

The Jersey Broadcaster

NEWSLETTER OF THE NEW JERSEY ANTIQUE RADIO CLUB

November 1999

Volume 5 Issue 11



MEETING/ ACTIVITY NOTES

Reported by Marv Beeferman

IMPORTANT NOTE: DUE TO A CONFLICT WITH CHURCH ACTIVITIES IN NOVEMBER, THIS MONTH'S MEETING WILL BE HELD ON TUESDAY, NOVEMBER 16th. OUR REGULAR SCHEDULE WILL RESUME IN DECEMBER.

October's NJARC meeting was preceded by an Executive Board meeting where the Tony Flanagan Memorial Award winner was chosen; the presentation will be made at the December meeting. Additional topics and suggestions discussed by the Board included:

- More regularly scheduled scavenger hunts and "mystery" grab bags.
- Periodic contests (not on as grand a scale as the AWA but with open and/or restricted categories)
- Controlling the length and frequency of highly technical presentations.
- Planning and publishing easily-scheduled events well in advance.
- Limiting meets to two a year (perhaps one large event and one standard meet) so that they can be more thoroughly planned and receive more advanced notification and advertising.
- Investing more funds in growth projects, member benefits and hobby promotion.
- Expanding the club's influence and facilitating meeting attendance through regionalization and member-only "minimeets."



MEETING NOTICE

The next meeting of the NJARC will take place on **TUESDAY, NOV. 16 at 7:30 PM** in the Grace Lutheran Church, corner of Route 33 and Main Street in Freehold. Contact Marv Beeferman at 609-693-9430 or Phil Vourtsis at 732-446-2427 for directions. This month's technical session will be presented by Al Klase on "Using a Scope." We'll also discuss final plans for the InfoAge tour and December's swapmeet and Christmas party. We'll also have input from those who attended our first repair clinic.

Most of the suggestions were well-received and will be discussed and acted on over the following year.

The remainder of the meeting was filled with an engrossing presentation by William Terbo, Grand Nephew of Nikola Tesla and Executive Secretary of the Tesla Memorial Society. The highlights of his talk are presented in this month's

might care to secure a pioneer membership in the InfoAge Learning Center (don't forget company matching funds); an application form is attached. Also, if you have any display artifacts to contribute for November 20th, contact Phil Vourtsis as soon as possible.

NJARC/DVHRC member Mike Koste is recuperating at home (57 Tennis Ave., Ambler Pa.) after a serious illness. He's doing much better, but still has a way to go to full recovery. Besides serving the DVHRC in many capacities (president, secretary, *Oscillator* editor...to name a few), Mike has been a great supporter of the NJARC. Please keep Mike in your thoughts and prayers.

Anyone attempting to build the tunable AM booster featured in October's *Broadcaster* probably has already found the errors in step 4 and 6 in the "Coil Assembly" section, but here's a repeat: wire length should be 34' not 34".

In closing, don't forget reservations for the November 4th swapmeet - we're filling up fast. Also, if you have e-mail, don't forget to subscribe to our mailing list as follows:

- 1) Visit <http://www.gth.net/>
- 2) Click on NJARC in the dropdown box (way down in the club area)
- 3) Enter your e-mail address in the "E-Mail Address" box
- 4) Click "Submit Request"



Phil Vourtsis conducts "basic training" for NJARC's first radio repair clinic

Broadcaster. Articles reviewing the events of our very successful repair clinic and upcoming InfoAge Tour are also featured.

With regard to the Camp Evans-Marconi Hotel tour, this will be a great opportunity for NJARC members to get acquainted with and show our support for what may be our new home. If you plan to attend, it might be a nice idea to wear something with the club logo (jacket, sweatshirt, tattoo) to enhance our presence. To show even more support, you

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. The Editor or NJARC is not liable for any buying and selling transactions or for any other use of the contents of this publication.

