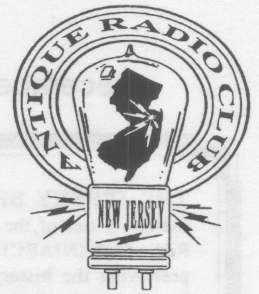


# The Jersey Broadcaster

NEWSLETTER OF THE NEW JERSEY ANTIQUE RADIO CLUB

December 2001

Volume 7 Issue 12



## MEETING/ ACTIVITY NOTES

Reported by Marv Beeferman

The November meeting of the NJARC was opened with comments by Robert Flory on the restoration of the USS New Jersey's communications system. I did a little research on the subject and found that there is significant participation in this project by New Jersey amateur radio enthusiasts. In fact, the Battleship New Jersey Amateur Radio Station (BNJARS), NJ2BB, has been organized to run an amateur radio station directly from the battleship using new gear and the original antennas. The club can be contacted at <http://www.qsl.net/bb62/>.

A second aspect of the club's activities is the repair of all internal communications systems aboard the ship and restoration of the main radio room. The project is being sponsored by L3 Communications, a defense contractor. Engineers and others from L3 and Lockheed Martin of Moorestown already have some of the ship's internal public address system working. A major problem being faced by these volunteers is one that is immediately identified by anyone that has ever been involved in a military restoration - the Navy cut much of the wiring that controls radio and public address communications during deactivation so that it could not be used or misused. Luckily, a manual was obtained from Dynalec of Sodus, N.Y., the builder of some of the original communications equipment, and it saved the group hours of work.

Alex Magoun, director of the David Sarnoff Library, invited NJARC members to the November meeting of the Princeton ACM/IEEE Computer Society which was to be held jointly with such organizations as the Society of Broadcast Engineers and Princeton Chapter of the Media Communications Association. On November 15th, club members were treated to presentations



## MEETING NOTICE

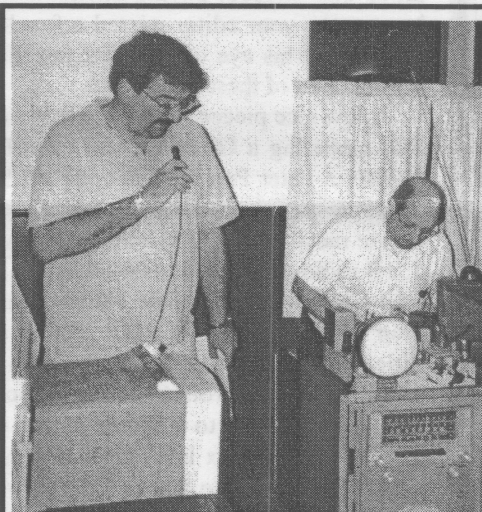
The next meeting of the NJARC will take place on Friday, December 14th at the David Sarnoff Library, 201 Washington Road, Princeton NJ where our annual holiday party will take place; a map (page 8) is included in this issue. Remember to bring your Mystery Grab Bag and Radio Scavenger Hunt entries - details of the contests can be found in the November *Broadcaster*. Also Included in the night's activities are a tour of the David Sarnoff Library with our host Alex Magoun, the presentation of the Tony Flanagan Memorial Award and of course a catered, buffet diner. Members are requested to bring a desert or sweet to share with the group since these will not be provided as part of the buffet. This will be a full evening so your prompt arrival at 7:00 PM is appreciated. Registration by December 7th was required for the diner, but members who decided to change their plans at the last minute are quite welcome to the rest of the activities. No club business will be conducted at the meeting (dues, tube and capacitor sales, etc.).

on the topic "Adding Sight to Sound: Television's Past, Present and Future". The meeting presented a wide-ranging perspective of the history of television from its early development through all-digital and

tired RCA speakers and the audience.

John Ruccolo presented an excellent talk on electrostatic TV sets, "electrostatic" describing the type of deflection or sweep used in directing the position of the electron beam. John explained that the electrostatic system used small "deflecting" plates inside the picture tube while today's magnetic system uses a "yoke" of electromagnets around the neck of the picture tube. The electrostatic system was described as simpler, compact and more reliable but was limited to picture tubes with small screens and rather long necks. The electrostatic system also had lower power requirements, particularly when it was used for smaller picture tubes. The magnetic system was costlier but could create a larger, less distorted picture, and also combined the horizontal output section with the high voltage power supply.

