# The Alabama Historical Radio Society Newsletter

**August 2013**

## *NOTE FROM PRESIDENT TOM*

Hello, All!!

Where has the summer gone! School starts within a week for most kids and then, football. I guess we will have our share of pigskin flu absences this fall. Not to worry, our members will continue to contribute to our mission by their presence, thoughts or spirit.

Donations continue to come in, including some fine Leader Test Equipment, a half dozen Simpson vacuum tube volt meters, which appear to have been used very little, and several communication receivers which need a good home. Anyone interested? See Dave Cisco or Dave Johnson, our Marketing Committee.

We have been working to repair several customer radios with various issues. Dave Cisco has been working on one that someone else tried to fix, making it more difficult to do a good repair job. He "got her done!" We had a long-distance repair for Andrew in Dothan, and it, too, is ready. Some members have brought in radios that they plan to work on, and they have not been seen since. Hopefully, they will come soon as we are tight on space.

We have several opportunities coming up to market some of our magazines, used test equipment, used communication receivers, and a transmitter or two, and some am/fm radios for general home use. The Huntsville Hamfest is this weekend, August 17 and 18. While some of our members are going, the Society will not have a flea market table this year. Closer to home are the Gadsden Hamfest on September 21 and the Helena Hamfest, sometime in October (TBA). Check Alabama ARRL for more information. These offer us a chance to put some items on the market, and to find some things we need. Montgomery's Hamfest is on November 9 and may give us a chance to sell some stuff, too.

In this issue, Mike Lord has contributed a story on his love of radio and, in particular, old World War Two aircraft radios. I have asked other members for similar stories for our newsletter. I got a preview of one this morning at our regular Saturday workday from Marvin Shepherd. It involves "music through the air." It will be a little while, but it will

be worth the wait! Ed Boutwell is going to video an interview with Marvin, similar to the one he did with Wendell Harris, and then we will use excerpts for the newsletter. While we have Ed "moving," there are several more videos that need to be made, including one of Ed himself. Ed asking himself questions for the video may need to be a ticketed event!

Robert Frye continues his radio class with a review of the material he covered in his radio class by SKYPE on August 3. Patsy has added a chart to help with color codes. Thanks, Patsy! Robert's next class is scheduled for September 7.

And Dee continues his interesting "all things old radio shows."

Gene Samples delivered the "new" 1938 Emerson AX 235 Catalin radio that he has been working on, and the consensus is that he did an outstanding job with it! It will soon take its place in the Don Kresge Memorial Museum in the Alabama Power Company Headquarters Atrium. Below is a picture of Gene with this radio.

I must thank Tom and Patsy for a most interesting article on their new toy. I have been looking for one of the Logitech Squeezebox Radios since reading their article, and, wow, I did not know it was gold plated! I will have to wait for my next SS check!

It is my intention to recognize (where the donor allows) any monetary donations (yes, we don't just take old equipment) given in memory or in honor of someone. I have observed this practice in other 501(c)(3) organizations, and I believe there are members who want to remember and/or honor someone within or outside of our Society. Those who want to give and prefer not to be recognized will be listed as "anonymous."

Remember, Robert's next radio class is on September 7 at 9:00 AM. And our next Monday night meeting is on August 26 at 7:00 PM. Steven has lined up an interesting program, so come on down for fellowship and education. Bring a guest! I will see you there!

*Tom Killian*
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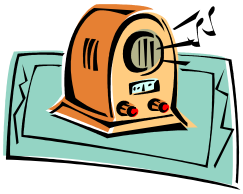

## *OLD TIME RADIO BITS*

Hello Folks!

This month I will continue telling you about character actors from the golden age of radio. Highlighted this month, we will talk about Floyd the barber from the Andy Griffith Show. Yes, none other than Howard McNear, the meek little man who cut Opie's hair on TV. Born in 1905, died 1969, Mr. McNear had a long and very successful career in stage, screen, radio and TV.

