

*Newsletter & JOURNAL Of The*  
**CALIFORNIA HISTORICAL RADIO  
SOCIETY**

*2001 Official Membership Directory*  
**&**  
*CHRS Repair & Restoration Directory*



**California Historical Radio Society**

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## **ABOUT CHRS**

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 provide the opportunity to exchange ideas and information on the history of radio, particularly in the West, with emphasis on collecting literature, programs, and the restoration and display of early equipment. Copyright 2001 **California Historical Radio Society**. All rights reserved.

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# CHRS NEWS, from the President

Steve Kushman

**GREETINGS** - From all of us at **CHRS**. We hope you have had a great Spring and are having a Summer filled with fun, and radios! We have had two **Club** meetings at St. Anne Church in San Francisco which were very successful. Please see **Bill Wray's** minutes from the meeting last December. We had a great turnout at the meeting after the swap in July. We were very pleased at the number of people who waited to attend and actively participated. We were fortunate to have the President of **SCARS, (Southern California Antique Radio Society)**, **Ricki Glassman** and her husband **Marv**, attended our swap and meeting. They offered a new and different perspective on some of the issues we share as radio clubs. **Bill Wray's** minutes will be in the next **Journal**.

**I'M TIRED AND NEED AN EDITOR** - This is my 6th year as the President of **CHRS**. My how time flies when we're having fun like this. And it has been fun. But, a certain aspect of this job has been grinding me down, and if it continues, my dusty remains will slide out out the Presidency. Our **Journal**, for which we are famous, and the reason most people join from out of state, is a high quality publication that requires many hours of gathering articles and desk top publishing to produce. We as a group decide how many **Journals** to produce a year. As your President, I take the responsibility of trying to deliver what we promise. It's part of this job. When we can't deliver what we promise, I feel that I'm letting the membership down. I'm caught between a rock and a hard place. We are all volunteers, and putting food on the table and paying the rent certainly takes priority over volunteer work. So when the **Journals** run very late, due to real life commitments of our staff, I'm stuck. I am not a writer, (doing these messages takes all I have, and a long time), I'm not an editor or a publisher. But I feel committed to deliver something. I cut and pasted together the last, so called **Journal**, (with the blue cover). And I, with the help of **Paul Bourbin**, cut and pasted this edition together. It's not fancy, but the words are here. This is the last time I will do this. **Stephen Sutley** reports that the next real **Journal** will come out in the Fall. Then he has to bow out as editor as his time is limited. **Stephen** has done a superb job on the issues he has published and I can't thank him enough. They were excellent **Journals**! I will publish a short newsletter, 2002 schedule, and renewal application that will be mailed in December. **Next year, ??????????** I don't know who will edit the **Journal** or if we will even have **Journals**. It's as simple as that. I can't do it. Out of the 500 or so of you reading this, is there anybody with the skills and time to edit the **Journal** and keep the **CHRS** standard high? With email and fax, you don't even have to be local to the S. F. Bay Area. Who will step up and save the **CHRS Journal** in 2002???

**VICE PRESIDENT** - Due to the faltering dot com economy, our long time Vice President and Publicity Chairman, **Lee Ailder**, and his family have moved to greener pastures in Vancouver, B.C. We would like to thank **Lee** for his work in **CHRS**, and especially for reviving our yearly swap meet in Marin County. Best wishes to the **Ailder** family for a bright future up North. **Lee** will have a whole new country in which to search for radios!

I am pleased to announce the nomination and confirmation at our July meeting, of **Scott Robinson** as the new **CHRS** Vice President. **Scott** is an engineer at **Dolby Labs** and is a long time member of the **Club**. He has fresh ideas and will be a great addition to the staff. If you see **Scott**, thank him for stepping up to help!

**CHRS WEB SITE** - "**CHRS** Web Site has sure improved...Looks great."... **Norman Leal**. "I just stumbled on to the new web site! Wow and TRIPLE WOW! Who's our webster, now? Superb job. Again, congrats to whomever -- the new site is "boffo!"... **Dale Tucker**. *It's Mike Adams, ed.* "What a fabulous job you and the gang have done! I love it! Found out everything I needed about the Foothill meet w/in 30 seconds of getting to the site.....this web site is now planted PERMANENTLY in my "Favorites" folder."... **Jim Falls**. These are some actual comments from actual **CHRS** members about:

[www.CaliforniaHistoricalRadio.com/](http://www.CaliforniaHistoricalRadio.com/)

our new home in cyberspace. Our new Web Master is **Mike Adams**, long time **CHRS** member and Chairman of the Broadcasting, Film and Theater Departments at San Jose State University. Mike also designed and maintains the Perham site, the Herrold site, the Broadcasting History site and his own site. The emphasis of our new site will be on providing current information about **CHRS**, radio and related history and radio collecting and restoration. **Mike** is available to update the site on a regular basis. You can help make this site great, by providing information, articles, comments and especially pictures for him to post on the web. This is your opportunity to share your tips, stories and pictures with collectors around the world. We encourage you to explore our new site and let **Mike Adams** know what you think. Send any submissions to:

**Mike Adams, Dept. Chairman**  
**Hugh Gillis Hall 100, S.J.S.U.**  
**San Jose, CA 95192-0098**  
Or by email: **adams@email.sjsu.edu**

**MUSEUM BEGINNINGS** - Earlier this year, **Stephen Sutley** negotiated and acquired for **CHRS** about a dozen large museum quality display cases. They came from the old International Terminal at San Francisco International Airport. **CHRS** paid just \$1 apiece for these cases that are extremely costly to have built. **Stephen**, with the help of **Bart Nadeau** and **Bob Immergluck** of the **Western Railway Museum** and **Jerry Cantou** of **CHRS**, coordinated the operation to deliver the cases to the **Western Railway Museum** for storage. **CHRS** wishes to thank **Stephen** and to all who helped on this project! The Museum is using some cases in their new visitor's center. **CHRS** owns seven cases that have been wrapped for protection and are stored in a barn at the Museum. Now, all we need is our own Museum to set them up in and fill them with radios!

ps.... **Stephen** is now working on acquiring many cases of various sizes from the old S. F. Asian Art Museum, for **CHRS**. We may call on you for help with this project.

