



The Jersey Broadcaster

NEWSLETTER OF THE NEW JERSEY ANTIQUE RADIO CLUB

August 2010

Volume 16 Issue 8



Reported by
Marv Beeferman

Eight NJARC members were well-received at the July meeting, sharing their favorite radio restoration/repair hints and kinks. We captured some photos in this month's *Broadcaster*. Hopefully, we can fit this into our meeting activities as an annual event and your editor is considering adding the topic as a monthly column.

Expectations for our summer swapmeet at Info-Age seemed limited by a sweltering forecast, but a cooling breeze took the edge off the temperature and the day turned out to be quite pleasant. In fact, some members liked the new location over the "cottage" location across the road. Ray Chase reported that people seemed to be having a good time and he saw stuff being carried to cars.

Dave Snellman and I expected to have quite a bit of company in the air conditioned "H" building while dealing with the snack duties and handing out free bottled water, but both buyers and sellers seemed to be quite comfortable "schmoozing" and dealing under the trees. Your editor picked up a fully-tubed, 1926 Sparton Model 5-26 battery set in excellent condition and at a very reasonable price.

Of course, with every event, there is always room for improvement. Here are some general suggestions for the future. If there are any others you would like to add, please get them to one of our Board members:

1. We need more volunteers and they must show up earlier in the meet. Whatever our advertising says about times, as with all radio meets, sellers and buyers start showing up between 6:00 and 6:30. This puts quite a burden on the setup crew. We need



MEETING NOTICE

The August meeting will take place at Princeton's Bowen Hall (70 Prospect Ave.) on Friday, August 13th, at 7:30 PM. Directions are posted on the club's website (<http://www.njarc.org>). Clean up some of those old radio relics and curiosities from your collection and show them the light of day at our "Show & Tell" scheduled for this month. Add a little story and perhaps a few laughs and your fellow NJARC members will greatly appreciate it.

our full crew between these hours. (Ham flea markets usually have a full crew by 6 AM.)

2. The funneling of buyers and sellers to parking and space locations needs much

early morning crew.

If you're looking for a great weekend outing for the whole family, consider Sunday, August 15th when InfoAge will host the 65th anniversary of VJ day with a WW II Symposium. The event will include a series of presentations by technical experts (including NJARC members Ray Chase and Al Klase) and displays of military vehicles and electronics. See page 8 of this month's *Broadcaster* for full details.

Along these lines, the Summer 2010 issue of *Invention & Technology* included a letter regarding an article on Samuel Morse which included, for me, a little known fact about how important the Gerke code (or International Morse code) was as a benchmark communication system of WW II.

"Back then, radio voice transmission lacked fidelity and was subject to serious degradation in signal quality. By

comparison, the interrupted carrier - more commonly known as CW - required only a narrow bandwidth, which, along with the use of very narrow notch filters and a stable beat frequency oscillator, enabled a trained operator to retrieve solid copy in code from a signal that was unintelligible in voice transmission...

South Pacific war stories are replete with incidents of captains on vessels that were sinking or in risk of capture making sure their code books were destroyed...

Morse code remained one of the primary and most important means of communication between Allied posts during WWII."



This is the interior of Richard A. Decker's (W2OBR) military communication vehicle converted from a WW II ambulance. It was quite a hit at our summer swapmeet.

more work and help. (Again, hams make more use of two-way hand-helds; we should als o.)

3. We need to have trash containers and recycling bins laid out the day before the meet and they must be well-marked.

4. We have to review our admittance policy on XYL's...do we actually have one?

5. A nice aid would be a rough hand-out map of the area showing parking, rest rooms and the snack area.

6. Advertising was spotty; we lacked flyers at the museum and other strategic locations.

7. Did we have a clean-up detail? If not, we shouldn't leave all the work to the

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.

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THE "TALKING HOUSE" BROADCASTER

By
Marv Beeferman

In June, NJARC member Sal Brisindi posted a listing on the Reflector regarding something called a "Talking House" that was being sold by the i.AM.radio company (a division of Radio Systems, Inc.) for \$99.95 ("while supplies last"). The original cost was \$495. Although it was developed for the real estate market, this AM transmitter seemed perfect for broadcasting old radio programs and music. Its beauty lies in the fact that, via a servo-operated tuning circuit, you can easily select any frequency between 520 to 1700 kHz in 10 kHz intervals (117 choices) and the selected frequency is digitally displayed on a front panel. Frequency is crystal controlled via a phase locked loop tuner with a stability of +/- 30 Hz. Transmitting power is limited to an unlicensed 100 MW (average) out of a 3-meter (10') antenna. With an optional antenna/range extender at \$295, the broadcast range can be extended to up to one mile or more without an additional license.

