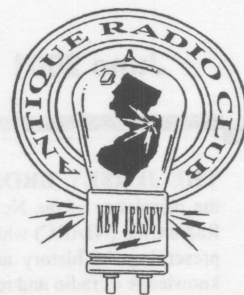


The Jersey Broadcaster

NEWSLETTER OF THE NEW JERSEY ANTIQUE RADIO CLUB

June 2001

Volume 7 Issue 6



MEETING/ ACTIVITY NOTES

Reported by Marv Beeferman

May's NJARC meeting opened with a report by Treasurer Sal Brisindi that our Spring swapmeet resulted in a net profit of \$722 for the club treasury. This will be helpful in supporting and publicizing our Summer meet which has been scheduled for Saturday, August 11 at the American Legion Hall (Post 27) in Dover New Jersey. It is hoped that this new location, which is tentatively scheduled to be sandwiched between Spring and Winter meets at the Hightstown Country Club, will provide greater exposure to northern collectors, a source for new members and a better turnout of non-collector buyers from the surrounding metropolitan areas. A flyer (suitable for copying and distribution) is included in this month's *Broadcaster* providing details and directions to the hall.

As stated in our meeting notice, vice president Richard Lee and member Joe Bentrovato have taken a short video of the hall's layout that will be shown at the June meeting. For those who can't attend, the hall is modern and spacious with accommodations for 250 people, air conditioned and yes, the bathrooms are clean and well-maintained. We have the use of 72, 8-foot tables, all in excellent condition, which will provide more latitude in accepting reservations and providing extra spaces for walk-ins. The club may also be selling some desirable communications gear for a local ham from Freehold. Like all new ventures, this meet will ask for a little extra dedication on the part of the membership, but I'm sure that we are up to meeting the challenge.

Our next repair clinic has been sched-



MEETING NOTICE

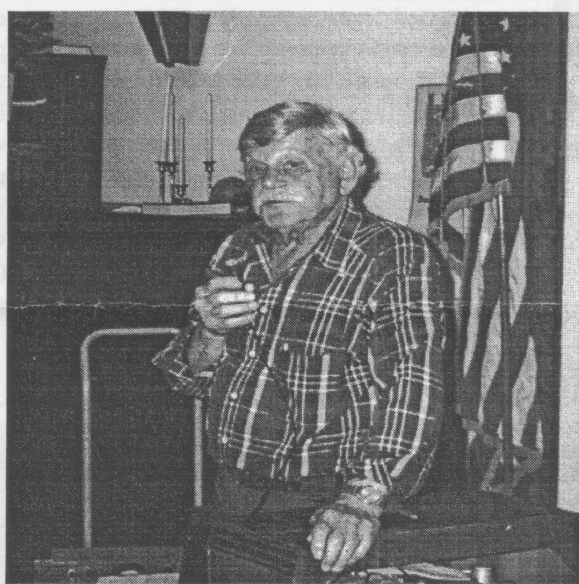
The next meeting of the NJARC will take place on Friday, June 8th at the Grace Lutheran Church, corner of Route 33 and Main Street in Freehold. Contact Phil Vourtsis (732-446-2427) or Marv Beeferman (609-693-9430) for directions. This month's meeting will feature an interesting talk by Art Kingsley which he titles "What Kind of Radio is this Anyhow? We'll also be viewing a short video taken by Richard Lee and Joe Bentrovato showing the layout of the Dover American Legion Hall which will be the location for our August 11th swapmeet.

uled for June 16th at 9:00 AM (volunteers are expected at 8:00 for setup) at the Grace Lutheran Church. Although scheduling may conflict with a local hamfest, it was the only date available to avoid interference with summer vacations and future commitments. Participants are asked to

Dave Snellman reported on the Kutztown swapmeet saying that, in general, comments were mixed. It was the biggest meet for this location to date and sales were fair to good. The auction netted the DVHRC about \$200 and the next meet is planned for August 18th, the week following our Dover meet. Fresh from his trip across the Atlantic, Richard Brill reported on the National Vintage Communications Fair in Birmingham, England. Richard said that the event was huge, hosting 300+ "stalls" and over 5,000 people from throughout Europe. Most offerings were in mint condition with both quality high and prices to match. Richard purchased another Deutscher Kleinempfänger, similar to the one shown at our May show-and-tell, for \$500 that was purportedly modified by allied POW's to receive BBC broadcasts.