After watching him as Floyd the barber, it's hard to imagine him as Clint Barlow of the International Secret Police! One of my daily radio shows that I listen to is "Speed Gibson of the International Secret Police." This was a 15-minute radio show targeting young boys and girls. (or maybe the young at heart) I don't recall any commercials, but the theme music was long enough for the local radio stations to put in their own ads. The show ran from January 1937 to May 1940.

I can't find anything on Howard McNear during the late 40's other than he joined the U. S. Army Air Corps in November of 1942 as a private. After his death, he was interred in the Los Angeles National Cemetery.

Another successful show for Mr. McNear was radio's *Gunsmoke*, where he played Doc Adams, Dodge City's iconoclastic and grumpy physician. *Gunsmoke* ran from April 1952 to June of 1961. That same year, Howard McNear began his role as Floyd Lawson, the barber on the Andy Griffith Show.

To listen to Howard McNear directing the "International Secret Police," go to the link below:

http://www.otronmp3.com/OTR/Speed%20Gibson%20of%20the%20International%20Secret%20Police/

*Dee Haynes*
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From Tom Killian—

Mike Lord has restored several Society radios over the years and he has done an outstanding job with each restoration. He is a member of your Board of Directors and has been active in all things radio. I asked him to personalize his love of radio, and he has done so here.

## *My Life with Radio and my Affair with the ARC 5*

**By Mike Lord**

As far back as I can remember, radio seems to have been first a curiosity and then gradually a significant part of my life. My first memory occurred when I was about five

years old. I can recall very clearly listening to the radio (Lone Ranger) and wondering how all those voices got into the radio. I asked my mother and she said, “They come through the air.” Well, that didn’t help very much. I thought, “How do they come through the air?”

The next memory was about the age of seven. My uncle had returned from the war and had a portable radio that he had carried with him. It no longer worked. My aunt gave it to me and said, “Why don’t you see if you can get it working?” Sure thing, Aunt Rita. I had no idea what I was doing, but I got it apart and poked all around. I didn’t have any idea of the importance of the batteries. Needless to say, my project was a failure in the sense that I never got the radio to work, but it furthered my curiosity. That radio was an RCA BP-10, which I later discovered had been the very first “personal radio” available to the public. [(1)] The circuitry was later used by Zenith, under contract to RCA, to develop their famous Transoceanic series of radios. This past year, Tom Hayes found one for me while attending the antique radio show in Pennsylvania.

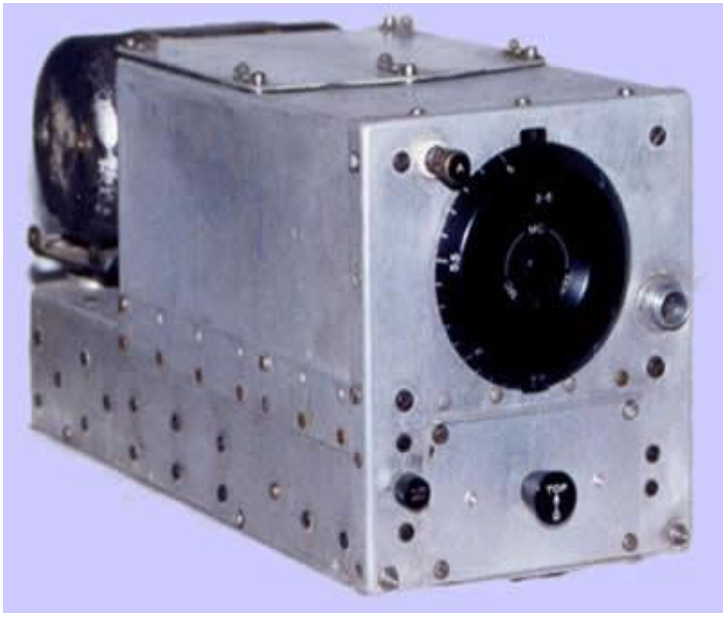
**Pic.1**

**You can see that BP-10 wasn’t a “small” portable radio, but it was “portable,” and just like the Transoceanic radio, it had a hot front end.**

In 1949 someone in the family gave me a small plastic radio (5-tube all-American). It was my first personal radio. I had it in my room and could do anything to it without worry about destroying it. Night after night I “fooled around” with it. Among other things, I discovered that it was a good idea to keep a screw driver away from the components under the chassis. However, I did discover that I could adjust the screws on the tuning capacitor and that would change the stations I could listen to, and if I put a wire on that capacitor, I could really hear many more stations. I could also hear the police and guys talking. I later learned they were hams talking on 160 meters. I also noticed that I could hear more stations in the winter versus the summer months. There was so much to discover. This radio stuff was great!!

