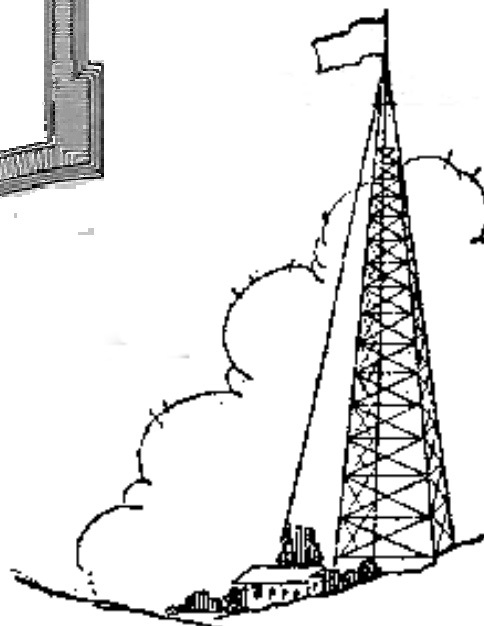


The Carolina Antenna



FALL 2008
VOLUME #14
ISSUE #2

Carolinas Chapter
of the
Antique Wireless
Association



CAROLINAS CHAPTER OF THE AWA

<http://www.cc-awa.org/>

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Membership in the Carolinas Chapter of the Antique Wireless Association (CC-AWA) is open to anyone with an interest in old (antique) radios. The only requirement is that you must be a member of the "national" Antique Wireless Association.

By being a member of the CC-AWA you will receive our quarterly newsletter.

Membership dues for the CC-AWA are \$10 per year.

If you are not already a member of the national AWA, your first year's dues will \$25, this includes the \$10 for CC-AWA dues and \$15 for your first year's dues in the national AWA.

Mail your dues to membership chairman Clare Owens - address is listed above.





The Carolina Antenna

The newsletter of the
Carolinas Chapter of the
Antique Wireless Association

ISSUE # 14

FALL 2008

VOLUME 2

THE PREZ SAYS ...



**By Ron Lawrence,
W4RON
CC-AWA President**

The 2008 CC-AWA Annual Conference in Charlotte was a tremendous success gain this year.

As we were getting ready for the show in January I was worried about how long we could continue to pay for the show with our current registration fees. The costs of everything seem to go up every year. One of the milestones we had worked hard to reach was to have enough money after each conference to be able to pay for the next years show in case we had a complete wash out. After much discussion with our group we decided that we would just have to bite the bullet next year and increase the registration fees.

For a number of years a couple of us have had a table at the Charlotte Ham Fest that takes place 2 weeks before our conference to hand out brochures and talk up the conference. On Friday evening before the Ham Fest I got an email from a friend telling me that a long time ham and we were to learn serious collector W4TIM had become a silent key about a month before and the guys that were helping the family planned to bring some of his estate to our conference. My friend had told them that I would be at the ham fest and that they should look me up. I had been to Tim's home a number of years ago and felt like there would a good bit of stuff there that would be of interest to our attendees. I met with the guys handling the estate items and encouraged them to bring as much a possible to show and put it in our auction. I had no idea just what we would be getting into. I told them that if they would send me digital photos of the collection I would put it on our web page and do everything I could to get the word out, I was worried that at this late date we had missed a lot of time to promote it properly. A couple of days later I started getting emails loaded with photos of the goodies.

And goodies they were. There was a DeForest 15 unit Panel set, a Clapp-Eastham spark transmitter, 5 Spherical Audions and LOTS and LOTS of other great items. At first I was disappointed when I learned that they were selling a lot of things from the collection before the show. Now I know what a favor they did for us.

Thursday the first day of the conference was smooth and easy, the afternoon programs were well received, Robert Lozier did a digital slide show of photos shows the history of his collection and included a lot of early photos of radio meets in the Carolinas. John Allen W4GQT did a great talk on Super-Hets and Mark Oppat did a presentation on repairing speakers and controls.

Late in the afternoon the guys with the estate pulled in driving a U-haul truck. We were shocked at the amount of stuff they had brought. There turned out to be over 300 items in the estate consigned to the auction and this was before anyone else at the show put anything in.

A lot of folks worked their collective butts off getting the estate logged into the clubs auction database.

Friday morning our flea market kicked off with our traditional "Le Mans Start".

The market was packed and I'm told there were a lot of sales. It's just my impression but it seemed that most of the sales were lower end sets and fixer uppers as opposed to high end

sets, I think folks were saving their money for the auction and with the amount of auction sales I think I was right.

Total auction sales were over \$72K, the DeForest 15 panel set brought \$15.5K, the Clapp-Eastham spark transmitter sold for \$4.5K. Most of the audions sold for around \$1500. There were lots of vintage receivers, HROs and the like. There must have been more than a dozen National doghouse power supplies. There's a complete list of the auction items and their selling price on the CC-AWA web page.

With the amount of commission the club earned from the auction our money problems we were worried about in January not a problem any more. We intend to use the profit money from the auction to maintain our registration fees at their current level for as long as possible.

A lot of people worked really really hard to make this show the success it was, it couldn't have happened with them, Robert Lozier, Ernie Hite, Stephen Brown, R.L. & Linda Barnett, Geoff Bourne, Clare Owens, Kirk Cline, Louie Scribner, Barker & Judy Edwards, Mark & Debbie Cleary, Ralph & Jennifer Bartlett, Lee Gentry, and my wife Belinda.

A special thanks goes to our auctioneer Brad Jones. Brad has been running our auctions for more than 10 years and does a great job.

As I write this it's Wednesday December 3rd, the next event on the

CC-AWA calendar is our Winter Swap meet in it's new location in Mebane NC at the Mebane Auction Gallery. This will be an ALL INDOOR event, and the doors open at 9AM, so there's no need to get there before daylight. Most of us can get up at a reasonable time and drive to the meet. Tables will be provided, vendor setup is only \$5 and admission as always is FREE.

As always you can find details of this event and all CC-AWA events on our web page at, www.cc-awa.org.



Happy
Holidays!

**2009 CC-AWA
Annual Conference**
"Spring Meet in the Carolinas"



Thursday, Friday & Saturday,
March 26-28, 2009

The conference is held at the Sheraton Hotel, which is located at 3315 Scott Futrell Dr on I-85 at Exit 33, Charlotte, NC.

Hope to see you there!



2009

WINTER SWAP MEET
JANUARY 31, 2009

NEW LOCATION—Mebane NC Antique Auction Gallery. This is an ALL INDOOR EVENT. DOORS OPEN AT 9 AM Tables will be provided Many thanks to the Mebane Auction Gallery and to Kirk Cline for hosting this event.

SPRING SWAP MEET
TO BE ANNOUNCED

Location: North Carolina Transportation Museum at Spencer, NC. The "Spencer Shops" is located just a short distance north of Salisbury NC, and just off I-85 at exit 79.

FALL SWAP MEET
TO BE ANNOUNCED

Location: City Lake Park in James town NC just on the edge of Greensboro NC. The park opens at 7 am. Meet Chair: Brad Jones.

SUMMER SWAP MEET
TO BE ANNOUNCED

Location: Valdese SC. The meet will be in the parking lot of Burke Audio/Video on main street Valdese in the middle of all the traffic flow for the festival. Meet Chair: Ricard Owens.

Call for 2009 membership renewal!

Carolinas Chapter of the Antique Wireless Association, Inc.

Time marches on... Time for all of us to look forward to another year of learning about, collecting, preserving and restoring vintage communications equipment. Time to look forward to more opportunities to gather with fellow enthusiasts.

Before this year ends members of the CCAWA will host meets in Greensboro, Valdese, Columbia, Spencer and the big 32th Annual "Spring Meet in the Carolinas" at Charlotte. These events just don't happen, it takes volunteers and a source of revenue to provide the necessary infrastructure. None of these events would be possible without the support of enthusiasts just like you. Please show your continuing support of these activities by renewing your membership today!

2009 dues are \$10.00. Make your check payable to: "CC-AWA" and mail to:

CC-AWA
c/o Clare Owens
101 Grassy Ridge Ct
Apex, NC 27502

Help us keep our membership records up-to-date.

Name: _____

Amateur Call: _____

Mailing Address: _____

City, State, Zip: _____

Home Phone: _____ Work Phone: _____

E-mail Address: _____ Fax: _____

If you have not renewed your membership in the Antique Wireless Association, take the time to do it today! A strong national organization for vintage communications enthusiasts is essential! AWA membership is \$20 per year. Make checks payable to: "AWA" and mail to: Pat Muehlbauer (Secretary), PO Box 108, Stafford, NY 14143

OLD EQUIPMENT CONTEST 2008

At the CCAWA 'Spring Meet in the Carolinas'

by Robert Lozier

For the first time in years I was not able to participate in the judging for the contest because I was still working to clear buyers and sellers from the exceptional auction we had this year. Fortunately we always seem to have folks willing to help get things done just for the asking. This year Jeoff Bourne recorded the contest results for me and Barker Edwards, Louie Scribner, Don Patterson and Ernie Hite served as judges.

The number of contest entries seemed to be down this year. I was told that the auction prevented some folks from having enough time to bring in items for show. Hopefully that will not happen again. However, the overall quality of the items that were brought for exhibition remain very high. A true delight to the visitors.

This year we suggested a total of 24 categories for participants of which there were 6 categories with no entries. In some of these categories there was only one entry. Fortunately even these single entry categories had high quality items that would have fared well in contests with likely competition, so the judges frequently had no reservation in awarding a first or second place ribbon regardless of no 'on site' competition.

So I will now list the findings of the judges:

CATEGORIES:

1. PRE-1912 ELECTRICAL DEVICES, NON-RADIO

No entries

2. PRE-1920 RECEIVERS AND TRANSMITTERS AND WIRE LINE TELEGRAPH ITEMS.

1st—Don Patterson for his AMRAD SCR 74A Trench Spark Transmitter with extensive photographic documentation.

3. 1920'S ERA BROADCAST RECEIVERS

3A. PASSIVE DETECTORS AND 1 TUBE SETS

1st- Merrill Bancroft for his AEREX crystal set with additional VT detector.

2nd— Merrill Bancroft for his A. W. Bowman one tube radio.

3B. 2-3 TUBE SETS

1st—Merrill Bancroft for his TECLA receiver and two tube amplifier.

3C. 4-6 TUBE SETS

1st—(tie) Bob Slagle for his Jones Symphony radio, and

1st— Gary Alley for his Elkay 5- S (Super-Selector)

2nd—tie to Merrill Bancroft for his FARAWAY radio, and

2nd-Robert Lozier for his MELCO Supreme

3rd-Barker Edwards for his Radiola Grand.

