



Journal of the  
**CALIFORNIA HISTORICAL  
 RADIO SOCIETY**



*Chuck Waltman*



*Alice Potter*



*Bob Melrose*



*Stan Burford*



*Ted Robinson*



**2012  
 INDUCTEES**



*KPO - KNBC- KNBR*



*Tony Salvadore*



*Susan Leigh Taylor*



*Steven Seaweed*



*Greg Kihn*



FROM THE BIRTHPLACE OF BROADCASTING  
**CALIFORNIA HISTORICAL RADIO SOCIETY**  
 HOME OF THE BAY AREA RADIO MUSEUM & HALL OF FAME

The California Historical Radio Society (CHRS), is a non-profit educational corporation chartered in the State of California. CHRS was formed in 1974 to promote the restoration and preservation of early radio and broadcasting. Our goal is to enable the exchange of ideas and information on the history of radio, particularly in the West, with emphasis on collecting, preserving, and displaying early equipment, literature, and programs. Yearly membership is \$30.



**CHRS Museum at Historic KRE**

CHRS is fortunate to occupy and restore the historic KRE radio station building located at 601 Ashby Avenue in Berkeley, CA. The KRE station an important landmark in S.F. Bay Area radio history. Originally constructed in 1937, the KRE station was one of the first facilities built in California specifically for broadcasting. The KRE site has been transmitting AM radio signals for over 70 years and still operates today as KVTO. In 1972, it was the location for scenes featuring “Wolfman Jack” and Richard Dreyfuss in the George Lucas film, “American Graffiti.”

The restoration of the station plus creation of a museum and educational center gives us an environment to share our knowledge and love of radio. It enables us to create an appreciation and understanding for a new generation of antique radio collectors and historians.



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- Dale Tucker – Sacramento Chapter

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- David Vasquez – Electrical Transcription Project
- Larry Clark – Technical Advisor, Librarian, Schematics

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### From the Editor

Once again I've had the pleasure of working with such generous and capable contributors. I want to thank Mike Adams, Bart Lee, David Jackson, Jim Bradt, Eric Stenberg, Gilles Vrignaud, Dale Tucker, Scott Scheidt and Steve Kushman. If you would like to contribute an article in a future issue, please let me know.

Member feedback shows there is much interest on wood cabinet refinishing. As a result, this issue includes an in-depth tutorial article that I hope will provide a solid basis. If this works for you, more in-depth tutorial articles can be done for future issues. Let me know.

Regretfully, it has come to my attention that following names were misspelled in previous journals: Ron Vikjord who won the CVC radio contest in 2011 — Ron has since passed away and is greatly missed; Stan Bunger who provided many of the photos used on the Spring issue covers; and John Wentzel featured in the article in the Fall issue. I sincerely apologize for these errors.

Richard Watts, jrchrs@comcast.net ◇

# From The President

by Steve Kushman

Well here we are in Spring 2013 and I was fully expecting to write about the joys of owning the historic KRE building. Not so. The big question on the minds of just about all our CHRS / BARM / SOWP Members, Friends and Supporters is... Why is it taking so long to purchase the KRE building for the CHRS Museum and Bay Area Radio Hall of Fame? This is a hard question to answer. First let me say that throughout this campaign we can only report to you the information we receive. Unfortunately, your President is quite the optimist and when presented with any new or positive information I naturally want to share, sometimes too soon.

CHRS has no control over the process that will eventually allow us to purchase KRE. This process that includes the sale of radio station KVTO by YMF Media was supposed to be complete in 3 months or so is still not complete. The Inner Cities bankruptcy which was supposed to be structured and smooth, was held up at every turn. When it was finally settled, the bidding process dragged on and then the bid selection process was not quick. Recently, if you have been keeping up with our emails and web site, you know that the high bidder and potential new owner of KVTO approached CHRS and was very supportive of CHRS purchasing the KRE building and land from them... when they become the new owners.

As of this writing, the KVTO sale is on hold. It's complicated AM radio business stuff. This may change at any minute. So, we wait. Now you understand that we are not waiting for our fundraising goal to be complete... We are waiting for the OK to buy the building. And, the wait really hasn't been bad for us. It has just given us more time for fundraising. CHRS, with your help has raised an incredible amount of money in donations and pledges. As of this writing we have 260 pledges and donations totaling \$693,025. We think that this is a pretty great accomplishment for a little non-profit. We firmly believe that when we are given the OK to purchase, the rest of the funds will roll in without any problem. We are more determined than ever to push ahead with our fundraising and reach and surpass our goal. Remember that every pledge and donation is important and everyone who contributes will be noted on a plaque in the KRE building. So, pledge now or have your group pledge now and be part of this effort to create a permanent home for radio and radio history. See our site at: [www.CaliforniaHistoricalRadio.com](http://www.CaliforniaHistoricalRadio.com) or Google CHRS to pledge.

Have I mentioned lately how lucky CHRS is to be in this ideal position? We are probably the only vintage radio society to have a historic AM radio station building as our home, and are very close to owning it! We are an organization that not only encompasses radio technology and history but radio personalities, programs, radio stations and their histories, wireless operators and their 100+ year old archives. CHRS / BARM / SOWP is one of the most complete vintage radio societies anywhere. And let's not forget to mention that CHRS thrives because of the dedicated, passionate group of volunteers who give so much of themselves to make CHRS one of the finest vintage radio groups... anywhere. We all should feel very proud to be part of this outstanding organization.

Membership is steadily increasing. Web site traffic on our CHRS and BARM sites is steady or increasing. Our ET Project is getting new material uploaded on a regular basis. These great Journals are being produced again thanks to Richard Watts and all the contributors. We have some wonderful new additions to the museum collection, including a beautiful Scott Philharmonic, donated by Ed Senior. Activities at KRE continue. We have had some successful radio clinics, swap meets and volunteer days at KRE. Our Yahoo group is active. Our CHRS Central Valley Chapter and Sacramento Chapters are active. We continue to give tours to many groups. Have a group? Want a tour? Let us know. We love to show off our volunteer's great work, inside and out of KRE. Please see our web site and come to our activities or to volunteer. It feels really good to volunteer for CHRS.

We note the passing of long time CHRS members Jim England, George Durfey and Ron Vikjord. We will miss them and send our sympathies and best wishes to their families.

Save the Date – July 20, 2013 is “Radio Day by the Bay 2013”, our annual giant fund raising event. Our Master of Ceremonies again will be our favorite ‘Morning Man’, KCBS’ Stan Bunger. Live music by The Joyful Noise Jazz Band, specializing in ‘20s, ‘30s and ‘40s music. Don’t forget our vintage radio auction, live music, food, electronic flea market, live radio play by the Broadcast Legends, tours, celebrity interviews, radio personalities and much more radio fun. Watch for featured auction items site to appear soon on the Radio Day 2013 page of the CHRS web site.

Please enjoy this Journal. I always encourage you to contact me directly with your questions, ideas and comments. I am available at [kushseal@flash.net](mailto:kushseal@flash.net) or (415) 203-2747.

Best Regards, *Steve*

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# CHRS Sacramento Chapter News

by Dale Tucker, photos by Richard Watts

The Sacramento Chapter of CHRS is the successor to the Sacramento Antique Radio Club which was founded approximately 25 years ago. The Chapter currently has about 25 members who reside throughout the Sacramento region. Bob Moore, hosts a monthly meeting in Shingle Springs for members that is open to the interested public who may wish to find assistance in repairing/restoring their sets.

The Sacramento Chapter of the CHRS annual swap meet was far and away the most successful in our history. The sale took place on Saturday, March 2nd, the Sylvan Oaks Library Parking lot. An estimated 40 - 50 people were on hand throughout the morning including buyers, sellers, and the curious. We greatly appreciate the hospitality shown by the Sylvan Oaks Library staff for enabling to have the swap meet there. Most sellers reported they did quite well and, of course, buyers were buoyant with their finds. Coffee and donuts were furnished by Kathy Tucker (yes, she's my wife!).

Come join us at our events – fans of classic radios are always welcome!

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# CHRS Central Valley Chapter News

by Scott Scheidt, photos by Harry Bohl

**Christmas Luncheon and Radio Restoration Contest Awards:** The annual CVC Christmas luncheon was hosted at the Modesto Commemorative Air Force Hangar, a museum of vintage aircraft. The 2012 My Favorite Radio Contest awards were presented; Mick Daniels received first place, and Matt Thompson received second place.



Annual CVC Christmas Luncheon



1st Place: Mick Daniels



2nd Place: Matt Thompson

**The Vikjord Award:** CVC created the Vikjord Award to serve as a perpetual award that will be given to the radio restoration contest first-place winner each year. The winner's name will be inscribed on the trophy and he or she can keep the trophy for the year. The award was created in honor of Ron Vikjord, first-place winner of the 2011 contest. Ron recently passed away and he is sincerely missed.



The Vikjord Award

**Model-A Swap Meet:** For the last several years CVC has operated a booth at the Turlock Model-A Swap Meet to expose the club to the public, promote CHRS membership, develop interest in the vintage radio, and help with questions and requests for radio repair. Many members radios were on display with some offered for sale. The display included John Wallin's impressive display of vintage tube car radios. CVC had a successful event; there was much public interest and more radios were sold than in the past.

The Turlock Model-A Swap Meet



**Classes:** The three classes continue. The advanced radio repair class meets at Larry Gonsalves' farm from 6PM - 8PM each Wednesday, and is led by John Wallin. The beginning radio class is on Thursday nights from 6PM - 8PM, and taught by Larry Gonsalves. Jim Silva teaches radio cabinet restoration monthly on the third Saturday of each month from 10AM - 2PM before our CVC monthly meetings.

**Storage:** A building was constructed by club members at Gonsalves' farm to provide much needed storage space for documentation, radio projects and parts. ◇



Larry Gonsalves at the board.

# The 2012 Bay Area Radio Hall of Fame Inductees

by David Ferrell Jackson



Continuing from the front cover, here are brief biographies of the inductees:

**CHUCK WALTMAN** — He has served as chief engineer at more than two dozen stations during his career, at this point having installed nearly forty transmitters for Bay Area stations – including fifteen HD rigs. A Society of Broadcast Engineers Lifetime Certified Professional Engineer, he is currently chief engineer for Clear Channel’s group of stations in San Francisco.

**ALICE POTTER** — She parlayed an entry-level office job at Berkeley’s fledgling KPAT AM and FM into a spot as a copy-writer, finally convincing management to let her try sales. Showing strong ability as an account executive, her bosses eventually promoted her to sales manager, and then, in 1974, to the top spot as general manager of the stations (by then known again as KRE), becoming the first woman to manage a radio station in the market. She later managed another pioneering station, San Francisco’s KTSF (Channel 26), founded by Lillian Lincoln Howell. A renowned author and motivational speaker, Miss Potter penned the popular “Positive Thinker” series of books on the topic of personal potential.

**BOB MELROSE** — He had a stellar 36-year career as an editor and then reporter at San Francisco’s all-news KCBS, during which he earned a reputation as one of the most skilled and steadfast newsmen in the business. Career highlights include coverage of the Loma Prieta earthquake, the Oakland Hills fire and – in his own words – “court trials too numerous to mention.”

**STAN BURFORD** — Stan began his broadcasting career in 1961 at recently-launched KBCO (105.3 FM), a stepping stone to the big time at KSFO, then in its heyday as “The World’s Greatest Radio Station.” Burford earned a master’s degree in education and embarking on a variety of jobs in and out of radio – including two years in American Samoa. A notable stint as executive producer at KGO-TV followed before he signed on with top-rated KGO Radio in 1980 as traffic reporter and anchor, retiring in September 2012 as the dean of Bay Area trafficologists.

**TED ROBINSON** — One of the most familiar voices in sportscasting, the native of Rockville Centre, N.Y. and Notre Dame graduate is a true “man for all seasons,” calling play-by-play for not only baseball, football, tennis and basketball, but also for such exotics as white water kayak, short track speed skating and snowboard giant slalom. Behind the mike for both Giants and A’s baseball, as well as for the Mets and Twins. Voice of the 49ers on radio since 2009, becoming the eighth Niners voice to enter Bay Area Radio Hall of Fame. Broadcast his eighth Olympics with the 2012 summer games in London.

**KPO · KNBC · KNBR** — The 2012 Legendary Station Award recipient was born in April 1922 as KPO, launched by the Hale Bros. Department Store on Market Street in San Francisco. It became the local NBC outlet in 1927, beginning a nearly sixty-year affiliation with the network, which purchased it in 1932 and made it the hub of its programming operations on the West Coast. It moved to new NBC Radio City in 1942, then became KNBC in 1947 and KNBR in 1962. It maintained a popular music and personality format from the 1950s through the 1980s before transitioning to current status as the Bay Area’s powerhouse sports leader.

**TONY SALVADORE** — He helped re-shape stolid KFOG from its easy listening heritage to a more current rock format. Elevated to general manager of KFOG in December 1983, he led the station to ratings and financial success, then added management duties for co-owned KNBR, beginning its transition to prominence as the market’s undisputed sports leader. Later he also managed sister stations KTCT (The Ticket 1050, later KNBR 1050) and KSAN (107.7 The Bone). He served two terms as chairman of the board of the Northern California Broadcasters Association.

**SUSAN LEIGH TAYLOR** — She had noteworthy gigs at WHAS/Louisville, WLS/Chicago and Z100/New York. She fell in love with Northern California and made the move to the evening shift at K-101. A shift to talk radio at nascent KPIX-FM followed, leading to her 1997 move to all-news KCBS, where she currently co-anchors the morning-drive newscast alongside Stan Bunger.

**STEVEN SEAWEED** — The Weed Man got his musical education at the legendary Fillmore Auditorium and Winterland during the golden age of San Francisco rock. First spun a record on the air in 1972 at little KLRB in Carmel-by-the-Sea on the midnight shift, actually tracking all six sides of George Harrison’s Concert for Bangladesh LP. He advanced to San Francisco’s illustrious KSAN in the twilight of its “Jive 95” era, then moved to the equally legendary KFAT in Gilroy. Returned to San Francisco for thirteen years at KRQR (“The Rocker”) before becoming the proud occupant of the midday spot at the reborn KSAN (107.7 The Bone).

