May 2014

The HARC Spark

The Official Newsletter of the
Holmesburg Amateur Radio Club
WM3PEN 146.685 Mhz Repeater
K3RJC 444.9 Mhz Repeater
K3FI - CLUB CALLS - WM3PEN
Web Site http://www.harcnet.org

D-STAR UPDATE
Jack, WA3BXH
May 15, 2014

May 15
HARC Meeting

Jack Coupe r. WA3BXH, and members of the Philadelphia Digital Radio Association will bring us up to date on the latest happenings with D-STAR. D-STAR (Digital Smart Technologies for Amateur Radio) is a digital voice and data protocol specification developed in the late 1990s as the result of research by the Japan Amateur Radio League to investigate digital technologies for amateur radio. While there are many other newer digital on-air technologies being used by amateurs that have come from other services, D-STAR is one of the first on-air and packet-based standards to be widely deployed and sold by a major radio manufacturer that is designed specifically for amateur service use.

Dues are Due
Elections of Officers

The HARC 2014-15 Membership year begins May 1. Dues are just $20. Your support helps fund club activities, repeater expenses, and insurance. Use the membership form on pg. 10.

Club leadership elections are in May. President, Vice President, Secretary, member at large positions are open. Contact Bob, WA3PZO. Current officers are listed on page 2.

Update on WN3A tower legal battle
By Bob Famiglio, K3RF

As some of you know, I am involved in assisting a well-known radio amateur in a significant amateur radio antenna zoning battle in the greater Philadelphia area. Time and space here does not permit me to detail all that has occurred in the past few months. However, to those of you that are aware and have shown support for the amateur involved, WN3A, I wish to thank you on behalf of Jeff and his family for your kind words of encouragement.

The zoning board hearings, being conducted in a formal trial-like setting, began April 30 at 7 PM and ran until 10 PM as we offered at least 40 exhibits for the record so far. We expect several more evenings of hearing time.

Those of you not aware of Jeff's predicament, I posted a letter I sent to all the hams we could identify as living in either Tredyffrin and Schulykill Townships in the download section of the ARRL web page for EPA. The letter explains more about this matter. Both of these townships as well as the neighbors are separately opposing Jeff's application for a 180- foot Rohn self-supporting tower on his approximately 233 foot by 660 foot, 3 acre wooded lot next to his home.

Jeff is a serious VHF, UHF and microwave operator and most of the antennas will be small in that regard, not larger HF arrays that you might find at say a contest station. The almost 100 foot trees plus the 70 foot rise at the ridge in front of him require this height, which we can surely prove.

HARC Board of Directors

President - Mike Wurgley, N3LXN
V.P./Treasurer - Bob Josuweit, WA3PZO
Membership - Charley Johnson, K3CJ
Technical - Ron Cardullo, K3RJC
Member-at-Large - Sol Volen, N3UBY
Webmaster - Rich Shivers, AB3EO
UPARC Rep - Mike Feeley, KB3NDC
Newsletter Editor - Bob Josuweit, WA3PZO
WM3PEN @ AOL.COM

H.A.R.C. Monthly Meetings - The Board of Directors meets on the 1st Thursday @ 7:30 PM (Odd number months). General meetings are held the 3rd. Thursday @8:00 PM. Pathway Bldg, Philadelphia Protestant Home, 6401 Martins Mill Road at Tabor Rd . Phila PA. Picnic in August. Holiday Dinner in December.

H.A.R.C maintains the 146.685 repeater located @ Univ. of PA., Phila PA with inputs in Abington, N.E. Phila, and Cherry Hill, NJ; More Club Information & Member Applications can be had by contacting any of the Directors via E-mail. WM3PEN@arrl.org, the web page http://www.harcnet.org or writing to HARC 3341 Sheffield Ave, Philadelphia, PA 19136.

Keep up on the latest HARC news by checking out the Club website www.HARCNET.org

Upcoming Events

Amateur Radio History: April 17

D-STAR: May 15

Shortwave Listening in the 21st Century: Sept. 18th

PHILA ARES INFORMATION

All amateurs interested in participating should check into the Phila ARES Net, Sunday's at 9:00 PM, 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 interested 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.