3D. SETS WITH 7 OR MORE TUBES

No entries

4.1930's - 40's - 50's ERA BROADCAST RECEIVERS

4A. CATHEDRALS & TOMBSTONES

1st—Bob Slagle for his Revere 'dual level' tombstone set.

2nd—Tom Bourcy for his Crosley model 148

3rd—Fred Crews for his Philco 'Bing Crosby' (46-1201) radio/ phono

4B. CONSOLES

1st—Bob Slagle for his Crosley 'Johnny Smoker' mini-console.

1st—Louie Scribner for his SNR Excelsior 55 receiver.

4C. CATALIN & BAKELITE

2nd—Bob Slagle for his Trophy Baseball radio (with box!)

4D. TELEVISION RECEIVERS

1st—Don Patterson with his Pilot 'Candid' 3" TV – working (with box also!)

5. TRANSISTOR RADIOS

5A. LARGE MULTIBAND PORTABLES

1st—Louie Scribner for his Sony CRF -320

2nd—Richard Owens for his Hallicrafters TW-1200

5B. EARLY POCKET SETS

No entries

5C. NOVELTIES SETS

1st—First Place to Richard Crews for his Constellation globe radio.

6. COMMUNICATIONS EQUIPMENT RX & TX

6A. PRE WW2

1st—John Dilks for his 1930 homebrew TX with power supply.

6B. POST WW2

1st—Herman Cone III for his SBE Model SB-36 transceiver

2nd—Richard Owens for his Hallicrafters S-41-W (yes white!)

7. SOUND REPRODUCERS, CONES & HORNS

1st—Fred Crews for his Ambotone cone speaker

Special Recognition—Marty Reynolds for his Columbia 360 Stereo Phono with unique amplifier design.

8. MILITARY RADIO EQUIPMENT, ANY ERA

(In this case a transceiver used by the FBI's bureau of Alcohol & Tobacco Tax agency on raids of liquor stills, etc. (i.e. 'Revenooer's' radio.) Special thanks to Marty Reynolds thinking a little outside the box to bring this entry in for this category.

9. TEST EQUIPMENT

No entries

10. VACUUM TUBES

1st—Robert Lozier for his 3 – 1920's vintage tubes that attempted to avoid basic triode patents.

2nd—Don Patterson for his Atwater Kent Type 607 cold cathode rectifier along with a vintage notice that the tube was to be

discontinued.

11. RADIO ADVERTISING AND RADIO LITERATURE

1st -tie Imre Vanyi for his display of GE Radios, and

1st— Geoff Bourne for his collection of glass ‘magic lantern’ slides – all radio related.

2nd - Don Patterson for his extensive photo albums of radio pioneers and personalities.

3rd-tie Barker Edwards for his RCA & Victor advertising brochures, and

3rd Merrill Bancroft for his Cunningham Tubes cloth banner.

12. NEW CONSTRUCTION FROM OLD PARTS OR REPLICAS.

No entries

13. ‘SURVIVOR’ SETS

1st-Robert Lozier for his PZT set from Poland via Australia.

2nd-Merrill Bancroft for his Campbell D and A2 radio outfit.

3rd-Ernie Hite for his Tungstram brand set made in England.

14. SPECIAL “DISPLAY ONLY”

Thanks to Bob Sands for bringing an exhibit that is part of the Gray Museum. The exhibit shows the Crosley Reado facsimile machine. A late 1930’s attempt to deliver newspaper content to your home using facsimile signals sent out over AM stations after normal broadcast hours.

And to Barker Edwards for showing

his DeForest F-5 receiver of 1925 vintage.

15. SUPERHETRODYNE RADIOS

No entries

The judges award recognition for the following:

Best Restoration Award (with documentation of the work performed) to Tom Bourey for his restoration of a Crosley model 148

Best Presentation Award to Imre Vanyi for his extensive display of GE Radio material in the lobby of the hotel. (Not only that but he also brought in a whole display of basic radio kits that you would have found in toy stores from the 1940’s to 1960’s. And, if that was not enough, he also had a collection of radio games, premiums, banks, etc. on exhibit.)

Personal note: One important thing that Imre was able to demonstrate in his exhibits, is that items do not have to be in pristine condition in order to put on a highly effective show. After all this is not an antiques and collectibles dealers show where items are treated primarily as commodities. One of our primary goals is to inform the public about the history of the artifacts we collect. Much of that is technical information, but Imre is especially good at showing the ‘emotional/motivational’ side of the industry. Well done!

Peoples Choice—We had planned for conference attendees to have much more time to view the contest

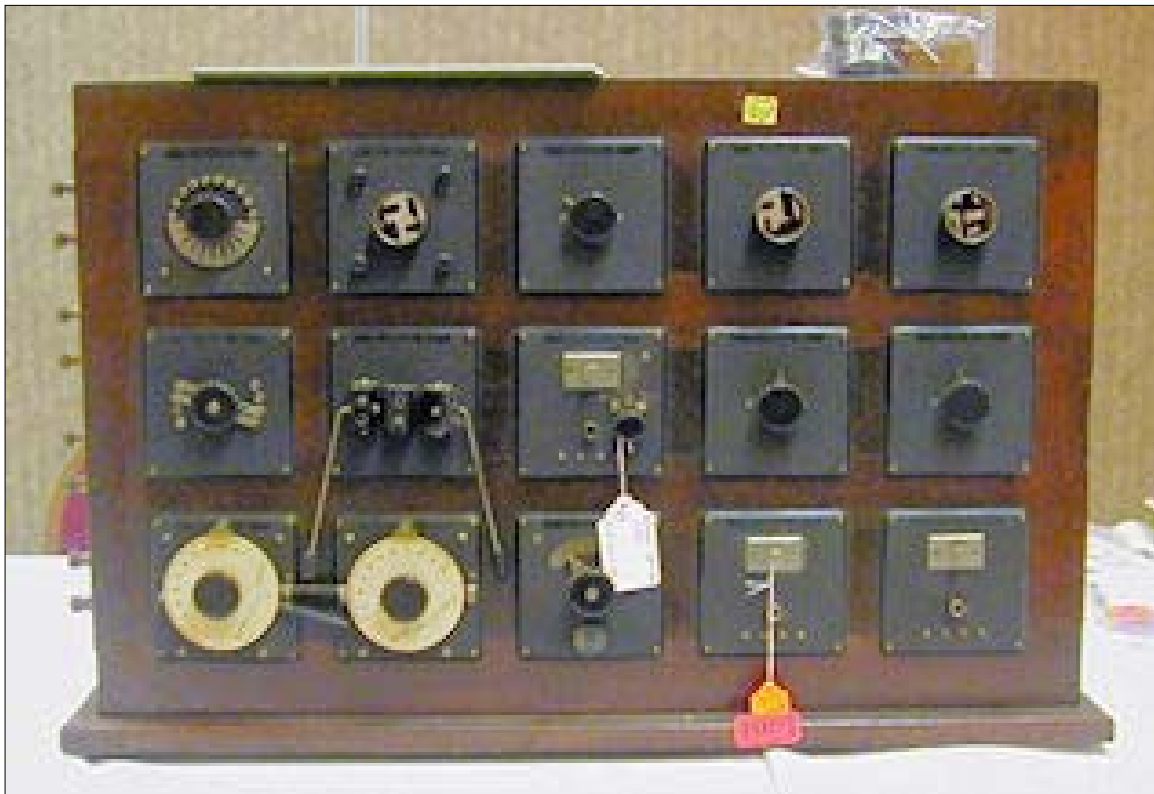
entries but as most of you know, the auction ran far longer than normal. So there was no time to solicit a significant quantity of votes in order to award a Peoples Choice. Our plan is to resume this next year.

Best of Show Award by the judges went to a rather unusual exhibit this year. This was for Geoff Bourne's collection of some 200 vintage glass slides and vintage projector. The subject material of the slides range from 1920's vintage radio advertising slides shown in movie theaters, to slides to be used at radio manufacturer meetings and

even to one of the oldest collections of antique wireless equipment assembled by Ed Raser in the 40's & 50's.

As always, I urge all of you to make available items you have collected by bringing it out to our vintage radio meets. Think about loaning your items out to local libraries and museums. Almost always you will have the opportunity to meet new people and spread the word that this sort of technological history is really worth preserving and knowing about for many generations to come.

DEFOREST 47-15 PANEL SET



This rare DeForest 47-15 panel set sold at the AWA Old Equipment auction for \$15,500. It was one of nearly 400 items from the Tim Buehlmann estate that was sold Friday, March 21st.

