

The

FLASH!

The **Colorado Radio Collectors Club**
Antique Radio Newsletter

Volume 34, Issue 3

Next meeting May 21st

May/June 2023

A Little Nipper Transmitter?

by CRC member Paul Klein

There are probably as many approaches to collecting old radios as there are collectors. Some focus on specific manufacturers, some on particular eras, cabinet types, novelty radios you name it. While I have acquired some of the mainstream brands - Zeniths, Philcos, Emersons, etc. - what seems to drive my imagination is the "basket case" and the really unusual. A few years ago, (while still living in Alexandria, VA), I was browsing through ebay and saw an ad for an RCA "Little Nipper" that claimed to also be a "transmitter". It really caught my attention. I had never seen anything like it. There wasn't much time left before the auction ended, but the radio itself looked to be in decent shape. So, without knowing exactly what I was getting into, I bid on it and eventually purchased this set. While waiting for the set to arrive, I was able to take the time to look up the schematic and to try to figure out what this radio was all about.



RCA 5X5W "Little Nipper"

The schematic of the 1939 Model RCA 5X5 (Riders Vol.X - RCA pages 10-34 & 10-35), that I found on www.nostalgiaair.org included RCA's General Description of the "wonders" of this radio.

The claim was that one could use it to:

- a) listen to AM radio;
- b) listen to your Victrola using its phono input;
- c) "transmit" a radio program to any other radio in the house;
- d) and play your Victrola through any radio in the house.

Most of this sounded like hype.

Model 5X5 Series (Chassis No. RC-406)

Five-Tube, Single-Band, AC-DC Multiplex Superheterodyne Receiver

Model PLF-10

Power Line Filter Coupling Unit

General Description

The following features are incorporated in the design of the Little Nipper Multiplex 5X5 Series Receiver:

First, it is a "standard broadcast" receiver. Second, it will operate any other radio in the home by "remote control" without the use of connecting wires. Third, records may be reproduced through the Little Nipper when used with Victrola Attachment. Fourth, the Model 5X5 (when used with Victrola Attachment) will reproduce records

through any other radio in the home without the use of connecting wires.

When using the 5X5 as a remote control, the Model PLF-10 Power Line Filter Coupling Unit should be used in conjunction with the receiver to be controlled. The filter is connected between the power line receptacle and the receiver being controlled, as shown in accompanying drawing.

The first two features are no different than any radio of the era with a phono jack, and the third makes little sense (why transmit a radio program to another radio that can already pick it up without any extra help?). The last, being able to play records through a radio that was in a remote part of the house might have actually been useful in the '40s.

But how did they squeeze a transmitter into a tiny 5-tube radio?

continued on page 3



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Newsletter for The **Colorado Radio Collectors** club, founded in the Fall of 1988.

"Dedicated to the preservation and education of wireless, antique radio, television and associated equipment."

CRC MEETINGS: Meetings are held on the 2nd Sunday of every other month starting in January (except May is the 3rd Sunday) at 1:00 pm. The meetings consist of business, "show & tell", raffles, auctions, swap meets, technical discussions and other subjects of interest. Visitors are welcome!!

CRC MEMBERSHIP: Current annual dues are \$20 and membership in the CRC runs from July to June. New memberships will be prorated to the following June. Members are entitled to attend meetings, participate in our Spring show and our Fall auction, and receive our newsletter, **The Flash!**. Submit dues payable to: **Merril Campbell - 4723 Woodbury Dr. - Colorado Springs, CO 80915**

UPCOMING EVENTS: May 21st, CRC meeting. Location - Event Hall West, Castle Rock Library. July 9th, CRC meeting. Location - Palmer Lake Town Hall. Sept 10th, CRC meeting. Location - Event Hall "A" Highlands Ranch Library. Fall Auction & BarBQ - date TBD.

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MESSAGE FROM THE PRESIDENT

I hope you are all well, and having a nice springtime. Larry and Steve do an excellent job on our newsletter and we are so fortunate to have them as editors. They put a lot of time and effort into it, and this issue shows how good they are at it! Coverage of our March meeting and our 2023 Annual Show is outstanding, as is Paul Klein's lead-in article. We need fresh articles to make The Flash interesting, so please consider contributing something.

