



THE HISTORY OF THE BVARA

THE 1920s

BY RICH SOLTESZ, K3SOM

THE 1920s

In the early twenties, 1922 or 1923, a group of radio amateurs banded together and founded the Beaver Valley Amateur Radio Club.

In those days, very little technical knowledge was available so these Beaver County amateurs gathered principally to exchange ideas and opinions concerning amateur radio. In fact, very little is known about those three radio pioneers. We do

know about the culture, the current events at that time, both locally and globally, and some of the obstacles those inquisitive individuals faced with radio technology. From a practical point of view, there were still many homes without electricity.

In 1923 Calvin Coolidge became our 30th US president after the death of Warren Harding. The last of our US troops left the Rhineland (Germany) after World War I. The first presidential address was broadcast on radio in 1923. Vladimir Lenin's last article appeared in Pravda and the USSR was formed that same year. Jean Sibelius' 6th Symphony premiered. In Egypt, Tutankhamen's burial chamber was opened by archaeologist Howard Carter.

Closer to home, Yankee Stadium opened its doors. "The Hunchback of Notre Dame" and "The Ten Commandments" were successful movies in 1923. "Runnin' Wild" (introducing the Charleston dance) opened on Broadway. Astronaut Alan Shepard, Senator Bob Dole, actor Charlton Heston, and writer Norman Mailer were born in 1923. Walt and Roy Disney founded the Disney Company in 1923 and the Hollywood sign on the hill overlooking Los Angeles was officially dedicated that same year. Transcontinental airmail service began. Insulin became generally

available for diabetics as well in 1923.

EVENTS IN BEAVER COUNTY IN 1923

In Beaver County, the Ambridge Chamber of Commerce began in 1923. That same year West Mayfield became incorporated. Geneva College became accredited by the Commission on Higher Education in 1923. St. Ladislaus Church was founded in Beaver Falls that same year. Snyder Brothers & Baker, Inc. on 3rd Street in Beaver was selling a 1923 four-passenger Chevrolet Sedanette for \$850. This smart-looking vehicle was equipped with drum-type head lamps with legal lenses.

RADIO TECHNOLOGY IN THE 1920s

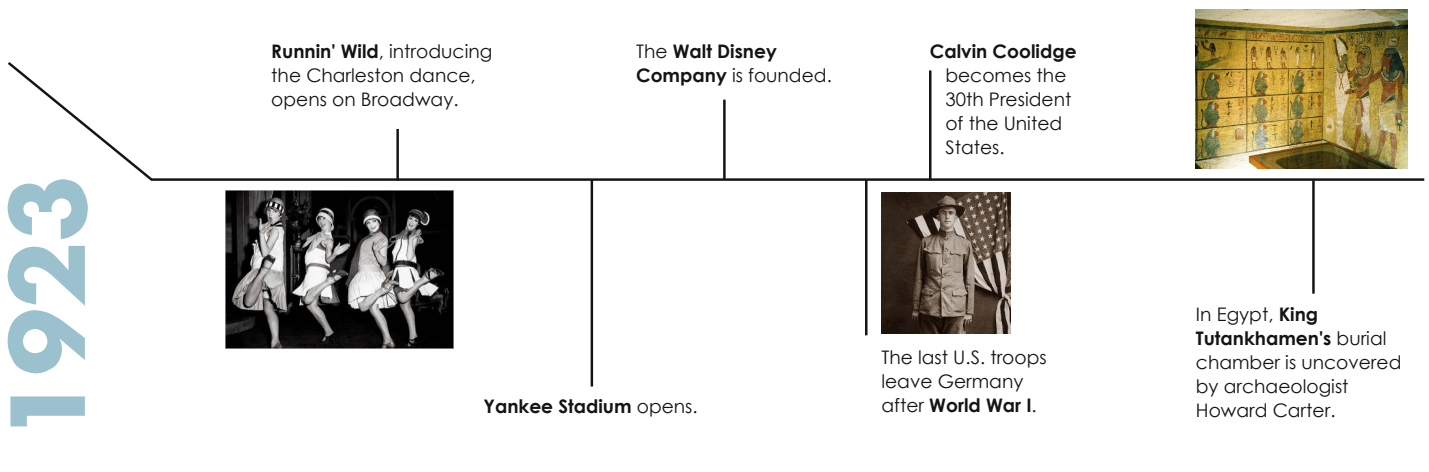
The American Radio Relay League (ARRL) was founded in May 1914, only nine years before the Beaver Valley Amateur Radio Club. The 1920s saw tremendous technical growth in radio. Pushed both by wartime demands and by the growing commercialization of radio, equipment rapidly