See pages 9-14 for complete auction list for the Buehlmann auction

2008 AUCTION LIST

Description	Sale Amount
1900 Display Case _____	250.00
1930 Speaker _____	70.00
4 Items BC AR230 etc. _____	20.00
Admiral Console Radio _____	0.00
Aetna Radio _____	0.00
Air Castle Model ? _____	19.00
Airline model 94BR-1526 _____	30.00
Airline Radio _____	10.00
AK 545 Tombstone _____	0.00
American Bosch Console _____	50.00
Atwater Kent Model 9-4660 _	1,250.00
Atwater Kent Radio _____	125.00
Audiotron UV201 _____	40.00
Blaupunkt Framed Sign _____	90.00
Box Lot of Radios _____	20.00
Box Lot of Radios _____	25.00
Box Lot of Radios _____	60.00
Box Lot of Technical Books _____	10.00
Box Lot Technical Books _____	10.00
Box Lot Transistors _____	15.00
Burns Horn _____	200.00
Clapp Eastham Radak 2pcs _____	0.00
Coils for C230 TX _____	30.00
Collins 312B-5 _____	600.00
Collins Log Book _____	10.00
Collins R-388 _____	270.00
Craftsman Pre Amp _____	10.00
Cresley Radio _____	35.00
Crosley Fiver _____	40.00
Crosley Products Catalog _____	20.00
Cunningham C11 NOS _____	40.00
deforest radio phone _____	75.00
Delco Battery Set _____	80.00
Detrola Tombstone _____	60.00
Develcon 12Volt Power Supply _____	5.00
Dumont 6DP7 _____	10.00
Dumont K1070 P7 CRT _____	1.00
Echophone Tombstone _____	130.00
Emerson 506 _____	20.00
Emerson Model ED354 _____	50.00
Emerson Radio _____	40.00
GE 1942 _____	60.00
GE Art Deco Ivory _____	15.00
GE Fully Restored _____	0.00
General TV Radio _____	20.00
Gilfillan Tombstone _____	0.00
Gordos Transmitter Tube _____	10.00
Grundig Model 960 _____	50.00
Hallicrafters Speaker _____	70.00
Hammarlund 170/180 Speaker _	45.00
Harmon Kardon Radio _____	30.00
Heathkit TC-2 Tube Tester _____	0.00
Homebrew Ham TX _____	200.00
Jackson TVG-1 Signal Generator	15.00
Kennedy 220 super clean & original _____	800.00
Key and Sounder _____	80.00
Knight Oscilloscope _____	25.00
L&N Test Equipment QTY 4 _____	0.00
Leeds Northrup Galvonometer _____	3.00
Lot NOS Tubes _____	50.00
Lot of Knobs _____	25.00
Lot of Tubes _____	5.00
Motorola VT71 7" TV _____	110.00
Normende sterling german hi-fi	40.00
Packard Bell _____	45.00
Panasonic TV Camera _____	2.00
Philco _____	15.00
Philco 37-620 _____	0.00
Philco 37-643 _____	0.00
Philco 50-920 _____	50.00
Philco 70 _____	205.00
Philco 89B Cathedral _____	60.00
Philco 90 Console _____	0.00
Philco Cathedral _____	70.00
Philco Model 20 Cathedral _____	90.00
Philco Model 610T _____	70.00
Philco Model 89 Cathedral _____	110.00
Philco Predicta _____	175.00
QTY 2 Philco Ads _____	15.00
Radiola Speaker _____	50.00
RAP Radio _____	75.00
RCA & Heathkit 3" Scope _____	2.00
RCA 6T2 _____	0.00
RCA T7-5 _____	140.00
RCA Tombstone 119 _____	70.00
RCA Victor Phono _____	10.00
RCA WV-120A Line Monitor _____	40.00
RCA WWII GC Receiver _____	0.00

Rider 'Early Version' Vol 1 _____	15.00
RME Converter VHF126 _____	20.00
Schickerling _____	140.00
Sentinel _____	15.00
Silvertone AM/Radio _____	10.00
Silvertone Wire Recorder _____	0.00
Sonora 1948 _____	20.00
Spartan 6-26 _____	0.00
Spartan Receiver _____	225.00
Sprague Capacitor _____	30.00
Stewart Warner Radio _____	50.00
Stromberg Carlson wood table radio _____	30.00
Supreme TV-7 Tube Tester _____	275.00
Sylvania CRT 2799 P7 _____	1.00
Sylvania CRT 2799 P7 _____	1.00
Telegraph Key and Sounder _____	20.00
Thorola Horn _____	70.00
Unknown Crystal Set _____	60.00
WE Coils for GF _____	11 0.00
Westinghouse _____	35.00
Westinghouse ColumAire _____	45.00
Weston DC Voltmeter _____	25.00
Yamaha CR-600 Receiver _____	0.00
Zenith 19 H500 _____	40.00
Zenith 1946 _____	30.00
Zenith 6D311 _____	80.00
zenith black dial _____	40.00
Zenith Model 4V-31 _____	80.00
Zenith Transoceanic Y-600 _____	40.00
Zenith/Admiral Sailboat/Palm Tree _____	35.00

Total: \$8,299.00

BUEHLMANN AUCTION RESULTS

1/4 KW buzzer spark set _____	40
1/4 KW spark set _____	175
1/4 KW Spark Transmitter Replica _____	100
101-F and 102-F _____	80
135-Lot Number No Description _____	40
150-patterson all wave rx _____	160
156 - National 1-10 - no coils _____	30
1848 Telegraph Book - fair cond _____	100

190-national 12" speaker _____	10
199 to UX adaptors _____	2
1ea C202,UV202 _____	60
1ea UV200,UV210A BBTT _____	30
1ea UV201A,UX200 _____	10
2 ARC-5's w/ homebrew base _____	20
2 VT2 tubes _____	130
203 BBT _____	20
203 no base _____	5
203 Rainbow _____	130
203 Rainbow _____	75
203A _____	60
203-A _____	50
203-A _____	30
203-A GF _____	20
203-A QTY 2 _____	70
203-A QTY 4 _____	150
203-A SYL _____	35
203-D _____	25
204-A with Stand _____	40
211 Tube _____	90
211-E _____	5
216A _____	50
242-A WE Rainbow _____	180
3 HRO coils .48-.96, 180-430kc, .5-1.0 _____	35
3 HRO coils in box, 7.0-14.4,.9-2.05,1.7-4.0 _____	15
3 pcs wd/wx12 _____	15
3 pin transmitting type _____	70
3 sets headphones _____	30
3pin transmitting types _____	100
4 odd tube adaptors _____	5
4 vt24 aka 864 _____	50
5 Watt Hartley TX - new const. _____	50
6 misc tube adaptors _____	5
67- Slide Tuner _____	30
8 HRO coils in box _____	130
80-National SRR _____	125
838 _____	20
AP Morgan 1917 Lessons in Telegraphy _____	10
AP Morgan 1922 Wireless Telegraphy _____	5
Adams-Morgan catalog 1916 _____	20
Aerophone xtal set _____	350
AK - Type "Y" poser supply _____	55

AK 44 Model 3945 _____	500	CTX 120 _____	15
AK Model 10 bb - Type 4600 _	1,000.00	Cunningham Audiotron GF _____	70
AK model 246 - poor cabinet _____	200	Cunningham C0301A BBT _____	60
AK Radiodyne no tubes _____	1,400.00	Cunningham V-99 Qty 3 NIB _____	30
ARC-5 set _____	300	Cunningham Audiotron Qty 2 _____	70
ARRL 1926 handbook _____	5	DeForest & Airline 01A - DV-2's _____	70
ARRL Handbook 1926 - rough _____	30	DeForest 47-15 panel set _____	15,500.00
ARRL Handbook 1930 _____	25	DeForest Audio Mount? _____	110
ARRL Handbook 1931 _____	30	DeForest coil set _____	30
ARRL handbook 1932 _____	30	DeForest DL-14 in can _____	80
ARRL Handbook 1933 _____	35	DeForest DL-14 in can _____	80
ARRL Handbook 1941 _____	5	DeForest DL-15 GF _____	80
ARRL Handbook Special Edition _____	15	DeForest DL-15 GF _____	90
ARRL Handbook Special Edition _____	7	DeForest DL-3 & Audion tube OF _____	10
Arvin metal cabinet set _____	30	DeForest DV-3 & late Audion _____	40
Audion OF Bent Plate _____	350	DeForest DV-3 can _____	15
Audiotron OF _____	70	DeForest DV-3 in can GF _____	60
Audiotron OF _____	30	DeForest late Audions OF Qty 3 _____	20
BBT 203-A _____	20	DeForest Oscillion 250W _____	70
BC-224 _____	50	DeForest Oscillion 250W _____	300
BC-312N receiver - no case _____	30	DeForest Oscillion 250W _____	200
BC-314-6 _____	50	DeForest Singer tube glass broken _____	80
BC-342- N _____	50	DeForest spherical Audion GF _____	1,500.00
BC-342-N w/ tube kit _____	70	DeForest spherical Audion GF _____	1,500.00
BC-348 Type plugs (rare) _____	30	DeForest spherical Audion GF _____	1,400.00
BC-348-J _____	160	DeForest spherical Audion GF Inbox _____	900
BC-348Q _____	70	DeForest spherical Audion GF Inbox _____	1,600.00
BC-778 Mae West lifeboat TX _____	50	DeForest spherical Audion OF Plate _____	
Bladwin Type C headphones _____	40	Bent _____	225
Book lot 4 books/magazines _____	10	DeForest Type H _____	175
Box 5 HRO coils - gray box _____	60	Dorrn Brothers Tuner _____	400
Box large knobs _____	25	Duovac VT-2 _____	35
Breting 12 - missing 4 tubes _____	150	Duovac VT-2 _____	50
Breting 12 - poor condition _____	200	Duovac VT-2 _____	60
Breting 9 - looks good _____	200	Elcon B rectifier in can _____	5
Bud Code oscillator _____	5	Electrad Diode OF _____	30
Bud Codemaster Oscillator _____	10	Emerson AM set _____	80
CG 1141 _____	20	Emerson AM Set 1 knob missing _____	15
CG 1162 tube OF _____	5	English 3 tube set _____	400
Clapp-Eastham 1/2 KW spark set _____	4,500.00	Exp UV 202 BBT _____	70
Cleartron CT-199 NIB _____	50	Experimental 202 GF _____	70
Codemaster Type K _____	5	FAA R27 & Coils _____	30
Coilsets _____	60	Farnsworth BC-312-n _____	30
Collins 7M audio amp - fair _____	70	Federal DX-58 w/ Fed. Catalog _____	700
Crosley model 51 _____	110		

Federal JR _____	300	McMurdo-Silver Model 5C _____	275
Ferrand Speaker _____	30	Meissner Signal Booster _____	30
Freq. Meter brand unknown _____	15	Meissner Signal shifter _____	40
GE AC/DC portable _____	20	Meissner Signal Spotter _____	20
GE CG1162 _____	25	MESCO catalog 1912 _____	50
GE GC 886 _____	5	MESCO key _____	10
GE UV-203 GF _____	80	Millen grid dip meter - complete ___	30
GenRad Qty 4 NOS dials _____	5	Misc - T-17 & R-38 mics. _____	15
Gross 4-coils for TX _____	20	Misc & RCA microphones box lot ___	350
Hallicrafters - HT-7 freq std. _____	10	Misc books _____	25
Hallicrafters Freq. Std. _____	10	Moorhead A OF _____	10
Ham Call Book 1931 _____	45	Moorhead ER OF _____	10
Hammarlund coils bag of 20 _____	40	Moorhead ER OF _____	10
Hammarlund Comet Pro w/coils _	175	Moorhead VT-32 _____	70
Hammarlund HQ-120 no bottom ___	50	Moorhead/Marconi/DeForest ___	80
Hammerlund Super Pro w/PS ____	100	Moorhead/Marconi/DeForest OF _	20
HESSE - Full wave rectifier _____	2	Moorhead/Marconi/DeForest OF ___	10
Homebrew regen - good _____	25	National - 3 coils 1.4-3.0,3.5-7.3,3.5-7.3 _____	+15
Homebrew TX in desktop rack ____	550	National - 5 coils in black case _____	70
HomeBrew XMTRT PWR Supply ___	60	National - Speaker GC _____	60
Homebrew? 1920 crystal set _____	60	National 1" scope _____	80
HRO & set of 3 coils _____	100	National 12" Speaker _____	70
HRO & SKR _____	70	National 3" oscilloscope _____	20
IBM Radiotype missing innards _____	2	National 58 _____	50
IdeeZet 221 _____	500	National HRO & 3 coils _____	80
IRE Vol 1 Part 1 1913 _____	30	National HRO & spkr _____	125
J-51 key _____	5	National HRO & Spkr _____	120
Jensen speaker _____	10	National HRO 5TA1 & 4 coils _____	100
Jensen speaker _____	15	National HRO 7 w/ spkr & PS in Bud cab _____	100
Jensen speaker for communication RX _____	20	National HRO early, converted octal tubes _____	10
JJ Duck catalog 1909 _____	80	National HRO speaker _____	50
JJ Duck catalog 1911 _____	140	National HRO-7 & coil set _____	120
Kennedy 110 & 525 Amp. ____	1,300.00	National NC-100 _____	50
Kenotron UV 211 _____	150	National NC-100 _____	50
Kenotron UV211 _____	90	National NC-101 _____	90
Lab dpdt switch _____	1	National power supply _____	30
Leutz C-7 schematic set _____	10	National Qty 2 dials _____	10
Loose coupler for xtal set _____	70	National Qty 3 Velvet dials _____	30
Lot of Taylor Tubes _____	30	National Qty 7 matching dials _____	20
Lot tubes _____	30	National RAO-7 _____	30
Magnatron EV111 _____	30	National RAS3 , coils & PS _____	50
Mallory battery eliminator _____	5	National receiver & 3 coils _____	100
MARCO - Qty 4 dials _____	10	National SW-3 - Qty 12 coils _____	40
Marconi WW-I code records _____	20		
Mazda carbon lamp _____	1		

