

The Jersey Broadcaster

NEWSLETTER OF THE NEW JERSEY ANTIQUE RADIO CLUB

Summer 1997

Volume 3 Issue 9



MEETING/ ACTIVITY NOTES

Reported by Marsha Simkin

The club's August meeting was called to order by President Jim Whartenby; the beautiful evening was mirrored by the nice crowd in attendance which included a visitor from Vermont.

Pre-meeting activity was brisk, with all types of items available for sale and show. Among the selections was a Peerless cathedral-shaped speaker, an Atwater Kent table lamp (minus shade), RCA phonographs, a selection of 1920's QST's, a Freshman Masterpiece, a Radiola 3 and a Phillips shortwave set.

The program for the evening, Restoration of a Seeburg Juke Box, was presented by Jim Fisher. Jim is well known for his meticulous restoration work and an eager audience awaited his presentation. Jim has always wanted to own a juke box and, when a 1938 Seeburg Gem was advertised in Antique Radio Classified, his dream became reality. Jim gave the following advice for starting a restoration project:

- Take photos of the item in its "as found" condition.
- Size up the project; let it sit for awhile as you think about how you will attack it.
- Obtain all the service literature and information that you can.

Once work was underway, Jim offered the following additional pointers:

- Document everything you do - take photos, make diagrams, keep a journal. (*Perhaps as the basis for a Broadcaster article? - Ed.*)



MEETING NOTICE

The next meeting of NJARC will take place on Friday, September 12, 1997 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 or Jim Whartenby at (908)-271-7701 for directions. In lieu of a formal technical presentation, this month's meeting will feature our always popular "show-and-tell" session so members are requested to offer a radio-related item or interesting anecdote they might want to share informally with the club. Plans will also be finalized for our upcoming meet on September 27th at the Freehold Armory; early registration by club members eases logistics and is always appreciated.

- Label everything - use containers and ziplock bags.
- Be patient...take your time...don't rush!

Jim started his project by disassembling and cleaning everything - mechanism, amplifier, speakers, lights, hardware, etc. - but decided to defer any cabinet work until Spring. A supplier of vintage juke box parts was located in California. After the mechanism was reassembled and adjusted, it was put aside in a safe place. The amplifier, among other repairs, needed a new transformer and capacitors; once working, this was also put aside.



With wiring restored, installation of new lights and the unit reassembled, all that was required was a stack of records and

the juke box was back in service.

Jim commented that the unit was easy to adjust since it was gear driven and the speakers were in beautiful shape. A discussion about rebuilt phono cartridges followed and it was agreed that, for the most part, they aren't great sounding. Jim fielded many questions from the attentive audience and displayed an album containing a photo essay of the project.

NJARC VP HONORED BY DELAWARE VALLEY HISTORIC RADIO CLUB

In a brief ceremony preceding the August meeting and tailgate auction, DVHRC *Oscillator* Editor and NJARC Vice-President Ludwell Sibley was cited by the Board, officers and members of the Delaware Valley Historic Radio Club with the Sylvia Award.

Named in honor of founding association member, Sylvia Molettiere, who passed away in June, the Sylvia Award was established to annually recognize outstanding volunteerism and service to the organization. (*Continued on page 2.*)

THE JERSEY BROADCASTER,

published a minimum of ten times each year, 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 with special emphasis on contributions made by the state of New Jersey. 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.

Submissions are welcome in typewritten or diskette (5-1/4" or 3-1/2") form with formats in ASCII, WordPerfect, Word, etc. Photos in high contrast black and white are appreciated but color photos are acceptable. The Editor or NJARC is not liable for any buying and selling transactions or for any other use of the contents of this publication.

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(Sibley Honored...continued)

Club President Bill Overbeck commented: "As 'perpetual hostess' at club meetings and forever going beyond the call of duty to help out at DVHRC functions, Sylvia will be missed. It is in her spirit of enthusiasm for the DVHRC that we celebrate Ludwell Sibley's contributions."