OFFICERS, BOARD OF DIRECTORS AND PROGRAM COORDINATORS

PRESIDENT:

Phil Vourtsis
13 Cornell Place
Manalapan, N.J. 07726
(732)-446-2427

VICE PRESIDENT:

Jim Fisher
344 Harrison Ave.
Manville, N.J. 08835
(908)-725-7476

SECRETARY/EDITOR:

Marv Beeferman
2265 Emerald 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:

Mark Mittlemen (908)-431-1324
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>

TESLA - A PERSONAL PERSPECTIVE

By Marv Beeferman

Mr. William H. Terbo, Founding Director, Chairman of the Executive Board and, since December, 1998, Executive Secretary of the Tesla Memorial Society, was guest speaker at the October meeting of the NJARC. Mr. Terbo's grandmother, Angelina, was Nikola Tesla's sister and his father, Nicholas J. Trbojevich, (Tesla's nephew and 30 years his junior) was a world-known research engineer, mathematician and inventor. Mr. Trbojevich was the only direct family member who was technically trained and was the only family member to join Tesla in America (in 1914). The talk was arranged by NJARC member Dave Sica.

Mr. Terbo's presentation, accented by absorbing graphics, centered on Tesla's personality and philosophy. Details of his seminal work in radio was kept to anecdotal references to the Marconi lawsuits since Mr. Terbo expected that NJARC members would be somewhat familiar with the technical aspects of his accomplishments in radio science. The talk was introduced by what Mr. Terbo felt were two major attributes that distinguished Tesla - namely, that he was one of a small group of independent inventors with none of the corporate ties which were evolving at the turn of the

century and that he was responsible for two separate "packets" of patents, those associated with alternating current and those associated with tuned circuits. Mr. Terbo also noted that Tesla had great ideas that unfortunately cost great deals of money to demonstrate and prove.

Some of the areas that were touched upon included:

Edison - It has been said that Tesla had the strongest admiration for Edison, joining him at the Edison Works after his arrival in the United States. But personality differences between the two doomed their relationship from the start. Edison disliked Tesla for being an egghead, theoretician and cultured (Tesla always tried to present himself as an aristocrat). Tesla once said of Edison "If Edison had a needle to find in a haystack, he would proceed at once with the diligence of the bee to examine straw after straw until he found the object of his search...I was a sorry witness of such doings, knowing that a little theory and calculation would have saved him ninety percent of his labor."

J.P. Morgan - In 1900, Tesla began construction on Long Island of a wireless, world broadcasting tower with \$150,000 of capital from J.P. Morgan. He expected to provide worldwide communication and to furnish facilities for sending pictures, messages, weather warnings and, probably of greatest interest to Morgan, stock

reports. Mr. Terbo said that Morgan felt that Edison was "stuck with DC" and not looking ahead to the future. The project was eventually abandoned because of a financial panic, labor troubles and ultimately Morgan's withdrawal of support with the successes of Marconi. It was probably Tesla's greatest defeat.

Mark Twain - Tesla allowed himself only a few close friends, Mark Twain being one of them. But the relation-

ship started long before their first meeting:

"I had hardly completed my course at the Real Gymnasium when I was prostrated with a dangerous illness or rather, a score of them, and my condition became so desperate that I was given up by physicians. During this period I was permitted to read constantly, obtaining books from the Public Library which had been neglected and



entrusted to me for classification of the works and preparation of the catalogues. One day I was handed a few volumes of new literature unlike anything I had ever read before and so captivating as to make me utterly forget my hopeless state. They were the earlier works of Mark Twain and to them might have been due the miraculous recovery which followed. Twenty-five years later, when I met Mr. Clements and we formed a friendship between us, I told him of the experience and was amazed to see that great man of laughter burst into tears."