**GREG KIHN** — Greg moved to San Francisco in 1972 to pursue a career in music, hitting the top of the pop charts in the early 1980s as one of the premier acts of the “MTV Generation.” He began his radio career in 1996 on the night shift at San Jose’s Classic Rock 98.5 K-Fox (KUFX), moving to mornings a year later where he remained until September 2012. A 2007 inductee into the San Jose Rocks Hall of Fame, he is also a noted author, a tireless worker on behalf of local charity, and continues to perform regularly with the Greg Kihn Band.

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# A Conversation with Eleanor de Forest

by Mike Adams

Lee de Forest was more than just the “Father of Radio.” He was the father of four children and the husband to four wives. And while he enjoyed inventing success he led a complicated and tumultuous domestic life. In 1906 he married Lucille Sherdowne, a woman he courted by wireless (figure 1). There had to have been many misunderstandings in a relationship primarily consummated by dots and dashes, and this union lasted less than a year. While he was still married to Lucille he met and courted the woman who would be his second wife, Nora Stanton Blatch, a marriage initially based on a mutual love of music and poetry. Nora had a degree in civil engineering and was part of the famous suffragette family of Elizabeth Cady Stanton. She wanted equality in the marriage and de Forest being a traditional male of the early 20<sup>th</sup> Century believed a woman’s place was in the home. She bore him a child, Harriet, but by the time of her birth in 1909, that marriage was over. By 1912 he had met and courted and eventually married opera singer Mary Mayo. Between 1919 and 1926 he would have three children with Mary: Eleanor, Marilyn, and a boy, Lee Jr., who died at birth. (1)

**MADE LOVE BY WIRELESS.**

Dr. Lee De Forest, the inventor of the De Forest system of wireless telegraphy by which he won Miss Lucille Sherdowne for a bride, is in Europe, where he went March 3 on his wedding trip. Dr. De Forest lives at No. 315 West 97th street. Miss Sherdowne lived at No. 619 West 114th street. He placed an instrument in her home and sent wireless messages teeming with love, which resulted in their wedding.

Figure 1: Wireless courtship of first wife, Lucille Sherdowne



Figure 1: Announcement of marriage to second wife, Nora Stanton Blatch

Like with all things de Forest, this third marriage was far from perfect. A 1915 letter introduces the issue that within ten years will end their marriage, and that is Mary’s proclivity for the bottle. He is in France working on a radiotelephone installation, and he writes that he is worried about her, “I only hope I won’t lose you in some illness or smash-up in Virginia” He tells her that he knows she has suffered terribly, “But it will be all well atoned for, and compensated for, if as a result you will stay on the wagon, forever.” (2) He underlined the last five words. He is cautiously optimistic. Four years later the issue of Mary’s drinking will seem to subside, and they will move into a new home and their first child Eleanor will be born.



As a result of my de Forest research and the resulting book, I was fortunate to meet and interview the eldest of the surviving de Forest daughters, Eleanor de Forest Peck (Figure 3). Born in 1919, Eleanor was Lee de Forest's second child, but his first with third wife Mary Mayo. Eleanor was born into relative affluence and spent the first seven years of her life at the de Forest "dream house," the one her father called Riverlure (Figure 4). This opulent house on the Hudson River overlooked the area called Spuyten Duyvil or the devils spout, known for its dangerous confluence of waters. It was here that the de Forest family had a half decade of togetherness and normal family life, including the birth of three children. Between 1919 and 1926 de Forest's dream for radio broadcasting became a reality, he was able to legally sell his tubes again, and it was while living here that he invented and patented his system for sound-on-film, one he called Phonofilm. It should have been the best of times.

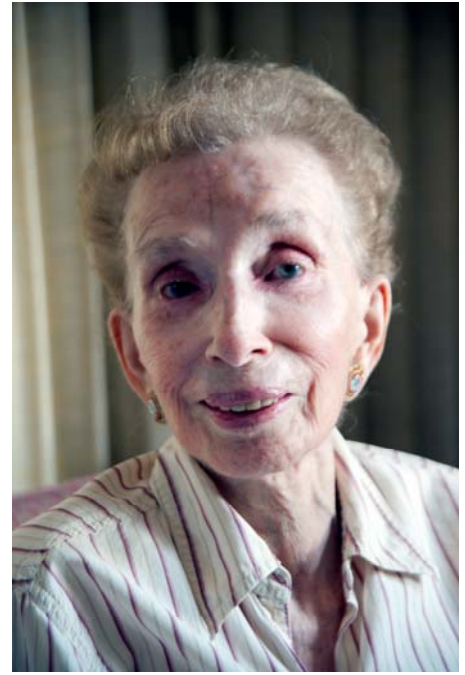


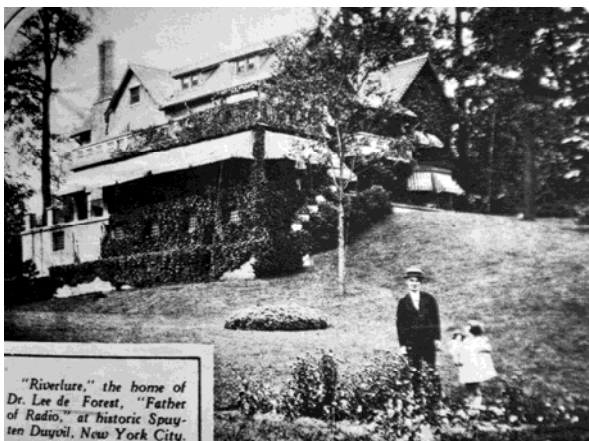
Figure 3: Eleanor de Forest Peck in 2012

Father and daughter were close, as evidenced by the de Forest diary entries and corroborated by the recollections of Eleanor. Wrote de Forest in 1920 about his one year old: "Eleanor is taking steps alone. Today she walked 4 feet without a 'helping hand.' Her little toddling, faltering footsteps, her tightly clenching fist, grasping support, her upturned eyes, so large, so blue, so trustfully smiling; her cheery 'shee' meaning 'Lee?' fitting the occasion or not – all these heart joys for me!" (3) It was not until the publication of my book, *Lee de Forest, King of Radio, Television, and Film* (Springer Science, NY, 2012) that I began to receive letters from those de Forest children I thought deceased. Daughter Marilyn, born in 1924, exchanged one letter through a great grandchild, but she did not want to meet or be interviewed. Eleanor welcomed me and a video camera into her home. I brought her a copy of the book, photos of her as a toddler, pictures of her house, and a page of quotes from dad's diary. She is physically frail but sharp of mind. She lived with Lee and Mary during the first seven years of her life and kept in touch with him until his death in Los Angeles on July 1, 1961.

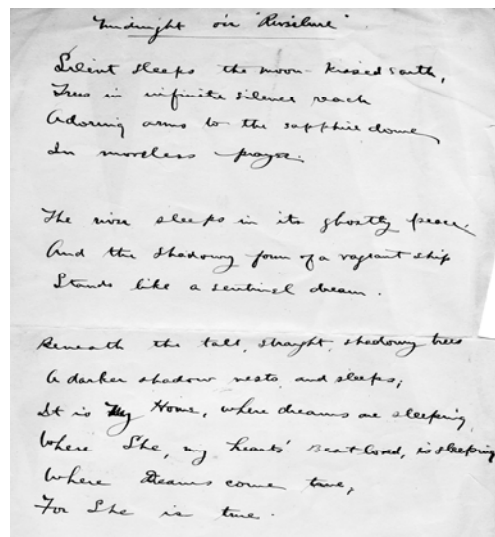
I learned that Eleanor and Lee de Forest had a special bond, and even though the public record indicates the senior de Forest to have been irascible, crotchety, and erratic in business and personal life, she only has positive feelings about him. From his diary, a happy home life is evident, however ephemeral: "For a wonder, bright sunny after days of NY rains.

Figure 4: Riverlure

(photo and poem from the Perham de Forest papers, History San Jose)



Riverlure, the house where de Forest and third wife Mary Mayo began their family. Then and today, it would have been prized real estate, overlooking the Hudson River. In the foreground is Lee and daughter Eleanor.



De Forest's handwritten original of "Midnight in Riverlure," one of the hundreds of poems he wrote, this one an ode to his house on the Hudson River.

Eleanor is in her carriage, smiling joyously, the music of the bird song is pouring joyously from the phonograph in the living room, as clear as the original. Flowers, like an echo, from above the voice of my Mary. A rare hour of rest and peace and happiness, dotted by long drab lines of gloomy weather and endless recurring postponement. My eyes are gradually failing me – after all these years of study and constant use. Far sightedness is increasing (may it be seasonal as well as optical!). Soon, I fear, glasses (spectacles) will be necessary for reading. But at least I have the day to make acquaintance of my daughter, Eleanor without these disfigurements.” (4) This is the soft side of Lee de Forest, one he tries to minimize, but it is there.

What follows is the partial and edited transcript of our video conversation, recorded in July, 2012. She introduces herself as Eleanor de Forest Peck, having married an electrical engineer named Peck in 1949. She believes that during her important formative years of birth through age 6, her father only had eyes for her. And science. She summarizes:

ELEANOR: “Hi, my name is Eleanor de Forest Peck and a very nice gentleman has come here to get some information for you about my father and my life with him. Well I remember always having been very close to my father as long as we were together as a family and always afterwards. Always we were very close; we were kind of special.

From Eleanor we get the very personal side of Lee de Forest, and we also sense an athleticism about de Forest, something that is evidenced by reading the de Forest diary, and from the photo record. He prided himself on staying in shape, and there are many references to climbing mountains in New York and California, hiking in Palo Alto, and walks through the woods surrounding Riverlure. Sunday was hiking day:

ELEANOR: “And I saw him almost every Sunday because he took at least a 12 hour hike every Sunday. He was a very physical person; strong and slender (Figure 6). And I’m sure you know about his having climbed Mount Whitney... a famous mountain. But he kept himself in very good physical shape. That was primary with him. You know that was dear of him. He couldn’t wait to go hiking, but he had to sit there and read all those darn funnies because he knew I loved the funnies. I mean that’s the kind of father he was. So after...and I’d sit there and think, “I wish my legs were as long as daddy’s.” That’s all I could think. [Laughs] And then he took off for probably 10 hours of hiking around...around there and that’s about it.”

Sunday was their day. What I learned from my conversation with Eleanor and the de Forest diaries was that during the years the family was intact and lived on the Hudson, 1919-1927, were remarkably happy for de Forest the person. But what the diaries also reveal is that swirling around him was the invention of Phonofilm, patent troubles with the Audion, his role in radio, all of it leading to long hours in the lab and the courtroom. His respite from all that activity was home and his daughter Eleanor. Here you get some idea of the de Forest lifestyle, and how much money he had:

ELEANOR: “So he wasn’t home a lot. I always had breakfast with him; that was exclusive. And then Sundays he would take some time with me and my sister. We’d go out for little walks. There was a limousine, a Rolls-Royce and a chauffeur sitting in the garage. He walks. [Laughs] No kidding. My mother used to have fits about that. The garage had a turntable which held



Figure 5: Eleanor at age 5 in a newspaper portrait. (From the Seaver Center de Forest collection, Los Angeles County Natural History Museum).



Figure 6: Lee de Forest, third from left, reaches the summit. (Perham Collection, History San Jose)

five cars so if the chauffeur wanted to do some repairs, he'd just push...[laughs]. And he (de Forest) was, according to my mother and all agreed, the world's worst car driver. I mean you just prayed a lot when he was driving. I mean he was... he just lived life so fully. Coming down from the mountains above Riverside one time, I think I was the most terrified I've ever been in my life. So you just kind of hugged your head and prayed a lot that you'd get there. [Laughs] He was reckless in a car."

One thing de Forest did for his daughter was provide a certain ritual during those few hours he was not working. There is mention in the diaries about how wife Mary (figure 8) stayed in bed much of the day and was waited on by servants while Lee tried to give Eleanor some early morning quality time. Mary was a serious drinker, Lee was a teetotaler:

I asked Eleanor about Mary: "Maybe I shouldn't ask this kind of personal question, but did they argue; Mary and Lee? Did you notice there was a tension between them, or...?"

ELEANOR: "Well I don't think so. Because usually by the time I was... they were downstairs in the living room by the time we kids were in bed upstairs. You see my mother didn't get out of bed until noon. Oh yeah. She had the coffee and the New York Times every morning until noon. My mother was an alcoholic. And that can make life hell. You know and he endured...oh...it's tragic. So I was his breakfast companion and that's kind of pretty awful."

You get the idea that while de Forest was often gone most of the day and night at the lab, and wife Mary was mostly in bed, it was Lee that tried to hold his little family together:

ELEANOR "I think his whole life was probably...well he was conservative politically and conservative in many ways as far as behavior goes and mannerisms and we were very close. Well those are just little intimates. He had a picture, a lovely photograph, of his mother over his bed always."

The de Forest diary reveals the bifurcated life of a full time inventor and part time husband and parent, as he recalls the beauty of a walk along the Hudson: "I took my first walk with my little daughter – hand on my fingers – toddling footsteps and big wondering eyes. Eleanor now kisses Daddy. As the time for separation dawns on, her hood on my heart quickens, grows deeper with each new days developments. Mary too is suddenly given to much thought back to those good old days at the little Palo Alto lab and down by the beach station, where for the last time I was a youth alive with youth's illusions and desires and aspirations, thoughts and hopes."