John also talked about CRT nomenclature where the first number(s) represents screen diameter and the letter P, with the number following it, indicates the type of fluorescent screen. The P1 trace has a shorter persistence than the P2 (usually chosen for oscilloscopes) trace with televisions using medium (P4) persistence screens with a white trace. Any other



John Ruccolo talks about electrostatic TVs as Marty Friedman does some fine tuning.

high-definition formats. Mr. Magoun presented an illustrated history of the development of electronic color television and moderated questions and comments by re-

**THE JERSEY BROADCASTER** is the newsletter of the New Jersey Antique Radio Club (NJARC) which is dedicated to preserving the history and enhancing the knowledge of radio and related disciplines. Dues are \$15 per year and meetings are held the second Friday of each month at the Grace Lutheran Church, corner of Route 33 and Main Street in Freehold N.J. The Editor or NJARC is not liable for any other use of the contents of this publication.

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letters found between the first number and P note differences such as the addition of another element (accelerating grid) or a different sensitivity factor.

Restoration was also discussed including the importance of replacing the high voltage blocking capacitors for the deflection plates which are readily available at hamfests for about 50 cents. Member George Shields noted that it was important to pay attention to capacitor values in critical circuits, i.e. substituting a 0.1 mfd capacitor for a 0.047 mfd capacitor might, in some applications, result in linearity problems.

A mini-auction ended a very pleasant evening.

**LOCAL RADIO AUCTION**

NJARC was well-represented at the North River Auctions specialty auction on December 1st where a 1920's home radio repair shop cleanout was put on the block. Also included in the auction were TVs, some vintage phonographs and numerous 45rpm and LP records.

The auction went quickly and orderly, with credit given to the auctioneer who did not dwell on items that held no interest; larger lots were immediately put together and the auction was allowed to move on. Indeed, paying attention was important - your editor missed a few lots that he had his eye on only because they became part of these larger lots.

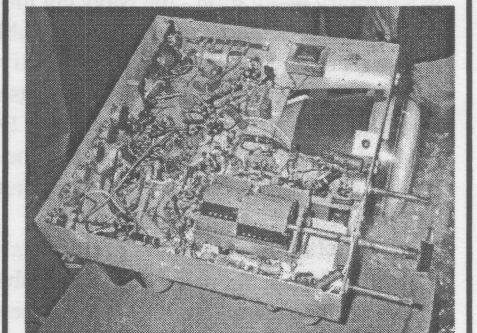
A few nice pieces were included in the sale including a Gibson guitar amplifier (\$260), a Peter Pan Gramophone (\$220), an interesting unmarked speaker with an ornate metal stand (\$75) and a Magnavox 151B radio-phono combination in a beautiful Chinese Chippendale cabinet which your editor obtained for \$175. A nice addition to the Magnavox was the original 1947 bill of sale from Steinway & Sons; the radio was sold to a Brooklyn man for \$504.90. Tube box lots (some with NIB tubes) sold for \$5 to \$30 and if you were discriminating, some good bargains were available. Your author obtained a lot of 37, NIB UV-877s ("fuse" tubes) for \$40. A nice white Crosley 10-135 "dashboard" radio went for its list price of \$75.

A few photos of some of the auction offerings are included on page 8.

**FUTURE EVENTS**

We're looking forward to viewing John Dilk's taped appearance on the "Speaking of Antiques" show with Ray Mansfield (NBC TV-40) which aired at 9:30 on November 24th. John said he was a little nervous but his son Joe (perhaps a biased critic) said it went OK. You've got to give John a lot of credit when love of the hobby can serve up enough fortitude to overcome one of man's greatest fears...public speaking.

Ray Chase reports that he received a call from Ralph Brown of the Morris County Library where we sponsored a well-appreciated radio exhibit some two years ago. We've been invited back to a totally rebuilt library with a much larger display area which Ray will be visiting this week. Ralph suggests a theme something along the lines of "Radio as an Art Form or as an Object of Design" and was thinking of having an exhibit ready by February 15th if the club is interested. Our previous exhibit attracted quite a bit of interest and resulted in numerous leads. Let's hope we can support this one as well.



Top and bottom views of a typical electrostatic TV. John noted that, because of their simplicity, these sets are easier to work on than their electro-magnetic counterparts.



## TROPIC-PROOF RADIO

By Marv Beeferman

Although most of us are wondering if winter will ever get here, radio collectors aren't too concerned about the weather when it comes to maintaining a lovingly restored collection. Air conditioners, humidifiers, dehumidifiers and thermostats pretty much provide the necessary TLC for a receiver's comfortable retirement. But radio manufacturers of the late 30s and early 40s, with an eye to expanding southern markets, had to have a clear conception of the effect of climate on consumer radio equipment, both in regard to reception and endurance.

Although Central and South America naturally embraced a wide variety of climates, the greater portion of this region was warm and very humid, with the majority of failures of early broadcast receivers being attributed to the high humidity. In many cases, a 50- or 75-watt heater was installed inside radio cabinets to keep them drier and prevent humidity failures. But this was done at significant expense since electricity was costly in Latin America at the time.

