

# SOUND WAVES

## VRPS Winter 2015

### *From the President*



As I begin writing this, the presents are still wrapped and under the tree. The house is full of holiday guests ...mostly relatives and their dogs. The conversation is primarily about football and the really nice weather we are having...how long can that last? But as for me, my attention turns to writing my first *SoundWaves* article for 2015. I do so looking back at 2014. What a great year! I made several presentations to ham radio and civic organizations in 2014. My purpose was to educate these communities about what I think is a little known hobby that our grandparents thought was not a hobby, but both a lux-

ury and a necessity as this nation transitioned from a depression to a world war. If I did my math correctly, we added 10 first-time members to our merry band of collectors this year. That is really good. Steady growth is all an organization like ours can strive for on the positive side of the ledger. On the negative side, we lost three of our stalwarts—Ken McAllister and Paul Tucker and Valerie McKeown (wife of Bill). All will be sorely missed.

Your Board of Directors will be meeting at the end of the January to discuss and make plans for 2015. We want to build upon the growth in membership we experienced this past year. If you have suggestions and do not share them with me or another BOD member, then we may never have an opportunity to see a great idea come to fruition. I would really like to hear from some of you regarding ideas for a convention banquet speaker or entertainment.

Okay, time to wrap up my thoughts for this issue. Three days have passed since starting this article; that is not my habit. I guess there is just too much going on and too few quiet minutes to spend working on something so important as this issue...but, at least the presents have been opened as I close and say Happy New Year to all in 2015. Remember, invite a friend to join.

