

# The Jersey Broadcaster

NEWSLETTER OF THE NEW JERSEY ANTIQUE RADIO CLUB

June 2002

Volume 8 Issue 6



## MEETING/ ACTIVITY NOTES

### Reported by Marv Beeferman

Approximately 45 members made their way to the David Sarnoff Library as guests of curator Alex Magoun for the May meeting. The extra room and modern audio/video facilities of the auditorium were a step above of what the club was used to at the Grace Lutheran Church and made for a very comfortable meeting. Alex's hospitality is well-appreciated while we search for a new home.

Ray Chase gave a short presentation on the progress at InfoAge, noting that significant progress has been made in the last few months. The site has been approved for the National Register of Historic Sites and terms of the approval are such that the site must be leased by Wall Township to InfoAge for at least 20 years. The Marconi cottage is occupied and refurbished and a second cottage has been turned over. The Diana site is being refurbished and will be used this summer for the Boy Scouts and other training projects. However, lack of sewers remains a major problem with an estimated minimum cost of \$400,000. Although this will not deter an exceptional group of dedicated people from making InfoAge a reality, Ray noted that this money could be better spent on developing learning programs.

(Editor's note: On May 16th, Preservation New Jersey Inc., a statewide private historical preservation organization, listed Camp Evans on their annual list of the "Ten Most Endangered Historic Sites in New Jersey." Evans was so listed not just for being the treasured resource it represents but also with hope that outrage over the sewer issue will move the Army to change its mind over funding.)

Ray went on to present a very inspiring talk on what InfoAge means to the New Jersey Antique Radio Club:



## MEETING NOTICE

\*\*\*\*\*IMPORTANT!\*\*\*\*\*

The next meeting of the NJARC will take place on Friday, June 14th at the Sarnoff Library on 201 Washington Road in Princeton. A map was provided in the May *Broadcaster*. This is only a temporary location until a permanent meeting place can be found.

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For this month's meeting, Richard Lee will offer "A Day at an Italian Flea Market" which will include a 20 minute video and the display of some Italian sets. Dave Sica will present "A Tour of the NJARC Website" which will serve as an introduction to the NJARC website for novice surfers and also cover some information which should be of interest to all. As an added treat, the John Dilks "Rolling Radio Museum" will be available for viewing during the meeting. Finally, we'll be holding elections for club officers who will serve for the next two years

- We will have access to an **original Marconi building from 1912** with our address on Marconi Road, a site where Major Armstrong first demonstrated his regeneration invention. What other radio club could make such a claim?

- We have been tasked to be curators of the archives of the National Broadcasting Hall of Fame where hundreds of radio artifacts plus extensive documentation and program archives reside. It's a ready made museum, library and all the space we need. It is anticipated that the NBHF will be one of the cornerstones of InfoAge **and that means us.**

- The NBHF has not had an induction ceremony since 1996 and just think of the Radio/TV personalities who represent potential candidates for induction once the NBHF is organized!

- The potential for Camp Evans continues to grow...as a Black historic site, a focus for consolidation of the history of New Jersey technology away from the corporate culture and a home for the Grabbe computer collection.

Ray noted that we will need lots of volunteers for this project but it represents some of the most interesting work an

NJARC member can get involved in. We need to finish the NBHF inventory, prepare facilities, catalog items and create audio-visual displays. We may get several radio station control room consoles for demonstrating broadcasting to kids. The possibilities are endless on the road to be the pre-eminent antique radio club in the country. In the next few months, Ray hopes to be able to start laying out a plan on how this can be accomplished.

Ray's enthusiasm for spreading the vintage radio word as a member of NJARC will be expressed at two events in the upcoming months. He and Joe Bentravato will present "Antique Radio Art" at the Dover Area Historical Society, covering not only radio design but some history and childhood radio memories. On June 31st, Ray will set up a radio display in the Plainfield Public Library with 15 radios from 1920 to 1950 and some early parts and advertising material from the Plainfield area.