National SW-3 w/ coil set _____	225	Qty 3 VT-1 _____	80
National SW-5 _____	150	Qty 3 VT-1's GF _____	100
National Tupe 5886 PS _____	100	QTY 3 VT2 _____	275
National Type 5836 PS _____	80	Qty 4 Catalogs _____	15
National Type 5886 PS _____	50	QTY 4 VT-14 _____	50
National Type 5897 PS _____	60	QTY 4 WD-11 tubes _____	140
National Type 5897 PS _____	50	QTY 6 800/RK30 _____	10
National Type 697 PS _____	100	QTY 6 UV 200 BBTT _____	70
National Type 697 PS _____	80	QTY 2 UX 200-A _____	20
National Union 203A _____	50	Radio Products Midget Set extra tubes	
Nationl - RAS PS _____	20	_____	275
Natnl. Coil set 14-30, _____	60	Radiotron 852 GF _____	30
Natnl. Coils .9-2.0,.9-2.05,1.7-4.0__	10	Radiotron 860 _____	20
NESCO like Navy SE 1420C _____	800	Radiotron 860 GF _____	20
New wd-11 tube bases qty 7 _____	30	RAS Power Supply & 2 Coils _____	40
Omnigraph - fair _____	30	Raytheon 3 pcs type bh _____	3
Peak Pre-selector W-3 coils _____	110	RCA 100A Speaker _____	20
Peak SW receiver w/2 coil _____	80	RCA Development tube GF _____	20
Peanut tube to ux adaptor qty 3 _____	10	RCA Faradon Cap _____	30
Peerless Speaker _____	25	RCA Radiola 18 _____	80
Peerless Speaker - fair _____	30	RCA Radiola 26 - no tubes _____	150
Philco-46-200 w/ history on bottom	20	RCA uv-199 bbt _____	90
Phono Book - Qty 2 _____	15	RCA UX-210 GF _____	40
Pilot 30's parts set - no spkr _____	15	RCA Victor - metal cabinet _____	10
Pilotron PR 10 _____	10	RCA X-60 AM, SW set _____	20
Pliotron type P _____	180	Regen receiver _____	10
Pliotron UV 125 _____	40	REL - 204A tube socket _____	25
PM speaker in Bud cabinet _____	10	RME 45 w/preselector & speaker _	150
Power Supply _____	5	RME DB-20 preselector _____	40
Precision tube tester _____	60	RME LF90 _____	40
Precision tube tester - Good _____	20	RME preselector _____	25
Precision Tube tester - nice _____	40	RME-9D _____	250
Qty 2 01A NOS _____	35	Rvalve,Moorhead OF _____	30
QTY 2 203-A _____	70	S-C Model 240 _____	275
QTY 2 Daven MU-20 _____	10	Schickerling S 8100 _____	60
Qty 2 UV 202 _____	40	Sentinel, Model 309 in plastic cabinet	
Qty 2 UV 202 BB _____	110	_____	20
QTY 2 UX-216B _____	70	Sig Corps LS-3 loudspeaker _____	20
QTY 2 VT 2 _____	100	Signal Corp. 2 dynamotors _____	40
QTY 2 VT2 _____	20	Silver Marshal Round the World 4_	250
Qty 2 WD 11 NOS _____	70	Silver-Marshall coils - qty 14 _____	10
Qty 2 WD11 _____	70	Silvertone horn speaker _____	70
Qty 2 WD11 NOS _____	60	Silvertone metal cabinet midget set _	15
Qty 2-j-38 keys nib _____	40	Singer Audion _____	600
Qty 3 199 to ux adaptors _____	5	Sonora RA-1 GF _____	30
Qty 3 UV 199 _____	30	Speaker for military set _____	10

Speaker with volume control _____	10	WD 11 _____	70
Spy set key? _____	10	Wd 11 BB _____	80
Sterling "B" battery eliminator _____	25	WD 11 BB OF _____	15
Stromberg-Carlson late 30's no speaker _____	60	WD 11 GF _____	70
Taylor and RCA box lot _____	60	WD 11 NOS _____	35
Taylor tube lot _____	35	WD 11 NOS _____	30
Taylor/RCA 17 Tubes _____	35	WD-11 to submini adapters _____	3
TB _____	115	WE 101-F GF _____	130
TB-1 GF _____	10	WE 102-D _____	100
TBX-6 Navy xciever - 1 + 2 parts sets _____	150	WE 102-D GF _____	90
Tube double ended _____	40	WE 125A tube Socket Qty2 _____	20
Tube lot _____	5	WE 205-D GF _____	350
Tube tester adaptors qty 12 _____	2	WE 205-D GF _____	325
Tube tester Model 9-10 GC _____	30	WE 211-E _____	200
Tuska Type 225 _____	400	WE 212E GF _____	550
Unknown open-fil _____	2	WE 216A _____	70
UV 200 BB _____	15	WE 221-D GF _____	40
UV 200-A BBTT _____	10	WE 221-D GF _____	40
UV 202 _____	40	WE 221-D GF _____	50
UV 202 _____	50	WE 221-D GF NIB _____	35
UV 202 _____	60	WE 261-A _____	20
UV199 BB Qty 3 _____	40	WE 276-A _____	130
UV-203, UV 877 _____	20	WE 3-A photo cell _____	15
UV-99, WD-11 GF's _____	50	WE 717-A Qty 3 NIB _____	5
V99 GF _____	60	WE VT catalog _____	15
V99 GF _____	60	WE VT-2 _____	130
Various tubes _____	10	We vt-2 _____	130
VT 2 _____	20	WE VT-2 QTY 1 _____	160
VT 2 GF _____	170	WE VT-1 Early machined base _____	90
VT 2 NOS _____	170	We vt-5 215A 9 pcs _____	75
VT 25 _____	50	Weagant Valve _____	20
VT Amplifier GF _____	10	Weagant Valve _____	60
VT-1 _____	100	Weagant Valve GF _____	170
VT-1 QTY 2 _____	100	Welch peanut _____	20
VT-1 QTY 3 _____	125	Westclox key _____	20
VT-2 _____	170	Wester Elec 37 Canlestick Phone _____	150
VT-2 _____	140	Western Elec 42 Sounder 4ohm _____	40
VT-2 _____	180	Westinghouse BC-98-B - 1928 _____	200
W.E. long drop wall phone _____	125	Wirco rf chokes qty 5 _____	5
W.E. SCR-59 w/ good VT-1's _ 1,200.00		Xtal set w/ Radio News Lab approval tag _____	105
W.E. - 50 Watt tube sockets - Qty 2	240	Zenith 5-s-319 _____	120
Water Cooled Tube GF _____	50		
WCBA 41 Station MIC _____	725		
WD 11 _____	85		

Total : \$62,450.00

FESSENDEN: WORLD'S FIRST BROADCASTER?

by James E. O'Neal



James E. O'Neal is the Technology Editor for TV Technology magazine and a Radio World contributor.

A Radio History Buff Finds That Evidence for the Famous Brant Rock Broadcast Is Lacking

Winter was just starting to make itself felt in New England. It was Dec. 24, a classic dark and stormy night along the Atlantic Seaboard. Radio room operators on ships were busy copying the endless, fuzzy dits and dahs of code from the big brute-force Marconi spark stations of the early 20th century.

Suddenly they heard something else under the code - faint, but definitely audible: a voice. Someone was talking! Listeners couldn't believe it. They hastily summoned relief operators to don headphones and called ship captains to the radio rooms to witness the event.

You may have read that 2006 marks the 100th anniversary of the first broadcast of speech and music. If

we believe the Internet and history books, it happened something like the events described above.

But is the story true?

At Brant Rock, Professor Fessenden, a tall, 40-year-old man in business attire, pulled out his pocket watch and looked at it nervously. The appointed time was near. He stroked his beard.

Spread about him in the room were large machines of unusual construction, coils of wire, large condensers, a panel board, motors and a multitude of meters. Fessenden moved to a large knife switch dominating the control panel. He murmured a silent prayer and closed it.

The building lights dimmed as a large motor broke the silence and began to come up to speed. Fessenden looked intently at the motor and the assemblage of belts and pulleys attached to it.

The drive train concluded with a pulley on the shaft of a specially built alternator. The unusual machine connected to all of this picked up speed - 3,000, 5,000, 10,000 rpm. Fessenden felt the floor of the small building shake as the alternator climbed through its "critical" frequencies, smoothing out as it passed each. He assured himself the belts would hold and that the unit would make 20,000 rpm or more without flying apart.

Sometime during my high school or college years in the 1960s, I was

told that inventor Reginald Aubrey Fessenden had, in 1906, assembled a primitive AM radiotelephone transmitter and placed it on the air in the evening hours of Dec. 24 at his experimental communications station at Brant Rock, Mass. He transmitted music and speech on that occasion. Thus - the story went - he was the first ever to "broadcast."