Look forward to having all check in on Sunday nights @ 9:00 pm. See web site for more information.
- Visit the Philadelphia ARES web site http://www.harcnet.org/aresindex.html

VE SESSIONS

PhilMont Mobile Radio Club has testing in Ambler, PA on the 4th Thursday of every month. Exams , 1414 E. Butler Pike in Ambler, PA. Registration begins at 7pm.
Warminster Amateur Radio Club has testing the last Wednesday evening of each month except August and December. The sessions are at the Warminster Recreational and Educational Center on Little Lane, and start promptly at 7:00 PM (registration 6:45 PM).
Bryn Mawr - quarterly on a Saturday. Contact Bob Lees, W3ZQN, rjlees@aol.com

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.harcnet.org)

WN3A (cont. from pg 1)

This case will likely end up in the courts for some years and will have a significant effect, in my view, on amateur radio towers in the various states which comprise the Third Circuit Court of the United States.

The opposition raised by very competent Township and other opposing lawyers who clearly studied PRB-1 cases include reference to the cell phone laws supposedly requiring the amateur to make his tower available to cell phone carriers for co-location if they demand it, (I can't make this stuff up), and the fact that Jeff can simply increase his power to get through all the foliage attenuation, as well as suggesting the ham should be satisfied with talking locally through repeaters. Jeff does maintains repeaters but he is personally a weak signal 50 MHz and above operator. Opponents presented that he can use long wire antennas and "loops" (we don't know what they mean here either) even at VHF and UHF to work effectively. They have also raised an interesting argument that a 180-foot Rohn self-supporting tower is commonly and universally found in industrial or factory settings as there are very few, if any, radio amateurs in the area that have or need such a tower. Therefore, they argue no exemption under PRB-1 and state law applies. Also, one of Jeff's repeater on the tower if used by others is not for Jeff's own use and therefor is not subject to exemptions. This is a short list of the many arguments the opponents have and we expect a long line of opponent expert witnesses arguing against the tower on numerous grounds as well.

Please be assured that we know how to meet all these objections but the decision on the facts, of course, remains with the many panel members who will render a written decision for the zoning Board of appeals. They are the jury on the facts and apply the applicable law as well. Some radio amateur with professional engineering and emergency response credentials have stepped up to help. They may make all the difference. By the way, if you are a real estate appraiser with experience in such matters as cell phone and other tower effects on property values, we desperately need to speak with you.

I appeared at a very well attended public meeting on April 21 in Tredyffrin Township to address the Board of Supervisors of that township who voted to oppose amateur radio antennas not just in the present case, but resolved to oppose them anywhere in the Township.

The meeting was recorded in video and is available at the Tredyffrin Township Board of Supervisors web page. Two and 1/2 hours into the meeting Jeff's amateur radio antenna was raised under new business to pass a resolution opposing Jeff and other radio amateurs. I was given the opportunity to speak for 10 minutes over the jeering of the neighbors who were anything but friendly as you can imagine. "We don't love towers and we don't love hams" an opponent placed on the record at that earlier meeting.

If you're with one of the clubs who sent representatives, please pass the word that, because of the neighbors outcries, the next hearing is moved to a new larger location to accommodate what I believe will be a hostile crowd. If you're coming down again, and all are welcome, drop me a note so I can keep you on a list to inform you of developments. We expect the hearings to be completed by July and no decision until as late as August. Keep the faith.

And both Jeff and I will see you on the radio.
Bob Famiglio, K3RF
EPA Section Manager
Legal Counsel for WN3A

World War II Radio Heroes Letters of Compassion Second Edition Lisa Spahr
List: 19.95

Just $15.00 Contact: WM3PEN@AOL.com or Bob, WA3PZO

Have you been working W1AW portable?

