

The Jersey Broadcaster

NEWSLETTER OF THE NEW JERSEY ANTIQUE RADIO CLUB

Summer 1996

Volume 2 Issue 8



MEETING/ ACTIVITY NOTES

Reported by Marv Beeferman

July's meeting focused on the selection of a date and location for the club's next flea market. Discussion was brisk with many suggestions being offered including piggy-backing with a Hamfest and a joint venture with another club. The final vote went to Hightstown, primarily based on what seemed to be club/buyer/seller familiarity with the location and past successes. A date of October 5th was selected by the membership and availability has been confirmed. Bill Overbeck volunteered as chairman and Marv Beeferman will assist as co-chairman. The flea market will probably include an auction - more details and a call for additional volunteers at the August meeting.

A motion made by Tony Flanagan, looking ahead to a permanent home for the NJARC, was also carried by the club membership to purchase a plaque inscribed with the original club officers and charter members.

Thanks to John Dilks for filling in at the last minute for Mark Mittleman's technical presentation on horn speakers (which will be scheduled for a later date). John's talk on antique radio information available on the Internet was an excellent supplement to the *Broadcaster's* "NJARC ON-LINE" article in Issue 7. Thanks also to Bill Overbeck for sharing some recent finds with the club - a nickel plated brass Partnick and Carter humpback key, a Sylvania Thunderbird transistor radio and a Mikky Phone folding phonograph that could only be described as "you had to see it to believe it."

In this month's *Broadcaster*, Lud Sibley provides some additional thoughts on the Camp Evans story which ran in July. On the same topic, I received a very



MEETING NOTICE

The next meeting of the NJARC will take place on Friday, August 9, 1996 at 7:30 PM at the Grace Lutheran Church, corner of Route 33 and Main Street in Freehold. Contact Marv Beeferman at (609)-693-9430 for directions. This month's technical program will include a sparkling presentation by Ludwell Sibley which he has titled "Lightning". In addition, the topics covered at the August 2nd Executive Board meeting will be presented to the membership for a vote and the details of the club's upcoming October flea market will be discussed.

nice letter from club member Anne Smith relating that her husband worked in Camp Evans Area A during the war and the Smith's first child was born during this time.

Club member Aaron Hunter asked me to provide an update on a very valuable program and resource that many members may not be aware of (primarily because of lack of advertising on my part). About two years ago, Aaron offered to assist in providing radio and early TV schematics to members only. Aaron has a set of radio Rider's up to about 1950, some Sam's Photofacts, early Atwater Kent, RCA manuals up to 1948 and Zenith information from the '60's. Other members, such as Ludwell Sibley, have graciously offered to assist with their collections. All that is asked is a \$1.00 donation per radio (or TV) and a SASE. The \$1.00 is to cover any copying or mailing costs that may occur; the remainder goes to the club treasury. If a model number is not known, Aaron tells us that he still might be able to fill a request from the tube layout and description of the set. If any information is found in addition to the schematic, it will also be furnished. This program is only open to club members and includes only early radios and TV's up to the 50's (and perhaps 60's).

As suggested by member Marty Friedman, future *Broadcaster* issues will include an inset identifying club officers and contacts for club programs.

THE PRESIDENT'S COLUMN

THOUGHTS ON COLLECTING

By Jim Whartenby

Ruth's mother, a wise woman, once told me that a collection is any group of three or more related item's. If this is true, then Ruth and I might be guilty of over-collecting. Although I suspect that I am a fairly typical radio collector (judging by the collecting efforts of friends in the club), I have to admit that in order to make sense of my mess, I have started to define "sub-collections."

Vacuum tubes have always been a major sub-collection of the hobby. Like most of us, I felt the need to have spare tubes for the radios in the main collection. This led to collecting "interesting" types (my, that looks interesting!)...then, to the metal, loctal, octal, miniature 7 pin, miniature 9 pin, sub-miniature, four pin, five pin, six pin, seven pin and so on. This, of course, is only the receiving types. There is also a CRT collection and a transmitting tube collection, with special interest in microwave power tubes, which is another story.