And: "We ate lunch and crossed the Hudson for a long lonely hike up the river road, down the waterfall gulch back by the margin path. What glories of early Autumn – a sky without a cloud, air like crystal, river like sapphire, woods in fullest living of green – tall pinnacles of the palisades towering above the crowding tree tops against the azure eaves of heaven." (5)



Figure 7: Happier times, Eleanor with Mary and Lee, circa 1923. (Perham Collection, History San Jose)



Figure 8: A younger Mary Mayo. (Perham Collection, History San Jose)



Figure 9: Lee's mother seated with photo of son. (Seaver Center)

But despite his obvious opulent life style there were problems, mostly about the money that Mary seems to require to support the household: “There I could have done very little on my film – for Mary and baby would have eaten up all of the \$14,000 yearly that I have saved. I find that I’ve spent \$36,000 in 22 months.” (In 2013 dollars would be about \$414,000 — Imagine!) But while he does get some respite from work, he is living two disparate lives, one as an inventor, the other a husband and father. The two are often in collision (figure 10): “Worked until 3 today at my lab – then to Mamas, where Mary and Fuzzy Eleanor were. At last now, even in my once yearning life, a little toddler goes to the door each morning to see me off and calls so cheerfully, ‘Goo Bye.’ But my soul is encrusted with toil – the mind cells are poisoned with this cursed zeal for work, to solve my problem, and grasp the reward.” For a diversion and to test his technology he makes home movies with his new camera: “I filmed Eleanor for 180 ft of film with the factory movie camera – my first attempt at ‘camera man,’ eating her lunch, riding on her kitty horse, and in the fountain clad in her one piece.” (6)

When Eleanor was five years old another daughter was born to Lee and Mary. They named her Marilyn and de Forest wrote this in his diary: “I am pleased to be the father of two lovely little daughters. How natural it seems now to be such. Yet one week ago I could not by any stretch of the imagination picture myself to be here, nor possibly to be content with this outcome. And for months past Mary has respectfully declared she did not want this baby – that ‘I could have him!’ How she would forfeit her life rather than have harm befall the tiny stranger. What a mothers’ heart is here!” Mary, having taken a post-birth cruise returns, “Mary, my beloved wife, now speeding on the sea back to me and your babies – tonight I have re-read all your old letters of love, yours and mine to you. Tonight my heart throbs anew with that old love and adoration – deepened by the realization of all those far, far dreams – intensified beyond all need of words, with a depth, and measurably beyond expression, by the two darling daughters asleep in their rooms. Come back to me, my sweetheart, beloved and longing as of old – Let us renew those fervent vows, and re-live, with a deeper happiness of heart’s devotion, those first dear days of our love. Let us live again.” And the joy of Christmas: “happiest of Xmas [his spelling] since I was a lad in Talledega –made so by my two sweet little daughters – for the first time gathered together about our Xmas tree. What joy to watch their joy. O joy of parenthood!” (7) At 50 years of age Lee de Forest is trying to keep his life and family together. But you already know you are in trouble when you want to renew your vows!

ELEANOR: “I didn’t like my baby sister; I took to fighting her. Yeah, I understand kids do that if they’re jealous of the newcomer.”

A year later Mary is pregnant and expecting the third de Forest child. Lee is hoping for a son. He has spent a painful five years and most of the profit from the sale of his radio company on Phonofilm, a venture that he still believes promising even though it is not yet close to profitable. And while de Forest works hard in the lab and the studio, he tries to be supportive of Mary, now in her final month of pregnancy: “My Mary has concluded

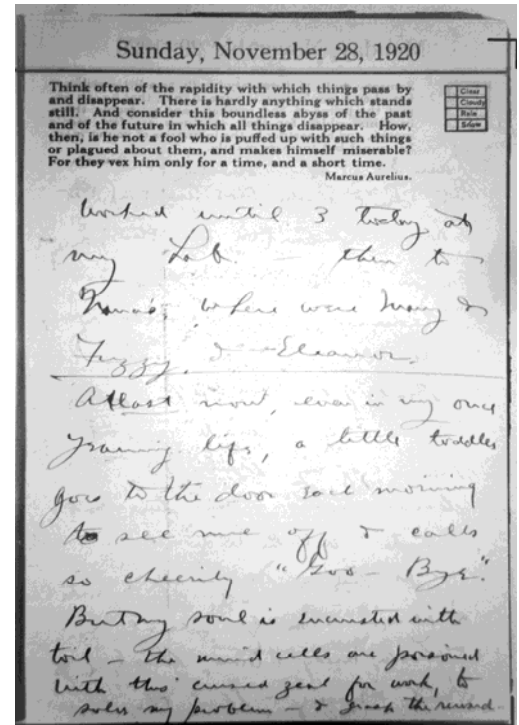


Figure 10: This de Forest diary page reveals a complex person, seemingly fighting with himself to have family time and to be famous. (Perham Collection, History San Jose)



Figure 11: Eleanor, age 5, with mother Mary. In spite of the adoring pose, the two were never close. (Perham Collection, History San Jose)

another hard week – she looks wan and thin, is becoming frailer day by day. Dr Telfair is quite puzzled by her condition and today brought in another specialist. May the long expected event occur soon, I fear she needs her strength necessary for the ordeal.” Her “condition,” as feared by de Forest and the doctor, is alcohol, and while Lee was in the lab producing little Phonofilm pictures and courting the press, Mary was at home in bed dealing with a difficult pregnancy, apparently using her own “medicine.”

Joy and Sorrow: “To us a son was born! He appeared to be a fine perfect body of 8 ½ lbs., well-formed, fat, a fine-shaped head, good nose, a pretty chin – he showed the de Forest upper lip. He should prove to be strong and healthy judging from all exteriors. But alas, the little fellow passed peacefully away at midnight of the 17<sup>th</sup> – only 2 days old. I was summoned formally while the doctor was also called, I stood by aghast and helpless, while the two nurses worked feverishly hard, hypodermics and manipulation. It was all futile and all helpless. The doctor said it was a Thymic condition, an enlarged and poisonous gland. Unquestionably, it all came from the poisonous alcohol which his mother had taken throughout pregnancy, specifically during the last few days. Another innocent victim. I had already named him ‘Lee de Forest Jr.’ But it is a cruel blow to me, after waiting and hoping all these years for a son! . . . How great the loss I’ll never realize. I had for years dreams of an heir, my son. These dead hopes had only recently become re-awakened. So now I can steel my heart to bury him once more, in the little casket.” (8)

Following the death of her baby Mary became hysterical, then morose, and the doctor remained concerned over her condition. But almost-father-of-a-son Lee is more concerned about the boy he would not have, now a little depressed himself: “Like a little aviator, this baby flashed across our heaven – then vanished, leaving only a fleeting memory, trailed with grief. The sky is blacker for the brightness is gone.” It is now three weeks later and Mary is still suffering: “Mothers’ Day. My Mary had three roses given her, one for each of the children – one little bud for ‘little brother’ who faded so sadly soon. She weeps a great deal these spring days. Her heart is so heavy. It is but natural that one who is so fond of little children, of all living things, as she always has been, would be heart broken beyond the measure of many mothers, one of her own children in death.” He reflects on the sad condition of life at Riverlure: “What measureless pity that the little flower which blossomed into our springtime two big weeks ago should have faded so suddenly away. How gloriously glad would have been springtime had our baby boy lived! Poor Mary looks so sad and wan as a gaunt Madonna. A new sweet beauty looms on her pale face – an unexplainable tenderness in her wide eyes – dulled with weeping.” (9) He suggests that the family might recover sooner if they leave the house of tragedy and take a cruise, but the problems with Mary go far beyond the death of their child. They are not a happy couple. The love is gone and soon it will be the end of Mary as wife number three.

So by the mid-1920s there were two daughters and little peace in the de Forest home. Problems with Phonofilm, problems with Mary’s drinking, the son that never would be, love lost again, and while Lee and Mary attempted to bring closure to their life together the children were shipped off to a convent for extended child care.

ELEANOR: “Oh our mother...she spent a lot of time as a young girl in a convent. We were not Catholic. And it was a handy place to put kids you didn’t want to have around; that’s the way I saw it. Yeah, we both spent time in convents. I spent a lot of time; more than my sister. Thank goodness, because... You know you’re with strangers all the time. It’s not a home setting. It’s... I always thought of it as far as my mother was...was... it was a way to get the kids out of the way. She was not a motherly mother. I was not close to my mother. We didn’t have a lot in common; let me put it that way.”

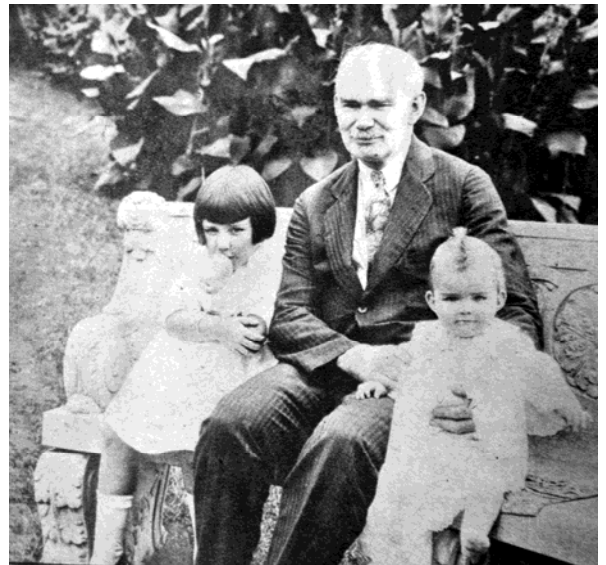


Figure 12: Happier times in the de Forest family. Lee and two children, Eleanor and Marylyn, circa 1925, a year before the death of their third child.

(Perham Collection, History San Jose)

A year after the death of the de Forest son the little family was split apart, especially hard on Eleanor after such a solid childhood:

ELEANOR: “And that’s when my father left. Apparently her drinking as excessively as she did kill the fetus. I had a nursemaid we’d had for years and my father wrote to my mother about that. And she gave it to the nursemaid we had for years and she showed it to me. So that’s...so when that happened...when the drinking... Who wouldn’t leave? It would be hard to stay. So that was what took my father away from me.”

After the breakup in 1927, Eleanor and Marilyn spent time in convents, schools and other apparently enriching educational venues. Since Marilyn did not live with her father after about the age of two, you can understand how the family experiences of Eleanor and Marilyn were very different – Eleanor had bonded with her father while Marilyn did not. Later Eleanor spent time with Lee and his new wife Marie who were married in 1930 (figure 13). Eleanor recalls what it was like later with Lee and Marie:

ELEANOR: “I was not close to my mother. We didn’t have a lot in common; let me put it that way. My father and I had it and when I lost him, I mean when he went out on the road, it was awful. I just... so when I was 16 years old, he came back and got me from Briarcliff; didn’t tell my mother who was [inaudible] and brought me out to my stepmother and their home in Hollywood. But living with a stepmother isn’t easy either; although, she was a wonderful, wonderful woman.”

Mary Mayo died in the 1950s, and while the facts are not well known, she perished in a house fire and alcohol may have contributed to her not being able to escape the flames. Not much is known but Lee did talk to his daughters:

ELEANOR: “I don’t know, it was messy. It...she was an alcoholic and apparently what happened was...oh she fell asleep smoking and so that burned the house and burned her and that was just a mess. Just a mess. And the LA Times called us early in the morning to tell us or talk to us, to inform us; we had no idea that that’s what had happened and that was... And I’ll never forget my father, god love him. We went up to his house...I don’t know if my stepmother called us or if the paper called us, but anyway, we got up to my father’s house right away to inform him. We knew it would be quite a blow. He was old and I’ll never forget walking back from his house as we left and he’s just shaking his head. You could see it still hurt, you know?”

Eleanor remembers her father’s late-in-life opinion of her mother Mary:

ELEANOR: “But he once said to me in his house, I don’t know, but he said, ‘I don’t want you or your sister ever saying anything against your mother.’ That’s the kind of man he was. And there was plenty to say, believe me. That was his character. You know? So... In spite of all the unhappiness she had caused him and the years, but it’s too bad. Beautiful home, 2 nice kids, everything going and just to let that...something like that go... But those things happen. You know you just have to get through them.

Eleanor did keep in touch with her father until his death. In the 1940s both lived in California, Lee in Los Angeles, Eleanor in Berkeley where she worked for the Physics Department at the University of California. She tells this story about de Forest’s visit to her department and faculty:

ELEANOR: “So this guy comes in and he was one of the engineers working for my professor and I said, ‘He’s my father.’ Oh my god! He turned on his heel, went down the hall to the rest of the gang of Prof Boss’s group... And oh my god, they went crazy. So at that time in Berkeley there was a new fangled invention, I can’t remember; it was a dark secret. And only my professor and his group worked on this and well they all came back



Figure 13: Silent film star Marie Mosquini, de Forest, wife number four.

(Perham Collection, History San Jose)

remember; it was a dark secret. And only my professor and his group worked on this and well they all came back you know and, 'She's his daughter,' you know? Well it just so happened it was the end of the school session, the spring, and my father was going to...they were going to drive to Chicago. They always drove back and forth. So daddy on the way home to Chicago from home in Hollywood was going to stop in Berkeley to see me. Well the word got out [laughs]. Could they, would they, would Dr. de Forest honor them with his presence? They would show him this contraption, whatever it was. Well you know he comes along in jeans and [inaudible]. The whole department of physics turns out that weekend. The head of the department and all the...and they all went...and that included me. [Laughs] I brought up the rear. They took him to see this golden ball thing; I've forgotten what it was called. It was newly being invented and only these certain ones in the physics department were permitted to see it. Well, of course, they'd heard that Lee de Forest was coming right away. Even I got to see it. [Laughs] Oh yeah, the whole physics... I guess the whole physics department turned out Saturday morning." This was late 1940s, early 1950s.



Figure 14: Lee and Eleanor, 1950s, from Eleanor de Forest Peck.