**CHRS "R.F.E."** - As a registered educational non-profit corporation, **CHRS** has a responsibility to educate the public about radio, radio history and related topics. Basically this is just spreading the word about what we do and who we are. The fact that we need to reach out to young people to perpetuate the vintage radio hobby, was discussed at our December and July meetings. One of the ways we are doing this is by maintaining our web site. Another way that was discussed is to provide **CHRS Journals** to schools and eventually, taking displays to the schools. To accomplish these last two goals, I would like to propose the **CHRS R.F.E.** program. **R.F.E.** stands for "**Radio For Education**". We borrowed these letters from "**Radio Free Europe**". The original **R.F.E.** beamed strong short wave signals from the West, directed to cover Europe. From WWII through the Cold War, **R.F.E.** was a source of uncensored news and information for the people of Europe. The **CHRS R.F.E.** will inform and educate about vintage radio, history and preservation. It has two phases. **Phase 1** involves members donating back issues of the **Journal** that they no longer need. We will package these with the extra **Journals** that the **Club** has, and offer these packages for distribution. Members can then pick them up and donate them to the libraries at their children's schools or schools in their neighborhood, and also to public libraries. **Phase 2** is more involved. It will require one or more people to step forward and form a working group to plan, design, build displays, coordinate, contact, organize, schedule, get a van donated to us, put presentations together, and take them to the schools. I know we have the manpower, talent, and hardware to put on great demonstrations and talks for students. I'll bet we have a few retired members who would love to tell "radio stories" to kids. The **R.F.E. Chairman** must be a person with the talent and vision needed to see our goals into the future. This is a big job but an important one. It's time that we made a real commitment to what we stand for. And that is more than a glorified flea market. Who will take this challenge and turn **CHRS** into a true **Historical Society**? For now, you can bring your **Journals** to the meets or get them to me and I will sort and package them for distribution.



**CONSORTIUM - Bart Lee** reports that there have been some sensitive negotiations involving certain **Consortium** principals and that an announcement regarding the **Perham Collection** is forthcoming. All of the principals have an optimistically, confident and positive outlook. Stay tuned for details.....

**SACRAMENTO CHAPTER** - Our group in the Capitol has changed locations for their monthly meetings. They have moved from the **SMUD** building to the **Commerce Community Bank Building, 1500 River Park Drive, Room #100**, off Arden Way near the Doubletree Hotel in Sacramento. They meet on the 3rd Tuesday of every month, at 7pm. All members are invited to attend these meetings and join the lively radio related discussions. Contact **Don Steger** at (916)-967-4630 or [evyanddon@aol.com](mailto:evyanddon@aol.com) for details.

**2001 EVENT SCHEDULE** - The biggest change will be at the September meet / picnic at the **Western Railway Museum**, on September 1st. We will hold the meet in the new parking lot outside of the new visitor's center. This means no lining up and unloading. You can sell from your car or truck. Our pot luck picnic will still be under the trees. See the schedule for details.

**"Fly and Swap"** - Where can you fill your airplane with radios fly it to a meet and sell out of the back of your plane? At the **CHRS** swap meet at **Oceano Airport in Pismo Beach** on October 6th. Pack the plane, pack the car, pack the kids, pack the radios and come on down to our annual fall classic. There is no nicer area than the central California coast in the fall. Take the weekend to explore this great area of our state. From **Hearst Castle** to **Dan Steele's Radio Museum**, there is something for everybody. There is wine tasting at many fine central coast wineries, exploring the **historic missions** and, of course, the **Pacific Ocean**. The motel rates in the area are very reasonable. Also, the train ride from the Bay Area is a wonderful experience. This year due to a communication error, **SCARS** is not listing this event on their schedule, so, it's up to **CHRS** to provide the turnout for the event. Get together with your pals and car pool down, for loads of fun! If you know **SCARS** members, tell them to join us and to spread the word about this meet. As usual, **Dan Steele**, who arranges the event, will open his radio museum at **"Bob's Radio & TV"**, after the meet. Members are invited to ogle **Dan's** collection, which is second to none. See the schedule for details.

**TECHNICAL RE-PRINT SERVICE & ADVISE** - **Larry Clark**, our technical advisor and librarian is looking for Riders vol. #20 through #23, and more of the Specialized Series of Sams. He also would like to have the technical articles from old issues of ARC and the AWA Old Timers Bulletin. **Larry** offers technical advice, or re-prints from Riders, Sams or anything in the library to our members. Call **Larry** for advice at (707)-745-9132. For reprints send \$1 and a S.A.S.E. to :

**Larry Clark**  
438 York Dr.  
Benicia, CA 94510

**WANT ADS** - Remember, you can place ads in our publications, **FREE**, if you are a current member. This is the most current batch of ads we have. Use the handy form on the last page to place your ads.

**THE CHRS LISTBOT** - Is an email ring that was set up for the 1899 activities. If you are a member of the **listbot**, you can send one message that everyone on the list will receive. This is just another way to exchange information or keep in touch. **Paul Bourbin** is the keeper of the **listbot**. If you wish to join, contact **Paul** at: [paulbourbin@hotmail.com](mailto:paulbourbin@hotmail.com) and he will sign you up. This is a private list, so there is no "spam".

**I'VE SAID ENOUGH** - I want to thank all the staff members who really make this **Club** function. I truly enjoy being your President and love to hear the positive comments. But this **Journal** thing is making me **NUTS!** I hope we can resolve it by next year. As always, I am available for your questions, suggestions or comments. Please contact me at , (415)-821-7671 or email me at [kushseal@flash.net](mailto:kushseal@flash.net)

Best Regards,



## **CHRS 2001 SCHEDULE**

Remember, no activity before scheduled start time and you must be a current member to sell. Check the **CHRS HOTLINE, 415-821-9800** or our website at **www.CaliforniaHistoricalRadio.com**, for the best and latest information.