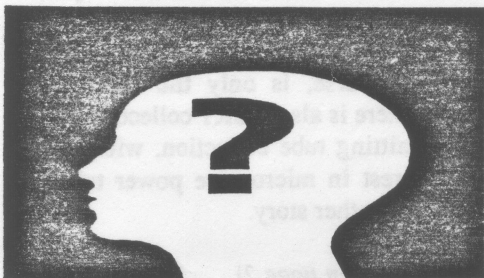
(continued on page 2)

(Thoughts...continued)

This led to a book collection to answer the question "what is this?" Then followed the headphone collection, slide rule collection and calculator collection. There is also a major collection of test equipment with special interest in World War II military radar test equipment (talk about specialized). Meters are interesting. No, I'm not talking about test equipment meters like VOM's...I'm talking about panel meters! I barely have a collection of oscilloscopes (remember, three defines a collection). All in all, it is a pretty messy basement!

Of all the radio-related things I have collections of, there is one interesting nook that is incomplete. In fact, I have only one so therefore it is not even a qualified collection. This is something that gets more rare each and every day, but is something that costs nothing. It only requires some research, discrete inquiries, patience and a tape recorder. I'm talking about collecting oral histories. Essentially, an oral history is a recorded conversation with someone with first hand knowledge about a particular facet of the hobby.

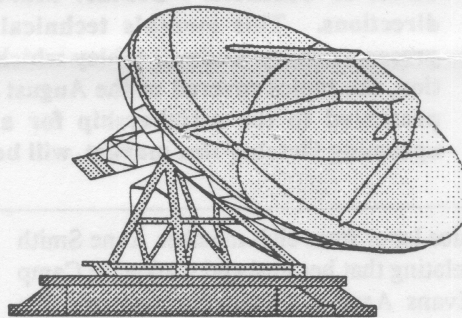
Perhaps you know someone who operated military equipment during World War II and could describe how well it performed. Or you may be fortunate to know someone who worked for Armstrong, DeForest, Edison or Sarnoff at one of the great research laboratories in the area. Or any of the hundreds or thousands of people who contributed to the technology we call radio and have gone unrecognized. This may not be as far-fetched as it sounds. Remember, New Jersey is the home of at least a dozen radio-related organizations, many of which made great contributions to the art. RCA Harrison comes to mind as an important contributor. The plant produced vacuum tubes of all types...it's long closed, but some of those who worked there could be your co-workers or neighbors. Then there is the obvious, the current membership of the NJARC. I wonder what a little digging will turn up?



CAMP EVANS AND THE MOON

By Ludwell Sibley
Alumnus, 532nd Signal Co.

I enjoyed the coverage of Camp Evans in the *July Broadcaster*. Since part of my wasted youth was involved with getting radar echoes from the moon, the part about "Project Diana" was of great interest.



Believe it or not, the first lunar radar contact was part of a "race to the moon" that no one knew was taking place. A Hungarian radar developer, Dr. Zoltán Bay, had begun building an experimental set in 1944 from parts of left-over military radars (sound familiar?) and got his first moon echoes on Feb. 6, 1946 - less than a month after the Camp Evans success. Bay's radar was not all that different from the Signal Corps version: his transmitter put out short pulses of 150 kilowatts at a wavelength of 2.5 meters, using a six-by-six "bedspring" array of dipoles. Because the received signal was expected to be well below the noise, he used a unique device to determine whether an echo was present at the right range: a group of ten electrochemical integrators corresponding to ten bands of range. In these, the received signal and noise broke down an electrolyte solution into gas. Sure enough, the integrator corresponding to "moon range" had the most gas. This neat adventure is described in the Technical History of the Beginnings of Radar (S. S. Swords, Peter Peregrinus, Ltd., 1986, pp. 144-147).

The Camp Evans moon radar was a great success, causing a stir at the 1946 IRE national convention, making a feature story in *Electronics* for April 1945,

and having a special section dedicated to it in the official history of the Signal Corps in WW II. Was it the result of farsighted planning on the part of the Army? Well, apparently not. As I remember it, a story in the *IEEE Spectrum* a few years ago featured the project leader, John DeWitt (then-lieutenant colonel) 'fessing up that his group had built the radar on a quasi-bootleg basis. In late 1945, radar development had more or less stopped in the "school's out" atmosphere, with most of the staff waiting to get released from the Army. So there was no harm in assembling some left-over radar parts into a moon experiment. Eventually, ca. 1948, the Signal Corps had a much more sophisticated lunar radar built and spent several years in tests.

The funny thing is that all that remains of the Evans radar is the cement tower footings. You'd think that, with all the "good press" and scientific value that Project Diana yielded, there'd still be a tower or at least a commemorative plaque. Maybe that should be the first order of business once the area reverts to civilian control.

