THE HARC SPARK

October 2025

Editor: W3AWC

The official Newsletter of the Holmesburg Amature Radio Club 501(C)(3) Charitable Organization
WM3PEN 146.685 MHz Repeater | K3RJC 444.9 MHz Repeater | Club Calls – K3FI – WM3PEN
Web Site https://www.WM3PEN.org | Groups.io https://groups.io/g/WM3PEN | WM3PEN@aol.com

Feature Photo – Courtesy of Peter Treml K8PT

The largest Amperex tube ever made on display at the Kutztown Radio Show. Founded in the 1920s in New York, Amperex was acquired by Philips around 1955 which continued to improve Amperex tube production but also used their name to distribute their miniature tubes to the US market. A tube of this size likely saw service in some serious industrial applications.

Write Your Representatives

HOA rules should never silence the skies! That's why we're asking you to stand up in support of H.R. 1094 in the House and S. 459 in the Senate. These bipartisan bills would eliminate Homeowner Association prohibitions against installing amateur radio antennas at your home. TV satellite dishes already get a pass; shouldn't our antennas get one too?

The people at Texas Ham Pac have made the process simple. Visit: https://send-a-letter.org/hoa/, enter your information and a pre-written letter will be populated with your information and sent to your representatives. Or, if you prefer to do things the old fashion way, you can use this handy tool to make sure your letter gets to your representative: https://www.congress.gov/members/find-your-member.

In this Issue

We've had some great submissions for this month's issue, a lot of content! So grab your favorite hot or cold beverage of choice, and get comfy to read about some updates from your fellow HARC hams.

We have some interesting re-prints from clubs in the region, including a particularly relevant one about Meshtastic. This will be the topic of the club's October meeting and also a topic of interest within HARC and the membership of the UPenn amateur radio club. As a relatively new technology, this could be an interesting area for all hams to learn something and even lead to avenues to support the club activity at UPenn. I encourage our readers to come prepared for an interesting discussion during our October meeting!

Also in this issue, a photo collection from Peter K8PT of the Kutztown Radio Show and an insightful picture into the telecommunications career of Harry Grossman W2LOZ (SK) father of club member Frank Grossman WB2BXO. We hope you enjoy!

Andrew – W3AWC

Prez Sez!

Welcome to the first HARC Spark edited by Andrew W3AWC. We thank him for stepping up, and wish him an enjoyable tenure.As you probably know by now, we are switching to Zoom-only meetings, with the exception of (probably) four restaurant meetings each year, to satisfy our need for "eyeball QSOs".

The big news for October is the annual PA QSO Party, self-described as "The Friendly QSO Party"! WM3PEN will be activated by Philadelphia County stations on the Oct.11-12 weekend, but of course "anyone anywhere" (as is often said on SSB) can participate with other callsigns. For more info, look elsewhere in this newsletter, and/or go to https://PAQP.org. It's great fun, and you might even get a "clean sweep" of all 67 PA counties.

HARC is sponsoring two special events in October and November to celebrate the 250th birthdays of the Navy and Marines, respectively. See elsewhere below for info.

Lots coming up… Good idea to operate HF bands now, while we have sunspots, as they will be gradually diminishing over the next few years.

73,
Saul W3WHK
HARC President

New Editor

My name is Andrew (W3AWC), I first became a ham in October '23 while I was living in West Philly. My first amateur radio contact was on the WM3PEN repeater with net control Austin (KA3TTT) on Thursday October 12th probably around 7:58 PM. I had no idea a net was about to take place, I threw my callsign out on the repeater saying I was "testing" hoping a co-worker and fellow ham in Bryn Mawr could hear me. He could not but thankfully, the HARC net was about to start so someone was listening.

When I learned that Rich (K3UJ) was stepping down as editor, I decided to volunteer for the role. Though work has often kept me from attending HARC events in person and more recently, a new job has required me to move to the greater Chicago area, HARC remains my home club and I want to try and support the club and its activities any small way I can. While I can no longer be physically present for events in and around Philly, this new job oddly enough should allow me attend more meetings virtually.

Part of my attempt to support club activities has been submitting a few articles to the newsletter over the past few years and now I hope I can at least carry some of the administrative burden of the club by serving as editor, all be it from a few states away. I'll be experimenting with some new recurring sections, you saw one on the first page already, the feature photo! So please bear with me while I settle in.