One Saturday night I picked up a station broadcasting an Auburn football game. At first I thought the Auburn they were talking about was the Auburn in south central New York, but there was no football team in Auburn, NY. Where can this Auburn be located? I eventually found out it was Auburn, Alabama. Imagine, Alabama! Here we lived in Syracuse, New York. which seemed like a million miles away. After that, each Friday and Saturday night. I would try to find new football teams to follow. It seemed I could always find an Auburn game. It was probably a network broadcast? In any case, I became an Auburn fan and have been so ever since.

My uncle Ray was a ham and every chance I had, I'd walk the four miles to his house to spend the evening listening to him "talk to the world." I knew I had to get my license so I could also talk to the world, but how do you get a license? Uncle Ray told me I'd have to learn about how radios worked and also the Morse code. In order to learn the code, my uncle loaned me a curious little aluminum receiver he had. He said it was an "ARC 5!" [(2)]



**Pic.2**

**The Navy units, were designated ARA/ART and painted black crinkle, while the (Signal Corps) Army and Army Air Corps units were designated SCR-274N and were unpainted aluminum.**

He explained to me that the ARC-5 receiver was part of a system that included a companion transmitter, and they were used by the Army, Air Corps and the Navy. After the war, these and many other surplus units became available, and were used by hams. They were an inexpensive way for hams to get on the air, assuming one knew enough about them to modify them for ham use. That would include building a power supply unless you wanted to use the dynamotor that came with them. This receiver he loaned to me covered from 3–7 MHz. Holy cow, I could now listen to foreign broadcast stations as well as try to learn the code. Unfortunately, I spent more time tuning for foreign

stations than listening to the code. Learning the code kept me from getting my novice ham license until I was sixteen years old.

When I finally got my license (KN2SYN), I wished for a "real" receiver. So for Christmas my uncle gave me a brand new National SW-54. Wasn't that great! Not really. That little old ARC-5 ran circles around the National. The following summer I earned enough money to purchase a National NC-125. That receiver and a Viking Adventurer became my novice station. I also kept the ARC-5.

As time progressed, I had many different radios. While in the Air Force I went to technical school and studied what the Air Force called "heavy receivers." Yes, they were large and very heavy. Later I crossed trained into NAVAIDS and TACAN, but my first love remained radios.

During my time in the Air Force, I became passionate about the Army Air Corps role in WW II. The more I read about the aircraft and their radios, the more I realized that the most commonly used piece of gear was the ARC-5 set. It was simple to manufacture, maintain and use. It was also nearly indestructible. The units were designed in the 1930's and manufactured by Aircraft Radio Corporation[(3)] and, its numerous subcontractors. It was an extremely stable superhet design with a BFO. Its main function in the Air Corps was to provide air/air communications between aircraft. For air/ground communications, the BC-375 transmitter and the BC 342 or BC 348 receiver were used. The BC-375 transmitter was an aged and very poor design. It was unstable and difficult to maintain. It operated AM, MCW and CW. Power output was approximately 90 watts. The BC-342 and BC-348 receivers were outstanding for their day and are still used today by hams. The BC-375 was replaced by the Collins manufactured ART-13 autotune transmitter.[(4)] The ART-13 was a masterpiece of design. It operated AM, MCW and CW. Power output is 100 watts. Once the frequency was selected by the operator, the unit automatically tuned itself to predetermined parameters. I should note that it was not an easy unit to work on.