For real estate use, a 5-minute message is recorded on a memory chip extolling the virtues of the house for sale and then broadcast in a continuous loop. The unit is placed in the house and signs are set up nearby telling prospective buyers to tune their car radios to the selected broadcast frequency to obtain more information. Directional signs guide buyers to the house location. The idea is to convince listeners that the message coming through their car radio is like any other radio broadcast they might normally hear.

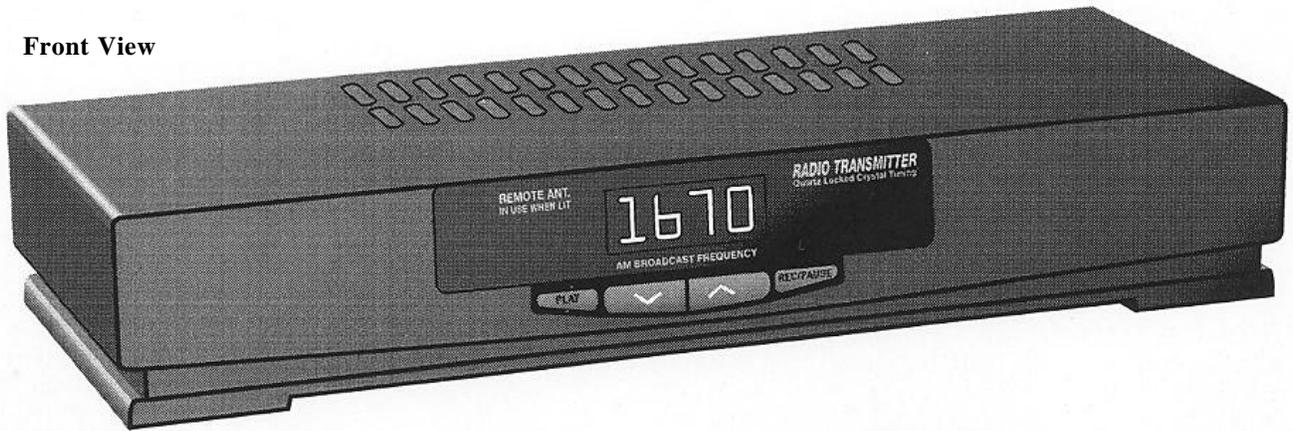
With shipping and taxes, my total purchase price came to \$118.79. (You'll need to send the company a check and wait for it to clear; credit cards aren't accepted.) When I received the unit and power pack, I was quite impressed; they seemed quite rugged. The unit also came with a nice, well-written manual although most of the information applied to setting up the unit for real estate use. I'm a stickler for following directions,

so, although simple, I followed the manual's suggestions:

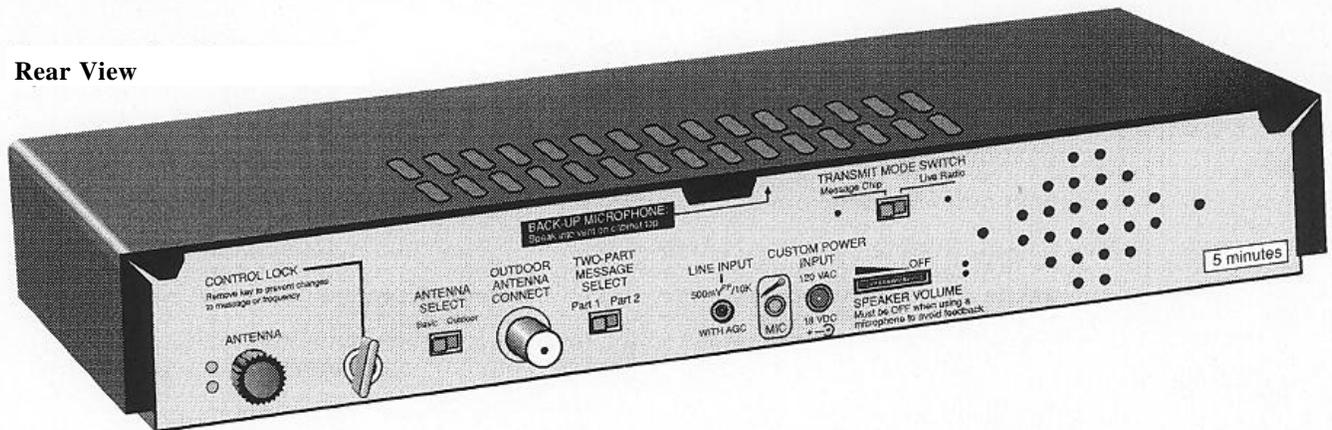
- It was suggested that the transmitter and antenna be installed as high as possible and 10 to 15 feet from a front wall and any window for maximum coverage...but only for selling a house. If you're just interested in broadcasting to your collection, location is not important. However, you might want to experiment with its location, listening on your car radio while driving around the neighborhood, to see what this unit can really do; you'll be pleasantly surprised!
- The antenna is uncoiled and fully extended before the power unit is plugged in. The transmitter is pre-programmed to calibrate itself to the antenna length, antenna configuration and selected frequency only after power-up. Changing the antenna configuration during use diminishes performance. Once powered-up, the unit re-calibrates itself each time you change frequency.
- The power pack is plugged into a wall outlet first before connecting it to the power input jack of the transmitter. The manual says "while this may seem peculiar, the transmitter just prefers this method, so make it happy." Who am I to bring unhappiness to a transmitter?
- I used a portable CD player as an audio source. The manual says to use a 1/8" mono audio cable connected between the player's phone jack and transmitter's line input jack. However, Sal told me he was getting some distortion from his unit and the company suggested a stereo audio cable. I used a Radio Shack 42-2387, 6-foot cable and it worked fine. The signal was clear (as long as I kept the CD player volume within reason) with no distortion.

The unit has a few additional features (speaker volume control, on-board microphone, control lock to lock a message and frequency, external antenna connector, external microphone input, message select switch, etc.) that I won't go into here but I might decide to demonstrate the transmitter at our next show-and-tell. For further information, see <http://www.talkinghouse.com>.

Front View



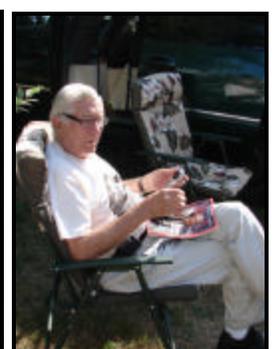
Rear View

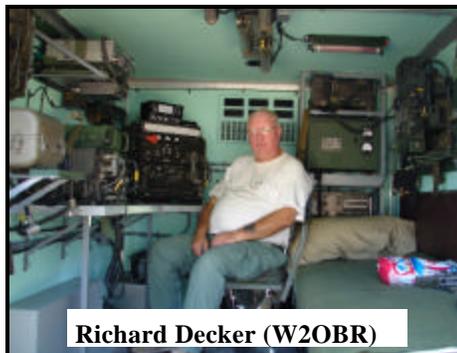


SUMMER SWAPMEET AT INFOAGE



Under the trees and in the breeze.





A STRATOSPHERE COMES DOWN TO EARTH

By
John Tyminski

Well, things that seem too good to be true usually aren't. When I wrote my last article for the July *Broadcaster*, my "curbside" Zenith Stratosphere was working with all its original, as-found parts. However, as I was listening one day, I began to notice some distortion in the audio and my heart began to sink.

I had hoped to leave this radio all original, but now it seemed I needed to embark on a extensive restoration. With my desire to keep the radio as original as possible, all the original capacitors would require re-stuffing and out-of-tolerance "dog bone" resistors replaced. Up until this point, I had never attempted re-stuffing a single paper bypass capacitor and felt sick as I thought about all the work I would need to do. Well, one needs to start somewhere, and, to paraphrase Herman Melville, the Stratosphere is a monstrous big radio, aye, but a radio-no more. And we're radiomen-no less..."

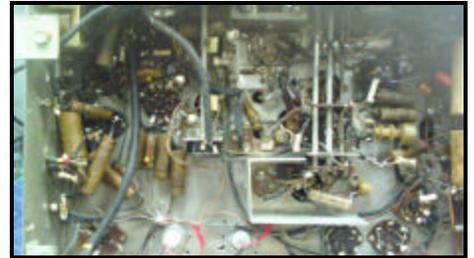
The first thing I attempted was to re-stuff the aluminum can electrolytic capacitors with modern replacements. I had seen many methods of cutting open the aluminum cans, but most involved a hand saw. However, I decided to use a tubing cutter, practicing first on a can from a discarded Philco chassis; this method seemed to work well.

