

The  
Indiana  
Historical  
Radio Society



# BULLETIN

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September 2012

Number 3



The BULLETIN

A PUBLICATION OF THE INDIANA HISTORICAL RADIO SOCIETY  
FORTY-ONE YEARS OF DOCUMENTING EARLY RADIO

# The Indiana Historical Radio Society Bulletin

## September 2012

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**The cover:** I didn’t count the tube boxes, a hundred or so, were in the contest entry of IHRS member Bill Ross – all were fresh and colorful – but one stood out and could not be ignored. That was the Yankee “Beats ‘em all” box. A great 1920’s radio graphic for this issue of the IHRS Bulletin.

**In this issue:** Ed Dupart continues early radio circuit theory with “The TRF Receiver” and adds a tech tip on a Tuning Eye – No-Go.

Mark Day provides text and pictures for the “Vigo County Vintage Radio Exhibit” that ran earlier this year in Terre Haute.

In “Dave’s Service Bench”, Dave Mantor looks back at radio in his youth and a now gone radio store.

The Antique Radio Club of Illinois (ARCI) and the Indiana Historical Radio Society have a long history of enjoying each others events. It was evident this year at ARCI’s Radiofest 2012 with IHRS member contest entries and technical speaker responsibilities. In this issue of the Bulletin we show a centerfold of Radiofest Contest entries from IHRS members.



**On Saturday, September 29, 2012**  
**the Indiana Historical Radio Society will meet at the**  
**Riley Park Shelter, Greenfield**

The Riley Park Shelter is located one block north of US 40 on Apple Street, Greenfield. Radio Swap space is available inside and outside the shelter building.

General admission is free. Swap N Sell vendor fee is \$15.00 for current members of the Indiana Historical Radio Society and \$20.00 for non-members.



**Schedule of events:**

7:00 AM Set up Swap N Sell of vintage radio equipment.

Set up indoors or out in the parking lot, first come first serve.

8:00 AM The IHRS Fall Foliage Meet officially begins

9:30 AM Display of Vintage Radio – set up in the pavilion

9:30 AM Silent auction entries in place in the shelter – bidding begins

10:45 AM Silent auction ends – buyers pay for items.

11:00 AM Lunch – If you are able, bring a dish to share along with  
IHRS provided meat service.

An IHRS Business meeting will immediately follow the lunch.

Contact for the IHRS Fall Greenfield Meet:

Fred Prohl, (812) 988-1761 or email [inhistradio@gmail.com](mailto:inhistradio@gmail.com)

Information also at [indianahistoricalradio.org](http://indianahistoricalradio.org)

# The TRF Receiver

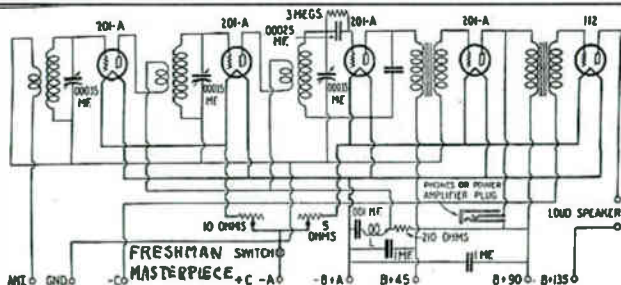
By Edward Dupart

Last time we looked at the regenerative receiver (March 2012), which was a radical improvement over the crystal receiver, but still has drawbacks. While it is sensitive and selective, it is tricky to adjust the regeneration just right to find the magic spot with the best sensitivity without it squealing, which can interfere with the neighbor's radio and be hard on your ears. Not to mention patent disputes, so the search was on to find a better receiver, hence, the TRF receiver was born. We will take a look at the development of the TRF receiver from its inception to the 1950's.

OK, so what does TRF stand for? Tuned Radio Frequency receiver, where generally one or more tuned RF amplifier circuits are involved. It was discovered that a radio frequency, with its audio components could be amplified by several RF (radio frequency) stages and then detected, that is, removing the audio component and then amplified by one or more audio amplifier stages. The most popular circuit configuration for radios of the early to mid 1920's was for the radio to have two RF stages, one detector stage and two audio stages. Each RF stage would have it's own tuning capacitor and the detector stage would have it's own variable capacitor for a total of three tuning capacitors. This resulted in three large knobs on the front of the radio, hence, the name "Three Dialers" was given to the early TRF radios. Also characteristic of the three dialers are the three tuning coils and the five tube that are usually very visible when you look inside one of these radios. The pictured Freshman Masterpiece is such an example. There were many, many three dialers made from 1924-1926.



Above – a Freshman Masterpiece three dialer with schematic below.





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**Just The Thing for Christmas!**

## A 5 Tube Tuned Radio Frequency Receiver

made of the finest low loss materials and in a beautiful genuine solid mahogany cabinet, that is attractive enough for the most pretentious room, and at sixty dollars, economical enough for the most modest. It is without a doubt

*The Greatest Value Ever Offered  
in a Radio Receiving Set*

Combines all points essential to the perfect receiver. Real distance reception without that squealing and howling. So selective that once a station is picked up—it can be brought in again on the same points on the dials, whenever you want it. And what's more,

*It's the easiest set in the world to operate*

All genuine Freshman Masterpiece Sets have a serial number and trade-mark stenciled on the sub-panel. The Receiver is not guaranteed if any part has been removed or tampered with.

**Chas. Freshman Co. Inc.**  
*Radio & Condenser Products*

*Ask your dealer to install one in your home*

**Beware of Imitations and Counterfeits.**

*Freshman Building*

240-248 West 40th Street, New York

Freshman Masterpiece – 5 Tube TRF Receiver Advertising  
"Popular Radio" January 1925

## The TRF Receiver - continued

What were the major problems with the TRF? The very early TRF's were prone to going into oscillation or self-regeneration and would be just as annoying as a regenerative set. The addition of one to two tuning knobs made tuning somewhat difficult and many radios provided a log chart that helped immensely once you had your station tuned in where you recorded where each knob is at for that particular station. An example on one of my radios is WJR would come in when knob one is at 76, knob two is at 74 and knob 3 is at 76. These two problems will later be remedied. The third problem is that the selectivity would change from one end of the dial to the other with the low end, 540Kc having better selectivity than the upper end, 1600 Kc. The superheterodyne circuit solves this problem, but some TRF's came close.