She tells of a story of the de Forest portrait in the Santa Monica library. This would have been in the 1950s, and when I lived in Venice near Santa Monica in the 1970s I did visit that library but I admit I didn't pay attention to the wall decorations so I don't know if the portrait was still hanging there:

ELEANOR: "Daddy called me and said, 'Let's go to the Santa Monica Library.' I lived in Santa Monica. Well I hadn't been there in years and so he wanted to go so I said, 'Fine.' So he came down from Hollywood, picked me up, and we went to the Santa Monica library. And as we walked in the very large round lobby, it was beautiful, here were two famous pictures on the wall; paintings. One was Lee de Forest, the other was Edgar Allen Poe; his favorite poet. And when he saw that, he says, 'Oh my god, my favorite; Edgar Allen Poe. I'm with Edgar Allen Poe.' He just went bananas to think he would be in the same class. And there was a young woman standing there, just an observer, and she was looking. And she'd look. [Inaudible] And he said, 'Yes, that's me.' [Laughs] That was such a delicious moment. I had no idea; I never went to the library in Santa Monica. I went to the one in Brentwood. I had no idea. I don't know...somebody must have called him or asked him if he could do a painting of him and hang it in the library lobby. Well that was fine but when he saw Edgar Allen Poe, he just went crazy. He just so admired and loved...oh he could quote poetry by the yard. And Edgar Allen Poe; My favorite poet. That just stunned him. That's how modest he was."

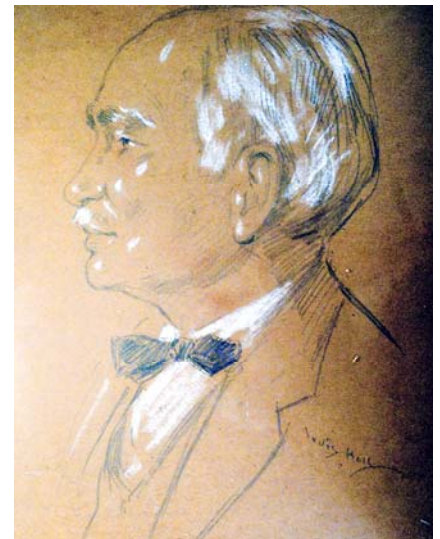


Figure 15: A drawing of Lee. (Perham Collection, History San Jose)

Eleanor was the only one of the de Forest children to spend time with her dad and his fourth and final wife and she muses about her dad's life with Marie:

ELEANOR: "She was so...so in love with him, the best thing that ever happened to him. So we lost touch (with Marie) and I'm sure she's buried next to him, you know? I hope so; I don't really know what happened. She then took off and went up into the mountains to live for a while and we lost touch. You know stepdaughter/stepmother; it wasn't my leaving because I have this very fond memory. I thought she was... I was so happy that he had her, oh! She just lived for him. She made a beautiful home, she was a beautiful woman, and his wish was her every command, you know? Talk about devoted wife; that was... I was so happy he had her. But always over his bed was his mother's picture you know which is nice."

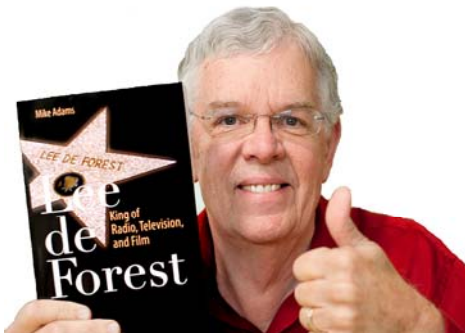
“And I was talking to a psychologist I know one time, we were chit-chatting back and forth and talking about my dad and I said, ‘You know...’ Once when he...he took to his bed 3 years before he died. I mean he couldn’t see; he couldn’t hear. So he just took to his bed and he was there every day and he had a male nurse come every day. But one day... as every Sunday I sat by his bedside. And he didn’t turn. He was always up to here with his sheet. He said, ‘How your grandfather would have loved you.’ And when I told that to the psychologist I knew, the way he put it was...he says... ‘That was gold.’ ‘That was a real treasure to have.’ Because as far as I knew, he was lying there unconscious. he didn’t move his head, he just said, ‘How your grandfather would have loved you.’ I think the psychologist said, ‘That was a jewel.’”



Figure 16: Lee and Marie in his old age.  
(Perham Collection, History San Jose)

I asked Eleanor for a summary to our interview:

ELEANOR: “I would like those who hear about my father, Lee de Forest, to know that he was a very humble man. Not at all into himself or fame, but dedicated to his family and to his work as a scientist. And very modest, very modest. He had many wonderful honors; all kinds of wonderful things. But one of his greatest joys was just hiking every Sunday with a ... stick. And that’s what I have to say about Lee de Forest. Thank you.”



Mike Adams has been a radio personality and a film maker. Currently he is a professor of radio, television, and film at San Jose State University, where he has been a department chair and is now serving as the Associate Dean of the College of Humanities and the Arts. In addition to his work at San Jose State, Adams continues to teach classes at the Shanghai Theatre Academy School of Television and Film. As a researcher and writer of broadcast and early technology history, he created two award-winning documentaries for PBS, the Emmy-nominated “Radio Collector,” and “Broadcasting’s Forgotten Father.” Mike is the Board Chair of the California Historical Radio Society. For his service to historical radio research and publication he received the AWA Houck Award, the SCARS President’s Award, the TCA

Stokes Award, the Ralph Batcher Award from the Radio Club of America, and he was named a CHRS History Fellow. He has had published numerous articles and four books, including *Charles Herrold, Inventor of Radio Broadcasting*, 2003, McFarland, and *Lee de Forest, King of Radio, Television, and Film*, Springer Science, 2012.

## END NOTES

1. From the de Forest biographies from Georgette Carneal, James Hijiya, William Arvin, and the de Forest autobiography, *Father of Radio*, and from the newspaper record.
2. Letter from de Forest in France to wife Mary in New York, 1915, Perham de Forest papers
3. De Forest diary, Sep 18<sup>th</sup> 1920, Perham de Forest papers
4. De Forest diary, Apr 24<sup>th</sup>, 1921, Perham de Forest papers
5. Ibid.
6. De Forest diary, June 11, 1921, Perham de Forest papers
7. De Forest diary, December 25 1925, Perham de Forest papers
8. De Forest diary, April 15, 1926, Perham de Forest papers
9. Ibid.





# OUR MAN IN SHANGHAI – from Secret Agent to Sutro Tower

By Bart Lee, K6VK

The late Alex V. Cattell (1919 – 1992) enjoyed his membership in California Historical Radio Society in his retirement. His career, after his World War Two adventures in Shanghai, culminated as Chief Engineer at San Francisco's KRON – TV.

Alex Cattell was born Alexy Wladislaw Katyll on December 7, 1919 in "Haibin," (probably Harbin, Manchuria) China, according to U.S. immigration records. Author Greg Leck believes that Cattell was born in Eastern Poland, as was his wife Joanna. (Leck learned about Cattell's work in Shanghai in connection with his 2006 book: *Captives of Empire: The Japanese Internment of Allied Civilians in China, 1941-1945*, and ongoing research.)

According to Cattell's son-in-law, Warren Albon, Alex Cattell's first radio work started in his twenties, as a Russian refugee working his way through school in Harbin, China. He built radio receivers for ship to shore work. He was about 18 in 1936 studying at Harbin's Polytechnical University.

The July 1934 edition of the *Shanghai Dollar Directory* lists only five radio stations: XHHF, XHHS, XHHV, XLHB and XMHA, in Shanghai's International Settlement, according to researcher Paul Christopher of USC. A number of other stations joined the radio fray as the war approached and eventually reached Shanghai. Cattell joined XMHA in 1938. He rose to Chief Engineer of this "Blue Network" (NBC) overseas affiliate, according to Albon. The Shanghai Dollar Directory for January, 1941 so lists Alex Cattell, along with the six other staff members, and notes its motto: "The Call of the Orient." It operated on 600 KHz in the medium wave broadcast band. XMHA also operated in the short wave bands on 25 meters at 11.860 MHz and 11.910 MHz. Cattell built XMHA's five kilowatt shortwave transmitter. XMHA's programming is noted in Jerry Berg's short wave radio history as entertaining and dramatic, especially Carroll Alcott raking the Axis powers over the coals three times a day (ON THE SHORT WAVES, 1923 -1945 (McFarland, 1999), at page 91). Alcott got out of Shanghai just before Pearl Harbor, according to Leck.

An image of the XMHA 1939 QSL card (figure 1) is from Jerry Berg's book – the cartoon on the card is a musical trio looking like the kind of ensemble that produces the cacophonous, maybe traditional, never-ending folk music that may be heard on many local Chinese shortwave stations to this day.

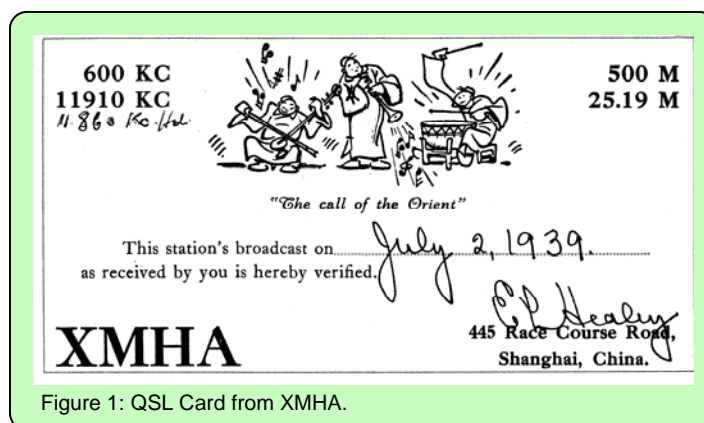


Figure 1: QSL Card from XMHA.

A colleague of Cattell at the station, the manager E.L. [Earnest Le Roy] Healey, signed the card. After the war reached Shanghai, Cattell, according to Leck, stayed on at XMHA at Healey's direction working with him to gather military intelligence on the Japanese and to interfere with Japanese broadcasts. They worked together under Major Gregon Williams, USMC, associated with the U.S. Naval Attaché. Healey worked as a civilian for the Office of Naval Intelligence. He reported to Major Williams.

Cattell built a large radio transmitting and receiving station for Healy in his home in Shanghai, according to Leck. Healey's daughter recalls him sitting, for hours, listening with headphones to the huge radio set he had had constructed in a pantry. Cattell built the radio with Navy-supplied components. The set was used not only by Healey for listening, but by the U.S. Navy attaché in Shanghai for sending outgoing message traffic, Healey operating it. Its clandestine circuits supplemented the regular channels utilized by the Navy attaché.

After the Japanese occupation, the Japanese Navy took over XMHA during the war. Cattell escaped to the Philippines, then to Australia, according to Albon. Leck believes he stayed in Shanghai. He did help restore XMHA after the war. The OSS sent missions into China for POW rescue and the like; one to Shanghai was called "Sparrow" in August, 1945. Cattell returned to XMHA in Shanghai in connection with this operation, according to Leck. A photo (figure 2) shows Cattell among the XMHA station personnel when it was an Armed Forces Radio Network station in 1945-'46 -- Cattell is fourth from the right (the photo comes from his estate).



Figure 2: XMHA staff in 1946. Alex Cattell is fourth from the right wearing a suit.

Cattell came to America in 1946 when the Chinese government took over the XMHA radio station. He arrived in San Francisco on July 18, 1946, according to an official passenger list for the port. Congress granted him American citizenship in 1949 or shortly thereafter, a rare honor showing considerable gratitude for his wartime work.

In San Francisco, Cattell was active in the Russian Church, a yachtsman and photographer, as well as a radioman. He played a significant role in the Sutro Tower antennae tower design and construction for KRON-TV (figure 3). Cattell not only encouraged the professional careers of KRON staff, he also sponsored a chess club (he was a Master) and fostered in the staff various personal interests such as music and high-fidelity audio. He was to his many friends at KRON a warm and decent man. People like KRON engineer Don Sharp have spoken especially highly of him. Alex Cattell died in 1992.

Cattell's adventures in Shanghai illustrate that before, during and after World War Two, that city was the proverbial hotbed of international intrigue. Cattell had been in the middle of it. To give a perspective of the type of environment in which Cattell had to operate, the following gives a brief sketch of Shanghai broadcasting during this time. A book by Bernard Wasserstein, *SECRET WAR IN SHANGHAI* (New York, Houghton, Mifflin, 1999) tells this amazing story in great and sometimes gory detail. An important aspect of Shanghai's pathology was its radio industry, full of propagandists for

every cause and nation, a good many of them outright traitors and spies. The British, before the war, owned XMHA and XCDN; the French station had French-sounding call letters FFZ; the Japanese ran XQHA; the Russian's had XRVN, and the Italians operated XIRS.

Inasmuch as the German station got the call letters XGRS, one wonders if the call signs were abbreviations, *e.g.*, "Italian Radio Station" and "German Radio Station." At this remove, there is no clue who assigned call signs or how. Perhaps, station operators simply chose their own. In any event, there were fully 40 Shanghai radio stations, broadcasting often at high power, in many languages (page 66). The British after 1941 financed in Shanghai a Soviet radio station broadcasting propaganda inimical to the German war effort, even after the Japanese occupation (109).

The German propaganda radio station, XGRS, was the most powerful in the Far East (67). Upon the German surrender in 1945, the Japanese took it over for more propaganda broadcasting by turncoats and traitors (261) along with a companion station, call letters XGOO. XMHA was operated by the Japanese Navy during the war (175).

The British, Japanese and Chinese all listened to each other's wireless traffic (29). As early as 1928, the American Navy had a listening post in the Shanghai consulate, manned by Marines and commanded by then Captain Zacharias (other sources report). During the war, German intercept stations copied and decrypted enormous amounts of American military traffic, sometimes as much as 2,000 messages a day. Many were sent in the clear, posing no challenge at all beyond tuning the dials. (227). The Nazi *Abwehr* spies were very happy campers. The Nazis in the Far East even intercepted the wireless traffic of their ally, Japan (53).

At least one wireless spy, James H. Smart, worked for the British as the head of their monitoring and intercept operations in Shanghai. After the occupation, but with British connivance, he set up the same system for the conquering Japanese (161). He then left his 17-year-old Russian stepson in charge, as a British agent, who later went to work for the Japanese in the Philippines (252).

