



The Oscillator



"All the Electrons that are Fit to Flow . . . "

THE OFFICIAL NEWSLETTER OF THE DVHRC

WINTER 2025

Club Plans for 2025

At our January meeting President Jarret Brown reviewed initiatives for the coming year. He will soon finalize the new member directory. If you have not yet completed the survey or had a picture of yourself provided, contact Jarret to get this form. We'll wait until dues are collected for 2025 before issuance. Mark Hilliard and Dave Dean related progress on organizing tube stock into better containers while removing obsolete, slow movers or redundant stock. Mark brought in tubes donated which were farmed out to members for preliminary tests to be followed up by more precision testing before stocking. Thanks to those who participated! There has been success in streamlining the tube program freeing up space in the club trailer at Renningers. We also discussed the older trailer which is beginning to fail and pondered a method to remove from Renningers.

A trip to InfoAge including the NJARC- hosted Radio Technology Museum was discussed. We are looking for a Saturday this spring (perhaps April) so stay tuned! <http://www.rtm.njarc.org/>

As far as this publication goes, thanks to those who have provided stories in the past and this editor is hoping for more of your stories throughout the year. I may also ask your opinions on format, removal of obsolete/ repetitive material and explore newer ideas. There has been little change in our presentation over the years (but) that may be needed to attract new members to the hobby and club membership. We'll always maintain the current website and Reflector for your immediate communication. Another feature I am hoping to add is Road Trips to Pa. radio history locations. I have initially planned a trip to Sunbury to seek out the history of the Westinghouse radio facility that had existed there; please suggest any other locations you would like to feature in this "radio archeology" series. I will also research the other attractions in those areas including museums, recreational venues and mountain bike trails! Finally, this editor will attempt to build a searchable database to be able to access topics from all Oscillator issues over the years. I will run this effort by you as I progress.

Please note that weather cancellations are posted on the Reflector and the website <https://dvhrc.com/> by midafternoon. Zoom meetings may supplant cancelled meetings and download of the Zoom program updates may be required if you have not used lately. A link to meeting will be included on Reflector.

2025 Monthly Themes

The Board has proposed these themes for our Telford meetings. Access to these can also be found DVHRC **Events tab** *Images or associated documents from your flash drives can be projected on our big screen.*

Meetings begin at 7:30 PM except August's Tailgate at Renningers.

[Feb 11](#) - Radio Station Items.

[Mar 11](#) - Kit Radios/Toy Radios.

[Apr 8](#) - Kutztown Planning, Theme: *Adding a Bluetooth*

[May](#) - No Monthly Meeting.

[Fri. May 9 & 10](#) - Kutztown LI (51) Antique Radio & Vintage Audio Show.

[Jun 10](#) - Restoration Hints, Tips & Tricks

[Jul 8](#) - General Show & Tell.

[Aug xx- Saturday Date TBD](#) - Tailgate Swap Meet under the pavilion at Renningers, Kutztown **10AM.**



Delaware Valley Historic Radio Club
PO Box 5053
New Britain, PA 18901
www.dvhrc.com

The *Oscillator* is the quarterly newsletter of the Delaware Valley Historic Radio Club.

Articles on radio and television history or collecting can be submitted by the 25th of month prior to quarterly issue dates of April, July, October and January to the editor at gdottor@yahoo.com.

Personal views, opinions and technical advice do not necessarily reflect those of members, officers or Board of Directors of the DVHRC, nor is the DVHRC responsible for any buying or selling transactions.

Dues are \$20 per year and can be paid at a meeting or mailed to the above address. Meetings held 2nd Tuesday of each month at Telford Community Center.

DVHRC Board of Directors

President:

Jarret Brown / 610-704-0803
jpb205@lehigh.edu

Vice President:

Tom Spiegel
Adxymox62@netzero.com

Secretary/Treasurer:

Dave Snellman / 267-328-8857
dsnellman@comcast.net

At Large members:

Fred Saul / 484-357-6537
fsantiqueradio@dejazzd.com

Greg Dottor / 610-844-6326
gdottor@yahoo.com

Sep- No monthly meeting.