Why did the TRF become so popular? RCA had a stranglehold on the radio industry with its patents and Armstrong had his patents on regeneration, so Professor Louis Allen Hazeltine, while working for the US Naval Yard developed the Hazeltine circuit. This neutralized the RF stage and kept it from oscillating, which was a major problem with triode operated RF stages. He did this in 1922 and offered this circuit to independent radio manufacturers under license.<sup>1</sup> This solved problem one that I stated above.



Atwater Kent model 20

About 1925 Atwater Kent decided to tie the three variable capacitors together with copper bands with a single knob on the middle capacitor. This worked, but was not the best solution. Magnavox, about 1925-26 developed the two to four ganged tuning capacitors that was used on all later radios and is still used today and has only recently been replaced by varactor tuning. So, the ganged capacitor was a good solution to the separate tuning capacitors.



A 1926 Magnavox "Works in a drawer" with ganged tuning capacitors.

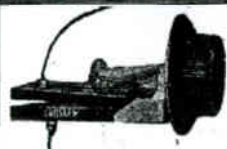
Let's revisit the oscillation problem with a RF stage, why it occurs and how to solve the problem with Hazeltine's circuit. An RF stage has two tuned circuits, one is at the grid end of the triode tube and the second tuned circuit is at the plate end of the triode tube. Within the tube there is the filament, a space, then the grid, then a space and then the plate. Any time when there are two metal conductors close to each other there will be capacitance and capacitance has the effect of passing an AC current. So, within the triode tube there is capacitance between the grid and the filament and between the grid and the plate and this is known as inter-electrode capacitance. The RF radio signal is an AC voltage and part of that amplified signal that is passed to the plate tuning circuit will be passed back to the grid tuning circuit due to the inter-electrode capacitance, that capacitance between the plate and the grid. When the RF AC signal goes back to the grid tuning circuit it will be re-amplified and fed to the plate tuning circuit and now it is even bigger in amplitude and is passed back to the grid tuning circuit again through the inter-electrode capacitance. Back and forth it goes and the net result is a squeal, howling sound in the radio. For oscillation to occur, the output RF AC voltage has to be in phase with the input RF AC voltage. What Hazeltine did was send a small portion of the output AC voltage back to the input out of phase, which effectively cancels the feedback voltage and the inter-electrode capacitance and stops the oscillation dead in its tracks. He did this by placing a tap in the plate coil and a capacitor from the tap back to the grid circuit. The capacitor in many radio circuits is a variable trimmer capacitor and is adjusted to stop the oscillation. Sometimes a small coil is placed inside the tuning coil and takes the place of the tap.

*Lets take a look at a few popular TRF's:*

One of the most inexpensive TRF's is the Crosley VI of 1923-24 vintage. It has two tubes, one for the RF amplifier and one for the detector and two large knobs; each connected to a book type variable capacitor, one for each stage. This is not a great performer and requires the use of headphones, but it is fun to tinker with and I like the looks of the front panel.



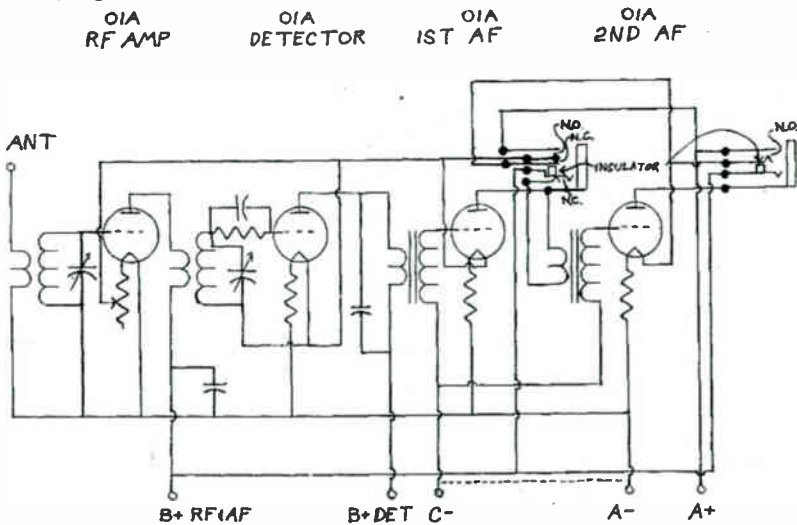
Crosley VI above  
Book Capacitor  
on the right.



## The TRF Receiver - continued

The Crosley X (1922-23) and the XJ (1924) are two more examples of one RF stage radios with a detector and two audio stages for a total of four tubes. The Crosley VIII is a three tube set with one RF stage, a detector and only one audio stage and is very rare. I have only seen one.

One of my favorite four tube, single RF stage radios is the Crosley 4-29 of 1926 vintage and is the last Crosley to use the popular large tuning knob found on so many of the Crosley's from 1924 - 1925, the 50, 51, 52, V, VI, VIII (very rare) as examples. As you can probably guess, I like the early Crosley's. The 4-29 has regeneration added to the detector stage and that makes this a very sensitive radio and will drive a speaker with its' two audio stages.



Alladin Big Four schematic.

MAKE	ALLADIN BIG FOUR
CIRCA	1924/25
DRAWN BY	EDMUNDO DUFRAY

I have had other non-Crosley one-stage RF amplifier radios with two stages of audio that performed reasonably well where the selectivity and the sensitivity were pretty good. One was an Alladin Big Four (1924-25) that definitely outperformed the Crosley's. These are 4 tube radios, one for the RF stage, one for the detector and two for the audio stages. These radios will drive a speaker.