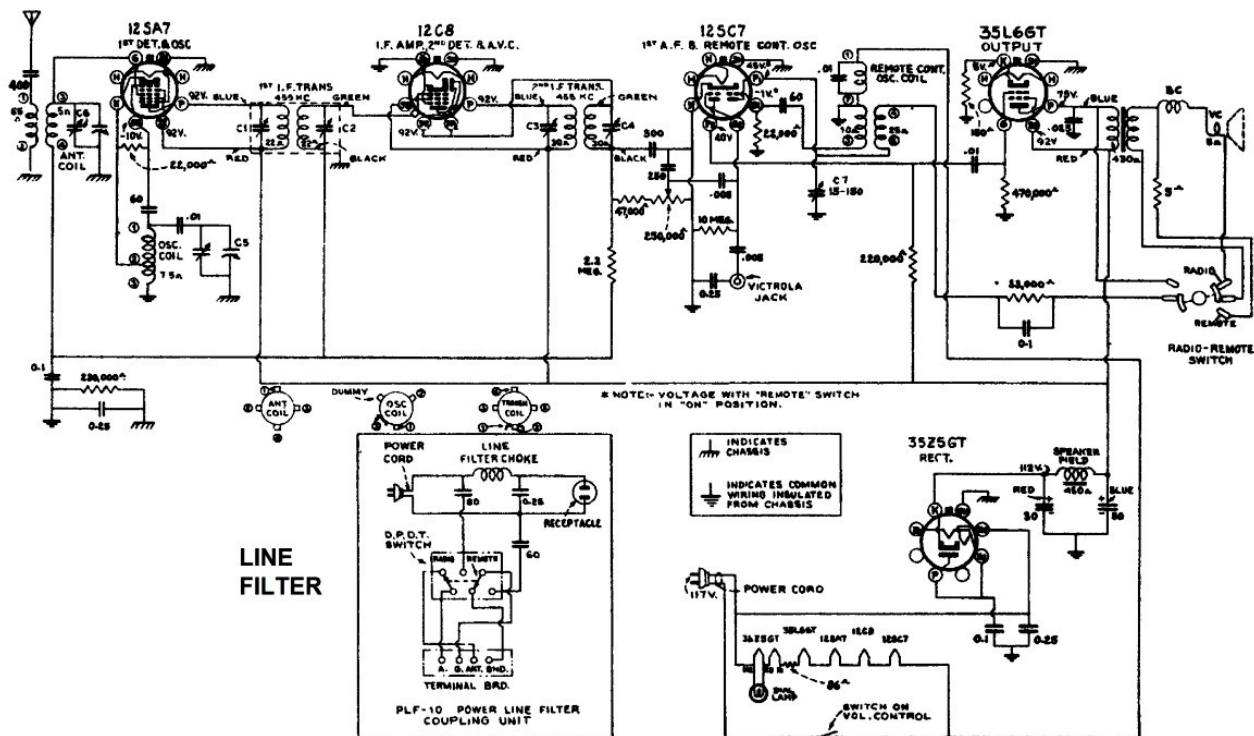
As Larry and Steve said, if you missed this year's show you missed a good one. Thank you to all who brought in your radios. It was an amazing display! I heard plenty of oohs and aahs, saw lots of smiles and parents talking to their kids about radios, and watched a crowd gather around Wayne Russert the entire day. Aside from many fantastic displays and well-deserved awards, we had some new members sign up and some existing members renew their dues.

It is volunteers that keep our club running, whether it be our newsletter editors, those who worked behind the scenes for the show, or those who volunteered to help Merrill with his duties as Treasurer. I thank each of you for your contribution.

See you at the May meeting.

