The Jersey Broadcaster

MEETING/ ACTIVITY NOTES

Reported by Marv Beeferman

NJARC members found the May meeting a nice change of pace, bringing back those occasional but well-received radio auctions devoted strictly to club members. Courtesy of president Richard Lee, some nice items were hammered down at very reasonable prices:

RCA 68RT: $22

Fisher 500C: $80

B&W 5100B transmitter: $180

MEETING NOTICE

The June meeting will take place at Princeton's Bowen Hall (70 Prospect Ave.) on Friday, June 11th, at 7:30 PM. Directions are posted on the club's website (http://www.njarc.org). Join us for a Tech Talk by Al Klase and learn about the mysteries of IF alignment in superheterodyne receivers and aligning the RF sections of TRF receivers for best performance. We'll also be holding Executive Board elections.

RCA 16T4: $18

Philco Model 70 "chairside": $40

Auctioneer Al Klase had his hands full.

President Richard Lee has announced that a new feature will be added to our meeting activity agenda This July, we'll be asking you to bring in some of your favorite radio restoration and repair "Hints and Kinks." A "kink" is defined as a clever, unusual way of doing something. Richard supplied some examples at the May meeting:

50# Stren fishing line makes a great dial cord replacement.

Need a replacement back for your favorite radio? Cut it out from a Dollar Store clipboard.

Ray Chase has provided us with an update of latest InfoAge activities:

1. We have completed part of our exhibit at the Jewish Heritage Museum of Monmouth County (JHMOMC). The entire exhibit is titled "Living Voices, Jewish War Veterans of WWII". We have supplied radios for a "Radio Days" portion and some WWII Military sets. The exhibit opens June 1st with a more formal opening on the Sunday before Flag Day, June 13th. The museum is located at 310 Mounts Corner Drive, West Freehold 07728; directions may be found at <jhmomc.org> under "contact us." They are in a restored barn at the rear of a shopping center. Check their schedule if you plan to see the exhibit; they are not open Saturdays.

2. Brookdale Community College in Lincroft has an ongoing program at the Center for WW II Studies and Conflict Resolution with evening and Saturday programs mainly about WWII. They are also part of the display at the JHMOMC in Freehold. This is an important year in remembering WW II, as August is the 65th anniversary of VJ Day, the end of WWII. This ties in well with InfoAge which is a Living Memorial to WW II and where many historic WW II developments were made. John Cervini of InfoAge and AOC has already given a program at Brookdale and next year one or more NJARC members will be on their schedule for presentations. Recently, I visited my three granddaughters, two in college and one 3 years out of college and they know nothing about the history of WW II other than what they have picked up from me. Sad; where is our educational system?? Anyway, if you have interest in the subject, take a look at the website <brookdalecc.edu>.

3. InfoAge has just completed a redesign of their membership roster and mailing list. They recently sent out a letter to all known members reminding them of the need to update their dues payment. I know many of you are also members of InfoAge and in these times, where State and local funding is extremely hard to come by, it is even more important that we support InfoAge in every way that we can. If you did not get a letter, or more importantly, if you want to add your membership to this organization, please see the website <infoage.org>.

Ray has also asked me to post the following ad:

The passing of long-time 1920s collecting specialist Ernie Hite brought his large, museum-quality collection to the auction block at the CC-AWA Spring Conference. Paul Farmer had an interesting comment that he published in the May issue of *Radio Age* (Journal of the Mid-Atlantic Antique Radio Club):

What did the Hite auction reveal (if anything) about the future of vintage radio collecting? The passing of top-drawer collectors like Ernie, Ed Bell and Larry Babcock can only accelerate in this age of aging collecting stars. As they pass and their collections come to the auction block in ever greater numbers, the supply of quality sets will be increasing just as demand is dropping from the fewer and fewer well-heeled collectors remaining. This almost certainly means lower prices down the road even for the rarities and museum pieces...I think. But who can tell the future even when all the stars appear to be aligned.

