# The Jersey Broadcaster

NEWSLETTER OF THE NEW JERSEY ANTIQUE RADIO CLUB

January 2001

Volume 7 Issue 1





**Reported by Marv Beeferman** 

To uninitiated friends and family, the title "radio collector" sometimes brings visions of pocket-protector adorned technogeeks wading through the dry, colorless desert sands of topics best left in the forgotten realm of a high school or college science curriculum. But to anyone who attended NJARC's holiday party in December, it was quite obvious that silliness and superheterodyne are not necessarily mutually exclusive terms. With the aid of meatballs, sausage and peppers, chicken fingers,

baked ziti, cold cuts, salads and all the trimmings, spirits were high at our annual event. A full table of member-provided desserts and sweets was just enough to top off the evening's fare and bring sugar levels over the brink. Personally, although at the "FULL" mark, I probably had room for two or three more servings of Edith Chase's famous apple crisp. With basic cravings of the inner radio collector satisfied, members went on to a pleasant evening of conversation, contests and games.

Participation in the radio scavenger hunt was enthusiastic with a Home Depot gift certificate awarded to first place winners in each of the categories represented. Our distinguished panel of judges was headed by Al Klase and decisions appar-

ently merited membership approval - no recounts were demanded! Here's a rundown of the winners:

 Most unusual radio that looks like a radio but isn't - Richard Lee's mock

## **MEETING NOTICE**

HAPPY NEW YEAR! The first meeting of the NJARC for the new millennium will take place on Friday, January 12th at the Grace Lutheran Church, corner of Route 33 and Main Street in Freehold. The main event planned for the evening is an Atwater Kent show-and-tell, although any other interesting items from your collection or recent acquisitions are quite welcome. Richard Lee will also be auctioning a donated Hallicrafters S-40A and perhaps some additional items may show up. We'll also be accepting \$15.00 membership renewals for 2001. Looking toward the future, in February, Ted Sonderman will present a Tech Talk on the interesting concept of radio troubleshooting with a spectrum analyzer. Also, be sure to read this month's issue for the date of our next repair clinic.

"transistor radio" that opens into the shape of a machine gun.

"fountain pen radio."

Strangest looking tube - Ray Chase's water-cooled Ignitron

• Most unusual radiorelated children's item - Marsha Simkin's "Radio Rex" (a spring-loaded dog is summoned out of his house with the clap of the hand)

• Most unusual radio service item or test equipment -Ray Chase's Military Test Set I-148A (SWR/power meter for SCR-270 radar). The SCR-270 radar was in operation at Pearl Harbor in 1941 and its I-148A test set was designed at Camp Evans.

• Ugliest commercial radio - An NJARC holiday tradition finally passes and John Ruccolo's Lewyt portable passes the baton to John Butz Fiscina's Wilcox "Cathedral Grand." Will this radio go for a try at two-for-two at next year's contest?

Open category - Phil Vourtsis' custom made "disco" dual 45 record player. A wonderful honorable mention in this category goes to John Ruccolo with a picture of his dad in the graduating class of the USCG Radio Train-



This beautiful reproduction of a Silver-Marshall "Around the World Four" by Tom Provost provides the basis of this month's feature article.

- Most unusual speaker What Marty Friedman described as a speaker with a "field coil on steroids" at a fighting weight of 17 pounds!
- Most unusual radio that doesn't look like a radio - Steve Sideroff's

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 buying and selling transactions or for any other use of the contents of this publication.