Getting back to the May meeting, President Phil Vourtsis noted the NJARC radio exhibit at the Trenton Computer Festival on May 4th. Phil, your editor, Dave Sica, Steve Goulart, John Dilks and Lew Seto joined forces to present a wide range of radios, TV's and vintage electronic artifacts...an island of analog in a sea of digital

**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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madness. A nice touch to the exhibit was Steve's miniature "please touch museum" where youngsters got the opportunity to compare the substance of yesteryear's components to those wimpy chips of today.

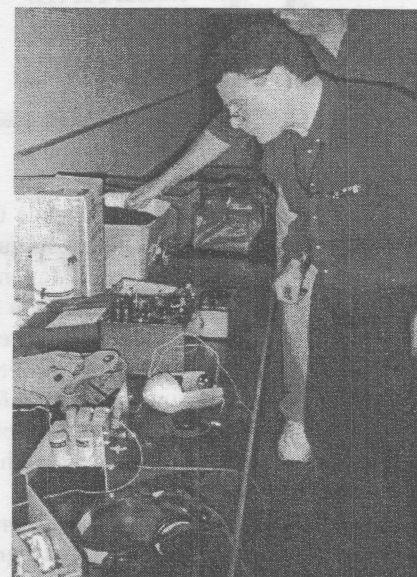
InfoAge director Fred Carl was a speaker at the Festival plugging Camp Evans and found it to be "a special treat to find the New Jersey Antique Radio Club there." Fred talked with IEEE director Allen Katz about the possibility of sponsoring a joint booth next year featuring some of the 7000 computer components at InfoAge. As Fred said, "we should be able to fill a table or two." We also met David Hale who operates Hale's Computer Museum in Lehigh Valley PA and who offered some of his equipment to be part of a vintage computer exhibition.

The club was also treated to a part of Dave Sica's very professional production "Famous Radios and their Designers" which captured the Morris County Library exhibit on video. The full tape runs about one hour and covers the display, an interview with the library's exhibit director Ralph Brown, John Olkolowicz's lecture on the history of radio design and a tour of the exhibit by Joe Bentreovato. Contact Phil Vourtsis if you care to borrow a copy for viewing.

In anticipation of the club's one and two-tube home-brew radio contest in September, Technical Coordinator Al Klase's presentation "Set Building for the 21st Century" provided some basic tips for getting started in a very rewarding adjunct to restoration and collecting. Al said that subscribing to the ACE/KISS (Avoid Creeping Elegance/Keep It Simple Stupid) philosophy of engineering will get newcomers started on the right foot. He also suggested breadboarding your design first since changes and "tweaking" are inevitable. Al also suggested that beginners start with a regenerative short wave circuit first since coil construction is simple and strong signals can be captured with a simple antenna.

Just two short notes in closing. First, be sure to register early for our Summer swapmeet on July 27th (a notice is included in this month's *Broadcaster*); last year, tables sold out early. Second, President Phil Vourtsis asked me to remind members that our constitution allows members who will not be able to attend

the June meeting to still vote by write-in. All present officers are running uncontested for the next two-year term except for one trustee position where you may vote for either Ray Chase or John Ruccolo. Please send your vote to Marv Beeferman (address and phone number on page 2).



Walt Heskes surveys the competition as he admires some of Al Klase's home-brew creations

## CAN'T STOP THE MUSIC

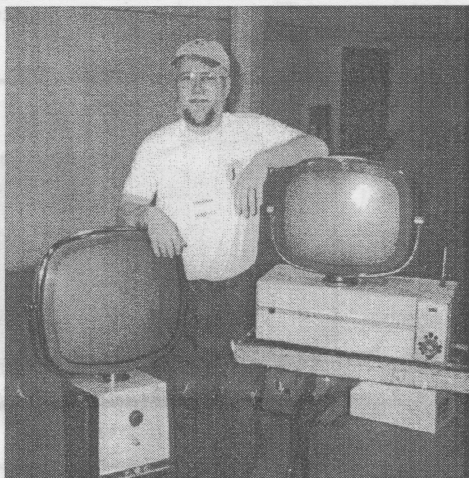
Edited by Marv Beeferman

*From the "Great Goofs" section of the June 2002 issue of The Family Handyman comes this short submittal from reader Frank B. Garcia on a blunder we can all appreciate. Of course, it could never happen to a vintage radio collector...Ed.*