UPCOMING EVENTS:

6/13: Annual HARPS swapmeet, 9AM to 4PM, Episcopal Church of Suffern, 65 Washington Ave., Suffern NY, 10901
7/9: Monthly meeting at Bowen Hall, "Hints and Kinks"
7/24: NJARC Summer "Tailgate" swapmeet@Infoage

WASHINGTON THROUGH THE RADIO EYE

By
Marv Beeferman

This April, I took a weekend tour of Washington with a few friends that was sponsored by our local community college. Although the places we visited ran the gamut of our nation's history...the National Cathedral, the Holocaust Museum, the Jefferson and Lincoln Memorials, the Newseum, the National Air and Space Museum's Udvar-Hazy Center, WWI, WWII, Korean War and Vietnam War Memorials, etc…somehow those little items of radio interest immediately caught my eye. It wasn't intentional, but I found it curious how, in the midst of all this accumulated history and emotional inspiration, one's unique interest results in spending a few extra minutes digesting those exhibits that most pass by in seconds or hardly notice.

What follows are just a few of those discoveries I'd like to share.

Secret Messages

Rudolf Ivonovich Abel served as a language instructor in the Soviet Red Army and served in Soviet Intelligence in 1930. He served as an intelligence officer for the Red Army on the German front during World War II and was highly decorated for battlefield services and espionage activities.

He entered the United States in 1948 under the name Emil R. Goldfus and moved to New York City in 1949. Here he developed a system of intelligence drops, including letterboxes and drop zones throughout the city. He also oversaw the gathering of top secret intelligence information from the United Nations and U.S. military installations and managed the transfer of this information to Soviet agents or directly to Moscow.

Abel was exposed in 1956 and sentenced to 45 years in prison but exchanged for U2 pilot Francis Gary Powers in 1962. Pictured is a Hallicrafters S38-D which was the type of shortwave receiver that Abel used in his Brooklyn apartment to receive communications from the Soviet Union. It was on loan from the CIA Museum and part of an exhibit in the Newseum.

Fireside Chats

I visited the Roosevelt Memorial in the evening, at which time it seemed more impressive and realistic. The section that you see is George Segal's *Fireside Chat* which shows a lanky man leaning forward on a chair as he listens intently to one of Roosevelt's radio addresses on a period radio (can you identify it?).

Roosevelt's first fireside chat was March 12, 1933, which marked the beginning of a series of 30 radio broadcasts to the American people reassuring them the nation was going to recover and shared his hopes and plans for the country. These "chats" were considered enormously successful and attracted more listeners than the most popular radio shows during the "Golden Age of Radio." Roosevelt continued his broadcasts into the 1940s as Americans turned their attention to World War II.

A Unique Artifact?

This tube was exhibited at the National Air and Space Museum's Udvar-Hazy Center. Its placard reads as follows:

"This vacuum tube is from a communication radio located in the old Washington National Airport tower. The radio was used until 1965 by controllers to speak to pilots. A vacuum tube essentially converts AC (alternating current) signals into DC (direct current) signals. Semiconductors have replaced nearly all vacuum tubes."

Aviator's Helmet

Early aviator's helmets were invariably made of soft (frequently insulated) leather and was intended purely to protect him from the effects of wind and cold. Later on, the severe acoustic disturbances caused by the combination of wind rush

and motor and vibration noises necessitated that all crewmembers wear a helmet containing a headset for intercommunication. Several helmets had been designed, all of which produced pressures upon the wearer's head, resulting in violent headaches from prolonged use.

As advances in wireless radio communications developed, the basic leather helmet began to feature earphones for radio receiver headsets. To improve on earlier designs, the earpieces were enclosed in deep, soft rubber cups of less depth at the back of the ear, where continued pressure was bearable. Also, the cups were held tightly against the head by a strap running around the head and back of the neck instead of by the previously used uncomfortable chinstrap. The chinstrap was utilized only to bring the forward edges of the helmet close to the face and to tighten the lower portion of the helmet.

First Airborne Radio Transmitter

Its placard describes this "first airborne radio transmitter," designed and built by Oscar C. Rosen, as making the first successful radio transmission from an airplane to the ground in 1911. It notes that it was carried aboard a Curtiss aircraft piloted by J. A. D. McCurdy. The airplane could not carry the additional weight of Rosen, so the telegraph key was attached to the control wheel and McCurdy sent the message.