Another real hero of the whole war in Shanghai was the British radio operator Petty Officer Jim Cuming, on the captured gunboat *HMS Peterel*. Cuming managed to escape capture and stay at large in occupied Shanghai. He then, on his own initiative, set up a secret communications spy and sabotage network in occupied China for the duration of the war (195). By 1943 the British had at least one other clandestine radio network of some 20 stations operating in the service of espionage and sabotage (212).

The wretched truth was, however, that any self-respecting spy in Shanghai had to be up before dawn to listen to his short wave set for news from Moscow, Honolulu, San Francisco (KGEI) and London, before heading off for the usual day of conspiracy, betrayal and sometimes murder (113). The ether rang with the sounds of war in Shanghai from the Japanese invasions of Manchuria in 1931, to the Rape of (nearby) Nanking 1937, to the end of the Chinese Revolution in 1949. The communists cleaned out the old Shanghai with the success of the People's Revolution. Oddly enough, Shanghai is once again the chief cosmopolitan center in China.

Alex Cattrell's noteworthy career did indeed span very interesting, challenging, and innovative times.

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I am grateful to Greg Leck and Paul Christopher, who have been quite independently interested in those colorful days in Shanghai radio, for a stimulating and fact-filled correspondence which has made this revision of my earlier article worthwhile (I hope).

73 de Bart Lee, K6VK, Fellow of the California Historical Radio Society in History. Copyright Bart Lee, 1994 and 2013. ◇



Figure 3: Cattell had a significant role in the design of the Sutro Tower antenna for KRON-TV. (Photo from the Sutro Tower website).

## Wood Cabinet Refinishing Techniques

by Jim Bradt

I have received many requests regarding wood radio refinishing. I hope the articles in this and the next journal will be helpful. If you have any questions, please let me know. I am at CHRS for most workdays.

In any discussion of refinishing a radio cabinet, the question “how was it originally finished?” will soon be asked. The following article, taken from the February 1934 issue of the *The Scott News*, describes the process used in finishing a EH Scott radio cabinet. Scott contracted to The Rockford Peerless Furniture Company for their cabinets and they were built much like a piece of furniture. This was beyond the practicality of a mass produced radio; however, we are given an insight as to the materials and techniques available in 1934. Other manufactures of high-end radios probably adapted similar procedures.

Jim Bradt



The technique used in the construction and finishing of a Scott Custom Built Console follows an entirely different procedure to that employed in cabinets supplied with the regular commercial type of receiver.

The quality built into a Scott Console starts first with the woods and veneers, all of which are carefully selected. The men who build Scott Consoles are skilled furniture craftsmen in every sense of the word. All joints, dovetailing and veneering are made with the highest quality animal glue. Instead of the cheaper vegetable or casing glues used on the cheaper grades of furniture which cost many times less than that of the best quality animal glue.

So that the beautiful finish of a Scott Console will remain unaltered by moisture or dampness during its years of service, the wood used is first given a special treatment with a secret process which makes the wood practically impervious to moisture. The real finishing of the cabinet commences by carefully sanding it with very fine sandpaper.

Where a console is to receive a dark finish, it is given a coat of water (not the cheaper oil) stain. When the stain is perfectly dry, a coat of filler is applied, after which the whole console is again carefully sanded.

The console now goes thru a drying period for several days, after which it is primed with three coats of pure white shellac, again being carefully sanded between each coat. After receiving these priming coats of shellac, the cabinet is again set aside for several days to allow these coats to dry thoroughly.

The priming thoroughly dried, the console is next given four coats of high quality clear lacquer, each coat being allowed to dry thoroughly. When the console receives the third coat of lacquer, it is first rubbed down with very fine pumice stone and oil, after which it is cleaned, then the fourth and final coat of lacquer is applied, after which it is again carefully rubbed down with pumice stone and oil, and given its final rubbing and polishing by an expert finisher. The result is a finish that will retain its luster and charm for many years to come. It is this finish that accounts for the smooth glass-like surface on a Scott Console, as compared to the dull, comparatively rough surface on the consoles supplied with the regular commercial type of receivers.

We believe we are not telling any secrets when we describe the finishing process on the consoles supplied with the regular commercial type receivers. They are first dipped in a bath of oil stain, then given one coat of shellac, and finally one coat of lacquer, after which they are ready for shipment to the customer.

◇

## Basic Wood Radio Cabinet Refinishing \*

© by Eric Stenberg

This second fine article details the total restoration of a wood radio using lacquering techniques. The techniques Eric describes can be selectively applied depending on need. Many radios may be in suitable enough condition that only a thorough cleaning or partial restoration is needed. — Jim Bradt

A great thing about a hobby involving antique radios is the many aspects that can hold your interest. To people on the “outside” we may be just another bunch of wacko collectors. But to those of us in the know, there are an amazing number of specialties within it. Some enjoy the history, others the electronics, or pure collecting, a particular era, or preservation of equipment. A facet of the hobby that has brought me a lot of satisfaction is wood cabinet restoration. This is a topic of interest to the many collectors who have picked up such a set in less than perfect shape. I have written this to describe the process as I have been practicing it. It is more geared this toward the beginner. That’s a warning to you more experienced folk out there. Also, I won’t go into every possible aspect. Even so this turned into a bigger writing project than expected. There are a lot of small details to consider. What started out as a little article turned into a two part monster. This first part will go into preparation and stripping of the cabinet. Part two will handle coloring and applying the new finish.

But first a little philosophizing. Refinishing any old wooden item is a subject of great controversy within the antiques community. Some people hold the “original finish” as practically sacred. It seems that some within the vintage radio community have picked up on his notion as well. Maybe they think it’s chic. I am not one of these original finish die-hards. For one thing, in the realm of true antiques, radios aren’t all that old. I prefer that my sets look good and display well. If the finish looks bad then I want to do something about it. Obviously, if you have found a gem with good original finish then you should enjoy it as is. I am talking about radios where the finish is badly deteriorated, and often gone in large part or in whole. There is a good reason these are usually referred to as “project sets.” It means they need to be refinished to be preserved.

I admit to being one of the masochists who look for sets such as this. I kid myself that I am getting a bargain since these radios command smaller prices. (At least they should, one of my pet peeves are the vendors who call sets “restorable” and price them as if they already are. I suspect they have never actually tried to restore a radio). It is unlikely you will monetarily recoup the effort it takes to bring these back to health unless you charge quite a bit. I consider it a labor of love.

There are basically three things you can do for the finish on an old radio. “Nothing,” restoration, or refinishing. I put “nothing” in quotes because you will probably want to clean it at least. This is all you might have to do with one of those gems I mentioned that still has finish. How bad the finish needs to be before you go beyond just cleaning is a matter of personal preference. A thorough cleaning involves dismantling the set (discussed later) as you would for refinishing and then giving it a rub down with a mildly abrasive cleaner. A hand cleaner such as the original ‘GO-JO’ brand and very fine steel wool (0000 grade) is good because you can avoid water. You may need to wipe the cabinet down with turpentine or mineral spirits first to dissolve any wax. A “finish restorative” can also be used, such as ‘Kramer’s Best Antique Improver.’ Products like this can sometimes work wonders with an intact but tired finish.

Restoration is a hopeful term for a number of techniques that can fix or augment an existing finish without resorting to total refinishing. Restoration is more of an art and since this article is about refinishing I’m only going to scratch the surface of this subject. Re-amalgamation is probably the most popular technique. It is used to remove scratches and thin spots in lacquer. You soak a cloth in lacquer thinner and rub the area to re-dissolve the finish surrounding the problem and re-flow over it. (Heed the precautions about using lacquer thinner mentioned later in this article).

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If you are dealing with shellac, use alcohol instead. Re-amalgamation is heavily dependent on there being enough finish on the surface to allow this redistribution. I have never had much luck with this technique, probably because I deal with radios where the finish is too far gone. If your finish is merely thin, you can spray some additional clear coat (lacquer or shellac) over it. If you have bare spots or scratches down to the wood, which is a common problem on corners and edge trim, you can use color-matched stains or tinted lacquer first, then the clear coat. Color matching is truly an art form and I do not know an easy way to do it. I prefer tinted lacquers for this since they are most likely what the manufacturer originally used. Once you go that far, it might be debatable whether you can still call the finish completely “original”. By the way, the techniques mentioned really only work with lacquer or shellac. Varnish and polyurethane do not re-dissolve, but hopefully you are not dealing with them.

Most of these restoration techniques involve using the same chemicals used in refinishing. I am going to say more about these various potions later. Up front I advise that you get familiar with them before attempting an important project. I recommend totally refinishing a couple of radios first before refinishing a valuable set and definitely before attempting a restoration. Get a couple of cheap, small, common table sets and practice by refinishing them.

## Preparation and Stripping

Okay, let’s finally get into this refinishing stuff. The example subject for this make over is a Fairbanks Morse model 58-T-1 that I picked up at a swap meet. It is shown in it’s former non-glory in figure 1. Note the missing color on the trim, edges, and corners. There are also large areas of bare wood on the top of the cabinet. A nice candidate for a refinish job

The first step is to make a quick drawing of the cabinet to record what color goes where. Use the existing finish to tell what areas are dark, medium, or light brown. Label these on the drawing. Be more specific about shades and colors if you know them. A color photograph is even better. A good photograph of a well preserved example of the same radio is the best. The idea is to later try and restore the colors close to what they were. At least get the color scheme right. I may not be a stickler about the original finish but I do believe the original look of the set should be restored as much as possible. If your set has a decal, measure exactly where it is on the cabinet and put this on the drawing as well. You might also need to make a note of what size it is as some manufacturers, such as Emerson, used different sizes of their emblem. Refinishing will destroy the decal but at least you will know where to replace it.



Figure 1: Before restoration.

One suggestion I’ve heard regarding color matching is to take all of the stains and tinted lacquers on your shelf, applying a dab or squirt of each to a piece of wood, labeling each color. Once they are dry you can compare this color chart to the original colors on the radio and determine which are closest to the original. It works best if the color chart is on the same type of wood as the radio part to be colored as the substrate wood does affect the final results when the grain is meant to show.

The next process step is dismantling. I show the dismantled set in figure 2. You want to take everything off that isn’t wood. Obviously, the chassis and speaker come out. You also want to take out the grill cloth. Carefully, if it looks reusable. If it is glued to a cardboard frame and stapled in, gently pull the staples to get the cardboard out. You want to save the cardboard piece even if the cloth is no good. You can make a new one if need be but why do so if you don’t have to? If the cloth is glued to the wood on the inside of the cabinet you will probably have to resort to a putty knife to scrape it off. It will be difficult to save such a piece for re-use, so I usually do not try.

Escutcheons are all different. For this set it is held on with small brass wood screws, which makes removal easy. Sometimes small nails are used. Try not to damage the wood or scratch the escutcheon when prying these out. I use a small thin blade screwdriver, or sometimes a knife blade, and go slow. Occasionally these nails protrude through the front panel and can be started back out from inside the cabinet with a nail punch. Once started they can be pulled out with a pair of needle-nose pliers. Avoid scratching the nail heads also if you can as you want to save them for re-use. On many small sets there is no escutcheon and the dial cover is fastened to the inside of the cabinet, hopefully with staples. If they are glued in, they are a pain. Fortunately old glue is often brittle and no longer holding well. If not, you can try softening it with alcohol, but this is a difficult area to soak. Probably you are in for a slow pry job with a putty knife and crossing your fingers that nothing goes 'snap.'



Figure 2: The dismantled radio.

I take all the small hardware, escutcheon nails or screws, speaker screws, chassis bolts, and stick them on a short piece of masking tape so I do not lose them. A small container would work also. I then like to take everything except the cabinet and put it all together in one box for safekeeping. Include the diagram you made in the first step so you can find it later.

Paper labels on a cabinet are a special case. If they are still there they can be difficult to remove without damaging them so I rarely attempt this. If the label is starting to come off I prefer to glue it back down. This is tricky as they are also usually brittle. I have been using a spray adhesive since they work fast. I spray a thick spot of it out on a piece of scrap paper and use a cotton swab or toothpick to pick up a glob to spread behind the lifting part of the label. I use another toothpick or some other probe device to carefully lift up the loose corner or side of the label to get the glue behind it. Be very gentle as it is difficult to avoid breaking off small pieces of the brittle label. Smooth it down gently with your finger. The spray adhesive glue will be ready to take hold immediately at this point.

What I do to preserve the labels through the refinishing process is shown in figures 3 and 4. I take a piece of scrap paper cut larger than the label and tape it down over the label using clear plastic package sealing tape. I cover the entire piece of paper with the tape and make sure the edges are sealed down. Do not let the tape touch the label itself. The tape protects the paper and label from the chemicals to follow and the paper protects the label from the tape.

At this point I would clean out the cabinet with a vacuum and a wipe down the whole thing with mineral spirits. This gets rid of surface grime and any wax that may still be there, which is unlikely. Watch out for any loose veneer, or other loose cabinet parts or trim, and avoid breaking them. Wait for the mineral spirits to dry. You will soon find that wood cabinet restoration is an endless series of waiting for things to dry.



Figure 3: Note the label.



Figure 4: Protective paper tape covering the label.

Speaking of loose veneer and cabinets, I have rarely encountered a radio cabinet that did not have some such problems. Besides lifting veneer, old cabinet joints may be coming loose, or old plywood panels, particularly the bottom panel, may be delaminating. The Fairbanks Morse had all of these issues. Now is the time to take care of these structural repairs. Wood glue and woodworking clamps are your best friends. White glue can also be used but the yellow wood glues are stronger. In fact, wood glue is amazingly strong stuff, but it must, I repeat must, be clamped while drying to be effective. Strictly speaking, you just need to apply pressure, so you can get by without clamps if you can arrange to stack some heavy weight on your glue joint (you just knew those Riders manuals were good for something). However, there are situations where clamps are indispensable.