Our 1 and 2-tube BCB radio contest was a little shy on participation as compared to last year but received high marks on enthusiasm. Most members suggested that moving the contest to some time in October or November would generate

more interest and would be a good precursor to our BCB DX contest which is usually held in February. The winners for this year received a framed certificate and a \$25 gift certificate to Antique Electronic Supply:



Richard Brill discusses his trip to the National Vintage Communications Fair in Birmingham, England.

bring the basics (standard electronic repair tools, soldering iron, solder, hookup wire, etc.) and the club will supply the rest...test equipment, schematics, tubes, capacitors and lunch. Please contact Phil Vourtsis at 732-446-2427 if you plan to attend.

THE JERSEY BROADCASTER is the newsletter of the New Jersey Antique Radio Club (NJARC) which is dedicated to preserving the history and enhancing the knowledge of radio and related disciplines. Dues are \$15 per year and meetings are held the second Friday of each month at the Grace Lutheran Church, corner of Route 33 and Main Street in Freehold N.J. The Editor or NJARC is not liable for any other use of the contents of this publication.

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- The award for **Technical Excellence** went to Tom Provost for an entry providing band switching for 20, 40 and 80 meters and 8:1 vernier tuning. The set utilizes a 6V6 for regeneration with a single audio stage and an optional audio stage for greater volume.
- With Marty Friedman providing the components and Walt Heskes the design, this team took the **Craftmanship** award hands down based on the theme that "bigger isn't always better." The deception of a giant 211 tube doing all the work with its filament aglow and driving an 8" speaker was revealed when the radio was turned over. A carefully concealed battery bank provided the illusion of an operating 211 while the real workhorse was a 2E36 subminiature tube.
- Sal Brisindi took the **Creativity** award with a 1-tube regenerative receiver based on a project described in *Radio Craft*. This set could easily be categorized as the ultimate in homebrew with the tube socket constructed from paper clips, #36 wire used for a dropping resistor for the 2-volt tube, the grid leak resistor formed from pencil lead, the 250 pfd capacitor made from a wax paper/aluminum foil sandwich and a unique tuning capacitor operated by moving a piece of cardboard between two small metal plates.

Congratulations to our winners with honorable mention going to John Ruccolo for his Emerson conversion to a 2-tube unit using an infinite impedance detector which was based on a 1952 ARL Handbook article.

The evening was topped off by another mini-auction which offered a mix of some offerings in the TLC category but also some nice pieces: Silvertone model 1965 console (\$40), Air Master AC/DC set (\$24), American Bosch model 205 (\$60), Transoceanic T-6001 (\$23), Transoceanic T-500 (\$45) and a nice Philco portable for \$25.

Membership Secretary Marsha Simkin reports that our 2001 member total stands at 170, which represents a net

gain of 20 members from last year and required dropping only 18 members from our roster for non-payment of dues. With a little active recruiting, we should be able to obtain a steady membership of 200 within the coming years which would be a worthwhile goal for the club to pursue.

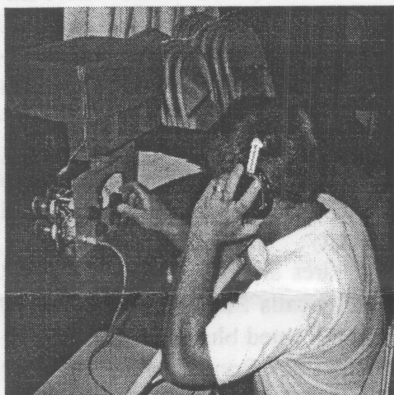
The InfoAge Learning Center was featured in the article "Preserving a Place in History" in the May 13th *Asbury Park Press*. Some of the article's major points summarizes recent status of the project as of today:

- Plans are for use of 8-10 buildings on 18 acres of the 220 acre site.
- PCB cleanup is still in progress with transfer now scheduled for next year.
- Renovations are expected to cost \$1 to \$3 million with expectations of raising funds from grants and donations.
- The National Broadcasters Hall of Fame is definitely relocating to the site. Some recent additional acquisitions include a warehouse holding night vision equipment developed by the military, part of a flight-guidance system used by the Apollo 14 spacecraft and 7,000 vintage computer pieces. The computer pieces are a gift from Dimitri Grabbe who collected them over the years while working in the computer field. "I'm getting old and decrepit and preparing to die, and I have to do something with this collection," Grabbe said. (Perhaps a little too morbid but a nice gesture all the same.)

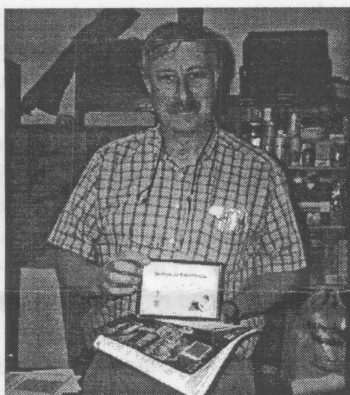


Two vintage items await the auctioneer's hammer.