In a letter dated August 29th, 1941 from Dr. V.W.H. Campbell, a Navy Lieutenant stationed in the Canal Zone to Consumers' Research Inc., Dr. Campbell put the problem in perspective:

"The factor essential for satisfactory radio performance in the tropics is the ability of the equipment to withstand excessive humidity, and the ravages of termites and insects. Cabinets must be put together with waterproof glue. Parts made of paper, such as the speaker cone, condensers, etc. must be impregnated with a suitable substance to prevent water absorption which would lead to failure of the part to function. Insulation of wires must contain substances to repel termites and insects which otherwise would destroy the insulation and cause a short circuit. Radios not treated to withstand the ravages of the tropics frequently fail within a few months and are a constant source of

annoyance to their owners."

An additional special condition might be mentioned. Many Latin American population centers were in close proximity to salt water with a large portion of receivers within reach of the fine salt mist thrown up from the sea when a heavy breeze blew. The tropical custom of building houses without glass in the windows left many receivers vulnerable to this additional corrosive agent. Since the islands and countries surrounding the Caribbean abounded with port cities, a considerable number of receivers bound for Latin America could be expected to be subjected to salt water mist in some degree.

Aside from the usual failures that befell a "tropic receiver", additional faults occurred with monotonous regularity, even in new equipment. Fine wires corroded rapidly and broke easily, especially if the wires carried high potentials and were held in place by adhesive tape, glue or cardboard and fiber forms. This resulted in a high mortality rate for loudspeaker field coils, output transformers, power transformers, and i-f and r-f coils.

Investigation showed that the breaks always occurred where the wires touched some fiber or adhesive material; or near the terminals where soldering flux or the oil from human hands may have played a corrosive role. It occurred frequently in coils that were painted with insulating compound. However, if the coil had been both hot and cold dipped in a wax or other impregnating material, it seldom gave trouble.

Switch contacts and the wiping contacts of tuning condensers gave frequent trouble due to corrosion, but could usually be cleaned. But moisture and the accompanying growth of green mold on the wiring increased leakage paths substantially. The Q of coils frequently changed so much that both the sensitivity and alignment of a receiver were thrown completely off. AVC action was sometimes nullified because the leakage resistance of the wiring was less than the value of the filter resistors in the circuit.

Interestingly enough, wooden radio cabinets seemed to have withstood the climate comparatively well. There were the usual instances where glue failed and finishes dulled, but the extremes of temperate climates probably tested a radio cabinet more than tropical humidity.

To offer a product that appeared to overcome the difficulties mentioned above, manufacturers advertised receivers sold in "tropical America" as being "tropic-proofed," "built for the tropics" or "specially treated against humidity". It would seem that these receivers would have been expected to give a reasonable life to their purchaser. But, long rows of receivers accumulating in service shops of the era seemed to have contradicted this assumption. It appeared that "tropic proofing" consisted of anything from an extra coat of varnish on the cabinet to a sincere job of impregnation against moisture, heat and insects.

One interesting example of this line was the Sears tropic-proof Silvertone prefixed with model numbers "57 CV" and "57 CVM" and which were advertised as especially designed and constructed for peak performance in the Canal Zone. The cabinets of these sets were processed under high pressure with a special water-proof glue to withstand high humidity. Transformers and coils were bathed in a special water-proof protective wax. Finally, and probably most importantly, special wave bands for short wave reception on all the frequency ranges most used in the Canal Zone were provided.

The last point is of particular importance. Climate played a unique role in radio reception in the tropics. The static level was so high throughout the standard broadcast band that only local reception was possible most of the time. As a result, most Latin American stations broadcasted simultaneously on both standard and short wavebands. However, the majority of all-wave receivers had well-engineered broadcast-band reception but with indifferent short-wave reception added only for sales appeal.

#### References:

1. Sears circular Sec.562, P.L.&R, Tropic-Proof Silvertone Radios
2. Letter to Consumer's Research Inc. from Dr. V.W.H. Campbell, Lieut. (jg) (MC)USN, August 29, 1941 (author's collection).
3. Electronics, March 1941, Welby E. Stewart, Receivers for the Tropics.

**TWO TROPIC-PROOF 5-BAND SILVERTONES  
BATTERY AND ELECTRIC CURRENT MODELS**

**5 Tubes Including Power Rectifier Tube**

A smartly designed Tropic-Proof model that will look well in any setting and give superb performance on all wave bands. It has features ordinarily found in radios costing far more. Its three tuning bands give complete coverage from 545 to 22,300 KC. with short wave reception on the 120, 90, 49, 40, 31, 25, 19, 16, and 13 meter bands.