Paul

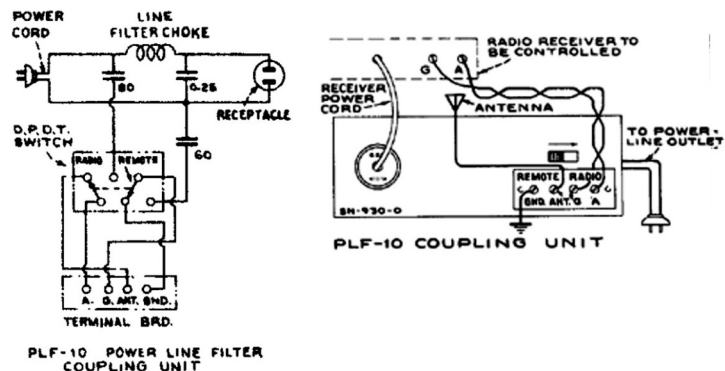
continued from page 1



RCA 5X5 Schematic Riders Vol. X - RCA page 10-35

The design is actually pretty simple. RCA started with a standard AA5 design (12SA7, 12SK7, 12SQ7, 35L6, 35Z5) and then replaced two tubes. The 12SA7 converter was replaced by a 12C8, which also provided for a 2nd detector. The 12SQ7 2nd detector/audio preamp was replaced by a 12SC7 dual triode. One triode served as the audio preamp in "radio mode". Flipping the switch in the back to "transmitter mode" activated the second triode, which was wired up as an oscillator (frequency was tunable from about 540-800kHz via a rear panel trimmer), and the voice coil was switched out of the circuit. The oscillator was modulated by the audio signal from the 35L6, and the oscillator output was connected back onto the AC line. The AC line?? Not an antenna?? How did that work?

It turns out that the signal was transmitted along the house wiring, and you had to purchase a separate line filter from RCA. The filter was plugged into the wall and the AC plug of the "receiving" radio and its antenna connections were connected to the PLF-10 Power Line Filter Coupling Unit. (as shown to the right)



The filter circuit appeared on the schematic – it was a simple LC circuit that removed the RF going into the receiving radio's power supply and diverted it to the radio's antenna connections.

from Riders Vol. X - RCA page 10-35

If you wanted to use the "receiving" radio as a regular radio again, a switch on the filter box would disconnect the radio's antenna circuit from the AC line and re-connect it to its external antenna. This way, the line filter could remain set up permanently. Of course, this meant that if you had more than one "receiving" radio in the house you would have to purchase additional line filters.

At the time, I was unaware of the whole idea of sending information along power lines, which has a long history with many varied applications (successful and not), depending upon the RF frequency, the distance that the signal would have to travel, and the data rate required. AC lines are not generally designed for radio frequencies, and any significant inductance will strongly attenuate the RF, while capacitance to ground will short it out. For example, sending signals along high voltage transmission lines required a capacitively coupled bypass around any high inductance components such as transformers. Transmitting radio programs by this method - I found out later - is known as "carrier current", has been used for many years, and is usually employed within limited areas, such as buildings, colleges, hospitals, etc. While carrier current has been applied in many ways over the years, I did not find it used by a radio manufacturer in the way that RCA had incorporated it into the Little Nipper.

When the 5X5 finally arrived (in one piece, thankfully) I found that it had several issues which required some repair. After attending to these and re-capping, it played quite well. The phono input worked well with music sent by my ipod (remember those?), but I noticed that RCA had failed to include a phono switch, so the signal was superimposed on whatever the radio was picking up. Tuning to a quiet place on the dial was no problem, but a dedicated switch – even on the back panel – would have been more elegant. The question that remained was, could the Little Nipper also transmit remote programming? A line filter was required to find out. I was not able to find a photo of the original line filter, so I just improvised.

Using RCA's schematic and the power line filter coupling unit diagrams shown previously, it was straightforward to put one together using some spare parts, decals, and a \$3 plastic box from Radio Shack.



My improvised line filter and coupling box

Once the line filter was completed, I pulled a Philco 38-12 off the shelf, connected the AC plug, antenna and ground wires into the line filter box and plugged that into the AC receptacle. With the 5X5 playing some '40s big band music through my ipod, I flipped the switch on the back and the Nipper went quiet – all I could hear was static from the Philco. I tuned the Philco through some stations on the lower end of the dial, and then – voila – big band music! It was coming out a little distorted, so I lowered the volume on

the 5X5 and increased it on the Philco. Much better. So this crazy scheme actually seemed to work!

But the two radios were plugged into the same receptacle. Would this work if I moved one to the other side of the basement? The short answer was no. I could not pick up anything. I then tried connecting them to receptacles on the same circuit, which were separated through a good amount of wiring. Only very weak big band music could be heard. On the assumption that RCA knew what it was doing in 1939, was there a problem with modern wiring? There were no obvious large sources of inductance, but perhaps there was too much capacitance to ground. Today's Romex cable is plastic covered with hot, neutral and ground wires close together. In the 30's through 50's, typical house wiring used BX cable – two conductors enclosed in a ½-inch diameter metal sheath (also used as a ground). Much of my home in Virginia, built in 1952, was wired with the old BX cable. So first I tried measuring the capacitance between conductor and ground for a length of discarded BX and a similar length of Romex. It turns out that there wasn't much difference. So it was time to do something a little more systematic.

