The Jersey Broadcaster

NEWSLETTER OF THE NEW JERSEY ANTIQUE RADIO CLUB

October 2004 Volume 10 Issue 10

MEETING/ ACTIVITY NOTES

MEETING NOTICE

The next NJARC meeting will be held on Friday, October 8th at the Sarnoff Library in Princeton, NJ at 7:30 PM. An Executive Board meeting will be held at 6:30 PM and all Board members are requested to attend. Contact President Phil Vourtsis at (732)-446-2427 or visit the NJARC website at http://www.njarc.org for directions.

This month's program includes what might be considered a controversial talk by Scott Marshall which he calls "The Case Against Philo Farnsworth and Claims he Invented Electronic Television." To maintain the decorum of the meeting, rotten eggs and tomatoes will be asked to be checked at the door.

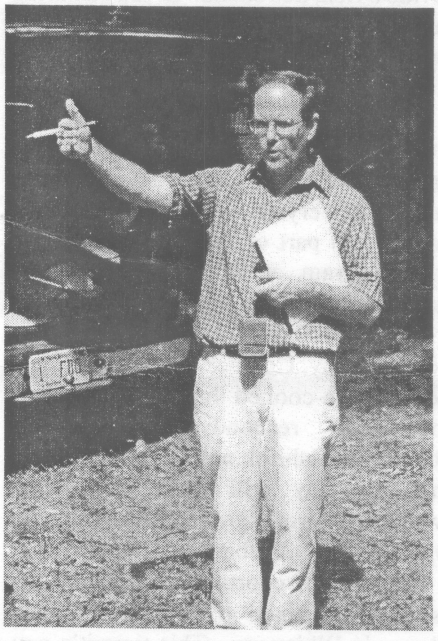
Reported by Marv Beeferman

The September meeting was moved to the sylvan setting of InfoAge, where NJARC members enjoyed a laid-back tailgate swapmeet and informal monthly meeting. We also received a pep talk from Infoage Director Fred Carl who filled us in the rapid progress made during the last few months and the need for the club to really get the ball rolling in making the Broadcasters Hall of Fame a reality.

The club is slowly growing in numbers (close to 210) and for many new members, the Infoage science-history center may just be a few, occasional lines in the *Broadcaster*. But in reality, it is quite an undertaking as can be readily seen at http://www.infoage.org. For the club, it represents the only focal point in the state for New Jersey's rich radio history, a platform for membership growth, visibility and influence and a legitimacy for access to corporate history, archives and resources.

Infoage is a group of cooperating nonprofit organizations dedicated to the preservation and education of information age technologies. The mission of Infoage is to develop an interactive learning center focused on the information age technologies at historic Camp Evans with the aim to inspire people of all ages to learn from the past and improve the future.

The site is at Camp Evans in Wall, New Jersey. The site is listed on the National Register of Historic Places and was once the 1914 Marconi Belmar wireless station where a few of the original buildings still remain. It also played an important role in WWI trans-Atlantic communications and a key role in the development of radar as an effective WWII secret weapon. Camp Evans opened space communications in 1946, was a cold war technology site, a nuclear weapons research site and a pre-NASA space research site. What a legacy to build on!



Infoage Director Fred Carl offers his vision for the future to NJARC members at last month's tailgate at Camp Evans.

In 2001, the National Broadcasters Hall of Fame was transferred to Infoage and its restoration and preservation has been assigned to the New Jersey Antique Radio Club. It will initially be installed at the historic Marconi wireless station's Chief Engineer's cottage and will move to larger quarters following site turnover. Museum artifacts include old-time radio programs, films of radio personalities, vintage radios, microphones, vacuum tubes and photographs and memorabilia of famous broadcasting celebrities.

As an NJARC member, you are automatically a part of this wonderful project. But quite honestly, the project cannot move forward without a more direct participation. Over the years, many NJARC have participated in the Camp Evans make-over; perhaps distance or other obligations have prevented you from attending. But there is another way of showing your support. The NJARC Board of Directors is requesting that any member who can afford it to become an Infoage Learning Center member. The cost is $25 and you will be afforded free access to the site's facilities, access to the web "members only" page, receive a quarterly newsletter and invited to all events. But most of all, you will be providing badly needed financial resources for this worthwhile enterprise. Let's show Infoage Director Fred Carl that we are really serious about preserving New Jersey's radio history. To this end, a membership application is included in this month's *Broadcaster* for your convenience. Make sure you add to the application "NJARC Member."

