The Jersey Broadcaster

NEWSLETTER OF THE NEW JERSEY ANTIQUE RADIO CLUB

January 2002 Volume 8 Issue 1

MEETING/ ACTIVITY NOTES

Reported by Marv Beeferman

Happy New Year! Another year passes and NJARC greets 2002 with its 10th anniversary. I couldn't think of any nicer way to welcome the start of the holiday season and the New Year than with a gathering of antique radio enthusiasts at our annual holiday party. From the nice compliments expressed by our members, it seems that my feelings were shared by all. Thanks to everyone who made our celebration a success.

The party was hosted by Alex Magoun, director of the David Sarnoff Library (and a new NJARC member) in the library's spacious auditorium with catering provided by the Aramark company. A delicious, bountiful and varied buffet left everyone well-satisfied with hardly enough room left to sample many of the homemade desserts provided by our members. A Radio Scavenger Hunt, Mystery Grab Bag, presentation of the Tony Flanagan Memorial Award and a personal tour of the library guided by Mr. Magoun all contributed to a very pleasant evening.

Participation in the Radio Scavenger Hunt was enthusiastic with gift cards awarded to first place winners in each of the nine categories. Thanks to Marsha Simkin for preparing the colorful category and entry cards. Our distinguished panel of judges was headed by Al Klase and your editor was officially provided with the winning entries which are traditionally noted. Unfortunately, these 3 X 5 cards got mixed with all the entry cards so we'll just have to settle on extending congratulations to all our contestants. However, the People's Choice Award did remain in memory and members selected Ray Chase for his clever homemade "stovepipe" horn speaker in as-found, still working condition.

MEETING NOTICE

The next meeting of the NJARC will take place on Friday, January 11th at the Grace Lutheran Church, corner of Route 33 and Main Street in Freehold NJ. Contact either Phil Vourtsis or Marv Beeferman for directions. As a precursor to our Broadcast Band DX Contest in February, Al Klase will provide a presentation entitled "Simple Secrets of Broadcast-Band DX'ing." In addition, John Dilks will narrate a viewing of his taped appearance on the "Speaking of Antiques" show which appeared on NBCTV-40 in November. We'll also be collecting dues for 2002 so please have your checkbooks handy.

As can be seen by the accompanying photos, the Mystery Grab Bag turned up some pleasant surprises. But on a disappointing note, your editor's spirit was somewhat dampened by the reaction 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. Perhaps the Christmas spirit on top of the events of September 11th were too hard to be overcome this year. Let's hope by next year we can put some of our kind-heartedness behind us...at least for the grab bag.

NJARC members enjoy a festive diner in the spacious Sarnoff Library auditorium

This year's Tony Flanagan Memorial Award was presented to Ludwell Sibley and a speaker-phone hook-up to Oregon allowed everyone to participate in the presentation. For those who were unable to read it, the official declaration was worded as follows:

The New Jersey Antique Radio Club proudly presents its 2001 Tony Flanagan Memorial Award to Ludwell Sibley as merited by his selfless dedication to the promotion of the antique radio hobby and the preservation of wireless, radio and electronic communication history through artifacts and documentation. In 1999, Ludwell was awarded the Antique Wireless Association's prestigious* Houck Award for Documentation *in recognition of numerous original and authoritative articles on vacuum tube history and his book* Tube Lore, *a respected reference on the history, development and technical aspects of vacuum tubes. As one of the founders of the* Tube Collectors Association, *Ludwell has provided a forum for individuals active in the use, history and preservation of electron tubes. Presently the editor of the association's bulletin* Tube Collector, *Ludwell has also served as editor of the Antique Wireless Association's* Old Timer's Bulletin, *the* AWA Review *and the* Oscillator, *bulletin of the Delaware Valley Historic Radio Club. Besides maintaining a diverse collection of radios, tubes and documentation of his own, Ludwell is custodian of the* Dowd-RCA Archive *consisting of a large portion of RCA's Harrison plant documentation which he is in the process of indexing, cataloging and restoring.

Ludwell has always been available to

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.

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
33 Lakeland Drive
Barnegat, N.J. 08005
(609)-660-8160

share his extensive knowledge and reference material with his fellow antique radio hobbyists. As stated in his nomination submittal for this award: "There are many who have worked tirelessly to promote antique radio collecting, but I know of none personally who approached the task with more energy, expertise and humor than Lud." Therefore, on behalf of the New Jersey Antique Radio Club, it is an honor and pleasure to present a very deserving Ludwell Sibley with this year's award.