George Westinghouse - Mr. Terbo noted that Tesla had an excellent relationship with Westinghouse. In May 1885, he bought the patent rights to Tesla's polyphase system of alternating-current dynamos, transformers and motors. The transaction precipitated a titanic power struggle between Edison's direct-current systems and the Tesla-Westinghouse AC approach, which eventually won out. Westinghouse used Tesla's system to light the World's Columbian Exposition at Chicago in 1893. This success was a factor in winning him the contract to install the first power machinery at Niagra Falls (one of Tesla's dreams), which bore Tesla's name and patent numbers. The project carried power to Buffalo by 1896.

Marconi and the Invention of Radio - In 1891, Tesla invented his famous "Tesla coil," an air-core transformer with primary and secondary coils tuned to resonate - a step-up transformer which converts relatively low voltage high current to high-voltage low current at high frequencies. By allowing the conversion of weak, highly damped oscillations of the original Hertz circuit and to sustain currents of almost any magnitude, Tesla anticipated by several years the first experiments of Marconi. In 1893, in St. Louis, Tesla made the first public demonstration of radio communication, although Marconi is generally credited with having achieved this feat in 1895. Although there was no transmission at a great distance, all the fundamentals of modern radio (antenna, ground, antenna-ground circuit containing inductance and capacitance, tuning, sending and receiving sets in resonance and detection) were demonstrated.

When Tesla first learned of Marconi's first transatlantic transmission in 1901, he

was credited with saying "Marconi is a good fellow, let him continue. He is using seventeen of my patents." In 1909, the Nobel prize in physics was awarded to Marconi and Braun (of Germany) for their "separate but parallel development of the wireless telegraph." Mr. Terbo said there was no truth in the rumor that consideration was given to a joint award between Tesla and Thomas Edison.

In 1943, the U.S. Supreme Court reversed an initial finding in Marconi's favor to rule that Tesla had anticipated all other contenders with his fundamental radio patents. The radio-engineering fraternity made a major effort, in 1956, to atone for this error on the occasion of Tesla's one hundredth anniversary.

Mr. Terbo made an effort to put in perspective Tesla's eccentricities, compulsions and progressive germ phobia. In one instance, upon visiting Tesla at the New Yorker hotel, Mr. Terbo said that Tesla had no inhibitions about hugging and kissing his grandnephew when he was introduced. Also discussed was his speculations concerning communication with other planets, his assertions that he could split the Earth like an apple and his claim of having invented a death ray capable of destroying 10,000 airplanes at a distance of 250 miles. Mr. Terbo also talked about the impounding of Tesla's trunks after his death which held his papers, diplomas and other honors, his letters and his laboratory notes and the controversy surrounding the loss of unpatented research papers and other sensitive documents.

KLASE'S CLINIC CLICKS

Edited by Marv Beeferman

The first NJARC repair clinic, orchestrated and conducted under the able baton of Al Klase, was held Saturday, October 30th at the Grace Lutheran Church in Freehold. The goal of the clinic was to provide a hands-on learning experience in radio troubleshooting, repair and alignment. Based on member response and feedback, the clinic came off with flying

colors. As Tom Provost commented:

"I think that all agree that the repair seminar on Saturday was a resounding success. I expect that there will be feedback for repeats of the seminar during the year. I spent most of my time helping John Milich who came down from Vermont just to attend it. He really enjoyed it and thought the seminar was worth the trip. We didn't complete the repair, but he got the parts and gameplan for continuing the work and he'll call me to let me know how it goes. That's a lot of enthusiasm."

Twelve experienced instructors were lined up with about twenty additional club members expressing an interest in bringing sets for repair. Instructors arrived between 8:00 and 8:30 armed with hand tools, soldering irons, test equipment (multimeters, VTVMs, DVMs, signal generators, scopes, frequency counters, power supplies, variacs, isolation transformers, tube testers, etc.) parts (tubes, capacitors, resistors, wire, etc.) a set of Rider's and, thanks to Dave Snellman, the all important coffee and donuts. Four Sunday-school tables were covered with Masonite to head off furniture damage and the instructors set up shop.