The monumental effort of publishing a monthly newsletter of national renown only scratches the surface of Ludwell's part in the growth of our association. As a member of the DVHRC's Board of Directors and Vice-President of the New Jersey Antique Radio Club, Lud is constantly "banging the drum" on behalf of both organizations by promoting group functions, securing auction inventory, preparing and executing informative and technical presentations, and is singularly responsible for establishment of the Club's Tube Program.

Sibley is not just an exemplary DVHRC member . . . he is also a prime example of what is good about being a member of the antique radio collecting community.

WHO SANK LUCY?

The following piece (based on an article by Russell Roberts in the Summer 1997 edition of the Compass) is a continuation from the August issue of the Broadcaster.

Last month's installment traced the author's history of New Jersey's Tuckerton Tower, part of a transoceanic wireless network conceived by German scientist Rudolph Goldschmidt. Also suggested was that, with the onset of World War I, the tower, as well as the rest of Germany's transoceanic radio network, came under suspicion. Despite the urgings of England and France to tear the tower down, with the United States as a neutral country, President Woodrow Wilson (also reluctant to sever this important mode of communication with Germany) sent a "censorship team" to the tower. Thus, as article author Russell Roberts puts it, "the stage was set for the events of May 7, 1915." Or was it?

the stage was set for the events of May 7, 1915." Or was it?

On that fateful day, the author goes on to say, the British passenger liner Lusitania was sunk off the coast of Ireland by a German U-boat, sending 1,198 people to a watery grave. It is a persistent legend of history that the message to sink the Lusitania - "Get Lucy" - was sent to the U-boat from the Tuckerton Tower. Certainly, the tower had enough power to reach the German craft, well over a thousand miles away. While there is nothing in U-boat commander Walther Schwieger's meticulously-kept war diary that says he did receive such a message, there is also the possibility that the diary may have been altered once Schwieger realized the international uproar his actions had caused. The U.S. government considered the rumors so serious that it launched an investigation, the results of which have never been revealed.

Mike Katzdorn, in his article "A Tour of Tuckerton" (*Radio Age*, Vol. 18, No. 4), seems to describe a different account:

"On September 9, 1914 (note the date), by executive order of the President, the U.S. Navy took over control of the station. The following day the alternator stator winding failed, halting operation. An official inquiry found it to be an accident. The Navy immediately brought in a 30 kW Federal arc followed shortly thereafter by a 60 kW arc. The alternator failed again in January 1915, and after being repaired was relegated to weekly tests to keep it in running condition."

Secret messages sent to a German submarine captain by U.S. Navy personnel from a transmitter relegated to weekly testing? *Hmm...sounds more like X-File stuff.*

Historians point to the Lusitania incident as pivotal to America's ultimate entry into the war. But by that time, according to Katzdorn's account, the Navy had already operated the Tuckerton station for 2-1/2 years. Robert's article mistakenly claims that the U.S. takeover occurred when war broke out in 1917.

Following the war, the station reverted back to its owner and was sold to RCA in 1920 for a reported one million dollars. RCA installed a set of Alexanderson alternators in 1922 and several years later (*Continued on page 3.*)

(Who Sank Lucy?...continued)

scrapped the original Goldschmidt alternator which had been placed in storage. The Navy took over the station again in 1941 to use for communications with the Atlantic Fleet. The alternators operated for the last time in 1953, when they and the antennas were scrapped. The entire complex was finally destroyed on December 28, 1955 to make room for the Mystic Island housing development.

Today, all that's left of the colossal structure are three massive, 1100-ton concrete blocks that served as the tower's anchors, and which are scattered among the homes on Mystic Island. These blocks are silent witnesses to one of but many of New Jersey's places in radio history...but unfortunately, not to "one of the greatest historical mysteries of all time."

DOWN WENT THE "NEW JERSEY"

(PILOT BOAT, THAT IS)

The following was edited from the Veteran Wireless Operators Association's 1938 Year Book.

