



The Jersey Broadcaster

NEWSLETTER OF THE NEW JERSEY ANTIQUE RADIO CLUB

March 2008

Volume 14 Issue 3



MEETING NOTICE

The next meeting of the NJARC will take place on Friday, March 14, at 7:30 PM at the David Sarnoff Library in Princeton, NJ. Contact President Phil Vourtsis at (732)-446-2427 or visit us at <http://www.njarc.org> for directions. The March meeting will feature a fairly sizeable auction consisting of two collections. The James Ogibene collection includes radios, parts and test equipment. Jim was an NJARC member who recently passed away and his family appreciated his passion for radio collecting and his enthusiasm for the club. They want his collection to stay in the hands of local antique radio enthusiasts who appreciate the hobby as much as Jim did. The second collection belonged to an engineer who did design work for consumer electronic items. It consists primarily of equipment and parts. An interesting point is that, since his company was based in Japan, much of the test equipment is labeled in Japanese. **Remember...if your dues are not paid, you cannot bid!**

Reported by Marv Beeferman

The February meeting of the NJARC may prove to have been a unique event in antique radio collecting - the first broadcast of a club meeting over the internet, accessible to anyone in the world. You can read all about how this was accomplished on a shoestring budget in this month's *Broadcaster*. We were also very lucky to "show-off" the authoritative topics we bring to our membership with David Sarnoff Executive Director Dr. Alex Magoun's review of the "Farnsworth Invention" which ran for three months on Broadway.

I'd love to capture all of Alex's remarks, since, in my opinion, they are probably the most balanced and insightful of all I've heard. Next month may provide the needed *Broadcaster* space. However, here's a short quote representing the flavor of his presentation:

"My concerns turned from relief to pleasure and then joy as I watched the cast recre-

ate the spirit of creativity, wonder, competition, and disillusionment in high technology. The ensemble created an alternate universe in which they realized a Sarnoff different in shape and manner from that I and the Sarnoff family and older RCA staff know. But not in his essence: there they've caught and manifested David's understanding of the power and possibility of communications, a conviction he maintained from the questionable quality of radio programs to the televised riots and warfare of the 1960s - because he knew we have no choice."

NJARC Executive Board elections will take place in June, and nominations will continue to be accepted at the March, April and May meetings. You must be a paid member for 2008 to nominate a candidate or to vote. All positions are open,

firmed by a secret ballot cast by all attendees at the June meeting.

Member Ray Chase reports that, on March 3rd, he and Harry Klancer picked up a group of nice radios and artifacts at the Hackensack apartment of Dan Rohr-

baugh. More important, included is a very large collection of books on radio broadcasting history and radio performers. These will be an important addition to the museum and library. Dan has given



Just two of the many offerings at the March auction.

and we will absolutely need replacements for our President, Treasurer and Sarnoff Library Sergeant-at-Arms. One of our Trustees will be replaced by our ex-President, a second Trustee will be appointed by our new President and a third Trustee is up for election.

Although not a requirement, in the past, some of our nominees have provided a short statement to the *Broadcaster* providing their thoughts on the club's future and how they plan to implement their agenda. Even if we have only one nominee for a position, election will be con-

InfoAge more radios from his collection in his other home in Tamaqua, PA. There is still another truckload to pick up at the Tamaqua address.

While Ray and Harry were dropping off these items at the museum, Janine Tirrito dropped off another half-van load of items from her late father's home in Brooklyn. Included were a mix of parts, tubes, junk radios, etc. which are still to be sorted. A very interesting Dumont CRT was included, so there may be other treasures to be found.

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
(732)-446-2427

VICE PRESIDENT:

Richard Lee
(845)-359-3809

SECRETARY/EDITOR:

Marv Beeferman
(609)-693-9430

TREASURER:

Sal Brisindi
(732)-308-1748

SERGEANT-AT-ARMS (WEST):

Dave Snellman
(215)-345-4248

SERGEANT-AT-ARMS (EAST):

Rick Weingarten
(732)-370-8206

TRUSTEES:

Ray Chase (908)-757-9741
Gary D'Amico (732)-271-0421
John Ruccolo (609)-426-4568

TECHNICAL COORDINATOR:

Al Klase
(908)-782-4829

TUBE PROGRAM:

Gary D'Amico
(732)-271-0421

SCHEMATIC PROGRAM:

Aaron Hunter
(609)-267-3065

CAPACITOR PROGRAM:

John Ruccolo
(609)-426-4568

RESISTOR PROGRAM:

Walt Heskes
(732)-205-9143

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

LIVE BROADCASTS OF NJARC MEETINGS (What would Philo Say?)