A major advancement in radio occurred in 1927 with the introduction of all AC, non-battery operated receivers and the RCA model Radiola 17 is considered by many as the first such set. There were earlier experimental sets using the Kellogg 401, but the RCA 17 was a very neatly packaged TRF almost identical to the 5 tube battery three dialer, except this set had one

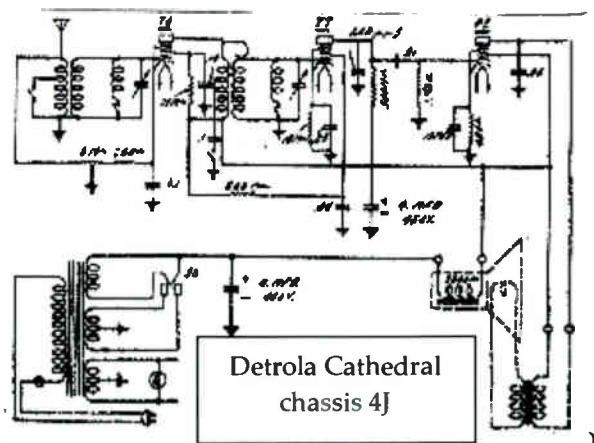


tuning knob and an additional tube for the power supply and an additional un-tuned RF stage. The 26 tube was used for the RF stages and the 1<sup>st</sup> audio stage. The 26 is nearly identical to the O1A, but has a heater voltage of 1.5v at 1.05 amps. A 27 is used for the detector stage and was the first successful indirectly heated cathode tube with a heater voltage of 2.5v at 1.75 amps <sup>2</sup> and makes this a historical set. The audio output tube is a 71A with a filament voltage of 5v at .25 amps and was capable of a whopping .79 watt or 790 milli-watts, enough to be able to hear in the average sized room, but won't rattle any windows. The power supply uses an 80 rectifier, a tube that was used for many years and later adapted to an octal base as a 5Y3. The Radiola 18 was introduced the following year and is almost identical to the 17, except it has better neutralizing circuits. I think there is enough metal in these radios that a couple of car fenders could be made from them. They were built like tanks, worked well, used high quality parts, but did lack good selectivity. It's not unusual to obtain one of these radios, plug it in and have it work with the original capacitors. The Radiola 17 opened the way for many other manufacturers to introduce their versions of an AC operated TRF set.

The 24A was the first commercially successful tetrode tube that eliminated the need for neutralization <sup>3</sup>. The tetrode has two grids and the second grid is placed between the control grid or first grid and the plate. This second grid became known as the screen grid and it would bypass that nasty little bit of RF AC feedback voltage to ground through a bypass capacitor. The 24A was introduced in 1929 and was an immediate success and had greater amplification than that of a triode, which meant less tubes were needed.



By 1931-32 the superheterodyne circuit that was controlled by RCA for so many years, was now being used by other manufacturers, but the TRF wasn't dead yet. With the coming depression of 1929, the need for



## The TRF Receiver - continued

inexpensive radios became apparent and the introduction of the screen grid tube made it possible to produce cheap 4 tube TRF's, many in the cathedral style cabinet or a small lunch box wood/metal cabinet. The first tube line up for the early 4 tubes sets was a 24A RF amplifier, a 24A for the detector, a 45 for the audio output and an 80 for the power supply. Then it was a 35/51-RF, 24A-Det, 47-AF and an 80-Rect. Then with the new 6-volt tubes it became a 6D6/78/6K7-RF, 6C6/77/6J7-Det, 42/6F6-AF and an 80-Rect for AC sets. For AC/DC sets: 6D6/78/6K7-RF, 6C6/77/6J7-Det, 43/25L6-AF and a 25Z5/25Z6-Rect. By 1938 the TRF was pretty much phased out in favor of the superhet, but a cheap TRF radio would be offered from time to time up into the 1950's.

In my opinion, the hey day for the TRF was from 1923 to about 1931 in high quality sets and to 1937 in cheap depression era sets. The TRF circuit did find its way into early transistor radios and a Philco comes to mind, but transistor radios and their unusual circuits is a topic for another time.

*Ed Dupart*

References:

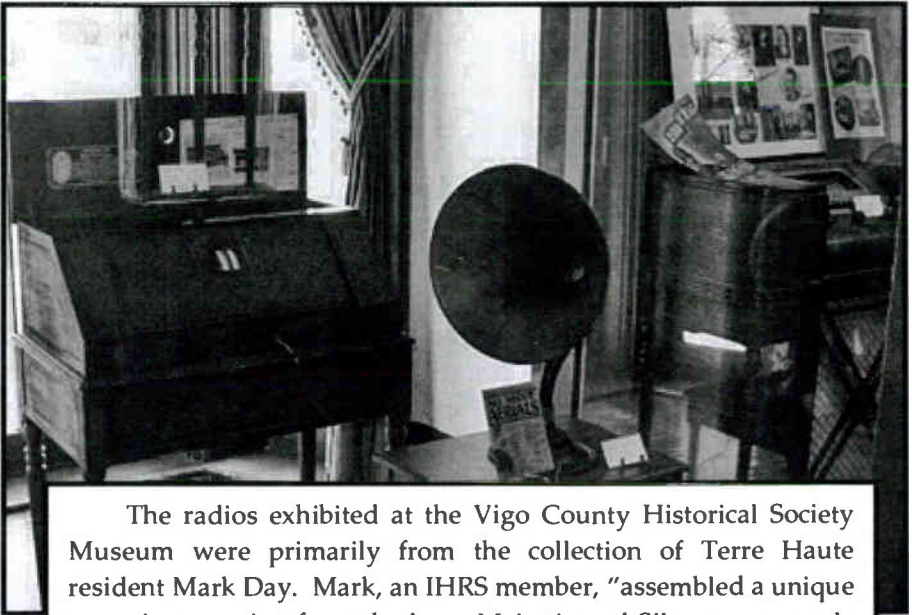
1. Golden Age Spotlight on Technology, The Digital Deli Online:  
[www.digitaldeliftp.com](http://www.digitaldeliftp.com)
2. 70 Years of Radio Tubes and Valves by John W. Stokes  
ISBN: 0-911572-27-9 pg. 45
3. Ibid. pg. 65



## Vintage Radio Exhibit – Vigo County Museum

*Fred Prohl and Mark Day*

This Spring the Vigo County Historical Society presented "Tuning In -- The History Of Radio In Vigo County". Located in Terre Haute, Indiana, the Society organized a three month event that included interviews with local radio personalities (active and retired), video documentation of recalling "When I Heard It On The Radio", a radio broadcast of the "Crosley Players", and a display of 1920 through 1950 radios and radio related ephemera. The museum exhibit included photographs and articles documenting early station broadcasting and radio personalities. Commercial AM radio had its beginnings in Wabash Valley (Vigo and surrounding counties) in 1927 with WRPI at Rose Polytechnic. WRPI became independent of Rose Poly and the call was changed to WBOW (Banks of the Wabash) in 1928.