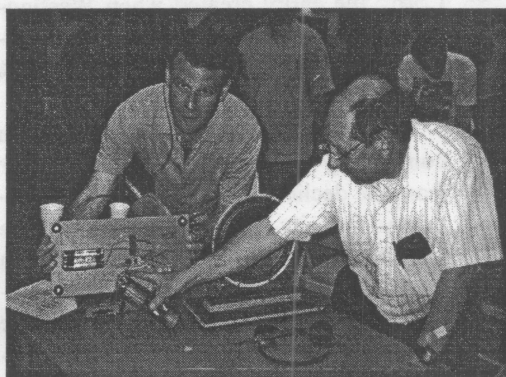
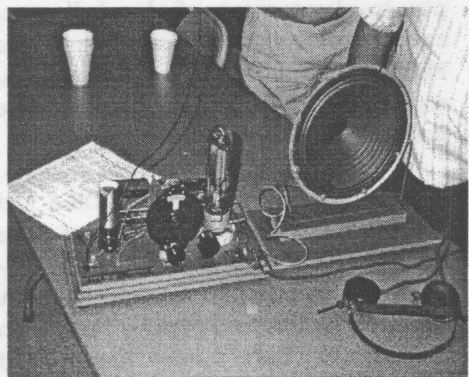
1 AND 2-TUBE BCB RADIO CONTEST



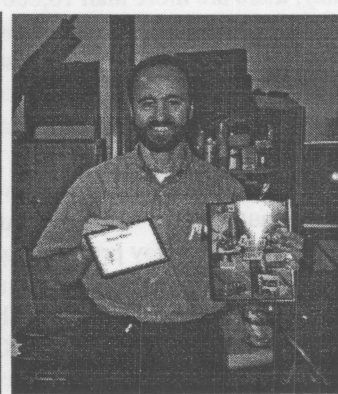
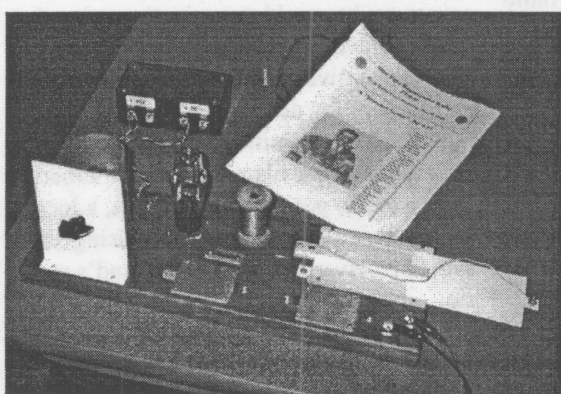
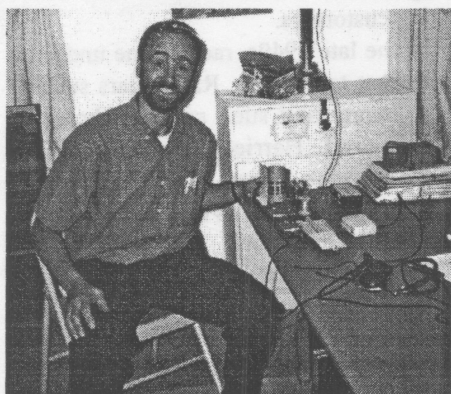
Tom Provost accepts his award for Technical Excellence while a member checks out his set's DX capabilities.



John Ruccolo talks about his Emerson conversion entry.



The Friedman-Heskes dynamic-duo explain their deception and happily accept the Craftmanship award.



Sal Brisindi's entry exemplified the term "home-brew" and earned him the Creativity award.

THE SECRET OF KDKA'S SURVIVAL

By Yochi J. Dreazen

The following piece by Yochi J. Dreazen appeared in the May 15, 20001 edition of the "Wall Street Journal" and was recommended by John Ruccolo; it appears here with permission...Ed

On Nov. 6, 1920, Leo Rosenberg climbed into a wooden shack on the roof of a Westinghouse plant in Pittsburgh, picked up a converted telephone mouthpiece and uttered the first words ever carried by a commercial radio station: "We shall now broadcast the election returns."

With the news that Warren Harding would be the next president, station KDKA and the radio industry were born in the U.S. KDKA, then owned by Westinghouse Electric Corp., was soon followed by other stations, and radio exploded in popularity. In 1925, just 10% of American households had radios. By 1933, 63% did.