By Dave Sica

In the 1920s and 30s, Philo Farnsworth and David Sarnoff were busy inventing the latest video technology to date. On February 8th, 2008, with a little help from Dave Sica, the NJARC used the latest video technology of our era to help Sarnoff Library Director Dr. Alex Magoun tell the real story of the "Farnsworth Invention." Our thanks go out to Dave for making this happen; the New Jersey Antique Radio Club has earned a gold medal for providing innovative service to the collecting community...Ed

It was a first and it was fun. And, with a similar amount of initial trepidation, just like Farnsworth's early television experiments, "the damned thing worked!"

It was a little like the Olympics, only for radio collectors! What could the Olympics possibly have in common with a lecture about the Farnsworth/Sarnoff conflict? Well, I may be stretching the point a bit, but my very first job out of college was working for ABC Sports at the Montreal Olympics. I was new to the business, and a lot of the technology that is a household word today was new at the time. I often thought that all these years later, as nice as it's been sometimes, I never again had quite that much fun working!

Last month, the club experienced a first of a different kind as we hosted our very first official broadcast of an NJARC meeting to the world via live streaming video on the Internet. And, for the first time in quite a while, I found myself quite enchanted with a new video technology.

The broadcast was an unqualified success; we had "guests" from around the country. Word of what we were going to do spread rapidly via various internet discussion groups. Approximately two dozen hard core radio and television history enthusiasts joined a live audience of 55 NJARC members in Princeton for Alex Magoun's analysis of the Broadway play "The Farnsworth Invention." We received "QSL" reports from the East Coast, the West Coast and numerous points in-

between. A few folks reported some technical glitches (most seeming to be related to having an older version of Flash installed, or running an older computer - the price of progress!) but on the whole, reports from the field were enthusiastic.

From Nebraska: "You should be congratulated for what you did last night." From Pennsylvania: "Really Great!" From Florida: "We are thankful." From California: "I still find it amazing that I could watch that live from an event at the other end of the country." And New Jersey: "You made a major advance in providing coverage of your meeting to the many who wanted to see it." Not bad reviews at all... NJARC takes the lead in applying NEW media technology to the OLD radio hobby!

We did what is called a live-switched event. This is a little more complicated than our usual form of running a single camera to record the meeting presentation to tape, which Phil Vourtsis has been doing at every meeting for over a decade. Live-switched means we took multiple video sources and switched in what we wanted to broadcast, just "as seen on TV." I ran one camera and a second was manned by ace camera operator Rick Weingarten. I also planned for a direct feed from PowerPoint slides and still photos, titles and graphics generated on my notebook computer, which also served to feed the stream out to the net.

Although I have a full complement of reasonably high-end video equipment which would have filled all the functions necessary to generate a live switched video stream, this setup wasn't anything even remotely similar to that which Fox used to cover the Super Bowl! Quite the opposite. Partly as a tribute to the frugal spirit of ham radio, partly just out of the desire to see if I could pull it off, and partly due to the fact that we as a club had no money budgeted for this, I intentionally tried to cobble together the entire setup for a total investment of zero dollars. Exclusive of the notebook computer I used to access the Internet, I think I succeeded in that goal.

Here's how I executed "Guerilla Streaming":

- For cameras, I used two consumer camcorders in which the "corder" part

was dead. The cameras sat on some 70s-vintage industrial tripods, a fact which could very well have contributed a bit to the perceived jerkiness of the video; one is NOT supposed to do on-air moves with spring-head tripods!

- Our "ace" second cameraman, Rick Weingarten, was pressed into service for this broadcast after qualifying by, well, not refusing the job.

- Each camera fed video into a switcher. Now, I have a couple of "real" switchers, but they're big and heavy and cost money, so in keeping with the Rube Goldberg video theme, I chose to use a little passive switcher. This method was not technically any different from inserting a couple of knife blade switches into the signal chain. That, of course, raised complete havoc with the continuity of the picture synchronization every time I switched sources, so I ran the switched feed into a frame sync time base corrector to clean it up. The output wasn't necessarily pretty at the switch point, but it was now "legal" (and truth be told, the switching actually looked cleaner than it had any right to!)