In 1914, E. Jay Quinby went out to pound brass on the Marconi-equipped *New Jersey* as a green operator. It was his first assignment, and E. T. Edwards, then Superintendent for the American Marconi Company at 29 Cliff St., New York, had given him the job. In three days, Quinby was back again at Cliff St., reporting to Edwards that he had lost that ship and would need another one. Edwards already knew about the incident, for Quinby's SOS had been picked up by the Marconi Operator at Seagate, who had relayed it to the Brooklyn Navy Yard and to Edward's office, subsequently adding the story of the successful rescue of all hands from the *New Jersey*, including the ship's cat.

The *New Jersey* was a pilot boat which cruised around outside New York Harbor to put pilots on incoming steamers, and to take them off the outbound vessels. She had to stay out there in all kinds of weather, even when the big liners hugged their piers awaiting better conditions, - for

other ships might be looking for a pilot to take them inside the harbor so that they too, could find refuge from the storms.

In a dense fog, the third morning Quinby was out there, a big white Norwegian fruit ship called the *Mancheonal* loomed suddenly out of the misty blanket surrounding the staunch little steamer *New Jersey*, to run her down and sink her in less than five minutes. The fruiter had been looking for the pilot boat - and found her right in the middle.

With water swiftly rising around her wireless gear, Quinby was just able to get out his SOS, his position, and his signature, KNJ, before the storage batteries were submerged. The door of his shack was jammed tight by the force of the collision, but fortunately he managed to wriggle out through a porthole as the *New Jersey* settled to her doom.

Although the *Mancheonal* drifted away in the fog with a few of the *New Jersey*'s personnel who had been quick enough to scramble up her anchor and over the rail, the rest of the *New Jersey*'s officers and crew put out in her yawl to be later picked up by the U.S.S. *Raritan* which came to the rescue. After reporting back at the Marconi office, Quinby was promptly assigned to a month's duty aboard the *New York*, sister ship of the *New Jersey* in the pilot service. Then he began a ten-year career as wireless operator in tramps, tankers and passenger ships which took him around the world.

In reminiscing about pioneer wireless equipment, Quinby once said:

"Of course it was a thrill to hold a two-way voice conversation between the New York and points ashore in the Bell System - but what old-timer wouldn't prefer to raise a disturbance with a ten-inch spark coil or an old-fashioned open rotary spark gap? When we opened fire with those weird and spectacular creations, folks used to retreat to a 'safe' distance and stand in open-mouthed amazement while we flirted with the pyrotechnic display and caused an uproar that could be heard all over the ship. It was fun kidding them. But today, anybody can pick up a telephone handset and ask for a number on the beach or another ship. Practical, - but undramatic.

I wonder how "undramatic" E. Jay Quinby would find communications in 1997? Perhaps it's best he doesn't know.



Ensign E. J. QUINBY, USNR.

ATWATER KENT METAL RADIOS

By Norman R. Leal

The following article appeared in Vol. 22, No. 3 (August 1997) of the Southern California Antique Radio Society (SCARS) GAZETTE and is reproduced here with the club's kind permission...Ed.

The Atwater Kent metal radios are to radio as the Model A Fords are to cars. The AK 40 Series Radios are plentiful and there doesn't seem to be much of a demand for them. Most were made between 1927 and 1929. Since they used heavy metal for the case, cleaning and careful painting is usually all that's required on the outside. They are not very large and can be stacked if you do not have a lot of room. The inside of the AK is laid out neatly and makes a good conversation piece when the lid is removed.

Care and Restoration

Atwater Kent, Model 40 and similar radios are readily available and many of them have the same problems that are easily fixed.

(Continued on page 4.)

(Atwater Kent...continued.)

1) The filter capacitors are usually bad or about to go bad. If you think they are O.K., operate the radio for a time. If they are bad, the voltages will start to go down. Even though these capacitors are located in the tar bucket power supply, you can still cut them loose and install new ones without removing the tar. Cut the negative lead on the capacitors if the positive is not accessible. The negative leads are connected to ground (center screws) in the supply and can be seen after removing the board.

2) Remove the cartridge grid leak resistor if it is still in the radio. The cartridge resistor has most likely increased in value and may cause noise if left in the circuit. You may be able to pull off one end of this resistor and remove part of the element. Replace the end and return the resistor to its socket to keep the original look. A new grid leak resistor should be 2-3 megohms and may be mounted on the underside.