Eight decades after Mr. Rosenberg's debut, KDKA remains strong, despite a long list of technological advances that seemed to ring radio's death knell; television, auto-dashboard tape decks, compact-disc players and, more recently, Internet and satellite radio. KDKA's history tells the story of how some businesses endure by changing in unexpected ways.

Today, there are more than 10,000 radio stations in the country, and an estimated 212 million Americans tune in at least once a week. In 1999, the average American listened to two-and-a-half hours of radio a day, compared with less than two hours spent watching cable or satellite television. Thanks to automation and cost-cutting, many radio stations enjoy profit margins of more than 30%, far higher than the margins cable and satellite TV stations typically see.

Successful radio stations such as KDKA thrive because of their protean nature. In the early days KDKA fans, like tens of millions of people around the country, gathered in living rooms to listen to "Amos 'n'

Andy." When such hit shows moved to TV, radio replaced them with local shows, such as KDKA's "Party Line," a call-in program. And when the transistor and other technological advances made radio receivers smaller, cheaper and easier to use, radios migrated from living rooms to car dashboards, where they have resided comfortably ever since.

After Congress in 1996 lifted restrictions on the number of stations a company may own, the industry consolidated into four companies that control 90% of radio-advertising revenue. One of the biggest players is Viacom Corp.'s Infinity Broadcasting division, which owns KDKA and about 180 other stations. Today, radio companies routinely house several local stations under one roof, with the same personnel and homogenized programming.

But there are independent-minded exceptions, and one is KDKA, which remains deeply rooted in Pittsburgh. The station's ownership passed to Viacom in 1999, when the media giant bought CBS Corp., the entity created when Westinghouse bought CBS Inc. The station's revenue hit \$18.5 million in 1999, up 28% from a year earlier.

KDKA is an island of stability in a community still struggling to recover from the decline of the American steel industry. The city has 200,000 fewer people than it did in 1920. "Pittsburgh thrives on tradition, and there is nothing more traditional than KDKA, which seems to have been around forever," says Stephanie Satterfield, a local advertising executive.

Like other early stations, KDKA got its start as a way for radio makers to sell radios. In about 1916, Frank Conrad, a Westinghouse engineer, built a small receiver so he could tune in time signals from a naval observatory in Arlington, Va. His motive: to win a \$5 bet about the accuracy of his new watch. Later, with a home-made transmitter, he broadcast music records from his garage. The broadcasts were so popular that Home's, a local department store, began advertising the sale of receivers to hear Mr. Conrad's music.

The ads caught the attention of Westinghouse executives. They realized they could make money selling radio receivers, provided there was programming to lure listeners and so, KDKA was created. The

origins of the call letters remain something of a mystery. Both the station and the Federal Communications Commission say they don't know why the government assigned those particular letters, although the government at the time did give four-letter codes to ships and marine-shore stations operating regulated radio services. Only later did the government begin assigning names beginning with K to commercial stations in the West, and W to stations in the East.

Even though many early fans had to build receivers themselves, radio exploded in popularity. "I took an oatmeal box, wrapped wires around it, and shellacked them on," recalls Slim Bryant, 92 years old. He performed bluegrass and country music on KDKA from 1931 to 1959 and still lives in Pittsburgh. The oatmeal box "was fastened to a board," he explains, "and you tuned it with a thin piece of material called a cat's whisker."

Filling airtime proved difficult. In 1921, KDKA was the first station to offer play-by-play coverage of a baseball game, an 8-5 Pittsburgh Pirates win over the Philadelphia Phillies. On other occasions, engineers read bedtime stories to fill the hours.

Although it began as a local medium, radio soon went national, as KDKA and other stations aligned with one of three broadcast networks that provided soap operas and prime-time shows. KDKA signed with NBC and carried shows such as "Amos 'n' Andy," radio's first national hit. The program debuted on NBC in 1929 and eventually drew more than 40 million listeners. It was piped into stores and movie-theater lobbies across Pittsburgh as those businesses tried to avoid losing customers.

In the late 1940s, radio came under attack from television. Radio stars such as Jack Benny and such popular shows as "Ozzie and Harriet" moved to TV. "Within three years, the broadcast of sound or ear radio over giant networks will be wiped out," NBC's president, Niles Trammel, predicted in 1949. To survive, radio returned to its local roots. Stations like KDKA eschewed network serials and soap operas in favor of news, sports and music. Art Pallan, who had an afternoon show on KDKA from 1956 to 1985, says Westinghouse, then KDKA's

parent, ordered all of its stations to make the change. Indeed, radio was long many Americans' main source of breaking news. In November 1963, Mr. Pallan was in the middle of his talk show when reports of John F. Kennedy's assassination crossed news wires. He recalls newscasters shuttling back and forth between the studio and the newsroom, clasp ing teletyped sheets with the latest updates on the president's condition. "That weekend, we changed our music patterns from popular songs to really somber, soft ones," says Mr. Pallan, 77. "There were no commercials, no silly talk from any of us."