Jim

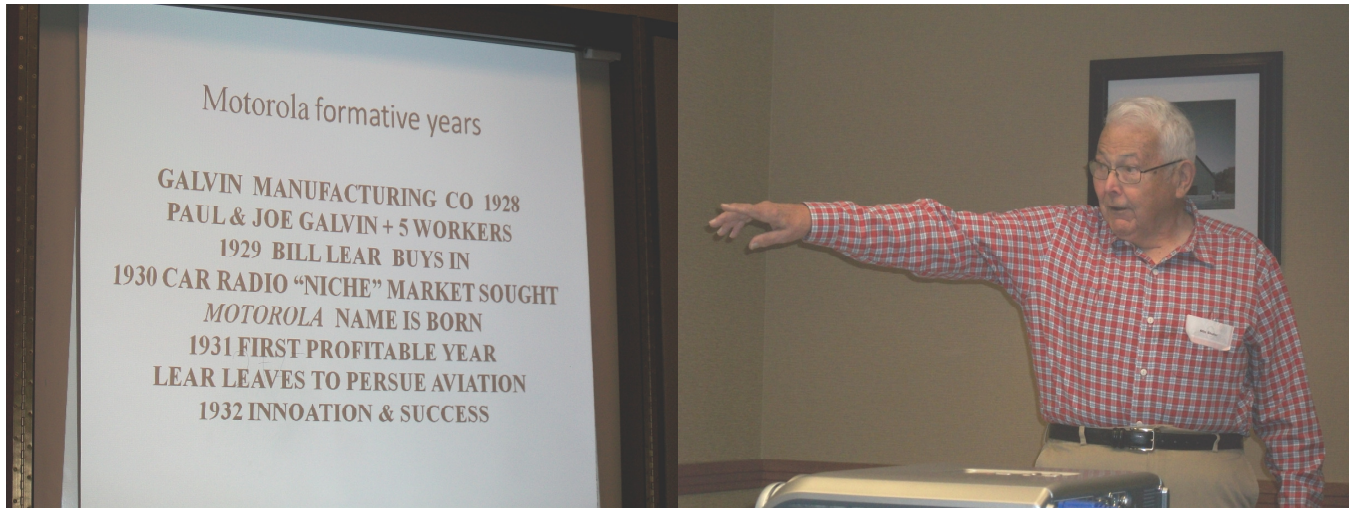


## Notes from the October 18, 2014 Meeting

Our club V.P. Randy James conducted our meeting – held at the Senter East building in Irving, TX. He reminded us of our upcoming annual Christmas party, also to be held at the Senter East building. Then our program director Mike Grimes prompted the audience to suggest meeting topics for 2015 and possibly to volunteer to make a presentation. Mike then discussed the topic of the meeting – the broadcast of “War of the Worlds”. He showed a video that has appeared on the PBS series “The American Experience”. Its subject is the most famous radio program in history. Radio was the primary entertainment back then. We saw many examples of people listening to many old radios (including a Watterson radio made in Dallas, TX and a close-up of a Crosley dial). Related news items were the Lindberg kidnapping and the Hindenburg disaster. Orson Welles was the narrator of “Mercury Theater of The Air” on the Columbia network in 1938. Welles prepared the famous broadcast for Halloween night, and based it on H.G. Wells’ book War of the Worlds. A draft review seemed rather dull, so he chose to broadcast it as though it were a breaking news bulletin. At that time, most people were listening to the Charlie McCarthy program until just after “newscaster” Orson Welles had mentioned that his program would be only a fictitious story. As a result, an enormous number of people took it seriously, and widespread panic ensued. As people tried to flee the “invasion”, many accidents and deaths took place. The police showed up at the station at the end of the broadcast. Welles acted very well to protect himself in an interview with the Media of the day. He went on to become a Hollywood actor with a one-movie-per-year contract.

Bill McKeown

## Notes from the Technical Session November 14, 2014 by Olin Shuler at the VRPS Convention



Olin Shuler was a part of Motorola history for many years. He was also a long-time leader in the Elgin Illinois radio club. He had put together a fascinating detailed presentation covering the history of the Galvin Manufacturing Company (later becoming Motorola) until recent years. The company was new in 1929, making it 10 years old at the start of WWII. It was incorporated by Paul and Joseph Galvin. It started out making "B" battery eliminators to power the early radio sets from the AC power lines as it became available. One of their customers was Sears Roebuck. In 1930 they developed and marketed an automobile radio that cost about 20% as much as a new car did in those days. Business was seasonal, with people going out for summer drives and listening to their car radios. Then Motorola developed and sold a receive-only radio for use by police departments for dispatching and task assignment. 1931 was their first profitable year. For a time Bill Lear (of Learjet fame) bought in to the company and made an ignition noise cancellation gadget. Paul Galvin made a trip to Europe and saw evidence that Germany was going to start a war. At the 1939 World's Fair the Galvins learned about TV and FM radio. They saw FM as a solution to their noise problems. This was just as they were about to introduce two-way radio using AM. After the fair, they got Dr. Daniel E. Noble from MIT into the company as director of research. They decided to develop a hand-held transmitter/receiver, and it became the famous Handy-Talkie. The availability of the new miniature tubes made that possible. FDR saw a demonstration and directed that the military establishment "buy them". By March 1941 Motorola had their contract. Olin showed us the schematic diagram and discussed it. By 1941 Motorola was well into FM 2-way radio for police use. Dr. Noble was instrumental in their equipment designs, including their model SCR-300 FM "Walkie-Talkie". Crystal frequency control was an important feature of war-time (and since) radios, so there was a demand for hundreds of thousands of quartz crystals. Motorola got a contract for 600,000 which was tripled to 1,800,000 – a quantity they could not gear up to produce. To solve that problem they built up a "cottage industry" within their distributorships. They taught people the manufacturing process so they could hire the necessary support personnel and buy the needed equipment and supplies.

Motorola built a new engineering facility and entered into Radar work in the X-band (10,000 Mhz). Their work was highly classified. No one could use the word "RADAR". It was a project for the U.S. Navy. During a flight test operation, bad weather was encountered and the radar test engineer was able to tell the pilot where to go, from his CRT image. This was a landmark event leading to the creation of the communications division.

Galvin family members have been executives of the company for many years, up to grandson Chris, who was ousted after awhile.