I went ahead and cut the tops off the six electrolytic cans on the Stratosphere. The original values where 16 mfd @ 450 WVDC. Normally, I just would have used 10 mfd replacements, but with a rare and historic radio such as this, I felt the need to match the value of the originals as close as I could. I decided to use two 33 mfd capacitors in series resulting in 16.5 mfd that also fit the original can perfectly.



I was not hesitant about replacing the original bypass and coupling capacitors but gutting them intimidated me. But my fears were eased when member Steve Goulart told me that I could easily pull the guts out of the capacitor's cardboard tube with a pair of needle nose pliers... this method work perfectly.

I carefully cut each capacitor out of the circuit and used alligator clips to mark the terminals the caps where attached to. Then I pulled the insides out and I put New-Old-Stock (NOS) orange drop caps inside the old capacitor shells. After centering the leads in the old capacitor shell, I filled the shell ends with hot glue. After the hot glue cooled, I took the wax that filled the ends of the original capacitors and used my soldering iron to spread it over the ends of the replacements. The end result was a set that looked like it was never restored. The last thing I did was install a 3-amp fuse underneath the chassis.



As I listened to my electronically re-stored Stratosphere, there are no words to describe my euphoric feeling. But unfortunately, this feeling was not to last. I decided to give the radio one final cleaning; it was now one o'clock in the morning. I spent another hour cleaning the chassis. At 2:00 AM, I knew it was time for bed, but decided to do some dx'ing. I turned on the Zenith, watched the dial light up but felt my heart skip a beat when all I heard was a faint hum.

There are no words for how upset I was and stayed up trying to figure out what the problem was; around 4:00 AM, I decided to call it quits. I called Steve Goulart later that day and pleaded for help. Steve hooked the radio up to a signal generator and a scope soon he discovered that the oscillator was not oscillating. After about a hour of "poking around", Steve found a factory defect - a cold solder joint. It appeared that as I was scrubbing underneath the main tuning cap, I hit a wire and knocked it loose. This wire was connected to the top of the oscillator coil and ran to the main tuning cap. I am forever indebted to Steve; he has also agreed to do a full alignment at a future date.

Since my first article, I was able to locate the proper dial glass and escutcheon. I would like to take this opportunity to thank Steve for saving me from being the only person to find and kill a working Zenith Stratosphere in less then 2 weeks... thank you Steve. I would also like to thank member Steve Rosenfeld for giving me a copy of the original Zenith service data for my Stratosphere; it is much more extensive then the Riders. Stay tuned for part three - cabinet refinishing.



REDEFINING "RADIOS THAT WORK FOR FREE"

Edited by
Marv Beeferman

Until recently, the use of radio waves to power a wireless electronic device was limited to what hobbyists sometimes refer to as "radios that work for free"; that is, crystal sets. For years, crystal set experimenters have been refining their circuits to get maximum volume from an earphone or horn speaker based only on the power provided by the signal received. However, based on the *New York Times* article "Bye-Bye Batteries: Radio Waves as a Low Power Source" by Anne Eisenberg, some new players are joining this once small fraternity. They are among several people devising devices and systems that consume so little power that it can be drawn from ambient radio waves, reducing or even eliminating the need for batteries.

At Duke University, a hard hat called a SmartHat has been developed that includes a tiny microprocessor and beeper that sounds a warning when dangerous equipment is nearby on a construction site. The hat requires no batteries; the components use so little power that they can harvest all they need from radio waves in the air. The waves come from wireless network transmitters on backhoes and bulldozers installed to keep track of their locations. The microprocessor monitors the strength and direction of the radio signal from the construction equipment to determine if the hat's wearer is too close.



Powercast, based in Pittsburgh, sells radio wave transmitters and receivers that use "free energy" to power wireless sensors and other devices. The sensors, for example, monitor room temperature in automatic systems that control heating and

air-conditioning in office buildings. The company recently introduced a receiver for charging battery-free wireless sensors used in modules that sense temperature, light level and humidity.