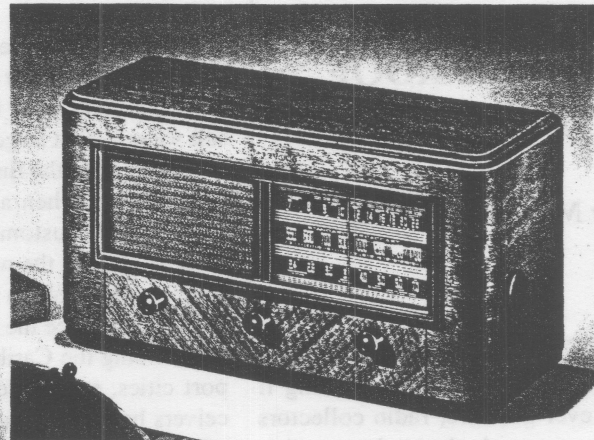
**Modern Circuit Design** includes such quality features as I-F transformer, rubber-floated chassis, variable tone control, automatic volume control, and a plug-in connection for a phonograph record player. Excellent tone quality is provided with a 6-inch dynamic speaker.

**Simplicity and Good Proportion** give this Silvertone cabinet a style all its own. Built to withstand severe climatic conditions. Warm mahogany veneers with walnut and dark wood trim. Size, 10½ inches high, 19½ inches wide, and 7¾ inches deep.

**Operates on 100 or 240-volt, 25 or 60-cycle alternating current State which cycle is needed.** Shipping weight, 24 pounds.

**57 CV 07320**—Silvertone Electric Radio. . . . . Cash **\$274.50**  
Easy Payment Price (\$3 down and \$4 a month) . . . . . **\$29.85**

**\$274.50**  
CASH  
**\$3 DOWN**  
Electric Model



Here is a Silvertone for those without electricity. It is the same as 57 CV 07320, except that it operates entirely from dry batteries. Because no rectifier is needed this radio has a total of four tubes. Complete with A-B battery pack that is guaranteed for 1100 hours at 4 hours a day of use. Shipping weight, 21 pounds.  
**57 CV 07321**—Silvertone 11½-Volt Battery Model. Cash **\$29.95**  
Easy Payment Price (\$3 down and \$4 a month) . . . . . **\$32.55**

**\$29.95**  
CASH  
**\$3 DOWN**

**YOU'VE GOT MAIL!**

**RADIO E-MAIL,  
THAT IS**

*The following piece is based on the article "Radio E-Mail Connects Ship to Shore" by Charles J. Doane from The New York Times for November 22, 2001...Ed.*

When Jim Corenman wants to get in touch with family and friends while out in the middle of nowhere aboard his 50-foot sailboat, Heart of Gold, he doesn't reach for any newfangled satellite or cellular equipment. Instead he fires up his oldfangled shortwave radio, hooks it up to his laptop computer and starts sending e-mail.

Although a desire to get away from it all is a big part of what motivates sailors like the Corenmans, the convenience of being able to send and receive e-mail at little or no cost from anywhere in the world—even the middle of an ocean—has proved irresistible. Modems capable of sending data over radio connections and laptops loaded with AirMail are now considered essential equipment by mane long-distance cruisers.

"Radio e-mail has freed us from worrying about the folks back home, and they about us," said Mrs. Corenman in an e-mail

message sent from a remote anchorage in southeastern Alaska. "We no longer have to rush to find a phone when we make landfall to let everyone know we made it. It works well,

Mr. Corenman and his wife, Sue, have been sailing the globe for 11 years on Heart of Gold. They are among thousands of active cruising sailors who use nonprofit radio e-mail networks to communicate with one another and those on shore.

Shortwave radios, more commonly known today as high-frequency (HF) radios, have long been popular with wandering sailors. And digital protocols for sending Teletype text messages via HF radio date from World War II. But it wasn't until the Internet revolution of the 1990's that text messaging via radio became practical for cruisers.

Several enterprising companies have tried to exploit this market, but so far efforts to commercialize service for recreational mariners have been unsuccessful. One reason is that ham radio operators and cruising sailors belong to tightly knit communities and like to help one another. They share their technical knowledge freely and have had no trouble creating and maintaining their own radio e-mail networks.

Of course amateur ham radio by law is strictly noncommercial. But sailors can also send HF radio e-mail through what are known as marine single-sideband (SSB) frequencies. SSB radio can be operated for profit and can carry business-oriented traffic.

Still, the most popular SSB e-mail network for recreational mariners is a non-profit cooperative called SailMail, which charges a flat \$200 annual subscription fee to cover costs. SailMail was formed in 1997 by Mr. Corenman and Stan Honey, an ocean-racing sailor who navigates high-profile vessels like Roy Disney's Pyewacket and Steve Fossett's PlayStation, which recently set a trans-Atlantic speed record. SailMail currently has 11 automated mailbox stations and more than 1,100 users.

Satellite phone companies are another natural competitor for the radio e-mail networks. But they have failed thus far to fulfill their promise of affordable global wireless communications.

"Our assumption when we started SailMail was it would take the satellite companies two years to make bandwidth a cheap commodity," Mr. Corenman said. "I am no longer convinced satellite bandwidth will get cheap anytime soon. The capital cost is too high and the market too small. Satellites may be a viable option for business and government users, but HF radio will continue to be the best option for the low-end market."