Fessenden watched the array of meters and gauges, paying special attention to oil pressure and bearing temperature. This was a one-of-a-kind experimental machine; everything had to be monitored carefully. Finally the requisite speed was reached and everything seemed to be holding.

The professor looked at the indication on the large hot-wire RF amp-meter and double-checked the wavemeter.

It was time.

He stepped to the telephone-type carbon microphone, which was beginning to radiate heat from the amps of antenna current passing through it. He cleared his throat, leaning away from the mic. Then, in his best voice, he uttered a greeting to the world at large, informing anyone who could hear that he was Reginald Aubrey Fessenden and that this was to be a broadcast of speech and music.

He then started an Edison cylinder recording of Handel's "Largo." At the conclusion of the record, the professor opened a Bible and read

scripture, describing the birth of Christ. There followed a moment of silence as he motioned his wife and a friend toward the microphone; but they backed away, suddenly frightened. Perhaps they felt the heat radiating from the mic; perhaps it was a case of nerves.

But the show had to go on. Fessenden pulled out his violin and played his next planned piece, "O Holy Night," while singing a chorus loudly enough to be heard over the violin. He then wished everyone a most happy Christmas and advised listeners that he would be transmitting again in one week, on New Year's Eve.

He moved slowly away from the microphone and pulled the knife switch, letting his machinery coast its way back to silence. The only sound that remained was of sleet pelting the building's windows. A faint smell of ozone mixed with hot machine oil filled the air.

Broadcasting had been born.

That's what the history books have proclaimed for decades. It is what I'd like to report as we near the 100th anniversary of that event, so dear to those of us in broadcasting.

Oh, if were it that simple.

Milestone

Earlier this year I was asked to prepare a story commemorating the anniversary. I started the project by reviewing written accounts of the historic event.

I immediately noticed the similarity of all such descriptions: the music selected, the scripture reading, the first recorded case of "mic fright" and the invitation to listen for another such broadcast a week later. In some cases, the account was not attributed. Authors who did offer attribution cited a 1940 biography, "Fessenden: Builder of Tomorrows," penned by his widow Helen.

The events at Brant Rock, if they did occur, would have been a milestone in the history of mankind. In one evening, Fessenden apparently had staged the first radio broadcast and had become the first radio announcer, scriptwriter, disk jockey, program director, staff musician, studio engineer and chief engineer. It is a claim worth substantiating.

(We set aside here the question of whether "broadcasting" can include wired transmission. Today we accept the term to include people sitting in a CATV studio reaching consumers in a wired fashion; if so, Fessenden, De Forest, et. al. are out of the running by at least a decade, because concerts, news and other content were "broadcast" to significant groups of telephone subscribers in the 1880s and 1890s, especially in Europe.)

In the register of historic wireless broadcast events, Christmas Eve 1906 was important. There must be sources or records to corroborate it.

Quiet Accomplishment?

So I started digging.

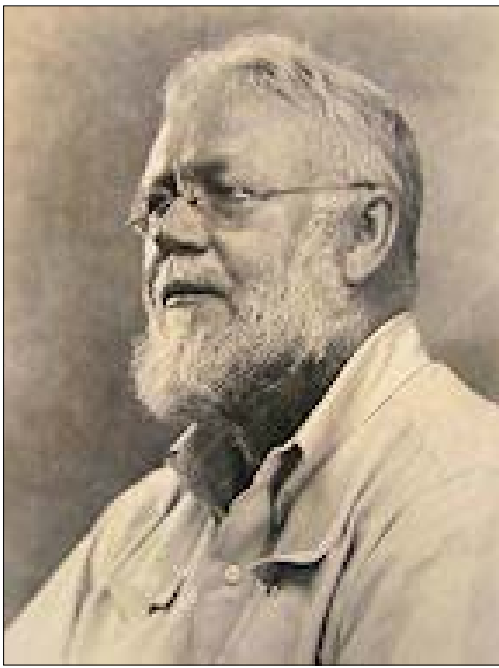
I researched Boston and New York newspapers published during and after the last week of 1906. They yielded nothing. Susan Douglas, writing in her comprehensive history of early radio, "Inventing American Broadcasting 1899-1922," similarly concluded, "There is no record of Fessenden notifying the press, and the demonstration received no newspaper or magazine coverage."

However, the inventor could have had a reason for not inviting press or issuing news releases. My next step was to conduct a study of Fessenden and his business activities.

The professor, we find, was a supremely self-assured and temperamental individual. He was physically large and had an ego to match. His personality could be described as bombastic, type A, arrogant, insulting and demanding in the extreme. He is said to have told one of his more important employees, several times, "Don't try to think, you don't have the brains for it."

This man is not likely to have hidden his accomplishments under a bushel; nor did he do so with other achievements.

Regardless of how he conducted himself in front of workers and business associates, there's little doubt Fessenden was intelligent and gifted. In his lifetime (1866-1932), he was issued hundreds of patents and laid the foundation for many things we take for granted or



Reginald Aubrey Fessenden
Photo Credit: Archives Center,
National Museum of American
History, Smithsonian Institution

attribute to others. An example is the principle of the heterodyning of two signals. Fessenden not only set forth the principle, he coined the term "heterodyne." He received a patent for it in 1902.

Fessenden was born in Quebec and migrated to Bermuda at the age of 18 to begin a schoolteacher's career. After a couple of years, he realized that this was not his calling and came to the United States, eventually finding employment with none other than Thomas Edison. He rapidly worked his way through the Menlo Park ranks to the position of chief chemist. Fessenden also held a position as engineering professor at Purdue University in Indiana and what is now the University of Pittsburgh.

For a time he was employed by the U.S. Department of Agriculture's

Weather Bureau. It was here that he initiated early experiments in radio-telephony. That job ended in a dispute with his boss over patent rights.

Sometime thereafter he went into partnership with two Pittsburgh businessmen to form the National Electric Signalling Company, NESCO. It constructed several wireless stations, with its main operations at Brant Rock and Machrihanish, Scotland. One objective was to provide reliable transatlantic wireless communication and possibly take business away from under-sea cable telegraph services. Brant Rock also served as an experimental laboratory for Fessenden.

It was during his association with NESCO that he achieved one of his goals.

Fessenden did not accept the conventional wisdom that radio waves could be propagated only by "shocking" the ether via a spark discharge across an antenna; he theorized that a continuous or sine wave would be much more efficient and would allow the transmission of speech and music.

There were no vacuum tubes with which to create a continuous oscillation. Fessenden thought creatively and had constructed by General Electric a special high-frequency alternator that could operate substantially above power line frequencies. His first successful machine could operate at 80 kHz and produce a few hundred watts. Amplitude modulation was

achieved simply by inserting a carbon microphone in series with the antenna lead.

Through most of his career, Fessenden also was an inveterate writer. He discovered Scientific American early and delighted in submitting manuscripts and letters documenting his work. His submissions for publication became more numerous as he went along. He was a frequent contributor not only to Scientific American but to The Electrician, Electrical Review, Electrical World, Radio News, Science, and Transactions of the American Institute of Electrical Engineers. There are approximately 200 published works penned by Fessenden; these span radio and electrical engineering but also chemistry, mathematics, economics and history. He even wrote articles for the Christian Science Monitor.

No Records

If Fessenden was such a prolific writer and enjoyed "blowing his own horn," where are the printed reports of the Christmas Eve and New Year's Eve broadcasts of 1906? Even lacking contemporary press reports, there must be some corroborating evidence to back his story.

According to later accounts, Fessenden a few days before the event had transmitted via radiotelegraph a general call to make sure he had an audience. He wrote 25 years later: "This broadcast was advertised and notified three days in advance of Christmas, the word being telegraphed to the ships of

the U.S. Navy and the United Fruit Co., which were equipped with our apparatus that we intended broadcasting speech, music and singing on Christmas Eve and New Year's Eve."

This should be relatively simple to check in the National Archives; but in response to my inquiry the staff reported they have no U.S. naval radio logs from 1906.

Note Fessenden's comment about "stations equipped with our apparatus." In 1906, not all wireless stations were equipped to demodulate AM radiotelephone signals. Just a few years before, the Branley "coherer" had been state of the art for detecting radio signals. This was a small tube filled with a loose mixture of fine metal particles. In the presence of RF, the particles clumped or "cohered," and the resistance of the device drastically decreased. This principle typically was used to close a relay and at the same time activate a "striker" to tap the tube so that clumped particles automatically would be loosened and ready to clump again when the next burst of RF came through. In short, the coherer was a "digital" device and could not demodulate AM.

The coherer was part of the "standard" Marconi wireless installation at that time, thus ruling out reception of Fessenden's radiotelephony at Marconi installations.

(Another available Marconi detector could detect AM: the

magnetic detector, or "Maggie." However, it was notable for its lack of sensitivity, so much so that stations had to be practically in line of sight with one another for the "Maggie" to respond.)

The ships Fessenden mentions were using his electrolytic detector, the "baretter," or a pirated version of it. This device could demodulate AM. Other wireless stations had this technology; Lee De Forest created his own version, the "spade" detector. He used it in De Forest wireless stations and sold it outright, in violation of Fessenden's patent. (An injunction against De Forest's actions ultimately led to his development of the first triode vacuum tube, the "audion.")

Fessenden accused the U.S. Navy of not only using the baretter without paying him royalties but also of manufacturing knock-off devices.

So we know that on Christmas Eve 1906, U.S. Navy vessels and United Fruit stations were equipped for AM reception; we know too that De Forest stations also could have received Fessenden's transmissions. However my search for logs for such operations was unproductive.

The Hart Log

In digging for radio logs from that period, I did study a fascinating document at the Smithsonian Institution. This is a journal or logbook kept for nearly three years by a Francis Hart. It begins on Sept. 6, 1906; the last entry was made on Oct. 3, 1909. Though not a widely known source, it has been men-

tioned by Susan Douglas and other historians.

Little is known about Hart; but we can deduce that he was an early wireless enthusiast and had a lot of time on his hands to "listen in." He could read code and knew quite a bit about radio. There's no indication he owned a transmitter, so he can't really be called a radio amateur or "ham." Today he would probably be termed an SWL or shortwave listener; in 1906 no one was using shortwaves. It was all 500 kilocycles and below then. Perhaps the best term that can be applied to Hart is DXer.

Hart lived at Sayville, N.Y., about 160 miles from Brant Rock. His journal is a valuable resource, perhaps the only surviving log of wireless activity conducted around the time of Fessenden's radiotelephone work.