Radio waves as a power source initially remained untapped because the waves dilute quickly as they spread. Unfortunately, this concept was never fully accepted by Nikoli Tesla and ultimately led to his downfall. But today, silicon technology has advanced to a point where even tiny amounts of energy can do useful work. Recent research has been devoted itself to two aspects of the problem; reduce the power required by the devices and harvest radio power from the environment that is presently going to waste. Hopefully, one day, these two camps will meet resulting in devices that can run indefinitely.

There are plenty of radio waves in the air to provide fodder as they spread from Wi-Fi transmitters, cell phone antennas, TV towers and radio stations. Ambient waves that would be otherwise wasted as they rise through the atmosphere into space or absorbed in the ground can already provide enough energy to substitute for AAA batteries in some calculators, temperature and humidity sensors and clocks.

At an Intel laboratory, an electronic "harvester" of ambient radio waves has been developed that collects enough energy from a TV station broadcasting about 2.5 miles away to run a temperature and humidity sensor. The device collects enough power to produce about 50 microwatts of DC power. This is enough for many sensing and computing jobs. For example, the power consumption of a typical solar-powered calculator is about 5 microwatts and a typical digital thermometer with a liquid crystal display is one microwatt. A second device collects signals from an outdoor weather station and transmits them to an indoor display. The unit can accumulate enough energy to send an updated temperature every five seconds.

Many electronic devices are limited by batteries that can fade away or can't survive temperature extremes. On the cusp of an explosion in small, wireless devices that can run on alternatives to battery power, the concept of "radios that work for free" has taken on a new meaning.

RADIO HINTS & KINKS AT THE JULY MEETING

A "kink" is defined as a clever or unusual way of doing something and NJARC members shared many of their favorites at the July meeting. All of the suggestions are too numerous to mention here, so we'll just offer a sampling:

- Nick Senker demonstrated the advantage of using a hemostat to work on components in hard-to-reach places. He also showed how a hand-held infrared thermometer from Harbor Freight is an excellent tool in locating overheated components and high resistance switch contacts.



- Walt Heskes distributed an illustrated color flyer which he calls "Solder Splatters - Tips and Techniques for the Radio Electronics Hobbyist." Among the topics covered are a) Useful Instruments You Can Make Yourself b) Special Tools You Should Have on Hand c) Helpful Devices You Can Make and d) Methods & Procedures You Can Try. Contact Walt to make arrangements if you would like to obtain a copy.

Some of the tips that Walt demonstrated included the use of discarded cardboard tissue boxes as project storage units, a loudspeaker signal tracer, the use of

"Sharpie" markers during troubleshooting, a discrete component holder for in-circuit testing and a customized extension cable for aligning a Zenith 3000.



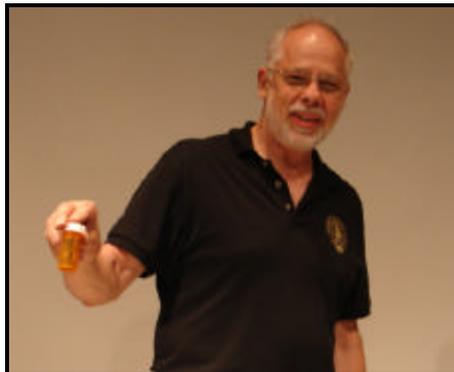
• When it comes to tracing schematics for troubleshooting, especially for some of our "visually challenged" members like Phil Vourtsis, Dick Hurff proved that size does matter



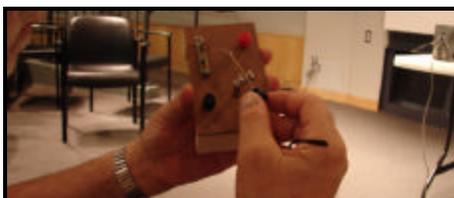
- John Butz-Fiscina covered a range of topics including cleaning knobs, tuner cleaning using white vinegar, bringing back the shine to Bakelite using olive oil and re-gluing tube bases using a mixture of acetone and celluloid.
- Marty Friedman demonstrated the use of Elmer's "Tac 'N and Stick" and a spring hook as aids in dial cord stringing.



- Harry Klancer suggested the use of pill bottles to keep track of small parts, cup hooks to hang and organize probes and colored tape to differentiate between connection points when multiple scope probes are used during troubleshooting.



- Al Klase, our "radios that work for free" guru, suggested simple ways to mount and connect to crystals for our next crystal set project.



- Heathkit signal tracers are found consistently at our club auctions. John Ruccolo showed us how this simple piece of test equipment is a "must" for the test bench.