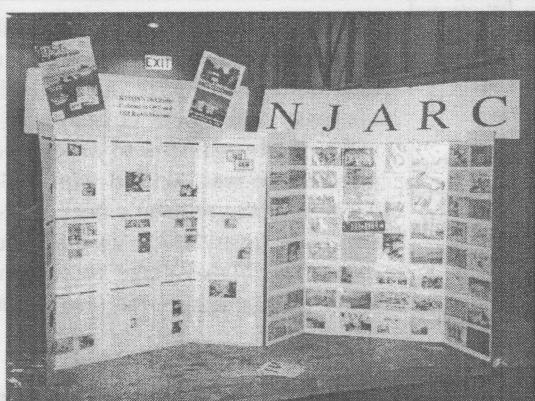
Last summer I decided to do some electrical work on my back porch. I wasn't sure which breaker controlled the current to the area and didn't feel like running back and forth each time to check the power, so I decided to use my son's portable radio as an aid. I plugged it in, turned up the volume and went downstairs to flip breakers. Well, I flipped every last breaker and I could still hear the radio blaring. (Continued on page 3)



## TRENTON COMPUTER FESTIVAL



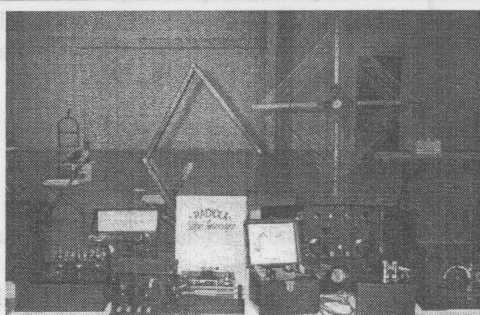
The vintage TV community was well-represented by Dave Sica



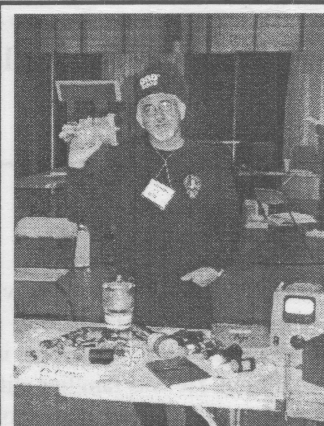
A nicely prepared display of QSL cards and John Dilk's old radio column in QST



Phil Vourtsis, InfoAge's Fred Carl and John Dilks discuss plans for next year's display



Radios of all ages



Steve Goulart's miniature "Please Touch Museum"



*(Can't Stop the Music...continued from page 2)*

Then I decided to flip the main breaker off. I could *still hear* it. I ran upstairs and unplugged the radio, only to have it keep playing! Then I read this on the back of the radio: "Two-way Power. 120v AC or 9v DC."

*And it was just a matter of time before such great favorites as "There's a Wireless Station Down in my Heart" emerged from obscurity. Here's a recent correspondence from Ray Chase..Ed.*

"I got a call from a woman in Toronto who works for CBC and who is making a documentary on radio history and the birth of CBC in Canada. She was looking for information on early radio-related sheet music. I faxed her some sheet music copy, put her in touch with Marsha Simkin and Marsha sent her a list of all the sheet music we both have. This woman has selected quite a few samples which Marsha (or I) will send to her and she plans to actually record some of it for the program. She promised to send copies of the studio recordings that will be made and also a video copy of the full program that will be shown this fall on CBC. She said that she would probably use a pianist and a singer to record the music in their studio...should be a blast!

## RESTORING A CLASSIC TELEVISION

By Scott Marshall

### Beginnings

When Frank Lang donated the 1948 RCA 8TS30 television to the David Sarnoff Library, director Alex Magoun asked if I would be interested in restoring it to working condition. He was familiar with my success with a 1951 Zenith television, various radios, and other tube-based equipment. During a break in my work schedule, I commenced with the restoration.