Prior to the presentation of the Tony Flanagan Award, President Phil Vourtsis provided some heartfelt and amusing comments on last year's club activities and our prospects for 2002. It might be appropriate, then, just for the moment, to reflect on his remarks in terms of what 2001 meant to you as an NJARC member. Did you participate in any of our repair workshops? What about our swapmeets at a $5 table rental savings. Did you enter our BCB DX Contest and Home Brew, One-Tube Radio Contest? Find any bargains at our numerous mini-auctions? Did you enjoy our technical presentations and *Broadcaster* articles? 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? Think it's worth $15? Then please take a few minutes to send this year's **DUES** to our membership secretary at the address below or plan to pay at our next meeting...we've got a great 2002 planned for you!

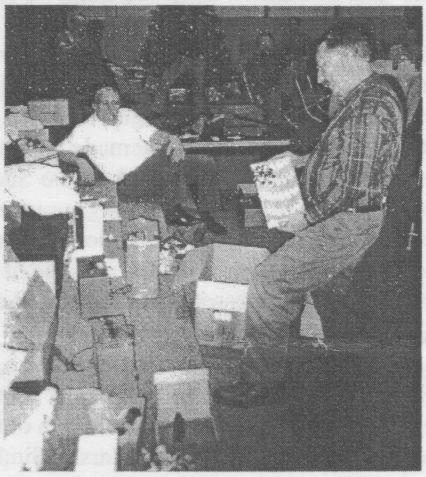
- - - - - - - - - - - - - - - - - - -

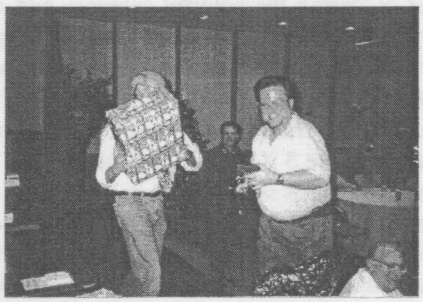
MARSHA SIMKIN
33 LAKELAND DRIVE
BARNEGAT, N.J.
08005

- - - - - - - - - - - - - - - - - - -

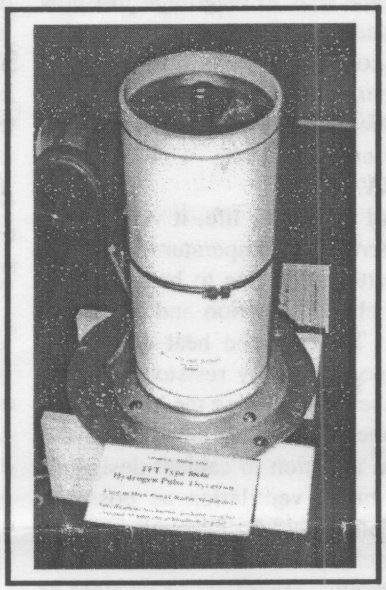
Cut along dotted lines for a ready-made mailing label!

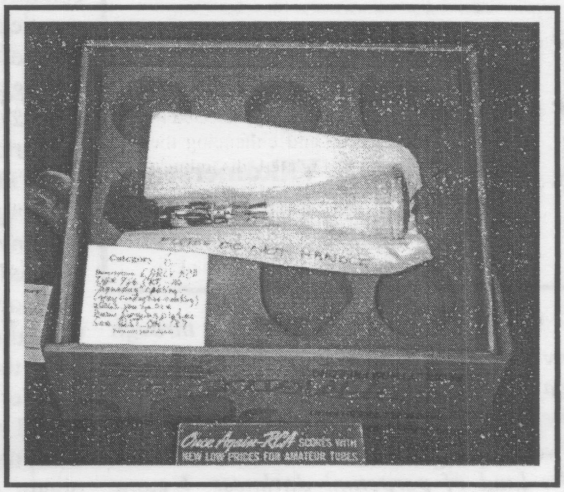
NJARC President Phil Vourtsis talks about the year's activities and presents the Tony Flanagan Memorial Award.