- I had to feed the signal into the computer while at the same time recording it to tape, so I needed a distribution amplifier. I have several video DAs, but again, in keeping with my "Jed Clampett" engineering theme, I used a defunct VHS deck that happened to have two video-out jacks. One of these fed another camcorder (this one with a defunct camera section), while the other needed to feed a signal via Firewire to the notebook computer. I could have used a professional D-to-A converter to encode the digital feed, but still keeping with the "trailer trash tech" theme, I chose to route the signal through yet another camcorder (this one in which nothing was working except the analog-

to-digital passthrough).

- For the frame sync/time base corrector, rather than using a rack mounted TBC, I plugged an old TBC card into a 386 computer carcass (the card only pulls power from the computer). For audio, I used a mixer that I had picked up at a flea market twenty years ago for a dollar. I didn't consider purchasing the mixer as adding a dollar to the equipment cost since I'm pretty sure it's depreciated a bit since I got it. I also had to do a bit of repair on it after I found it in the darkest corner of the shop the week before the broadcast, and that was after cleaning off something that looked like - but I sure hope wasn't - dried mouse pee.

- For the graphics, I ran a demo version of a shareware program that inserted the graphics and text; it provides video "still store" and character generator functionality. That ran on my notebook along with the browser feed to the streaming server. Other than the notebook computer, my only other concession to real production tools was a professional wireless mike. I pressed that into service because it was easier than tapping into the house PA system and I wanted everyone to be able to hear Alex clearly.

- I have a brand new scan converter that somebody gave me. That was supposed to intercept the PowerPoint on it's way to the projector and give me an NTSC video feed to a third position on my steam-powered analog switcher. Although I was able to get the feed just fine, when we had the converter inserted into the VGA signal path, we couldn't get PowerPoint on the screen. This setup worked fine when I tested it on my computer at home, but since we seem to regularly have projector issues in that auditorium, I suspect that the ghost of David Sarnoff

was just messing with us again. With minutes to go before air time, I jettisoned the direct slide feed.

When we started experimenting with streaming a while back, we worried about how we were going to pay for it. We limited viewing to a few people on an "invitation only" basis. Sending our broadcast to more than a few viewers could cause us quite a toll in terms of bandwidth. We estimated that it might cost us up to or even more than a hundred dollars a month to purchase streaming server services. "Ustream.TV" is a web-based service that opened for business a while ago with the business model of giving away free unlimited streaming services. Although we don't know how Ustream plans to turn a profit (perhaps through advertising revenue?), as long as they're offering the service, we'll be happy to take advantage of it.

We hope to be able to offer this every month and my hope is that radio collectors not local to New Jersey might be motivated to join the club now that it's a little easier to participate. I do believe this was something of a first. A lot of people have been streaming a lot of things for some time now, but for the New Jersey Antique Radio Club (and as far as I know the antique radio and television collecting community at large), this was something new.

It was energizing to think that anyone, whether they were in New Jersey or in Tahiti, could participate in our meeting as easily as our members in Princeton. (More easily, in a way: they didn't have to drive to the meeting!) I hope that other clubs and organizations are encouraged by what we've done here and reach out to the wider community.



THE DR-6 AND THE SODION S-13 DETECTOR

By Marv Beeferman

NJARC member Dick Hurff brought in a wonderful find to our February meeting - a Connecticut Radio DR-6 receiver. But what's most interesting about this model is not the radio itself but the detector tube that it utilizes. Here's the story...

Dr. H. P. Donle was chief engineer for the Connecticut Telephone and Electric Company. He had been working on tube development for a number of years, trying to produce a tube that would not infringe on either the Fleming or de Forest patents. He first patented a tube that had an anode in close contact with the outer surface of the cylindrical glass container that housed the grid and the filament. Another attempt resulted in the gridless Connecticut J117 where the tube was surrounded by a coil through which direct current flowed, setting up a magnetic field parallel to the axis of the tube. The detector unit could only be tuned to a given signal by varying the intensity of the field or by moving the tube within the field. The sets designed for use of the J117 were not a success and the design, although commercially available, was soon abandoned.