improved. The use of spark gap technology quickly disappeared as the more efficient continuous wave system of generating radio-frequency energy and transmitting Morse code became standard.

In 1923 a two-way contact between Connecticut and France bridged the Atlantic Ocean for the first time. All this led to rapid growth in both the number of amateurs and membership in the League. Perhaps this was the "spark" that inspired those three Beaver County men to join together and share their common interest in this new radio technology.

With government uncertainty as to how to allocate both commercial and amateur frequencies, the ARRL kept discipline in amateur ranks so that spectrum was not unnecessarily occupied. They worked with Washington and the result was that amateurs received the orderly series of harmonic frequency bands that they largely hold today (originally 1.8, 3.5, 7, 14, 28, and 56 MHz; other bands have since been added and the 56 MHz allocation was changed to 50

A YEAR IN THE ROARING TWENTIES



MHz). The League also began to act in an advisory capacity for the American delegations at international radio conferences. In 1925 the International Amateur Radio Union (IARU) was formed, and it remains headquartered at Newington, Connecticut.

Back in the 1920s, the call signs of hams in Western Pennsylvania began with the number "8" followed by two or three letters. Some of these early radio hobbyists in Western Pennsylvania included 8ARB (1928) in Ben Avon, 8AYH (1929) in Bridgeville, 8BBF (1932) in New Brighton, 8CQX (1923) in Pittsburgh, 8CUG (1926) in Emsworth, 8DHJ (1926) in Pittsburgh and many others including 8XK, Frank Conrad, who was a radio broadcasting engineer and Assistant Chief Engineer for the Westinghouse Electric Corporation. The year following their call sign represents the year on the QSL card that they sent to another ham to confirm a two-way communication or QSL. That card became known as a QSL card. In January 1928 there were 17,000 licensed hams in the United States.

The Elser-Mathes Cup was



Elser-Mathes Cup from 1928, ARRL HQ Museum

AMERICAN RADIO RELAY LEAGUE		
RADIOGRAM		
CITY OF ORIGIN	STATION	NUMBER
TO:—		
REC'D AT STATION	PHONE	TIME
ADDRESS		DATE
<i>This Message was transmitted free of charge by Amateur Radio Stations of the American Radio Relay League. Answer will be sent free by filing at this station.</i>		
FORM 4		PRINTED IN U.S.A.

ARRL Radiogram from 1925, Wikipedia Commons File

created in 1928 by U.S. Amateurs Fred Johnson Elser (W6FB/W7OX) and Stanley M. Mathes (7OE/K1CY) to be awarded for the "First Amateur Two-Way Communication between Earth & Mars." The cup is a Philippine Igorot wood carving, a bowl supported by two standing figures. News of the loss in December 1999 of the Mars Polar Lander renewed interest in the Elser-Mathes Cup. Visitors to ARRL HQ may recall having seen the unusual trophy on display. Col Fred Johnson Elser, W6FB, recalled meeting League founder Hiram Percy Maxim, W1AW, in the 1920s. He learned that Maxim had an interest in Mars and even owned a globe of "The Red Planet." Perhaps a future BVARA member will claim that prize!

HAM EQUIPMENT

Back in the 1920s, Beaver County had a number of businesses to cater to the specific needs of the

radio enthusiast – whether the radio was for family listening and enjoyment or for the amateur radio operator and his special needs. From the pages of the Beaver Falls Tribune of January 9th, 1925 we can envision the amateur radio operator reading these ads and visiting these establishments in the area (see sidebar, p. 8).