Figure 5 shows use of a glue syringe to force glue underneath a loose layer of veneer. This tool is extremely handy for getting glue in loose corner joints as well. Figure 6 shows the veneer repair clamped off. Note the use of clamp blocks, which are just scrap pieces of wood, used to protect the veneer surface from marking by the clamps. They also spread the pressure over a larger area. The wax paper is used to prevent the clamp blocks from being glued to the cabinet. Because face it, that just wouldn't be a good look.



Figure 5: Using a glue syringe.



Figure 6: Clamping the loose veneer.

Have some wet paper towels handy to wipe up the excess glue that gets squeezed out of the joints. The glue will set up in about four hours but I usually let it sit over night to be sure. Depending on the damage it may take multiple rounds of gluing and clamping. Especially if you only have a few clamps or the different repairs would interfere with each other, as occurred with this cabinet. Figure 7 shows the second go round using a bar clamp to hold the lower corner joints of the cabinet together while the glue dries. Be careful if you find you need to clamp across the open back of a radio cabinet. This includes stacking weight on top of the cabinet. The open back has no structural support for this and you can cause damage. Cutting a brace from a piece of scrap wood to exactly fit inside the opening will prevent this tragedy. And once again you are waiting for something to dry.

This is all I have space to say about veneer repair here. It is an important topic in cabinet restoration, as some sets have more extensive veneer damage. But it is also a rather involved topic encompassing multiple techniques for dealing with different situations, and there isn't enough space in this article. Fortunately the Fairbanks Morse did not have a lot of veneer issues.

At this point I am ready to start stripping off the old finish. But first I need to say something about finishes and stripping chemicals. If you are going to deal with old radio cabinets then you are going to be dealing with lacquer. Occasionally you may encounter shellac on some older 1920s three dialers. But lacquer was, and is, the finish of choice for cabinet manufacturers. The reason is because it dries extremely fast and they can put a lot of coats on in a relatively short period of time. I'll say more about this in part two. Lacquer is best stripped with Lacquer Thinner. The principle effective ingredient being acetone. I've found that not all brands of lacquer thinner are created equally with acetone. I look for brands calling themselves epoxy and lacquer thinner. Lacquer thinner is not the most pleasant of substances. You probably want to wear rubber gloves and you must have a lot of ventilation, as it is very volatile and has a strong odor that will leave you light-headed.



Figure 7: Second glue session with a bar clamp.



Trust me, you will not be stripping radios in your basement with it this winter. Also, do not smoke while using it. You may choose to leave this world in a fiery flash but I hate to think of those nice radio cabinets you would be taking with you. For shellac you can use alcohol, which is not quite as nasty but the warnings still apply.

Conventional paint strippers work well on lacquer but they are overkill to some degree as they tend to be made of harsh chemicals that can be hard on the wood. An exception may be the newer, pleasant smelling, citrus based strippers which may actually allow you to strip cabinets in your basement this winter. However, I still prefer to work with lacquer thinner on these old cabinets.

A couple of other asides. If the lacquer thinner is having no effect it is likely that some monkey before you has refinished the cabinet with varnish, or worse, polyurethane. Talk about a lack of respect for authentic restoration! The only recourse is paint stripper. Also some of you may have noted my comments about acetone and be wondering why not use it straight? Well, you can, I've tried it. It is more aggressive and works quicker than lacquer thinner. However, everything I said about volatility and flammability goes double for pure acetone. It evaporates very fast and you will lose a lot to that process. And if your ventilation isn't very good it will knock you on your behind. It is also harsher on the wood when applied in the quantities required. But it does smell better than lacquer thinner for some reason. Despite that, stick with the lacquer thinner for the major stripping.

Okay, let's get on with it. Tools to have are plastic paint scrapers, perhaps a nylon bristle stripping brush, and an old toothbrush. Do not use metal utensils, it is too easy to damage the wood. All except the toothbrush can be found in the paint section of any home improvement emporium. Find a work surface you are not too concerned about and have paper towels and rags handy. Those Scott brand "Rags in a Box" heavy paper towels sold at the aforementioned emporium are very well suited to this job.

Pour some lacquer thinner into a small working container and reseal the can. I also like to have a second shallow container to dip the brushes in, I consider this the "dirty" container while the "clean" thinner is from the first container. Pour some thinner from the "clean" container over the surface you are going to work on letting it spread out over all of it. After several seconds it will have started to dissolve the finish. Then take the plastic scraper and scrape up the goo as seen in figure 8. Clean the goo off the scraper onto a paper towel after each stroke. When the lacquer starts resisting more and won't scrap up easily, pour on some more thinner and wait a few seconds. Repeat this process as many times as needed to get the bulk of the finish off the surface you are working with. And yes, this is a messy process. A warning, the lacquer thinner will slowly start to eat the plastic scraper. Fortunately they are cheap. I take a metal file and periodically re-sharpen the business end. But be careful where you lay down the wet scraper. With its surface partly dissolved the blade will weld itself to anything. Lay the scraper across something to dry which will take less than a minute.

For trim details and corners you need to use a brush dipped frequently in the "dirty" container to keep the thinner on the work area fresh (figure 9). You will soon discover why I call it the dirty container. If I run into a real stubborn spot I will break out the straight acetone to take care of it.

When done with the scraper and brushes, take a clean towel or rag soaked in lacquer thinner and wipe off the residual finish (figure 10). There could be a fair amount and you may go through several towels. To speed things up you might want to start this step using 00 or 000 steel wool.



Figure 8: Stripping the softened old finish with scraper and lacquer thinner.



Figure 9: Using an old toothbrush for trim, corners, and detail areas.

Again pour some thinner on first, then wipe with the grain. But do not get so enthusiastic that you gouge the wood that may have softened some from the thinner. The steel wool will get gummy and won't be easy to rinse out. To make it last longer I suggest unrolling the pad and tearing off small sections for this purpose rather than using the whole pad at once. That way you can toss the small pieces as you go.

After the finish is off the first surface move on to the next and repeat the drill until all sides are done. Finish up with a clean towel, soaked in cleaned lacquer thinner, and give the cabinet several wipe downs to get the last vestiges of the old finish. You will also want to wipe out the inside the cabinet where run-off from the stripping process has gone through the grill and dial openings. I often use straight acetone for the last wipe down since it leaves things very clean. Including your sinuses. Figure 11 shows the stripped cabinet, looking quite a bit different now. I leave it to air out overnight because it wouldn't be a major refinishing step if nothing was left drying at the end.

### Coloring and Applying the Finish

So, now that you have taken the finish off, it's time to put it back on. The first part to go back on are the color coats. There are basically three ways to achieve this, natural wood color, stains, or tinted lacquers. Manufacturers used all three but I believe they used tinted lacquer most. Mainly because with the other two the color will still be there after the finish is removed, though a stain could have been lightened by the process. But most of the time the color is gone after stripping which is why I suspect tinted lacquer was used. I certainly suspect this of the Fairbanks Morse Company. It also would have been the quickest, therefore cheapest, to apply. Natural wood color was mostly left only when designers were creating with exotic woods. So, usually, if you want to be completely authentic you would put the color back with tinted lacquers. Now I admit that I prefer the look of stained wood. I think it looks slightly more natural by making the color more a part of the wood. But the difference is subtle so I leave it up to personal choice. Though for corners and edge trim tinted lacquer is the only way to go because it is the only way to cover up end grain. I will talk about both.

However, I must first mention the dreaded subject of grain filler, also known as wood filler. Many of the popular woods used to make radio cabinets, such as walnut, oak, and mahogany, are considered open grained wood. The thin dark lines of the grain are really small voids in the surface. As the name of the stuff implies, the purpose of grain filler is to fill these voids. It is done to achieve a very smooth surface. If you are going to use stain you can apply the grain filler before or after. For tinted lacquers it must be done prior. Grain filler compound comes in colors similar to stain colors. Use one that is darker than your stain or lacquer for a more natural look. Grain filler has some staining effect of its own so I prefer to use it before my color coat to see the effect. The reason I dread mentioning it is that using it is a complication that takes some practice to get right. The surface can be left with a slightly muddy look if you do not get it all off the field (the flat part of the wood between the grain voids). I also do not believe the filled grain look is a perfectly natural look. Grain filler is optional in my opinion, however, if you want a glass smooth finish you will need to use it.

A potential problem with grain filler is name confusion. Several makers of grain filler call their product wood filler. Unfortunately there are other compounds that carry this moniker as well. Grain fillers are peculiar to the fine wood working community. To obtain it you need to go to Wood Workers' supply stores or mail order houses catering to the same. If you go to the home improvement emporiums, or even hardware stores, and ask for wood filler they will steer you toward various wood repair compounds. These may be more familiar to you as something like "wood patch" or "plastic wood". These are very thick pastes used for filling holes and structural repairs. They dry hard and can be cut and sanded.



Figure 10: Getting the residual finish.



Figure 11: The stripped cabinet.

These wood patching compounds do have a place in cabinet repair but not as grain fillers. These patching pastes also come in various colors like stains, but they all lighten up when sanded. Also they usually claim that they will “take stain like wood.” They don’t. For these two reasons avoid using them on the wood grained surface of your radio cabinets because it will show, especially if you use stain. They are okay for edge trim that is going to be covered with an opaque coating of tinted lacquer.

True grain filler is applied as a thin paste about the consistency of pancake batter. Some brands have to be thinned to this point. Grain filler will not dry hard to where it can work for structural repairs. But it will keep its color when sanded. Follow the instructions on the can to use it. The thing to remember is that it needs to be worked into the grain. It is one of the few times in finishing where working across the grain is best. Put a generous amount on the cabinet and use circular motions with a cloth to start. I then like to press it into the grain using a flat plastic scraper used for applying putty to automotive body repairs (found at auto part stores). Run this scraper hard across the grain. Then let the filler sit. After a few minutes, when it starts to dry to a dull sheen, wipe off as much as you can with a rough cloth going with the grain. Then let it dry overnight. The next day you need to sand off the residual. Here the instructions often say to use 220 or 320 grade sandpaper. I find it often takes starting briefly with 100 grit paper to get the heaviest deposits off, then progressing through the lighter grades of sand paper for a smooth surface. The instructions also say a second application of filler is optional but I have gotten better results doing it.

I have tried both oil based and water based grain fillers and I prefer the oil based varieties. The water based fillers are stiffer, and dry faster and harder. So you need to work faster and give less time before wiping off the residual. Sanding the excess is tougher as well. The oil based fillers are smoother and work easier in my experience. Granted, they are not as “green.”

A good trick, if you want to keep the grain filler from staining the field, spray on a couple light coats of sanding sealer lacquer (regular clear gloss lacquer will also work) before applying the filler. You need to do this before each application of filler. You only have to wait a few minutes for the lacquer to dry.

A word about what sanding sealer was really invented to do. After sanding, very small pieces of wood fiber are left sticking up above the surface of the wood. They can’t usually be seen with the naked eye but do negatively affect the final smoothness. Sanding Sealer was developed to seal around these and seal the flat surface to prevent more from forming with another round of sanding. The sealed fiber ends just break off and more won’t form, unless you sand all the way through the sealer. Try it between the lighter grades of sand paper. By the way, the final smoothness of your finish will be heavily influenced by how smooth things are after the sanding steps mentioned here. I highly recommend some light sanding with progressively finer paper even if you choose not to use filler.

And you will notice that there are no pictures of grain filler being used on the Fairbanks Morse. That’s because I chose not to use it this time, (remember, I said it’s optional). The reason was that there are some flaws in the veneer on the curved top of the radio where it appears there was some surface splintering in the past. Not all that uncommon on such curved areas. Sometimes they are complete splits. They are almost impossible to repair short of replacing the veneer altogether. On this set these flaws are not particularly bad but the grain filler would have filled them as well and made them more apparent. The final surface is not quite as smooth as it could have been but it is more than good enough (in my humble opinion).

Now to finally start putting the color coats back on. The first area to go after is the detail trim. The inside edges of the grill openings on old radios was often colored black or a dark brown. For most work lacquer is best sprayed on, and I will say more about this in a moment, but this part is an exception. Masking this off and spraying it would be a chore. Especially on fancy grill work cut outs. Thin grooves cut as decorative accents, such as this Fairbanks-Morse has, are also good candidates for detail brush work. For this I have been using Plasti-Kote® brand automotive touch up paint. Other brands would probably work as well. Automotive paint is lacquer based and the touch up paints have retardant added so they do not dry too fast to brush on. I pick up a bottle of black and another of a medium brown. The black can be used straight or the two can be mixed to form a dark brown.

You want the inside edges of the grill to be dark to de-emphasize them and produce a shadow effect. For sets that have no black accent trim elsewhere I like to use a very dark brown. Figure 12 shows the grill opening being done. Trim

grooves are usually black I've noticed, though a dark brown can work well here also. It is hard to avoid getting some slop outside the groove. To clean this I wrap a paper towel tight around a finger and dip it in clean lacquer thinner. Hold the finger stiff and wipe it over the top of the groove without pressing into the groove, as shown in figure 13. This is a good way to clean slop off the front of the grill area as well. Next step are the main color coats.

Stains are great on the flat surfaces of the cabinets. They are not so good for the raised trim and corner edges because it is hard to keep them from wicking to the surrounding wood, which usually is a different shade.



Figure 13: Cleaning slop-over from groove edges.

Masking off is not as effective with stain. Plus stain will highlight, rather than cover, end grain. There are various kinds of stains available. Min-Wax® brand, which is popular, is an oil-based penetrating stain. On radios I prefer a non-penetrating stain. They come in water and alcohol based varieties. You can get pigments and mix your own. Water based is easy to use but it will raise the wood grain and require some fine sanding. The alcohol-based varieties are known as Non-Grain Raising (NGR). You can buy premixed NGR stains at wood working shops. Lately I have been using a brand of color concentrate called TransTint and mixing it with alcohol myself. That way I can combine colors or mix them double or half strength for various different shades. With any stain you wipe or brush it on with the grain, wait a few minutes, then wipe off the excess. The nice thing about a non-penetrating stain is if you get it too dark you can wipe over it with a cloth soaked in the solvent, such as alcohol, and pull some of it back out of the wood to lighten it up. Stain before you do any lacquering. And, of course, it will have to dry.