And the nonprofit organizations seem to be the best bet for operating the e-mail systems. "Cruising sailors are by nature a very cooperative group of people," Mr. Honey said. "It's perfectly appropriate for us to fill the need on a cooperative basis."



## TWA: NO LONGER FLYING HIGH

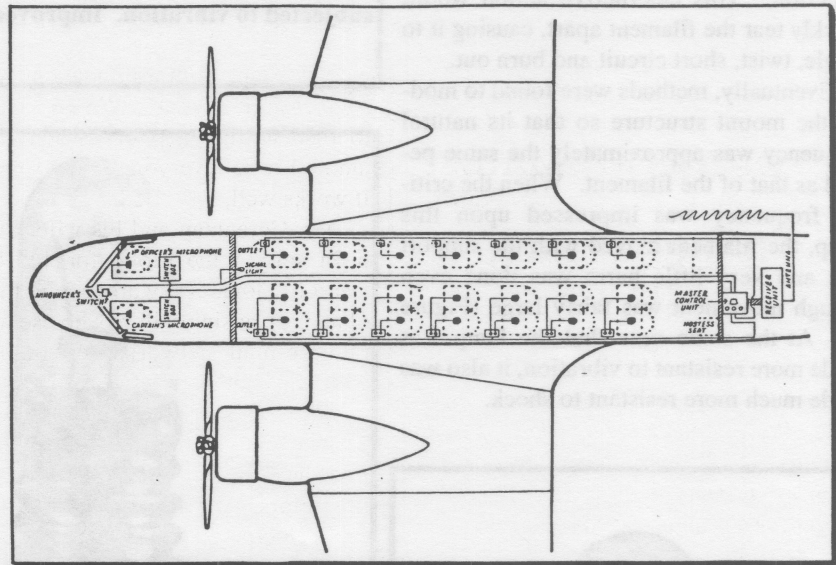
By Marv Beeferman

Eulogies for the demise of large corporate entities always include a listing of "firsts" and TWA has had its fair share. The airline inaugurated transatlantic service in 1946 when a Constellation flew from New York to Paris on February 5th. It provided the first nonstop eastbound scheduled transcontinental service - Los Angeles to New York in eight hours. TWA was the first to have an all-jet fleet, the first to serve freshly brewed coffee and the first airline to show regularly scheduled movies in flight (beginning with the Lana Turner potboiler *By Love Possessed* in 1961).

Included in these firsts is something a little less impressive to most but strikes a chord with radio enthusiasts. In 1940, TWA introduced the first individual passenger radio receivers which were installed on their big twin-motored planes flying between New York and the Pacific Coast. Individual receivers were connected to a central receiver in the rear of the plane operated by the hostess. A pad-like individual receiver connected to an overhead outlet and was used similar to a pillow speaker.



New individual passenger radio receivers have been installed on TWA's big twin-motored planes flying between New York and the Pacific Coast. Individual receivers are connected to a central receiver in the rear of the plane operated by the hostess. At left, Hostess Francis Ice explains to Virginia McNabb how the pad-like receiver can be adjusted. Insert shows master receiver with cover removed.



## VIBRATION AND EARLY PANEL LAMPS

*This piece is based on the article "Don't Forget...the Dial Lamp" by G.F. Prideaux which appeared in the November 1946 issue of Radio Maintenance...Ed.*

Vibration has played an interesting role in radio panel lamp development. Depending on the type of construction, the lamp could possibly be a source of noise interfer-

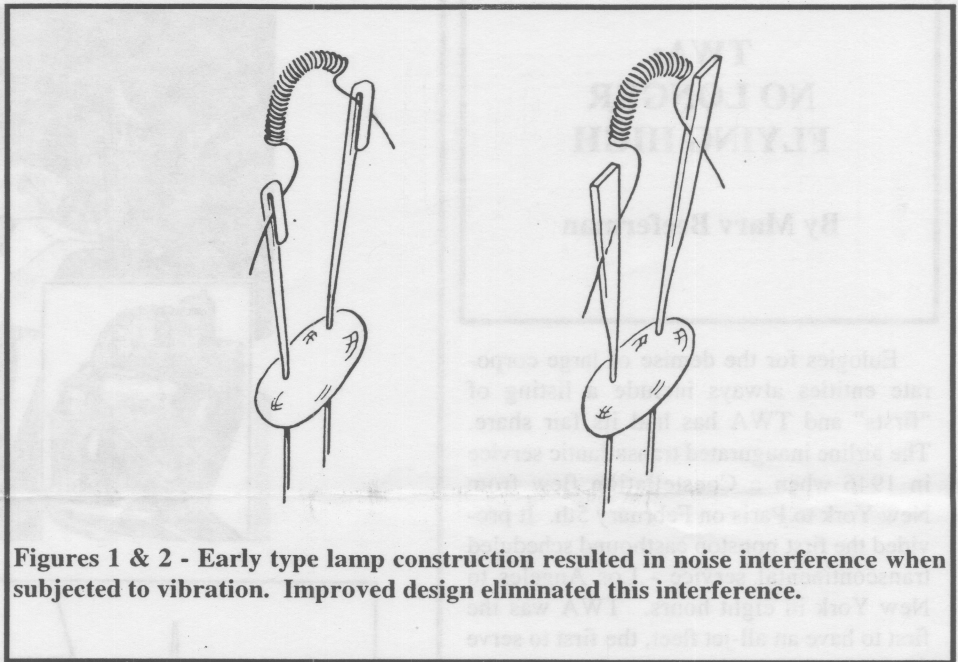
ence or have an extremely short service life. You might want to consider these problems in your next restoration.