There were two cartridge resistors originally in the power supply, under the board. Replace these resistors if they have not been changed. The one closest to the edge of the board can be 100K @ 1 watt and the other 15k @ 1 watt. The exact values are not critical, but the originals have usually increased to 3 times these values.

3) The audio interstage transformers may be open and can be checked with an ohmmeter. If open, they can be replaced with A53C transformers, available from Antique Electronic Supply (AES), Tempe, Arizona, which will fit in the original cans. The original, heated on a hot plate, can be removed from the can. Of course you can use an R/C circuit and eliminate the transformer if you don't mind the change.

Some interstage transformers that check "good" can still cause noise due to leakage between windings. This leakage is sometimes caused by moisture and may be driven out by operating the radio but, if not, the transformer needs to be replaced.

4) Replace the capacitor in series with the speaker mounted by the volume control. Use a 1 mfd. 400 Volt unit if available. The original capacitor can be removed

from the can by heating. This capacitor is usually leaky and will allow DC to flow through the speaker. The capacitor from RF B+ to ground may be leaky causing the voltage to be low. This capacitor, located under the chassis, if bad, may also be warm.

5) Oil the bushings on the tuning capacitors. Even the ones that move freely seem to freeze up if not lubricated.

6) Lubricate the volume control. This will help prevent noise associated with non use.

The Cabinet

Atwater Kent metal radios that have chipped paint and some rust can be made to look almost like new. The following is what has worked for me on many metal radios.

1) First remove all the electronics and hardware. To remove the emblem on the lid, drill the rivets from the underside. Use a small bit just to remove the rivet shoulders as the rivets will be reinstalled later. Clean and remove loose rust but do not sand the top or outside of the cabinet, not even the rust.

The inside of the cabinet and lid can be sanded and painted if necessary. The nearest match to the original color I have found is called nutmeg. This is slightly lighter than the original color.

2) For the outside of the case and top, I mix flat dark brown latex paint with lamp black along with a little water until the shade is right. This mixture should be thin, more like dye than paint, and will not damage the crinkle finish. Lightly paint the entire cabinet, rust and all. The rust is actually better than shiny metal as it holds the paint and more closely matches the crinkle finish. Wipe away any excess paint. This paint can be touched up anytime without leaving marks.

3) Mask the lid and spray gold paint in the center portion. The proper color here is bright gold as can be seen under the em-

blem. Use just enough paint to give even color so the crinkle finish is not lost. Once painted, do not touch up the gold.

4) After removing the masking, touch up the brown paint if necessary. When the paint is dry, lightly spray the entire cabinet with Krylon Crystal Clear or other clear coating. This will protect the finish and help prevent future chipping.

5) Do not paint the emblem as it is solid brass. It may be cleaned with a toothbrush and brass cleaner. When reinstalling the emblem, use the old rivets with a small spot of epoxy on the underside of the lid.

If you follow the techniques described above, you will be the proud owner of some very attractive AK metal radios.

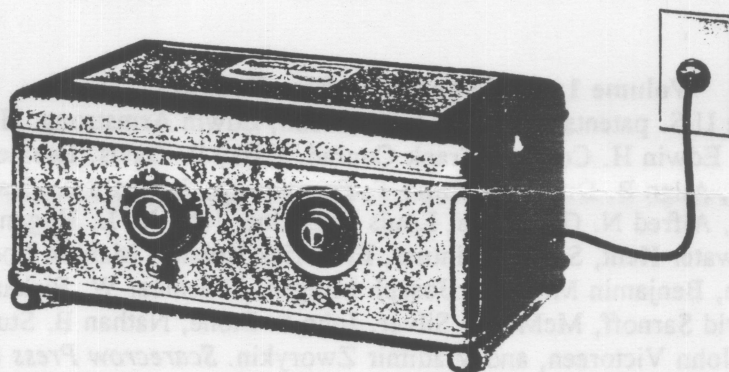
CENTRAL PA MEET

KRAEUTER PATENT BIBLIOGRAPHY

The following information was published in Vol. 5, No. 9 (Sept. 1997) of the DVHRC "OSCILLATOR"...Ed.