Tinted lacquers are what the name implies, lacquer that has been colored with a pigment or dye. Spray on one or two light coats and they will tint the surface while letting the grain show through. More coats will give deeper color, though you probably do not want to go beyond four or five as it gets less transparent as you build it up. Spray on multiple coats and it builds to a nice opaque surface that is great for corners and trim. Figures 14 and 15 show the cabinet edges masked off and then sprayed with the trim coats of extra dark walnut tinted lacquer. Tinted lacquer is available in aerosol spray cans in a wide variety of wood tone colors. Mohawk® brands are the best I have found. They come in two types, Ultra, which is tinted with a more transparent dye that allows the wood grain to show through better, and Tone Finish, which uses paint type pigments and builds to opacity quicker. The only trouble with Mohawk lacquers is they are hard to find in small quantities at retail other than a limited set of colors available from some mail order houses. You can buy directly from Mohawk but only in bulk. Behlen brand lacquers are slightly easier to find at local wood working supply stores and also work well. They seem to be similar to the Mohawk Tone finish (and I believe they are made by the same company).



Figure 12: Coloring the edge of the speaker grill opening.



Figure 14: Mask off the cabinet to only expose the trim area for coloring.



Figure 15: Color the trim with 8 to 10 coats of tinted lacquer.

Like stains you can mix your own tinted lacquers using clear gloss lacquer and pigments. Various coloring agents such as aniline dye powder, Japan colors, or others are available from woodworking supply shops. If you use a spray rig (more on that in a minute), a few drops of the TransTint product, mentioned previously, in the lacquer creates a nice transparent tint similar to the effect you get with Mohawk Ultra. This is good to know since the Ultra product can be harder to find. You can get your own custom colors this way but, frankly, I normally wouldn't bother if I can get the aerosol products.

Masking and spraying the trim detail and edges may be a multi step process depending on the design of the set. The trim bars on the front of the grill on the Fairbanks-Morse were done separately as the masking required extra attention. This area is best done with the normal Tone Finish type products for better coverage.

At this point I should wax eloquent about lacquer and how it is applied. Lacquer is an excellent finish, is easy to work with, and is fairly forgiving as long as you treat it right. Earlier I mentioned it is normally sprayed on. That is because lacquer works best that way, hands down. Except for small detail areas brushing is an inferior way to apply it. Sprayed lacquer dries very quickly and a new coat can be done every 3 -5 minutes. The solvents in the lacquer soften the previous coats and cause them to flow together with the new coat. For this reason sanding between every coat is pointless despite what instructions may say. The two big rules to follow are: one, use light coats and two, do not touch it while it is wet. Light coats keep drips and runs from forming. Resist the urge to spot fix a part you missed. That is a great way to cause a drip. Build up color and thickness with multiple coats. Wait the few minutes between coats necessary to let the solvents dry off. And during those few minutes leave it alone. If you touch it, say to get rid of a drip from spraying too heavily, you will likely go straight through to the wood. This is especially nasty over a colored area. Lacquer works best in warm temperatures and low humidity. If it is cool or muggy allow more time between coats. Shellac works much like lacquer but takes longer to dry between coats, say 15 minutes or so.

If you read any books on refinishing you may notice they try to steer you away from lacquer. The problem is usually the requirement that it be sprayed. They tend to find aerosol cans inadequate and they want to save you the trouble and expense of spray equipment. This is nice of them but remember they are normally talking about refinishing large pieces of furniture. It is a matter of scale. Radio cabinets are a perfect size for using aerosol spray cans. A spray rig would be helpful for the final clear coats on floor consoles, but even there it is not vital unless you are going to do many. The other good things about aerosol cans are that set up and clean up are almost non-existent, and the propellant is dry. That last is handy in humid conditions when you would want water extraction filters on compressed air equipment. Aerosols do cost more per quart but you are not going to use a lot on a table radio cabinet.

If you do want to invest in spray gear and you do not already have a compressor I would definitely recommend one of the new HVLP (High Velocity Low Pressure) units now available. Mine cost less than \$200. They are a technological improvement over conventional spray equipment. It does require buying lacquer in a bulk can, usually by the quart. Most are sold at a good consistency for spraying but may be thinned with, what else, lacquer thinner. I often thin about 4 to 1 lacquer to thinner. There are options for additives that slow drying time or improve flow-out and the like. That is a level of sophistication beyond this article. I do find that you get more lacquer solids with each coat compared to aerosols, so it builds up quicker and needs less of the multiple coats described above. How many depends on how much the lacquer has been thinned so you will need to experiment some. I let it sit a bit longer between the repeat coats.

A word about safety. Spray lacquer only where there is lots of ventilation. Avoid breathing the fumes. The solvents are not your lungs' best friends. I would highly recommend getting a painting filter mask if you are going to do this regularly. And, again, the fumes will mix explosively with open flames so avoid that combination.

Figure 16 shows the colored cabinet ready for the final clear coats. If I didn't mention it before, I used tinted lacquer for all the coloring on this set. It only took a couple light coats with a medium brown walnut shade of Mohawk Ultra to color the top, front, and sides. Clear coating is the step most people imagine about when they think about refinishing. Once again, multiple light coats is the name of the game. I go for 20 to 25. I have been told that original manufacturers may have used even more. I prefer a satin finish as I think it gives a more mellow tone indicative of an aged cabinet. But that is a matter of personal taste.

Here is a little tidbit I read about lacquer that I want to pass along. Apparently lacquer is naturally glossy. Lacquer makers add deadeners to get the flat, satin, and semi-gloss variations. These deadeners weaken the internal bonds slightly.

For this reason I use gloss lacquer for my first 15 – 20 coats and follow up with about 5 coats of the satin. If you prefer a high gloss finish do not use the satin.

Clear coat lacquer is much easier to find than the tinted stuff. Any home improvement emporium has it as well as hardware, paint, and even auto parts stores. I like the Velspar® American Traditions brand sold at Lowes. I find it works well and is inexpensive. Deft® brand lacquer works well and has a very nice spray nozzle. MinWax® also makes a good aerosol spray lacquer that is carried at some wood workers' supply places. Of course, the Mohawk lacquer is excellent, but pricey. Avoid the Krylon® brand lacquer. The solvents are a bit too aggressive and will start washing away the color coats. Ouch.

Spray technique (figure 17) goes like this. Work on one surface (top, front, or side) at a time starting at the top edge. Hold the can or spray gun 8 to 10 inches from the surface. Aim to one side of the cabinet and start spraying. Move onto and across the surface in a horizontal line parallel to the surface. Keep spraying past the other side. The motion should



Figure 17: Spraying the clear coat.

be smooth, steady, and fairly quick. About one second to cross the face of a radio like the Fairbanks-Morse. Don't pause in the middle of the stroke. For the next pass aim at the lower edge of the spray swath from the previous pass. This will become hard to see so just make an approximate guess. Keep doing this until you have sprayed the bottom edge then move on to the next cabinet surface. Do not go too slow. Do not worry that you missed a spot, you will get it next coat. Do not go back and "spot fix" a section. Runs and drips are your enemy as they are tough to fix. After you have done all sides wait about 3 to 5 minutes and do it again. As said before, adjust dry time for temperature and humidity. Below 55 degrees the process generally does not work well. After the last coat I let it sit overnight at least. Lacquer dries fast but takes longer to thoroughly out gas and harden. Figure 18 is the refinished cabinet.

Let me revisit the topic of sanding between coats. The spray technique I described above makes for very thin individual coats, which is another reason to not sand between them. I have tried stopping every five or ten of these coats to sand. In theory this should help with the final result by taking down the minor imperfections from the spraying (which can leave that "orange peel" effect). This jury of one is still out on just how much it helps as an intermediate step. It does add time since to do it "right" means stopping to let the cabinet fully dry overnight and then wet sanding (see below) with a fine grade of sandpaper, such as 400. Then you have to let that dry well before resuming the lacquer spraying.

The last thing you want to do is rub the finish out. Basically it is a polishing meant to take out minor roughness in the last coat of finish. This is not my favorite step since if you have a good smooth surface to begin with I don't think it always buys you a lot, especially on a satin finish such as I prefer. It is more important for a high gloss finish and you can't honestly claim a hand rubbed lacquer finish unless you do it, I guess. Traditional materials for this are pumice and rottenstone mixed with water or oil. I prefer more modern abrasive items such as #0000 steel wool or very fine grit (400 – 600) sandpaper. Either can be used wet or dry. Wet sanding involves using a lubricant such as water, turpentine, or mineral oil and is safer than dry sanding at this point, so is preferred. Rub the



Figure 16: Overall color coat.



Figure 18: The finished clear coat.

cabinet surface with the grain and be very careful not to get too aggressive, especially if dry sanding, or you will grind through your new finish. Remember you are only trying to smooth out the final surface. If, indeed, manufacturers originally used many, many coats of lacquer, this may well be the main reason. It is an area I intend to experiment further with. If you use mineral oil you can clean the excess off with mineral spirits (paint thinner). Plus this gives you one more drying step to look forward to.

I have gotten good results using #0000 steel wool dipped in mineral oil as my wet sanding medium. Lately I have been using Novus® #2 Plastic Polish for this purpose, using it with first 600, then 1000, and then 2000 grit sandpaper, wiping it off after each step with a dry cloth. Let it dry to a haze for a couple minutes after the last sanding and polish it off with a new dry cloth. Turns out this leaves a nice sheen and doesn't need drying time. The Novus can leave a white residue in corners that show up after awhile. I use a cotton swab soaked in Novus #1 or even plain water to rub this off.

You may have read about folks who use many more successive steps of wet sanding with very fine grit sandpaper down to 4000 grit or finer. Then they finish with a good furnisher polish or automotive type paste wax. They do this tedious work to get the super high gloss, mirror-like, "piano" finish you sometimes see. It is impressive when done well. It is also a bit of an art and would take some practice. Personally I am not convinced it represents the way the radios looked when they left the factory. It is actually too good. Though some high end consoles may have been so lavishly treated. Here I am once again stating a personal preference and it should not stop you from going for this look if you desire it.

Figure 19 shows the re-assembled radio. I think it looks a tad better. Putting a cabinet back together is a lengthy subject in its own right since there are a lot of details that effect the final appearance of the radio. Especially if the grill cloth needs to be replaced. There is also cleaning and replacing the escutcheon and dial cover. Cleaning the knobs (of which I believe there are two that are incorrect on my Fairbanks-Morse). Also dealing with the cabinet feet and frequently having to find additional chassis screws. These items are beyond the scope of this article.

As the old saying goes, there is more than one way to skin a cat. I have just gone through the process I follow to refinish a radio cabinet. But I know there are other opinions out there on many of these steps, and I'm always on the look out for other tricks and ideas. If any of you have good ones, please write them up send them in to the Radio Age editors, or you can e-mail me at [cx30a@aol.com](mailto:cx30a@aol.com). Reference this article. If I get enough we will write them up in a follow up blurb. Be sure to include your name so credit can be given. In the meantime, go out and return a junky radio to former glory.



Figure 19: The refinished radio.

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Eric Stenberg caught the radio collecting bug in 1994 starting with an early 1960s G.E. clock radio he picked up from his Grandmother's house. His main collecting interest is now primarily focused on acquiring and restoring wood cabinet radios of the 1930s, particularly those with a machine age or deco flair, or radios with clocks. Mr. Stenberg is the current president of the Mid-Atlantic Antique Radio Club. Founded in 1984, MAARC has grown to be one of the largest regional vintage electronics clubs. Drawing membership mostly from the Washington, D.C. and Baltimore, MD area, it has members across the nation and even a few in foreign countries. These are subscriber members drawn to the well regarded monthly newsletter, *Radio Age*. MAARC is also known for its premiere RadioActivity Radio Meet held each summer in June. Please visit the MAARC website at <http://www.maarc.org/>.

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# Tuner Stator Rebuild for Majestic 90/92

by Richard Watts

I had the good fortune to find a Majestic 92 (figure 1) in the back storage room in a local antique shop underneath years of accumulation. It was in fair condition with water damage and missing veneer chips on the top, and worn finish over the remainder of the radio. Otherwise it was complete. These sets are notorious for having frozen or bound tuning capacitors. To my surprise the tuner was not yet bound; it did turn freely but some of the blades did rub. I hesitated for a few weeks to purchase the radio as I knew that the tuner would have to be rebuilt and that would be a challenge, but finally I decided to take it on.



Figure 1: Majestic 92 manufactured in 1929.

Majestic used pot metal to space and secure the blades in both the rotor (figure 2) and stator (figure 3) portions, of the tuning capacitor assembly. Over time pot metal will swell and develop hairline cracks. In this radio, the pot metal was still fine in the rotor portion I believe because it was bonded to the shaft running through the center. However, the stator assemblies had significant spreading of the blades. It was unavoidable, the stator assemblies would have to be rebuilt.



Figure 2: The five-section tuning capacitor showing the rotor assembly and frame; the stator assemblies have been removed.



Figure 3: A stator assembly showing the cast pot metal holding the blades.

After removing the stator assemblies from the frame, I separated the aluminum blades from the pot metal. There are probably several ways to do this. I chose to put a metal blade in my bandsaw and cut through the pot metal in the space between each blade. The remaining pot metal was easily removed with pliers exposing two tabs on each side of the blade. I was careful not to bend the blades or its tabs.

To reassemble the stator assemblies, I made ten combs (figure 4) from 0.032" thick copper sheet. The combs were designed to fit in between the tabs of each blade and maintain blade spacing for alignment with the rotor. To simplify cutting, I glued an actual size drawing to the copper with spray adhesive and use it for a template. To provide a means of mounting the rebuilt stator assembly, I also fabricated five mounting brackets (figure 5) from 0.032" copper sheet. I used the bandsaw to cut the combs and brackets and was careful to remove all the metal shavings from the bandsaw tires after cutting was complete.