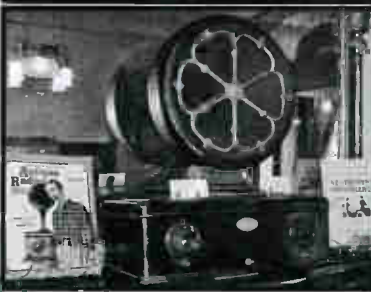
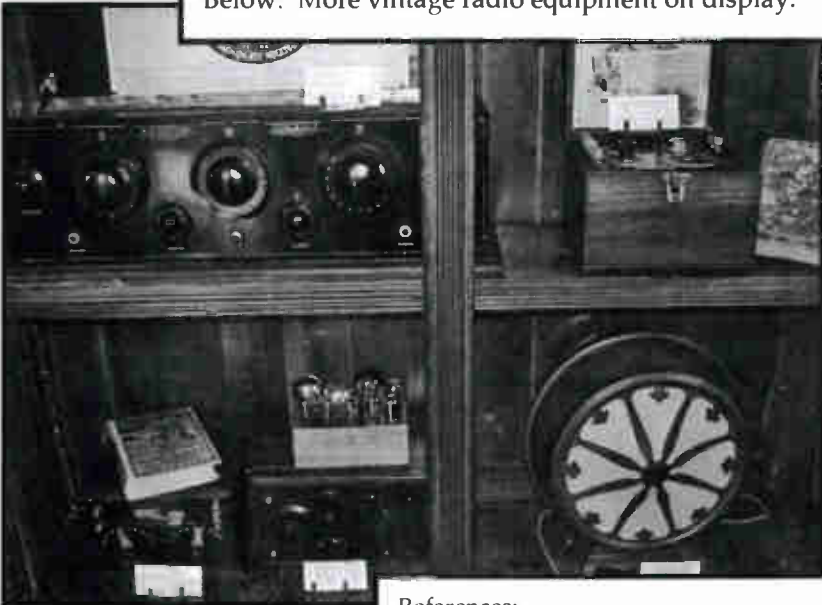


The radios exhibited at the Vigo County Historical Society Museum were primarily from the collection of Terre Haute resident Mark Day. Mark, an IHRS member, "assembled a unique grouping, ranging from the large Majestic and Silvertone console models to the General Electric, Zenith, and Bakelite table top styles".<sup>1</sup>

"I grew up with radio 'with my hand on a soldering iron' as they say. Perhaps it was because my dad, T. C. Day, had his own show, 'Eastbound Limited,' on WHEB in Portsmouth, New Hampshire, in the late 1930's and early 1940's. Some of my collection dates from him."<sup>2</sup>



Mark Day demonstrates tuning a Crosley Pup, an exhibit item at the Vigo County Museum.  
(Picture credit: Terre Haute Tribune Star, 2/15/12)  
Below: More vintage radio equipment on display.



References:

1. "Leaves Of Time", Vigo County Historical Society, Spring 2012
2. "The Golden Age of Radio", Dorothy Jerse, Terre Haute Living, March-April 2012
3. "Radio vets share memories of time on the air", Arthur Foulkes, Terre Haute Tribune Star, 2/15/12

Vintage Radio Exhibit – Vigo County Museum - continued

“The rarest radio on display is an ‘APCODYNE’ manufactured in 1925 by Allison Pickett & Company, in Terre Haute.”<sup>2</sup>



**RADIO**

**ALLISON-PICKETT CO.**

TERRE HAUTE'S LEADING RADIO STORE

Makers of the Famous Apcodyne

Sporting Goods Specialties, including

A Complete Line of Spalding Golf Supplies

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TEL. WABASH 237



Allingsworth Lucian lab r223 Eagle  
ALLISON-PICKETT CO (A E Allison  
and C D Pickett), Terre Haute's  
Leading Radio Store, Sporting  
Goods Specialties 106 S 7th, Phone  
Wabash 237 (See page 108)



**Indiana Historical Radio Society member entries in the Radiofest 2012 Old Equipment Contest – Willowbrook, Illinois**



**IHRS members show well at the 2012 ARCI Radiofest.**

Above – Michael Feldt won first place and the Dr. Ralph Muchow “Best Of Show” award for his Leutz Superheterodyne display. (See page 25 of this Bulletin.)

On the facing page, left to right, top to bottom:

Fred Prohl received 2<sup>nd</sup> place in the speaker category with a TRACO horn.

Bill Ross received 1<sup>st</sup> place for his tube box display (see the cover picture).

Kent King received 1<sup>st</sup> place with his Scott Super 9. (Kent also delivered an excellent presentation on E. H. Scott to an overflow crowd.)

Bob Sands placed 1<sup>st</sup> in the pre-1945 category with his Worlds Fair 1939 entry.

Fred Prohl received 2<sup>nd</sup> place to Kent’s Scott in the Made in the Midwest category with an Arvin 1935 car radio and advertising display.

Included in the picture page is the Popular Vote winner – a unique display of a mini Scott Museum, entered by Bruce Sorenson (not an IHRS member). The radios in the display were carved by Walter Buffinton of Connecticut.