COLLECTING OLD TEST EQUIPMENT

By Marv Beeferman

The purchase of a Clough Brengle model 182A beat frequency oscillator at the club mini-auction last month brought to mind an area of collecting that is often neglected. On the surface, it's easily understood why devoting precious display space to vintage test equipment is met with skepticism. Non-radio collectors (including, most importantly, our better halves) can easily relate to and accept an interest in a classic cathedral receiver; even an Atwater Kent breadboard may capture someone's short-lived fancy when its exposed technology comes to life with the sounds normally expected from what is essentially a plastic box. But dials, meters, knobs and pushbuttons mounted on an unattractive chassis usually solicit nothing more than, "oh...is that what it does" and it's time to move on to that colorful plastic set with the oriental motif and fancy tuning dial.

But once you cross the mental barrier that there is no requirement to justify your collecting likes and dislikes and discover that collecting is just a little more than showing off how successful you are in accumulating "stuff", the effort put in to acquiring, restoring and researching a few pieces of vintage test equipment can be

quite rewarding. Ray Bintliff put it quite nicely in his review of Alan Douglas's latest book "Tube Testers and Classic Electronic Test Gear." (Antique Radio Classified, June 2001):

"Douglas makes a convincing case for acquiring old vacuum tube test equipment, either from a pure collecting standpoint or on the basis of its utility. With the advent of smaller and lighter solid-state test equipment, commercial users of test equipment disposed of their vacuum tube equipment. And as a visit to a Ham or old-radio flea market will attest, there is a lot of good functional test equipment for sale at reasonable prices. If you are a test equipment freak - and I confess that I am a member of that tribe - you may want to preserve some of these classic items just as you would an old radio."

A typical example of classic test equipment is the first product offered by Dave Packard and Bill Hewlett, the HP 200A audio oscillator, which was assembled in 1939 in a Palo Alto, California, garage. The unit served a unique purpose. In the U.S., open-wire telephone lines and twisted-pair wires bundled into underground cables formed the backbone of the

more wires over head or more cables under ground.

The HP 200A oscillator, when used with the HP 400A VTVM (another classic instrument, ca. 1941, that boasted a 1 megacycle bandwidth), allowed the characterization of frequency-response parameters of a variety of transmission system components, including amplifiers, transformers, filters, line-loading components, and switches. Its clever circuitry was the subject of Bill Hewlett's Electronic Engineering thesis at Stanford University.

In a slim document of less than 20 pages, Bill Hewlett presented a circuitry that was the essence of simplicity. It used a tunable resistance-capacitance network to provide the 180-degree feedback phase shift needed for oscillation. It also utilized an inexpensive tunable radio capacitor for the two ganged capacitors, switched resistors to achieve the tuning range and an innovative amplitude-stabilizing function made by inserting a positive-coefficient resistance in the form of a common 7.5 watt lamp bulb into the cathode circuit of the oscillator vacuum tube.

One of Hewlett and Packard's objectives was to provide "inexpensive quality," and the audio oscillator was a good example. It was originally advertised for \$71.50 in the Institute of Radio Engineer's Proceedings of 1939. But the oscillator caught the attention of the Chief Engineer at the Walt Disney Company, who needed a number of audio sources for sound effects in *Fantasia*. The competing oscillator of the day was a "beat-frequency" type (similar to the Clough Brengle model mentioned above) that cost ten times as much. Disney's Chief Engineer bought eight of the HP models...HP's most famous sale.

If you think you might be interested in making historical test equipment a small adjunct of your radio collection, a good start would be Alan Douglas's book mentioned earlier. Tube testers, VOMs, VTVMs, Q-meters, grid-dip meters, capacitance/inductance bridges, substitution boxes, signal generators, signal tracers and oscilloscopes are all thoroughly covered with regard to operation and development. It would be nice to see some of these pieces at a future NJARC show-and-tell session.