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 $20 per year and meetings are held the second Friday of each month.

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:
Ray Chase
Gary D'Amico (732)-271-0421
John Ruccolo (609)-426-4568
TECHNICAL COORDINATOR:
Al Klase
22 Cherryville-Stanton 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:
Dave Sica
(732)-382-0618
http://www.njarc.org
MEMBERSHIP SECRETARY:
Marsha Simkin
33 Lakeland Drive
Barnegat, N.J. 08005
(609)-660-8160

In addition to Infoage, the NJARC is also associated with the Sarnoff Library under the direction of Alex Magoun. First, Alex would like to thank the NJARC radio experts and exhibitors for doing so much to make the last Hands-on Radio History and Repair Clinic the best ever. Over 150 people visited during the day, and there was no let up in the clinic or the museum for over six hours. Second, the Sarnoff Corporation has committed to opening the Library regularly to school field trips and tourists. The first step was taken with a project grant application to the state historical commission for the redesign of the Library and access to it, and will follow up with an application to the NJ Council for the Humanities.

Alex has also announced a reprise of the War of the Worlds broadcast on Friday and Saturday, October 28-29 with a professional cast from the Institute for Arts and Humanities Education. He is calling on fellow club members to once again loan their radios for two nights. Needed are two working consoles and 8, 1930s vintage tabletop radios, at least 4 of which should provide a rich, 30s sound. If you can bring your radios to the October meeting, safe storage will be arranged for in the office suite.

Rob Flory is looking for volunteers to show off a few of his radios, a few from our members and to guide visitors through listening to a crystal set and a one-tube regen. It's all part of the "Back to the Future" program at Howell Farm where "stuff" is shown that was yet to be during the farm's 1900 time period. The program is on Saturday, October 16th from 10 to 4 and a home-cooked lunch is provided. You can respond to Rob at robandpj@earthlink.net. To check out what the day will hold, see http://www.howellfarm.org/calendar/saturday%20programs/octdec/back_to_future.

Ray Chase reports that another radio display has opened at the Morris County Library in Whippany. This time it's novelty radios, all from the Joe Bentrovato collection. This is a fun display and it will be up through the month of October and perhaps a little longer. If you are in the area, stop and take a look - the library always does a great job with their displays.

To wet your interest, here's a synopsis of Scott Marshall's talk for the October meeting:

For decades, the inventor of the electronic television was understood to be RCA's Vladmir Zworykin. In recent years, a near forgotten inventor became the subject of books, a documentary, and a major motion picture now in production. He was posthumously honored with an Emmy Award for inventing television amid claims Zworykin and RCA "stole" the invention from him. But, do the facts support this revision of history? Scott Marshall presents the results of his research in a repeat performance of his talk at last spring's Early Television Convention: "The Case Against Philo Farnsworth and Claims he Invented Electronic Television."

UPCOMING EVENTS:

1. October 9th (Saturday), 10AM to 2PM - Infoage Work Day
2. October 28-29: War of the Worlds broadcast at the Sarnoff Library
3. November 7th (Sunday): NJARC Fall swapmeet at the North Centerville Vol. Fire Co. in Hazlet, NJ - flyer in this month's *Broadcaster*.
4. November 12th (at monthly meeting): AM Radio Hombrew Contest judging - contest rules in this month's *Broadcaster*.
5. December 11th (Saturday evening - tentative): Holiday party.
6. January 21-30, 2005 (tentative) - AM DX contest.