The "students" started arriving about 9:00 with an array of radios ranging from a 1920s Freed-Eisemann three dialer battery set to a 1960s European AM-FM set. Other candidates included a Philco 84, GE 356, Zenith H725, Crosley 52TF, Crosley 58TA, Crosley 706 and a Zenith L505 1953 portable. For those starting at square one with respect to radio know-how and basic electricity, Phil Vourtsis conducted a 1-hour training session touching on such subjects as voltage/current/resistance theory, DC and AC waveforms, frequency response (AF, IF and RF), the building blocks of AM radio, basic tube construction and operation, and common circuits utilizing resistors, capacitors, coils and transformers. Phil ended the session with the basics of multimeter operation.

In the repair area, "triage" was the first step. All the sets were opened up, inspected and planned repairs discussed with the instructors. Some sets needed only a bit of troubleshooting and repair while others were obvious candidates for

recapping. The group sent out for pizza around noon to keep everyone in top operating condition.

Al Klase believes that most of the radios went home working with most of their owners leaving with a greater understanding of the intricacies of repair and restoration and an improved degree of self confidence. As Al stated: "Clearly we'll have to do this again!"

The group managed to get things cleaned-up and was on its way home before 5:00 PM with a glowing sense of accomplishment. No doubt, Al is open to any suggestions for fine tuning the clinic. For example, one member has suggested that the club obtain the CD version of the Riders manuals and a low-end system to display and print it on..."beats the hell out of dragging approximately 20 heavy, moldy old volumes out of the basement!"

A final thanks to all who participated: Al Klase, Dave Snellman, Larry Scharmann, Ray Chase, Martin Friedman, Richard Lee, Richard Brill, Walt Heskes, Tom Provost, Grant Buford, Sal Brisindi, Gary and Steven Gregg, Jerry Dowgin, Rich Mueller, Gary D'Amico, John Rucolo, Norm Hertz, Mike Stoppiello, Bill Dunphy, Phil Vourtsis, Dwight DeButts, Bob Sakson, John Milich and Marv Beeferman.

CAMP EVANS TOUR OFFERED

Fort Monmouth and the Wall Township Restoration Advisory Board (RAB) has scheduled continuous tours of the Evans Area of Wall Township, for Saturday, November 20, from 9 a.m. to 3 p.m. to bring members of the public up to date on the Army remediation work in the Evans area, which is nearing completion. The RAB is a public forum for promoting community involvement in the environmental restoration process associated with the closure of the Evans Area. This will be the final tour before the transfer of the property to Wall Township early next year.

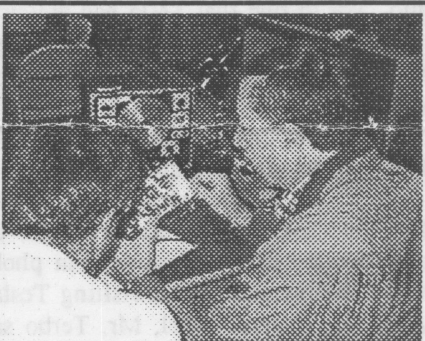
The RAB offers tour-goers the option of visiting different groups of buildings and



Ray Chase assists an attentive member



Up close and personal



Tom Provost assists John Milich who traveled from Vermont to attend



Norm Hertz and Gary D'Amico cooperate on a vexing problem

taking a bus tour of the site. The buildings will include the Marconi Hotel and a Marconi cottage, an "H" building and several other W.W.II buildings. A "ham radio" demonstration will be given in the Marconi cottage by the Ocean-Monmouth Amateur Radio Club and they will explain how communications took place during the early days of radio. A tour of the Hotel will be given by Mr. Fred Carl, the Wall Township Historian. He will also provide insight on the Information Age Learning Center which is programmed to be located there in the near future. Mr. Charles Appleby, the Army Environmental Coordinator for the Evans Area, will also be available to answer any environmental remediation questions. Several other groups will also be providing information.