PRESIDENT:

Phil Vourtsis 13 Cornell Place Manalapan, N.J. 07726 (732)-446-2427 VICE PRESIDENT: **Richard Lee** 154 Hudson Terrace Piermont, N.Y. 10968-1014 (845)-359-3809 **SECRETARY/EDITOR:** Marv Beeferman 2265 Emeralda Park Drive Forked River, N.J. 08731 (609)-693-9430 TREASURER: Sal Brisindi 203 Cannon Road Freehold, N.J. 07728 (732)-308-1748 **SARGEANT-AT-ARMS:** Dave Snellman Box 5113 New Britain, PA 18091 (215)-345-4248 **TRUSTEES:** John Ruccolo (609)-426-4568 Gary D'Amico (732)-271-0421 Martin Friedman (732)-238-1047 **TECHNICAL COORDINATOR:** Al Klase 22 Cherryville-Station Road Flemington, N.J. 08822 (908)-782-4829 **TUBE PROGRAM:** Gary D'Amico 84 Noble Street South Bound Brook, N.J. 08880 (732)-271-0421 **SCHEMATIC PROGRAM:** Aaron Hunter 23 Lenape Trail Southampton, N.J. 08088 (609)-267-3065 **CAPACITOR PROGRAM:** John Ruccolo 335 Butcher Rd. Hightstown, N.J. 08520 (609)-426-4568 WEB COORDINATOR: John Dilks, K2TQN (609)-927-3873 http://www.eht.com/oldradio **MEMBERSHIP SECRETARY:** Marsha Simkin

ing School in Silver Spring, MD (1944).

As can be seen by the accompanying photos, the Mystery Grab Bag turned up some pleasant surprises including S. Gernsback's "Radio Encyclopedia" in mint condition, a framed set of Atwater Kent magazine advertisements and a tube with a number that escapes me at present but that seemed to be quite desirable as expressed by the competition for its possession. On a disappointing note, your editor's spirits were somewhat dampened by the reactions of the contest participants; despite all my cajoling, the anticipated spite, malice, ill-will, malignity, retaliation, revenge and reprisals hoped to be generated by the "steals" were kept subdued. In some cases, the Christmas spirit can be a bummer!

Thanks to all who made our celebration a success; I won't list names here since most of the participating membership knows who you are. After taking in account the cost of the party, some consideration is being given to have our event catered, perhaps in a private area of one of the local Chinese buffets. This would allow more energy to be concentrated on the entertainment and fun and games aspect of the affair. As always, your comments and suggestions are welcome.

Our next repair clinic is scheduled for January 20th at 9:00 AM at the Grace Lutheran Church. Because of the potential for poor weather conditions at this time of the year, a message will be left on the answering machines of Marv Beeferman (609-693-9430) and Phil Vourtsis (732-446-2427) between 7:00 - 9:00 PM the night before regarding status. If necessary, the clinic will be moved to December 27th. It is very important that you contact Al Klase (908-782-4829, skywaves@bw.webex.net) as soon as possible if you are planning to attend with the make and model numbers of the pieces you plan to work on. This will afford us the opportunity to provide a sufficient number of tools and restoration materials and appropriate schematics.

Some time ago, Jane Ingerson of Butler NJ had donated two wooden tabletop radios to the club which Vice President Richard Lee picked up and provided for auction. Richard has recently obtained the generous donation of a Hallicrafters S-40A and will offer it for auction at the January meeting.

In the feedback department, John Okolowicz writes:

I enjoyed your article about the Thompson radio very much. I find it most interesting to see articles about really exotic things that you never usually get to see. I have many ads for this set, but that's a far cry from the real thing.

Thanks John; I'll try to keep this theme in the back of my mind for future articles. Any other suggestions out there?

With the new year, it might be appropriate to reflect on what 2000 meant to you as an NJARC member. Did you participate in our repair workshops in February and October? What about our swapmeets in May, and September at a \$10 savings? Did you take part in our BCB DX Contest and Home Brew, One-Tube Radio Contest? Find any bargains in our numerous mini-auctions? Did you enjoy the technical sessions on military field radios, spy radios, the National HRO family of radios and rebuilding Philco capaci-Were Broadcaster articles on tors? restoring Philco block capacitors, the history of car radios, classic clones, the top 10 ways to get your wife to let you buy another old radio, the New Brunswick station, and Radiola restoration helpful or entertaining? Take advantage of the bargains in our tube and capacitor programs? Enjoy our holiday party? Or did you just enjoy the fellowship of sharing a common interest with good friends? Sounds like a lot when you add it all up. Think it's worth \$15? Then please take a few minutes to send this year's DUES to our membership secretary at the below address or plan to pay it at the next meeting...we've got a great 2001 planned for you!