The Central Pennsylvania Radio Collectors Club swapmeet is planned for Saturday, Oct. 4, at Danville. Site is the Cloverleaf Barn Antiques and Gift Village at 180 McCracken Rd. (Exit 33 from I-80 for PA Rt. 54W). Hours are 8:30 -1:00. Food is available on-site. There is no charge for space, but dealers should bring tables. Details are available from Frank Hagenbuch (717-326-0932) or Mike Heffner (717-546-2907).

David Kraeuter, editor emeritus of the Pittsburgh club's *Oscillator* and a widely published author on radio history, has finished his five-volume reference set on radio-electronics pioneers and their patents. Judging from the task, his research efforts must have taken remarkable dedication, not to mention an unusually long attention span. The five volumes appear to be a great reference for history buffs and contents and pricing can be found on page 6.



Model 42 AC Receiver

ELECTRICALLY the Model 42 is the same as the Model 40 with one addition—an automatic line voltage control. It embodies, however, several distinct refinements in the design and contours of the cabinet: The use of cleverly designed ball feet; neat panel-beading of the four corners of the cabinet; a distinctively modern nameplate affixed to the gently crowned lid; oversize figures on the FULL VISION Dial—all contribute their share in making this an ideal set when judged from an artistic as well as an electrical viewpoint.

The Model 42 comprises Two Stages of Tuned Radio Frequency Amplification in conjunction with the Atwater Kent Coupling Circuit, a Detector and Two Stages of Audio Frequency Amplification, and is designed to use Six Alternating Current Tubes and a Rectifying Tube for the Power Supply.

Finish: Dark brown and gold or deep golden 'bronze and gold in the new satin finish. Dial, Vernier and Volume Control in brilliant black with gold markings. Name Plate in gold. Dimensions: Length, $17\frac{1}{4}$ in.; Depth, $10\frac{1}{4}$ in.; Height, $7\frac{7}{8}$ in.

Part No. 9850, Model 42 Receiver, for use with 110-120 volt, 50 to 60 cycle Alternating Current, complete with $10\frac{1}{2}$ feet of Flexible Attachment Cord and Two-Piece Attachment Plug, but without Tubes, \$86.

Radio Patent Bibliography and Indexes

Five-volume reference set now complete

This 1650-page set provides citations and indexes to 6400 patents issued to 100 electronic communication pioneers, with an emphasis on radio and television. The period covered is 1830 to 1980. All volumes were compiled and edited by David W. Kraeuter, M.L.S., University of Pittsburgh.

Volume 1: Radio and Television Pioneers

Includes citations to all the U.S. patents of Ernst Alexanderson, Edwin Armstrong, Hollis Baird, John L. Baird, John R. Carson, Edwin H. Colpitts, Frank Conrad, Harry P. Davis, Lee de Forest, Amos Dolbear, William Dubilier, Allen B. Du Mont, Philo T. Farnsworth, Reginald A. Fessenden, John A. Fleming, Hugo Gernsback, Alfred N. Goldsmith, Louis Hazeltine, John V. L. Hogan, Harry Houck, Charles F. Jenkins, A. Atwater Kent, Samuel Kintner, Frederick Kolster, Mahlon Loomis, Guglielmo Marconi, Hiram P. Maxim, Benjamin Miessner, Joseph Murgas, Greenleaf W. Pickard, Michael I. Pupin, John F. Rider, David Sarnoff, McMurdo Silver, John S. Stone, Nathan B. Stubblefield, Sarks Tarzian, Clarence Tuska, John Victoreen, and Vladimir Zworykin. *Scarecrow Press (800-537-7107), 1992, 319 pages, \$39.50.*