My shop area, wired with modern cable, had a string of four receptacles spaced roughly 30-36 inches apart. The Philco "receiving" radio and the filter box were plugged in at one end of the string and the Nipper was plugged into the same outlet through an extension cord, with the Nipper several

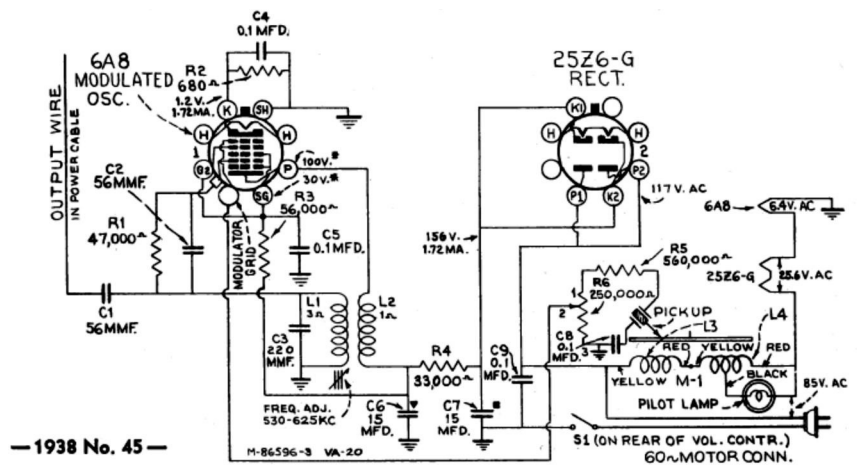
feet away. After transmission between the two was established at a decent signal level, the extension cord was unplugged and moved successively down the line of receptacles. Sure enough, the signal decreased continuously as the two active receptacles became further apart, so that at the furthest position the transmission was essentially gone. This also demonstrates that the reception was not through the air, as the only variable was the movement of the extension cord. Repeating the exercise in my living room (1952 BX cable) wasn't as straightforward because it was not always clear how the wiring behind the walls was laid out or whether two receptacles were actually wired in-line. I found that using two receptacles separated by four or five feet led to modest attenuation, but that longer runs reduced the signal significantly. However, without a clear picture of the actual wiring of these receptacles, it is difficult to make any hard conclusion about whether there is a significant difference between RF attenuation by BX or Romex cables, but probably not. But there certainly was a correlation between attenuation and the length of wire that the RF had to traverse.

What is pretty clear, however, is that signal propagation along the house wiring is not what was expected by RCA in 1939: Even with a similar type of house wiring to what was used then, we still observe significant signal attenuation between receptacles in the same room. RCA claimed that the signal could be picked up in any room in the house – clearly not what was experienced here. At present, it is not obvious what has changed in 80+ years.

Which brings up another possibility: Was this model a one-year experiment that went awry (maybe customers had the same experience that I did??), or was this type of set sold in succeeding years. If it was just a one-year phenomenon, it might suggest that either the transmission over the house wiring didn't work as well as in RCA's own labs, or that the public perceived it as a simple marketing gimmick. So, I did a search using the radio finder database on grillecloth.com, with the 12C8 and 12SC7 tubes as search criteria, to see if this tube lineup was repeated in other models by RCA or anyone else. The database certainly covers the time span from well before 1939 up until the War. The 6-volt variants to these tubes, 6B8 and 6SC7, respectively, were also searched. There were several hits, primarily from RCA, but also from Airline, Howard and Hallicrafters. But after looking at each of the schematics it became apparent that in every case except that of the 5X5, the 12SC7/6SC7 was employed as an AF preamp and phase inverter for a pair of push-pull output tubes. The 12C8/6B8 was typically used for multiple functions, such as IF + 2nd detector + AVC. There was no evidence of any other radio that employed carrier current in this way.

An interesting aside to all of this is that in Riders Volume XI for the following model year (1939/1940), there is evidence of two related RCA attempts at phonograph-to-radio wireless communication. On page 11-61 an oscillator module, model OSC-22, is described for use with an existing phonograph attachment. It was essentially a similar idea as the 5X5, but needed only a rectifier and an oscillator. Together with the phonograph attachment, it could transmit to any radio in the house.