The precursor of the Sodian detector was described in a December, 1922 paper in the IRE. The anode was of liquid sodium; hence, the tube had to be mounted base-up in the receiver. There was no designation given to this tube and Donle

went on to develop the S-11 Sodian detector which could be mounted base-down. In an October, 1923 IRE paper, Donle described an improved version of his S-11, the S-13. The S-11 had a spherical bulb with a tip and standard UV (Shaw) base. The S-13 had a brass shelled, nonstandard base (similar to a UV199) and required a special socket, or alternatively, an adapter to mount it in a UV socket. Part of the tube's .24 amp filament power was used, via a special heater, to heat the sodium impregnated inner glass container in which the elements were installed. At present, no information could be found on exactly how and in what form sodium was introduced into the S-11 or S-13; any information along this line would be appreciated.

In 1923, the S-13 Sodian detector was placed on the market. It was quite different from standard detectors of the time, using an alkali metal as the plate and a trough-like "grid" called a "collector" placed behind the filament (rather than between the filament and plate). Sales literature described the tube as follows:

"The sodion tube is many more times sensitive than any other vacuum tube detector on the market with stable and uniform operation. With its element arrangement this non-interfering tube cannot be made to oscillate and, therefore, never produces beat note howls or whistles and never interferes with reception by other listeners."

"No grid leak is required and the S-13 will operate on four dry cells or a six volt storage battery with a requirement of no greater than .24 amperes at 3.8 volts. With a 16-1/2 to 22-1/2 volt B potential,

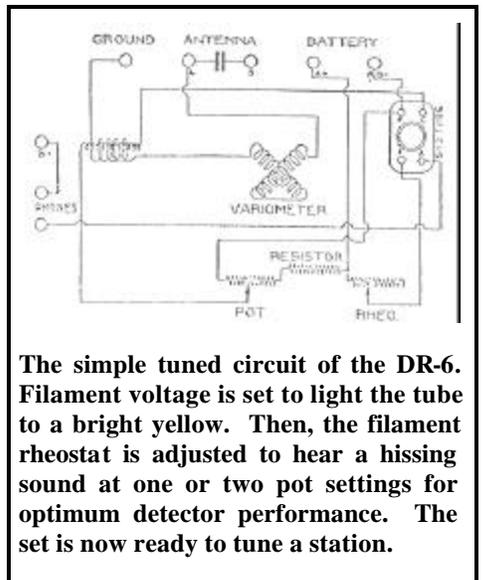
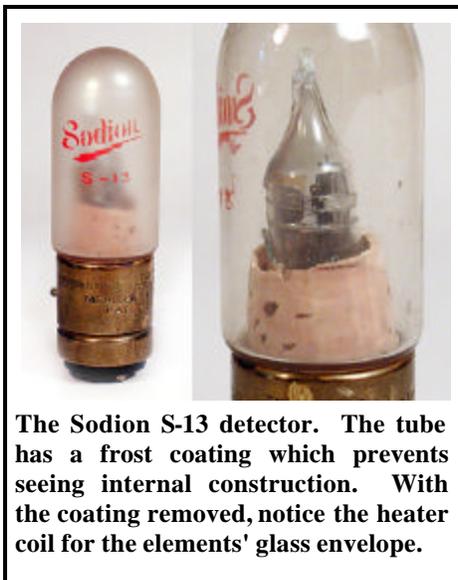
the purity, tone and clearness of radio telephonic speech are unsurpassed."

The DR-6 was also introduced in 1923 and sold for \$29.50, including an S13 tube and headphones. Its circuit arrangement is shown in the accompanying diagram. The receiver tuned from about 150 to 750 meters (2000 kHz to 400 kHz). Increased volume could be obtained from one or two D-11-1 audio frequency amplifiers (\$10 each) which would fit in the space to the left of the receiver. Using UV-199s, one unit could provide loud-speaker volume for nearby stations while two were needed for distant stations.

Reports on the DR-6 are somewhat scarce. Don Patterson, in his December 1979 "Radio Age," reported that selectivity was rather good and operation was "almost completely quiet with no squeals or howls." This sounds a little to similar to the advertising quoted above ("never produces beat note howls or whistles"). Perhaps Dick Hurff can give us a better report. As for the Sodian detector, tube authority Gerald Tyne in the September, 1978 issue of "The Old Timer's Bulletin," noted that "with the adoption of r.f. amplification and ganged tuning, it probably died a natural death."