Volume 2: British Radio and Television Pioneers

Includes citations to all the British patents of Edward V. Appleton, John L. Baird, Alexander G. Bell, Sidney G. Brown, William Crookes, William H. Eccles, John A. Fleming, Charles S. Franklin, Oliver Heaviside, David E. Hughes, Fleeming Jenkin, Oliver J. Lodge, Norman W. McLachlan, Edgar W. Marchant, Guglielmo Marconi, Stanly R. Mullard, James E. Murray, William Noble, William H. Preece, Charles E. Prince, Joseph H. T. Roberts, Ernest Y. Robinson, Henry J. Round, Ernest Rutherford, John Scott-Taggart, William Thomson, Richard N. Vyvyan, Robert A. W. Watt, and Charles Wheatstone. *Scarecrow Press (800-537-7107), 1993, 206 pages, \$27.50.*

Volume 3: Radio and Electronics Pioneers

Includes citations to all the U.S. patents of Georg von Arco, Harold D. Arnold, Stuart Ballantine, Harold H. Beverage, Ralph Bown, Edouard Branly, Philip S. Carter, Emory L. Chaffee, William D. Coolidge, Henry H. C. Dunwoody, Lloyd Espenschied, Rudolf Goldschmidt, Clarence W. Hansell, Ralph V. L. Hartley, Raymond A. Heising, Albert W. Hull, Arthur E. Kennelly, Irving Langmuir, Joseph Lyman, Alexander Meissner, Illia E. Mourontseff, Harry F. Olson, Valdemar Poulsen, Richard H. Ranger, Grote Reber, Adolph K. H. Slaby, George C. Southworth, Charles P. Steinmetz, Albert H. Taylor, Browder J. Thompson, Roy A. Weagant, Edward C. Wente, Irving Wolff, and Charles J. Young. *UMI Research Abstracts (800-521-3042), 1994, 309 pages, Order number LD03016, \$69.50.*

Volume 4: Index to Radio and Electronics Patents

Provides a 10,000-entry keyword index to the titles of all patents cited in volumes one through three. *UMI Research Abstracts (800-521-3042), 1995, 512 pages, Order number LD03210, \$69.50.*

Volume 5: Numerical Index to Radio and Electronics Patents

Provides a numerical index to all patent numbers cited in volumes one through three. *UMI Research Abstracts (800-521-3042), 1997, 323 pages, Order number LD03556, \$69.50.*

NEW JERSEY ANTIQUE RADIO CLUB



ANTIQUE RADIO SWAPMEET

SATURDAY, SEPT. 27, 8:00AM - 1:00PM*

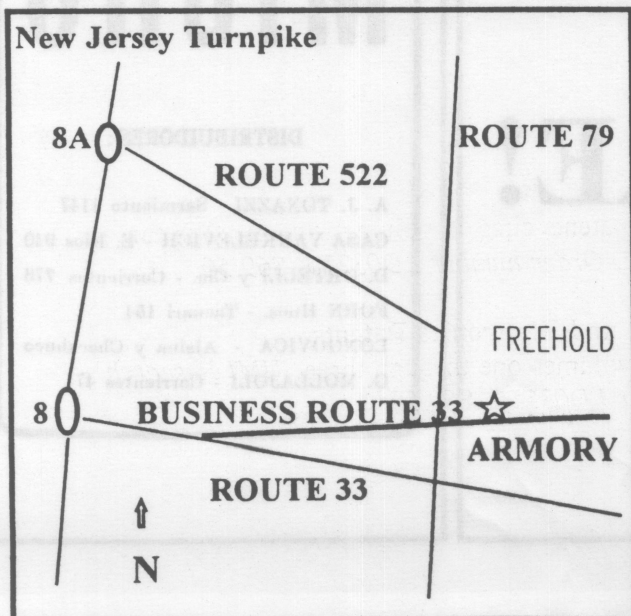
NEW LOCATION: National Guard Armory, Freehold N.J.