NJARC 20004 HOMBREW CONTEST ANNOUNCED

By Al Klase

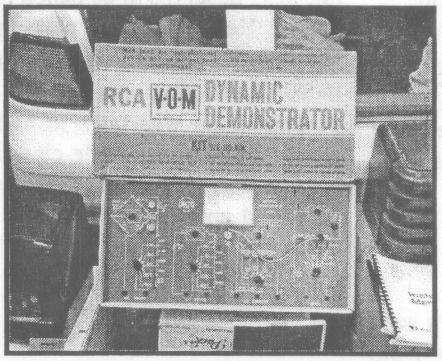
The 2004 homebrew AM **radio receiver** contest will be judged at the November meeting. Once again, the objective is to preserve the tradition of building your own AM **radio receiver**.

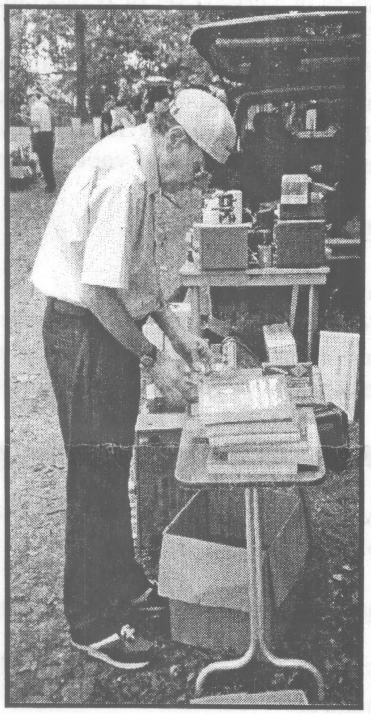
Category 1 - Primitive

- The signal path of the radio receiver may use no more than two tube functions.

(*Continued on Page 4*)

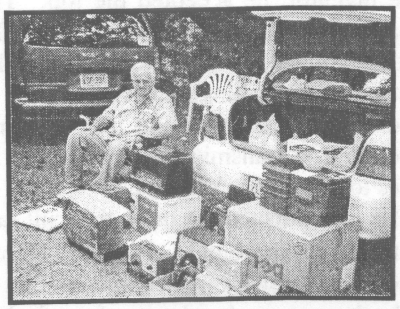
INFOAGE TAILGATE

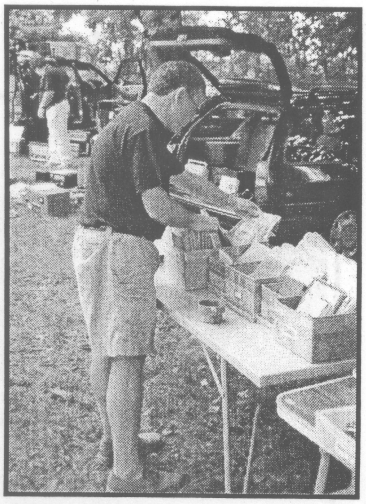




Vice President
Richard Lee...

Better known as
the "RADIO RAT"





(CONTEST...continued)

- Solid-state diodes may be used for detection as in a crystal set or reflex circuit.

- Transistors or integrated circuits may be used only in the power supply. Any convenient power supply may be used and may contain additional vacuum tubes.

Category 2 - Beginner

- Same rules as Category 1.
- Contestant has never before made a serious attempt at building a radio from scratch.

Category 3 - Open

- Any recently constructed homebrew radio.

Category 4 - Vintage Reproduction

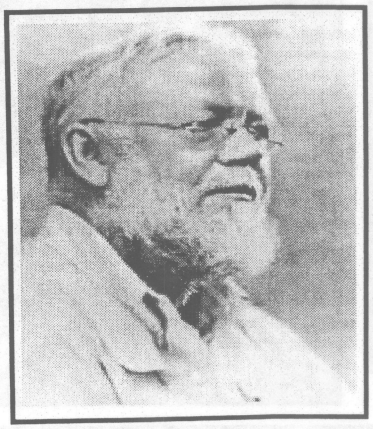
- Faithful reproduction of 1920-1939 homebrew radios.

REGINALD FESSENDEN- THE FORGOTTEN FATHER OF RADIO

Edited by Marv Beeferman

From time-to-time, we attempt to offer general interest articles with less of a technical content. The following is based on a piece by the same name by William S. Zull published in the Summer 2001 edition of "Invention & Technology"...Ed

PART I



Reginald Fessenden, as much as anyone else, deserves to be called the father of radio. Yet, instead of making him rich, Fessenden's inventive genius brought him mostly frustration.