W1AW will be on the air from every state and most territories, and it will be easy to work WAS working only W1AW portable operations. WM3PEN has worked W1AW in 20 states including Hawaii. Complete info on this special event can be found at: http://www.arrl.org/centennial-qso-party .

Pennsylvania "67" Challenge Award

Amateur Radio operators around the world have the opportunity to participate in the Pennsylvania "67" Challenge. The Challenge, sponsored by the Holmesburg Amateur Radio Club, is to make contact with all 67 Pennsylvania Counties. The Challenge is open to all amateur radio operators regardless of individual station capabilities. All contacts must be 2-way communications made in real time. These contacts may be on any Amateur Radio band/mode.

Contacts made using repeating devices such as FM repeaters, Amateur satellites, moon-bounce, and keyboard-to-keyboard contacts through digipeaters/nodes are valid, because these QSOs are made in real or near-real time. Contacts using IRLP, Echolink, or D-Star are valid as long as a radio is being used by both operators. All contacts must be made from the same county.

As an incentive Pennsylvania "67" Challenge certificates may be earned by working stations in 20, 40, 60, or all 67 Counties. Paper or electronic QSLs are acceptable. The contacts can be verified by a local club officer or mailed to the Holmesburg Amateur Radio Club.

Complete rules are posted on the HARC website. Questions on the Award can be directed to HARC at WM3PEN@ARRL.NET.

New 4 Band Radio for under $300

While looking on Amazon I spotted this radio by TYT for $276.99. It covers:

TX: 28.0-29.7 / 50-54 / 144-148 / 430-450 MHz
RX: 28.0-29.7 / 50-54 / 108-180 / 320-480 MHz
(5/10/12.5/15/20/25/50 KHz steps)
Mode: TX: FM/NFM RX: AM/FM/NFM
RF Power output:
Hi: 50/50/50/35 W Mid1: 20/20/20/20 W
Mid2: 10/10/10/10 W Lo: 5/5/5/5 W

There are 4 band mobile antennas for under $50. I haven't done any research on the radio so check out the reviews before you buy.

HARC Meeting: D-STAR May 15

Stamps For the Wounded

HARC members will start collecting postage stamps for the Stamps For the Wounded program. ***Stamps for the Wounded*** accepts any U.S. or foreign stamps that are not torn or damaged. They have also requested each stamp should have at least a quarter-inch margin around the stamp. Do not try to either to peel or steam the stamp off the original envelope.

So save the stamps from your qsl cards or other mail. They do not need the common Flag Forever stamp. Bring the stamps to a club meeting and give them to Rich, AB3EO, who will mail them.

Warminster Hamfest

HARC had 2 tables at the Warminster Hamfest. One table had a display of the Club's many awards and the other table had stuff to sell. We earned $293. Thanks to AB3EO, N3LXN, and WA3PZO for staffing the table and thanks to all who donated stuff for the Club table.

ON THE AIR!

HARC Special Events:

13 Colonies Special Event: July 1 -6

WM3PEN will again be on the air for this week long special event. Several radio clubs will be helping us keep WM3PEN on the air. Interest in helping - contact WA3PZO.

Field Day: June 28 -29 This annual event at Avelthorpe Park in Jenkintown is part of a national operating event.

A Century of Amateur Radio and the ARRL

America's "Roaring 20s" had passed and, with them, a period of roaring growth in radio technology. But a large problem had fallen on America, one that began on October 29, 1929 -- "Black Tuesday," the day the stock market crash triggered our Great Depression.

Like everyone else, hams had to tighten their belts during the 1930s. Typical ham didn't have enough disposable income to take advantage of the best advances in technology, so they learned to improvise. Amateur Radio continued to grow, both in numbers and accomplishments. Here are some Amateur Radio and ARRL tidbits from the 1930s:

January 1930 *QST* announced that phone operation on 20 meters had been authorized.

By the early 1930s most hams were using crystal-controlled transmitters, but most hams had only a small number of crystals. The usual procedure was to call long CQs and then tune up and down the band looking for long calls in reply.