Based on the response to the hints and kinks demonstrated at the July meeting, your editor is thinking about following up with a monthly column in the *Broadcaster*. Let's get things started with a few suggestions (and associated pictures) from you, the membership.

As a starter, I've noticed some member discussion on reading faded tube markings. Here's a couple of suggestions I pulled down from the web:

1. Put the tube in the freezer for a few minutes and then remove it and look at it quickly. (Obviously, allow the tube to return to room temperature before installing it; took quick a change from cold to hot might fracture the envelope.)
2. Dip the tube in plain, household ammonia. This will usually bring the number right up. (Some people carry a small bottle of the stuff to ham-fests and flea markets.)
3. Dab some Vaseline jelly onto a piece of paper and spread it out super thin. Then, take an artists brush and lightly brush the Vaseline film off the paper and just touch the lettering by dragging the brush on the tube.
4. Rub your finger on your nose and then on the tube.*
5. Put a little drop of WD-40 on the tube, then gently wipe it off in about 30 seconds.*
6. Try a little glass cleaner.
7. If all else fails, use a magnifying glass while holding the tube upside down and rotating it to change the viewing angle.

*Note: Why does oil help? Some believe that the original tube number material reacted with heat to etch the glass.

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. **Send your ad to mbeeferman@cs.com**

Are you aware that NJARC now has a resistor program which includes many commonly needed replacements? Contact Walt Heskes at any club meeting for details.

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.

Car stereo system by Kenwood consisting of KRC-777 in-dash AM/FM/cassette stereo, KGC-9400 under-dash graphics equalizer and KAC-7020 70 watt stereo power amp. Upgrade your 1970-80s vehicle with great sound. All items new in original packaging. Being sold for a club supporter; can bring to next meeting. \$100 Ray Chase, raydio862@verizon.net, (908)-757-9741

WANTED

Now that you've disposed of some of that old stuff by using our FOR SALE section and have plenty of empty space, or just need a few parts to complete that restoration...

YOUR "WANT" AD HERE!



SAVE THE DATE!

Sunday, August 15, 2010
65TH VJ DAY Anniversary
First Annual WW II Symposium
1 p.m. – 5 p.m.

at the
InfoAge Science History Learning Center and Museum at Camp Evans



We invite all those interested in WW II to come learn what are, for many, little known facts that led to ultimate victory in the conflict. A series of presentations by technical experts are sure to enlighten the audience and stimulate conversation.

Military Vehicles on Display
WW II Displays Open to Attendees
Visit the InfoAge!

Donation: \$20 for adults, \$10 for Veterans and Students with ID
(Please make check payable to InfoAge) InfoAge is a 501C3 nonprofit organization. Contributions are tax deductible to the extent permitted by law.

Complete the registration form below and send with your check to:
InfoAge – VJ Symposium 2201 Marconi Rd Wall, NJ 07719

Name: _____
Address: _____
City: _____ State: _____ Zip: _____
E-mail: _____ Phone: _____

To learn more about InfoAge, visit www.infoage.org.

PROGRAMS & PRESENTERS

How Radar Failed Us at Pearl Harbor in 1941:

Radar was under development for over five years as a super secret program and the first strategic sites selected for its implementation were the Panama Canal and our naval harbor in Hawaii. Why then did it fail us so badly? (Ray Chase)

The Story of the USS Murphy Tragedy Off the New Jersey Coast During WWII:

The New Jersey coastal area is littered with the wreckage of many ships from every historical era. This is the tale of a WW II warship nearly mortally wounded in New Jersey waters that came back to finish her WW II mission with distinction. (Dan Lieb, Captain Dan Crowell)

Battle of the Beams - The Air War over Britain:

After the Luftwaffe took heavy losses, Germany resorted to night bombing of British targets. This presentation describes the German electronic radio-navigation beams used to guide their bombers and the electronic countermeasures used by the British. (John Cervini)

U.S. Army Signal Corps Tactical Communications Advances During WW II:

The U.S. Army entered WW II with radios using late 1920s technology. Advanced techniques such as frequency modulation made modern tactical communication, command and control possible. (Al Klase)

Countering Hitler's WW II Air Defense System in Europe:

The usefulness of Nazi Germany's sophisticated radar/communications defense system was severely restricted and even fed erroneous information; find out how this was accomplished. (Fred Carl)

The Birth of Digital Computing in WW II and the Role Camp Evans Played:

(Evan Koblentz)