I'll close with a call to action to all readers of this newsletter; make it your goal to interact with this publication at least twice a year! Be it submitting a short article, a single picture with a caption (maybe it will be the feature photo!), or writing an email to the new address for this newsletter spark@wm3pen.org to let us know what you like, don't like, or would like to see more of. The activity of our members is news worthy, IS the news of ham radio! You never know who you might inspire, help, or connect with by just letting us know what you're up to.

Andrew – W3AWC

On The Air

13 Colonies

While the 13 Colonies event was over in July QSL cards are still arriving in September. Over 600 qsls have been responded to directly, including 40 from the QSL buro. More than 2260 EQSLs have been received. In addition many have been confirmed on LOTW. During the event over 9600 QSOs were made. Here are just 2 of the QSL cards received.

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Navy 250 Birthday celebration/PA QSO Party

WM3PEN will be on the October 10 – 13 celebrating the Navy's 250th birthday and participating in the PA QSO Party on October 11 and 12. Having both events running concurrently complicates things a bit. Hope you can follow along. During the PA QSO party only stations in Philadelphia can operate on 10, 15, 20, 40, 80 meters. Stations not in Philadelphia can operate on the WARC bands 12, 17, 30 meters as part of the special event. The PA QSO party hours are October 11 Noon – Midnight EDT and October 12 9AM – 6 PM EDT. Those participating in the PA QSO Party will be able to give credit for both the PA QSO Party and the Special event. When a station sends in a request for a WM3PEN QSL card they will receive a QSL featuring Commodore John Barry statue near Independence Hall. Barry was credited by some as the Father of the US Navy. An SASE is required for a response. If they would like the USPS Navy stamp on their return envelope they must include $1.

If you would like to operate as WM3PEN contact Bob, WA3PZO

Marine Corp 250th Birthday

WM3PEN will again be on the air November 8 – 11 celebrating that 250th birthday of the Marine Corp. A special QSL card will be issued. If the would like the USPS Marine Corp stamp on the envelop they must submit their qsl card, a Self addressed Envelope and $1.

If you would like to operate as WM3PEN contact Bob, WA3PZO

Mesh Heads

By Tyler, KC3LVS, Reading Radio Club

Exploring Meshtastic and the World of OffGrid Mesh Networking If you've been following new trends in radio and digital communications, you've probably heard of Meshtastic. This opensource project has been gaining traction among radio hobbyists, outdoor adventurers, and emergency preparedness groups alike. Enthusiasts who dive into the system, sometimes jokingly calling themselves "Mesh Heads", are discovering just how powerful and versatile lowpower mesh networking can be.

At its core, Meshtastic is a mesh networking platform that uses LoRa (Long Range) radios to send and relay messages. Each device, known as a "node," can pass along messages to the next, creating a web of communication that doesn't rely on cell towers, WiFi, or the internet. The more nodes you have, the stronger and farther the network can reach. Nodes are typically small, inexpensive devices such as the LilyGO TBeam or Heltec LoRa boards. Most cost between thirty and sixty dollars, making it easy to experiment or set up a small network. Messages are sent from a smartphone via Bluetooth to a node, which then relays them across the mesh to other nodes in range.

The system works by combining several simple technologies. LoRa provides longrange, low bandwidth communication in the 900 MHz ISM band, and the Meshtastic firmware allows each node to act as a relay, extending the coverage far beyond a single radio's range. The Meshtastic app makes it easy to send and receive messages, share GPS locations, and even plot positions on a map. Because the project is open source, both the firmware and the app are constantly evolving with contributions from a vibrant online community.

For radio hobbyists, Meshtastic offers a playground for experimentation. It is resilient, since it works without infrastructure, making it valuable during grid failures or disasters. It also enables discreet messaging: instead of long voice transmissions, Meshtastic uses short digital packets, somewhat like APRS but simpler to operate. Amateur radio clubs are beginning to experiment with community projects, building networks to test range, coverage, and reliability. Although Meshtastic itself operates in unlicensed spectrum and does not require a license, its principles mirror many of the values in amateur radio, self reliance, innovation, and technical learning.