MARSHA SIMKIN 33 LAKELAND DRIVE BARNEGAT, N.J. 08005

G. 1. 19



0

8



## THE SILVER-MARSHALL "AROUND THE WORLD FOUR"

**Edited by Marv Beeferman** 

The Silver-Marshall "Round the World Four" was one of the first short wave sets to take advantage of the unique characteristics of the new UX-222 screen-grid tube. and it created a considerable stir in amateur circles when introduced in 1928. Today, the set in original condition is somewhat rare. Since the hams of the 30's were inveterate experimenters, they often used the parts for other projects or modified the circuit as newer concepts and improved components became available. But at the club's holiday party in December, we were treated to two examples of this sought after set...an original from the collection of John Dilks and a beautiful copy built by Tom Provost. Therefore, what better choice for a Broadcaster feature article than this milestone in short-wave receiver design?

#### Silver-Marshall and the UX222

The UX222 tube was designed by GE engineers and was the last of the 1921-1930 design group intended for dc filament operation. The objective was to reVolume 7 Issue 1

duce the electrostatic capacitance between the anode and grid of the conventional triode (which contributed to its instability) by introducing and maintaining a "screen" around the anode at RF ground potential. The advantages of this "shield-grid" tube included high gain as an RF amplifier, freedom from neutralizing, an ability to amplify at wavelengths as low as 3 meters, high audio gain, and relative stability as an oscillator.

In 1928, Silver-Marshall, Inc., a fouryear old Chicago company, marketed several products using the new tube. One of these was a short-wave receiver kit designed by the Research Laboratories of Chicago and named the "Round the World Four." The circuit was essentially the wellknown regenerative triode detector with two stages of transformer-coupled audio. but with the UX 222 RF stage added. Since the basic circuitry for the RF stage had already been published, this design could not be truly considered "original." However, the availability of a complete, preengineered kit with would coils and employing these latest design concepts at an acceptable price made for a considerable interest in the product among the SWL and amateur ranks.

Three versions were made available. The #730 "Complete Kit" included all components and hardware (except tubes, batter,ies and speaker) to fabricate a complete receiver, and listed for \$51.00 in 1928. For builders with other ideas, S-M sold the #731 "Round the World Adapter" kit, identical in appearance and with the same circuit but with the audio amplifier omitted. It went for \$36.00. A third version, the #732 "Essential Kit," contained the tuning condensers, the four short wave coils with socket, the three RF chokes and 25 feet of hook-up wire, all for \$19.00. By July 1929 the prices had dropped and assembled ready-to-use receivers were made available; the 730 wired listed for \$42.90, and the 731 for \$30.00.

If properly assembled, the receiver worked quite well. Users commented on the excellent audio quality of AM signals and the freedom from detector radiation. Phone signals could be tuned in smoothly, with excellent control of regeneration, and the use of the RF stage eliminated dead spots where a set would not oscillate. Real RF amplification as low as 15 meters was now a practical reality; overseas stations could be tuned in on a regular basis. The set was also advertised as ideal for television reception.

#### **Basic Design**

The RF input stage of the "Round the World Four" was untuned, and the receiver had only three panel controls. Two National Type B vernier dials controlled the primary tuning and regeneration, while a small central knob regulated the detector filament voltage and also acted as the filament switch. Four coils covered the short-wave frequency ranges from 17 to 204 meters (17.4-32, 31-58, 57-110 and 104-204) with two coils for the broadcast band being made available as extras.