The first ARRL "International" Field Day was held in 1933. By 1938 more than 1000 stations were participating. The event had become as popular as the ARRL DX Contest and the Sweepstakes.

The Communications Act of 1934 created the Federal Communications Commission (FCC), which replaced the Federal Radio Commission. Within a few years, the FCC was monitoring ham stations, to be certain everyone was following the rules and regulations. *QST* warned its readers to be sure their transmitters were operating within the ham bands, because the FCC could measure frequency with an accuracy of 10 cycles per second!

By 1936 there were 46,000 radio amateurs in the US; by 1939 the number had risen to 51,000.

The ARRL announced the start of the DXCC program in 1937. In 1938, W3CRA qualified for the first DXCC certificate -- quite a feat!

Maxim Memorial Station W1AW.

League Co-Founder Hiram Percy Maxim, W1AW, died suddenly on February 17, 1936, at age 66. After Maxim's death, the FCC issued the call sign W1AW to ARRL. The Maxim Memorial Station, W1AW, in Newington, Connecticut, was dedicated on September 2, 1938, in his honor. The ceremony was broadcast nationwide by radio.

In May 1936, Eugene Woodruff, W8CMP, was elected by the ARRL Board of Directors as the League's second President. Woodruff was the head of the Departments of Electrical Railways and Radio at Pennsylvania State College.

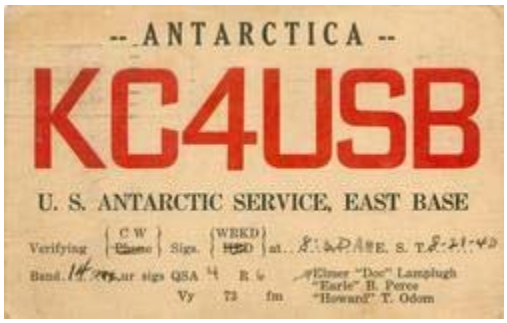
But then, another World War was upon us. We'll look at hams and the war years next week.

Feature: A Century of Amateur Radio and the ARRL

World War II began in September 1939 as a European war, just as World War I had. Suddenly 121 of the 250 countries on the DXCC list were off the air. At that point, the US was pursuing a course of neutrality, so American hams were allowed to remain on the air. The ARRL soon

issued its own code of neutrality, which resulted in the federal government's appreciative support of Amateur Radio.

Canada, along with Britain and most of the British Commonwealth, immediately shut down ham radio, however. This created an odd situation: The US (and the ARRL), following their policies of neutrality, had to treat Canada as a belligerent; no mention of Canadian Amateur Radio appeared in *QST* until May 1941, when *QST* began publishing the column "The Month in Canada." It is noteworthy that, of the 3380 Canadian hams then licensed, half were in uniform by 1941, some 900 as officers.



A 1940 QSL card from KC4USB in Antarctica. [Courtesy of the Tom Gentry, W5RG, collection]

In those early war years, before the US entered the fray, some interesting things happened. The state of the radio art had reached the point that long-haul DX could be worked even with modest, low-cost stations. The Byrd Antarctic expeditions put KC4USA, KC4USB, and KC4USC on the air. Experimenters began to tinker with wideband FM at the upper end of 5 meters (58.5 to 60 MHz). The FCC revamped its amateur exams, eliminating essay questions (and the requirement that applicants draw schematic diagrams) and replacing them with a multiple-choice test. Exams could then be graded immediately at the examination point, sparing the applicant weeks of anxiety.

At the 1940 meeting of the ARRL Board of Directors, George Bailey, W1KH, was elected League president.

In June 1940, World War II hit American hams harder, when the federal government prohibited US hams from contacting hams outside the country. The FCC also prohibited all mobile and portable operation below 56 MHz, with the notable exception of Field Day! At the League's request, this policy was soon modified to allow Amateur Radio Emergency Corps drills during daylight hours on weekends, and to allow true emergency communication at any time.

To be continued next week.