One of the more creative uses of Meshtastic is as a platform for sensors. With a few addons, a node can serve as a self contained weather station, reporting temperature, humidity, and/or barometric pressure to the mesh. Nodes can also act as fixed beacons, automatically transmitting their GPS position and system status. Beyond weather, hobbyists have begun using Meshtastic

HARC and Mesh

HARC Leadership was approached by the University of Penn Amateur Radio Club about installing a MESH node at the repeater site. Questions were raised about the repeater antenna being to high and possible mesh device overload by the repeater amplifier. Several Board members expressed interest in the project and learning about MESH. Members got a MESH device similar to the T1000E shown in the photo. It is about the size of a credit card. The members participated in a Zoom call with U of P alumni and members of the Philly Radio and Meshtastic group on Discord.

October 15 HARC Meeting 7:30 PM on Zoom
Topic Meshtastic
Speaker will be HARC member W3GIN and a member of the Philly Radio and Meshtastic group.

Scenes from the Kutztown Radio Show

By Peter Treml K8PT

Enjoy some fascinating photographs from the Kutztown Radio Show held on September 19th and 20th curated and submitted by HARC's very own Peter Treml (K8PT).

Can you hear me now?

Transistor heaven!

This radio with dummy was listed at $3100.

This oldie listed at $185.

Cool phonograph. *(continued on next page)*

(Scenes from the Kutztown Radio Show continued)

Gobs of Knobs, all wood!

All wood speaker.

Some more vintage speakers.

A very nice Collins 360.

This original radio made under glass, very heavy.

Never knew this Hammarlund model HQ-200 existed

5 Takeaways from my Dad's Life in Communications: Telecom Experts are Always Needed!

By Frank Grossman, WB2BXO

My Dad, W2LOZ (SK), known as Harry in amateur and professional telecommunications circles, was involved in electronic communications for much of his life. He started out as a Ham while in high school, operated CW aboard ships before World War II, worked at a shore station after the War, and spent the rest of his professional and Ham Radio career at the intersection of telecom and automation.

We can, I think, take six lessons from my Dad's career as both a professional and an amateur in radio. These include:

1. Make yourself "essential,"
2. Complete your education,
3. Follow industry trends and change with the times,
4. Train and mentor, the next generation, and
5. Consult and share your knowledge after retirement.

Back in 1938, Dad became licensed. He told me that, along with his friend Marvin, W2NKK, he built bicycle radios for the 5-meter band. Quickly, though, he progressed to building a one-tube Hartley oscillator and a two-tube regenerative receiver for 40 Meter CW. The radio put out about ten watts, but he worked out to the west coast and down to the Panama Canal Zone by getting up in the middle of the night.

My father entered the professional telecom world as a radiotelegraph operator aboard ocean-going ships before World War II and retired as a telecommunications consultant at the dawn of the World Wide Web era. And the Ham station we assembled together eventually included automated logging, automated CW, and digital modes.

Make Yourself Essential.

Dad started his career shortly before the Second World War as a radio operator aboard coastal tankers. Oil tanker shipments drove our economy then and still do today, so the work was essential. It was dangerous, even before U-boats started torpedoing the tankers when war broke out. The radio room was the highest point on the ship, accessible via a narrow catwalk crewmembers could be washed off of in a storm.

This was, I believe, his favorite job. He kept his First Class Radiotelegraph license for the rest of his life.

Harry Grossman (W2LZO, SK)

My father looked for even more essential work shortly after America entered the War. The Army needed radio-telegraphers, but they were not essential enough. Excess operators could be sent to the "ReplDepot," or Replacement Depot to replace lost infantry soldiers. As a result, he became a radio repairman for B-17 bombers, and then a radar technician. Our forces could not afford to lose such experts, so he stayed behind the lines. According to my father, he spent much of the war servicing radar sets in Hawaii, including antennas at the iconic Opana Radar Site that detected—but did not correctly identify—the incoming raid on December 7, 1941. (My father was there later in the War)

Amateur Radio was verboten during the War. Dad returned to the air with thousands of others at the close of hostilities.

Complete Your Education.

Dad returned to civilian radio as a Ham and marine radio operator after the War. He worked at WNY, a ship-to-shore radio station in Manhattan, started a family with my Mom, and, somehow, attended City College of New York full-time for his Bachelor of Science degree in Chemistry. Of course, that schedule left little time for hamming, although he says he got on for a few hours now and then because FCC rules at the time required hams to certify a few hours of activity to renew their tickets.

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In addition to providing transferable skills, the degree, and perhaps his experience as a Ham, qualified my father for supervisory training at his company—and for training in an emerging technology—computers

Follow Industry Trends and Change with the Times.