References:

1. Radio Age, Vol. 5, No. 10, "Connecticut Radio"
2. Gerald Tyne, "Saga of the Vacuum Tube," pg. 336-341
3. Fin Stewart, "The Vacuum Tube," OTB, Vol. 40, #4 (November 1999)
4. Gerald Tyne, "The Tube Collector," OTB Vol. 19, #3 (December 1978)
5. Ibid., Vol. 19, #2 (September 1978)



2008 NJARC BCB DX Contest Results

(MDS = Most Distance Station * = winner)

Category A- Crystal Radios

***Gerry Dowgin:** 2,195 pts., "Pretty Good Xtal Set," 130 ft. random wire
MDS: WLAC 1510 kHz Nashville, Tn, 736 mi.

Category B- Primitive tube receivers (homebrew also) - 1or 2 tubes

***Nevell Greenough:** 8,852 pts. Westinghouse RC (using 2-01As, no 2nd audio), 30ft.wire,
MDS: 530 kHz RVC Turks and Caicos Is., 1,309 mi.

Category C- 1920's Battery Sets (homebrew also)

No entries

Category D- Other tube radios sold for home entertainment

***Rich Mueller:** 10,078 pts., 1941 Zenith 6G-601 Universal portable, internal loop
MDS: 1520 kHz KOKC Oklahoma City, Ok, 1,309 mi.

Harry Klancer: 7,876 pts., 38-89 Philco, inverted L ant.,
MDS 530 kHz RVC Turks and Caicos Is. 1,309 mi.

John Tyminski: 3,471 pts., Crosley 127, random wire
MDS 650 kHz WSM Nashville, Tn 736 mi.

Category E- Amateur, commercial and military tube type communications receivers

***Al Klase:** 9,646 pts., Hammarlund HQ 120, "Skywaves" shielded loop
MDS: 750 kHz RCR Caracas, Ve., 2,097 mi.

Gary D'Amico 9,103 pts., Hallicrafters S-29, using small loop
MDS: 530 kHz RVC Turks and Caicos Is. 1,309 mi.

John Ruccolo: 8,696 pts, Collins R390 (aka Mildred), 65 ft. random wire and 20's loop
MDS: 870 kHz WWL New Orleans, La., 1,128 mi.

Category F-Transistor radios introduced before 1970

***Gerry Dowgin:** 5,123 pts., Emerson 911 (transistor "9") internal loop
MDS: 730 kHz XEX Mexico City, 2,055 mi.

Results courtesy of Tom Provost

NJARC SHAMELESS COMMERCE DIVISION

**BATHROOM
LUXURY**

Shopping for window curtains isn't at the top of my list of priorities, but sometimes you have to give in to some of your creative tendencies. However, on occasion, these short forays to the dark side do pay off if you remember one fundamental of collecting...never abandon your "radio eye," even if your trying to get out of Bed, Bath and Beyond as quickly as possible.

It took a few double takes but there, at the bathroom décor section of Marburn Curtains, wedged between a very appealing robin's-egg-blue seashell print and a soothing green aquarium scene, was the

"Radio Days Shower Curtain." What more could the avid radio collector want during that morning shower than to be surrounded by a montage of colorful vintage radios floating in a 72" x 72" sea of red, green, purple, and orange interconnecting bubbles. But wait, there's more!

The darn thing even comes with an FM radio, pre-installed antenna, and a waterproof keypad to control power and volume and change stations. And, if you were just wondering, three 'AAA' batteries (which are said to last 90 days) were also included. At a price tag of \$6.00, was this too good to be true or what? The "made in China" label and what was described as a touch sensitive "toolbar" control panel gave me some second



The Radio Days Shower Curtain. FM radio and "toolbar" control panel are in upper right.

thoughts, but I bought four; it seemed like a good buy even if the radio didn't work.

I got home, installed the batteries and hung a curtain. Expecting the worst, I was immediately surprised to find that the radio worked great...loud and clear with an enviable choice of local stations. The touch sensitive toolbar was also interesting. It's really not "touch sensitive"; to activate a control function, you use your thumb and forefinger to press the button images on both sides of the toolbar. Actually, this also worked quite well.