TUBE PROGRAM NEWS

By Ludwell Sibley

At July's meeting, our ever-vigilant tube gleaner John Dilks delivered a substantial donation of tubes, part of estate material contributed in part by the Old Barney Amateur Radio Club. We got a bunch of used big-pin tubes, some of them of types never in-stock before, and a fine supply of crisp new-old-stock miniature and octal tubes. These will brighten up the club's stock considerably.

Part of the material donated is a big volume of new-old-stock sweep tubes: octals, novars, and Compactrons. I expect to have the types on the following page available at the August meeting, but don't have room to keep them around a long time. This represents an opportunity to stock-up on spares for your gear, or for that of a radio-amateur friend. Or maybe you know someone with a (heh, heh) CB linear amp that needs tubes.

N. O. S. SWEEP TUBES ON HAND

Type	Qty.	A. E. S. Price	NJARC Price	"Used In" / Comments
6BQ6GA	1	\$3.20	\$1.00	Four in Sansui 500A stereo receiver.
6CB5A	1	4.60	1.50	
6CL5	27	4.80	1.00	(Same pinout as 6CB5.)
6CU6 (6BQ6GTB)	4	3.20	1.00	See 6BQ6GA.
6DN6	6	5.70	1.00	
6DQ6B (/6GW6)	1	6.60	1.00	In Johnson Challenger, Knight-Kit T-60, and Eico 723 xmtrs.; two in Eico 753 xcvr.
6EX6	8	5.00	2.00	Very sim. to 7867 audio power tube.
6FW5	8	3.00	1.00	Very sim. to 6L6GB; different pinout.
6GB5/EL500	7	5.10	2.00	Two in Sideband Engineers SB-34 xcvr.
6GE5	2	6.30	2.00	One in Heathkit HW-16 xmtr. Two each in HW-12A, -22A, and -32A "single-bander" xcvs. and HW-18 xmtr.
6GT5	4	16.00	3.50	
6GW6	1	6.60	1.00	See 6DQ6.
6GY5	3	4.90	1.00	
6HF5	1	14.10	3.00	One in Drake 2-NT xcvr and Hallicrafters HT-46 xmtr. Two in Hallicrafters SR-400 xcvr.; Swan 350, 400 and 500 xcvs.; and WRL Duo-Bander 84, Galaxy III, and Galaxy 300 xcvs. Ten in WRL Galaxy 2000T linear.
6HJ5	11	4.10	1.00	
6JB6A	1	22.00	6.00	Two in National NCX-200 xcvr. and Drake T-4XC xmtg. conv. Three in Drake TC-6 6-m xmtg. conv. and TR-6 6-m xcvr. Four in Drake TR-4 xmtr.
6JE6C (/6LQ6)	1	44.00	12.00	One in Swan 260 and 270B xcvs; two in Kenwood (Trio) TS-511S, Kenwood (Henry Radio) TS-900, and Swan 350C xcvs.; and Knight-kit T-175 linear; four in Amitron and Swan Cygnet 1200 W linears. Six in Sideband Engineers SB1-LA linear. Eight in McIntosh Labs MC3500 audio amp. Also in National NCX-500 xcvr.
6JM6	2	5.20	1.00	Capped version of 6JN6.
6JN6	3	4.20	1.00	Two in David Berning Co. EA-230 audio amp.
6JZ6	10	5.70	1.00	
6KM6/6JF6/6JU6	9	7.90	1.50	Lower-power version of 6JE6C; same pinout.
6KN6	5	8.00	2.00	
6LB6	2	20.00	7.00	Two each in Galaxy V Mk. 3 and (WRL) Galaxy GT-550 xcvs.
6LW6	4	25.30	7.00	Big, late-vintage high-rated octal sim. to 6CL5.
12DQ6B (12GW6)	3	9.30	1.00	Two in Hallicrafters SR-150 xcvr.
12GC6	5	-	1.00	
12GT5	3	2.50	1.00	
12JN6	6	3.00	1.00	
12JT6A	12	4.50	1.00	
13GB5/XL500	6	-	1.00	
17GE5	4	3.60	1.00	
17AV5GA	13	-	1.00	
17GV5	5	-	1.00	
17JF6A	16	6.40	1.00	
21EX6	3	-	1.00	
21GY5	7	4.40	1.00	
21HB5A	4	10.70	2.00	
21JV6	10	-	1.00	
21KA6	8	"Call"	1.50	
23JS6A	1	5.80	1.00	Variant of 6JS6A.
25AV5GA	1	5.80	1.00	
25DN6	2	-	1.00	

27GB5/PL500	10	5.20	2.00
33JV6	7	4.10	1.00
50JY6	3	"Call"	1.50

Two in Sideband Engineers SB-33 xcvt.