Depending on the lamp location and the way its holder is supported, loud-speaker vibrations could easily be impressed on a panel lamp. As a result of early lamp construction, where the filament was held to its supports by a loop (Figure 1), vibration would set up minute variations in resistance at the connection points. This caused a high frequency pulsating current to flow through the lamp or, in some instances, produced minute sparks which would radiate noise directly to the antenna connection. To eliminate this trouble, a new type of filament support connection was developed (Figure 2) where the filament was securely attached.

The 120 volt C-7 lamp (Figure 3) was a common source of noise interference in AC-DC radios employing loop-type antennas. The lamp, rated at 7 watts, is a standard nightlight lamp with either a white-coated or clear bulb. The noise was caused by vibrations which emanated from the junction of the filament and the filament support. The filament, when exposed to vibration, jiggled in the support loops and minute sparks were formed. These sparks radiated radio frequency interference directly to the loop antenna. A way to eliminate this problem was to interpose a grounded metal shield between the lamp bulb and the loop antenna. Another fix was to replace the 7-watt lamp with a 10-watt C-7 lamp which was slightly stronger and more resistant to vibration.

Figure 4 shows the filament and mounting structure of older style radio panel lamps with a large distance between the support bead and the filament. While such lamps showed a relatively long life on life test racks, their service life in radios was frequently far short of this. Investigation and studies soon revealed that while the filament was normally stationary when certain notes or frequencies were produced by the radio, the tips of the supports and the filament would vibrate violently (Figure 5). In some cases, the natural frequency of the filament supports was approximately twice that of the natural frequency of the filament with the result that when the filament support tips were moving in one direction, the center of the filament moved in the opposite direction. This destructive action would quickly tear the filament apart, causing it to tangle, twist, short circuit and burn out.

Eventually, methods were found to modify the mount structure so that its natural frequency was approximately the same period as that of the filament. When the critical frequency was impressed upon this lamp, the filament moved with the support tips and very little harm was done even though movement was fairly large (Figure 6). At the same time that the lamp was made more resistant to vibration, it also was made much more resistant to shock.



Figures 1 & 2 - Early type lamp construction resulted in noise interference when subjected to vibration. Improved design eliminated this interference.

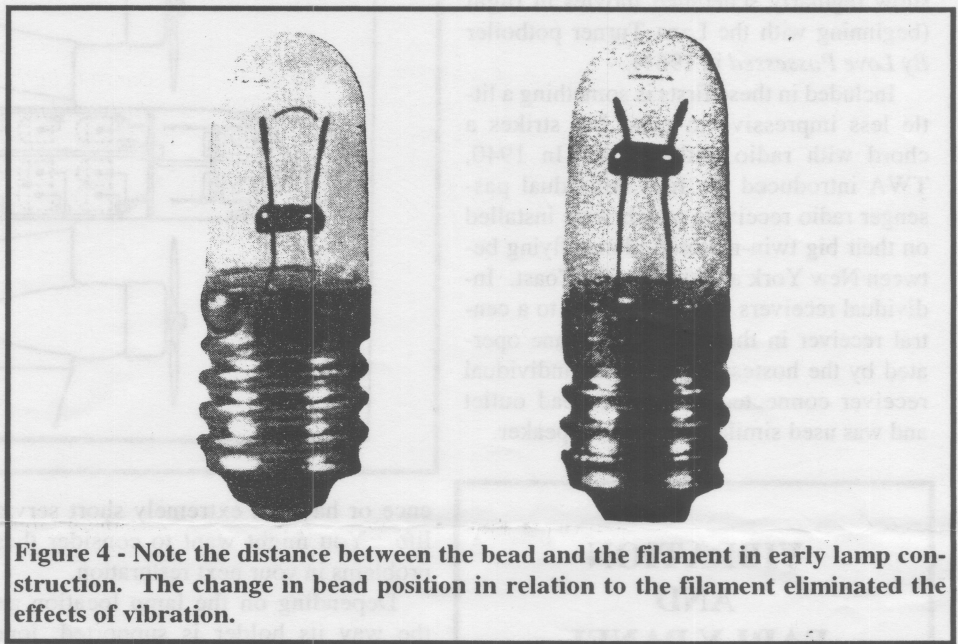


Figure 4 - Note the distance between the bead and the filament in early lamp construction. The change in bead position in relation to the filament eliminated the effects of vibration.