RCA also offered essentially the same module incorporated directly into an RCA phonograph attachment – the model VA-20 Wireless Record Player (page 11-66 in Riders XI). The AF preamp and output stages were obviously provided by the receiving radio. The interesting point here is that both of these devices relied on transmission through the air – not along the house wiring. A third wire was included in the power cord of each to act as an antenna. Based on this evidence, it would appear that the 5X5 was a one-year and one-model phenomenon. However, we still do not know if this was the result of poor performance or poor customer interest (or both!). Apparently, RCA gave up on using carrier current, as no example appeared in Riders Volume XI for the following year or for later years.



from Riders Vol. XI - RCA page 11-66

The 5X5 seems to remain unique in its reliance on carrier current for signal transmission.

In summary, the 5X5 appears to represent a unique attempt to apply carrier current in the home, primarily for use with RCA phonograph attachments. While our recent results for RF transmission along house wiring were far from ideal, it is difficult to imagine that RCA would market a product without prior rigorous testing. However, they seem to have abandoned the experiment after only one year. This still leaves us with some unanswered questions about my recent experience with the 5X5 and about its efficacy and general acceptance by the public in 1939-1940.

Some background on the RCA dog "Nipper"

- by the editors



HIS MASTER VOICE

The RCA dog "Nipper" (1884-1895) belonged to Mark Barraud, decorator for a London theater. The dog was born in Bristol, England. Commonly identified as a fox terrier, the RCA dog "Nipper" was probably a terrier mix. He may have had plenty of bull terrier in him, even some think he was a Jack Russel Terrier. The name "Nipper" came about because of a trait of his puppyhood: his tendency to greet strangers by biting their legs, but that might be fanciful. In 1887, when Mark Barraud died unexpectedly, his brother Francis Barraud (1856-1924), a painter, took "Nipper" home with him to Liverpool. In 1889 he painted a picture of his brothers dog "Nipper" titled "Dog watching and Listening to a phonograph" that showed a dog looking inside a windup Edison-Bell cylinder phonograph.

In October 1899, Francis Barraud sold an updated version of the painting (and the copyright) to the Gramophone Company Ltd, in London. The updated painting is shown above. The Gramophone Company used the image sparingly in England. Then, Emile Berliner, the U.S. inventor of the gramophone, who was working with the Victor Talking Machine Company which made the Victrola, was assigned the U.S. rights to use the the picture. In 1929, the American rights were acquired when the company became RCA-Victor and eventually the RCA Company.

The RCA dog "Nipper" thus gained notoriety on both sides of the ocean. So great was the inquisitive terriers fame that in the mid-20th century, RCA erected a 26 foot tall "Nipper" atop its headquarters in Albany, New York.

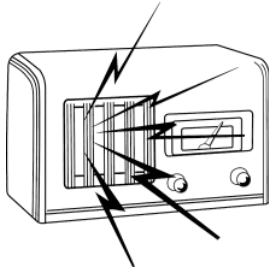


The World's Greatest Artists are on
RCA VICTOR RECORDS

References: https://www.rca.com/us_en/nipper-chipper-1720-us-en

And for a more detailed review see

https://www.worldradiohistory.com/BOOKSHELF-ARH/RCA-Books/The_story-of-Nipper-Peets-1973.pdf



The Latest CRC Club News

On March 12, 2023, the CRC club met in the original Miller Library in Castle Rock. Twenty-seven members, including two new members, were in attendance. The new library was still being constructed in front of the original library, which severely limited parking near the entrance.

Before starting the meeting with new club business, Paul Heller asked new members Sean Duffy and Matt Amaturro, to introduce themselves. Sean Duffy represents Acme Tube Supply in Colorado Springs and passed out his business cards. See his card on page 10. Matt Amaturro recently moved to Colorado from Brooklyn, NY. The new members were welcomed into the club.

Mike Cook announced that Dave Boyle, a founding member of the CRC, and a past president that served this club as president for NINE years, is 'turning down the volume control' on his well-respected radio repair business that served hundreds of customers in Colorado and in the USA. As part of that process Mike had some of Dave's radio parts/equipment/etc in his car, and conducted an open-trunk sale/giveaway after the meeting.

Treasurer, Merrill Campbell presented the treasurer's report which was accepted, as stated.