The advent of new technologies such as geosynchronous communication satellites meant the "writing was on the wall" for marine radio-telegraphers so my father "reinvented himself" as a computer expert. His company, RCA Global Communications, adapted its early computers for TWX and Telex message switching. Dad qualified for training on the new equipment because he had a college degree and telecommunications experience.

Dad was right to make the move. The job of radio-telegrapher was slowly phased out and largely disappeared in 1999. Satellites and digital radio services took over.

Train and Mentor, the Next Generation.

Computer operators that worked for Dad remember the training classes he delivered. He insisted all operators understand computer basics, and not just the commands they had to type.

Today, my brother Michael, a retired Operator, still remembers the first question our father always asked the new operator classes. What is a bit?

Dad taught Ham Radio to me the same way. I had to understand the math and technology thoroughly before he let me sit for the exam.

Consult and Share Your Knowledge After Retirement.

Dad remained active in telecommunications after he retired. He worked to install new message switching systems for companies in the US and abroad. His vast experience convinced customers to avoid costly errors.

Our Ham station at home grew to include an IC-765, Ameritron AL811 amplifier, and a computer we integrated with the rig to send CW. RTTY, and PSK31 in addition to logging in contests. Despite limited antennas, I even won a few contest certificates. (usually without the amp because I was S-9 on the landlord's TV!)

My Dad's CW operating, then, led to essential service to the nation during the Second World War, and then to a rewarding corporate career. Today, I continue his CW tradition and still relish DXing on the 40 Meter band.

Major Edwin Howard Armstrong and the Superheterodyne Receiver

Published in the CAARA News
Cape Ann Amateur Radio Association
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

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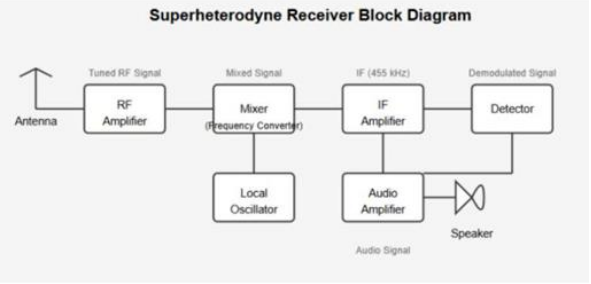
(Superheterodyne Receiver continued)

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 Wednesday Coffee and Donuts 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.

HARC Spark Reader Survey

We hope you have enjoyed this October 2025 edition of the HARC Spark. Here is a new recurring section we would like to experiment with and encourage your participation in. Please click on the image below or follow this link to take our reader survey! Ever wondered how your fellow hams approach the hobby? Well here's your chance to find out! Come back to the next issue to see the results!

Don't hesitate to contact us at spark@wm3pen.org or post something on our groups.io page to give us feedback or suggest some things you're curious about your fellow hams! We hope these questions and responses might provoke some self reflection and even discussions!

1. How many radios (with TX capability) do you own? That's radios you could power, charge, or swap some batteries in today and generate an output signal with!

- ◯ None
- ◯ 1-3
- ◯ 4-8
- ◯ 9+

Stamps for the Wounded

We are still collecting and sending packages of stamps in support of this very worthwhile program. Save what you can, especially those foreign QSL mailings, cut off the corner of the envelope, leaving at least a ¼" around, and bring them to the meeting or mail to:

Rich Shivers
168 Crabtree Dr.
Levittown, PA 19055

Meetings

Club meetings are held the third Wednesday of the month 7:30 PM Eastern over Zoom. Please check the HARC groups.io page (groups.io/g/WM3PEN) for a meeting zoom link posted by our president the day before the meeting.

October 15th

Several Club members have become interested in Meshtastic. Meshtastic is a decentralized wireless off-grid mesh networking LoRa protocol. The main goal of the project is enabling low-power, long-range communication over unlicensed radio bands. It is designed around exchanging text messages and data in off-grid environments, with potential applications in IoT projects where a decentralized communication system is needed without existing infrastructure. Our October 15 meeting will be an introduction to Meshtastic.

The Holmesburg Amature Radio Club Weekly Net

The Holmesburg Amateur Radio Club's weekly net meets on Thursday nights at 08:00 PM. On the WM3PEN repeater in Philadelphia. Come and join us on 146.685 MHz, with a PL of 146.2 Hz. We now also link to the K3RJC repeater, 444.9 MHz, with a PL of 131.8 Hz. Bring your questions, announcements, and stories of your latest ham radio adventures.