Fessenden was born in 1866 and enjoyed a peaceful middle-class upbringing in East Bolton Quebec. His family hoped he would enter the church, like his father, an Anglican minister. Instead, he decided to go to New York City, armed with a few introductions, and try to either find a job with the great Thomas Edison or make a living writing for magazines.

New York was a disappointment. Fessenden sold only a few magazine articles and repeatedly failed to get a job with Edison. But persistence finally paid off and, in 1985, he was given the post of assistant tester for the Edison Machine Works as it lay electrical cables under the streets of New York. During his lunch hours, he studied electrical theory and analytical mechanics and worked out ways to do the testing faster. Before long, he rose to the position of inspecting engineer.

In 1886, Fessenden accepted a job in Edison's laboratory. After a few weeks, he asked Edison about his future. "Do you know anything about chemistry?" Edison asked.

"No."

"Then I want you to be a chemist. I have had a lot of chemists. I had one whose name was all through Watt's Dictionary. But none of them got results. I want you to take it up."

Fessenden was told to invent an insulating material that would be, in Edison's words, "as good ...as glass but as flexible as Indiarubber, not affected by acids or alkalis or oils, and fireproof." To top it off, it "must not cost more than 15 cents a pound." Fessenden later recalled that he had succeeded in meeting Edison's challenge, though other researchers from the project said they never managed to fulfill all the exacting requirements with a single material.

Edison appointed him head chemist, and his future seemed set, but as it would happen so often throughout his life, ill fortune dogged Fessenden's footsteps. The next year, 1890, Edison ran into deep financial trouble and laid off most of his laboratory assistants, including Fessenden.

Shortly after leaving Edison, he took a job with the United States Electric Lighting Company, a Westinghouse subsidiary in Newark, New Jersey, where he perfected a method of sealing incandescent lamps. A year later, he was hired by the Stanley Company, of Pittsfield, Massachusetts, and was sent to England to learn about the technology of electrical generation. Upon his return, a deep economic depression hobbled the Stanley Company and Fessenden was again out of work.

He was becoming known for his accomplishments, however, and in 1892 he was hired as a professor of electrical engineering at Purdue University. A year later, an even better job at Western University (today the University of Pittsburg), was too strong a temptation to resist.

At Purdue and Western, Fessenden developed theoretical models of such physical properties as cohesion, electrical conductivity, and tensile strength. On a more practical level, he invented an early form of microfilm when his new house proved too small to contain the papers he wished to save. He also invented a solar storage battery and continued his lightbulb research as a consultant for Westinghouse. But perhaps more importantly, Fessenden explored his major interest, the study of Hercules sound waves. Marconi believed waves were generated by creating a spark that caused a whiplash effect, but Fessenden rejected this concept. He theorized correctly that sound waves continuously rippled outward - like water when a stone is dropped into it. Further experiments led him to suggest that, if the waves could be sent at a high frequency, it would be possible to hear only the "variations due to the human voice."

In 1900, the United States Weather Bureau asked him to develop a wireless system to distribute forecasts and relay meteorological data. Any patents he took out would be his property, though the Weather Bureau would retain the right to use them. Tempted by the chance to become a full-time inventor, he accepted the job. The Weather Bureau stationed him at Cobb Island, Maryland, in the Potomac, 60 miles southeast of Washington. After a year of hard work, Fessenden and his assistants succeeded in transmitting Morse code 50 miles to Arlington, Virginia.

He also pursued the more difficult task of transmitting sound. His first efforts used the same spark-gap equipment that he and others were developing for wireless

telegraphy. By operating at a higher frequency and improving the sensitivity of the components, Fessenden knew he could transmit continuous, or almost continuous, waves instead of dot-dash signals and reproduce them in the receiver. The result would be a rapidly varying electric current that when heard through telephone headphones, would duplicate the original sound.