Buses will depart from the parking lot outside the former Marconi Hotel on Marconi Road, which can be reached by Routes 18 northbound travelers by traveling up the hill and turning right into the Marconi Hotel parking lot after the second intersection. Southbound travelers will merge onto Brighton Avenue and

make the first right onto Marconi Road, which leads up the hill to the parking lot.

Members of the NJARC will also be displaying Marconi and radio-related artifacts and ephemera. If you desire to contribute any display items, please contact Phil Vourtsis at 732-446-2427 or at our next meeting on Tuesday, November 16th.

TEACHING AN OLD DOG NEW TRICKS

WILL "AM" GO DIGITAL?

Edited by Marv Beeferman

The following is based on an article that appeared in the October 28, 1999 issue of EDN by Dan Strassberg, "A Century-Old Technology Enters the Digital Age"...Ed

Although invented some 80 years ago, amplitude modulation (AM) may offer communication engineers one of the first

platforms for creating true software radios. What is a software radio? Simply put, the term describes a receiver, transmitter or transceiver that contains no special purpose digital ICs and whose only analog circuits are analog-to-digital converters (ADCs) or digital-to-analog converters (DACs).

Although there are digital radios on the market today that provide many of the benefits of a software radio, their use of RF analog devices and specialized digital ICs do not qualify them as "true software radios." For that matter, a clock radio that digitally displays the stations' frequencies almost surely isn't a digital radio, regardless of what you heard from the salesperson who sold it to you. Such radios do contain digital elements besides the display (frequency control of the IF oscillator, for example) but frequency translation (mixing) and demodulation are the responsibility of analog circuits, just as they were in the radios 65 years ago.

Although analog and digital radios perform similar functions, most digital-radio architectures differ from those of analog receivers and transmitters. As you might suspect, the earlier in a receiver's block diagram the radio signal moves from the analog to the digital domain, the smaller the number of analog circuits the receiver needs. So far, though, it has generally proved impractical to move a digital receiver's ADC all the way to the receiving antenna's output, the key problem being the availability of a suitable sampling (S/H) circuit.

The major problem presented to an all-digital radio is demodulation or converting the carrier to an intermediate frequency (IF). Digital receivers utilize a process

called undersampling to perform this conversion. Undersampling is based on the principle that a signal's modulation can be fully recovered by limiting the signal's bandwidth to a region surrounding the carrier frequency and intentionally sampling at a rate higher than twice the bandwidth. Unfortunately, present day S/Hs can only work with lower frequencies and digital receivers must still use analog mixing to translate the carrier frequency to a low enough value.

There is, however, a commonly used frequency band that is well within the capabilities of current-production S/Hs. It is the AM band (0.52 to 1.71 Mhz in the United States, Canada and Mexico). A high-resolution ADC that contains appropriate input and S/H amplifiers and can take approximately 3.5M samples/sec is suited for direct connection to a software AM radio's receiving antenna. You are unlikely to see such a software radio in stores anytime soon, however, because it would be much more expensive than an analog radio. Nevertheless, such a radio would provide an interesting demonstration of a true software radio.

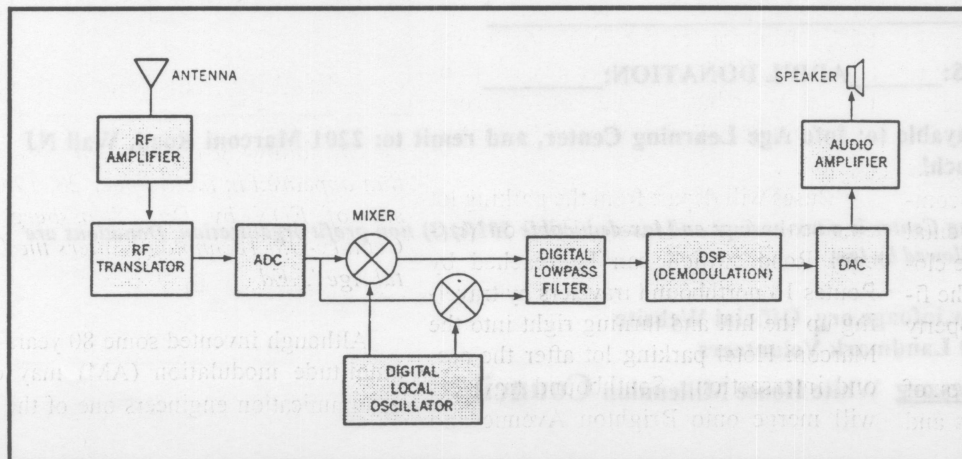
The radio's ADC's samples would contain the signals of all the stations the radio could receive. The radio would accomplish tuning and demodulation entirely in the digital domain. Regardless of what standard, if any, US broadcasters and the FCC select, this receiver could be ready. All that would be necessary to adapt it to a new modulation standard would be to load new software.