### About Vintage Electronics

Television and radio vacuum tube sets are typically not found in working condition unless at least some effort has been invested in their restoration. It is in fact dangerous to "just plug in" an old set that has sat unused for decades. Many parts in such sets simply don't have the shelf life to function reliably past their normal life span, and may cause "shorts" that will ignite fires or damage parts that are difficult to replace.

Vacuum tubes are, contrary to common belief, among the more reliable components of vintage televisions because the internal vacuums tend to preserve them during long, unused periods. The components most prone to failure include wires (especially power cords) and paper and electrolytic capacitors. Resistors can "drift" upwards in value from use or over time. A common strategy for a functional restoration is to replace all paper and electrolytic capacitors and test for and replace out-of-spec resistors.

Many sets also harbor a "cause of death" waiting to be discovered. The end of the life of a set such as this is typically instigated by a failure that was either deemed too costly to repair, or the set's performance had degraded to the point where replacement with a new set was considered to be wiser than fixing up the old one.

### The Restoration Process

Restoring a set begins with inspection, initial repairs, and parts replacement. This is followed by a period of testing, alignment, and debugging until the set's performance is deemed satisfactory.

### The RCA 8TS30 Inspection

The power cord was found to be too damaged and degraded to have even considered an attempt to "just plug it in." The channel selector dial was crooked, which turned out later to be a significant clue to a problem found deep within the set. There was ample evidence that rodents (probably mice or squirrels) had taken up residence in the cabinet. Aside from some bedding material and acorn shells, there were some nibbled components. Considerable rust

and corrosion resulted from their excretions. A few tube shields were missing, and a paper power-line bypass capacitor had exploded. The outer conductive coating of the picture tube was flaking off.

The set otherwise appeared complete and undamaged.



Waiting for restoration...dangerous to power up!

### Testing the Vacuum Tubes

All of the 30 tubes (except for the picture tube) were checked on a Philco 9200 tube tester. None were outright defective, but many tested weak or marginal, and an audio IF tube was slow to warm up. A used picture tube was donated with this set, so because of the original's decayed conductive outer layer, it was used as a replacement. The high-voltage rectifier was so weak (30%) that it was also replaced at this stage.

### Replacing Capacitors ("recapping")

All of the paper capacitors were replaced with modern, reliable "orange drop" mylar parts. All of the electrolytic capacitors were removed from the circuit (though left in the chassis) and modern capacitors were substituted. In all, fifty-two new capacitors were installed.



Recap begins...eight down, forty-four to go!



## Other Repairs Made During Recapping

A few wires from the main power supply choke coil and vertical output transformer were found to be brittle and were cracking, so insulating heat-shrink tubing was installed where bare wire was exposed. The vertical height potentiometer had a lump of solder on one of its terminals which was dangling inside its case, so it was opened, cleaned, and the lump of solder removed.

## Initial Power-up

The set was powered up gradually through a Variac (variable voltage transformer). The tubes lit up. Current consumption appeared normal. A soft hiss and hum came from the loudspeaker and a weak, blurry raster appeared on the screen. Adjusting the focus control had no effect. Handling the wires to the focus coil caused the picture to flicker and die.

## First Repairs

Two of the voltage divider ("bleeder") resistors in the set's power supply were found to be intermittent, so they were replaced with modern equivalents. A terminal on one of the tube sockets had broken off (causing the flicker when the focus coil wire was moved), so the socket was replaced along with five resistors connected to it.

## Second Power-up

An undersized but well focused raster appeared on the second power-up, along with the expected hiss in the audio. Changing the channel or touching the antenna terminals caused a flicker on the screen and a static sound in the speaker, but applying a signal from a VCR to the antenna terminals produced no sound or picture.

## Intermittent Horizontal Output Trouble

An "intermittent" symptom is one that appears randomly and renders the set unreliable. The horizontal section has a .25 amp fuse connecting the flyback transformer to the damper tube. As soon as the set warmed up but before any picture appeared, the fuse would sometimes blow. This proved to be a difficult symptom to diagnose, because once the fuse blew, the reason for its

blowout would be obscured. After replacing all the tubes in this section, the symptom vanished (but returned later).