With mud slides and impassable roads at times, hams in Beaver Falls were fortunate not to have to travel too far for needed supplies for their equipment. Perhaps they even took a streetcar to these radio stores. As we look at the old pages of QST we gain insight into some of the equipment and techniques that hams used. By examining what hams wrote on their QSL cards about the kinds of equipment they were actually using our knowledge of their equipment increases. And as we review the performance characteristics of these sets, we can only conclude that our early club members must have been quite

EXTRA, EXTRA! RADIO NEWSPAPER ADS

In the 1920s, the pages of local newspapers contained many advertisements for amateur radio equipment and services. The ads below are taken from the pages of the Beaver Falls Tribune on January 9th, 1925.

A New Radio Station

We have recently opened a Radio Service Department under the management of a competent radio man.

The object of this department is to keep your radio set in working order at all times, regardless of the make of the set or where it was purchased. One of our men will make a regular monthly call at your home to inspect your set, make necessary adjustments and give you any radio advice you desire. This service will be furnished you for less than one dollar per month. We feel this a service that many have been looking for and that the owner of a radio will be glad of an opportunity to avail himself of such a service. Just call Beaver Falls 980.

**BENTLEY'S
Service Station**

Sixth Avenue and Fourth Street Beaver Falls, Pa.

**COMPLETE LINE OF
Radio Sets at
All Prices**

Payments can be
Arranged

**FULL LINE OF
BATTERIES, TUBES,
AND PARTS
ALWAYS
ON HAND**

**Repair Work
Promptly Attended to**

W. H. BONNAGE
1508 SEVENTH AVENUE
BEAVER FALLS, PA.

Radio Supplies

**A and B Batteries, Head
Phones, Tubes, Cabinets,
Bradley-Stats, Battery
Chargers and Radio Mats**

If you are expecting to build a set, we have parts to build a reliable 1, 2, or 3 tube outfit.

**ROOM 8, FIRST NATIONAL
BANK BUILDING
ROCHESTER, PA.**

Open Tuesday, Thursday and
Saturday Evenings

**Special Offer On Grebe
Radio Receiver**

GREBE CR9
3-A Batteries, 2-B Batteries 90V, 3-WD12 Tubes
Brandes Speaker, Aerial Equipment Complete for only **\$100.00**

Should you wish to use storage battery and UV201A Tubes the price will be **\$110.00**

RADIOLA III
2-WD11 Tubes, 1-PR Brandes Phones, Complete Aerial Equipment, all batteries **\$39.75**

RADIOLA III-A
4-WD11 Tubes, 1-PR Scientific Phones, 1 Brandes Speaker, Complete Aerial Equipment, all batteries **\$79.80**

WOLF ELECTRIC CO
1104 Seventh Ave. Beaver Falls, Pa.

Advertisements (clockwise from upper left): Bentley's Service Station; radio supplies at the First National Bank in Rochester; Wolf Electric ad offering Grebe and Radiola radios; W.H. Bonnage ad for radios, parts and service.

enthusiastic about their hobby and their achievements.

Transceivers did not exist then. Hams had radically different circuitry for receiving and for transmitting. The availability of vacuum tubes made these circuits perform. Although very low power stations could be run from batteries, AC electric power was required if the 1920s ham wanted to run any more than a few watts of power. Some hams in Western Pennsylvania had Westinghouse M-G sets (motor-generators with a common shaft) that could provide up to a kilowatt of power for their transmitters. The fortunate ham already had his home wired for electricity.

Ham receivers spanned the gamut from simple one-tube sets with headphones to early superheterodyne configurations of considerable complexity for the 1920s. One popular configuration consisted of a Reinartz tuner followed by two stages of audio amplification. This ingenious circuit included a regeneration loop to "amplify" through feedback at the RF level the signal being tuned. Very high gains were possible and the set could be made to oscillate so that CW signals could be received. Tuning was "touchy" and coil coupling was critical to successful operations, particularly as the frequency went higher. With a good antenna and a strong signal being received, the audio from the receiver could adequately drive a loudspeaker if the ham could afford one. Tubes

like the W11 and W12 were very popular.