Fri Sep 19 & 20- Kutztown LII 52th Antique Radio & Vintage Audio Show

Oct 14- Setchell-Carlson Presentation.

Nov 11- Test Gear I Actually Use.

Dec 9- Christmas Party- Copperhead Grille, Coopersburg.

2024 Christmas Party

DVHRC members had a great holiday gathering back on Dec. 10th at the Copperhead Grill, Coopersburg. It was agreed to continue with this venue in 2025.



Below: Some nice sets were received, a just reward for participation in the Xmas exchange!



Meeting of October 8, 2024

The theme for this night was off-branded radios. Some of these are local manufacturers and others are brands peculiar to a dept. store or other retail channel.



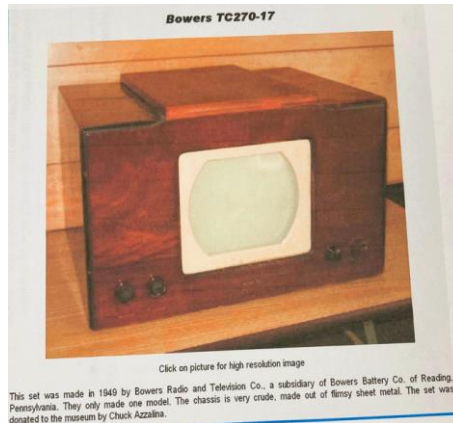
Above & Below: Al Simmons shows a Bowers T-53 AA5 made near his home in Reading, Pa.



Below: Al noted that the Bowers did not make many radios. Formally these are made by the Bowers Battery and Spark Plug Co. founded in 1921 by Clarence Bowers who acquired surplus parts after WW2 and went into the "radio business". The T-53 was not well built and used slug tuning. They also featured several other radio models, a television and even TV signal boosters. Bowers mainstay spark products and notions are more collectible than their radios and appear on listings such as these original NIB spark plugs and a promotional makeup mirror used to market batteries in Europe. The radios were advertised locally on billboards, newspaper and even on the trolley cars. A few years after this trolley was retired, Bowers radio production ended. Bowers continued making batteries and sold out to General Battery and Exide. Like many industrial metals & lead processors, these old facilities would become Superfund sites.



1ST RUN in 1947 of BRILL-BUILT TROLLEY #86...700 BLOCK OF NORTH 6TH STREET...LOOKING FROM OLEY TO DOUGLASS STREET...READING: On the last day the Reading Street Railway Co. ran trolleys in the city, destination signs were turned to read FUNERAL, as it was, indeed, the end for many of the cars. Over the years, the color schemes of trolleys changed. In 1947, this car was painted in a bit red and silver-grey. Notice the sign on the front of the car advertising Bowers radios. After World War II, Clarence P. Bowers bought government surplus electronics and assembled and sold radios. Briefly, there was a Bowers television set made locally, as well as Muhlberg Towns...



This set was made in 1949 by Bowers Radio and Television Co., a subsidiary of Bowers Battery Co. of Reading, Pennsylvania. They only made one model. The chassis is very crude, made out of flimsy sheet metal. The set was donated to the museum by Chuck Azzalina.

Above: The only television model made by Bowers was a flimsy affair; this one was donated to a Berks County, PA museum by Chuck Azzalina. **Below:** Al also showed an example of mass produced Korean radios manufactured by Goldstar that were marketed by several names. Below is a Dryco M709, a 7 transistor, two diode unit. Goldstar was a start up in post war Korea assisted by Hitachi of Japan. Goldstar would later be acquired by Lucky Chemical who eventually became today's LG electronics brand. See more LG history at:

https://en.wikipedia.org/wiki/LG_Electronics



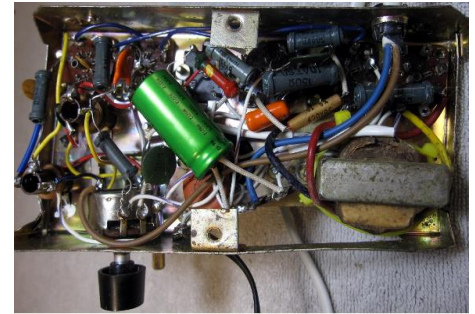
Below: Jiri Placek highlighted Japanese AA5 models from the early 1960's produced using a plethora of names, mostly British to sell the many sets that look like this one, an Essex.