An Internet search found no references to Oscar C. Rosen, but McCurdy shows up in *Electronics in the West: The First Fifty Years* (Jane Morgan, 1967).

According to Morgan, on August 27th, 1910, J. A. McCurdy, a Curtiss-trained pilot, sent to Harry M. Horton what **they** thought was the first message ever received from a flying plane. (Prior to this, there were many unpublicized, unofficial air-to-ground wireless experiments.) This was at an air meet at the Sheepshead Bay race track in New York. Since there were Signal Corps officers and representatives from Washington and from the Aero Club of America who witnessed the Horton-McCurdy demonstration, as well as newsmen and thousand of spectators, **this** was recognized as the first official transmission of a wireless telegraph message from the air to take place in the United States.
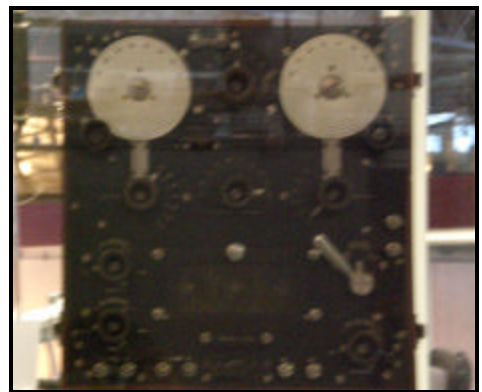
On-Board Radio

By 1918 radio communication was beginning to make an appearance in front-line air operations as evidenced by

Col. William ("Billy") Mitchell's Spad XVI command airplane. A brigadier general during WW I, Mitchell commanded a force of more than 1,500 planes during the air offensive at St. Mihiel - the largest combat air armada ever assembled up to that time. A staunch and outspoken air-power advocate, Mitchell was convicted of insubordination during a highly publicized court-martial in 1925. He resigned his commission but continued to press for a powerful national Air Force.

Shown is the GN-1 wind-powered generator and the A-21 retractable antenna of the SCR-68 radiotelephone carried in Mitchell's plane. The SCR-68 operated at 750 kHz using a long wire antenna reeled out behind the aircraft and could receive and transmit messages over a maximum range of 18 miles. The artillery observer (navigator) managed the unit, receiving and relaying messages for the pilot. Instead of communicating between themselves in the air, the pilot and observer could send messages through the SCR-68, like a private telephone line, where headphones would eliminate most outside noises. During this time, however, the unit could not receive transmissions.
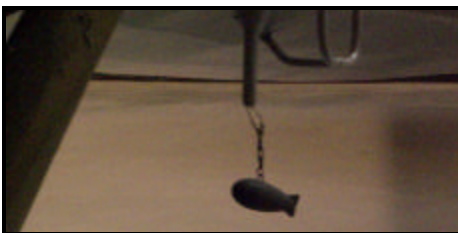
SE 950 Radio Receiver

Unfortunately, the display case prevented a good picture of this unit. It is described as a Navy, 1918 receiver, the "type used on the NC flying boats." It covered a frequency range of 125 to 1000 kHz and was the first receiver ever designed with the amplifier as an integral part of the receiver. It was also equipped with switching and compensating inductances to permit it to be used as a component of aircraft direction-finding equipment.

MEL NUSBAUM DOES IT AGAIN

By
Ray Chase

Those of you who visit our Radio Technology Museum at InfoAge are well aware of the cathedral radio case, complete with an electronic picture frame as a backdrop, that Mel Nusbaum transformed into a radio history diorama. It always draws visitor attention, especially from those who are not particularly avid old radio collectors. Last year, Mel emptied a computer monitor case and performed the same magic with a diorama display on computer history, this time with a video picture frame as a backdrop. Mel was kind enough to lend it to our museum and it has become a second hit attraction.

When InfoAge Director Fred Carl saw this creation, he was greatly impressed with Mel's work and contacted him about creating an expanded historical computer display using several monitor cases to illustrate the various phases of computer history. Mel agreed and Fred set about finding five large obsolete monitor cases. They were easily found; all black and of the same model. Once emptied, they were ready for Mel to do his magic.