The 200A audio oscillator was HP's first commercial success.

communications system well into the 1940s. Some of us still have images of telephone poles along country roads, with multiple cross-arms and dozens of green-glass insulators supporting open wires that went on for hundreds of miles. The technology of communicating in those days was heroic, and it seemed that the only way to let more people communicate was through brute force design, by adding

VIDEODISCS FROM THE 1920s

By Frederic D. Schwarz

For our members interested in the history of television comes an article by Frederic D. Schwarz which appeared in the Summer 2001 (Volume 17, No. 1) of "Invention and Technology." It describes how records of actual broadcasts from the dawn of television can be watched today...Ed

Until recently, researchers into pre-World War II television had only contemporary descriptions and blurry still photos of glowing screens to rely on. Now, however, a Scotsman named Donald F. McLean has managed to extract moving images from television signals that were recorded onto shellac phonograph disks as early as 1927 - when most people were still getting used to radio.

The existence of the disks has been known for decades among television historians and engineers. Whenever someone tried to play one, however, the result was unrecognizably distorted. Then McLean, who originally trained as an electrical engineer, analyzed the disks' content with a computer, which allowed him to store and analyze the signal. The result, which he describes in his recently published book *Restoring Baird's Image* (London: Institution of Electrical Engineers), provides a unique and thoroughly unexpected glimpse at how television looked in its Paleolithic era.

The disks McLean has restored are of two types. The first set was recorded be-

tween September 1927 and March 1928 by John Logie Baird, the Scottish-born television pioneer, who was experimenting at his London studios with what he called Phonovision. Earlier in the decade, Baird had developed a system that divided images into 30 vertical bands (known as lines) and updated them 12½ times per second. (Modern American television, by contrast, has 525 horizontal lines and 30 frames per second.) Images were scanned mechanically with a Nipkow disc, which had a spiral of lenses around the outer edge of a large spinning wheel. The resultant television signal was broadcast over ordinary radio frequencies.

After Baird had worked out the bugs and formed a company, he investigated the possibilities of recording his television signals. He and his staff made a number of silent test discs, which showed such things as a hand moving in front of a puppet head and a woman talking and laughing. Recorded at a rate of about four frames per second, each disc held about three minutes worth of images.

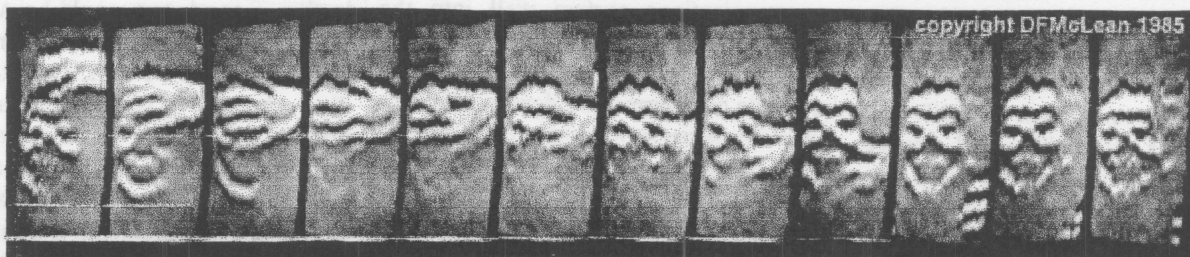
McLean's second set of disks consists of amateur home recordings, made on aluminum discs, of BBC Television Service broadcasts from the early 1930s. While retaining the 30-line standard, these broadcasts did not use Baird's mechanical system but instead scanned electronically, as in modern television. McLean's book gives extensive detail on how he reconstructed the disks' content. First he played them on conventional phonographic apparatus and recorded the signal, which he digitized. Next he had to decide where each 30-line frame began and ended, a tricky matter because the signals lack any sort of timing information. He figured that out by laboriously comparing the contents of each frame with the ones before and after and repeatedly adjusting his

work to get as close a match as possible. This method was far from foolproof because the contents of a frame can change considerably in a quarter of a second, especially with only 30 lines to go on.

Having aligned the frames, McLean used clever algorithms to strip out extraneous noise (caused by resonances between different parts of the apparatus, for example), restore missing information resulting from degradation of the recording medium, and otherwise clean up the images to give some idea of what a 1920s or 1930s viewer would have seen. To make things even harder, he had to write all the necessary programs himself. Off-the-shelf signal processing software was useless, since something that has the electronic profile of a click or pop on a sound recording may be a legitimate part of a video signal.