Merril has said in 3 previous meetings, he has been the treasurer for 13 consecutive years and went on to explain he does not want to stop being the treasurer, but he would like some relief-help, so he does not feel he has to always plan his personal family life events around the club's meeting schedule. Wayne Russert was the first to offer to be a 'substitute treasurer' at the meetings, when needed. Shortly thereafter, Larry Snyder and Scott Thomas asked to be added to the 'substitute treasurer' list of volunteers that Merrill could call upon when needed to fill-in. Merrill was very pleased with this solution.

Emerson Model 108

For Show & Tell Merrill brought in a 1935 Emerson Model 108 Bakelite radio: a carpet-burner radio with a line-cord resistor. Merrill then let Dave Laude explained how he selected and mounted a suitably sized, voltage dropping, power resistor on the chassis to replace the original line-cord resistor. Some initial heat related problems were resolved by applying a heat-transferring grease to the resistor mounting interface on the chassis. The radio was then operated for long periods without further heat related issues.



For Show & Tell Scott Thomas displayed and discussed how he refinished the wood case of this Air Castle Model 132564 radio.

For Show & Tell Larry Snyder showed the homemade wooden case he made for a 1974 era B&K Model 747 solid-state tube tester. (The original plastic case was broken and unusable when he received the unit.)



Any project can be brought in for Show & Tell, regardless of its stage of completion.
- the editors

The raffle tables were full of treasures and a few items overflowed onto what was the "refreshment" table in previous years. This embossed metal plaque with RCA's "His Master's Voice" was among the many items on the raffle table.



Three Items from the raffle table were selected for auction.



An Echophone Commercial Model EC-2 receiver went for \$25.

A box of radio and automobile related books went for \$25.



A rather large box full of knobs went for \$120 (no photo).

In 1923, the Canadian National railway (CN) started a radio service to provide entertainment and news for passengers on CN trains. Within a few years CN ads would boast "*eleven Canadian National radio stations broadcast from coast to coast.*" Eventually, this service was transformed into the Canadian Broadcasting Corporation.

In 1927, three new trains were inaugurated. The *Confederation*, the *Maple Leaf*, and the *Acadian*. These trains featured radio-equipped compartment-observation-sleeping cars, as well as in library buffet cars, sleepers, coaches and dining cars on some of them.

Submitted by Wayne Russert

The 2023 CRC Annual Show

the Flash editors

For those of you unable to attend the 2023 CRC annual show, you missed a good one. For those of you who did attend, a huge **Thank You** for all your efforts to make the show a continuing success! Most of the show categories were well represented and the Specialty Category table, AM&FM Radios, was overflowing. Several club members also brought non-pre-registered radios from their collections (31 to be exact) that were for "Display Only - No Judging" which really added to the show. Thank you!

Some of the displays included the following... Shown above and to the right, Bill Potorti had on display a RCA Radiola 25 "receiving" a radio broadcast via an AM transmitter. The RCA set was powered using reproduction batteries that were featured in the Nov/Dec 2022 and the Jan/Feb 2023 issues of the Flash. Bill Harris displayed a table-top 45 record player playing records for everyone to enjoy. Pictured to the right, Bill Lettow presented an impressive display of Crosley radios which also included a 'Crosley' neon sign. Pictured below and also to the bottom right, Wayne Russert's Educational display on The Morse Code was crowded with visitors, most of them tried their hand at sending code. Wayne, pictured with Paul Heller to the left, also received the Best of Show award.



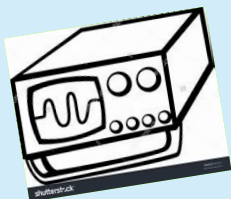
Shown to the right, Paul Klein had his RCA 5X5 Lil-Nipper set along with several pages of documentation on display, which by the way is presented in this issue of the Flash (See page 1). Merrill Campbell also had an impressive display of Emerson transistor radios with descriptions of each radio. The judging was extremely close in most of the categories with several ties and just one point separating the entries for placement in the judging. All of the radio displays were very well presented and there were scores of awesome and unusual radios and equipment on display that weren't previously mentioned!!!

One of the more unusual sets on display was Larry Snyder's "Chameleon" radio presented to the right. It was a plastic case radio, that came from the factory mounted inside a wooden cabinet, for reasons unknown.