MULTISECTION TYPES

6MF8	2	9.00	1.00
12HE7	15	-	1.00
31LR8	10	-	1.00
38HE7/38HK7	15	7.80	2.00

There are also a couple of NOS 6DZ7s, a dual audio power pentode used in one of the later Heathkit tube stereo amps.

NJARC owes a debt of thanks to Ludwell Sibley for his intensive efforts in conducting the club's tube program. As of this month, the tube program has realized income of \$2,695.42. With expenses at \$357.34, this has provided the club with a contribution of \$2,338.08. Considering that member prices are mostly \$1.00 per tube, when compared to prices on the "commercial" market (i.e., Antique Electronic Supply, etc.), this represents quite an achievement. Thanks Lud! And a special thanks to all those tube contributors who helped make the program such a success. Ed.

DESIGN HEADACHES BY THE TUBEFUL

Reprinted from Electronic Engineering Times, July 8, 1996

The vacuum valve, as tubes were originally called, was one of the elegant and lasting achievements of early-20th-century technology. Basically, a tube consists of a cathode and an anode enclosed in a glass envelope to maintain a vacuum. When heated by passing a current through it or by activating a separate heating element, the cathode releases high-energy electrons, which are drawn across the vacuum to the strongly positive anode. Thus, the rudimentary tube is a simple rectifier.

By placing a grid - a fine wire mesh - between the cathode and the anode, you can modulate the flow of electrons. You now have a wonderful voltage amplifier. By keeping the cathode near ground and charging the anode (usually called the plate) up to several hundred volts dc, you can create plate currents between 1 mA in a small-signal tube, to tens of milliamps in a power triode. Placing a negative-signal voltage on the grid modulates the plate current. Since none of the electrodes is connected to another except by the stream of hot electrons, the device has very high impedance.

As tube technology developed, refinements were added. In some designs a separate heater coil eliminated the need to run high current through the cathode. In

many tubes additional grids accelerated the electrons and reduced the effect of the strong electric field from the plate on the sensitive control grid. Tubes with additional grids were called tetrodes or pentodes.

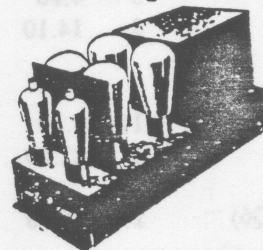
Even at their best, tubes presented some serious problems to designers. They require very high operating voltages - sometimes up to 1kV on the plates of power tubes. They dissipate a great deal of power in the process of boiling electrons off the cathode and hence get very hot - a 12AX7, for example, can have a surface temperature of more than 150 °C, enough to make tube circuitry physically dangerous to work on.

In terms of electrical problems, the plate circuit must sit at several hundred volts dc and produces relatively little current - exactly what you don't need for driving a loudspeaker. Hence the need for output transformers. Devices exhibit fairly high noise levels and distortion figures, requiring moderate amounts of feedback in most amplifier designs.

Designers overcame these problems, but only by the construction of a huge edifice of design practice. Fine circuit designers got recognition that is today reserved for the likes of microprocessor architects.

Considering that this article was written for electronic engineers and technical managers, its simplicity foretells of a technology headed for obscurity. Or is it? Look for details in the September issue. Ed

The Midget 250 Push-Pull Amplifier

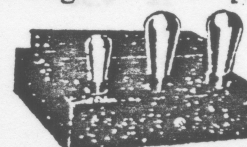


This unit is the most recent development in sound systems since the introduction of the large power tubes. Up to this time to procure great volume, amplifiers were necessarily large and expensive, which involved critical layout, large transformers, chokes, etc., as well as heavy filter systems to eliminate hum and distortion, by the use of a new method of direct coupling, it eliminates transformer distortion between tubes, and the other commonly known evils of the old type of amplifier. 3-224 tubes in push pull feed, 2-250's in push pull, 2-251's rectifiers. The output is rated at 12 watts. Its gain is 90 DB's at 400 cycles. The curve on the amplifier is comparatively flat and shows only a 4 DB drop at 10 KC. Power consumption is only 125 watts at 110 volts 60 cycles. At this remarkably low price, we have brought out an amplifier which exceeds in performance the majority of other units selling at much higher prices. Set size - 13" x 6" x 8 1/2". Suitable for Phone, Mike and Radio Input