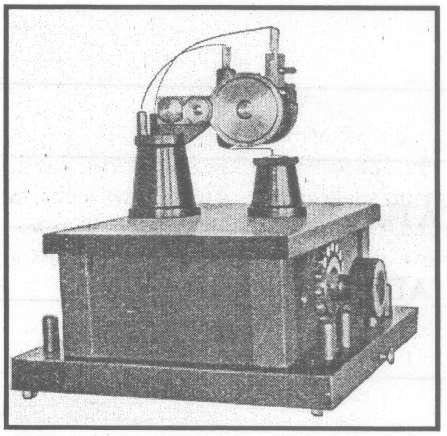
On December 23, 1900, Fessenden succeeded in making the first radio transmission of voice ever, sending a signal between two 50-foot-high wooden masts a mile apart. Modifying a phonograph cylinder with nearly microscopic slits, he was able to interrupt an arc at 10,000 times per second. A quarter of a century later, he remembered the sound as "poor in quality, but quite distinct and entirely intelligible," while conceding that the system was "still a toy" and "only capable of working over short distances."

The Weather Bureau was pleased with his research in both telegraphy and telephony. His work included careful experiments to determine the course of the radio waves, how far they went, and what happened when a receiver was buried in the ground or put under the sea. In 1901, the bureau moved the apparatus from Cobb Island and built three stations at Cape Hatteras and Roanoke Island, North Carolina, and Cape Henry, Virginia.

In hopes of improving his wireless telephony apparatus, Fessenden looked for something to replace the coherer which was used as a detector for radio waves. The coherer amounted to a tube of metal filings inserted in a circuit. If no radio waves were present, the filings were randomly oriented and had a fairly high resistance. But when the coherer was acted on by a radio wave, the filings lined up and completed the circuit. Although the coherer worked better than any other detector at the time, it had numerous deficiencies, not the least of which was that it had to be tapped with a vibrator to de-cohere the filings. The vibrator was in constant motion when signals were being received which made the detector too distorting and lacking in sensitivity for the reception of speech.

Fessenden replaced the coherer with what he called a barretter. In its earliest form, his barretter was a very thin piece of wire made from a metal whose resistance increased with its temperature. A radio wave induced a current in the wire, heating it and increasing its resistance. This "hot-wire" barretter, which took form during 1901, was no more sensitive than the coherer, but since it lacked the coherer's on-or-off nature, it could reproduce speech much more efficiently.

To make wireless telephony practical over long distances, however, Fessenden needed a more sensitive detector - that is, one capable of picking up weaker signals. He found an answer by accident in 1902 when he was cleaning some barretters in nitric acid. One wire broke during this process, and he noticed that the broken wire worked much better than the whole ones. The addition of a gap in the wire filled with a conducting liquid turned out to be the improvement he had been looking for. He designed a detector incorporating this principle, with two extremely fine platinum wires whose ends were dipped into a pool of acid.



A German-designed barretter.

Though it required frequent maintenance, Fessenden's "liquid barretter" proved so successful that the inventor Lee de Forest - who a few years later would take the next key step in radio by inventing the Audion vacuum tube - copied the design and sold it under the name of "spade detector." Fessenden sued de Forest for infringing on his patent and won, though he was able to collect very little because of the chaotic state of de Forest's finances.

With his liquid barretter in place, Fessenden was soon able to broadcast musical notes between Roanoke Island and Hatteras. As word of his accomplishments spread, various U.S. and Mexican government agencies began placing orders for his apparatus. This commercial activity provoked Willis Moore, the chief of the Weather Bureau, to demand a share in Fessenden's patents as the price for continued employment. Fessenden refused, and in August 1902, he left the Weather Bureau.

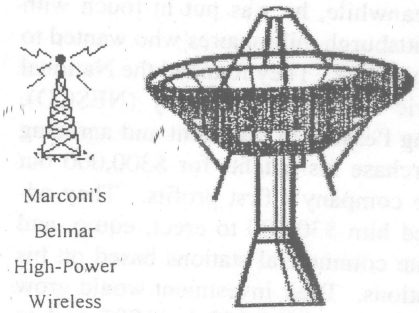
Meanwhile, he was put in touch with two Pittsburgh millionaires who wanted to back his work. They founded the National Electric Signaling Company (NESCO), naming Fessenden president and agreeing to purchase his patents for $300,000 out of the company's first profits. They advanced him $30,000 to erect, equip, and operate commercial stations based on his inventions. Their investment would grow to more than $500,000 by 1905 and to more than $2,000,000 by 1910.