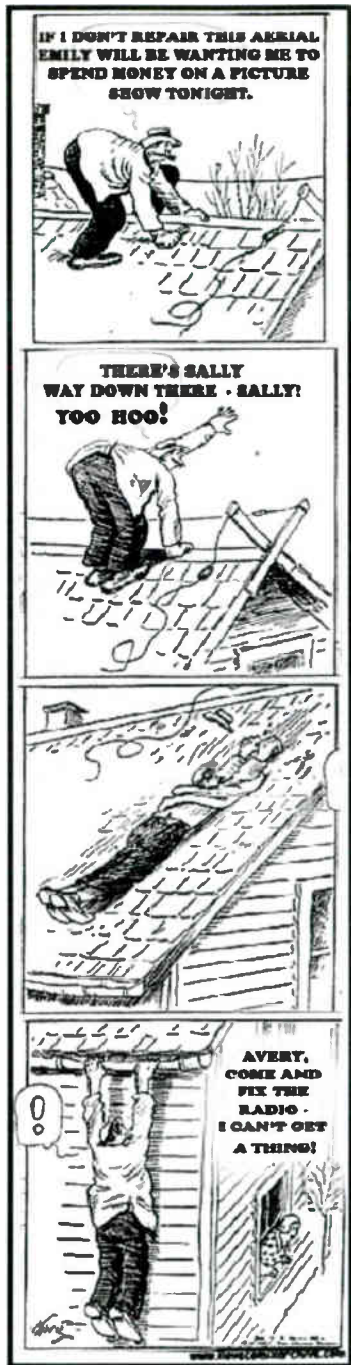
Pictures by Michael Feldt and Fred Prohl

# Dave's Service Bench

By *Dave Mantor*

Welcome to another edition of Dave's Service Bench. I commented here recently how the early spring helped to get our outdoor activities - especially those connected with radio - underway for the spring and summer months. Little did we know how our summer would go because of the heat. I hope all of you have been able to cope with the elevated temps in whatever you've been doing. Incidentally, whenever you're working on an antenna, don't do it like Avery from the following early comic strip of Gasoline Alley.

I had a conversation recently with several friends as we were reminiscing about the "good old days." The direction of our discussion was about comparing what young people will have to remember about their young years. Another interest of mine is classic cars. As a teenager, I remember going to the corner service station for a Coke and looking in to see what the station owner was working on. I even had a few jobs at several stations further cementing my memories that I have today. Good memories of what I can see now as simpler times then. The daily events then didn't seem so simple; looking back in retrospect and a little bit of comparing, still, they were good days. I hope the youngsters of today will have memories that will be worth remembering. It is our responsibility as parents and grandparents to guide our young ones to have comparable memories. I have crystal radio construction plans all laid out for the next vacation time with our 12 year old grandson. It'll be a time that he and I can experience a bit of nostalgic meandering.

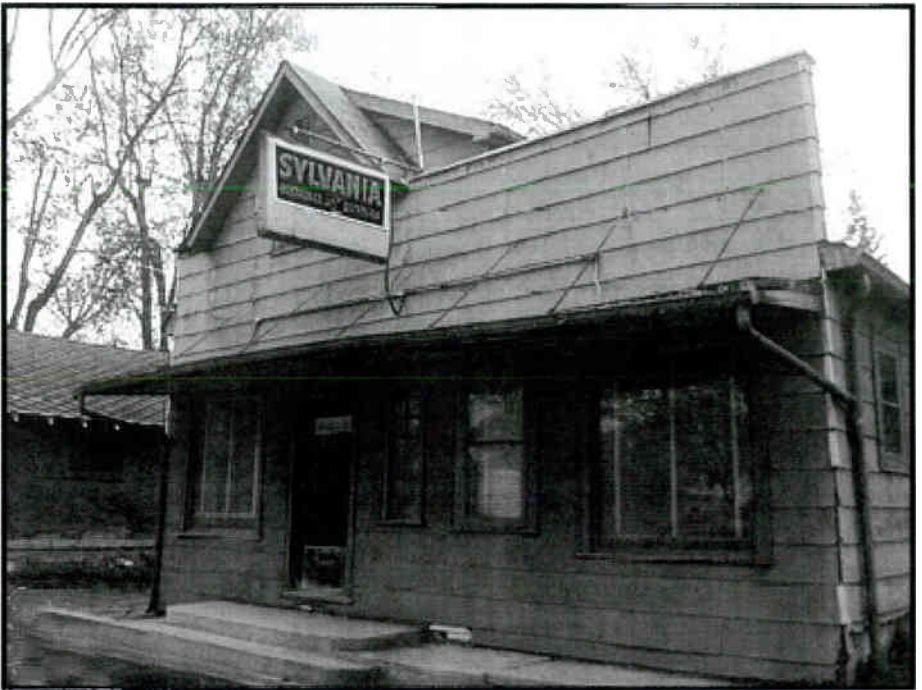


**- GASOLINE ALLEY -  
WHY HANG AROUND  
AND DO NOTHING?**



Couldn't a similar discussion be directed along the trips to the early radio stores or salvage centers to buy parts for a quickly assembled radio project? I lament that the stereo rental centers of today won't occupy the same nostalgic turn for today's youth that the old radio store now occupies in my mind. Perhaps you have had the same experience.

The old Myers Radio Store in Marion, Indiana may very well be the last that will ever be seen in this part of Indiana. (Refer to IHRS Bulletin Vol. 33, #3 Fall 2004) After receiving a tip from a friend of mine who owns a local antique store, I stopped by the Myer's store building after hours. It was during the year 2002. The shelves were full and the display lights were showing the latest wares and me not knowing that it would end up being an historic moment. However...as someone once sadly spoke, "all good things



must come to an end." My peeking through the front door would be the only glimpse of the stocked store I would ever have. About a year and some months later, the organization that I was working for announced to my superintendent and to my amazement that they had just purchased a building in Marion, and they wanted us to go look at it. Guess what it was...Myers Radio Store. But, oh, how different it was then in early 2004 than what it had been a short time before. The company had plans for it (incidentally, the plans never materialized for several reasons, but money

mostly) and seeing it as an old radio store wasn't included in the plans. All the parts and displays had been sold and were gone...even the shelving units, both wood and metal, had been ripped out with no thought of historical pain. The counter that the service tickets for parts were written on was gone with the only telltale sign being the electrical pigtail in the floor and a faded outline on the floor tiles where the base had sat for years. I have had the opportunity to completely go through it, from crawl space to garret, hoping to find something that would let me grasp the past. A few advertising notions and a handful of resistors was about it. Except, that is, for the hanging sign outside, which now resides in my small warehouse awaiting its turn of being restored. What recollections must be hidden in the minds of family members who remember their friends and relatives working there?