Cat. No. 285
Less Tubes

\$24.50

DC High Gain Amplifier



Has an undistorted output of 2.5 watts. Uses 1-237 and 2-257 output tubes in push pull. This output is equivalent to the output of the average 245 amplifier. A tone control is supplied to vary the tone to any degree desired. The circuit is a high gain two stage unit taking advantage of the new D. C. pentodes and giving a tone quality never before accomplished on D. C. at this volume. It is ideal for microphone input. Very compact, it has the unusually low current consumption of 1/2 ampere. In addition, is no more costly than any A.C. unit of the same power. Size - 11 1/4" x 8 1/4" x 5". Suitable for Phone, Mike and Radio Input

Cat. No. 287

\$17.50

NJARC GLOWS AT MONMOUTH COUNTY LIBRARY EXHIBIT

By Marv Beeferman

Thanks to the hard work of Phil Vourtsis, additional display contributions by Mark Mittleman and Tony Flanagan and some sidewalk superintendence by yours truly (don't ever ask Phil to straighten a picture), the NJARC has gone public with its first educational exhibit at the Monmouth County Library headquarters. Filling three display cases with RCA radios, phonographs and related memorabilia covering the early 20's through the 50's, the exhibit is quite striking. A unique item is a two-foot "Nipper" decked out in a radio theme necktie and phonograph theme shorts.

Display pieces include a Radiola II, Radiola Senior, Radiola 20, Radiola 26 and Radiola horn from the Mark Mittleman collection, an RCA 5T and RCA 96T1 from the Tony Flanagan collection, various radios and phonographs (including an RCA SlideOMatic and Cartoon model) from the Phil Vourtsis collection and an RCA-theme necktie from the extensive Marv Beeferman tie collection.

The photos on the following pages do not do the display justice (as much as I tried to keep Phil out of the pictures) so all members are invited to a closer viewing at the library. The library is centrally located as shown on the attached map (directions are included) and is also open on Saturdays from 9:00 AM to 1:00 PM. It would be nice to see a large club turnout in appreciation of Phil's efforts.

THE HOT-CHASSIS SET

By Ludwell Sibley

The intent of this article is to warn set restorers, particularly those who have grown up with the benefit of modern consumer product-safety-laws, of the dangers of hot-chassis AC-DC receivers. This is not to condemn all AC-DC's: 90-percent-plus are wired in a responsible way, with the B-plus (120-volt power line) isolated from the chassis. We are talking

here about the rest, the ones with a direct metallic connection through the on-off switch to the chassis.

The dangers here are dual: accidentally ground the chassis when the line cord is plugged in the "wrong" way, and you can start a fire. Touch the chassis while standing on, say, a moist basement floor, and you can get a shock - not the harmless tingle that the "good" kind of AC-DC set will give, but potentially lethal. The National NC-46 is a typical case: you can hold the grounded cabinet lid open with one hand, then reach in and touch the volts with the other.

The diagrams below show the difference in design. The one on the left has an isolated bus (the heavy line) running all the B- return points in the circuit. The chassis is isolated from the power cord by a capacitor (typically 0.01 to 0.1 uF). A resistor across the capacitor ensures that the capacitor discharges after one pulls the power plug. With this arrangement, the current into a person touching the chassis is limited to a harmless half-milliamper or so.

The circuit on the right has no such subtlety. The line cord goes right to the chassis through the power switch.

I once fixed a late-Forties AM-FM set with protruding stamped metal feet with - you guessed it - hot volts on them. Don't put that one on a metal table! An ohmmeter test, line cord to chassis, will show whether a set is the "good" kind or hot-chassis type. So will a quick inspection of the on-off switch wiring.