## Tuner Trouble

The presence of static in the sound and picture when the antenna terminals were touched suggested that every part of the set was working except for the tuner, and that the RF oscillator was probably dead. All of the tubes in the tuner were replaced without improvement. The tuner contacts were cleaned, also to no apparent benefit.

Removal of the tuner for close inspection revealed that damage from rodents had been greater than originally realized. Much corrosion had resulted from the seepage of urine from above the chassis. To clean it, the tuner was run twice through a dishwasher – once with detergent, and again without. Then it was left to soak overnight in distilled water.

During drying and lubrication, it was discovered that the tuner contacts were not meshing properly because the detents in the channel selector were offset by exactly half of a channel. The cause turned out to be incorrect assembly (possibly at the factory) of the detent bracket. Correcting this made the contacts mesh perfectly, and allowed the crooked channel dial on the front of the set (noticed during initial inspection) to be leveled.

The tuner then functioned correctly, and the set showed picture and sound from the VCR for the first time. During the tuner debugging effort, the loudspeaker was removed from the cabinet, and the speaker's paper cone was discovered to be damaged. It was repaired with rubber cement.

## Horizontal Output Trouble Returns

The set apparently was working about as good as could be expected when the damper tube fuse blew out again. It was eventually found that a flyback transformer terminal was intermittently shorting to the back cover of the high voltage cage. Correcting this short eliminated the fuse problem.

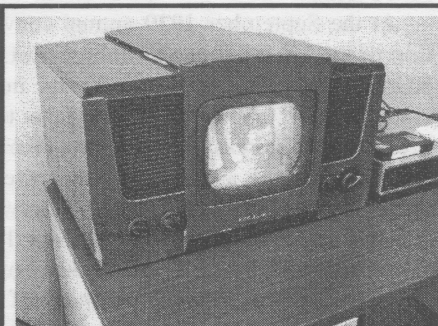
## Final Installation

After adjustments to all the controls, the set gave an acceptable picture from video tape. Some horizontal instability



**That blasted damper fuse keeps blowing! Checking resistances and voltages on every tube in the horizontal section.**

(expected with VHS tapes on sets of this vintage) was eliminated when the demonstration system was changed to use a DVD player. The set's performance could still be improved after a complete RF and IF alignment, but the picture and sound are, as of this writing, fully satisfactory for demonstrations at the David Sarnoff Library.



**Milton Berle kinescope from a VHS tape. First picture in 40 years!**

The electrical restoration of this set is therefore considered complete and successful.



**Open for demonstrations to incredulous museum guests. Alignment could be better, but it took sixty hours to get it this far!**

**Photos Copyright (C) 2002 David Sarnoff Library, Princeton, NJ.**

## CHANGE YOUR TUBES ONCE A MONTH... WHETHER THEY NEED IT OR NOT

By Marv Beeferman

As radio restorers, experience has shown us that the component most likely to have survived the test of time is the vacuum tube. Many a set has been brought back to life with only recapping and alignment, without any need for tube changeout. By the late 1930s, tube sale data indicated that consumers were limiting their purchases to one tube per radio per year. As a result, manufacturers began to think in terms of convincing the public that they were missing out on "the clarity of tone" that comes with a new set of tubes.

At the September 1939 annual convention of the I.R.E., Julius Weinberger of the RCA License Laboratory cited some interesting data on tube life. He noted that tube life had been increasing steadily and the average tube in the average receiver gave its owner about 6000 hours of useful service. In 1924, the average life was about 1.65 years; by 1939, it had reached a level of 4-1/2 years - longer in fact than many of the sets into which the tubes were placed. Compared to an ordinary incandescent lamp which cost 15 cents at the time and lasted about a thousand hours, a radio tube was priced at about ninety cents and lasted 6000 hours.

Outstanding tube endurance was great news to consumers but struck a sour note with manufacturers and retailers. In fact, *Radio and Television Weekly* for June 28, 1939 put it quite bluntly without any thought to the fact that perhaps people other than retailers might read this distinguished journal. It noted that tube engineers had done such a "swell" job in the laboratories that it was not uncommon for tubes to last ten years or more and those that were four or five years old were considered by owners as practically new.