All coils were wound on special Silver-Marshall coil forms resembling the increasingly popular 5-prong "tube-base" coils although somewhat larger in diameter and longer. Winding space was 1-1/2" long an 1-1/2" in diameter, with a tickler slot 1/8" deep and 1/16" wide. These coils were a departure from the 2, 3 and 4" diameter ones which had been in common use, and according to the manufacturer, contributed to the receiver's good short wave performance. Enameled wire was used for the space wound grid windings except for the 200 meter coil which used green, silkcovered wire.

The "Y" coil socket was mounted outside of the receiver cabinet directly above the detector socket to reduce lead length and make coil switching convenient. This convenience may have compromised additional shielding, but with the set's crowded design, it may have been impossible to recess the plug-in coil socket inside the chassis and still have easy accessibility.

The two variable condensers were of solid brass and steel construction, with a unique compression bearing at each end, and embossed with the S-M trademark. Other Silver-Marshall components were the three potted RF chokes and the two heavy duty Clough-designed audio transformers.

All parts except the coil were squeezed into a compact  $6 \ge 6 - 1/4 \ge 14$ ", 1/10th inch thick aluminum box with a unique cornerpost construction manufactured by the Aluminum Company of America. Two phone jacks were mounted on a binding-post strip which occupied the upper section of the rear panel. The layout was unusual in that most components were mounted on the underside of the top plate, with the tubes hanging upside down inside the box. The tuning condensers were shaft-mounted to the front panel in the usual fashion. To save space, the rather oversized S-M audio's (a #255 and #256) were mounted one above the other.

#### **Detailed Circuit Arrangement**

The receiver's circuitry starts with an RF coke, L1, feeding screen-grid tube V1 (UX 222). The grid and tickler windings are wound on form L2. In series with the grid coil is RF choke coil L3, through which plate voltage for the screen-grid tube is fed. The .00014 mfd variable capacitor, C1, is used to tune the grid coil; the tickler used for regeneration is controlled by .00035 mfd variable capacitor C2.

Between first audio transformer T1 and the detector output is an RF choke coil similar in characteristics to antenna choke coil L1. The audio transformers are designed under what was termed the "Clough System." In this design, the transformer actually was composed of an auto-transformer, a resistor and a blocking capacitor all mounted in one case and connected like a conventional primarysecondary type. This arrangement produced high-gain and excellent tonal quality. The direct plate current of the amplifier tube passes through the resistor and signal flow is through the resistor, condenser and lower or primary portion of the auto-transformer. The ratio of the first-



stage transformer is 4-1/5:1 and that of the secondary 3-1/2:1.

A 10-ohm fixed resistor is in series with each leg of V1's filament and a fixed resistor controls the filaments of amplifiers V3 (UX 201A or 112A and V4 (UX 112A). Rheostat R in detector V2's (UX 201A) filament circuit serves as a volume control and on/off switch.

#### **Rolling Your Own**

For those so inclined, duplication of this interesting circuit is not too difficult but finding original components is another story. To avoid the crowding of the original enclosure, a wood baseboard  $8 \times 18 \times 1/2$ " enables the chokes, coil and tube sockets to be mounted in a straight line with the variable capacitors and filament control in front and the audio transformers in the rear.

The main tuning capacitor and the regeneration capacitor should be chosen carefully; the compression-type bearings of S-M and General Radio units are quiet at 20 meters and give good solid tuning control. Although original S-M transformers will give better sound, standard 1:3 audio's may be used. Coil data is given in the attached table and is for standard S-M forms. All secondary windings are spaced to the full 1-1/2" except that of the 131X, which is 1-1/4" close wound.