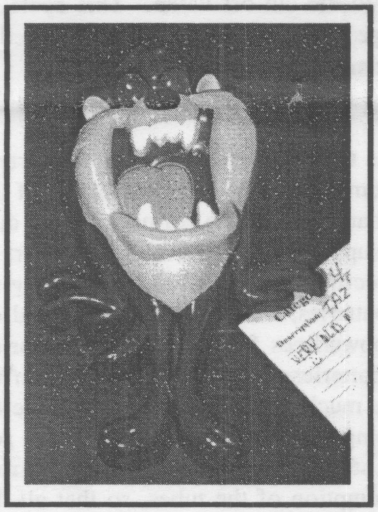


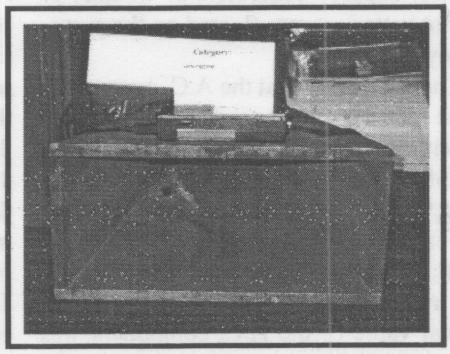


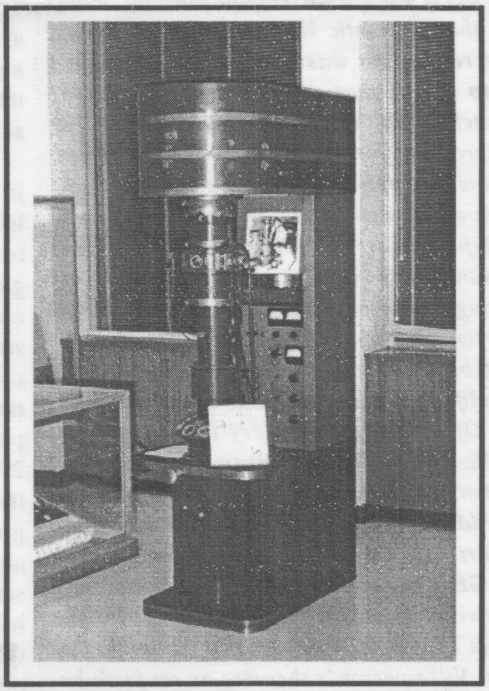
Decisions...decisions: what to take, what to swap and what not to swap.

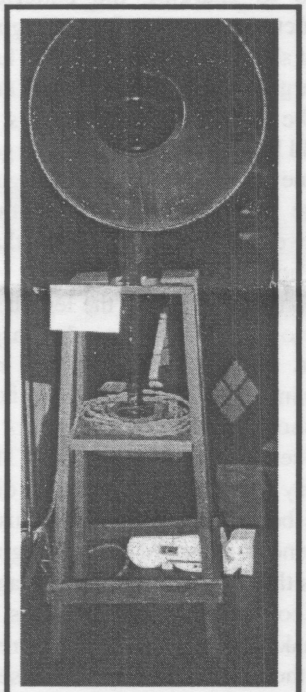




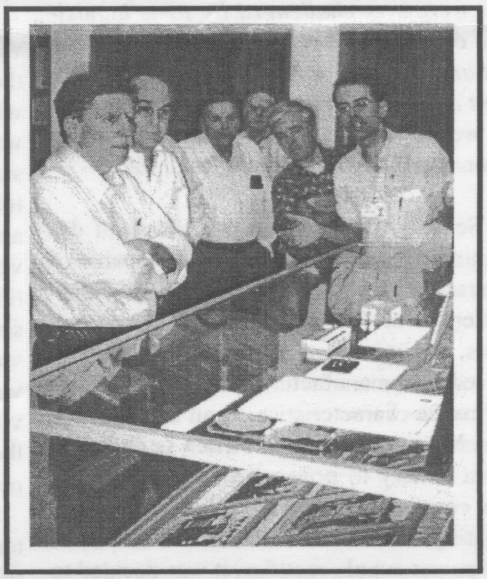








The people's choice



REJUVENATING DRY BATTERIES

By Benjamin S. Vilkomerson

On occasion, I actually do sift through my potential restoration projects. For the majority, however, the interest is just not there and the "potential" measures close to 0 volts. During one of my recent forays into the land of perpetual darkness, I came across a 1941 Tom Thumb portable made by the Automatic Radio Company. Since the rear cover was already off, I couldn't help notice that the line/battery selector switch had a "charge" position...somewhat interesting for a set using dry batteries. Some research sent me to the July 1941 edition of "Radio-Craft" and an article titled "Rejuvenating Dry Batteries!" by Benjamin S. Vilkomerson. After reading it, my thoughts drifted to advertisements I seem to remember from the 60s and early 70s selling battery chargers guaranteed to extend the life of dry, non-alkaline batteries.

Of course, dry battery life can be extended somewhat by charging but not to the extent where a significant cost advantage could be realized...it's really not worth the effort. However, prior to the introduction of GE's wet cell based LB-530 portable, it provided a potential selling point for the Tom Thumb. I doubt seriously, though, that Mr. Vilkomerson's theories as set forth below were ever challenged by some inquisitive consumer who wondered if use of the "charge" position resulted in any significant difference in battery life. Hmmm...but it would make a nice adjunct to a "potential" restoration project....Ed.