My interest in the air war during WW II centered on the 8th Air Force and its use of the B-17 heavy bomber. I read everything I could find on the subject and over the years have accumulated a fair library on the subject. With the advent of the internet, all sorts of new avenues for research were opened. The first use in Europe of the B-17 was by the British under lend-lease. The 8th Air Force began flying in 1942. So, in 2010 with the 70th anniversary of the 8th Air Force in England approaching, I decided to construct a mini mock up of a B-17 radio operators' position. Throughout my 56-year ham career I always had at least one ARC-5 receiver, but to complete my project I would need to collect more equipment. A B-17 would have at least two ARC-5 transmitters, three receivers, a BC-348 receiver and either a BC-375 or an ART-13 transmitter. See pictures 3, 4 and 5.

**Pic. 3**

**The two ARC-5 transmitters are located in a rack on the top shelf. They cover 3.0 MHz. to 9 MHz. Next to them is a BC-442 RF power meter, and a 24 hour aviation clock. The three ARC-5 receivers are located in a rack on the second shelf. These three receivers cover the frequencies from 500 KHz. to 9 MHz. Next to them is a homebrew antenna tuner. By the way, the antenna is a 35 foot long wire as would be used in a B-17 aircraft. On the main operating position are the BC-348 receiver and speaker. The ART-13 transmitter sits atop the power supply located to the right of the operating position.**


**Pic. 4**

**ART-13 transmitter sitting atop power supply.**


**Pic. 5**

**The BC 375 is for display only**.

When I put this position together I did NOT try to make it completely authentic, i.e., complete cabling system and control fixtures. I wanted it to be useable! All units, except for the BC-375 are operational. I use the ARC-5s on both 80 and 40 meter cw. It's actually quite a pleasure to operate them while pretending to be flying in a B-17. The antenna change-over relays click away in time to the CW signal being transmitted. Sometimes they're a distraction, but in B-17 days, the roar of the engines would have overcome any sounds coming from the relays. I have used the BC-348 and the ART-13 to operate AM on 75 meters.

The purpose of this paper is NOT to pretend to make you an expert on the "ARC-5," nor for me to pretend to be an expert. Rather, I wanted to share some memories of my experiences with radios in general and the ARC-5 in particular. If you have never owned of these little beauties, consider picking one up at the next hamfest. I guarantee you will be impressed. Both the receiver and the transmitter will do well with a 35–50 foot end fed long wire antenna. The receiver will require a simple power supply providing 90 volts DC and 6.3 or 12 volts AC for the filaments. The transmitter will need 500 volts DC and 12 volts AC. I'd be happy to help any member get started. I also hope that you might take the time to do some research and learn about the fascinating history behind these units and the role they played in WW II.

References:

1. http://www.radiomuseum.org/r/rca_bp10.html

2. The term "ARC-5" has come to be a generic, though incorrect, term for all similar command set units, including those designed by the Aircraft Radio Corporation in the late 1930s. The antecedent of the AN/ARC-5 system was the U.S. Navy's ARA/ATA system, with initial deployment in 1940. To equip Army Air Corps planes, the US Army adopted in 1941 a reduced set of these radios known as the SCR-274-N that was almost electrically identical to their ARA/ATA equivalents, except for receiver output and modulator sidetone audio transformer output impedance.

3. http://en.wikipedia.org/wiki/ARC-5 This article contains a brief, but rather complete index of the most popular ARC-5 units.

4. http://www.radioblvd.com/art13.htm This is an excellent article covering the technical aspects as well as operation of the unit.

## *From the Radio Class Room*

**By Robert Frye**

Sometimes you just have to go back to radio basics. We now have many new students; this is good, but now it's time to go back to basics.

First thing we will cover is Resistors.

A resistor is an electrical component that limits or regulates the flow of electrical current in an electronic circuit. A resistor is perhaps the most common building block used in circuits.

Select the number of bands, then their colors to determine the value and tolerance of the resistors.

