna
2. Mixer + Local Oscillator: The heart of Armstrong's innovation - converts incoming signal to a fixed intermediate frequency (IF)
3. IF Amplifier: Provides most of the receiver's gain and selectivity at a constant, optimized frequency
4. Detector: Extracts the audio signal from the IF carrier
5. Audio Amplifier: Boosts the audio signal to drive the speaker

The name "superheterodyne" comes from "super" (above) and "heterodyne" (mixing of

frequencies). The key innovation was the frequency conversion process:

1. The local oscillator generates a signal at a frequency offset from the desired station
2. When mixed with the incoming RF signal, this produces sum and difference frequencies
3. The difference frequency (typically 455 kHz) becomes the Intermediate Frequency (IF)
4. This fixed IF allows for optimized amplifier design regardless of the station frequency

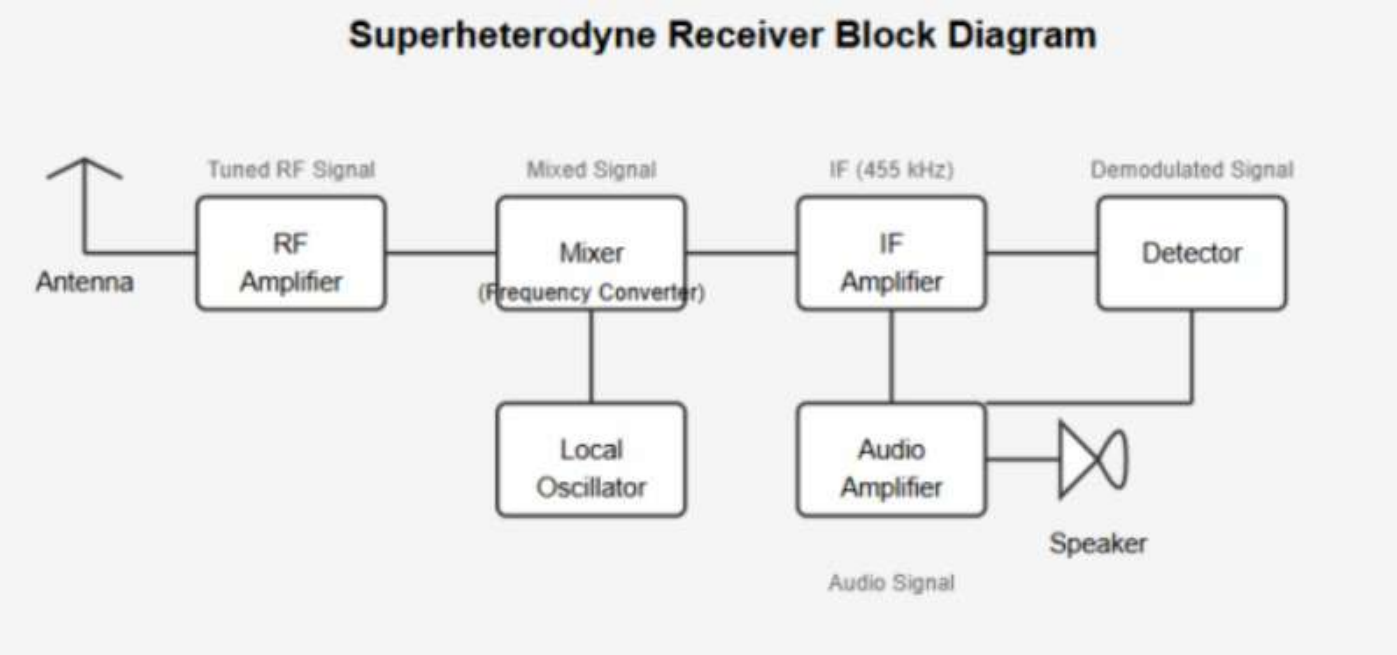
For example:

If tuning to a 1000 kHz station, the oscillator would operate at 1455 kHz

The mixer produces the difference: 1455 - 1000 = 455 kHz (the IF)