While I'm in this nostalgic mood, I must say that I have just re-read Ed Dupart's article from IHRS Bulletin Vol. 31, #2, Summer 2002. In the article, he shared some of his early Detroit experiences going from barber shop to barber shop seeking radios to listen to or to repair. I hope the barbers realized that it wasn't their skill and their expertise with the clippers that kept Ed coming back.

Speaking of Ed, I'd like to say that the RCA that I got from him some months back is getting acclimated to its new surroundings. It is now in my little hobby room tuned to WLW 700 AM in Cincinnati listening to the Reds. With the addition of a 50 ft. outside antenna, it really works well. Sorry, Ed...no Detroit baseball.

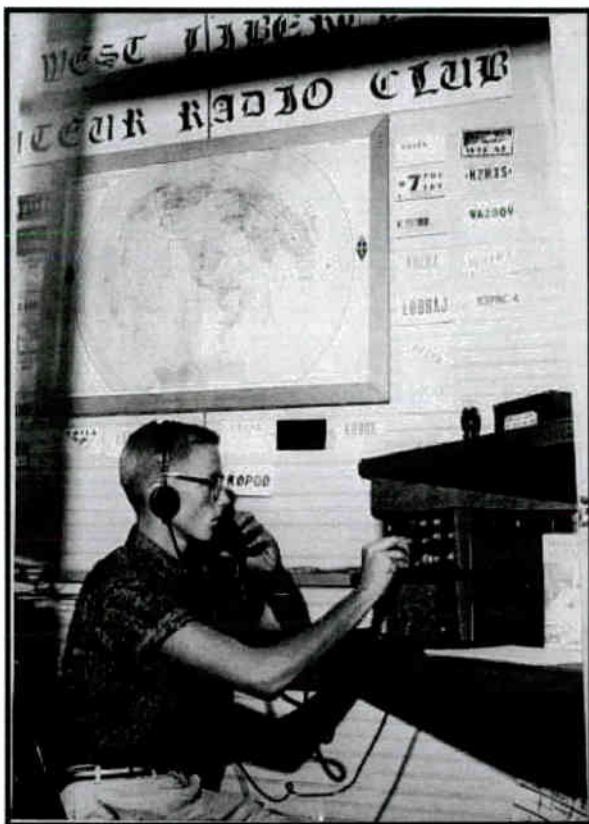
The HQ-100 is progressing slowly. Clean up has begun and as previously mentioned, the tube lineup is complete. Tubes for it came from as near as Ohio and as far away as California. Since I now have three (3) sets of tubes to choose from, it'll be easy to always make sure of good ones. I'm sorry to report, however, that it failed its initial smoke test. A capacitor decided to die before I could do much with the receiver. I'll need to find the faulty capacitor before I go on with any further electrical tests. I made another discovery...there isn't much room for my fingers to install the two (2) miniature tubes – the 6C4 and the 6BE6 – which are located within a cluster of IF cans and situated between the two (2) main tuning capacitors.





The following picture shows me from 50 years ago during the West Liberty (Iowa) Fair in August of 1962. I don't remember how we were able to get a booth in the local fair, but it may have come about because we were a club within the small 1800+ person community. I have some old newspaper columns that I wrote about club news which indicated that we were taking action in order to be ready. Why I drew the *West Liberty Amateur Radio Club* sign in Old English I don't have a clue. What I do remember, however, were the stern warnings I received from my mother about not making any mess – I did the sign on the living room rug. The transceiver was a Gonset G-76, a highly desired rig in those days. 50 years later, it's still a nice rig to own, albeit very hard to find a nice one.

It was a fun event, and it's possible that ham radio is still quite active in that small town because of the meager beginnings of that first club. A humorous note – the club members would sometimes meet in my bedroom where my receiver and transmitter were located. There were several older fellows who were also members, and I expect that they had a chuckle or two at our determination. I might add that the lack of a smile on my face may be because I had recently received the news that my father had bid in a railroad telegrapher's job, and we were moving to a new town – a new state in fact – and I was resisting mightily. It didn't matter – we moved anyway.

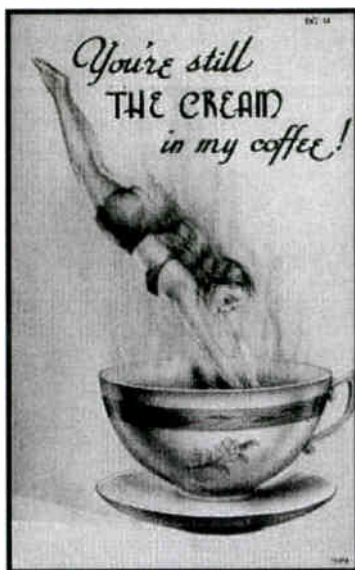


I purchased a post card from Dr. Ed many years ago, and it still fascinates me. There isn't any publishing date on the card, so I don't know exactly how old it is. You can see it illustrated below. Is the message on the card "You're Still the Cream in my Coffee!" a clique' of the '30s or '40s? I have a feeling it's before my time but how long?

Well, that does it for this edition of Dave's Service Bench. My email Inbox is still open for anyone to add their comments about Philip Hatfield, John T. Frye, information on the Henry Fields Shenandoah Five, or if you should want to just talk old radios. I'd also like to hear some of your earlier radio experiences. You can reach me at [merrijoy@frontier.com](mailto:merrijoy@frontier.com) or PO Box 1, Fairmount, IN 46928-0001.

So, until the next Bulletin, enjoy the old radios. Lord willing, I'll see you in Greenfield. And remember, your smile may help someone to have a great day.