"In their efforts to improve the product, tube engineers, however, have incorporated such wizardry in their work that even more so than tires, they last too long and give the

consumer too much for his money. If tubes lasted only half as long as they actually do, it is easy to figure out the replacement market would be just twice as long.

With the average list price of a tube now in the neighborhood of a dollar, there is no economic reason whatsoever why the life of a tube should extend over a long period of years. The long life brought to tubes unfortunately was not coupled with higher prices, but instead, lists have been lowered to such a point that there is little profit left for the manufacturer and those engaged in merchandising the 'heart of the radio.'"

In a 1938 editorial in *Radio Weekly*, it was noted that set owners have "unfortunately" been led to the belief that the tubes in their radio are satisfactory, providing the set plays. "Every dealer and serviceman knows that this is far from the truth. But does the set owner know this to be so?" The editorial suggested an educational program was needed to instill into the minds of tens of million of owners of sets with poor tubes that they were not receiving the maximum quality reception from their radios simply because their tubes were "old and inefficient."

The editorial went on to say that with the 37 million sets in use in 1938, the radio industry should do an annual tube replacement business of at least a hundred million units if the true story of the "necessity for tube replacement" is properly brought home to set owners. It further suggested stressing the advisability of installing complete kits of tubes in old sets because "only then will clear reception available only with perfect tubes, be possible."

*Radio Retailing*, in its "Radio Month" column for March 1939, took up the call also, upset with the fact that many set owners would brag about the fact that they have not touched a tube in their sets since they were bought.

"It is about time that the industry tell the public just what highly sensitive function a radio tube performs, how continued service impairs performance, why periodical replacement is necessary to perfect reception.

Dealers and servicemen should cooperate in educating the public if manufacturers will supply material for a 'change your radio tubes once a year' campaign. Who will start the ball rolling?"

Who will start the ball rolling? RCA of course. In November 1938, L. W. Teegarden, Manager of RCA's Tube Sales Division, noticing that tube sales had been in the doldrums entirely too long, unfolded a promotional plan to take advantage of sales opportunities for those 4 or 5 neglected tube sales that could be captured with each single tube sale. Battle cry of the campaign would be the slogan "Change your radio tubes at least once a year." Radio and newspaper advertising would pound that thought into the public consciousness. Dealers were expected to display streamers carrying the slogan in red letters. Sales and servicemen were expected to preach yearly tube changes in all their contacts.

The piece-de-resistance for the consumer would be a written, money-back guarantee on full sets of replacement tubes, a trade-in allowance of 25 cents for each old tube plus a fancy bakelite cigarette box which would go to those who bought and kept a full set of replacement tubes.

What was most interesting about this campaign was that it had no technical basis other than to sell more tubes, whether the radio required it or not. Teegarden even went as far as putting the once a year tube replacement campaign into the same category as what he called "other artificially created urges" such as the 1,000 mile oil changes and brushing your teeth twice a day. He argued that where these urges tapped the consumers' pocket-book much more frequently, it wouldn't be difficult for the tube industry to sell thousands of radio fans on what he called "that modest complete set a year tube change idea."

Was the campaign successful? Fortunately for a consumer who had the least interest in "tonal quality," WW II never gave it a chance to get off the ground

### References:

1. *Electronics*, December 1939 ("Cross Talk")
2. *Radio and Television Weekly*, June 28, 1939, "Last Too Long"
3. *Radio Retailing*, March 1939, "Tube Life"
4. *Sylvania News*, Vol. 7, No. 12 (Nov.-Dec. 1938), "To Get Better Radio Reception - Replace Your Old Tubes"
5. *Sylvania News*, Sept. 1938 (excerpt)
6. *Radio Retailing*, November 1938, "Change Tubes Yearly"



## TO GET BETTER RADIO RECEPTION REPLACE YOUR OLD TUBES

By Dr. Orestes H. Caldwell,

*Editor Radio Today and former Federal Radio Commissioner*

WJZ and NBC Blue Network, 11:05 P.M. Thursday, October 20, 1938.