The digital receiver could recover the modulation from any signal in the AM band in the following way: Suppose the signal you wanted came from a station

whose frequency was, say, 1.24 MHz. The digital-radio IC in the receiver mixes (multiplies) the ensemble of samples that comes out of the ADC at 3.5M samples/sec with a second set of samples whose rate is identical. This second ensemble represents a sine wave at the desired station's frequency, 1.24 MHz. The entire mixing operation takes place in the digital domain, usually with 32-bit or higher precision. What emerges from the digital mixer and the lowpass filter that follows it is a baseband replica of the modulation on the 1.24-MHz carrier. In other words, digital mixing removes the 1.24-MHz carrier.

Even this seemingly trivial case has at least one significant problem, though: dynamic range. Analog radios solve this problem with ease through the use of AGC. But the kind of AGC you find in analog radios doesn't work when you digitize a receiver's entire tuning range at once.

To improve the radio's performance, you might add a circuit that detects and eliminates ADC saturation by controlling the gain of an amplifier whose gain changes in steps. This amplifier must precede the ADC. Unlike the variable-gain amplifiers in analog radios' AGC circuits, such programmable-gain amplifiers do not introduce unacceptable distortion in digital radios. However, adding such an amplifier still doesn't enable the radio to receive weak signals in the presence of strong ones. Preceding the digital receiver's ADC with analog circuits can solve this problem but its required architecture would be inconsistent with the software-radio goal of moving the ADC as close as possible to the antenna.



As is common in digital receivers today, this unit precedes its digital components with several analog blocks - the RF amplifier and translator (downconverter).

Membership is Open **In The Information Age Learning Center**
2201 Marconi Road, Wall NJ 07719
Marconi Lab and Camp Evans Site

THE INFORMATION AGE LEARNING CENTER, Located on the former Marconi Lab and Camp Evans Site, is actively restoring the site as a museum and hands-on science center. Originally founded as Marconi's first permanent US Laboratory, and later a satellite facility of RCA, and still later lab facilities of the US Army Signal Corps, the site is an extremely important to the history of communications. Among other famous firsts, the famous Diana Project transmitted a signal to the Moon in January 1946, the official start of the Space Race, the first time anything from the Earth entered outer space. The Diana Site also tracked Sputnik I in 1957, and tracked most space flights from NASA. Improvements in radar, radio, satellite, telephony, and other forms of communications were all developed right here. So many things we take for granted today got their start here with Marconi or the Signal Corps.

We are opening memberships to the general public as an invitation to become a PIONEER member. This is a unique opportunity to become involved on a ground-floor basis in a brand new non-profit museum. This class of membership will only be offered through 1999 and 2000, and you are invited to become a PIONEER. Your dues and donations, as well as hands-on involvement, will bring us that much closer to opening as an historic site and science center, bringing good educational activities and historic preservation to Wall Township and Monmouth County NJ.

Despite delays while the US Army cleans up the site, we are actively assembling artifacts and displays important to the history of the site. We also have plans to restore the massive Diana Site Space Sentry 60-foot dish antenna to operation once again.