**September 1st, Saturday, 9AM - Fairfield.** At The Western Railway Museum on State Route 12, between Fairfield and Rio Vista. Swap Meet and Picnic. Its more than a radio swap meet. It's trains. It's antique electric streetcars and interurban trains. Take rides on this historic rolling stock. Bring the whole family. It's a great location for a meet and picnic on the lawn beneath cooling shade trees. The kids may enjoy seeing the ducks on the pond. Your battery radios and wind up phonographs are welcomed. Vintage entertainment is always appreciated. Again this year, our Members have requested a pot luck picnic, so bring your favorite dish to share with others. A large bar-b-que grill is available. There is no sellers fee. Everyone must pay a special reduced Museum admission price for **CHRS** of \$6. Children under 12 also have a special reduced price of \$3. *This fee is an all day pass for the grounds* and includes the train rides, the car barns, new visitors center, gift shop, and you might get a private tour by one of the Museum volunteers. From the Bay Area, take I80 east, take State Route 12 towards Fairfield. As you see Travis AFB, in the distance, the road veers right. You will then go over three hills and at the bottom of the third hill, look for the **Western Railway Museum** on your right. Please RSVP on the HOTLINE, **415-821-9800** or Email **kushseal@flash.net**, with the number of people who will be attending, and the types of food that people will be bringing. Thanks to **Paul Bourbin**. This year, NO LINE UP TO UNLOAD. SWAP MEET, on the blacktop, ( the new visitors center parking lot) / POT LUCK PICNIC, under the trees !

**October 6th, Saturday, 8AM- Pismo Beach - Oceano Airport.** 561 Airpark Dr. Take this opportunity to fly your plane to the event. Campgrounds available. See **www.aircamp.com** (events) for map and details. Our meet will be live on the Web! Open House, featuring **Dan's** radio museum, to follow at Bob's Radio and TV, 238 Ocean View, Pismo Beach. Questions? Call **Dan** at 805-773-8200. Thanks to **Dan Steele**. SWAP MEET / OPEN HOUSE

**November 3rd, Saturday, 8AM - Los Altos Hills. Foothill College,** Lot "4". From I280 take the El Monte exit west. Follow the signs into the Campus. Go right at the tee, up the hill to Lot"4". Sellers fee applies. Buyer parking is free. SWAP MEET / AUCTION

**December 1st , Saturday, 2PM - San Francisco. St. Anne of the Sunset Church.** Entrance on Funston Ave. between Judah & Irving Streets. Free parking in the school yard. Follow the signs to the **Cliff Heinz Room**. Funston Ave. is 6 blocks East of 19th Ave, (Highway 1). This is a **GENERAL MEMBERSHIP MEETING - EVERYONE IS INVITED**, to express their views and suggestions about **CHRS** now, and in the future. Our 2000 meeting was very successful; so we will do it again. See you there!

**Sacramento Chapter** - Meets the 3rd Tuesday of every month, 7pm at the Commerce Community Bank Building, 1500 River Park Drive, Room #100, off of Arden Way near the Doubletree Hotel in Sacramento. All members are invited to attend.

### RADIO RHYMES

No. 6



"YOUNG MAN! -- I WOULD DESIRE TO GET YOUR VERY BEST SELECTIVE SET! --"



"CRAVE TO HEAR ONE SINGLE SONG -- AND NOT A MOTLEY SCRAMBLED THROG!"



"WELL SIR! -- PERMIT ME HERE TO SHOW A REAL SELECTIVE RADIO!"



"YOU TUNE FROM A DUE T -- AND HEAR A SOLO ON THIS SET!"

# CHRS Meeting Minutes, by Bill Wray

Dec 2, 2000

St. Anne Church of San Francisco

1:30 pm., Attendance approximately 25 people.

**Steve Kushman:** Meeting called to order; Introductions of officers and staff in attendance. Welcome to **Bill Wray**, replacing **Rusty Turner** as Secretary.

**Mallings** - It was decided that 4 Journals per year is too much. Voted and passed: A mailing of 2 newsletters and 2 journals will occur on the following schedule: Journal March 31, Newsletter June 30, Journal September 30, Newsletter December 31<sup>st</sup>. **Mike Simpson** discussed bulk mailing.

**Membership** - There are currently 470-500 members; mostly from the peninsula. **Lee Ailder**, VP, Publicity, will redesign the **CHRS** ad for the ARC and will investigate placing an ad in the San Jose Mercury News, for the Foothill meets.

**Treasurers Report** - The November Foothill auction was very successful. Income was \$1700. **Will Jensby** reported the club balance at \$15,859.57. The insurance bill will be \$1,335. \$1,350 is earmarked for the museum fund.

**Club Library** - **Larry Clark**, Librarian, reported the library has more room.

**Name Badges** - **Norm Lehfeldt**, badge chairman reported that the backlog is now at zero.

**Web Site** - **Mike Adams**, Email Chairman, reported that a new domain name (californiahistoricalradio.com) will be implemented. It was mentioned that we should get a "dot museum" name. **Mike** reported on the variety of email the club has received.

**Journal** - **Stephen Sutley**, Journal Editor, reported that **Herb Brams** would like to write some technical articles. **Stephen** would like to see some sort of feedback mechanism for the Journal quality and article ideas. He would like photos, interesting items and book reviews for the next journal. Cutoff date is the end of January.

## **General** -

**Charles D. "Doc" Herrold Award** - **Hal Layer**, VLF receiver expert and historian, nominated, 2<sup>nd</sup>, passed.

**Museum Report** - **Bart Lee** attends the meetings of the Consortium of Technical History Museums. They have decided that there is little interest in old radios, but interactive museums with an area dedicated to old radios is worthwhile. An "Electronics Museum of Silicon Valley" is forming, with shows on the Valley's inventors and entrepreneurs. **Perham.org** has more detail. If CHRS wants to start a museum, the Consortium may be a good mechanism to use. **Bart** discussed the Presidio 1444 radio station building. The Perham Foundation donated \$30k to do something with it. Special interest groups or working groups could be formed in the club for various activities. He reported that the Presidio (National Park Service) wants a higher insurance limit (2M) to cover our activities there.

**Club Future** - The need to get young people involved was discussed. School presentations and displays? Use the internet to encourage young folks? Find ways to attract women. Place old Journals in libraries and schools. Distribute old Journals at swap meets.

**Auctions** - It was agreed to allow auctions of personal items, with a set minimum, with the club receiving 10% of the proceeds, not necessarily at every swap meet.

**Closing** - Newcomer **Dan Jackson** and his uncle, **Richard Secondari**, introduced themselves. He worked on large ships and now collects older military gear. He is interested in the Presidio radio building project.

**Adjourned**, Bill Wray, Secretary



# Radio KKUP: the city's 'lost' voice

**By: JON HOORNSTRA**

In the beginning, it was a daunting three year struggle to build a radio station from scratch. A handful of young men, ready to take on all obstacles, had no license, no transmitter, no studio, no music library, no sponsors, no money. But they made it happen anyway.