NJARC presents its Summer all-indoor swapmeet in a spacious, new location with vendors displaying a spectrum of collectible old-time radios, military and civilian communication equipment, audio equipment, phonographs, and associated parts and literature. Convenient, ground level access for vendors; snacks are available. Buyer admission is \$2.00 to help defer rental fee. Everyone is welcome! **Reservations are required to guarantee a space. NOTE: Tables will not be provided; floor space is ample and clean.**

DIRECTIONS: From the North: N.J. Turnpike Exit 8A to Route 522 East; in Freehold, take Route 79 South for about 1 mile to BUSINESS ROUTE 33 (Park Ave.) East - the armory is about a block East of Route 79 on BUSINESS ROUTE 33. From the South: N.J. Turnpike Exit 8 to Route 33 East for about 10 miles; continue on BUSINESS ROUTE 33 (Park Ave.) through Freehold - the armory is about a block East of Route 79 on BUSINESS ROUTE 33.

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

CONTACTS/RESERVATIONS: Marv Beeferman, 2265 Emerald Park Drive, Forked River, NJ 08731 (609-693-9430). James Whartenby, 120 W. Franklin St., Bound Brook, N.J. 08805 (908-271-7701)



*Vendors set up at 7:00; no early admittance!

Formed in mid-1992, NJARC has a membership above 160. The club meets at Grace Lutheran Church, corner of Route 33 and Main Street in Freehold, on the second Friday of each month at 7:30 PM. Visitors are welcome. The club publishes the monthly *Jersey Broadcaster* and has a program providing members with replacement tubes and capacitors at moderate prices. Technical, restoration and historical presentations are provided by members at each meeting. Contact Jim Whartenby (908-271-7701) for additional information.

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

HARD COVER BOOKS:

1. *Essentials of Radio Electronics*, 2nd Edition, by Slurzberg and Osterheld, \$20
2. *Fundamentals of Radio*, by L.O. Gorder and Kenneth Hathaway, \$20
3. *Basic Electronics*, by Bernard Grob, \$20
4. *Fundamentals of Radio*, Editor W.L. Everitt, University of Illinois, \$20.
5. *Elements of Radio*, 4th Edition, by A. Marcus and Wm. Marcus (no price specified)

Prices do not include postage, Elwood F. Hunt, 308 Georgetown Road, Carneys Point, N.J. 08069-2512, 609-299-5259.

The ever-handly reference *Tube Lore* gives 186 pages of insightful scoop on about every North American tube there is. Reviewed by Eric Barbour in *Vacuum Tube Valley* as "an instant classic." The book is available from the following hip sources: (A) the DVHRC book program (B) DVHRC's A. G. Tannenbaum, 215-540-8055 (C) W7FG Vintage Manuals, 800-807-6146 (D) Antique Radio Classified, 508-371-0512 (E) Antique Electronic Supply, 602-820-5411 (F) Fair Radio Sales, 419-223-2156 (G) Angela Instruments, 301-725-8823 (H) Antique Radio Components, 916-878-1780 (I) Paul Washa, 612-472-3010, and (J) the Museum of Radio & Technology Bookstore (charleston, WV). Or...its available from Ludwell Sibley, 44 E. Main St., Flemington, NJ 08822 for \$19.95 postpaid in the U. S. and Canada, \$24.95 by air overseas. Clubs get a discount on multiple copies.

Tektronix oscilloscopes 535 and 547 with extra plug-in units and Scopemobile. Tektronic 575 transistor curve tracer. General Radio 805B RF generator, 1021P2 UHF generator. GE TV alignment sweep and marker generator set. Manuals for all. Other test gear and surplus equipment coming up for sale - stay tuned. Mark W. Hilliard, N3NBL, 921 S. Edward St., Allentown, PA 18103, 610-432-8089. (7/97)

WANTED

Buying European Radios! Grundig, Telefunken, Saba, Normende, Blaupunkt, French Radios, Polish Goplana, etc. Must be in mint or close to mint condition and in working order. No junkers, please! Richard Brill, P.O. Box 5367, Old Bridge, N.J. 08857 (732)-607-0299 Fax: (908)-679-8524) rgbent@aol.com

YOUR

AD

HERE!



*Su aparato será
mejor usando la
irreemplazable
lámpara*

RADIO MICRO

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G. MOLLAJOLI - Corrientes 477