	LIST OF PARTS
1	S-M 317 or Amsco .00014 tuning
-	condenser, Cl
1	S-M 316B or Amsco .00035 tickler
	condenser, C2
1	each S-M 131-T, 131-U, 131-V. and
	131-W coils, L2
	S-M 512 5-prong socket
	S-M 277 R.F. chokes, L1, L4
	S-M 275 R.F. choke, L3
	S-M 818 hook-up wire (25 feet)
1	S-M 734 aluminum shielding cabi-
	net with terminal strip
	S-M 255 first stage A.F. trans-
	former, T1
	S-M 256 second stage A.F. trans-
	former, T2 S-M 311 tube sockets
	Yaxley 20-ohm midget rheostat. R4
	Yaxley 500 switch attachment, SW
	Yaxley insulated tip jacks
	Na-Ald 481XS spring socket for de-
-	tector
1	Polymet .00015 condenser, C5
	Polymet .002 condenser, C6
	Polymet .005 condenser, C4
1	Polymet grid leak mount
1	Polymet 5 megohm grid leak, R3
	Durham 50,000 ohm resistor, R5
1	Sprague 1/4 mf. condenser, C3
2	Carter H-10, 10-ohm resistors, R1,
	R2
	Carter H-2, 2-ohm resistor, R6
8	binding posts consisting of 8/32
	screw, nut, and insulated top
2	National type B vernier dials.

#### Volume 7 Issue 1

Page 7

In using the receiver, the filaments of the 222 and 201A's should glow quite brightly, and the 112A only a dull cherry red. If the set fails to oscillate as the right dial is advanced, the detector tube can be changed or the detector B+ dropped from 135V to 45V. A 50,000 to 60,000 ohm resistor in parallel with the output of T1 is suggested if the amplifier "sings;" it may be omitted if the audio is stable.

If oscillation is not smooth, try a different grid leak and 0.5 or 1.0 mfd bypass capacitors across the power leads. Standard precautions regarding grid and plate leads should be observed.

#### A Short Life Span

As always, a rapidly advancing technology displaced the "Round the World Four" from the commercial scene; while the screengrid RF idea persisted, this receiver did not. It was eclipsed within two years by the Pilot Super-Wasp and then the ever popular National SW-3. Silver-Marshall, taking advantage of a pre-depression prosperity, shifted their marketing and sales emphasis by mid-1929 to big-ticket receivers and hi-fi audio components. Tom Provost and John Dilks should consider themselves fortunate to have one of these milestone sets.

#### References:

- 1. Bill Fizette, "The Silver-Marshall 'Round the World Four,""OTB, Vol. 26, No. 1 (June 1985)
- 2. Classic Receiver of the Month, OTB, Vol. 19, No. 4 (March 1979)
- 3. What's New in Radio, Radio News, Vol. 10, No. 6 (December 1928)
- 4. The Barawik Co. (Chicago, Ill.) Radio Catalog, 1929 Edition



#### Volume 7 Issue 1

#### Page 8

8.0



Free exposure for buyers and sellers! Unless requested otherwise, each ad will run for two months in both the *Jersey Broadcaster* and the Delaware Valley *Oscillator*. All buying and selling transactions are the responsibility of the parties involved.

### FOR SALE

Check out NJARC's capacitor program for those most commonly needed replacements. Contact John Ruccolo at any club meeting or call him at home (609)-426-4568 to find out what's available. All proceeds go to the club.

Zenith TransOceanic H500; working. Would like my Philco 40-215 repaired. Larry Hellebrandt, (908)-232-1213

Radio schematics and service data, US, Australian and Canadian receivers. #10 S.A.S.E. + \$2.50 for 1 to 5 pages of data per model; a copy charge of 20 cents per page is added for copies over 5 pages. (Questions/quotes answered by e-mail or a S.A.S.E.) Steve Rosenfeld, P.O. Box 418, Manahawkin, N.J. 08050 Phone: 609-597-2201; srosenfeld@ems.att.com

New index to AWA publications (Old Timer's Bulletin, <u>AWA</u> <u>Review</u>, misc.), 1960 through Aug. 1999. Formatted like the earlier version but with new "Author" section. Has 63 pages, 8-1/2" X 11" size. Gives 7000+ citations. \$12 postpaid anywhere. Make check/MO payable to: Ludwell Sibley, 102 McDonough Rd., Gold Hill, OR 97525.