NESCO's first station was at Old Point Comfort, alongside Hampton Roads in Virginia. Others were established New York, Philadelphia and Washington. But despite all its investments in equipment and research, NESCO had no clear business model. For most applications, its service offered no great advantage over wired telegraph or telephone. Even at sea or in remote areas, wireless equipment from other makers usually worked as well.

In 1904, NESCO signed a contract with General Electric to build telegraphy stations connecting GE laboratories in Schenectady, New York, and Lynn, Massachusetts. Though Fessenden and a team of technicians struggled, the equipment never went in service, and in mid-1906, the project was abandoned. Meanwhile, Fessenden made vigorous but ineffectual efforts to interest other companies, the Navy and foreign governments. The situation was not helped by constant conflicts between the inventor and his backers over how the business should be run and who had final authority.

Since domestic sales looked so unpromising, NESCO began to think of transatlantic communication - telegraphy first, then perhaps telephony. Marconi had sent telegraph signals across the ocean in 1900, but after the initial demonstration, he had not been able to maintain regular service. With Fessenden's inventions, NESCO seemed to have a much better shot. Fessenden still had hopes for the domestic market, but he was excited by the daring vision of making a signal leap 3,000 miles.

PART II will be continued in the November issue.



Marconi's Belmar High-Power Wireless Station 1912-1926

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

Created December 19, 1999
Updated December 31, 2003

Please Print, fill out this application and mail with a check to the address above.

MEMBERSHIP dues are $25.00, good until Dec. 31, 2004

NAME: (Please Print)_____

ADDRESS:_____

CITY/TOWN:_____STATE:_____ZIP:_____

CHECK NO._____FOR $:_____ADD'L DONATION:_____

OCCUPATION:_____

SPECIAL INTERESTS:_____

_____

Would you like to donoate your time and skills?_____

Have you worked at Camp Evans? _____ When? _____

Email: _____

Phone: _____

Please make all checks payable to: InfoAge Learning Center, and sent to: The Membership Director, Infoage Learning Center, 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.

NEW JERSEY ANTIQUE RADIO CLUB

ANTIQUE RADIO SWAPMEET

SUNDAY, November 7th, 8:00 AM - 1 PM*

North Centerville Vol. Fire Co. - Hazlet, NJ

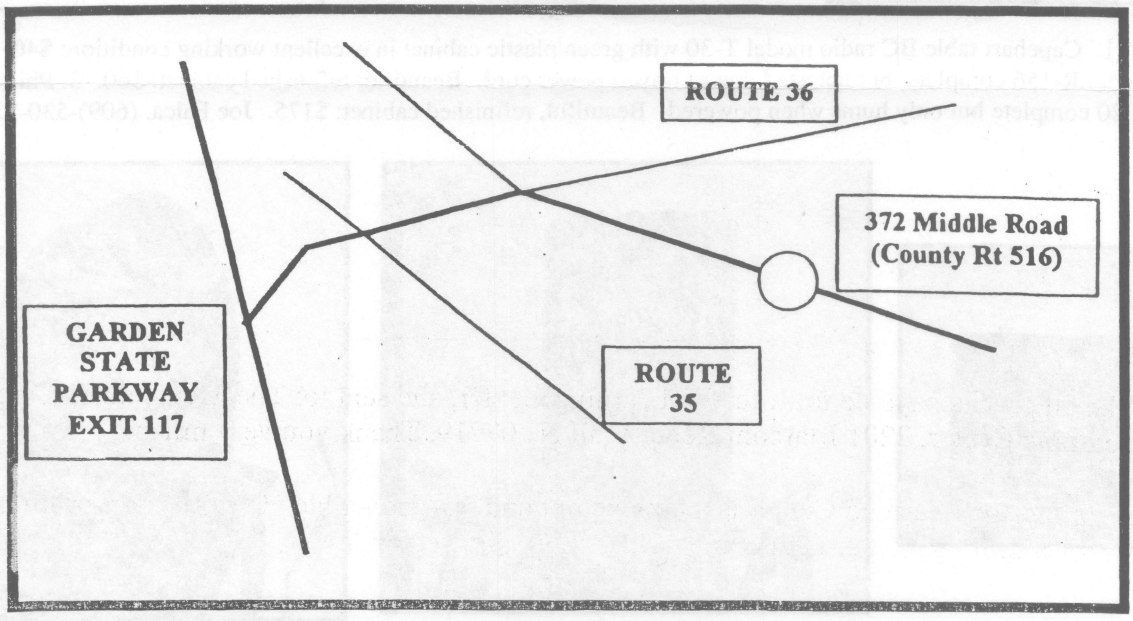
The NJARC presents its Fall swapmeet at the spacious North Centerville Fire Co. banquet hall in Hazlet, NJ. The first 30 reservations receive an 8-foot table at no extra cost A $3.00 club donation from buyers is suggested.