For the next few months I'll be dealing with the questionable care instructions: "To clean, wipe with a damp cloth. Do not immerse in water." Hmmm...

If you're interested, get in touch and I'll see if I can get a few more for the next

meeting. I found mine at Marburn Curtains in Toms River; its sold under the Martex name (www.martex.com) and made by WestPoint Home, Inc. (www.westpointhome.com).

BEAM ME UP, SCOTTY

At the last repair clinic, a number of members (especially the older ones) admired the lighted magnifier glasses that a few people were using. Technical Coordinator Al Klase suggested a club purchase and Dave Sica has acquired a limited number. They'll be available at the March meeting at a reasonable price; the working Star Trek version is \$5,000.



NJARC MEMBERS ANSWER THE CALL AT INFOAGE

On February 7th, the word went out... Ray Chase announced, through the NJARC Reflector, that a short term crisis had developed at InfoAge and the club's help was needed. The last item holding up the transfer of the "H" buildings to InfoAge was the asbestos remediation of window caulking in some of the windows. With approval, a great deal of material as well as many vintage military vehicles and parts belonging to the MTMNJ group was stored in one or two areas of the "H" buildings.

InfoAge originally had an agreement with the remediation contractor that only a 10 foot access area around the interior

perimeter of affected rooms in the building was needed to do his work, so all items were originally relocated to the center of the rooms. However, bureaucracy prevailed and the Army project manager insisted that all items in the affected rooms must be removed by Monday, February 11th. This required moving our RCA broadcast transmitter, vintage radar equipment, furniture, partitions, building material, computers, etc. 300 feet to another room.

The response from NJARC members was inspiring. Fortunately, all floors were smooth with no thresholds, and rolling equipment was available to aid the effort, but the work was difficult (especially for some of us older guys) and a lot of individual lifting and schlepping was involved. However, the club prevailed and all the equipment was moved by mid-afternoon on Saturday. Hats off to all volunteers and another NJARC job well-done.

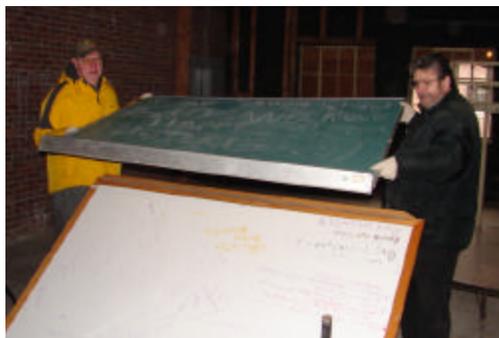
CLUB JACKETS AVAILABLE

Back by popular demand and as a result of the efforts of club VP Richard Lee, club jackets are now available. The jackets are high quality, black with a gold club logo, and available on an order-only basis. To place an order, contact Richard at our next meeting, drop him a line at radio-rich@prodigy.net or call him at (845)-359-3809 for more information. Richard also reminds us that club hats are on their way.



The crew assembles (my apologies to the camera shy.)





A job well-done.

HAPPY BIRTHDAY HP

By Marv Beeferman

It was my fourth year in the Navy and I was bumming with some friends on shore leave in Florida. I've run with the best of them and have tried to uphold the sordid traditions of all submarine sailors that have come before, but it was impossible for Reactor Operators like myself to totally deny our geek-like history and tendencies. We were browsing through the electronics section (what else?) of a local department store and before I knew it, one of my buddies is shelling out four hundred bucks for an HP 9100A calculator - and on a Petty Officer's Second Class salary. Now that's gadget devotion!

What made me think of this story is learning of the 40th anniversary of the HP calculator. The HP 9100A, with no ICs except in its magnetic card reader, was first; then, a few years later, when IC technology matured, came the HP 35.

Many people contributed to the 9100A's introduction, but one notable that stands out is Tom Osborne. Tom was never an HP employee, but he designed and built the prototype machine in his apartment that was destined to be the foundation of HP's first calculator. He also developed a logic-design methodology based on ASMs (algorithmic state machines) that gave HP a real competitive design advantage for many years. Tom Osborne's story encapsulates a time when an individual could move an industry forward in a great leap very quickly. It's also about a time when some companies (like HP) treated competitors with respect and when a young inventor could directly interact with corporate presidents and

CEOs, make deals with them directly, and seal the deal with a handshake.