The logbook begins with several pages of listings for all known ship and shore wireless stations and gives their two-letter call identifiers; there was no FCC or FRC to issue call signs then. Included are U.S. Navy vessels, De Forest wireless stations, Marconi stations and those of other early adopters of wireless communications, the Standard Oil Company and United Fruit. NESCO's Brant Rock station - identifier "BO" - and the Machrihanish, Scotland station - "LK" - are entered.

Almost every day during the period, Hart started a new entry with a rubber stamp date on the book's

sewn-in pages. Most entries are in the form of the identifiers of the commercial stations he hears working each other. Occasionally the identifiers are interspersed with comments about static, radio propagation, the weather and anything timely or unusual that he hears.

It was a strange feeling, wearing the required white gloves and carefully turning through pages that Hart innocently constructed but which have become an interesting and important firsthand look at early radio history.

Nothing There

Hart was listening on Christmas Eve. There are two entries for Dec. 24, 1906. Both are made without commentary. Neither bears the BO identifier.

Ditto the Dec. 31, 1906 entry. He overheard more stations on that New Year's Eve, but they did not include Brant Rock.

As noted, Fessenden's later account of 1906 mentions that he had gone on the air with a "general call" radiotelegraph message three days before Christmas to advise radio operators to be sure to "tune in" BO on Christmas Eve for a program of music and speech. Hart's entries for Dec. 20-24 make no mention of this event either.

Hart could have been guilty of napping, having a meal or perhaps going to the bathroom when Fessenden sent his message. However, if Fessenden had made such a

transmission, those who did hear it would, for some time thereafter, have been involved in a general discussion of the message and passing it on to other radio operators. In light of this, it's difficult to believe that Hart could have completely missed hearing not only about the broadcast but about Fessenden's promo.

It's reasonable to assume not everyone with a radio receiver heard the Christmas Eve broadcast. However, what a hot topic it would have been to those who did. It's inconceivable that listeners would remain silent about having been "ear witnesses" to such an event. Yet the Christmas Day entries in Hart's log do not document this. There's nothing out of the ordinary logged from Dec. 25 until well into 1907.

If Fessenden had transmitted special programs of music and speech on Christmas Eve or New Year's Eve, these events would have sparked a tremendously large "buzz" for days thereafter among the community of land and sea radio operators.

Bullet Points

But what is truly remarkable about the 1906 story is this: Not only is there no mention in the press at the time; there is also apparently no mention of it for the next 26 years.

Fessenden ended his career with NESCO in 1910 under conditions that were less than ideal. He continued to conduct research, write and invent until his death. In the 1920s we find several written

accounts of a "first broadcast" from Brant Rock. But none give the date as 1906; nor is Christmas Eve mentioned.

In 1924, Fessenden was asked by the editor of Radio News magazine, Hugo Gernsback, to write an autobiographical series of articles. The series was titled "The Inventions of Reginald A. Fessenden." It is not an easy read. It begins in January of 1925 with Fessenden discussing the philosophy of invention. With the article, the magazine published what we would call a box of bullet points. These numbered items list the inventions that Fessenden felt were his most important.

The fifth bullet is the entry "Wavechute" - what we know today as a counterpoise or ground plane - and "broadcasting of speech and music - 1907."

Nowhere in this article or in the series of articles is there any mention of Christmas Eve or New Year's Eve broadcasts. Fessenden gives the date as 1907; his "broadcasting" apparently was not done until then.

De Forest

Concurrent with the Fessenden articles, Gernsback also printed a series of biographical articles on Lee De Forest. In the June 1925 issue, the De Forest article states: "But the short transmission of music from the Telharmonium over four blocks to the towers of the Times building remains the first actual broadcasting incorporating the present connotation of the word ever successfully carried out." (Italics from the

original manuscript.)

The Telharmonium was a sort of forerunner to the Hammond organ. It was a musical, mechanical invention by the Cahill brothers, constructed of a number of AC generators, operating at differing frequencies, with outputs selected by a piano-type keyboard. The Cahills had wanted to connect the device to the telephone system and broadcast concerts to subscribers. The phone company was much opposed to any sort of "alien" connection to company lines (no Carterphone Decision yet), and would not grant permission.

The brothers heard about De Forest's success in transmitting music and speech with an "arcphone" type of transmitter early in 1907 and solicited his helping in distributing their musical interludes around the New York City area.

De Forest, in his 1950 autobiography "Father of Radio," says that in late 1906 he designed his "first crude carbon arc transmitter."

"I recall that it was on the last day of that year that (John V.L.) Hogan picked up in the Audion and telephone receiver across the room the first words spoken into a microphone connected to my arc transmitter, then fed from a 220-volt direct-current source. All my radiotelephone work up to 1923 employed this transmitter."

De Forest states that in February of 1907, he was broadcasting with his new transmitter "for the benefit of

any wireless operators who might hear it, asking such listeners to telephone my laboratory in the Parker Building." He also set up a similar transmitter in the office of the Cahill Telharmonium Co. at Broadway and 45th Street and fed it from the musical instrument located there.

De Forest reported that he was getting reception reports from "sundry wireless men." One of these was George Davis, chief electrician at the Brooklyn Navy Yard. De Forest said Davis was called in by one of the wireless operators there to put on headphones and listen to the speech and music being received, because "the operator was of the opinion that he had had a little too much beer at the corner and wished to have himself reassured."

Davis heard the same thing and called De Forest's studio. He asked, "Am I drunk or crazy, or are you sending out some talk and music over that wireless of yours?" Davis later became a board member of the Radio Corporation of America.

De Forest proclaims in the 1925 Radio News article that he originated the world's first broadcast of speech and music.

Of course, inventors often dispute who was first. As the Fessenden and De Forest articles span multiple issues of Radio News, we may assume Fessenden would have seen the De Forest claim and taken it to task in the form of a letter to the editor. But Fessenden never rebuts De Forest's claim to priority in any

of the subsequent issues.

The Navy Yard was not the only place where De Forest radiotelephone transmissions were being received. Francis Hart was hearing them too and made the following entry in his log on March 20, 1907.

"Music at 5:27 from de Forest's - good 3rd time."

This is the first indication in Hart's log of the reception of any speech or music. On May 9 of that year he wrote:

"De Forest's blooming telephony buzz raised the deuce with the L.W. & everything else."

LW was the identifier of the Navy ship the Washington.

Unlike Fessenden's purported broadcast, the De Forest radio broadcasts were noted in the press. The New York Tribune reported on May 15, 1907, "There is music in the air about the roof of the Hotel Normandy these days. A good deal of it is being collected by Lee de Forest's wireless telephone, ready for distribution to possible purchasers."

Hart doesn't report hearing Fessenden's radiotelephone transmissions until early in 1908. On Feb. 11 that year, he logged:

"Wireless phone at Jamaica & other must be at Brant Rock, Mass. - phone very clear except for a rasping noise that mingles with the voice & is hard to (?). I managed to

get the following & could probably have obtained more, except for 'q' and etc.:

'How's that now'

'Open up a little more.'

'You came in louder than yesterday'

"Could hear music as plain as voice from weaker station but couldn't make out words from other station although they came in fair.

'Go ahead now for 5 mins.'

'We're all right if you will only, go ahead now.'"

The evidence presented by the Hart log indicates that while he could - and indeed did - hear Fessenden transmitting speech and music, he did not hear any such transmissions on Christmas Eve or New Year's Eve, 1906.

Newspaper Clippings

There is a voluminous collection of Fessenden material in the North Carolina State Archives: letters, memos, photographs and magazine and newspaper clippings. I sampled that collection. Three newspaper clippings that were part of the Fessenden estate bear special notice.

The first clipping is dated Aug. 7, 1924 and appeared in the Long Island Daily Press. It is in the form of a letter to editor. A David Hardenbrook in Jamaica, N.Y., wrote on Aug. 5 in response to an

article published the previous day regarding the first radio broadcast.

He states that the credit is generally given "to Reginald A. Fessenden, the eminent scientist and inventor of more radio patents which are in use than any other inventor." He continues, "Also, Jamaica will go down in history for the first long distance broadcasting from Brant Rock, Mass. in 1907, by Dr. Fessenden."

Reader Hardenbrook says he found a book in the Jamaica library by a Dr. Goldsmith, "Radio Telephony," that states that "broadcasting was performed as far as Jamaica, where a mast of 180 feet high was used."

Hardenbrook went on to say he had learned that Fessenden lived in Boston and went to see him. The visitor apparently was treated cordially and noted that Fessenden was working on a new invention called the pherescope, Fessenden's term for a television. The visitor spent enough time with Fessenden to be fully briefed on Fessenden's life history and major accomplishments.

Hardenbrook concludes his letter with a mention of John V. L. Hogan, another early wireless pioneer, who had worked as a boy for De Forest. Hardenbrook wrote that in a book compiled by Ehrick Hausmann, Hogan gave Fessenden credit for broadcasting speech and music to Jamaica, N.Y., in 1907.

If a broadcast did take place in 1906, Fessenden apparently did not inform Hardenbrook during his

visit. There is no follow-up to Hardenbrook's letter to set the matter straight.

Along with the Long Island Daily Press clipping is a front-page story clipping from the Fergus (Canada) News-Record of April 29, 1926, titled "Great Inventor Spent Boyhood In Fergus." This story about Fessenden is one of the "local boy makes good" genre and notes that Fessenden had made 300 inventions including the wireless telephone, the "heterodyne principal" (sic), relay wireless and "the first broadcasting in 1907."

The material in this article all appears to have been supplied by Fessenden. There is no follow-up "letter to the editor" in the files indicating a correction of the date by Fessenden.

A third clipping in the Fessenden collection is from the Nov. 6, 1927 Boston Sunday Globe. The story is the feature article in the radio section of the newspaper and puts Fessenden front and center, with a picture of him at his Chestnut Hills home near Boston. He is shown with one of his latest inventions, "the talking violin."

The article states that "Few people, however, realize that another man, also of Yankee descent, invented a wireless telephone and that his broadcasting station - first in the world - was at Brant Rock, near Marshfield." The article continues, "Twenty years have passed since the station was erected at Brant Rock." Give that article was published in

1927, that also would put Fessenden's radiotelephone work in 1907, not 1906.

Based on Fessenden's Radio News article and these newspaper clippings, a strong case is made for 1907 as the date for his first attempts at broadcasting. Neither Christmas Eve nor New Year's Eve are mentioned.

So when does 1906 enter the picture?

The 1932 Letter

It appears the legendary date stems from a letter written by Fessenden from his home in Bermuda in 1932, about five months before his death. The letter is dated Jan. 29, 1932 and is in the Smithsonian's Clark Collection.