Heathkit model XR-1L transistor radio. Working and in good condition. Call Clifford, (201)-641-3968

Andrea console entertainment center (1950), very nice condition. "I'll take almost anything for it." Douglas Eldridge, (973)-674-8194 Atwater Kent 60 with F-4A speaker; Emerson B5 wooden table model. Gary Gadec, (908)-654-6109

Emerson catalin model BT245 (green); no cracks, works. Nick, (973)-305-4861

The NJARC tube program offers clean, tested, boxed tubes at very reasonable prices with availability at any club meeting (no dealers, please...not for resale). Proceeds go to the club. Of course, donations of radio-type tubes in any condition are welcome. See Gary D'Amico at the next meeting.

Zenith console radio/phono, chassis # 11-C-21, black dial, circa 1946-1948. Right front tilt out tuner (BC/SW/2 FM bands). Left front pull out twin arm phonograph. Set is complete and "plays" but dial cord needs re-stringing. \$150 Located in Lebanon, PA. JPG files available from owner Greg Keiper "seadog@lmf.net"

21" Philco Predicta table model. Wood with walnut finish. Includes functional (not original) floor stand. Works, but picture is rough - \$450. RCA Radiola 18 (wooden cabinet is about 30" x 9" x 9"). Includes stand with speaker; works: \$150. Delivery a possibility. Bruce Knapp, Rutherford, NJ; 212-337-0077 (W) 201-804-9259 (H)

#### FOR SALE: Advertising Space

COST: \$0.00 for club members.

**RADIOS:** Regal 747 4-tube portable, Fisher FM-80 tuner, Philco "Tropic" portable, Zenith 10S549 console, Atwater Kent Model 40, others. **PARTS:** Big-pin tubes, vintage semiconductors, geigercounter parts. **PAPER:** Vintage Allied, Lafayette, etc. catalogs, service notes and vintage manuals - list available. John Rohr, 348 Farm Lane, North Wales, Pa., (215)-661-1134. FAX-(215)-661-2910. jaxrohr@netreach.net Lyric model 60-66 by All-American Mohawk, 3-gang TRF uses 120 VAC. Works fine. With 7 tubes: 2-226,1-326,2-227,1-71A and 1-80. Has face panel to fit into a cabinet. Asking \$50. Large 40 amp variac, G.R. Type 50A, 115 VAC in, 0-135 VAC out, 13" dia. with 7" hand-wheel, 85 lbs., asking \$25. Both items pickup only. Harry Kundrat, (908)-665-1873.

# WANTED

Crystals for my Viking II transmitter. Not sure of style, but pin diameter is about 0.093" and spacing just under 1/2 inch. Looking for 1800-1850 and 3500-3550. Rob Flory, 609-466-4217.

"Radio in the Home" magazine published in Philly from 1923-1926. Any condition. John Okolowicz, 624 Cedar Hill Road, Ambler, PA 19002. (215)-542-1597, john@grillcloth.com

Your surplus radio knobs. Buying bulk stock of pulls for matching service and resale. Look for Gobs of Knobs at regional swapmeets and monthly DVHRC meetings. Bring your orphans and I just might have its relatives in stock. Dial pointers also available. Mike Koste, 57 Tennis Ave., Ambler, PA 19002. (215)-646-6488

AM-FM-PHONO-AUX selector switch for a Sherwood Model S-7650CP stereo receiver. Alton A. Dubois, Jr., 67 Peggy Ann Rd., Queensbury, NY 12804

For RCA TK-11 camera restoration: oak field tripod (Mitchell?), chrome script "television." chrome 1.1" RCA logos, viewfinder hood and old network logo panels. Dave Abramson, (610)-827-9757, dtatv@worldnet.att.com.

IF TO THE RIGHT OF YOUR NAME, THERE'S NO OH-ONE/OH-TWO, IT'S A LITTLE REMINDER, THAT YOUR DUES ARE DUE