CALDWELL:

Mr. Announcer, I think you'll agree that people have been using their radio sets a lot more in the last month or two, than ever before. The news from abroad and the splendid programs that have opened the Fall season, have kept us all listening more and more hours each day and have thrown a bigger load on our radio sets.

And our dependence on radio is going to continue—and increase as cold weather comes! So it is important for everyone to have his radio set put in the best possible condition, and to keep it so.

ANNOUNCER:

Well I'm a radio listener in private life, too, Dr. Caldwell, When I get away from the studio here, I like to tune in my radio at home, and hear what's on the air. Now about this radio set of mine. I've had it a couple of years and I notice lately it's been a little noisy, and doesn't sound so well. What would you advise me to do about fixing it up? Do I need anything else besides some new tubes?

CALDWELL:

New tubes will probably help a lot. Tubes wear out like anything else, and after a year or two of steady use they certainly need replacing. You see, as tubes grow old, they emit less and less of the billions of electrons needed to carry the voice and music, and so your radio set becomes less efficient. One bad tube can spoil the effectiveness of your whole set. And after a year or more of ordinary listening, even the best of radio tubes will lose its power, and weaken the reception of the whole radio receiver in which it is used. Usually this weakening takes place gradually without the owner realizing it. And on putting in fresh tubes, you'll be surprised—and delighted—when you hear the restored volume and clarity of tone which comes from these fresh tubes.

So one of the first things to do in getting your radio set ready for Fall, is to see whether all of the tubes in the set are still in first-class operating condition. Get from your radio dealer at least one new tube of each type used in your radio, and try this new tube successively in place of each of the similar tubes now in the set. Play the radio with its volume control unchanged after each replacement, to see if there is any marked difference in loudness or clearness. If a fresh tube in place of an old one increases the volume, it indicates that the new tube was needed in that socket. In the same way, try replacing—one at a time—each of the tubes in your set. See that each tube in your set is up to fresh-tube performance, And then keep the extra tubes to put away as spares in a convenient place, so that you will have on hand the necessary tubes for replacement in case later any tube gives out at a critical time during some broadcast which you want very much to hear. Of course, your nearest radio dealer will be glad to test your tubes for you. He has measuring instruments which quickly show up any fault.

And for a very reasonable charge he will also check over your radio set to see if it needs any adjustments or new parts. A faulty volume control, or bad contacts somewhere may be causing noise.

Of course, your radio receiver itself must be adequate, if you are really going to enjoy the great musical treats that are in store for you, this Fall and Winter.

(Sylvania News, Nov.-Dec. 1938)

Note: No new ads for "CONNECTIONS," the *Broadcaster's* free "for sale" section, were received this month. This feature will continue with the July issue.

NEW JERSEY  
ANTIQUE RADIO  
CLUB  
ANTIQUE RADIO  
SWAPMEET



SATURDAY, JULY 27, 8:00AM - 1:00PM

AMERICAN LEGION HALL, DOVER NJ

NJARC presents its Summer swapmeet at the spacious, air conditioned American Legion Hall in Dover NJ. A \$2.00 club donation from buyers is suggested. Tables are guaranteed to the first 65 reservations.

**DIRECTIONS:** From the East, North or South, take I-80 West to exit 35A (Dover). I-80 West can be reached from the North via I-287 South or the Garden State Parkway (South) or from the South via the NJ Turnpike (North) to the Garden State Parkway (North) to I-280 West. From the West, take I-80 East to Exit 35 (Mt Hope, Dover).

Follow Mt Hope Ave. South, crossing Route 46 (where Mt Hope Ave. becomes Bergen St.) and turn right on Blackwell St. Go to the third light and turn left on Warren St. Go two blocks, crossing the RR tracks. The American Legion is on the right (2 Legion Place).

**RATES:** NJARC members \$15/table; non-members \$20/table.

**CONTACTS/RESERVATIONS:** Marv Beeferman, 2265 Emerald Park Drive, Forked River, NJ 08731 (609-693-9430). Phil Vourtsis, 13 Cornell Place, Manalapan NJ 07726 (732-446-2427)