Authors Notes: During the late '40s and early '50s, I worked on a number of Motorola car radios for friends and neighbors. Some were the "add-on" kind. My '63 VW beetle has an "add-on" Motorola 1964 "All Transistor" radio using a mix of 3 small-signal germanium transistors, 2 small silicon audio transistors (in Motorola's new plastic package) and their new TO-3 high-power germanium power output transistor. It is now 50 years old.

## 2014 VRPS OLD EQUIPMENT CONTEST WINNERS

1. CRYSTAL RADIOS PRE 1940—JIM COLLINGS- EVERYMAN RECEIVERS
2. BATTERY RECEIVERS PRE 1928 – RICH KLARR – CROSLY 51
3. A/C TABLE RADIOS PRE WWII—MIKE GRIMES – JACKSON BELL PETER PAN (TIE) / KEITH MCMANUS – GREBE AC 6 (TIE)
4. AC/DC TUBE RADIOS PRE 1960 –MARY ANN CARUTH- COLLECTION OF COWBOY THEMED RADIOS
5. FOREIGN TUBE RADIOS – NO ENTRIES
6. TRANSISTOR RADIOS PRE 1965 –JIM SARGENT- COLLECTION OF REGENCY TR-1 RADIOS WITH ORIGINAL CASES
7. TUBE TYPE AUDIO – NO ENTRIES
8. PHONOGRAPHS & RELATED ACCESSORIES PRE 1928--DALE ALLEN- EDISON STANDARD WITH MORNING GLORY HORN
9. SPEAKERS & MICROPHONES PRE 1960--SAM LUSCOMB- 1920'S SHIP STYLED HORN SPEAKER
10. TUBE TYPE HAM & MILITARY--LANCE BORDEN- RS6 SPY RADIO SET
11. NOVELTY RADIOS—MARY ANN CARUTH—A VRPS PICNIC (FOOD RADIOS)
12. TEST EQUIPMENT PRE 1950—TOM BURGESS —COLLECTION (11 PIECES) OF CONFIDENCE TEST EQUIPMENT (TIE) / DALE ALLEN—SUPREME GENERATOR WITH PAPERWORK
13. RADIO RELATED ADS, EPHEMERA & ACCESSORIES—MARY ANN CARUTH—TINY MITE STORE DISPLAY WITH 2 RADIOS
14. TELEVISIONS PRE 1970—BILL MCKEOWN 1948 ADMIRAL (PLAYING HOWDY DOODY)
15. RESTORATION CATEGORY —GILBERT HEDGE—1924 WESTBURR 6 PORTABLE WITH LITERATURE
16. OPEN CATEGORY — DALE ALLEN — U2 RIVET JOINT RECEIVERS

## SPECIAL AWARDS

- FIRST TIME CONTEST ENTRY - DENIS NIEHUES (1957 PHILCO)
- PEOPLE'S CHOICE - MARY ANN CARUTH (COLLECTION OF COWBOY THEMED RADIOS)
- BEST OF SHOW - MARY ANN CARUTH (COLLECTION OF COWBOY THEMED RADIOS)
- PRESIDENT'S (FOUNDER'S) AWARD - SAM LUSCOMB - (SHIP STYLED HORN SPEAKER)



## Summary of 40<sup>th</sup> Anniversary Convention

So, how did the annual convention go? In a word, GREAT!! A total of 131 registered attendees made their way to Mesquite in November to participate in this annual tradition. We gave each paid attendee a really nice polo shirt as a gift and of course we had the traditional birthday cake. (By the way, if you missed out on the convention or just want an additional shirt, we have a nice selection of sizes left for sale at our cost, \$20 each. You can contact Randy James).

As always, the contest entries were excellent; you could see the effort put forth in the various displays, from the little dollhouse Zenith store, the "cowboy" novelty radio collection and the military radios, to the nicely restored Charlie McCarthy and early Zenith portable radios. Unusual horn speakers, nice early crystal sets, outstanding table radios, and Regency's first transistor radios, showed there was something for everyone to enjoy in this hobby.