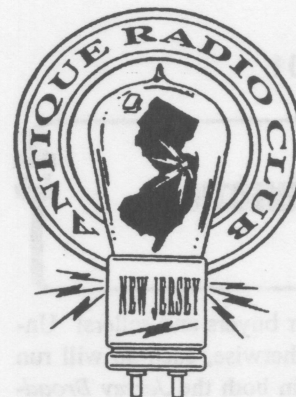
Along the way, McLean dealt with such arcana as stylus profiles (an incorrectly designed stylus would distort the playback) and equalization characteristics (instead of the now-universal RIAA standard, which boosts certain frequencies in audio recordings, the recordings use the older Blumlein characteristic, which treats all frequencies the same). Another essential concern was the seemingly simple matter of centering the disk on the turntable: With precise time relations so vital, a small deviation that yields a minor "wow" on audio can virtually destroy a video image. He also learned the importance of using a tangential tracking arm, in which the stylus travels along an exact radius, instead of the pivoting arm found on most audio turntables.

To examine extracts of the videos, visit McLean's Web site, www.dfm.dircon.co.uk. His book can be purchased through the Institution of Electrical Engineers at www.iee.org.uk.



Baird's September 1927 disc of the ventriloquist's dummy "Stookie Bill." Baird used several different "Stookie Bills" as test objects since the lighting was sometimes too intense for his assistants to stay under for any length of time.

NEW JERSEY ANTIQUE RADIO CLUB ANTIQUE RADIO SWAPMEET



SATURDAY, AUGUST 11, 8:00AM - 1:00PM

AMERICAN LEGION HALL, DOVER NJ

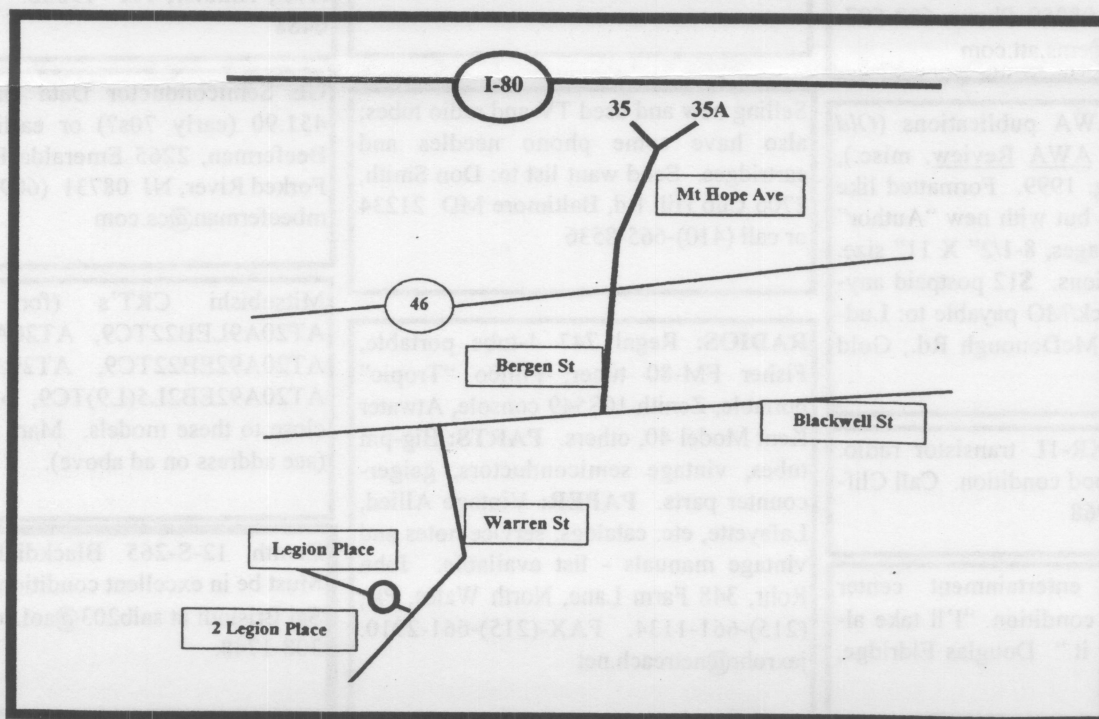
NJARC presents its Summer swapmeet at the spacious, air conditioned American Legion Hall in Dover NJ. A \$2.00 club donation from buyers is suggested. Tables are guaranteed to the first 65 reservations.

DIRECTIONS: From the East, North or South, take I-80 West to exit 35A (Dover). I-80 West can be reached from the North via I-287 South or the Garden State Parkway (South) or from the South via the NJ Turnpike (North) to the Garden State Parkway (North) to I-280 West. From the West, take I-80 East to Exit 35 (Mt Hope, Dover).

Follow Mt Hope Ave. South, crossing Route 46 (where Mt Hope Ave. becomes Bergen St.) and turn right on Blackwell St. Go to the third light and turn left on Warren St. Go two blocks, crossing the RR tracks. The American Legion is on the right (2 Legion Place).

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

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)



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.