The following forum discusses the peculiar manufacturing shortcuts and old components

such as dog bone resistors in some of these sets that came in a multitude of colors.

<https://antiqueradios.com/forums/viewtopic.php?p=3468219>



Below: Bob Bennet shows a 1962 Bulova NT730 7 transistor radio. Bulovas were sold at jewelry stores and sported luxuriant styling. Bulova farmed out production to a dozen or more manufacturers including Guild, Panasonic, Hitachi, Sanyo and even Zenith to name a few. This radio was rehabbed by Bob and plays well. The red version is rarer than the common black or white models and this one had been well preserved in its original case.



Above: Tom Spiegle displays a John Wanamaker badged radio sold by that major Philadelphia department store. The set was thought to be a rebadged RCA of the 1939-4x vintage, having a loop antenna. John Wanamaker, in 1922, during the early days of broadcasting, employed their own radio station, WOO located at the Phila. Main store location to serve the public and promote goodwill for the store. Earlier, in 1911, the store hosted

first of two overland based Marconi radio stations, one in the Philadelphia and one in the New York store. The stations were used for Wanamaker's inter-company communication using Morse code, and were also open to the general public for sending telegrams between the two cities, in addition to ships along the Atlantic coast.

[https://en.wikipedia.org/wiki/WOO_\(Philadelphia\)](https://en.wikipedia.org/wiki/WOO_(Philadelphia))

Below: Tom shows another dept. store radio, this one for J C Penney. This model RPI-124 radio was produced by Philco for JC Penney and came in two colors Turquoise and Black. It is based on Philco's Model T-45-124, with the same chassis and earphone jack. Badged Penny's Transistor Radio- great if your name is Penny! The Philco version, also a 4 transistor, has a different tuning dial design and colors.



Below: Mike Koste shows another dept. store offering which when purchased online was sold as a Belmont. Upon delivery it turned out to be a Granco 606, a 6 tube superhet. W.T. Grant operated 1906- 1976 and also had a Bradford branded electronics line in addition to Granco.



https://www.radiomuseum.org/r/grant_606.html

https://en.wikipedia.org/wiki/W._T._Grant

Below: Dan Schwartzman showed an excellent Air Chief-branded 1938 model 3061 radio sold by Firestone. Firestone and its related Air Chief and Roamer brand radios were marketed in Firestone tire stores from the mid-1930s to 1942 and following World War II until the late-1950s. Like Goodrich (Mantola brand) and Western Auto (Truetone), Firestone entered the radio marketplace in the 1930s. Similar among tire store brands, click on the link to show how many manufacturers provided sets using Truetone as an example.

https://classicrodiogallery.com/truetone_history.html



<https://radioattic.com/item.htm?radio=1600356>

Below: Dan also displayed a Lafayette likely from the early 40's timeframe and possibly manufactured by Garod. Lafayette has an interesting history and catalog links below:



https://people.ohio.edu/poslr/bapix/LafArt_603.htm

https://www.worldradiohistory.com/Lafayette_Catalogs.htm

Below: Donna Accera showed a rare Halson, (possibly 1935) from this New York company. Use of a 76 tube may be a clue. Halson radios had distinctive designs during the 30's- see link.



https://radioattic.com/group_sold.htm?manufacturer=Halson



Upcoming Regional Events

Following are some excellent programs and a reason to have multiple club memberships in our region's clubs! Paste links into your browser to load. Also view regional ham fest events via:

https://www.arri.org/hamfests/search/page:1/location.division_id:AT/model:Event

National Museum of Industrial History, Bethlehem, Pa. "Unseen Signals" Traveling Exhibit, through April 30, 2025.