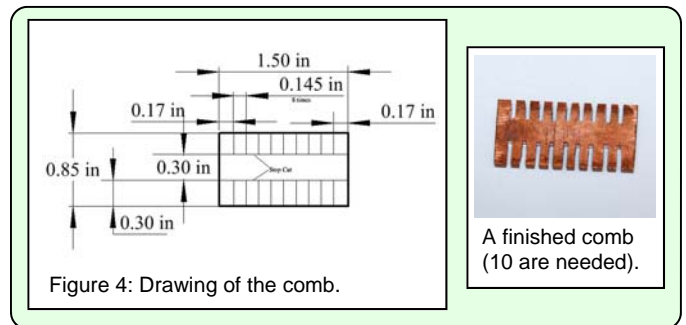


Figure 4: Drawing of the comb.

A finished comb (10 are needed).

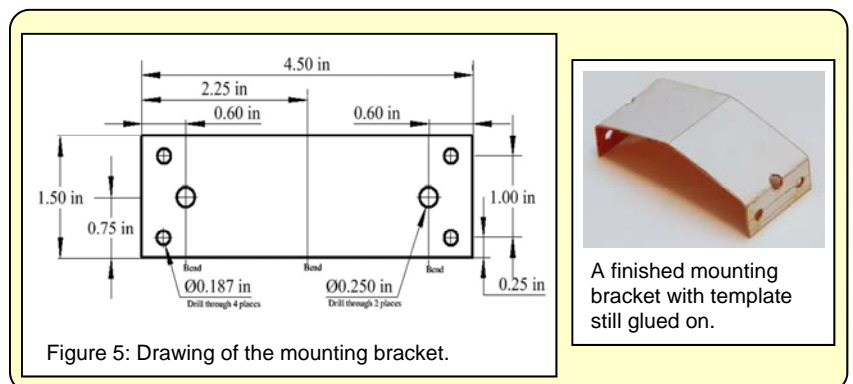


Figure 5: Drawing of the mounting bracket.

A finished mounting bracket with template still glued on.



I next assembled the blades and combs. On a comb, one side of teeth are longer than the other. The short side of the comb is oriented toward the rounded bottom of the blades. The tabs of each blade should fit snugly in the comb teeth snapping on the center of the comb. The outer most teeth are bent to vertical to later become the attachment point for the mounting bracket (see figure 7). To insure proper spacing plus to keep the blades vertical to the comb and parallel to each other, I inserted a 0.10" thick triangular wooden spacer between each blade. I happened to have some old slats from a wooden blind that were the perfect thickness.

The blades, being aluminum, presented a challenge to solder to the combs. Soldering aluminum is difficult because aluminum oxidizes almost immediately preventing solder from adhering. I used a special alloy solder and flux called Muggy Weld that worked quite well; it is available from [muggyweld.com](http://muggyweld.com). The alloy melts at a fairly low temperature and can be melted either with a small butane torch or a large soldering iron. For me, my large 100 watt soldering iron provided better control of the flow. The downside is that I sacrificed the soldering iron tip because the flux is quite corrosive. Figure 7 shows the stator with the combs soldered in place.

To bend the mounting brackets, I used a handheld metal seamer available at Harbor Freight. To insure that five brackets are bent alike, I made a wooden jig from a scrap piece of 2"x4" (figure 6). Next I pressed 6-32 clinch nuts in the four mounting holes on the brackets. The nuts were inserted into the holes on the inside of the bracket and pressed in place with pliers. To make sure they stayed, I soldered the nuts to the bracket with Muggy Weld (figure 7).

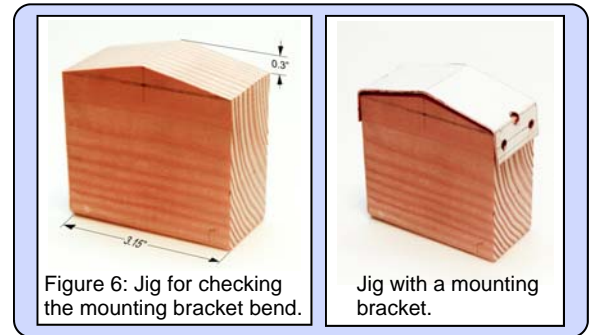


Figure 6: Jig for checking the mounting bracket bend.

Jig with a mounting bracket.

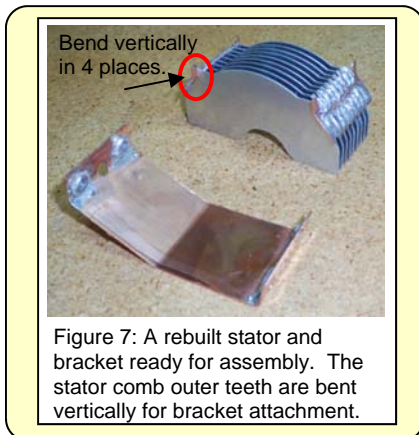


Figure 7: A rebuilt stator and bracket ready for assembly. The stator comb outer teeth are bent vertically for bracket attachment.

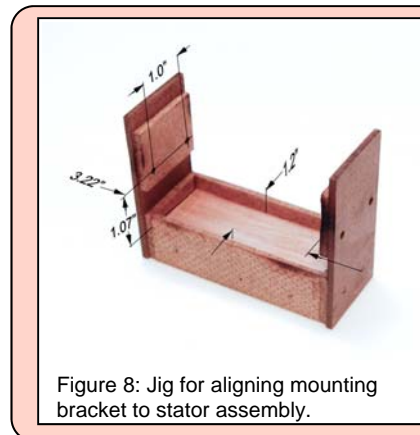
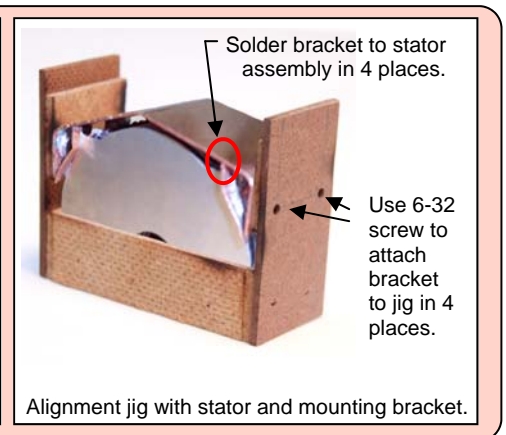


Figure 8: Jig for aligning mounting bracket to stator assembly.



Alignment jig with stator and mounting bracket.

When assembling the stator to the mounting bracket, the spacing is critical. To insure I got this right, I built another jig from scrap wood and 1/8" masonite (figure 8). The jig is designed to align the stator and mounting bracket to match the dimensions in the tuner frame. To assemble, I inserted the stator into the jig, then placed the mounting bracket on top as shown in figure 8. The mounting bracket is secured to the jig using four 6-32 screws. Then I made sure that each of the four outer teeth of the stator comb made solid contact with the bracket. I soldered the teeth to the bracket with Muggy Weld as it is quite strong although regular solder could have been used. With that last step done, the rebuilt stator assemblies were complete and ready to be mounted in the tuner frame. The tuner frame does allow some adjustment side-to-side to enable the blades to be centered with the rotor blades.

The remainder of the electrical restoration was typical. I replaced old wiring, recapped the power supply and radio chassis as needed. I did not want to use the ballast due to the large amount of heat it generates. I left it in place but wired it out of the circuit. In its place I added a step-down 120 to 80 VAC transformer. I completed the cabinet veneer repairs and refinishing. It now plays very well with great sound. It came out so well, it now occupies a prominent spot in the living room. I'm very glad I decided to take the time and effort to rebuild the tuner instead of leaving this beautiful set in the antique store with a high likelihood of its probable disposal at the landfill.



# CHRS W6CF Operated in its First Contest — ‘ol Chicken Feathers Works DX

By Bart Lee, K6VK

The James Maxwell memorial station W6CF entered the ARRL SSB DX contest on 20 and 15 meters March 2, 2013. This is the first time we've operated the club station of the California Historical Radio Society, in a scored contest -- lots of fun! I submitted the log to ARRL. W6CF contacted Argentina, Asiatic Russia, Curacao and the Azores Islands (four continents as Azores counts as Europe, and some Canadians that don't otherwise count, all in a little over one hour). I have sent W6CF QSL cards out (with green stamps) and hope for QSL cards in reply. The logged contacts were:

QSO: 14000 PH 2013-03-02 2202 W6CF Azores	CR2X	59	1KW
QSO: 21000 PH 2013-03-02 2257 W6CF Russia	RU0FM	59	1KW
QSO: 21000 PH 2013-03-02 2259 W6CF Curacao	PJ4G	59	1KW
QSO: 21000 PH 2013-03-02 2304 W6CF Argentina	LP1H	59	1KW



CHRS W6CF QSL card.

Not bad for a little vertical and 100 watts – Azores, Russia Sakalin Island, Curacao and Argentina! We do have a salt water ground and 200 broadcast station (KRE) radials under us.

We would like to operate Field Day June 22 & 23 and the Fall Contest also. Volunteers needed! Help keep CHRS on the air! Special thanks to John Staples, W6BM, the W6CF station trustee, and Paul Shinn, K6FRC, engineer, and Denny Monticelli, AE6C.

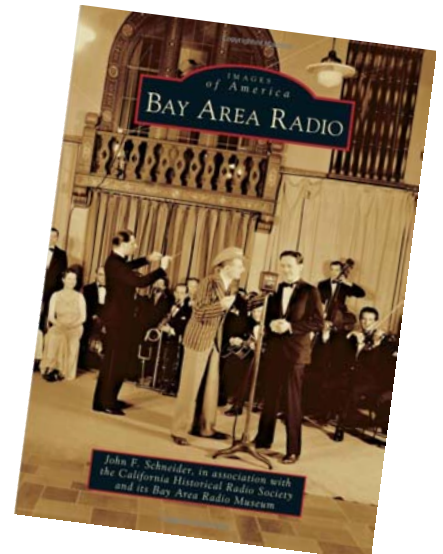
73 de Bart, K6VK



## Bay Area Radio

A book from John Schneider and CHRS

Radio historian John F. Schneider and the California Historical Radio Society have assembled a collection of rare photographs that document the artistry and technology of this important aspect of San Francisco's history. The San Francisco Bay Area was a key national radio broadcasting center during the first three decades of commercial radio. In 1909, it was home to the very beginnings of the art and science of broadcasting, when Charles D. "Doc" Herrold began sending out weekly voice and music programs from his Wireless and Engineering College in San Jose. Dozens of other radio pioneers soon followed. In 1926, big broadcasting came to San Francisco when the newly formed National Broadcasting Company (NBC) established its West Coast headquarters on Sutter Street. Other national and regional networks soon set up their own broadcast production centers, and for the next 20 years, thousands of actors, musicians, announcers, and engineers were creating important programs that were heard on the West Coast as well as nationwide. During World War II, San Francisco became the key collection center for Pacific war news, and bulletins received in San Francisco were quickly relayed to an anxious nation. Conversely, powerful shortwave stations broadcast war news and propaganda back to the Pacific and entertained American troops overseas. ◇



Available at the  
CHRS Museum Store

# The 2012 CHRS Restoration Contest Results

by Gilles Vrignaud

This contest is coordinated with the Québec Société Québécoise des Collectionneurs de Radios Anciens (SQCRA) radio contest; the winner of this contest will be submitted as an entry to the SQCRA world-wide contest. The contest ran from February to December with awards presented at the General Membership meeting. The entries were judged twice: first at the beginning where the poor condition receives a higher score; and second on the quality of restoration of the finished radio. All of the radios were very well done and selecting a winner was not easy. The results are:



## Elmo Giovannetti - Remler 72 - Contest winner

Most notable: Almost everything, starting with a set missing many major components, a rat's nest of cut wires, incorrect schematic, a damaged cabinet missing woodwork, decorated with a piece of grandmas' dress as grill cloth for a non existing speaker. Elmo painstakingly rebuilt everything to a high degree of finish and performance.



## Seth Arp - Belgian SBR 441

Most notable: Great detective work in finding the identity of a set that had languished unidentified in the museum. He completed work unfinished by the manufacturer by installing a dangling magic eye. His graphic wizardry also crated a new badge for the cabinet.



## Jim Bradt - Philco 89

Most notable: A great example of Jim's mastery with cabinet restoration. Jim started with a badly damaged cabinet and meticulously restored it. Great chassis clean up, and recapping with authentic looking re-stuffed caps.



## Hil Hampton - 6S229

Most notable: Hand painting missing elements of the printed "wallpaper" cabinet work to match the original. Hil also took great pains to restore the dial mechanics and to keep the under chassis restoration looking original.



## Jorge Llacer - SABA 630

Most notable: Restoration of a woodworm riddled cabinet, pot metal tuning cap with differential swelling between stator and rotor, and quirky circuits with strange shielding requirements and a hunt for unobtainium shields in Germany, without which the set would not work (p.s. that top cap is NOT a grid cap!). Jorge then generously donated the set to the CHRS museum.

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*Steve Kushman*  
Volunteer  
of the Year



*Richard Dillman*  
Fellow of CHRS in Preservation



*Ken Ackerman*  
Fellow of CHRS  
in History



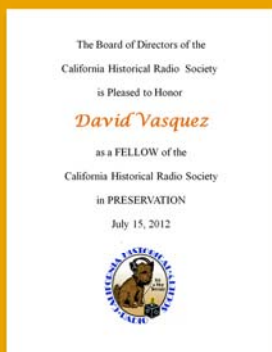
*Len Shapiro*  
Fellow of CHRS  
in History



# 2012 Awards and Fellowships



*Richard Watts*  
Fellow of CHRS  
in History



*David Vasquez*  
Fellow of CHRS  
in Preservation



*Paul Shinn*  
Fellow of CHRS in Preservation



*Steve Kushman*  
Honorary Gavel  
from the Board