* Vendor setup at 7:30 AM (no early admittance); the meet may extend beyond 1:00 PM.

DIRECTIONS: Garden State Parkway, North or South - Take exit 117 (towards Hazlet (Rt 35)/Keyport/Aberdeen). Bear left onto Route 36 and continue for about 1/2 mile. Turn right on Middle Road (County Route 516 East) and continue for about 1.5 miles. The Fire Co. banquet hall is on the right.

RATES: NJARC members $15/space; non-members $20/space. **Note:** Tables are only available to first 30 registered vendors.

CONTACTS/RESERVATIONS: Marv Beeferman, 2265 Emeralda Park Drive, Forked River, NJ 08731 (609-693-9430). E-mail: mbeeferman@cs.com Phil Vourtsis, 13 Cornell Place, Manalapan NJ 07726 (732-446-2427). E-mail: pvourtsis@att.com



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.

Non-member: Old radio and radio/record player combo. Original condition but showing signs of wear and tear, (See photo to right.) hr.burns@verizon.net (Helen Burns).

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.

National NC100 ASD with manual. Has been re-capped, needs alignment, $55. Jack Winans, 609-882-9296, WA2LGE @aol.com.

Non-member: Brunswick Panatrope console, late 30s, nice veneer but rather plain and boxy, AM/SW/78 turntable, storage space for records, usual amount of scratches, reasonable. Contact John Ruccolo at 609-426-4568 for phone number.

Spring cleaning sale: Shortwave radios - Hallicrafters SX99 $100, SX130 $120, SX-43 $130, Lafayette HA225 $70, BC348 $65, Heathkit G4-1680 $65.
Test equipment - HP 400D AC voltmeters, 1mV to 300V full scale, 4MHz bandwith, great for measuring gain in broadcast band radios, audio work, etc., good operating condition, $10. Measurements grid dip meter with book, $50. Tube testers, distortion analyzers, spectrum analyzer, scopes, etc. available - ask.
Near recent (1980s?) stereo equipment receivers, tuners, turntables, $10 each (working).
Parts available: Tek465, Philips 3052 and various other HP and Tek equipment.
Steve Goulart, 732-219-6963, sgoulart@att.com

WANTED

Large tuning knob for Pilot TV-37, hand-held remote control for Fisher RK-20, handle and plastic bezel for military Zenith Transoceanic 520/URR, large and small knobs for RCA 110 cathedral radio. Frank Johnson, 530 Elford Road, Fairless Hills, PA 19030, 215-943-8295, fadacat@aol.com.

FOR SALE: 1. Capehart table BC radio model T-30 with green plastic cabinet in excellent working condition: $40. 2. Emerson table BC/SW model R-156 complete, but untested due to frayed power cord. Beautiful, refinished cabinet: $60. 3. Philco cathedral BC radio model 20 complete but only hums when powered. Beautiful, refinished cabinet: $175. Joe Falca, (609)-530-3208.