Today, more than 30 years later, Cupertino's nonprofit radio station, KKUP (91.5 FM) is, by any measure, a great success story. It is bigger and stronger and unique among the nation's 12,641 radio stations. KKUP stands alone as the only station supported solely by its listeners, according to the National Federation of Community Broadcasters. All others either run commercials or take corporate and institutional underwriting.

Although the station's colorful history and success involved many area residents, it remains a largely unknown story. This article will explore that history.

KKUP started broadcasting in May 1972. It was born, not in a Cupertino garage, but only by chance events at a private school in Los Altos in 1969. In January of that year, Richard Nixon moved into the White House. The Vietnam War and protests dominated the news.

Against a background of expanding anti-establishment sentiment, four young men, none older than 22, none with more than two nickels to rub together, unexpectedly stumbled onto what major corporations pay huge sums to lawyers to find--an FCC broadcast license.

Everyone involved with KKUP names well known Bay Area radio personality Dana Jang as "the first" among the station's

founders. A graduate of Palo Alto's Cubberly High School, Jang today oversees programming for 13 suburban Chicago radio stations. But in 1969 he was a 22-year-old recent graduate of Santa Clara University, working on an MBA at San Jose State University possessing little more than inborn love of radios and broadcasting. He took any opportunity to learn the broadcast business. He worked at San Jose State's campus station, KSJS, as well as part-time at KSJO, one of first FM rock stations in the country, and KARA in Santa Clara.

It was early 1969 when Jang began to produce programs for KPSR, a low-watt educational station licensed to the private Pinewood Elementary School in Los Altos. Few people at Pinewood today, including principal Alice Johnson, ever knew the school once had a radio station. And it's unclear what the school's founder, the late Gwenn Riches, had in mind for the station in Pinewood's overall curriculum. But the need to resolve disputes over programming eventually led Riches to abort her plans. Jang, along with fellow programmers Kevin McCaffrey and Dave Hurd, were stunned when Riches announced she was shutting the station down and would surrender her license back to the FCC. They also recognized it as a rare opportunity and decided they would do something about it.

Moving from that moment of opportunity to the station's first broadcast in 1972 would be the adventure of a lifetime. The young men set in motion forces that would eventually see the station grow from a meager 10-watt voice originating from a Monta Vista "hole in the wall" to a mature 200 watts transmitting from the highest peak in the Santa Cruz mountains. Decisions made in 1969 were the start of an intense civics lesson: KKUP's founding crew had to overcome government bureaucracy, get around military secrecy, learn the value of

congressional help, cope with a sometimes eccentric mountain property owner and, above all else, raise money. We will also revisit some Cupertino leaders with foresight and a willingness to mentor, traits that, sadly, fell by the wayside as time passed. Of course, every story of pioneers has colorful characters on stage. This story is no exception.

"Radio was fun for us," Dana Jang said as he reflected of how a half-dozen young men started radio station KKUP-91.5 FM 30 years ago. "Our vision was to start a station for the youth of the community, to be diverse, and not play the music commercial stations were playing."

KKUP today is a robust 200-watt voice of alternative programming that enjoys the freedom that goes with financial support solely from listeners.

But life was lean in the beginning. Kevin McCaffrey worked with Jang at Pinewood Elementary in Los Altos in 1969 when the school gave up the FCC license KKUP would seek. Today, McCaffrey is a veteran at EMI, the marketing arm of recording industry giant Capitol & Virgin Records. But in 1969 he lived on a typical De Anza College student's budget.

"Our idea was to make the station open and available to the community and start a tradition of community radio in the South Bay," he recalled. With nothing but opportunity at hand, they wasted no time. The two enlisted the help of Dave Hurd and Tom Levenhagen, both radio enthusiasts and active in area rock bands with a network of like-minded friends.

They incorporated the Radio Club of Cupertino with strong backing from leaders in Cupertino. The FCC license application included declarations of support from Cupertino's Jaycees; the city itself, Monta Vista High School's first principal, Dale Deselms, and his counterpart at Cupertino High



School, George Fernandez, among others. Levenhagen, with a natural ability to put toasters and TV sets together as well as take them apart, worked with another volunteer, Mike Emery, to prepare the FCC application. Emery was an FCC-licensed engineer.

"It required almost 100 pages of detailed information that we had to submit in triplicate," Levenhagen recalled. "We had to provide aerial photos of the broadcast area and transmitter site, plus engineering details of our equipment and sketches of the studio." The FCC also required a list of all frequencies used by transmitters within a 50-mile radius.

"Commercial radio and TV frequencies were easy to identify," Levenhagen said. "But getting military installations to disclose their frequencies was another matter." When asked how they got them, he would only smile.

The future broadcasters were on a roll. By September the FCC application had been sent to Washington. Cupertino had offered them two choices for a studio location. Jang, McCaffrey and Levenhagen toured an old farm house on the exact spot where Cupertino's senior center now stands. John Parham, head of the parks and recreation department, offered a small bedroom. But it was much too small.

Instead, they chose an old house on Pasadena Avenue once used by Monta Vista's water department. That choice also made them personally liable for \$10,000, the cost to Pacific Bell to run phone lines to the transmitter on Mount Umunhum. That was more money than some of their parents earned in a year.

Mount Umunhum, where the legendary Loren McQueen ruled, was good to KKUP, cost-wise. The McQueen family had owned mountain property since the early 1900s and, according to people with business on the

mountain, McQueen often patrolled his property in a jeep with a racked rifle or shotgun.

"McQueen liked to practice the art of intimidation," Jang recalled, "but he generously offered us a place for \$1 a year, and we were grateful." KKUP would share space with other transmitters, including a powerful U.S. Air Force radar.

But the outlook for KKUP suddenly turned grim. The FCC returned the application, ruling they didn't qualify because the Radio Club of Cupertino was not an educational organization.

A clump of tattered papers, held together by cheap string, arrived by third class mail in the fall of 1969. Too big for the mailbox, the 100 pages were dropped on the porch of KKUP's (91.5 FM) "studio," a mostly empty house rented for \$1 from the City of Cupertino. The "clump" was an FCC rejection of their application for a broadcast license, because they were not an "educational" organization.

Spirits at the old house suddenly sank. Though small in number and none older than 23, the applicants had so far amazed everyone with their ability to meet FCC demands. They had produced closely-guarded FAA runway charts, aerial photos, engineering drawings and radio frequencies used by military bases. In spite of that, plus broad community support, the powerful FCC stopped them.