Several years ago, in the course of designing a portable radio receiver capable of operating on (1) self-contained dry-batteries, or (2) A.C. or (3) D.C. power lines, the writer saw some advantages both in reduced manufacturing cost and in performance characteristics, to an arrangement which would require no switch in changing from battery to power-line operation. As the contemplated arrangement called for floating the batteries across the output of the power-supply rectifier, it was decided to conduct some tests to determine just how practical such an arrangement would be. The tests conducted were along the following general lines: (1) Effects on battery life (2) Effects on tube life (3) Effects on set performance.

BATTERY LIFE

In regard to battery life, it was known that any increase in temperature, seriously reduced battery life, due to both accelerated local chemical action and to loss of moisture. To keep the heat emanating from the power-supply resistors and the rectifier tube from injuring the batteries required proper placing of components, and exceptional attention to cabinet design, to obtain as much ventilation as possible. This problem would be encountered with any set which contained both batteries and a power-supply - regardless of whether or not the batteries were floated on the power supply.

The possibility that the A.C. component in the rectifier output might reduce battery life either by raising the internal temperature of the battery or otherwise was investigated. The A.C. component in the rectifier output was measured and found to be very small; much too small to cause any significant rise in temperature. Ten times the normal value of the A.C. component was passed through a group of 10 batteries for 200 hours. (The normal operating life of the batteries was about 100 hours.) This group of batteries was then discharged along with another group of batteries of the same make and date of manufacture, which had not been subjected to any A.C., and no difference was discernible in the average operating life of the 2 groups of batteries.

Performance checks were made on a set which first was run on battery power until the batteries were exhausted to the point where reception stopped, and then the set was connected to a power-line. The set started operating as soon as the rectifier tube heated up. A voltmeter connected across the batteries showed an immediate voltage rise due to a reversal in the direction of the current through the internal resistance of the batteries; after which the voltage kept on rising gradually until the voltage across the batteries equaled the voltage which would be developed across the same points with the batteries disconnected.

Since the internal resistance of the batteries is practically always lower than that of the rectifier power-supply, the batteries determine the operating voltages of the tube elements. At the reduced battery voltages, the tubes take less plate and filament current. As the rectifier circuits were designed to supply normal filament and plate current, the excess current, which is the difference between the reduced-voltage consumption of the set and the normal-voltage current supply of the rectifier system goes to charging-up the dry-batteries.

When the batteries have been charged-up to the floating voltage, if the powerline is then disconnected, the batteries will continue to operate the set until the voltage falls to the cut-off value. This cycle of charge and discharge can be repeated a great many times.

THE ECONOMY OF "RECHARGING"

As the difference between the current consumption at the reduced voltage of the low batteries and the normal value of current supplied by the rectifier is the part of the rectifier output effective in charging the batteries, the set must be operated on the powerlines for quite a while to bring the batteries up. The charging can be made much faster and more complete by opening the filament circuit of the set. This stops both the "A" and "B" current consumption of the tubes, so that all the power goes to charging the batteries. Tests conducted using this last charging arrangement showed that batteries that had been discharged in the ordinary way and had given the normal number of hours of service could be recharged and discharged time and time again, so that the aggregate of discharge hours on battery operation came to between 2 and 5 times more than the original normal life of the battery.

As the battery gets older, the length of time it will operate the set on discharge gets shorter, and the length of time required to bring it up to full voltage likewise gets shorter, and charging it for a longer time serves no useful purpose. The end of battery life is reached when the discharge time becomes too short to be useful. The benefit achieved by recharging decreases as the battery dries out with age, and differs considerably with batteries of different makes which employ different "mixes" in the cell construction. Of several makes tested by the writer, some makes which gave only ordinary performance when used in the ordinary way seemed to be especially adaptable to recharging, while one make of battery was

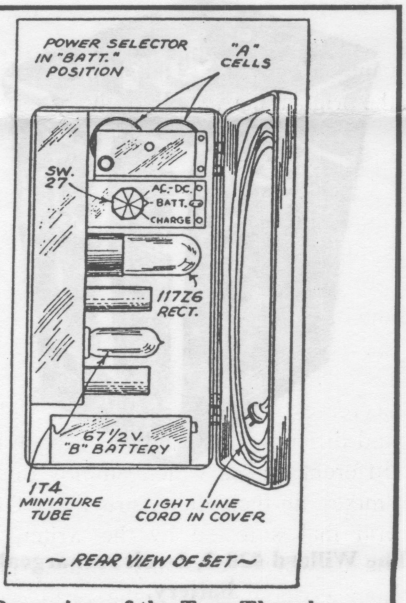
found, which while it gave definitely superior results on its initial discharge (about 40% longer life than others of the same size), could be made to give only a few extra hours of service by rejuvenation, as the zinc shall seemed to be quite eaten-through by the initial discharge, before rejuvenation was started.