It was addressed to S.M. Kintner, a former associate of his, then vice president of the Westinghouse Electric and Mfg. Co. In it, Fessenden discusses several of his inventions before going into detail his broadcasting activities. This is apparently in response to a question asked earlier by Kintner.

Fessenden first refers to a demonstration of the transmission of speech and music in a "program given to Dr. Kennelly, Prof. Elihu Thompson, the engineers of Western Electric and A.T. & T. and other companies, and the editors of several of the New York papers."

Although Fessenden does not mention a date, this is an obvious reference to a public demonstration

of radiotelephony conducted on Dec. 21, 1906 between Brant Rock and another NESCO station in Plymouth, Mass.

Indeed, this could well qualify as the first broadcast of speech and music; however, it was intended only to demonstrate the capabilities of Fessenden's apparatus to an invited audience. Fessenden addresses this in his letter to Kintner by stating, "By broadcasting I suppose that you do not mean the transmission of speech, music and singing to other stations of the same firm which is sending but to receiving stations operated by other firms than the sending station, and also programs advertised or notified in advance." He makes the distinction between a technical demonstration and an actual attempt at reaching the "masses" via the airwaves. Fessenden continues: "If, however, you do not call this a broadcast, then the program sent out Christmas Eve and New Year's Eve, 1906 would be the first broadcast. This broadcast was advertised and notified three days in advance of Christmas, the word being telegraphed to the ships of the U.S. Navy and the United Fruit Co., which were equipped with our apparatus that we intended broadcasting speech, music and singing on Christmas Eve and New Year's Eve.

"The program on Christmas Eve was as follows," he went on. "First a short speech by me saying what we were going to do, then some phonograph music. You will find a photograph showing the phonograph used in the article in the Transac-

tions of the American Institute above referenced to and also in the American Telephone Journal, the music on the phonograph being Handel's 'Largo.' Then came a violin solo by me, being a composition by Gounod called 'O, Holy Night,' and ending up with the words 'Adore and be still' which I sang one verse of, in addition to playing the violin, though the singing, of course was not very good. Then came the Bible text, 'Glory to God in the highest and on earth peace to men of good will,' and we finally wound up by wishing them a Merry Christmas and then saying that we proposed to broadcast again New Year's Eve."

Fessenden goes on to say that the New Year's Eve broadcast was similar to the Christmas Eve transmission, with different music and someone else singing. He concludes the letter with mention of reception of the Christmas Eve program from as far away as Norfolk, Va., and from "some places down in the West Indies" for the New Year's Eve broadcast. Fessenden invites Kintner to "check the logs of U.S. war vessels and United Fruit vessels."

The account and dates given in this letter are extracted by Helen Fessenden and appear, lightly edited, in Chapter 15 of her 1940 biography of her late husband.

It would appear that the Kintner letter is the origin of the 1906 Christmas Eve broadcast story. Nothing appears in the press or in Fessenden papers I've examined that mention this broadcast prior to

January of 1932.

Fessenden's health had begun to fail by this time, which could cast doubt on the veracity of his statements.

(Interesting too is his comment on "a composition by Gounod called 'O Holy Night.'" That work was not composed by Gounod. The music was by Adolphe C. Adam and the words supplied by Placide Cappeau; the translation to English was by John S. Dwight. Gounod is known for his "Ave Maria." Why this discrepancy has not been questioned by Fessenden biographers is unclear.)

Meanwhile, October of 1931 saw the launch of Broadcasting magazine, today's Broadcasting & Cable. December of that year would have been the 25th anniversary of the Fessenden broadcast; we'd expect a publication dedicated to broadcasting news to note the event. There were two issues published in December; neither contains mention of the 25th anniversary of broadcasting or of Fessenden. The second issue does contain a fairly long article about Marconi.

A search of other radio-related magazines from December 1931 fails to turn up any mention of a 25th anniversary commemoration.

Pioneer Debate

Is there anything that might strengthen Fessenden's "deathbed" claim?

In the Smithsonian's George H. Clark Collection is a memorandum

written by Clark that captures opinions from John V. L. Hogan, H.E. Hallborg and Authur Van Dyck, all radio pioneers, as to what methodology was used and what year the Fessenden Christmas Eve and New Year's Eve broadcasts took place. The memo is dated Dec. 16, 1936.

Van Dyck thought Fessenden had used "multiple arc" and a water-cooled microphone. He adds that it was possible an alternator had been used. No date is given.

Hogan is certain that an alternator was used and "the date might have been 1906."

Hallborg expresses his certainty that an alternator was used along with a water-cooled microphone and that the date was 1906.

Clark sums up the issue by saying, "Thus it is well assured that it was an alternator; also that it was a water-cooled microphone that was used. The date 1906 is confirmed by my records, but must be finally checked" (my emphasis).

There is no indication that Clark managed to verify the date to satisfaction.

Dec. 21 Demonstration

There is another angle in this story that may shed some light.

NESCO was formed as a money-making organization with an eye toward establishing a transatlantic communication service. Fessenden served as its chief scientist and manager while two Pittsburgh busi-

nessmen bankrolled the operation.

Early in its existence, Fessenden erected two nearly identical radio-telegraph facilities, those at Brant Rock and Machrihanish. Each was equipped with spark wireless transmitters and each had an identical 420-foot vertical antenna - the first insulated-base, series-fed vertical radiators.

Construction was finished in 1906 and testing commenced. Things were looking good until a wind-storm toppled the Machrihanish antenna on Dec. 6. This apparently was the result of failure to follow procedures in attaching guy lines.

The Machrihanish facility was never rebuilt.

The collapse of the antenna, occurring as it did in the first week of December, must have played heavily on Fessenden. The demise of the Scotland station changed the business model of NESCO and it was up to Fessenden to devise another plan to keep the company in business. (He earlier had made a case to his business partners to try to market equipment, but that proposal did not tempt them.)

Fessenden had been touting his radiotelephony as an adjunct to wired telephone service and on Dec. 11, he issued his invitation to engineering heads from Bell, Western Electric and others to attend a demonstration on Dec. 21 of his system of radiotelephony.

This demonstration did take place

and was well documented by Fessenden, unlike the supposed Christmas Eve event. His first reporting appears in the Jan. 19, 1907 Scientific American. He mentions some of the dignitaries present, describes the equipment, references his past work in radiotelephony and describes the transmission of both speech and phonograph records.

The Christmas Eve event would have taken place just days after the demo. But Fessenden does not report it.

He writes again about his work in 1908 for the American Institute of Electrical Engineers. This report was published again that year in the Annual Report of the Board of Regents of The Smithsonian Institution. This is a comprehensive description of virtually everything Fessenden had accomplished along the lines of wireless telephony, includes many pictures and spans more than 30 pages of text.

There is not one word about the Christmas Eve and New Year's "broadcasts."

What Happened?

At this point, all surviving evidence points to the conclusion that Fessenden's 1906 Christmas Eve broadcast did not happen.

I really wanted to believe that Fessenden did what was claimed. Given the resources available to him in terms of an operational high-frequency alternator, methodology for AM modulation technology and

an antenna system, he certainly could have done the broadcast. His Dec. 21, 1906 demonstrations proved that he could transmit speech and music. However, all evidence points to the Christmas Eve event as being a contrived story.

Fessenden was no "shrinking violet." He was proud of his accomplishments, almost continuously writing about them for publication. He loved to blow his own horn.

Had he made these seminal and historical transmissions, he would have made sure the world knew about them in detail, at the time they happened. He would not have waited a quarter of a century, and only months before he died, to do so.

Now we enter into conjecture. Is it possible that in the last months of his life, Fessenden recalled the Dec. 21, 1906 demonstration of his system, unintentionally spread it into Christmas Eve and embellished it "just a bit?" This time Fessenden was not writing a letter to a magazine or newspaper editor. It was his assumption that only Kintner would read it. He could have had no idea that eight years later, his wife would reproduce a copy he retained and that this would be the basis for a wonderful tale about the first chapter in broadcasting. Or perhaps he wasn't concerned with the history books and what he revealed to Kintner was the product of a tired body and mind. Or our speculation may be wrong and some other explanation can be found for the utter lack of contemporary docu-

mentation to justify Fessenden's claim to history.

Conclusion

Let us summarize our reasons to doubt:

No press reports at the time, or for a quarter-century after. No mention for decades by an inventor who knew how to promote himself and wrote hundreds of articles about his work. No mention in a contemporary log and no known logs elsewhere, whether official naval logs or otherwise. No commemorations 25 years later. No challenge to De Forest's published competing claim. No followup to Clark's finding that the year needed to be verified; no consensus as to the date among the group cited by Clark. No mention of 1906 once the year 1907 began to be cited.

Any one of these objections can be explained away. Taken together, they form a powerful counterargument.

The question of the year also might be considered a minor discrepancy except that the evidence seems to point to De Forest being first with what we would consider broadcasts in the spring of 1907.

Fessenden was a great man. It is not my desire to discredit his many accomplishments. However, it appears his claim to this particular historic "first" hangs on a single letter penned late in his life, which laid out a story that has been parroted many times since. This should not guarantee automatic

entrance into the "broadcasting hall of fame" and the title of world's first broadcaster.

Perhaps somewhere out there, locked in a trunk, is a diary kept by Fessenden or one of his associates. Perhaps the Brant Rock station log survives in a second-hand bookstore. I leave it to future historians to find such evidence and prove me wrong.

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This article was found on the web page of Radio World and is reprinted here with permission. Thank you Radio World for letting us reprint the story. Mr. O'Neal has written a follow-up article to this original article *Fessenden: World's First Broadcaster?* which should appear in the next on-line issue of Radio World. Please visit the Radio World web site at—

<http://www.rwonline.com/>

to read this next installment of the story.

TINKERIN' TIPS

By Fred Crews

A Gimmick?

Many radio guys may not have heard of a device called the "gimmick". They were not often used in the old tube radios, but when used served a purpose. The gimmick was really something of a capacitor. They were used to give capacitive coupling in the RF circuits of some sets. An AC/DC superhetrodyne radio that I worked on had a very obvious one. It was used to couple the oscillator frequency of the radio to the incoming received signal and the output result was the intermediate frequency. The tuning capacitor was a 2 section one with the oscillator section physically smaller than the RF section. On top of the RF section was a wire going to the grid cap of the first tube. Closely wrapped around that wire was another insulated wire of 6 to 8 turns. One end was loose and the other was connected to the oscillator tuning capacitor.

Some designers actually wrapped a length of wire into a coil and they were not noticeable, but one end was soldered to another circuit, and the other end was open.