A solution was found. Dave Hurd, who graduated from Homestead in 1969, was set to begin classes at UC-Santa Barbara that fall when the FCC notice arrived. He turned to his father, Walter L. Hurd Jr., for advice. The senior Hurd was a quality control executive at Lockheed in Sunnyvale and a man with extensive contacts. Hurd, a veteran pilot of World War II and reserve Air Force brigadier general, was a founding member of the respected Assurance Sciences Foundation. The ASF was a

professional association of industry quality control specialists. Most salient, ASF was both a nonprofit and educational organization.

Within days, Hurd and the ASF "adopted" KKUP, listed itself as the applicant for the broadcast license and sent revised paperwork back to the FCC. They would use the Radio Club of Cupertino to operate the station.

An Oct. 22, 1969 letter from then Rep. Charles S. Gubser (R-CA.) assured the senior Hurd that Gubser would "insure the orderly processing of the application." After that, the FCC's mail was First Class and permission to build a transmitter atop Mount Umunhum arrived in early 1971.

Tower construction began in April, led by a crew consisting at first of Mike Emery, Rex Warner and Tom Levenhagen. Another, John Frey, would join later that year.

They did things usually left to veteran contractors. They coordinated the laying of new phone lines from Cupertino and a new run of PG&E power lines from a nearby hilltop. They did almost all of the tower construction themselves, Levenhagen recalled.

"The first 10-foot section had to be buried in concrete nine feet deep," he said. "Then we went straight up 100 feet, placing guy wires every 30 feet for stability."

But some things they couldn't do themselves. FM broadcast antennas had to meet exact FCC specifications. With no money for expert help, KKUP's engineers could only stare at a set of old rusty antenna elements someone donated. But Lockheed intervened, again.

"A Lockheed engineer named Al Gaetano saved us," Levenhagen recalled. "He took those rusty relics, redesigned and re-machined them, then returned them with NASA certification and test data for

the FCC." Problem solved.

Work on the mountain could be comical. Frey, then 16-years-old, recalled a day in 1971 when they stopped work to watch a long flatbed truck carefully work its way up the mountain road. Incredibly, a Navy jet fighter was strapped to the flatbed without even a tarp for cover. When the driver emerged, it was clear he'd made a wrong turn. He asked, "Is this Alameda Naval Air Station?"

Levenhagen had his own "situation" with mountain landlord, Loren McQueen. Levenhagen and another engineer headed for the transmitter one day when McQueen stopped them.

"Who's that hippie with you?" McQueen demanded, pointing at Levenhagen. Today, Levenhagen recalls he was fresh from army boot camp, hardly the shaggy hippie, but he did have a mustache.

The driver explained who Levenhagen was, but McQueen was not satisfied.

"I don't want see him up here again." McQueen said as he sped off in his jeep.

On May 6, 1972 KKUP (FM-91.5) went on the air from studios in Cupertino, marking the start of nearly 30 years of community radio.

From the beginning, persistence and hard work produced the quintessential American result: success. With a transmitter they built themselves atop the 3,400-foot high Mount Umunhum, KKUP's first engineering crew had a panoramic view north to San Francisco and south to Monterey. Their small 10-watt signal was enormously effective.

"For just 10 watts, it was perhaps the best signal in the country," according to Mike Danberger, once a KKUP volunteer and now a senior radio engineer at San Jose media giant, Empire Broadcasting.

With that signal, KKUP had become a force in valley broadcasting and an asset to Cupertino.

The soul of the station emerged from its studios in an old water building rented from the city. There, an eclectic army of volunteers produced alternative programs not found anywhere else, such as jazz, bluegrass, country, reggae, Latin and folk. And they were influenced by the mood of the times, often reflected in the warning from '60s radical, Abbie Hoffman, who said, "Never trust anyone over 30."

"It was idealistic," said founder Dana Jang. "The idea was to reach the youth of the community, to be diverse and not play the music Commercial stations were running."

One of the early producers, John Draper, would later write one of Apple Computer's first word processing programs. Dubbed "Cap'n Crunch," Draper was briefly infamous for modifying a cereal box whistle to defeat the Bell Telephone system's billing system. At KKUP, he was a perfect fit. Late in the night, Draper often put the turntables in reverse just to see if any listener would call to report that the music was playing backwards.

Another original program was a Saturday cooking show hosted by Cupertino High school student John Frey. He talked listeners through the steps on an electric skillet as sounds sizzled over the air. Before serving himself, Frey put a microphone on the floor next to a full plate "for a small dog named 'Gus,' whose licks and slurps let the audience know it was good stuff."

But KKUP was a business as well as an adventure. The station's board of directors constantly searched for money from listeners and foundations, benefit concerts and car washes. By 1980 most of the original

founders had reduced their involvement at KKUP, and new managers found themselves under pressure from rent hikes from the city and, later, a demand that they move out so the city could sell the site to a developer. KKUP was to be evicted.

The exact date KKUP moved to even smaller space on Imperial Avenue is remembered by a veteran Cupertino employee, facilities supervisor Jim Davis.

"The day I was hired, my first assignment was to clean out the building KKUP left," Davis recalled. "And that was Mar. 19, 1980."

KKUP continued to struggle in its relationships with primary benefactors like the city. In 1981, even their landlord on Mount Umunhum, Loren McQueen, evicted them. Meanwhile, volunteers like Rick Nagle and Joe Sodja pleaded for help at city hall, but to no avail.

De Anza College offered a brief, sliver of hope. The minutes of a Feb. 9, 1983, board meeting indicate the presence of Dr. George Sloan, a dean at De Anza. A formal lease agreement was published the next month, but no one available today knows why it was never signed. The head of De Anza's television department at the time, George Beers, said from his Foothill College office last week that he has little recollection of it.

The station's dispute with McQueen ended when they found an even higher transmitter site on Mount Loma Prieta in 1986. But 10 years later following a series of rebuffs from the city, KKUP finally had to move. Again, the mystery is that no one at city hall seems to remember.

"I can't find any institutional memory of KKUP," said Rick Kitson, the city's information officer.

KKUP sought help at the same time the city launched a major campaign called "The Heart of the City," an effort to establish an



identity, "a visual sense of place" as one panel put it. It resulted in an expenditure of tens of thousands of dollars to build median strips and plant foliage on Stevens Creek and De Anza boulevards.

Apparently City Hall failed to see that part of the answer was a successful, radio station that had cost the city almost nothing.