Dave Mantor w9ocm



**- Regional Vintage Radio -**

**Mid-South Antique Radio Club**

October 27 at the Collectors Gallery, 835 Porter Place,  
Lexington, KY 40508.

Contact information: [layvinrad@insightbb.com](mailto:layvinrad@insightbb.com)

**Antique Radio Club of Illinois** [www.antique-radios.org](http://www.antique-radios.org)

Oct 7 - American Legion Hall, Carol Stream

Dec 2 - American Legion Hall, Carol Stream

**Michigan Antique Radio Club** [www.michiganantiqueradio.org](http://www.michiganantiqueradio.org)

Oct. 20, Kalamazoo; MI;

Jan 18, Farmington Hills, MI

**AWA-Antique Wireless Association** [www.antiquewireless.org](http://www.antiquewireless.org)

The original and largest historical radio group. The AWA publishes a quarterly AWA Journal. Membership is \$25 per year. Write to: Antique Wireless Association, Inc. Box 421, Bloomfield, NY 14469

***See you at the IHRS Fall Meet in  
Greenfield - September 29!!***

## Ed's Tech Tip-Tuning Eye No-Go

By Edward Dupart

A friend of mine had a Zenith 9S367 radio that he completed restoring, but he couldn't get the tuning eye to work. It was nice and bright, but would not respond to signal changes. Otherwise the radio worked great. He had replaced all the paper capacitors and checked all the resistors, including the 1 megohm resistor in the tuning eye socket, which, when it goes bad will make the tuning eye respond weakly or not at all. He had also replaced the two crumbling rubber wires in the tuning eye wiring harness. So, this was the state of affairs with his Zenith radio.

The first thing I did was check for varying AVC voltages and they did vary OK, but seemed somewhat low, but there still should have been some deflection in the tuning eye and there was none. Then I checked the voltage at the control grid of the tuning eye in the chassis and there was none. Now I'm beginning to suspect something amiss in the tuning eye socket, so I removed the tuning eye and checked the voltages. Now I'm getting fluctuating AVC voltages at the socket without the tube. I removed the insulating wafer that helps hold in the tube pin sockets and discovered the filament socket wires were cloth covered and that the insulation was not up to the socket pin. This allowed pin 6, which is a filament pin and is grounded to the chassis to touch pin 5, which is the control grid of the tuning eye. What I did was unsolder the filament wires, shorten them, resolder them and make sure the insulation was up to the pin socket where it could not short to any adjacent pins. In the process I managed to break the 1 megohm and so I had to replace it. This is not an easy task as everything is crammed very tightly in that socket, but I got it done and I reassembled the socket. Now for the real test. After plugging in the tuning eye and turning it on I found that it worked just fine. Yes! I was a happy camper and so was my friend.

In essence, pin 6 and pin 5 were shorted together due to frayed insulation on the filament pin allowing pin 5 and pin 6 to short together. Since this shorted the control grid only, it did not effect the brightness of the tuning eye.

Years ago when I used to do TV and radio servicing for a living I would get these Zeniths in for service and I remember having this problem, so this recent repair brought back memories. A time when servicemen could actually make a living doing this.

## Tuning Eye No-Go - continued

This also reminded me when a friend of mine, Kerry and I worked together at TV Land in Detroit where we loved fixing radios and TV's, but there were times when our brains would get into a rut and couldn't figure out the problem in a TV. Neither of us were on ego trips and the name of the game was to fix as many TV's as possible so we could make more money. If I had a TV I couldn't fix I would get Kerry over and would tell him what it was doing, but nothing else. I didn't want him to get into the same rut I was in. He would take a fresh perspective of the problem and he would fix it. If he had a TV he couldn't fix he would get me over to his TV and would tell me only the symptoms and I would take a fresh perspective on the problem and would fix it. With the two of us working together like this definitely saved a lot of time and headaches.

I used TV and radio servicing as a means to get through college and to put food on the table, but eventually went on to teach electronics in high schools and colleges. Kerry stayed with the business and eventually retired from it and I retired from teaching, sort of. I'm currently substitute teaching and enjoy it. *Ed*

## From the IHRS Officer Notebook:

### Treasurer's Report – summer Meet 21 July 2012

Receipts: (donations - coffee, auction & members), consignment auction, 7 seller fees = \$172.65

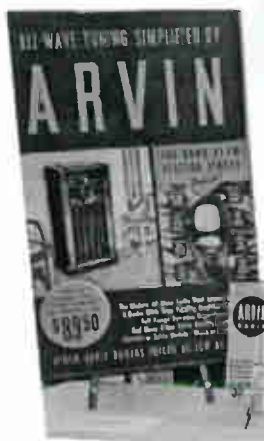
Expenses: Coffee & donuts, name tags, insurance, facility rental = \$424.50

Meet results less memberships  $\$424.50 - \$172.65 = (\$251.85)$

Total attendance = 53 29 members and 24 non-members. Two more totally than last year but 38 members participated last year. This year we had lots of visitors, twice as last year, which might be attributable to our Columbus publicity. We have 180 members as of 21 July 2012, up 10 from last year.

Respectfully submitted, Herman Gross, IHRS Treasurer

**IHRS Summer Meet 2012  
Bartholomew County  
Fairgrounds, Columbus**



Above - Richard Buck, representing the Hoosier Antique Phonograph Society, enjoyed talking with visitors about vintage phonographs.

Center - Reminding us that Columbus is "Arvin Country" with an Arvin receiver and a display of Arvin promotional material.  
Top - the outside Swap N Sell was small but active with many radios going to a new home.



# For Long Distance Concerts

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FRONT VIEW

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The Super-Heterodyne is the most efficient method of radio frequency amplification known.