We have been nominated to the National Register of Historic Places, are a member of Save America's Treasures, have been selected as a 2000 Landmark Volunteers Worksite, and are a Mars Red Rover Regional Educational Center. As you can see, there is a lot of work to be done, and you can be part of this historic undertaking.

Please fill out this application and send to:

The Membership Director
InfoAge Learning Center
2201 Marconi Road
Wall NJ 07719

PIONEER MEMBERSHIP dues are \$25.00, good until Dec. 31, 2000

NAME: (Please Print) _____

ADDRESS: _____

CITY/TOWN: _____ STATE: _____ ZIP: _____

SPECIAL INTERESTS: _____

CHECK NO. _____ FOR \$: _____ ADD'L DONATION: _____

Please make all checks payable to: Info Age Learning Center, and remit to: 2201 Marconi Road, Wall NJ 07719. Thank you very much!

The Information Age Learning Center is a tax-exempt and tax-deductible 501(c)(3) non-profit organization. Donations are tax-deductible to the extent allowed by law.

Check us out online: www.infoage.org Official Website
www.volunteers.com 2000 Landmark Volunteers

www.saveamericastreasures.org White House Millennium Council

NEW JERSEY ANTIQUE RADIO CLUB



ANTIQUE RADIO INDOOR SWAPMEET

SATURDAY, DECEMBER 4th, 8:00AM - 3:00PM*

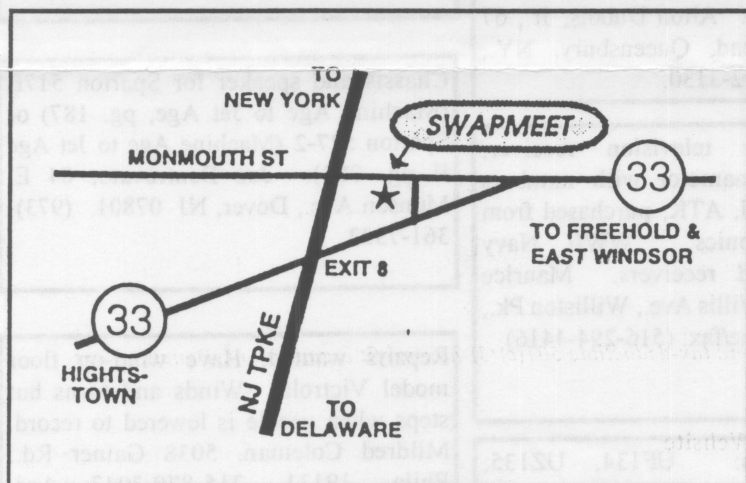
HIGHTSTOWN COUNTRY CLUB (new location)

NJARC has temporarily moved its Fall swapmeet back to Hightstown, NJ with vendors displaying a spectrum of collectible old-time radios, military and civilian communication equipment, audio equipment, phonographs, and associated parts and literature. The swapmeet is **all-indoors** with spaces guaranteed to the first 50 reservations. Weather permitting, outdoor spaces will also be available.

DIRECTIONS: From N.J. Turnpike Exit 8, go east on Route 33 about 200 yards (past "Mom's Peppermill" restaurant). Stay to the left and turn left at the first traffic light on the center divider, crossing Route 33 west. Continue to the end of the block to Monmouth Street and turn left. The Country Club is on the left with a Ramada Inn across the street.

RATES: NJARC members \$15/space; non-members \$20/space; \$2 buyer admission charge.

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



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

Formed in mid-1992, NJARC has a membership above 150. 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 Phil Vourtsis (732-446-2427) 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

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

7JP4 CRT, good filament, screen looks OK, make offer. Alton Dubois Jr., 67 Peggy Ann Road, Queensbury, NY 12804 (518)-792-3130.