**Resistor Color Code Chart**

**Band Color code**

Band #1
Band#2
Band #3
On a three band resistor the 4th band is the tolerance, on a four band resistor the 5th band is the tolerance

## Value & Tolerance (color code)

| Colour | Digit | Multiplier | Tolerance |
|---|---|---|---|
| Black | 0 | 1 | |
| Brown | 1 | 10 | ± 1% |
| Red | 2 | 100 | ± 2% |
| Orange | 3 | 1,000 | |
| Yellow | 4 | 10,000 | |
| Green | 5 | 100,000 | ± 0.5% |
| Blue | 6 | 1,000,000 | ± 0.25% |
| Violet | 7 | 10,000,000 | ± 0.1% |
| Grey | 8 | | |
| White | 9 | | |
| Gold | | 0.1 | ± 5% |
| Silver | | 0.01 | ± 10% |
| None | | | ± 20% |

This chart is used with permission from Wayne Storr, webmaster@electronics-tutorials.ws and appears at www.electronics-tutorials.ws. Our thanks to Wayne for allowing its use here.

Example: a resistor with 3 bands
Band one color Red = 2
Band two color brown =1
Band three is the multiplier color red we have 21x100=2100 Ohms (just add in this case two 0's)
Band four Silver 10% Tolerance
The value is 2100 Ohms 10% tolerance. (this means 2100 ohms plus or minus 10%)

Next we go to Ohm's Law
R= Resistor, V= voltage, I= Current

Ohm's Law defines the relationship between power, voltage, current, and resistance. The various possible formulas for Ohm's law are as follows:

Where
P = power in watts
V = voltage in volts
I = current in amps
R = resistance in ohms

$P = V^2/R$
$P = I^2 \times R$
$P = V \times I$

$V = \sqrt{P} \times R$
$V = P/I$
$V = I \times R$

$I = V/R$
$I = P/V$
$I = \sqrt{P}/R$

$R = V/I$
$R = V^2/P$
$R = P/I^2$

Ohm's law states that the current through a conductor between two points is directly proportional to the potential difference across the two points. Introducing the constant of proportionality, the resistance,
[1] one arrives at the usual mathematical equation that describes this relationship:

[2] Where I is the current through the conductor in units of amperes, V is the potential difference measured across the conductor in units of volts, and R is the resistance of the conductor in units of ohms. More specifically, Ohm's law states that the R in this relation is constant, independent of the current.

We use resistors both in DC and AC circuits - example: we connect a 10 ohm resistor
To a 10 Volt battery we can calculate the current

$I = E/R$ 10 Volts divided by 10 Ohms equal 1 amp

We are running out of space, so this will be continued. This will be taught in the class on 8/3/13.

**Instructor – Robert Frye**
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RLF100243@aol.com

## *AHRS POLO SHIRTS FOR SALE*


Last Call (for now) on purchasing AHRS Polo shirts. If you are interested, please email me with your size and the number of shirts you wish to order. My email address is spwestbro@bellsouth.net

Steven Westbrook

## *MEETING TIMES*

We meet every Saturday (unless a Holiday weekend) at 09:00 AM, at the one-story AHRS Shop at the corner of 8th Avenue North and 18th Street (1801 8th Avenue North, Birmingham, AL 35203). Use the rear (Southeast) entrance.

Also, we have opened the Shop on Tuesdays at 09:00 AM until around 11:30 AM when we go to Marilyn's Deli and Dog for lunch next door. Note that parking can be a problem on Tuesdays because it is a business day and the lot is usually filled, so you may have to find street parking occasionally.

**We meet on the fourth Monday night of each month, too, at 7:00 PM. Please come join us!**

## *FREE ELECTRONICS CLASSES*

One more great benefit from becoming a member of AHRS--free Electronic classes!

Classes are taught the first Saturday of each month (except when something special is taking place, then we agree on what Saturday).

We start from the beginning Ohms Law, inductors, resistor and Capacitors color codes, as well as what each component does within the radio circuits. We also teach how to use test equipment used in the repairing of radio. We teach troubleshooting radio troubles, as well as how to read a radio diagram. There are coil winding classes, and one-on-one repair help.

Come join these classes.


**Dues are Due**

Membership dues are $25 a year, payable beginning in January. If you have questions about your dues, you can contact John Outland at 205-354-5258. **Dues can be mailed to AHRS @ P.O. Box 131418, Birmingham AL 35213.**

## *WHO TO CONTACT*

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