The auction is always a highlight, and this year was no exception. Mike Grimes and his auction crew kept the items flowing across the auction block. Well over a thousand lots were sold, totaling \$35,000 in monies that changed hands. We changed up our fees for these auctions in response to some suggestions from members. Sellers were charged 10 percent of the selling price and buyers paid a 5 percent premium on their purchases. It worked well, so we will continue this approach in future club auctions. These fees allow us to continue to afford nice auction and convention facilities.

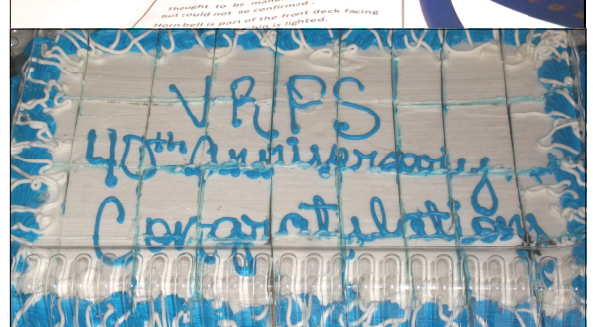
Speaking of facilities, we have been able to come to an agreement with the Hampton Inn and Suites in Mesquite to continue to host our annual convention at the same rates we have had for the past 3 years. This is no small achievement in a corporate world that is consistently striving to raise their profit margins. We continue to buck the trend.

The banquet provided a fitting climax to a great weekend. Jukebox Live, a barbershop quartet, provided very enjoyable entertainment. Door prizes, contest category awards, and even a surprise cash gift for some attendees rounded out the evening. Well, not quite. We also took the occasion to recognize, and say thanks, to Jim Collings for being the only continuously active charter member of the VRPS. He has not missed any of the annual conventions. If you are not in the habit of attending the banquet each year, you really miss an important part of the convention. Yep, the food is not free, but as far as banquet foods go, the Hampton does a very good job. The opportunity to relax and enjoy each other's company is worth the price of admission. Think about it next year.

Jim



President's Award





## The Case of the Recondite Receiver By Mike McCarty

I purchased a small gray Admiral five tube AC/DC set, because it matched a pink one we already had, and only cost \$2. Since I was already familiar with this set, I knew there were no paper capacitors in it, and took a small risk which I normally do not take. I connected it to my dim bulb with a 40W lamp in it, isolation transformer, and a variac, and turned it on. The dim bulb showed normal power drain, but there was no reception. Good! I'd get to have some fun with this one.

I opened up the back, and saw immediately that one of the wires from the chassis to the ferrite rod antenna had broken at the antenna terminal. This'll be an easy one, I thought, as I heated up the soldering iron, and in a few moments, the wire was reattached. When I powered the radio on once again, however, there was still no reception. Hmm. I'm going to get to have more fun!

When I'm faced with the "all tubes light, but there is no reception" symptom, my first step is to try to decide between radio/intermediate frequency (RF/IF) problem versus audio frequency (AF) problem. So, I used the index finger AF signal generator trick. I turned the volume control all the way up, and touched the volume control "hot"

terminal. I got a loud buzz. So, that meant a problem in the RF circuitry, I thought.

I removed the chassis from the case, powered on the set again, and set my signal generator to 455KHz. Waving the wire from the signal generator around near the set resulted in fairly loud reception. Tuning again to the high end and setting the signal generator to 1620KHz resulted in fairly loud reception. Hmm. I tuned around the dial, and got a few strong stations now, but very distorted. Perhaps the IF amplifier tube is biased almost to cutoff by its cathode bias resistor having gone way up in value, as they often do? This would result in only the strong stations being received, and might result in distortion.

I powered down the radio, and measured all the discrete resistors. Only one was out of tolerance, and it was the cathode resistor of the IF amplifier, but it wasn't very much out of tolerance, not enough to bias the tube off. I replaced it, anyway. As I thought, that didn't make any difference to the behavior of the set. While I was at it, I replaced the line filter capacitor with an X2 rated one, and the AVC filter capacitor with a Y2 rated one, for safety.