After the writer had definitely satisfied himself as to the practicability of recharging dry-batteries, he was referred to a paper published in the Proceedings of the American Electro-Chemical Society, in 1938, in which the results of a quite extensive series of experiments on recharging dry-cells led to the conclusion that about 4 times normal life could be secured from ordinary dry-cells by recharging, and in the discussions that followed the reading of the paper, others who had experimented along the same lines claimed to have consistently secured as high as 10 times the normal life by slight modifications of the chemical constituents of the cell! These results seemed to be quite in line with the writer's own findings.

TUBE LIFE

The rated voltage on drycell tubes is 1.4 volts. A fresh drycell gives 1.54 volts. By proper choice of values of the rectifier circuit components any desired voltage may be obtained at rated line voltage on both A.C. and D.C., and this will be the voltage at which the batteries will stabilize or "float" on A.C../D.C. operation.

In the interest of maximum tube life, this floating voltage was made somewhat lower than the full fresh battery voltage. This meant that a fresh set of batteries carried a small part of the load for a time even on electric operation, which would be expected to cut down the battery life somewhat, but this loss was far more than compensated-for by the many added hours of service secured by rejuvenation when the battery voltage fell below the "floating" voltage.



Rear view of the Tom Thumb

Besides additional life, other advantages of the floating battery arrangement are:

a) Greatly reduced hum during A.C. operation with a minimum of filter (a good battery is equal to thousands of microfarads of filter capacity);

b) Freedom from fluctuations in reception due to line voltage changes;

c) No change-over switch for changing from Power to Battery operation, and vice versa, when employing the circuit described further, and immediate (1 to 2 seconds) operation of the set when it is turned on, even when it is plugged into the line power supply, without the use of magnetic or other devices which operate mechanically to change from Battery to Electric operation after the rectifier heats up.

This immediate operation, which the writer considers a very desirable feature, is due to the set operating on battery power as soon as the switch is turned on; when the rectifier heats up, it takes-over the load while the battery (a) floats or (b) charges, according to the voltage conditions. There is no wait for the rectifier to heat up, and no noticeable interruption or change in performance from the time the set is turned on (when no powerline output tube is used).

SET PERFORMANCE

The switch mounted on the back of the ordinary volume control can accommodate not more than 2 poles, in single throw. One pole is connected in series with the "A" cell and the other in series with the powerline. The more common rectifier arrangement using 1 cathode (or both cathodes connected together) and a divider network to secure "A" and "B" voltages would cause the "B" battery to discharge through the "A" cell in the absence of a power changeover switch when the line-power is turned off. By using the 2 cathodes of the rectifier tube (25Z6, 50Y6 or 117Z6) separately, one for "A" supply and one for "B" supply, the only common connection between the "A" and "B" circuits is to the "high" side of the line through the emission current of the rectifier, so that when the heater circuit is opened and the cathodes cool off, the "A" and "B" circuits are not connected.

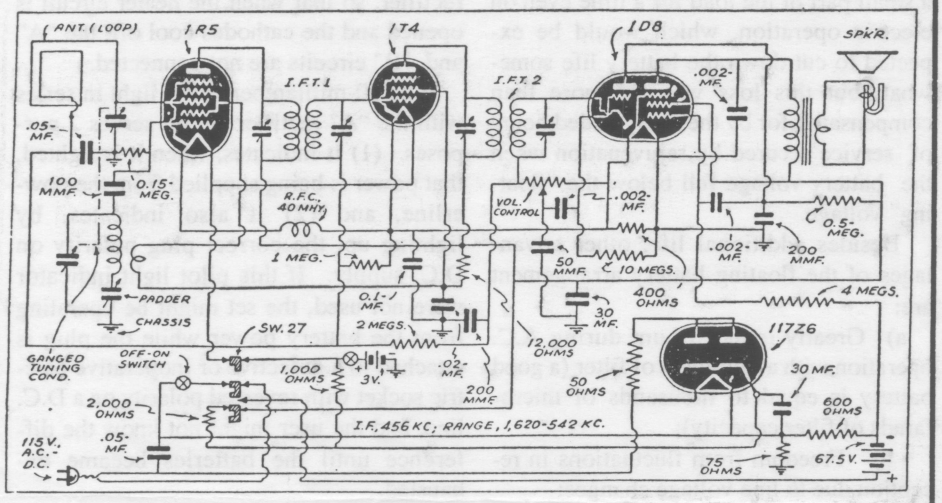
The 60-milliampere pilot light in series with the "A" rectifier circuit serves 2 purposes. (1) It indicates, when it is lighted, that power is being supplied from the powerline, and (2) it also indicates, by lighting up, the correct plug polarity on D.C. supply. If this pilot light indicator were not used, the set might be operating from the battery power while the plug is attached to a defective or inoperative electric socket with reversed polarity on a D.C. line, and the user might not know the difference until the batteries became exhausted.