The Unseen Signals traveling exhibit celebrates the life of the unsung genius and IEEE Medal of Honor winner E. Howard Armstrong by highlighting his technological innovations, patriotism, and the continuing relevance of his achievements. It delves into Armstrong's intellectual and professional journey against a backdrop of progress in wireless communication. Beginning with an exploration of the humble origins of the radio era during the early 20th century, we invite visitors to immerse themselves in Armstrong's university years, his

military service during the First World War, his alliance with the Radio Corporation of America (RCA), and the rise of the radio broadcasting industry. There is a lot more to see there as well! Where: 602 E. Second St., Beth., PA 18015. 610.694.6644. See link for more:

<https://www.nmih.org/>

[JD's First ever Winter Record Show!](#)
[Saturday, February 22, 2025 Preview after 8 am, Auction starts 9. At Renningers Antiques & Farmers Market in the White Room.](#)

LPs, 45s, 78s, CD, vintage audio equipment, turntables, record changers and more,
VENDORS WANTED: Tables \$25 each, vendor set up is 7:30. To register contact John at 609-947-9071 or email Kutztownradio@gmail.com. 740 Noble St, Kutztown, PA 19530. <https://jdauctionsllc.com/default.aspx?JDAuctionServices&p=1> [JD's Antique & Vintage Radio Electronics Auction](#)

[JD's Next Antique & Vintage Electronics Auction Saturday, March 1, 2025 Preview 8 am, Auction starts 9. At Renningers Antiques & Farmers Market in the White Room.](#) Over 250 lots- check website for *gotoauction* listing and pictures closer to event at website below. Renningers Farmers Mkt- White Room, 740 Noble St., Kutztown, PA 19530. **Stay tuned for more future auctions at Jackson NJ!** <https://jdauctionsllc.com>

[NJARC Spring Swap Meet and Ham Fest Saturday, March 22, 2025 8 am to 12 pm. Check contacts below.](#) Vendor setup at 7:15AM. \$7 entrance fee. \$35 vendor fee (\$30 for members). (40) 8 ft. tables available, Reserve additional tables for \$25 or at door \$30. **Where:** Parsippany PAL Building, 33 Baldwin Rd., Parsippany, NJ 07054 (just off Rt 46).

<http://www.njarc.org/>

Email: radioricardo61@gmail.com (Rich) or call (914) 589-3751

[2025 Warminster Hamfest Sunday, May 4, 2025 Gates open 7AM. Held Rain or Shine](#) Bucks Community College, Lower Bucks Campus, 1304 Veterans Highway (Route 413), Bristol, PA 19007. <https://wp.k3dn.org/hamfest/>

[Kutztown Antique Radio and Vintage Electronics Show LI \(51\) Friday, May 9 through Saturday, May 10, 2025. Sellers do not come on Thursday. Vendor setup starts 8AM Friday. Hours: Friday 10-5, Saturday 9-3. Opens 7AM on those days; Auction is Friday, 5.9.25 @ 5:30 in white room, Preview at 4:30.](#)

Where: Renninger's Farmer's Market, 740 Noble St., Kutztown, PA 19530. Antique radios, parts, and related items. Audio and Ham welcome. Tables, electric available. Dealer spaces 10' x 10' incl. table \$50, extra tables \$10. **Exhibitor reservation advised: Phone M-Th 570.385.0104; F-S 610.683.6848.** See links at: www.dvhrc.org and see updated **FAQ listing below.** https://www.dvhrc.com/Kutztown_10_1.pdf

[MAARC RadioActivity 2025 Thursday, 06.12.25 6 PM through Saturday, 06.14.25 5 PM.](#) Byzantium Event and Conference Center, 2747 Riva Rd, Annapolis, MD 21401. <https://maarc.org/events/list/>

[AWA Shares](#)
Each month there will be a well-researched presentation via Zoom including a question and answer session. It is free and you don't have to be an AWA member! AWA Webinar Wednesdays will be held the third Wednesday of each month and the next one on Feb.19, 2025 at 8 PM is entitled "origins of AGC and AVC (automatic GAIN and VOLUME

control) in receivers "presented by Mike Molnar. See the following link to participate in this & future shares! <https://www.antiquewireless.org/homepage/awa-shares/>