###

The previous article first appeared as a series in the **Cupertino Courier** earlier this year, and is reprinted here with their generous permission.

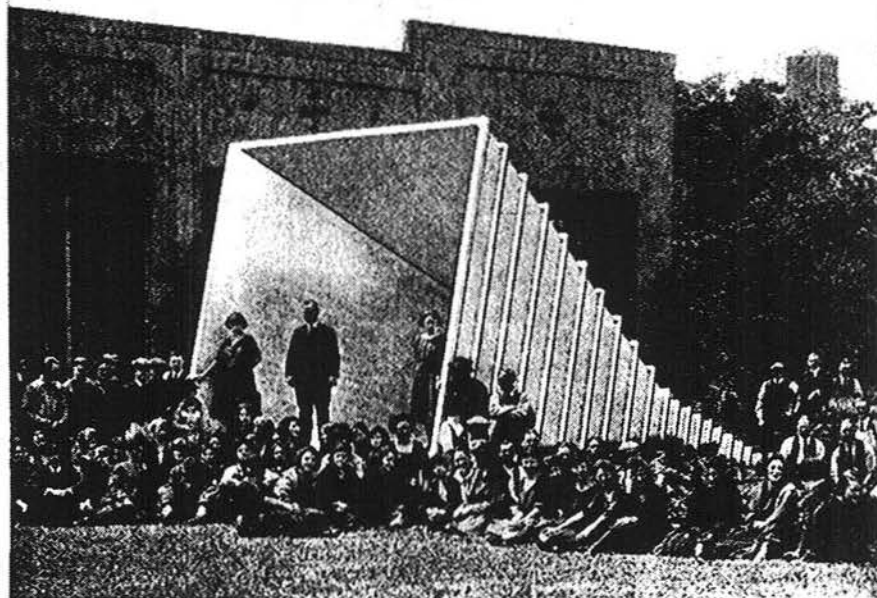
## Member News

Herb Brams writes: There are a lot of nice radio sets around for which the original cabinet is missing and hard to find. Recently I have been having fun making cabinets for these sets. I particularly like table radios from the mid 1930's with large, round dials. These sets were usually housed in tombstone shaped cabinets, which are fairly easy to build. Although I do not have the skills to reproduce the original cabinet, my homemade sets have turned out very attractive and fitting the style of their time. At least, I have given a fine set a good home. Eventually, I would like to be able to build cathedral shaped cabinets. Any suggestions?

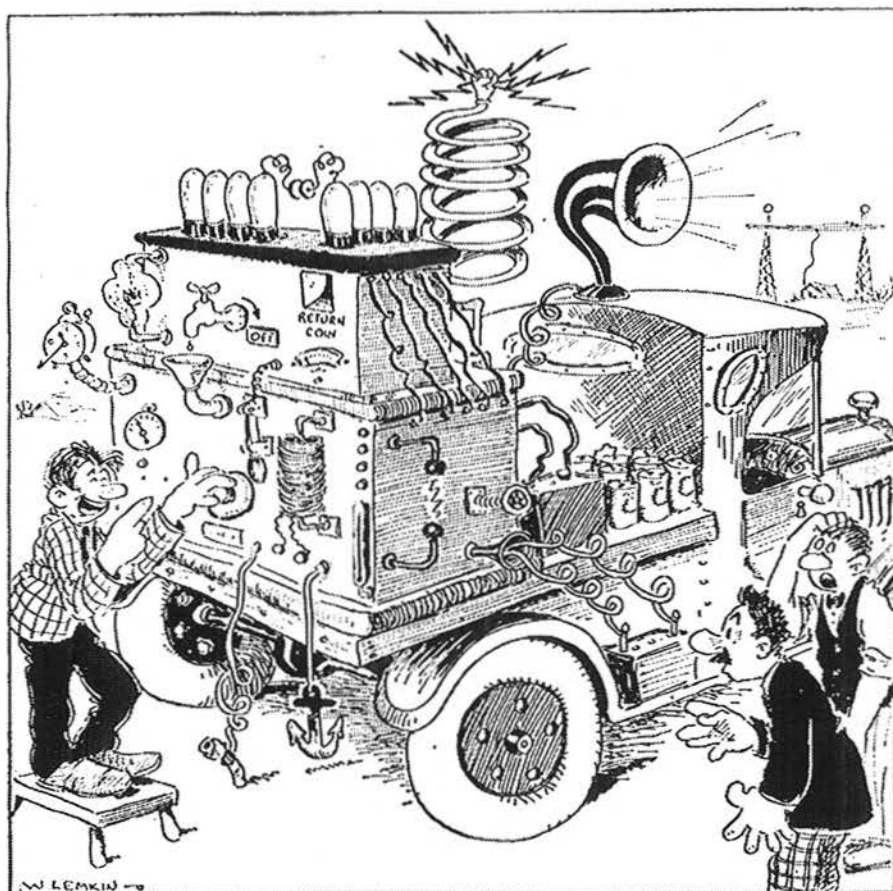
**Herb Brams**  
**20 Regent Pl.**  
**Palo Alto, CA**  
**94301**  
**(650) 328-1139**

ICHO

## THE 1st SUB - WOOFER!!!



*A gigantic exponential horn made in 1922 for the purpose of studying sound waves in this type of horn. It was capable of amplifying the lowest audible tones.*



*"The shrill, whistling sound ceased, and all that was heard was the carrier wave; a sound similar to the one caused when steam escapes from a radiator."*

# When the Flashes!

## What happens to broadcasting after a ship at sea sends out the call for help

by Orrin E. Dunlap, Jr.

Above is the doomed ship "Antiope" as seen from the rescuing American liner "President Roosevelt," which was summoned by an SOS to

stand-by in a raging gale for four days, until the crew of the British vessel could be saved. © Herbert Photos.

**D**ID you ever tune-in on the radio and find it "dead" for no apparent reason? The tubes burn in all their glory, but all is silent. You rush to the roof to see if the aerial is still there. Then you test the batteries; the voltmeter needle jumps to a high mark. Well, you do about everything imaginable in an effort to bring back the music, but every diagnosis fails. Why is the set "dead"? A radio service man will have to perform an autopsy. It is Sunday, of course; the radio store is closed, so the "doctor" cannot be summoned until morning. The home seems "lost" without its radio!