IMPROVEMENT

A subsequent improvement to the set was made by connecting a 50L6 beam power output tube with its heater in series with the heater of the 50Y6 rectifier, its control-grid coupled to the control-grid of the battery-operated output tube, and the loudspeaker voice coil coupled to both tube plate circuits by means of a transformer having 2 primaries and 1 secondary, the primaries being so proportioned that the proper load impedances are coupled into the respective tube plate circuits.

Thus when the set is not connected to a powerline, it operates as a straight battery portable. No switching is required to change from battery to powerline operation, or vice versa. When the set is connected to a powerline socket, and the operating switch is turned on, the set starts to operate immediately from its self-contained batteries. As soon as the 50Y6 and 50L6 cathodes come up to operating temperature, the batteries "float" and the 50L6 takes over the power output function almost entirely. This is evidenced by greatly increased power output and better quality of reproduction. (The battery-operated power-output tube has a maximum output of about 170 milliwatts, while the powerline-operated power-output tube has an output of over 2 watts, or more than a 10-fold power increase.)

Most of the novel features of this receiver are covered by a U. S. patent granted to the writer (No. 2,222,196). To date, 2 receiver manufacturers have been licensed under this patent (Automatic Radio Mfg. Co. of Boston, and the Emerson Radio & Phonograph Corp. of New York).



Schematic diagram of the Tom Thumb

GE'S MODEL LB-530: THE FIRST TRUE RECHARGEABLE

By Marv Beeferman

In contrast to Automatic Radio's Tom Thumb "rechargeable" dry battery radio, the first true rechargeable radio was introduced in May, 1941 by General Electric as the model LB-530. The radio's $39.95 price tag was considered by some as "remarkable" since it required no battery replacements for at least several years. In fact, GE engineers went so far as to say that the radio would pay for itself through savings in dry-cell batteries. This probably could be justified; although exact data is hard to come by, the three dry-cell batteries with which most luggage-type portables were equipped with in 1941 cost around $3.75. They generally lasted four to six months if the radio was used three hours a day. With a $6.50 price tag for a rechargeable battery that lasted some 2 to 3 years and provided some 15 hours of music per charge, there was no comparison.

The "power box" of the portable was a self-contained unit in a steel case. Besides a vibrator and transformer, it housed a built-in Willard "airplane-type" storage battery and an automatic battery charger. The battery charger was a variant of a type GE developed originally for railway signal systems and used replaceable copper oxide rectifier discs. A step-down transformer provided 5.5 volts to the copper oxide rectifier in a full wave rectifier circuit which supplied the battery with DC charging current. This was its first use in a consumer product and it provided about 1.35 amps of charging current at 2.1 volts. The discs could be easily checked by measuring their forward and reverse (leakage) currents.

Screen and plate high voltage was furnished by a synchronous vibrator used in conjunction with a step-up power transformer and an associated filter circuit. The vibrator operated on the 2 volts from the battery while the battery supplied the filament voltage.

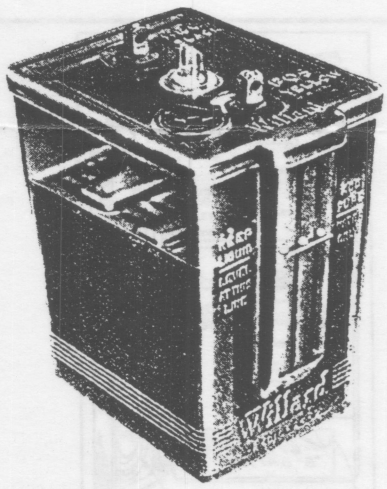
The 2-volt #20-2 Willard battery itself was probably more interesting than the radio, developed specifically for use in portable sets but based on war-time technology. It measured 4" long, 3" wide and 5½" high. The case was made from a strong, acid-proof transparent plastic and a spill-proof cover was provided to prevent loss of electrolyte. This made it possible to operate a radio in a tilted position, on its side, or even upside down...hence the "airplane type" name. The battery's charge ball indicator was visible through a hole in the metal battery case. The charge indicator consisted of a green ball which sank at 10% discharge, a white ball which sank at 50% discharge and a red ball which sank at 90% discharge. On charge, the balls would rise in the reverse order.