The finished products were delivered to InfoAge last week and are truly magnificent...illuminated dioramas with video picture frames depicting the five phases of modern computer development. Mel even created a color tri-fold brochure to accompany the exhibit.
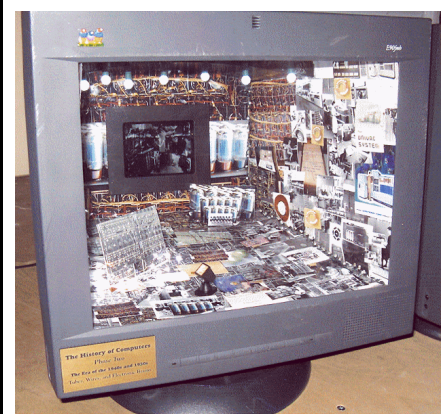

The following pictures do not do justice to the actual displays; one has to view them in person to get the full scope of the artistry involved. We're not quite sure where they will be permanently placed; right now, they are being shown in the hotel dining room. If you get a chance, stop in and see them. It's amazing what talent we have among our club members.
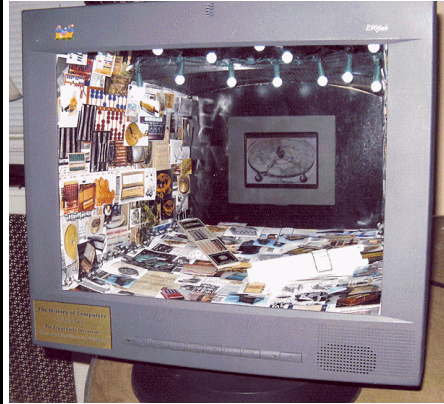
Phase One - The Era of Early Inventions: Ancient peoples scratched marks on bones to help them add and subtract. Calculations were important to count crops, measure property, build houses, navigate ships, trade with others and use money. When machines could be controlled and mechanical calculators could be programmed to follow instructions, the time was right for a whole new invention - the computer.

Phase 2 - Tubes, Wires and Electronic Brains: Radio started in the early 1900s using vacuum tubes to control the flow of electricity. Tubes made it practical to do calculations electronically. Current could be switched on and off, and patterns of on/off circuits represented codes for numbers and letters. The first electronic computers had thousands of tubes to store information and process it. Paper tapes with punched holes saved the on/off patterns in sequence, allowing the computers to solve sophisticated math problems. Later, magnetic tapes did the same thing`with patterns of magnetized spots on the tapes.

Phase Three - Mainframes and Minicomputers: Transistors replaced tubes with a smaller, faster and more reliable technology. Instead of separate wires, circuits were printed as metal strips on boards. Computer circuits were miniaturized and became much more powerful. There were huge processing units called mainframes and smaller units called minicomputers. Computers served many people at once via timesharing.

Phase 4 - Integrated Circuits and Personal Computers: Transistors became smaller until thousands could be printed on a wafer of silicon, a chip called an integrated circuit. It was possible to draw almost an entire computer on a single chip. As a result, microcomputers made it practical for a person to buy a computer for his home. At first, only hobbyists did so, but soon people realized the the value of spreadsheets, word processing and games. The personal computer, or PC, caught on rapidly. Prices dropped, and little portable magnetic disks called floppies and more permanent hard drives let people store their information.

Phase Five - Interconnect Connections and the Information Age: Laptop computers made PC's portable. Computers connected to each other, and to central computers, creating worldwide networks, and the Internet was born. Instant communications in digital form connected the entire world and changed it forever.

SUMMER REPAIR CLINIC

Turnout for the May Repair Clinic at InfoAge was a little less than usual with summer commitments keeping some of the "regulars" away. Another possibility was that your editor forgot to publicize it in the May *Broadcaster*. But all-in-all, it was an enjoyable day. A sampling of some of the activities follows:

Phil Vourtsis replaced all the bathtub capacitors in a Philco Model 71. Marty Friedman showed Phil how to remove the tar from one capacitor with a soldering gun, but in the end he decided to replace the remaining ones by wiring in new ones. Even though a table was available showing capacitor values, only half of the designations were included. The outcome was a lot of schematic component tracing and a bit of luck. However, by the end of the day, the radio was playing at full volume.