Now, there are responsible actions that we can take in working on these radios. The line cords usually need replacement from simple aging. Putting on a polarized cord is the first step. The set becomes reasonably safe if (1) the neutral (wide-blade) side of the cord is wired directly to the chassis, and (2) the on-off switch is moved to the hot lead. (A polarized cord without these changes gives only a false

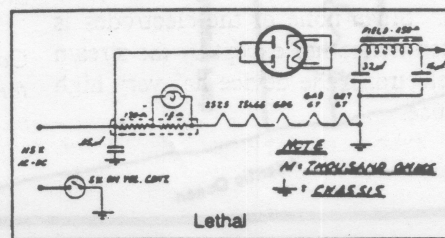
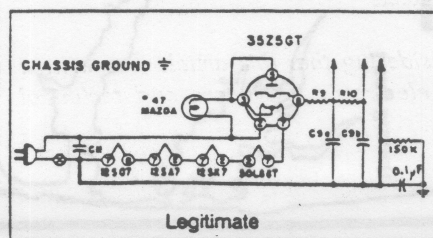
sense of security: Depending on how the cord is wired, the chassis is hot either all the time or, via the heater chain, when the radio is turned off.) Of course, this assumes the house outlet is wired correctly, an assumption usually, but not always true.

Polarized cordsets are not universally available. Fortunately, polarized extension cords, ready to have their socket ends cut off, are common.

After installing the new cord, it is easy to add safety by fixing the exposed chassis-retainer screws and loop-mounting screws. Just tap the holes with 6-32 thread and use nylon screws. Or coat the exposed screws with liquid vinyl to insulate them. Replace metal feet with rubber ones held on with plastic screws. Make very sure knobs are on tight. Make new rear covers (with only small vent holes) to replace missing ones. Use an isolation transformer when working on all AC-DC sets.

It is remarkable to think, today, that supposedly responsible engineers released these designs to production. Eliminating the isolated B- bus saved a resistor, a capacitor, and maybe five minutes' wiring time. Of course, the user who touched the mounting screws on the bottom might get a surprise...or the listener who lost one of the knobs...or the owner who broke the cabinet and then moved the set out of view into the damp laundry room. The British public was offered something worse: a few hot-chassis radios with 220 volts on them!

The existence of these sets just points out how the views of society have evolved. At one time it was thought proper for savings accounts to have no insurance against the failure of a bank or S&L. Not too long ago, it was believed that hard hats and dust masks and all other OSHA safety gear was unnecessary. And it was once considered OK to sell hot-chassis radios to the consumer.



MONMOUTH COUNTY

LIBRARY

HEADQUARTERS

125 Symmes Drive

Manalapan, New Jersey 07726-3245

(908) 431-7220

FROM THE NORTH:

Garden State Parkway South, Exit 123,

Rt. 9 south

OR N.J. Turnpike South, Exit 11

Route 9 South

OR N.J. Turnpike South, Exit 9 to

Rt. 18 South to Rt. 9 South

Follow Rt. 9 South to Symmes Dr. (right at

junction).

FROM THE WEST OR SOUTH:

N.J. Turnpike North, Exit 8 to Rt. 33 East

Then North on Route 9 at Freehold

Interchange 2 1/2 miles to

junction at Ryan Rd./Symmes Dr.

(Ryan Road is on the east

side of Rt. 9 and Symmes

Drive is on the west side

of Rt. 9).