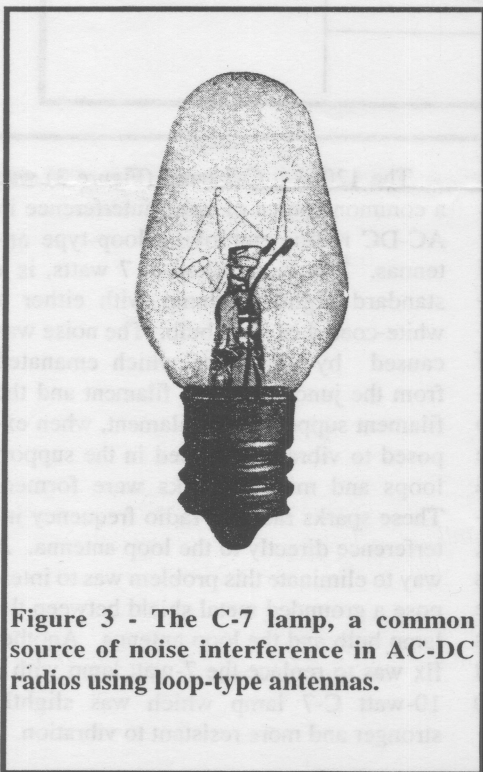
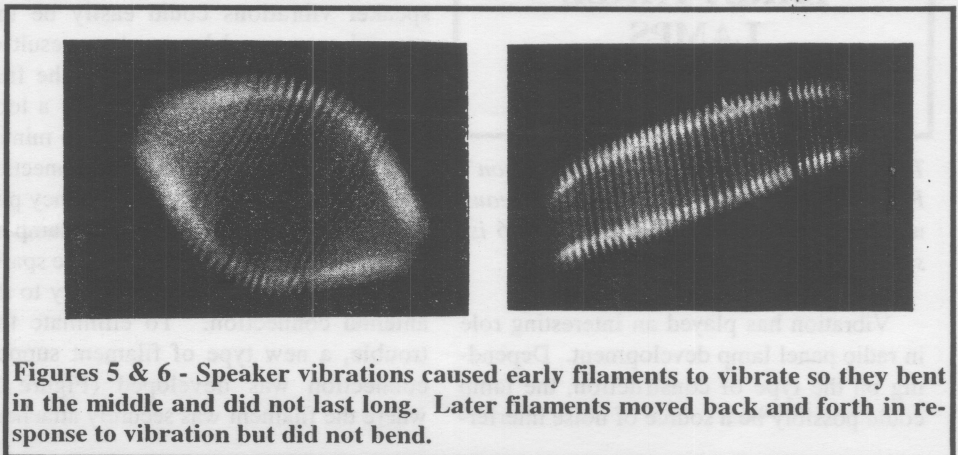


Figure 3 - The C-7 lamp, a common source of noise interference in AC-DC radios using loop-type antennas.



Figures 5 & 6 - Speaker vibrations caused early filaments to vibrate so they bent in the middle and did not last long. Later filaments moved back and forth in response to vibration but did not bend.