John Tyminski brought in a friend's Delco car radio to work on but soon found Darren Hoffman, Marty Friedman and Al Klase as advisors. Unfortunately, the radio did not leave in "working condition." With this crew of specialists, the problem had to be a tough one.

Aaron Hunter brought along a chassis for a GE 106 combination radio/phono. The power supply electrolytic, a three-part can style mounted on the top of the chassis, was defective causing a loud hum. He decided to remove the internals and stuff new electrolytics in the can rather than bothering with an under-the-chassis mount that would also require the addition of a terminal strip. A few paper capacitors that were in the way of the operation were also replaced and the radio came to life when power was applied. Since this is a customer repair, the remaining capacitors will be replaced at a later date.

Dick (Richard) Hurff worked on his Majestic Model 20 Grandfather clock radio. An IF stage had a defective capacitor that was removed before Dick got to the clinic by melting out the tar and removing the contents from its can. At the clinic, coils were checked for continuity and a new 0.1 mfd capacitor installed. The other IF will require an operation similar to the first.


After he got tired of playing with his Majestic, Dick brought out a homebrew 4-dialer about four feet long. With the help of Al Klase, Marty Friedman, Harry Klancer and whoever decided to stop by Dick's table, a determination was made as to what DC voltages should be connected where. Audio stage resistances checked out OK but when power was applied, nothing happened. The filament (on/off) switch was found defective. After almost completely disassembling the radio to access the switch and clean it, there was still no music. When Dick got the radio home and checked the tubes, they proved to be all duds! There was also some trouble figuring out where the 227 plugged in; it wouldn't fit in any of the radio's tube sockets.

Your editor had a much easier time of it, although he had to impose on Al Klase

after forgetting to take his tool case. An Arvin 444A was easily brought back to life by capacitor replacement.
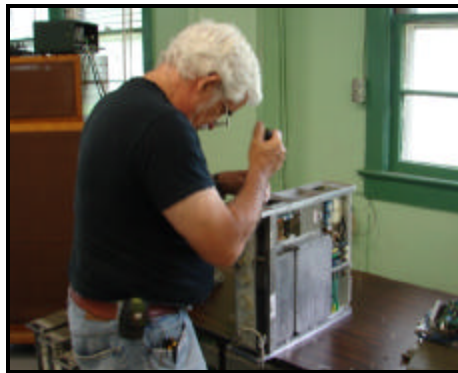
A SHOE RACK SPECIAL FANTASY

A Depression-Era, Beginner's CW Code Transmitter

**By
John Ruccolo**

In the April Broadcaster, we featured the results of the 2010 Homebrew Contest. John Ruccolo submitted two articles with his entry but room limitations prevented them from being published. By the time May rolled around, they were a fog in your editor's memory. With apologies to John, and deserving of "Broadcaster" space, we've including them in this June issue. This first article speculates how John's entry might have been approached by an young "radio experimenter" from the 1930s...Ed
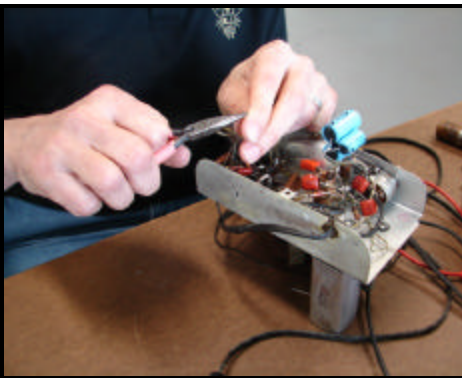
The year is 1937 or '38...or maybe '39. The Great Depression is easing, but times are still difficult for many people (sound familiar?). Our Hero (known through the rest of this story as "OH") is a teenager and aspiring ham with little money and not a whole lot of knowledge, but he's learning fast. He recently studied code and theory and passed the tests, and was issued the ugly call W2UAK.