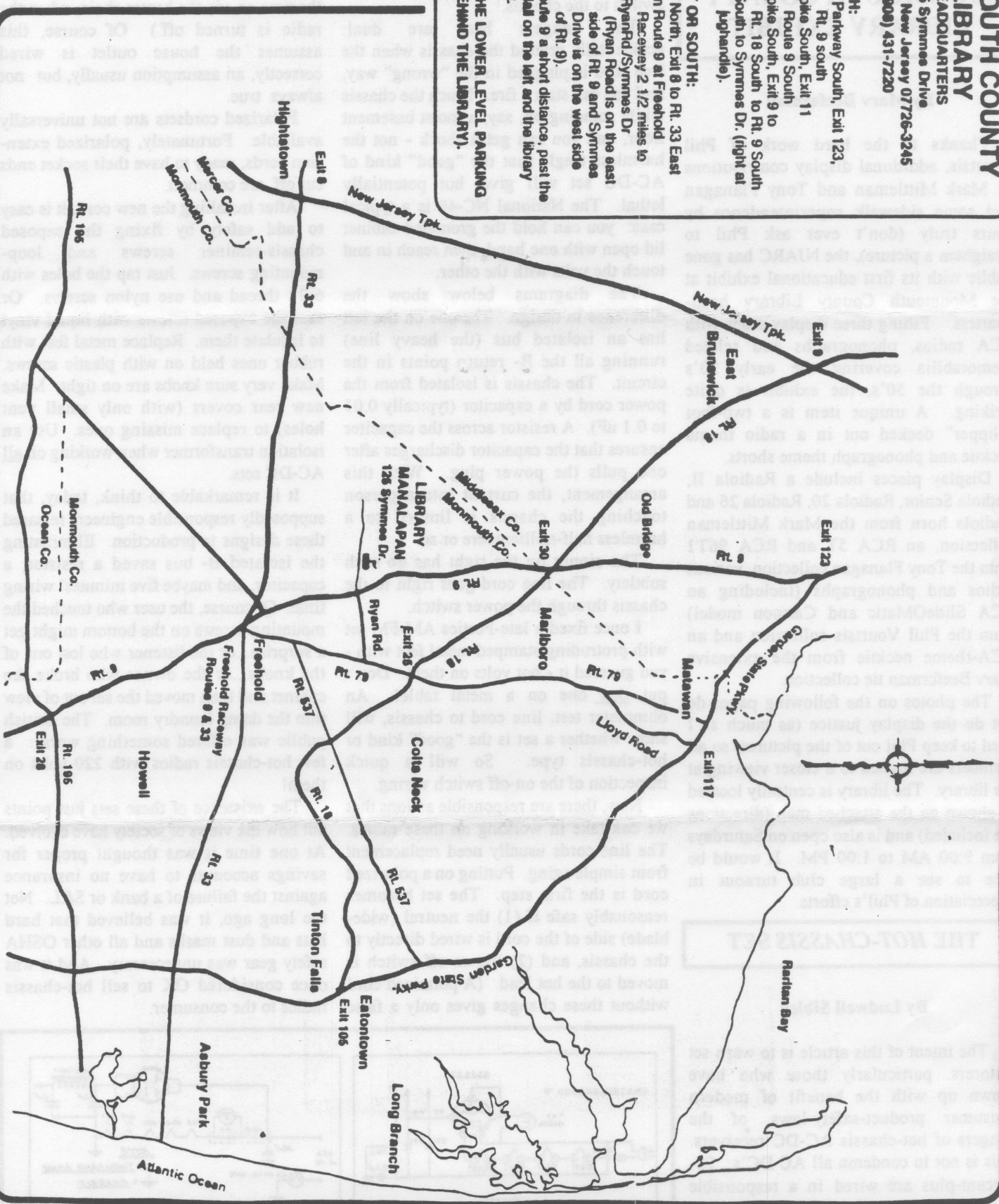
Go across Route 9 a short distance, past the

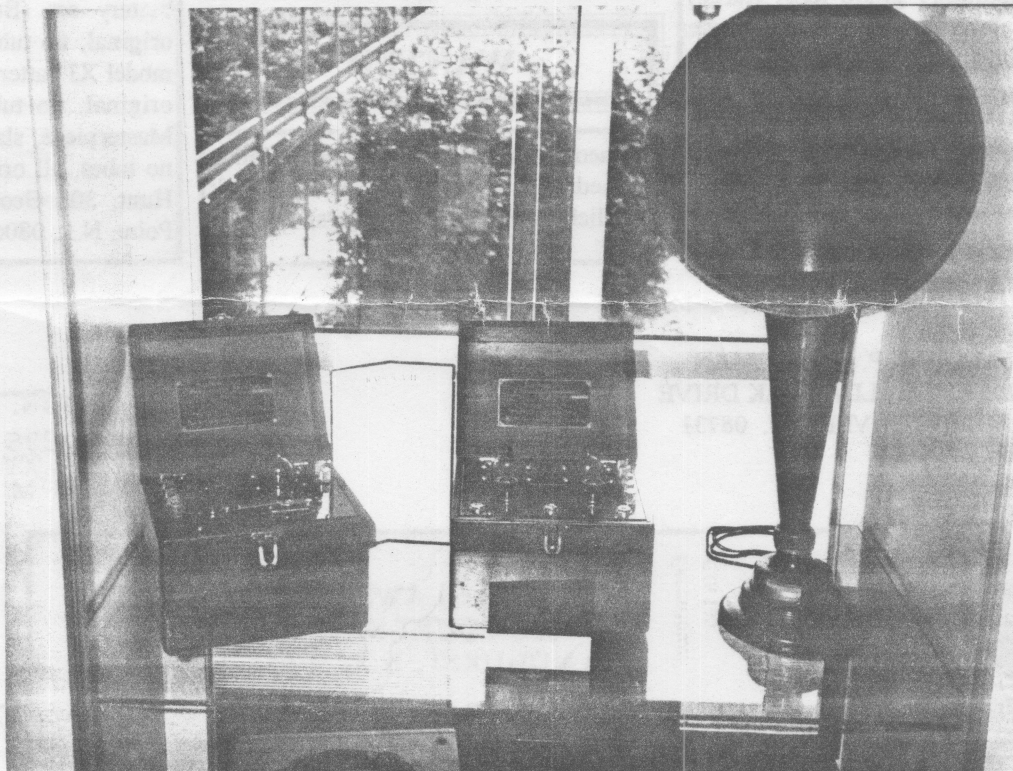
Manalapan Mall on the left and the library