Interested in being net control?

The net begins promptly at 8PM. Use the strongest radio you have to ensure a good net control signal into the machine. Be sure to have a pad and a good pen, or type quickly, because the check-ins come quickly (you can ask them to slow down and do phone cs if you'd like). When someone checks in, please acknowledge them by callsign, and name, and thank them for checking in, wishing good evening, make a joke, whatever suits the moment. Leave some space after asking for check ins, because we sometimes get groups of 3-4 at a time.

Opening: The Holmesburg Amateur Radio Club weekly net meets on Thursday nights at 08:00 PM. on the WM3PEN repeater in Philadelphia. Come and join us on 146.685 MHz, with a PL off 146.2 Hz. Bring your questions, announcements, and stories of your latest ham radio adventures. Information on the Holmesburg Amateur Radio Club can be found on the Club website – www.wm3pen.org. You can check out the Holmesburg Amateur Radio Club Facebook page or join the WM3PEN group on groups.io.

First – Is there any emergency or priority traffic. **(pause)** We will take check-ins from stations that are short on time. **(pause – acknowledge them)**

After check-ins are recognized we will have: Announcements Contests Comments from those checked in. A 73 round for final comments. Any additional check-ins before we start comments.

Call on each check-in for comments. If a lot of stations checked in pause after a few comments looking for additional check-ins. At the end of the list of check-ins indicate that there will be the 73 round. Once done. Close the net and turn the repeater back to regular use.

PHILA ARES INFORMATION

All amateurs interested in participating in ARES should check into the Phila ARES Net, Sunday's at 9:00 PM, local time, hosted on the Phil-Mont Repeater System; 147.030 MHz (+offset 91.5 PL) ;444.80 MHz (+offset 186.2 PL) When control operators are available, Echolink node 29742, WU3I-L, is on the repeater.
Backup link is KB3IV-L.

All amateurs are welcomed and encouraged to check in for more information. There is always a different topic of interest to the amateur community discussed with an informal round table of comments and suggestions.

HARC member, Cliff – KC3PGT, is the Philadelphia Emergency Coordinator, Section 1, EPA Region.

We look forward to hearing everyone on Sunday nights @ 9:00 pm. See web site for more information.
- Visit the Philadelphia ARES web site
http://www.phlares.org/

HF AWARDS MANAGER

Are you getting close to having all 50 states confirmed for the Worked All States award or working enough grid squares for to qualify for the VUCC Award? As a HARC service you can now have your QSL cards verified by Bob, WA3PZO, and not have to ship the cards to ARRL Headquarters. You must be an ARRL member to qualify for the awards.

Additional information and links can be found on the HARC website
(www.WM3PEN.org)

Helping Hams

Would you like to assist your fellow club members? Do you have an expertise in any particular area and would like to make that available to other hams? If so, let the newsletter know and you will be added to our list here.
eMail spark – spark@wm3pen.org

Kit building. - I will offer assistance, finish something started or do a complete build for you.
Rich – K3UJ ab3eo@comcast.net

Antenna installation
Carl – N3ZZK Carl9521@aol.com
Dave – KB3AKK kb3akk@hotmail.com

CW & Contest operation
Saul – W3WHK saulbro@aol.com

Portable Operation – Are you trying to operate away from home? Looking to get into POTA? Maybe you're not sure what kind of antenna can fit in your car but can still deliver results. Let's chat!
Andrew – W3AWC callsign.w3awc@gmail.com

Associations

SKCC – Straight Key Century Club #24642 under both WM3PEN and K3FI.
Ten-Ten International #71057
PODXS 070 Club #1493 (PSK activity)
ARRL Special Services Club

Your Contributions

Please tell us what you are doing. Have you received any awards, upgraded your license, done any activations, (SOTA, IOTA, etc.), built something special. Or if you would like to write an article, a short comment or just have a photo or two you would like to share! We would be happy to receive all material.

The HARC SPARK is a publication of the Holmesburg Amateur Radio Club. 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 HARC members, and space is available. Material is accepted on a first come, first serve basis.

Articles and other materials may be submitted in Word or Text format to SPARK@WM3PEN.ORG

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Next Issue: December 2025
Submission Deadline: November 15 2025

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