The battery also utilized a new-type of sponge-like electrolyte-retaining insulation which kept the solution in contact with the battery plates while reducing the quantity of free solution required. The plates were designed to withstand cycling service and overcharging, but no data was available regarding the battery's longevity. This battery was advertised as not requiring distilled water and renewable from the faucet, although it is doubtful that this was a good practice; quantities of iron or chlorine could greatly reduce battery life.

The battery was advertised to provide power for 15 to 20 hours without weakening and the radio could be played and recharged simultaneously from a completely discharged condition in about 20 hours. The radio itself was provided with a fuse to protect it against accidental connection with a DC outlet and a cable was provided to charge the battery from an automobile battery.

REFERENCES:

1. *RADIO and Television RETAILING*, May, 1941 (advertisement, p. 28, 41).
2. *Tide*, May 1, 1941, "Self-Charger" (p. 26)
3. *Electronics*, August 1941, "Storage Battery (p. 88)
4. Riders Volume XIII, p. 13-36 to 13-37.



The Willard #20-2, 2-volt rechargeable battery.

THE NEW GE SEIF-

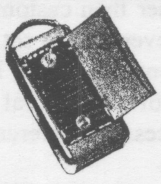
USES NO DRY CELLS

NO OTHER PORTABLE HAS ANY OF THESE SALES ADVANTAGES

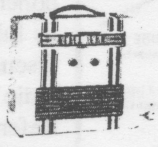
1. No battery replacement worries.
2. Has built-in non-spillable airplane-type Willard storage battery and General Electric battery charger.
3. Plays anywhere on its storage battery.
4. Self-charges while playing on AC house current.
5. Charges on AC without playing, if desired.
6. Has provision for charging from auto battery.

MODEL LB-530—Operates on AC or on its own Rechargeable Storage Battery. Built-in Beam-a-Scope located in lid—away from metal chassis—for finer reception. Additional Window Antenna provided. De Luxe Luggage Case finished in brown simulated leather. Complete with self-contained storage battery and battery charger. Retails for $39.95.*

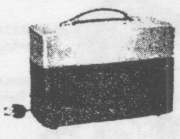
AND A NEW G-E PORTABLE IN EVERY POPULAR PRICE BRACKET



MODEL LB-412—Camera-Type Carryabout. Light brown with dark brown trim. Complete with dry batteries—$16.95.*

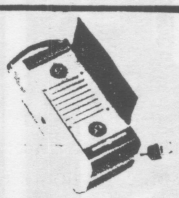


MODEL LB-700—Three-Way Luggage-Type Carryabout. Tan basket-weave fabric. Complete with dry batteries—$29.95.*



MODEL LB-603—Plays on AC or DC house current or on its batteries. Two tones of brown. Complete with dry batteries—$26.50.*

MODEL LB-702—De Luxe Luggage-Type Carryabout. Tan fabric with brown and ivory stripes. Complete with dry batteries—$34.95.*



MODEL LB-502—Plays on AC or DC house current or on its batteries. Dark blue and gray. Complete with dry batteries—$22.95.*

*All prices subject to change without notice and may vary in different localities.

THE BELMONT "BOULEVARD"

By Marv Beeferman

One of the major outgrowths of research on the famous Variable Time (VT) proximity fuses was the development of the subminiature tube. Although most of the prominent radio manufacturing companies such as Crosley, Sentinel, Philco, RCA, Sylvania and Zenith had been working on sub-miniature tube design, by late 1945, the Raytheon Manufacturing Co. was the leading producer and developer. As a result, the company was in a perfect position in December of that year to offer delivery of the first true "pocket radio" through its radio-making subsidiary, Belmont Radio Corporation. Belmont, when purchased by Raytheon, had been making "private label" sets for Montgomery Ward, Western Auto, and other mass merchandisers.

A shirt-pocket portable radio was proposed by Norman B. Krim, a Raytheon engineer considered the person most responsible for the development of the subminiature tube. It would cost Raytheon about $50,000 to design their Lilliputian listening device. This seems like a lot of money for the time, but Raytheon as a major defense contractor was subject to a 90% excess profits tax. Thus, $50,000 was really only $5,000.

Coined the "Boulevard" and consisting of some 30 parts, the radio was an excellent example of pre-transistor miniaturization and well-deserved its title of "the smallest superheterodyne ever produced." Although a few parts for the audio section of the radio were the same as in hearing aids, new miniature components for the rf and if stages were crafted. Also, new types of subminiature tubes were created for the set.

The complete receiver, including filament batteries and 22½ volt "B" battery, weighed just 10 ounces and was 3" wide, ¾" thick and 6-¼" high. The receiver was available in numerous finishes including solid gold, sterling silver, plain and two-tone metal, or various leathers such as morocco, pin seal, alligator, pigskin and suede. It retailed at approximately $30 and up. Ads played up the set's mobility, saying "Carry the Belmont Boulevard and you have listening pleasure that's never farther away than your pocket - wherever you go."