Ham transmitters during this period were largely home-constructed from various articles and with possible collaboration from other hams in the area. This need for discussion of ideas and concepts may have had a great deal to do with the formation of the Beaver Valley Amateur Radio Club. The paper trail from this period is extremely difficult to obtain. Monthly magazines, QSL cards, newspaper articles (a paucity of them about ham radio!), and antique auctions have provided most of the available information about this time period. Popular transmitter circuits typically employed Hartley oscillators followed by an amplifier stage. Sometimes the amplifier tubes were operated in parallel to achieve higher output levels. For phone operation, Heising modulators were frequently used with the final amplifiers to create the amplitude modulated (AM) signals. These signals were then coupled to the parallel wires connecting the transmitter to the antenna. Antennas could be end-fed or center-fed designs and frequently utilized cage-style designs of multiple wires. Frequently the feedlines were also of cage design. Many antenna configurations incorporated a counterpoise of wires below the antenna at a height of six to twelve feet.

One can only imagine what the ham of the 1920s could hear

AM PROGRAMS

There were very few AM broadcast stations in the 1920s. Below is the radio schedule for KDKA and WCAE for January 6th, 1928.

RADIO NEWS	
WDKA	
4—Telechron time. Closing stock comment, weather report, report of butter and eggs, fruits and vegetables	Baltimore grain and Chicago grain and provision, Toledo seed, Pittsburgh hay and grain.
5—Telechron time. Markets, livestock, Boston wool, principal cotton markets, New York sugar and closing comment on Chicago grain.	5:10—Talk sponsored by the International Oil Heating company.
6—Telechron time.	6:10—Yellow Cab theatrical calendar.
6:15—KDKA Little Symphony orchestra playing in the lobby of the William Penn hotel, Pittsburgh.	7—Telechron time. University of Pittsburgh address by Dr. John G. Bowman chancellor of the University of Pittsburgh.
7:15—Week-end tours with probable weather conditions to be encountered by the Automobile Club of Pittsburgh, A. A. A.	7:30—Castoria Rock-A-Bye Lady from WJZ, New York.
8:30—Hampton Institute quartet from WJZ, New York.	9—Wrigley revelew from WJZ, New York.
Longine time from WJZ, New York.	10—Reymer's R. V. D. trio. Telechron time and weather forecast.
WCAE	
4:30—Orthophonie recital.	5—"Happy hour," period for children.
5:30—Farm school.	6—Dinner concert from Hotel Waldorf-Astoria.
7—Frank Maggio's New China Restaurant orchestra.	7:30—Correct time.
7:30—Uncle Kaybee.	7:45—Motor talk and highway report by C. H. Roth, secretary of Pittsburgh Motor club.
8—Concert by Cities Service concert orchestra and Cities Service Cavaliers.	9—Howard correct time.
9—Whittall Anglo-Persians.	9:30—La France orchestra, directed by Anna C. Byrne.
10—Program sponsored by the Palmolive-Peet Co.	11—Ben Bernie's Hotel Roosevelt orchestra.

through his headphones. There were fewer stations on the air and interference from other stations was probably far less than today. Noise sources were probably also less prevalent, but when they were present, they could have been really nasty to deal with!

Radiogram and message handling for some hams was a primary activity. Much like today, hams were individuals with their own preferences for equipment, styles of sending Morse code, operating goals and objectives, and a desire to succeed and enjoy this great hobby. After a successful CW contact on 80 meters, our early BVARA member may have picked up his telephone, waited for the party line to clear, and then dialed the three-digit phone number of his "buddy" to brag about his DX!

Perhaps before turning on the ham radio set, our ham and family enjoyed listening to the family radio by tuning in to one of the few AM broadcast stations in the area.

NEXT MONTH

Next month we'll move ahead to the 1930s and continue our journey as we follow the early history of the BVARA. A second club was formed and activities everywhere in ham radio began to pick up. We'll look at what was happening around the globe and locally during the 1930s. In addition, as technology continues to change, we'll examine the effect on equipment and operating practices. Stay tuned! ➔