So you decide to go out to the movies, but you don't enjoy the show because, all the time, there is that tingle in your brain that such a fine radio set as yours cannot have anything wrong with it. It never failed before. No one was tinkering with it. And what makes it more aggravating is the fact that there is absolutely no symptom of anything out of order. You reason it all out in the movie theatre. At 10:30 you return home determined to perform the autopsy on the receiving set yourself. The switch is snapped and—lo and behold—the loud speaker pours forth its music! What a grand and glorious feeling!

But what could have been the trouble? The next morning you read in the paper that "An SOS silenced broadcasting for an half hour last night." The moral is—when the radio set goes "dead," have more confidence in it. Call up a neighbor and see if his loud speaker is silent too, before you become "expert" and begin the hunt for trouble. When a radio set owner begins to look for trouble he will find it, or, more precisely, create it, nine times out of ten. An SOS applies the most exacting test of the confidence you have in your receiver.

### THE PROGRAMS GO ON

But what happens in a broadcast studio when the three dots, three dashes and three

dots of distress flash in from the sea? It matters not who is facing the microphone, whether it be a staff bedtime-story teller or \$67,000 worth of talent—the SOS has the right of way!

An SOS does not necessarily suspend the activities of all broadcast transmitters. The "key" stations of the radio "chains," as they are on the Atlantic seaboard, may go off the air; but the program is sent out over the wire lines to the inland network, unaffected by the call from the sea. In fact the artists continue to entertain blissfully unaware that an SOS has greatly reduced their audience.

When an SOS silences broadcasters along the Atlantic seaboard at night, it opens up for the DX fan an excellent opportunity to tune for the elusive waves of distant stations. An SOS clears the New York air for broadcast reception, like the arrival of midnight when many of the eastern announcers bid their audience good-night.

It is seldom that such broadcasters as KDKA, Pittsburgh, and others west of the smoky city sign off because of an SOS. But the fifty-two transmitters nestled in the metropolitan area of New York go off the air immediately; because the big transmitter known as WNY at Bush Terminal, in Brooklyn, N. Y., or that of NAH at the Brooklyn Navy Yard instantly endeavors to calm the ether and establish communication with the ship in distress, or with other vessels in the immediate vicinity. A 2-kilowatt "spark" transmitter is used at such times, because it radiates a much broader wave than a vacuum-tube outfit and, therefore, is more likely to be intercepted by a greater number of stations when it broadcasts "QRT (stop transmitting), ship in distress."

### THE RIGHT OF WAY

The Federal Radio Commission is authorized to designate radio stations the communications of which are liable to interfere with the transmission or reception of dis-

tress signals from ships. Such stations are required to keep a licensed radio operator listening in on the wavelengths designated for distress calls, during the entire period while the broadcast transmitter is in operation.

Every radio station on shipboard must be equipped to transmit distress calls on the frequency or wavelength specified by the licensing authority, with apparatus capable of transmitting and receiving messages over a distance of at least 100 miles by day or night. When sending signals of distress, the transmitting set may be adjusted in such a manner as to produce "a maximum of radiation irrespective of the amount of interference which may be caused."

The radio law stipulates that, "All radio stations, including government stations and stations on board foreign vessels when within the territorial waters of the United States, shall give absolute priority to radio communications or signals relating to ships in distress; shall cease all sending on frequencies or wavelengths which will interfere with hearing a radio communication or signal of distress, and, except when engaged in answering or aiding the ship in distress, shall refrain from sending any radio communications or signals until there is assurance that no interference will be caused with the radio communications or signals relating thereto, and shall assist the vessel in distress, so far as possible, by complying with its instructions."

So while you are sitting comfortably at home enjoying the Goldman band, the Edison String Ensemble or the New York Philharmonic Orchestra, just picture the licensed radio operator on his tiresome watch, wearing the headphones connected to a set tuned to the 600-meter wave, not so far above the broadcast band. What does this man do if he hears the three dots, three dashes and three more dots?

When a radio watchman in the New York area hears a plea for assistance, he first



verifies it by telephone with the District Communications Superintendent of the Navy Department in the Whitehall Building, which is in constant touch with the Brooklyn Navy Yard station, NAAH.

#### THE CODE SIGNALS

Many times, before the watchman at the broadcast transmitter has had time to verify the call with the District Communications office, NAAH flashes "QST DE NAAH QRT SOS"—meaning, in the parlance of dots and dashes, "General Call from NAAH, clear the air because of an SOS!" This is an order to all stations in the district to sign-off, whether they be broadcasters, ship or shore transmitters. When this call is heard—or before that time, in the case of an SOS which has been intercepted by the watchman and verified by the District Communications office—the operator at the broadcast transmitter immediately tips a little switch which cuts the station's program from the air. Then speaking into a microphone, he announces that the station is signing off because of an SOS. The transmitter is silent, but the tubes are kept burning because, generally within a short time, the air will be clear again.

In the meantime, code transmitters from Cape Race to Key West are endeavoring to communicate with the disabled vessel, using for this purpose every fraction of the power they possess. The Navy Yard station continues to send out its warning, in case a ship unaware of the SOS begins to transmit.

Broadcast listeners who are able to read the Continental Morse code and the quick flashes of radio abbreviations can often follow the rescue arrangements; for the

broadly-tuned signals will penetrate into the upper reaches of the broadcast band. Usually, one shore station will direct the rescue, and within a short time this station will have communicated with vessels close to the ship in need of assistance. In communicating with the coast station, ships first ascertain the position of the disabled vessel and then report their distance from the ship in hours. One or two vessels will be assigned to speed to the rescue and, once they have changed their courses, the "All clear" signal, which is two dots-space-dot, is sent out by the land station and broadcasting is resumed.

#### EARLY DAYS OF "WIRELESS"

Do you know the evolution of the cryptic "SOS" that silences your radio? It really begins with the first marine accident to be reported by "wireless," on April 28, 1899 (long before the days of broadcasting), when the steamer *R. P. Mathews* collided with the East Goodwin Sands Lightship, off the coast of England. The call for help was picked up by a shore station twelve miles away and a rescue party was dispatched to the scene of the wreck, reaching it in time to save all lives. This proved the value of radio at sea, and revealed the necessity of an international distress signal which could be understood easily by the operators of all nations, despite differences in language.

The call "SOS" passed through a process of evolution. The first suggestion for an international distress call for ships was made by the Italian delegates at a preliminary meeting to consider radio telegraphy, held at Berlin in 1903. The Italians sug-

gested the adoption of "SSSDDDD." All agreed that such a call was needed but the choice was left to a special conference. Shortly after the Marconi Company instituted "CQD."