[2025 AWA Spring Meet Saturday May 3, 2025.](#) The annual AWA Spring Meet, Flea Market & Auction will be held at Veteran's Park in Bloomfield, NY. This is just across the road from the AWA Museum, 6925 State Route 5, just east of the intersection of Routes 5 & 20 and Route 444. AWA will be operating a Museum Bargain Table and a large Museum Book Sale in the former AWA Annex building located in the park. As part of the meet, AWA will hold an Auction of duplicate and surplus items from the Museum's artifacts. Note the following link which may change but for now: <https://www.antiquewireless.org/homepage/2024-spring-meet/>

[2025 AWA Annual Conference Tuesday, October 7 to Saturday October 11, 2025.](#) To be held at the RIT Inn and Conference Center, 5257 W Henrietta Rd, Henrietta, NY 14467. **Theme this year is Television.** Details will be made available at a later date via AWA website: <https://www.antiquewireless.org/homepage/annual-conference/>

Housekeeping Notes Please click on the Web references herein. They may need to be copied or manually entered into your browser if they do not work by clicking blue pdf link. Also, if you see errors or inaccuracies, we can make necessary corrections and repost. We are always looking for a good story to publish, especially projects and technical fare which are harder to come by. Please forward them to gdotter@yahoo.com

Meeting of November 12, 2024

This night's theme was [Stewart Warner](#), as researched and presented by Jarret Brown.



John K. Stewart 1870-1916

- Born Terrance O'Brien in Nashua, NH
- Unruly child, many clashes with his father
- Worked for American Shearer Co.
- After disagreements at work & home he "left it all behind" quit his job, moved to Boston
- Got a job clipping horses with childhood friend Thomas Conlon

Many an inventor such as Stewart began as a precocious child with the spirit to question and challenge.

- Invents a flexible shaft for his clipper ... gets his 1st patent (82 total)
- In 1893, the two men move to Chicago for a fresh start.
- Create a new business
- Create New Identities
 - Terrance O'Brien = John K. Stewart
 - Thomas Conlon = Thomas J. Clark

Their company was incorporated as Chicago Flexible Shaft Co., Inc. Main products sold were hand crank shaft-driven clippers for use on animals, with the "Stewart" brand, like the "1902 Chicago Horse Clipping Machine". In a 1910 sales brochure also electric clippers and multi-user power sheep shearing machines were shown.



Improvement of flexible shaft technology led to more opportunities.

- Around 1896 the two founded the Sterk Manufacturing Co which produced speedometers and automobile horns
- The flexible shafts from their other company were used in the production of cables needed for the speedometers
- In 1907 Clark was killed in an accident while demonstrating speedometer in a Packard.
- Stewart acquires Clark's assets.

https://en.wikipedia.org/wiki/Thomas_J._Clark

Stewart-Warner

- With the money Stewart bought the Warner Instrument Company in 1912 for 1.2 million.
- Stewart-Warner Speedometer Corporation was formed the same year by consolidating the two rival companies



Arthur P. Warner

The Warner acquisition followed years of lawsuits and rivalry. A lover of music, Stewart ventured into the phonograph market in 1915.



- Eventually becoming a division of Stewart-Warner, the phonograph company expanded to include radios, speakers, and eventually televisions.



In 1916, at just 47 years of age, Stewart died from a stroke at his New York City apartment. At the time, he'd already handed over most of the daily running of the Stewart-Warner Corp. to Treasurer Charles B. Smith, and was focusing on new projects like the Stewart Phonograph Co., which was headquartered on Wells Street in Chicago. While he died a multi-millionaire, Stewart's businesses only became bigger powerhouses in the decades after his death; not only Stewart-Warner, but the old Chicago Flexible Shaft Co., as well, which morphed into the kitchen appliance giant Sunbeam Corp.