Radio schematics and service data, \$2.50 plus #10 SASE (price is for 1 to 5 pages of data per model; over 5 pages, copy charge is 20 cents per page). US & Canadian models 1920s to 1960s. Questions/quotes answered with a SASE. Steve Rosenfeld, PO Box 387, Ocean Gate, NJ, 08740. Phone (732) 269-2022 Fax (732)-269-2897. srosenfeld@ems.att.com

Assorted: 3 homebrew amplifier chassis with UTC and Acrosound transformers - tubes-and meters (See: <http://www.netaxs.com/-am004d/equipment> for pictures), Amprobe RS3, AKG D109 mike, EV 660A mike, Sony VP2011 3/4U matic-NR, Simpson 371 AC voltmeter, Simpson 260 manual, RCA T2K radios (2), 12" Jensen speaker from floor console radio/with field coil, Triplett frequency counter Model 7000. Mike Muderick, (610)-449-6970 or Mike@Muderick.com

(218)-313-2130

For more information, contact the publisher at (218)-313-2130

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." Available from Ludwell Sibley, 102 McDonough Road, Gold Hill, OR 9725-9626 for \$19.95 postpaid in the U. S. and Canada, \$24.95 by air overseas. Clubs get a discount on multiple copies.

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

Parted out Stromberg Carlson 19-20 (AC). Power transformer appears OK; IF's are O.K. Electrodynamic speaker is electrically OK (needs cone repair). Make offer. Alton Dubois, Jr., 67 Peggy Ann Road, Queensbury, NY 12804. (518)-792-3130.

WANTED

Cast aluminum lid for Eveready #2 radio, circa 1928. Good photo would help if lid is not available. Need two, four-inch black No. 488 dial knobs for Fried Eisemann NR-6. Alton Dubois, Jr., 67 Peggy Ann Road, Queensbury, NY., 12804. (518)-792-3130.

WWII military television receiver, camera and dynamotor with numbers CRV, AXT, ATJ, ATK, purchased from Denson Electronics. WWII Navy transmitters and receivers. Maurice Schechter, 590 Willis Ave., Williston Pk., NY 11596 Phone/fax: (516)-294-4416

Japanese tubes: UF134, UZ135, UF109A, UF111A, UY133A. Lewie Newhard (610)-262-3255

The May 1966 issue of *Electronics Illustrated*. Richard C. Yingling, 2 S. Locke Ave., Yeagertown, Pa. 17099 (717)-242-1882

Information on "Lang" radios: literature, pictures, pricing, etc. Charles J Dreitleio, 515 Elizabeth St., New Milford, NJ 07646 (201)-384-3862

Gernsback's Official Radio Service Manuals: 5,7,8. RCA Victor Service Data: '47, '48, '49, '51. Mike Tannenbaum, PO Box 386, Ambler PA 19002. (215)-540-8055 Fax (215)-540-8327 or k2bn@agtannenbaum.com

Emerson AU-190 chassis; FADA 659 dial glass; Chelsea ZR-4 audio transformer; Sentinel 400 Television; Plastic CRT cover (front) for 17" Philco Predicta; Pilot TV-37 tuning knob (wood). Frank Johnson, 530 Elford Rd., Fairless Hills, PA 19030-3624. (215)-943-8295

Sales literature, service manuals, and equipment for theatre sound/broadcast use by RCA Photophone, Century Sound, Motiograph, Altec, Western Electric, etc. Theatre catalogs by Jay Emmanuel Publications, Philadelphia. Scott Stillwell, 2328 Cambridge Circle, Hatfield, PA 19440. (215)-393-1833 Pager: (800)-717-9306

Chassis and speaker for Sparton 517B (Machine Age to Jet Age, pg. 187) or Sparton 527-2 (Machine Age to Jet Age II pg. 283). Joe Bentrovato, 84 E. Munson Ave., Dover, NJ 07801. (973)-361-7392

Repairs wanted: Have wind-up floor model Victrola. Winds and turns but stops when needle is lowered to record. Mildred Coleman, 5038 Gainer Rd., Phila. 19131. 215-879-3047 Ans. Machine:215-477-8151