Tom tried selling his initial design to several companies including IBM, Friden, and HP, but initially failed. Then, luck intervened and a former co-worker from SCM (Smith Corona Marchant) got him an audience with the legendary head of HP Labs, Barney Oliver. The rest was history.

What's your experience with the 9100, 35 or later HP models? I'm sure your fellow NJARC members would love to share your story.

SOMETIMES, A VOLTMETER IS ALL YOU NEED

The simplicity of early radio circuitry sometimes discourages us from tackling more sophisticated projects. I'm including this article in the "Broadcaster" as a little inspiration to those who may be intimidated by today's tubeless wonders. It was posted by Brad Thompson in the February 2008 issue of "Test and Measurement World."...Ed

Two days before Christmas, our two-year-old Toshiba DVD player refused to play. Its 90-day warranty had long expired, and even if I could find a service shop, repairs would cost far more than a new player. Like most consumers, I immediately thought about purchasing a replacement. Venturing into holiday traffic and retail madness, however, didn't appeal to me. Surely, my collection of state-of-the-art (circa 1994) test equipment could see me through the repair process?

On the minus side, I had no schematic

diagram for the DVD player. And given manufacturer's propensity to pack ever more functions into custom-designed, fine-pitch "jungle" ICs, a major component failure would be irreparable.

Gaining access to the DVD player's innards proved surprisingly easy. I removed three screws and a thin sheet-metal cover, revealing three subassemblies - a single-sided power supply board, a disc transport, and a double-sided multifunction board. I connected the player's audio outputs to my workbench audio amplifier and loaded Miles Davis' "Kind of Blue" CD. The disc spun and music played, albeit weakly and with great distortion - Miles sounded as if he were spitting in his horn.

Thinking that a solder joint had failed, I tapped and wiggled components on the multifunction board with no effect. Then I recalled the "First Axiom of Troubleshooting" - always check the power supply. Fortunately, the supply board's silk-screened component legend specified the voltages conveyed via ribbon cable to the multifunction board.

Reaching for a voltmeter, I quickly discovered that the -12 volt output read zero volts. Unsoldering a Zener diode didn't restore the voltage, but unsoldering a 470 uf, 16 volt electrolytic capacitor did. I found a replacement in my component collection and, minutes later, Miles sounded like Miles should. Incidentally, the failed capacitor appeared perfectly normal, with no bulging ends or leaking electrolyte common to counterfeit capacitors.

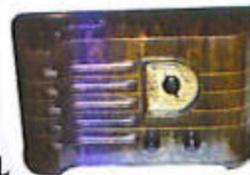
So, even if your normal workday takes you far away from electronic hardware, don't be afraid to tackle the next piece of malfunctioning consumer electronics in your household. Sometimes, a voltmeter is all the instrumentation you'll need.



New Jersey Antique Radio Club's Spring Swap Meet



Parsippany PAL Building
Smith Field
Route 46 & 33 Baldwin Road
Parsippany, New Jersey 07054



Saturday, April 19, 2008

**Walk around auction
starts at 11:30 am.
Bring in your attic
treasures for free
appraisal!**



**Expert Antique Radio
Repair Available.
Refreshments Available.
Easy ground level access.**

Open to the Public
(8:00 am to 1:00 pm)

Vendor Set-Up at 7:00 am
\$5.00 ENTRANCE FEE
CLUB DONATION

**(70) 8 ft. Tables
\$20.00 for members
\$25.00 for non-members
Reserved Additional Tables \$15.00
At the Door \$20.00**

FOR DIRECTIONS
VISIT OUR WEBSITE: WWW.NJARC.ORG
OR MAPQUEST.

(33 Baldwin Rd., Parsippany, NJ 07054)

Vendors Make Your Reservations Now!

Contacts:

Vice President
Richard Lee
(845) 359-3809

President
Phil Vourtsis
13 Cornell Place
Manalapan, NJ 07726
(732) 446-2427

Editor
Marv Beeferman
2265 Emerald Park Dr.
Forked River, NJ 08731
(609) 693-9430

radorich@prodigy.net

pvoirtsis@optonline.net

mbeeferman@cs.com