- Arthur Warner takes over in 1917 as president.
- Major growth in the 1920's
 - Acquired Bassick-Alemite Corp., becomes market leader in vacuum tanks
 - Net sales top \$25M; Stewart-Warner enters rapidly growing radio market
 - Become **LARGEST** manufacturer of automotive accessories
 - Chicago Plant expansion to 1 million sq ft

1930's

- New products include power brakes, hydraulic shock absorbers, fuel pumps & carburetors
- Motion picture cameras & Projectors dropped; radios and refrigerators redesigned
- Radios & refrigerators turn their first profit; automobile heater introduced (Southwind)

In 1939, James S. Knowlson became both the chairman and president of Stewart-Warner. His responsibilities would go well beyond selling radios, fridges and speedometers. Starting in 1940, well before Pearl Harbor, Stewart-Warner's Chicago plant was already taking on military contracts to aid the Allies, with 14% of the factory's volume given over to making artillery fuses by the spring of 1941. While many business owners felt increasing anxiety about America's halfway in / halfway out involvement in the war overseas, Knowlson seemed quite practical in his approach. . Less than a month after the U.S. finally declared war, Knowlson was posted to an important position on the War Production Board, as "head of the division of industrial operations," and he unsurprisingly converted most of the Stewart-Warner fleet of factories into defense plants.

1940's

- Operations converted to support war effort; radio & electronics business given new life
- Stewart-Warner plant in Amboy, IL produces shells, bombs, grenades & fuses
- Stewart-Warner listed as one of the top 100 military products suppliers
- Total military products sales total \$330M from 1940-1945; \$2B in today's dollars

In 1954, a 44 year-old MIT grad named Bennett Archambault was elevated to president and CEO of Stewart-Warner. Like Knowlson, he'd been awarded a Medal of Merit for his work during WWII. A staunch Republican, Episcopalian, and anti-Communist, Archambault was very much a business leader of his time—noble in principle, but not necessarily progressive or enthusiastic when it came to worker empowerment. No one could deny his success when it came to the bottom line. Sadly 1954 marked the last year of radio and TV production by Stewart Warner. It was around these last days of the 1950s—caught between “Ozzie and Harriet” and Elvis, Sputnik and McCarthyism—that the Cadet speedometer was made . . . and likely sold to a young Schwinn owner who saw the ad in *Boy's Life*.



1950's

- Military sales total \$194 MM from 1950-1953 in support of the U.S. effort in Korea
- End of radio & TV production; focus shifts to non-alliance-related electronics in 1954
- Arthur Warner dies in 1957 (age 86)



Above: One of the last, model 9187E, 1954.

1960's -90's

- Less than 13% of total dollar volume from OEM passenger cars; shift to industrial focus
- Built groundbreaking electronic scoreboard for Toronto Blue Jays MLB stadium (1977)
- British Tyre & Rubber purchases Stewart-Warner & moves production to Juarez, Mexico ; Chicago plant closed soon after (1989)
- British Tyre & Rubber Sells SW to group of investors

In 1962, Stewart-Warner marked its 50th anniversary in the same location they'd started on Diversey Parkway, Chicago albeit in a grand terra cotta industrial estate that John K. Stewart wouldn't have recognized. But there were other, more unusual new electronics ventures, including scoreboards for major sports venues. Starting in 1966, S-W designed, built, and installed these units at dozens of famous ballparks, including Fenway Park in Boston, Tiger Stadium in Detroit, Giants Stadium in New Jersey, and Memorial Stadium in Los Angeles. In the decades to come there were challenges of aging facilities, labor strife, obsolescence due to technology, lower profitability etc. the same as in almost every industry including consumer electronics. This led to divestitures and acquisition by a British company. You may read the following essays on Stewart Warner below.

<https://www.madeinchicagomuseum.com/single-post/stewart-warner/>

<http://www.encyclopedia.chicagohistory.org/pages/2864.html>

2000's

- Competition Performance line launched ushering in a rebirth of the product
- Products include automotive gauges, switches & senders.
- After a series of transfers, Stewart-Warner is currently owned by [CentroMotion](#).



CENTROMOTION



Above: Spade model 91-513 from 1939.

Stewart Warner radios include many collectible models due to unique cabinet designs & quality construction. Jarret had been on a quest to acquire the Spade, and finally found one!

http://www.tuberadioland.com/stewartWarner_91-513.html

Here are some other notable models.