Murphy's Law was also in attendance at the show. The new laptop computer donated to the club by Robert Phares worked flawlessly. The computer software, however, had a different agenda. The final judging results along with the tags for the award ribbons could not be generated. Reverting to old school pens and paper, the results were tallied, and the ribbons labeled by hand.

The Vintage Voltage Expo featuring the Colorado Guitar Show, the Colorado Radio Collectors Club and the Vintage Voltage vendors had record attendance this year! This of course provided an enormous amount of exposure of our club to the general public. There were numerous comments and questions from the people viewing the club's displays. There was genuine amazement at the different styles of radios on display, and dozens of requests for repair service. We did acquire two new members to our club, possibly more in the future. Several club members also enjoyed the added benefit of browsing the Vintage Voltage vendors area. Some club members found that special radio that they wanted to add to their collection or other items that they just couldn't pass up. Other club members were fortunate enough to find a "bargain" set as the show was closing down and the vendors did not want to take everything back with them. It was a long, but fun and enjoyable day. We would also like to thank Rich Kuberski and Ralph Brands for their efforts as show coordinators this year. A job well done!!





Classified Ads



Ads are free for CRC members. To place an ad send your ad description along with personal contact information to Steve at stevetou@comcast.net or Larry at Lsnyder200@cs.com.

FOR SALE: Starting to gradually sell off restored radios from my extensive collection to club members and friends. Prices are very reasonable and will gladly negotiate. Range from the early 1920's to mid 1950's. Mostly wood radios from the 1930's...my favorite styles! Castle Rock Area.
David Boyle 303-681-3258
email: djboylesr@msn.com

FOR SALE: Tube Radios - Tombstone, Cathedral and Novelty Transistor Radios. I have collected radios of all types for 35 plus years and now it is time to let them go to new home/s. I have over 250 tube type and over 5,000 transistor (both novelty and shirt pocket type) Please call 303-238-1384
radios4us@aol.com
Thank You, Ron Smith

WANTED: Articles and other material for the Flash newsletter. Send your submissions to Larry or Steve. See the instructions at the bottom of this page.

WANTED: Austrian Minerva 388 wood table radio, vintage about 1937. Bob Krassa ACØJL. bob@krassa.com or call 303-475-2824 Thanks!

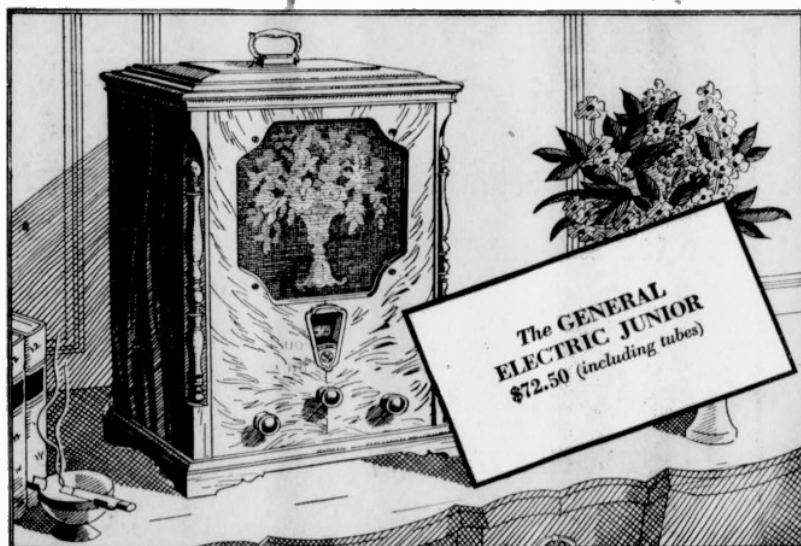
FOR SALE: New old stock & quality used vacuum tubes. Please refer to my business card pictured below. Thank you!
Sean Duffy acmetubesupply@gmail.com



Acme Tube Supply
Sean Duffy
(573) 999-6187
acmetubesupply.com

[facebook.com/acmetubesupply](https://www.facebook.com/acmetubesupply)

- a giant in
radio performance
- a dwarf in price



HERE'S today's biggest value in small radio sets — the G-E Junior — an 8-tube screen grid superheterodyne with full size dynamic speaker. So compact you can put it on a mantel-piece. So light that it can be picked up by its handle and carried easily. So brilliant in tone quality that, when it is hidden behind a screen,

listeners think it is a large, expensive set!