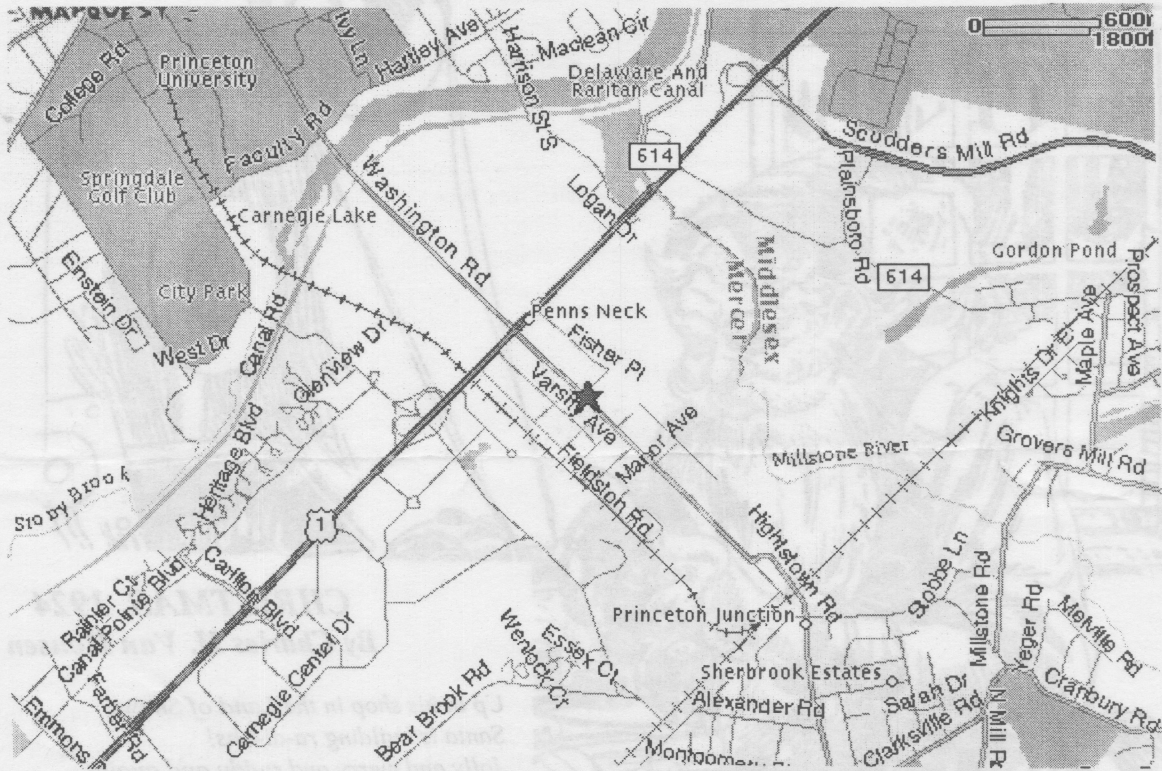
## CHRISTMAS, 1924

By Charles H. Van Housen

Up in his shop in the Land of Snows  
 Santa is building ra-di-ohs!  
 Jolly and merry and ruddy and quaint -  
 Up-to-date, old-fashioned, modernized Saint!  
 Thousands of "plexes" and "flexes" and "dynes"  
 Built along fancy and fashionable lines!  
 Cute little crystal sets - jim-dandy toys  
 Made by Saint Nich'las for good girls and boys!  
 Sets by the dozen and sets by the score -  
 Ten tubes and one tube and three tubes and four!  
 Piled in his store-room in gala array,  
 Tagged: "Do Not Open Before Christmas Day!"  
 Cabinets, batteries, panels and wire -  
 Anything, everything fans could desire!  
 Rheostats, sockets and soldering-lugs,  
 Ground-clamps, condensers, transformers and plugs!  
 Wave-traps and meters and toolchests and books  
 Tucked away safe in the corners and nooks  
 Of that jolly big workshop 'way up in the snows  
 Where Santa is building our ra-di-ohs!  
 Tune up your hearts, folks, 'most any night -  
 Sweet from his mansion so glist'ning and white  
 Comes the announcement; "Station North Pole!  
 Santa Claus speaking! To every good soul  
 My very best wishes! I'm glad you believe  
 In Santa! Just look for me next Christmas Eve!  
 I'm not used to talking. Please pardon this cough!  
 God bless all the kiddies! S.C. 'signing off!"

The above poem and illustration is courtesy of "The Radio" section Philadelphia's *Evening Public Ledger* for Saturday, November 29, 1924...Ed.

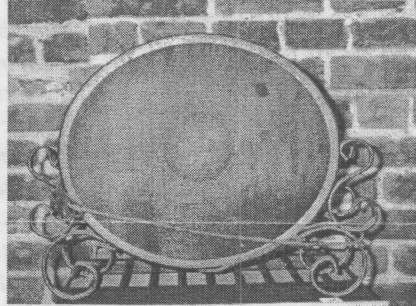
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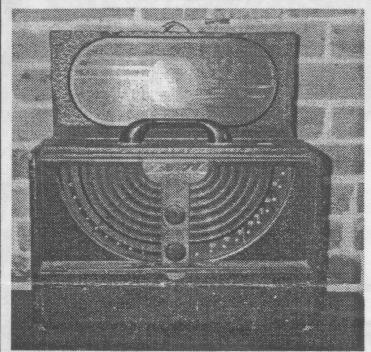
### NORTH RIVER AUCTION



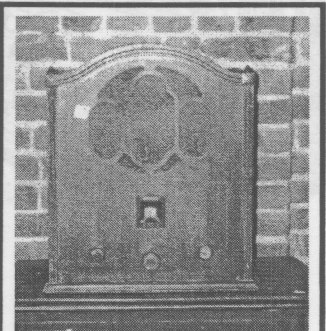
This beautiful Magnovox 151B radio-phonograph combination in a Chinese Chippendale cabinet sold for \$504.90 in 1947.



An interesting unmarked speaker with its ornate metal stand.



A Zenith Universal 6G001Y.



A Majestic model 20.