is on the right.

PLEASE USE THE LOWER LEVEL PARKING

LOT (BEHIND THE LIBRARY).





CONNECTIONS

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

All or part of 6 cartons of old radio & TV schematics, manuals, books, substitution guides, Sam's Photo Fax, test equipment, magazines, etc. 1930-1960's. Martin Fleisher, 12 Zellers Road, Box 123, Long Valley, N.J. 07853 (908)-832-7047.

Estate Items: Bosch Laboratory Stereoscopic Microscope (like new); RCA Geiger Counter from the 1950's with Government book on how to prospect for Uranium; laboratory grade RCA (large) tube tester; large transistor and diode collection/assortment (inventory is available upon request) - all best offer and sold as-is. TS-413 Signal Generator; \$100. Delivery available at NJARC meetings. John Dilks, (609)-927-3873. Please leave phone number with message.

Tubes, NIB (over 6,000), 50% off AES prices; minimum purchase \$20 (for \$40 worth of tubes) or buy the whole lot. J J Papovich, 53 Magnolia Ave., Pitman, N.J. 08071, (609)-582-8279.

Howard W. Sams repair books: transistor (TSM), auto radio (AR), and hi-fi (MHF). Good supply. Lewie Newhard, (610)-262-3255 (evenings).

Collection of the late John Kara (former club member) consisting of: AK 188, early battery set, hi-fi equipment, ham receivers, consoles, wooden and plastic cabinets, transistor radios, test equipment, crystal sets, between 2,000 to 3,000 radio and TV tubes, etc. Elsie Kara, Whiting N.J. (908)-849-4318.

Novelty Items - RCA, Victor, Edison, Splendor and others. Send LSASE (55 cents postage). Sams Photofacts #500 up to 1000 - you pick up - 50 cents each. Over 300 books - send LSASE (55 cents postage) for list. J.J. Papovich, 53 Magnolia Ave., Pitman NJ, 08071. (609)-582-8279

WANTED

Someone to repair/rebuild a small Philco cathedral at a reasonable price. Mark Freilich, (609)-275-3140 (days)

A.C. Dayton Model XL-60 chassis. Can be a junker but speaker and cabinet must be in better shape. A picture would be helpful. Stanley Thompson, 43 Cozy Corner, Avenel N.J. 07001-1122. (908)-636-3630

For Philco Model 21: speaker, escutcheon and dial. Aaron Hunter, 23 Lenape Trail, Southampton, N.J., 08088. (609)-267-3065

EV 666 microphone with cord and correct connector; Emerson 790B in blue, black or red; National NTS-2 loudspeaker for NC-303 receiver; Hitachi TH-660A 6-transistor radio (black); Polyrad "Capri" 6-transistor in blue; Shalco 3-transistor in black; Shure M63 Audiomaster. Frank Feczko, 37 E. 36th Street, Bayonne N.J., 07002. (201)-437-6895

Ware cathedral model B-1 "Bantham" (Bunis 1 & 2) manufactured by the Ware Mfg. Corp., Trenton N.J. All original - \$200. Freed Eiseman model NR-5 battery set (Bunis 2, pg. 81). All original, no tubes, nice - \$90. Crosley model XJ battery set (Bunis 1 & 2). All original, no tubes - \$175. Freshman Masterpiece, slanted front, table model, no tubes, all original - \$75. Elwood F. Hunt, 308 Georgetown Road, Carneys Point, N.J., 08069. (609)-299-5259

MARVIN P. BEEFERMAN
2265 EMERALDA PARK DRIVE
FORKED RIVER, N.J. 08731



BOB OLAWSKI
230 COURT AVE.
LYNDHURST, N.J. 07071