In other cases two wires had one end soldered to a circuit and these were then twisted together to provide a coupling capacitor of sorts. I found one radio that had one end of a wire connected to the antenna terminal and another wire with one end connected to the

antenna transformer. I have read that some designers have said these techniques tend to give more uniform gain over the radio's tuning range.

Thus the gimmick.

MELCO SUPREME AMSCO PRODUCTS, INC.

MID – 1923

By Robert Lozier

Lester L. Jones and the Melco

According to Allan Douglas, Lester Israel had worked at the Washington Navy Yard during WWI along with Priess, Horle and Hazeltine (as a consultant) where the group developed the SE143 receiver. By 1922, Lester Israel changed his name to Jones and had formed the Danziger-Jones Company to market his invention of a tunable RF transformer named the Telos Vario-Transformer. (Patent filed January, 1923)

His Patent #1,664,513 does not look like the coils seen in the radios I will describe to you. However, Ted Miller has found most of one that is identical to the patent and it is easy to understand why they were appar-

ently quickly modified. The original coils were wound as a single layer flat 'D' shape and then coated with cement and laminated between sheets of card stock. To get these coils laminated correctly had to be an extremely tedious task.

Meanwhile, in July, 1922, the Mortimer Radio Company was incorporated and began advertising under the Melco name. By February, 1923, it introduced the Melco Supreme, using Telos Vario-Transformers. In May, 1923, Mortimer merged with Amsco (Advanced Metal Stamping Company) owned by the Price brothers, attorneys who had acted for Mortimer in its incorporation.

Jones, who had been working on neutralized TRF amplifiers at about the same time as Hazeltine, eventually lost most of his patent claims where the transformers were used between vacuum tube stages. He was, however, able to have some success with a circuit called the Technidyne. Here all the tuning was done in a multi-stage passive circuit followed by several cascade RF amplifiers. This was used most notably by the Sparks-Withington Co. (Sparton) but also by AC Dayton and in the, very rare, Atwater Kent Model 50.





The first Melco models used a 4 tube circuit but soon added an additional audio amplifier stage. The claim for the Telos coil is that it could enable high amplification at higher frequencies without oscillation. Under the Telos Radio brand, the Danziger-Jones Company offered kits to build your own outfit.

After Jones began to loose in court, apparently, to stay in business the kits became the only way to keep selling. Some of the kits have survived with engraved panels that

say: "Sale if assembled prohibited." This seems to be similar to the strategy used by designers of superhetrodyne circuits to avoid infringement suits by RCA over the Armstrong superhet patents.

Radio Engineering for November 1924 has a complete write-up on how to assemble the five tube kit version.

The Telos coils are of a very unusual construction. The method of winding the coils results in minimal field leakage. The secondary coils are connected to a 'compensator' condenser. This device has two stators and one rotor. One side is used to neutralize the tube capacity at a given frequency, which would have the tendency to detune the circuit, so the other side adds enough capacity to keep the stage in tune.

It looks to me that, while the circuit would have worked pretty good compared to its contemporaries, there was a lot more labor involved in building these sets.

From: Radio - Nov. 1924

*Here with a Loaf of Bread beneath the Bough
A Flask of Wine, A Book of Verse — and Thou
Besides me singing in the Wilderness —
And Wilderness is Paradise enow.*
OMAR KHAYYAM

MELCO SUPREME RECEIVER
Tuned Radio Frequency

Alan Douglas has another radio using these Telos Coils. It is called the Flex-O-Dyne. One Charles G. Hall of New York advertised this set for about a year starting in December 1923.

A few years ago, Ted Miller acquired a chassis that appears to be identical to the front panel of the Flex-O-Dyne with the exception of having much larger Weston meters installed. However the engraving is completely different. The engraving proclaims “The Pantheon - Crystal Symphony” made by the KAYDEE Co. N.Y.C.

It is not known what the relationship between any of these companies might have been. However, you see the logo of the Melco Supreme change over three years. At times it has the word Acmedyne in smaller letters just above MELCO and sometimes the word Melco is bracketed with a smaller K & D... Like: <K MELCO D>.... Does that have anything to do with Kaydee Co.? --- Who knows at this point.

How clean is clean enough?

Late last year I realized that I had done nothing to my MELCO since I had purchased it from Ed Bell who, at the time, was selling some of Doc Muchow’s collection.

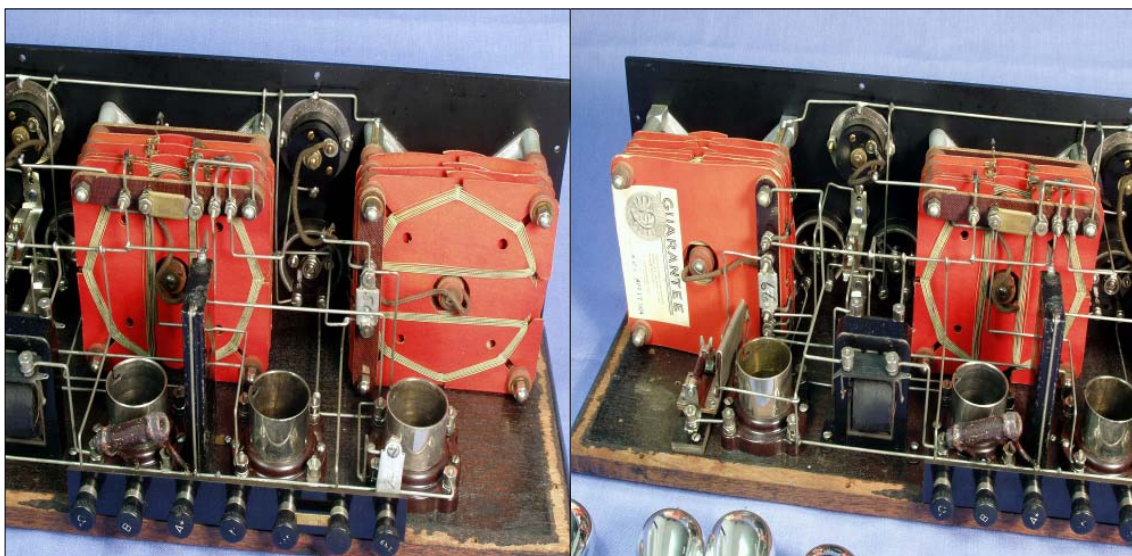
Other than being dirty inside, missing a lot of white filling on the knob markings and having some cabinet glue joints that had broken loose; it was in pretty good shape.

So, how far to go in cleaning this up?

Since two cabinet joints had broken free, I decided to clean the joints out and re-glue them.

The cabinet was very dark and dull so I cleaned the surfaces with Go-Jo waterless hand cleaner. An amazing amount of coal soot came off and revealed an original finish that was not significantly damaged.

The way this set is built, it looks like it would be a real nightmare to take apart the chassis. However, it is only necessary to unsolder two connections. All the other connections are done with thumb nuts. Removing 20 or so nuts has the front panel components separated from the chassis. From there it was easy to remove each chassis part and clean it with Go-Jo.



I could have done more aggressive cleaning, but decided that only the thumb nuts could benefit by a quick zap in the ultrasonic cleaner.

Almost all the number lettering was gone on the three big tuning knobs but almost all other paint filling on the graduation marks and other knobs was OK. As it turns out, I had an old Elmers wood touch-up crayon of the exact color as the surviving filler lacquer. So I filled in the numbers. I elected not to fill the few missing graduation marks. This way, I think the set still looks more authentic.

P.S. If anyone has the Flex-O-Dyne or Crystal Symphony, Ted would like to have some detailed photos of

the chassis and the cabinet. Any set called it the Pantheon (Temple of the Gods) Crystal Symphony deserves to be restored to its full glory.

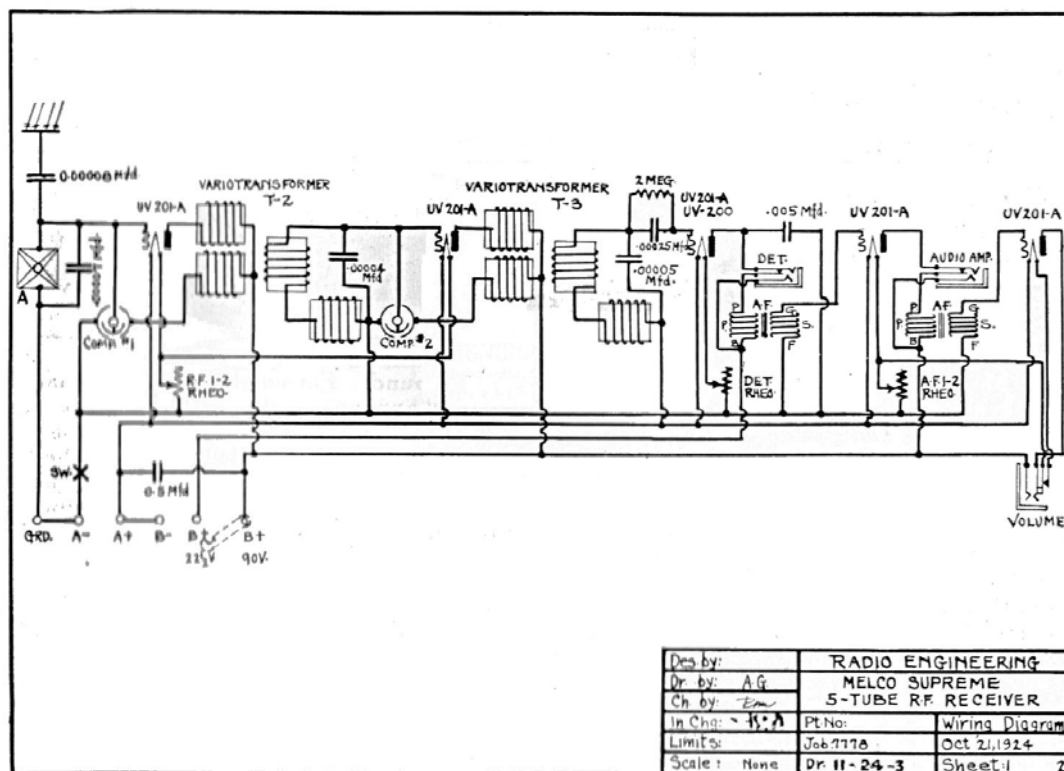


Fig. 2. Connections for the Melco set. Unit A is a variometer, while T-2 and T-3 are R. F. transformers in which the coupling and the secondary inductance are controlled simultaneously