Model 300



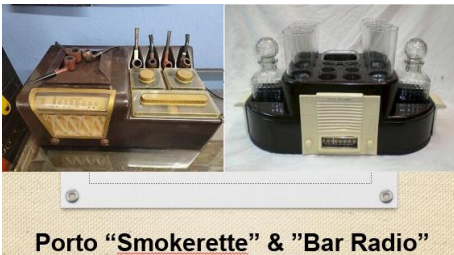
R-111 Chicago Worlds Fair



Model A-6S "Dionne Quints" 1939



R-1262A



Porto "Smokerette" & "Bar Radio"

Above and Below: The Porto Bar and Smokerette were branding of these S-W models. The Porto Bar 9008 B (bakelite) specialty radio features a complete set of glass-ware and were sold pre and post WW2. Plastic cabinets can be compromised due to warping and cracking and rarely found perfect. This is a radio you can really "drink to"!



Imperial PORTO BAR
 New Selling
 Built-In Radio and Server Combined

Powerful
5-Tube STEWART WARNER
 Superhet Chassis

- 7-tube performance
- Built-in long use timer
- P.M. Dynamic speaker

Light Weight Bakelite Case

Be the first in your community to show this most novel, most useful double-utility Porto Baradio. It will break sales records. Combine the Porto Bar—immensely popular since its very introduction—with the famous Stewart-Warner 5-tube superheterodyne chassis that has achieved an unsurpassed reputation. Includes 2 glass decanters, 4 highball glasses, 4 jiggers, glass ice tray, 4 glass mixers and long swinging complete 21-piece bar. Chassis is protected from liquid spillage. Includes 10 ft. detachable cord with separable plug. For AC or DC. LIST 21.36.

No. IH1800. Walnut with Ivory Grille, Ivory Handles. Dealer's Price, each, 19.16.

No. IH1800. Black with Ivory Grille, Ivory Handles. Dealer's Price, each, 19.16.

No. IH1876. Ivory & Ivory, each, 20.36.

1878

1995



Above: Stewart-Warner R-466 (1940) model in a very nice wooden cabinet.



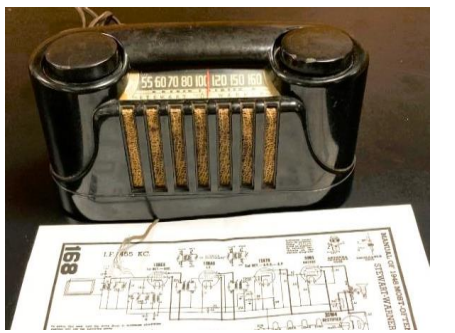
Above and Below: A S-W 07-5B, a 4-tube superhet with regeneration. Some of these "Senior Varsity models" could be acquired in a college theme, usually with a letter in school color on the grill. Be true to your school!



<https://www.youtube.com/watch?v=FIWtOA-CWbc>

STEWART WARNER
 07-5B, 97-562 'Senior Varsity', c.1939
 bakelite, 5 tubes, 1 band

Below, Jiri Placek brought the more commonly seen Stewart Warner for the masses, a 1947 model A51-T2 using miniature tubes, tightly packed in this distinctive case.



Above: Here is Mark Thierbach's S-W 1953 model 9166A AM FM, with some a missing grill cloth and a few mods. More interesting in these early AM FM sets is the great variety of approaches to the FM circuit until they had an optimum approach. This one uses a 12AT7 FM RF Amp & Mixer plus re-use of 12BE6 from the AM section as an oscillator. **Below:** Mark's 1948 S-W 61PI looks like the typical picnic radio but actually has some grid cap tubes. An AC DC model, It can be run by the battery and there is a battery recharge circuit.



1A7GT 1N5GT 1H5GT 3Q5GT 3S25GT 3S25GT
 Battery Pack, Eveready 753, Ray-O-Vac AB-994, Burgess F6A60, General 60A-6F6-5

<http://www.nostalgiaair.org/pagesbymodel/123/M0021123.pdf>



This is Gary Owens- It's been a hard day's night of broadcasting. I'm going home now to use my Porto Bar radio or maybe just its contents!

[NULL](#)