Feature: A Century of Amateur Radio and the ARRL

As the US edged ever closer to entering World War II, more restrictions were placed on hams. They were still allowed to operate, but only to make contacts within the country -- no DX!

There was strong evidence of subversive activities and clandestine radio stations in America. The FCC ordered all radio licensees, both commercial operators and hams, to furnish a full set of fingerprints, a passport-type photo, and proof of US citizenship by October 15, 1940.

It was necessary for the FCC to ramp up its monitoring activities, and the September 1940 issue of *QST* put out a call for amateurs to fill 500 new positions as FCC monitoring operators. Those 500 positions were quickly filled, almost entirely by hams. FCC's well-known Radio Intelligence Division was thus supervised and staffed mainly by hams, under the direction of George Sterling, W3DF.

The Navy Communications Reserve and the Army stepped up their recruitment of amateurs to enlist as radio operators and repairmen, and hams again responded in great numbers. In addition, the Civilian Conservation Corps and the National Youth Administration recruited hams to serve as radio instructors. During this period, ARRL inaugurated its code proficiency program, with more than 900 hams submitting W1AW copy of the first certificate run.

Chain Home radar system towers. [Courtesy of the RAF Museum]

Our nation was still in the phase of "positive neutrality," but there were many efforts in which US hams helped the war effort before we entered the fray. One of those efforts was the Civilian Technical Corps, which maintained and operated British radars, then operating in the upper HF and lower VHF range. One of those early radars was quite important -- Britain's Chain Home radar system, an early warning system to detect incoming German bombers early enough to scramble fighters to meet the enemy at altitude over the English Channel. Chain Home operated at 22 to 25 MHz. Although that frequency range presented problems, it could be built and put into service quickly, using existing technology and equipment.

Sets of three or four 360-foot towers were built at various locations on the English Channel's coast to support the very large wire antenna arrays. Some of those towers still exist, now supporting commercial antennas.

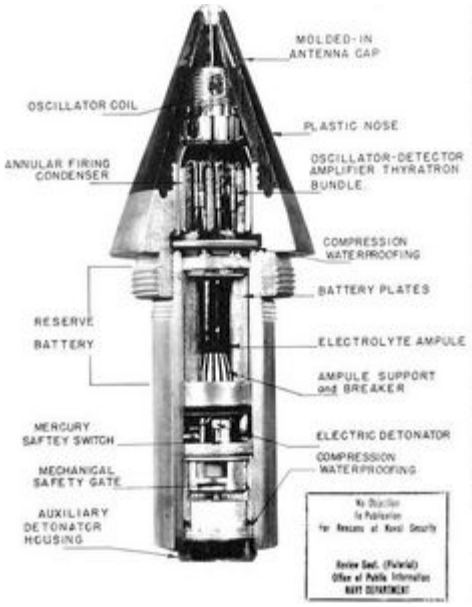
Next week: I'll tell the tale of a war effort that I became very familiar with by working with some of the hams who developed and put the Proximity Fuze into action. -- *Thanks to Al Brogdon, W1AB*

Feature: A Century of Amateur Radio and the ARRL

One very important, but lesser-known, advance in weaponry developed during World War II was the proximity fuze. Its cover name during the war years was the "variable time fuze" or VT fuze. Many of the engineers who developed the fuze were hams whom I knew during the post-war years, when I worked at the Applied Physics Laboratory of Johns Hopkins University. The following comments are from my conversations with two APL hams who played significant roles in the development of the VT fuze -- Lorry Fraser, W3LMZ, and Ralph Robinson, W5FDF.

When WW II began, anti-aircraft artillery fire was a game of chance. Rounds seldom made direct hits on aircraft. Modern aircraft of that day had a great advantage over the defense provided by AAA. The Navy needed a fuze that would detonate when it was close enough to attacking aircraft to cause major damage. Enter the VT fuze.

The concept of the VT was simple: Build a range-only radar small enough to fit inside the fuze of a 5 inch naval gun, and make it rugged enough to be fired from that gun. But it had to be done with components available in the early 1940s.