The five plug-in tubes consisted of a pentode RF amplifier, a triode heptode frequency converter, a pentode amplifier, a diode/pentode detector-amplifier and a power output pentode. Total power consumption was approximately 1/3 watt. The "A" battery consisted of two penlite cells, and a small hearing-aid battery supplied the 22.5 volt "B" voltage. The listener used an earphone, not a speaker, just like a hearing aid.

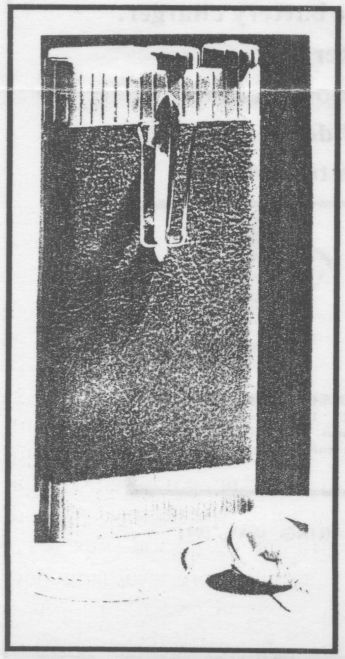
When presented with the shirt-pocket radio, Belmont people were not impressed; after all, they knew radio and radio retailing. In their opinion, the set would have few buyers because, despite its circuitry, it was a novelty item. With Raytheon firmly in control, however, Belmont agreed to make and market this minuscule radio.

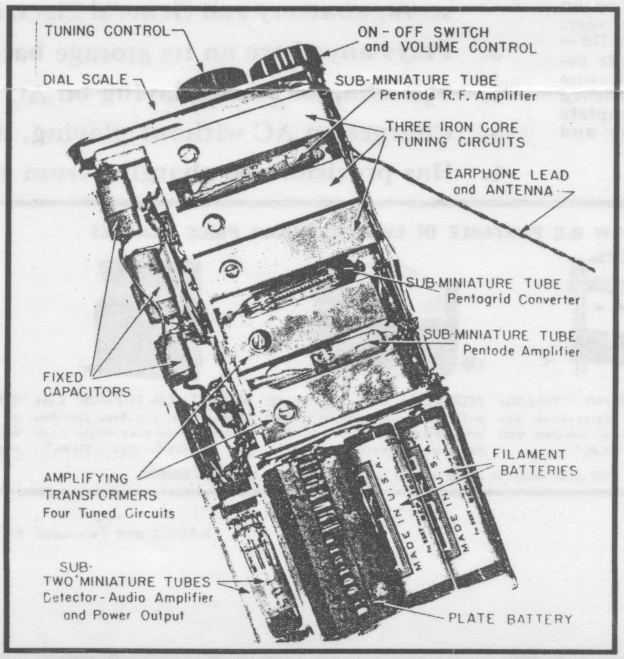
The radio caused quite a stir when it was first introduced, selling out within a few hours after being announced. As reported in *Tide* magazine for December 15th, 1945:

"Response from the retail trade, press and other groups, resulted in thousands of inquiries, orders and blank checks. Literally hundreds of editors picked up the Raytheon release, and ran the story as a 'first page' item. A radio station requested 500 sets for Christmas presents; the station's network canceled the order and requested the radios for itself. A big airline asked if each of its 350 hostesses could be given a set for a publicity tie-in; a railroad wanted to know how many radios could be purchased for installation in its several hundred coaches."

Unfortunately, this glowing report did not reflect true customer reaction. In fact, there was hardly any at all: total sales reached at most 5,000. Quietly but quickly the proto-Walkman died. Americans of the immediate post-war period apparently were not ready for a shirt-pocket portable, at least not one that cost around $30 to $65.

In addition, as suggested by Norman B. Krim, there were other factors to account for the Belmont Boulevard's failure to attract buyers. Among them included high power consumption, difficulty in changing the batteries and poor to fair audio performance. Use of off-the-shelf hearing aid parts (especially the ear plug) for the audio section rather than custom-designed components prevented the set from achieving its full potential. (Note: For an excellent discussion of the cultural impasse to this radio's success, see reference 3...Ed.)





References:

1. *Radio Maintenance*, August 1946, "Belmont's New Pocket Radio"

2. *Tide*, December 15, 1945, "Vest Pocket Radio."

3. Michael Brian Schiffer, "The Portable Radio in American Life," The University of Arizona Press, 1991 (p. 161-169).