His Elmer ("Elmer" is ham radio lingo for "mentor") is actually named Elmer - Elmer Smith, W2FUD. Elmer has loaned OH a 1936 ARRL Handbook and some recent issues of QST magazine. Elmer has also provided a few parts (odds and ends), including a nice old brass Signal Electric code key, and lots of advice. He has shown OH the schematic for a simple one-tube transmitter that will get him on the air at minimal cost, and does not require tremendous knowledge or resources to build.

By delivering newspapers, doing odd jobs and bringing back deposit bottles, Our Hero has saved enough money to order some of the essential parts from Allied Radio in Chicago; an RCA Radiotron 6L6 tube, a 100pf Hammarlund variable condenser, a Barker and Williamson Junior End Link 80-meter coil, and a rock for 3795 KC ("rock" is ham radio lingo for a "crystal").

OH's Dad has some interest in radio

and has lent his son a soldering iron, solder, and some basic hand tools. He has also allowed OH to work at his workbench, provided he does not "mess it up!"

Mom had a small wooden shoe rack that she didn't want anymore, and rather than use it for firewood, it has been "acquired" for this project. In the trash behind Jonesy's Radio Shop, OH has found some parts for his project: a nice old knob, a couple of Fahnestock clips, and some other parts, including two National RF chokes which were a pleasant surprise (though the leads were "short" on one choke and will need to be extended).

Jonesy is a grumpy old cuss, not at all an understanding fellow like OH's Elmer. Jonesy unknowingly helps the project by discarding items from his shop, which are eagerly picked up after hours by OH, and several other young radio enthusiasts around town.

While scavenging at the city dump, OH finds an old Shurite milliammeter which goes up to 300 MA. A 100 MA meter would have been better, but beggars can't be too choosy.

He builds his rig out of the combination of precious new parts bought with his limited funds, plus with what he could scrounge from Elmer or Jonesy or elsewhere. The transmitter works, and he's on the air!

The Shoe Rack Special provides lots of contacts under good band conditions. RF output is no more than 10 watts, but OH can go a long way on 80-meter CW ("CW" is ham radio lingo for "code") with 10 watts. Thus, another lifelong ham radio hobbyist is born.

THE "REAL" STORY OF THE SHOE RACK SPECIAL

By
John Ruccolo

In this article, John describes how a modern "radio experimenter" (but hardly a beginner) pulled together the components for his homebrew contest entry...Ed

While looking around for a project to build for this year's homebrew contest, I started looking through a couple of 1930s vintage ARRL Handbooks at "beginner's" receivers and transmitters. I thought a simple transmitter would be fun to build. While doing a little web surfing, I found the excellent site of Neil Weigand W0VLZ. He wrote up a 6L6 crystal-oscillator transmitter that looked like it would be fairly easy (and fun!) to attempt. And it was! Take a look at http://www.io.com/~nielw/6l6/6L6.htm

According to Lud Sibley's great book *Tube Lore*, the 6L6 was introduced in 1936 and is "the Grandfather of all beam power tubes." It led to beefier designs like the 807 and the 813. The 6L6 was very popular in various roles in ham transmitters for decades. Of course, the series of glass 6L6's were very popular in radio and audio applications.

There are **no** modern parts in this transmitter: all are vintage used or NOS (New Old Stock). The following is a list which includes many of the popular names we are all familiar with and some manufacturers are still in business:

6L6: RCA Radiotron, with pre-war artwork!
Sockets: all three are Amphenol (they're still around)
Tank Coil: Barker and Williamson JEL-80
Variable Condenser: Hammarlund
Mica Condensers: Aerovox and Dubilier (pre Cornell-Dubilier). Both of these condenser (capacitor) makers are still in business. Cornell-Dubilier also has a Superfund site to their credit....
RF Chokes: One is National, the other is either a National or a clone.
Knob: Kurz-Kasch (they're still in business! http://www.kurz-kasch.com)
Meter: Shurite (and they're still in business too!)
Insulators: Birnbach
Crystal: Top (who were they?)
Key: Signal Electric Co.

Sadly, the biggest names on the list, RCA, Hammarlund and B&W, are all gone.

I keep the B+ voltage down at 200 volts, which is more than enough for demo purposes, and it also protects the crystal from overheating. The regulated Heath power supply helps the keying quality of the transmitter; it would probably sound more "chirpy" with an unregulated supply.