A cutaway view of a Variable Time Fuze.

APL found that ruggedized hearing aid vacuum tubes could be fired from a 5 inch Navy gun and survive. They designed a radar employing those tubes, which would detect the Doppler shift of the signal reflected from a target, determine when the shell was nearest the target, and trigger the explosive charge. Powering the VT fuze was a wet-cell battery without its electrolyte. When the round was fired, G forces would break an ampule

of electrolyte, flooding the battery, and bringing it and the electronics to life.

After many months of development, tests, and trials, the VT fuze was ready for deployment. Robinson received a direct Navy commission, so he could deliver and put into action the first batch of fuzes. The Crosley Corporation was then chosen to manufacture VT fuzes on a production-line basis. VT fuzes had tipped the balance of power from attacking enemy aircraft to the Navy gunners, just in time.

In 1940 and 1941, the US Army continued its road to full mobilization, holding large-scale "maneuvers" in various parts of the country. The Army needed more frequencies on HF, and plans were made to turn over the entire 80 meter band to the Army. In return, US hams were allowed to use voice on 40 meters for the first time.

Then, on December 8, 1941, President Franklin D. Roosevelt delivered his famous "date which will live in infamy" speech, asking Congress to declare war against Japan. Soon, the US was fully involved in World War II. Amateurs were immediately ordered off the air, with a special exception for W1AW to alert the few hams who were unaware of the FCC order. On January 10, 1942, all stations, including W1AW, were put off the air for the war's duration. ARRL continued to lobby for permission for hams to operate for civil defense purposes, however.

In June 1942, the FCC established the War Emergency Radio Service (WERS). It allowed radio amateurs to supply communication for their communities. An interesting sidelight is that the Government Printing Office was so overwhelmed at the time that the WERS order and information were promulgated via the ARRL and *QST*.

ARRL again offered its and its members' support to the war effort, but this time, Amateur Radio had become a well-known and respected entity within government circles, and the government quickly took advantage of the offers.

WERS licenses were given to communities and not individuals, but participants had to hold an Amateur Radio license. Civil Defense radio volunteers transformed the auto radio in this auxiliary police car into a short-wave War Emergency Radio Service set, permitting auxiliary police communications officers to maintain two-way contact with their control center. [Farm Security Administration/Office of War Information photo]

Because radio manufacturers weren't able to keep up with the military's demands for new equipment, the ARRL put together lists of equipment that hams were willing to sell to the government. Many hams volunteered for military duty, and more than a few times a newly sworn-in military operator would find himself sitting down in front of the equipment he had recently sold to the government!

By March 15, 1942, about 15,000 hams were known to be in the military. Many other hams were working in critical defense jobs. Once again, hams answered the call!

The ARRL and *QST* were soon working hard to issue publications used by the military, by training schools, and by radio clubs throughout our country to train more radio operators and repairmen. In addition, the ARRL started making plans to ensure the reappearance of Amateur Radio after the war ended.

Next month: We'll continue with the story of US hams in World War II. This series of articles are by *Al Brogdon, W1AB.* Credit: ***The ARRL Letter*** and The American Radio Relay League.

HOLMESBURG AMATEUR RADIO CLUB
3341 Sheffield Ave., Philadelphia, PA 19136
"Serving the Community Through Ham Radio"

May 15 Meeting – D-STAR

HOLMESBURG AMATEUR RADIO CLUB
2014 MEMBERSHIP FORM

HARC, 3341 Sheffield Ave, PHILADELPHIA, PA 19136
http://www.harcnet.org
WM3PEN/K3FI

All members in good standing are eligible to vote and hold a board office. Dues are $20.00/year.
Make checks payable to H.A.R.C. and mail to 3341 Sheffield Ave, Philadelphia, PA 19136. Membership year begins May 1.

NAME _____ CALL_____

ADDRESS _____

City, State, Zip _____

Telephone # _____ Would you be willing to receive the newsletter via email? ___
E-mail _____

Are you an ARRL member? YES NO Membership Expires (mm/yy) _____