Come in and see it! It's only one of the famous General Electric Radios — the sets that have won victory after victory against other leading radios in concealed tone-tests. Come in! Hear it! Then "believe your own ears!"

GENERAL  ELECTRIC RADIO
FULL RANGE PERFORMANCE

Trinidad Electric
TRANSMISSION RAILWAY AND
GAS CO.



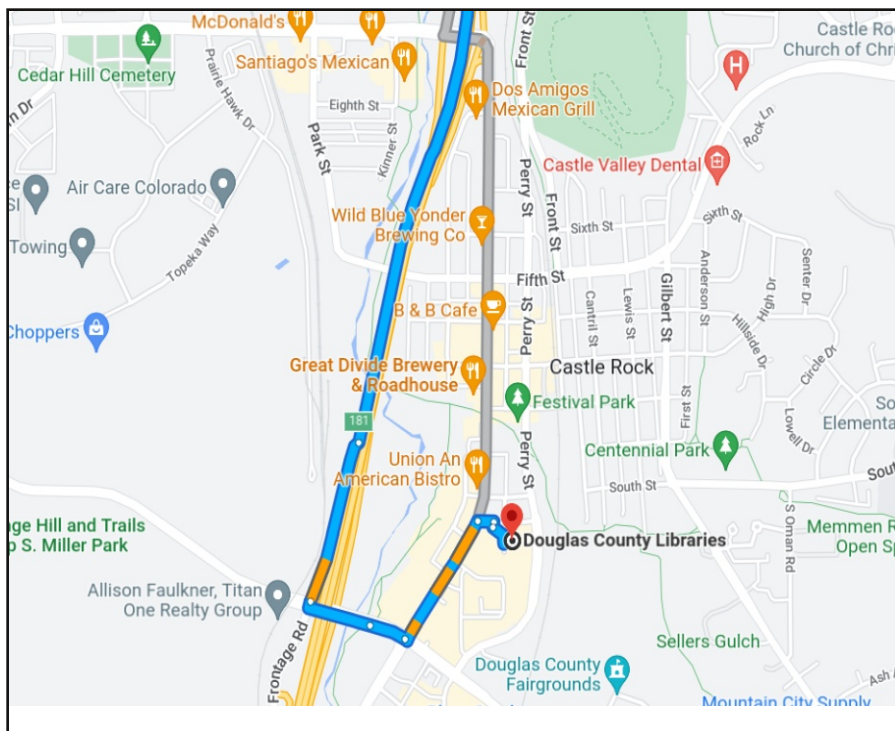
Telephone 71

520 Main Street

SOURCE: The Independent, Volume XXIII, Number 51, November 20, 1931

SUBMISSION OF ARTICLES & AND ADVERTISEMENTS: Classified Ads and articles of any radio/electronic or historical related subject to be published in The Flash! are encouraged and welcomed. The article(s) should be submitted in Microsoft Word, OpenOffice, RTF, or as plain text, to Steve Touzalin by email at: stevetou@comcast.net or Larry Snyder at Lsnyder200@cs.com or by postal mail to 417 So. Queen Circle, Lakewood CO 80226. Formatting isn't necessary as it won't transfer into our software, but if you do, set the font to Times New Roman, size 10, left justified. If you have graphics (.jpg files) to be inserted, please name them and be specific about how you would like them placed. We will do our best based on space limitations.

CRC Meeting Sunday, May 21st 1 PM at the Miller Library in Castle Rock.



Directions to Miller Library in Castle Rock:

From I-25: Take the Plum Creek Parkway, exit #181. Turn East onto Plum Creek Parkway.

Turn Left (North) onto S. Wilcox Street and continue north 2-tenths of a mile. The Philip S. Miller Library is on the east side of the street at 100 S. Wilcox St. The building is under construction, parking may be limited or some distance away from the entrance.

Reminder: CRC membership dues are payable in June.

If you have not done so yet this year, please submit your payment of still just \$20. Make checks out to **Merril Campbell** and bring them (or cash) to the May CRC meeting in Castle Rock. Payment can also be mailed (checks only) to Merrill at:

Merril Campbell - 4723 Woodbury Dr. - Colorado Springs, CO 80915

Please provide the following information with your payment.

Name: _____

Street Address: _____

City, State, Zip: _____

Phone Number: _____

Email address: _____



A valid email address insures that you receive the Flash and club notifications!