I turned the set on again, and noted that it was back to no reception. I put a digital voltmeter on the automatic volume control (AVC) line, and watched as I tuned around. I saw the AVC line responding to several stations. The RF portions of the circuitry seemed to be doing their job. This is now beginning to look like a detector or AF amplifier problem after all. However, since the detector and AVC are the same tube element in this set, it likely wasn't the detector, I reasoned. That left me with some problem in the AF circuitry.

This radio has a printed electronic circuit (PEC) containing all the coupling circuitry between the volume control, the first audio amplifier, and the power amplifier, including the plate load resistors, grid leak resistors, and coupling capacitors. The components in these PECs are usually good, unless they get cracked and completely open. Turning the set off, I measured the resistors inside the PEC, and they were all within tolerance. To check the capacitors, I turned on the set again, and tuned it to a station by watching the AVC line, and then one by one

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bridged the internal capacitors with a 0.01uF 630V film capacitor. There was no change. I checked the voltages on the grids and plates of the audio tubes, and they looked normal. Zero volts on the grids, 50V or so on the first audio plate, and 100V on the output plate. The screen voltage on the output tube was 105V, which was normal. The cathode of the output tube was 7.5V, which was also normal.

Ok, this is beginning to be perplexing. The RF, IF, and detector stages all seem to be working, the audio stages all seem ok, and the coupling components inside the PEC have been checked and seem good. The speaker and output transformer work, or there wouldn't be any sound output at all. The power supply is good, or nothing would be working. What else is there?

The volume control itself sits between the detector and the coupling components inside the PEC. Hmm. I measured the resistance between the outside terminals of the volume control, which is supposed to be 1 Meg ohms. Infinite! I measured the resistance between the center terminal of the volume control and the hot terminal while I rotated the shaft. Below about 2/3 volume, it was infinite, and above that, it looked normal.

I don't have any 1 Meg volume controls, but a 0.5 Meg would do just fine. I'd lose a tenth of the maximum volume or so, and that's not a problem. However, this volume control has a special mounting bracket attached to its body, used as one of the mount points for the chassis, which is little more than a printed circuit board. I can't get any of my volume controls to fit. However, with a little finagling, I was able to disassemble a 0.5 Meg volume control, and fit the resistance element inside the body of the old one. After that, a quick check showed normal operation, so I reassembled the radio in its case. I tuned in my favorite "oldies" station, and listened to some nice music for a few hours.

## SCENES FROM THE CHRISTMAS PARTY 2014



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# **SOUND WAVES**

## MONTHLY MEETING PROGRAMS 2015

NOTE: Programs will be held at various locations in Irving, Texas. Make note of the location as they may change from time to time. Senter East, 228 Chamberlain St.; or Garden and Arts, 906 S Senter Rd. Maps are located on the WEB site, EVENTS page. Programs start at 2pm. unless otherwise noted. Call us on the cell tellie if you get lost: 972-898-7251 or 972-742-8085.

**JANUARY 17, 2015** Senter East Building 2 pm

George Potter will present our program on the founding history of the "WATTERSON" radio manufacturing company of Dallas, Texas. He will also bring some interesting related items to discuss.

**FEBRUARY 21, 2015** Garden & Arts Building 2pm

The program will concentrate on batteries and battery radios, any tube era. Please bring your examples and discuss with the group. There is a large variety of batteries and battery operated radios were built during the golden age of radio and the battery played an important role.

**MARCH 21, 2015** Senter East Building 6am to 5pm

Spring Auction. Bring your surplus items to sell in our auction.

Programs are subject to change, contingent on scheduling conflicts. As always, your suggestions for programs/content are welcome. If the programs do not fit your needs and you want something different, let me know. I need volunteers to organize other programs, so consider presenting a program yourself.

Call me anytime or send me an email. Mike Grimes 972-898-7251 (cell), or K5MLG@verizon.net.