All subsequent processing happens at this fixed frequency

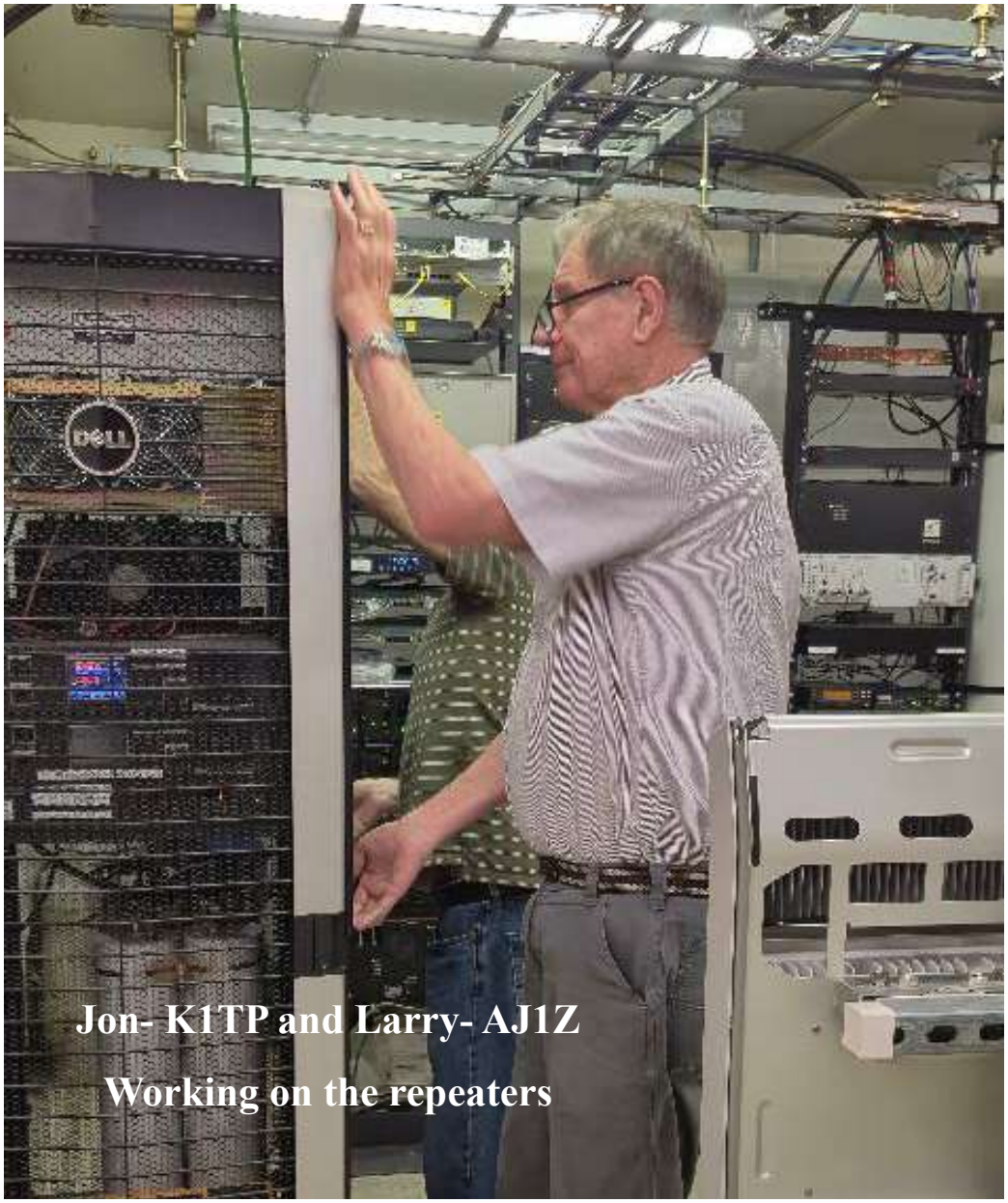
The superheterodyne design offered dramatic improvements over the regenerative receiver.



Unlike regenerative receivers which had to amplify all frequencies equally, the superheterodyne allowed for precisely-tuned IF stages optimized for a single frequency. This made it much better at separating adjacent stations. By processing signals at a lower, fixed frequency, the superheterodyne was less prone to oscillation and drift. The regenerative receiver's feedback loop was inherently unstable. The superheterodyne could achieve much higher amplification without instability. Users no longer needed to carefully adjust regeneration controls to prevent oscillation, making radios more accessible to the general public rather than just hobbyists. The design could be expanded with additional IF stages for better performance, unlike the

regenerative design which had fundamental limitations to its amplification ability.

Armstrong sold his patent to Westinghouse, who later transferred it to RCA. By the mid-1930s, nearly all commercial radio receivers used the superheterodyne design. Until the development of software defined radios, almost all radio receivers—from simple AM/FM radios to sophisticated cellular and satellite communication systems—used variations of Armstrong's superheterodyne architecture.



Jon- K1TP and Larry- AJ1Z

Working on the repeaters

CAARA MEMBER SHACK JEFF-KC1JSN

Ham Radio at War

I often ask people: What's the most important thing you need to have a successful fishing trip? I get a lot of different answers about bait, equipment, and boats. Some people tell me beer. But the best answer, in my opinion, is fish. Without fish, you are sure to come home empty-handed.

On a recent visit to Bletchley Park, I thought about this and how it relates to World War II codebreaking. All the computers and smart people in the world won't help you decode messages if you don't already have the messages. So while Alan Turing and the codebreakers at Bletchley are well-known, at least in our circles, fewer people know about Arkley View.