Zenith TransOceanic H500; working. Would like my Philco 40-215 repaired. Larry Hellebrandt, (908)-232-1213

Radio schematics and service data, US, Australian and Canadian receivers. #10 S.A.S.E. + \$2.50 for 1 to 5 pages of data per model; a copy charge of 20 cents per page is added for copies over 5 pages. (Questions/quotes answered by e-mail or a S.A.S.E.) Steve Rosenfeld, P.O. Box 418, Manahawkin, N.J. 08050 Phone: 609-597-2201; srosenfeld@ems.att.com

New index to AWA publications (*Old Timer's Bulletin*, *AWA Review*, misc.), 1960 through Aug. 1999. Formatted like the earlier version but with new "Author" section. Has 63 pages, 8-1/2" X 11" size. Gives 7000+ citations. \$12 postpaid anywhere. Make check/MO payable to: Ludwell Sibley, 102 McDonough Rd., Gold Hill, OR 97525.

Heathkit model XR-1L transistor radio. Working and in good condition. Call Clifford, (201)-641-3968

Andrea console entertainment center (1950), very nice condition. "I'll take almost anything for it." Douglas Eldridge, (973)-674-8194

Atwater Kent 60 with F-4A speaker; Emerson B5 wooden table model. Gary Gadec, (908)-654-6109

Emerson catalin model BT245 (green); no cracks, works. Nick, (973)-305-4861

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.

1. Stromberg Carlson 1121-M-2 lowboy console (1947? radio phonograph, BC, SW, 2-FM bands calibrated in channel numbers. Radio works well, needs record changer. 2. Stroberg Carlson table model with same chassis as above, cabinet rough. 3. Zenith console radio phonograph, A136561, BC & SW, black dial. 4. BC & SW Silvertone tombstone farm radio, BC & SW. Any interest in the above items and I will bring them to the March meeting. These are inexpensive or will trade for junk or equal value (SW basket cases, etc.) Email or call... Steve Goulart, sgoulart@att.com, 732-219-6193.

Selling new and used TV and radio tubes; also have some phono needles and cartridges. Send want list to: Don Smith, 2706 Cub Hill Rd, Baltimore MD 21234 or call (410)-665-8536

RADIOS: Regal 747 4-tube portable, Fisher FM-80 tuner, Philco "Tropic" portable, Zenith 10S549 console, Atwater Kent Model 40, others. **PARTS:** Big-pin tubes, vintage semiconductors, geiger-counter parts. **PAPER:** Vintage Allied, Lafayette, etc. catalogs, service notes and vintage manuals - list available. John Rohr, 348 Farm Lane, North Wales, Pa., (215)-661-1134. FAX-(215)-661-2910. jaxrohr@netreach.net

Lyric model 60-66 by All-American Mohawk, 3-gang TRF uses 120 VAC. Works fine. With 7 tubes: 2-226, 1-326, 2-227, 1-71A and 1-80. Has face panel to fit into a cabinet. Asking \$50. Large 40 amp variac, G.R. Type 50A, 115 VAC in, 0-135 VAC out, 13" dia. with 7" hand-wheel, 85 lbs., asking \$25. Both items pickup only. Harry Kundrat, (908)-665-1873.

WANTED

Crystals for my Viking II transmitter. Not sure of style, but pin diameter is about 0.093" and spacing just under 1/2 inch. Looking for 1800-1850 and 3500-3550. Rob Flory, 609-466-4217.

"Radio in the Home" magazine published in Philly from 1923-1926. Any condition. John Okolowicz, 624 Cedar Hill Road, Ambler, PA 19002. (215)-542-1597, john@grillcloth.com

Your surplus radio knobs. Buying bulk stock of pulls for matching service and resale. Look for Gobs of Knobs at regional swapmeets and monthly DVHRC meetings. Bring your orphans and I just might have its relatives in stock. Dial pointers also available. Mike Koste, 57 Tennis Ave., Ambler, PA 19002. (215)-646-6488

GE Semiconductor Data Handbook # 451.90 (early 70s?) or earlier. Marv Beeferman, 2265 Emerald Park Drive, Forked River, NJ 08731 (609)-693-9430 mbeeferman@cs.com

Mitsubishi CRT's (for monitor): AT20A9LEB22TC9, AT20A9LEB229, AT20A92EB22TC9, AT20A92EB229, AT20A92EB2L5(L9)TC9, or anything close to these models. Marv Beeferman (see address on ad above).

Zenith 12-S-265 Blackdial console. Must be in excellent condition. Contact: Sal Brisindi at salb203@aol.com or 732-308-1748.