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DESIGNERS OF THE HIGHEST CLASS RADIO APPARATUS IN THE WORLD

531 West 46th Street, New York City

Super-Heterodyne model "C" - Leutz

Radio News, July 1923

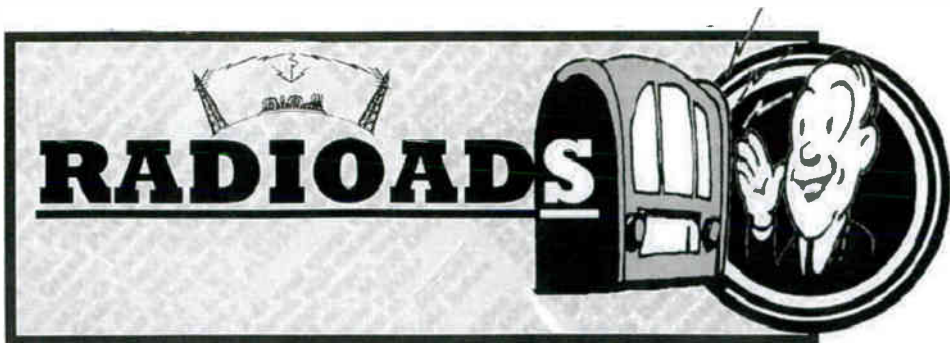
Re: page 14 Radiofest Old Equipment Contest "Best Of Show"

**Radiofest "Best Of Show", Michael Feldt's "Leutz Superherodyne"**  
Shown on page 14 of this issue of the Bulletin is Michael Feldt's 1924 Leutz model C display with a multiple speaker selection. Mike had this to say about his contest entry:

"I probably got a little carried away in the size of it (*the display*) as it took up nearly two tables. The main display was the 1924 Leutz model C superhet accompanied along with a Beckley Ralston loop antenna, General Radio 107F variable inductor (variometer), a Muter A power supply and a Kingston B power supply. I had a reproduction Eveready 751 4.5 volt C battery inside the receiver. Now, I could have had just one speaker for the set up, which would have been a Western Electric D-10 horn speaker as that was Charles Leutz's choice to accompany the Leutz model C. Now, because I had bought a six channel Lab-Line audio speaker switch box from Steve Muchow last year, I decided, just for the fun of it, to expand the one speaker to six different speakers, three horn speakers and three cone speakers, all of which use armature type drivers. This set up would give viewers the unique experience to compare the volume, tone, color, and detail in the audio of six speakers of different designs and manufacturers from the 1920s. The whole set up worked great. The receiver was tuned to WBBM for the duration of the display and viewers were able to switch from speaker to speaker and form their own opinions on how each speaker sounded. The general consensus was that the Rola speaker sounded the most natural, the Temple speaker had the most base, and the Western Electric D-10 speaker was the most tinny sounding. My display received the DR. Ralph Muchow Best Of Show award."

Speaker selection, from left to right (page 14 picture): Western Electric 10-D horn speaker, Orchestrion "Deluxe" horn speaker, Temple internal horn speaker, Western Electric 540-AW cone speaker, Rola cone speaker, and RCA 103 cone speaker.

*Editor's note: The Leutz superhet received WBBM clearly with out fading – it was interesting to watch many visitors switch from one speaker to the next, comparing audio quality from each speaker. A truly interactive exhibit.*



Submit your "FREE TO CURRENT MEMBER" RadioAd by the 15th of February, May, August, or November in time for the Bulletin issue that follows.

**Wanted:** Tempo 1 Power Supply (Ham). Dave Mantor, PO Box 1, Fairmount, IN 46928-0001 (765)618.8342 Email - [merrijoy@frontier.com](mailto:merrijoy@frontier.com) Thank you 8/12

**For Sale** the following consoles , Stromberg Carlson model 440-M , \$ 200 , Midwest model D-17 , \$375 , American Bosch model 28 with matching speaker cabinet , \$150 , and Philco model 190 X , \$125 , also code practice key with oscillator \$50 . Bob Pote, 317-881-5721 , Greenwood, IND. or contact me via e-mail [mrzenith41@aol.com](mailto:mrzenith41@aol.com) 3/12

**Wanted:** McMurdo-Silver Model 802 Superhet Rcvr & Model 701 Xmtr. B&W Junior Coils, 5 pin, horizontal, No's 21XX or Freq stamped on their unglazed white porcelain base. William Ross W9WR, 300 Oxford Road, Kenilworth, IL 60043-1167, 847-251-7447, [william.ross@comcast.net](mailto:william.ross@comcast.net).6/12

**For Sale: REPRODUCTION RADIO BATTERIES:** I've developed replica battery solutions for most tube and transistor radios--batteries that have not been available for nearly thirty years. They look, they feel and they work--just like the originals! Plus, they are a reusable resource. Inside are holders for AA, C, D and 9-volt batteries. When the batteries wear out, simply remove them and install new ones. Contact Bill Morris at [batterymaker@gmail.com](mailto:batterymaker@gmail.com) or at 317-895-1334. 3/12

**For Sale:** Reproduction cabinet parts (wood). In stock parts; front panels, rear arch supports, base molding, for Philco models 20,21,70,90 (others per sample). Philco Colonial Clock top trim including finials, Grandfather Clock finials for Philco 570, GE H-91, Crosley 124 (others per sample). Almost any wood part available per sample, any make or model (per quote) (tooling charge may apply). Dick Oliver c/o Antique Radio Service, 1725 Juniper Place #310, Goshen, In. 46526. Ph. (574) 537-3747, e-mail- [dolivears@aol.com](mailto:dolivears@aol.com) 3/12



## 2012 Officers

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The INDIANA HISTORICAL RADIO SOCIETY is a non-profit organization founded in 1971. Annual membership dues of \$15.00 includes the quarterly IHRS "BULLETIN." Radio-Ads are free to all members. Please include an S.A.S.E. when requesting information. Send applications for membership and renewals to Herman Gross, our treasurer as noted above.

**The BULLETIN**  
**A PUBLICATION OF THE INDIANA HISTORICAL RADIO SOCIETY**  
**CELEBRATING FORTY ONE YEARS**  
**OF DOCUMENTING EARLY RADIO**



Above is a sample of Titanic and Marconi items on display at ARCI's 2012 Radiofest. The outstanding exhibit was open to the public on Friday evening of the Vintage Radio event.