The problem was apparent to the British. The Axis powers were sending lots of radio traffic. It would take a literal army of radio operators to record it all. Colonel Adrian Simpson sent a report to the director of MI5 in 1938 explaining that the three listening stations were not enough. The proposal was to build a network of volunteers to handle radio traffic interception.

That was the start of the Radio Security Service (RSS), which started operating out of some unused cells at a prison in London. The volunteers? Experienced ham radio operators who used their own equipment, at first, with the particular goal of intercepting transmissions from enemy agents on home soil.

At the start of the war, ham operators had their transmitters impounded. However, they still had their receivers and, of course, could all read Morse code. Further, they were probably accustomed to pulling out Morse code messages under challenging radio conditions.

Over time, this volunteer army of hams would swell to about 1,500 members. The RSS also supplied some radio gear to help in the task. MI5 checked each potential member, and the local police would visit to ensure the applicant was trustworthy. Keep in mind that radio intercepts were also done by servicemen and women (especially women) although many of them were engaged in reporting on voice communication or military communications.

Early Days

The VIs (voluntary interceptors) were asked to record any station they couldn't identify and submit a log that included the messages to the RSS. The hams of the RSS noticed that there were German signals that used standard ham radio codes (like Q signals and the prosign 73). However, these transmissions also used five-letter code groups, a practice forbidden to hams.

Thanks to a double agent, the RSS was able to decode the messages that were between agents in Europe and their Abwehr handlers back in Germany (the Abwehr was the German Secret Service) as well as Abwehr offices in foreign cities. Later messages contained Enigma-coded groups, as well.

Between the RSS team's growth and the fear of bombing, the prison was traded for Arkley View, a large house near Barnet, north of London. Encoded messages went to Bletchley and, from there, to others up to Churchill. Soon, the RSS had orders to concentrate on the Abwehr and their SS rivals, the Sicherheitsdienst.

Change in Management

In 1941, MI6 decided that since the RSS was dealing with foreign radio traffic, they should be in charge, and thus RSS became SCU3 (Special Communications Unit 3).

There was fear that some operators might be taken away for normal military service, so some operators were inducted into the Army — sort of. They were put in uniform as part of the Royal Corps of Signals, but not required to do very much you'd expect from an Army recruit.

Those who worked at Arkley View would process logs from VIs and other radio operators to classify them and correlate them in cases where there were multiple logs. One operator might miss a few characters that could be found in a different log, for example.

Going 24/7

It soon became clear that the RSS needed full-time monitoring, so they built a number of Y stations with two National HRO receivers from America at each listening position. There were also direction-finding stations built in various locations to attempt to identify where a remote transmitter was.

Many of the direction finding operators came from VIs. The stations typically had four antennas in a directional array. When one of the central stations (the Y stations) picked up a signal, they would call direction finding stations using dedicated phone lines and send them the signal.

The operator would hear the phone signal in one ear and the radio signal in the other. Then, they would change the antenna pattern electrically until the signal went quiet, indicating the antenna was electrically pointing away from the signals.

The DF operator would hear this signal in one earpiece. They would then tune their radio receiver to the right frequency and match the signal from the main station in one ear to the signal from their receiver in the other ear. This made sure they were measuring the correct signal among the various other noise and interference. The DF operator would then take a bearing by rotating the dial on their radiogoniometer until the signal faded out. That indicated the antenna was pointing the wrong way which means you could deduce which way it should be pointing.

The central station could plot lines from three direction finding stations and tell the source of a transmission. Sort of. It wasn't incredibly accurate, but it did help differentiate signals from different transmitters. Later, other types of direction-finding gear saw service, but the idea was still the same.

Interesting VIs

Most of the VIs, like most hams at the time, were men. But there were a few women, including Helena Crawley. She was encouraged to marry her husband Leslie, another VI, so they could be relocated to Orkney to copy radio traffic from Norway.

In 1941, a single VI was able to record an important message of 4,429 characters. He was bedridden from a landmine injury during the Great War. He operated from bed using mirrors and special control extensions. For his work, he receive the British Empire Medal and a personal letter of gratitude from Churchill.

Results

Because of the intercepts of the German spy agency's communications, many potential German agents were known before they arrived in the UK. Of about 120 agents arriving, almost 30 were turned into double agents. Others were arrested and, possibly, executed.

By the end of the war, the RSS had decoded around a quarter of a million intercepts. It was very smart of MI5 to realize that it could leverage a large number of trained radio operators both to cover the country with receivers and to free up military stations for other uses.

Meanwhile, on the other side of the Atlantic, the FCC had a similar plan.

CAARA FACILITY PAINTING

BY

CAARA MEMBER

Charles McCarthy

Essex Boatyard activation by Jake, Chris, Rich and others. This was not a club event but club members attended.

Jake-W1LDL started this event many years ago and is a fun event.

Who says hams don't homebrew stuff anymore?

Larry- W1MDK in Gloucester has been homebrewing all kinds of wire and vertical antennas in his backyard.