Erroneously, "CQD" was translated by the public to mean "Come Quick, Danger." It was one of the signals radio adopted from the land telegraph which, because of its higher state of development, was governed by rules formulated and established by an international convention. Among the telegraph rules was the authorization of a group of double-letter symbols used by operators to abbreviate and speed-up traffic.

"Q," being one of the least-used letters in the English alphabet, is distinctive and can be recognized easily. The call "CQ" on a railroad or commercial telegraph line means that the operator sending it desires all other operators along the wire to listen to his message. When radio adopted "CQ," it took the meaning "Stop sending and listen." Alone, it is important but no cause for immediate alarm. But, in the early days of radio, if the operator followed the "CQ" with the letter "D"—the signal of danger and distress—it became a message of general alarm.

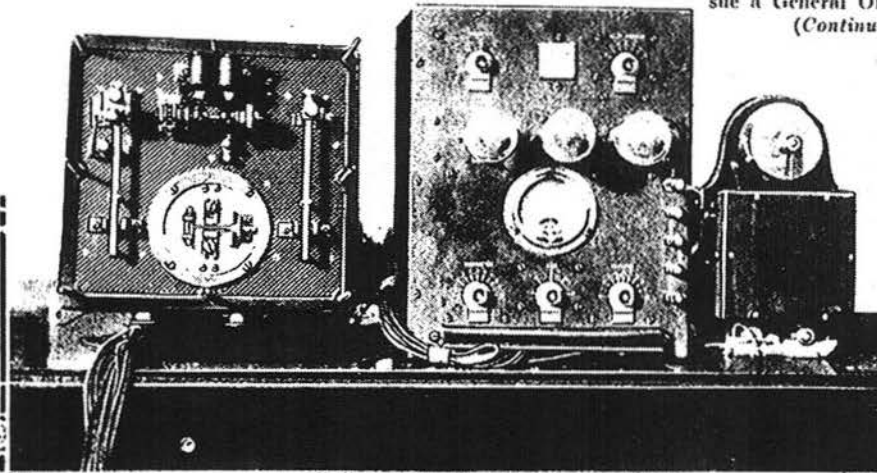
So harmless is the "CQ," without the "D," that even today it is a custom among amateurs and commercial operators to send "CQ" in dots and dashes as a signal that the station is on the air and free to handle traffic.

#### "SOS" FROM THE "TITANIC"

Several minor emergencies at sea revealed that "CQ" did not sufficiently express the urgency required for distress purposes. This prompted the Marconi Company to issue a General Order "Circular No. 57" on

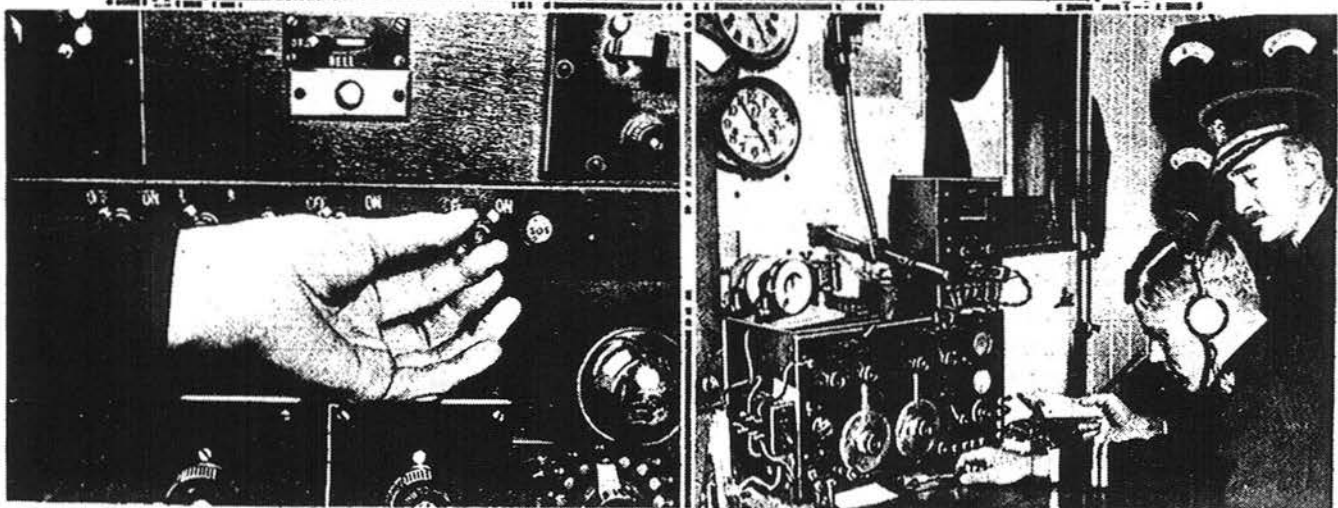
(Continued on page 17)

Below (lower left), the switch which is turned at station W E A F when a SOS is received by the operator who keeps constant watch. This disconnects the remote-control line from the transmitter and broadcasting stops, so far as this station is concerned; though inland stations may continue. © Herbert Photos.



In the center, above, is the latest Marconi Automatic alarm apparatus which takes the place of an operator in switching for SOS signals. It selects the distress signal from any other messages and sounds a bell. © Wide World.

Below (at the lower right), a view of the operator's room on the S.S. "Southern Cross," showing receiver and telegraphic transmitting key. © Herbert Photos.



# "ON THE SHORT WAVES 1923 - 1945"

by Jerome S. Berg  
(MacFarland & Company,  
ISBN 0-7864-0506-6)

Book review by Bart Lee,  
KV6LEE, xWPE2DLT  
(595 Market Street, suite  
1350, San Francisco, CA  
94133)

Radio on short wavelengths opened up the world. Commercial interests exploited the discoveries of the amateurs in the early 1920s, that wavelengths under 200 meters could girdle the globe. The broadcasting craze of the 1920s featured a desire to hear distant stations, DX. The short waves on which stations began to broadcast in the late 1920s and early 1930s made world-wide DX a nightly event. Like local broadcasting before it, the short wave broadcasting of the 1930s generated an enormous enthusiasm: Radio Redux. Jerry Berg has now chronicled the history of that phenomenon. We all owe him a debt of gratitude. He has written a very good book indeed. Everyone who has ever tuned a dial above 1600 kcs ought to buy it. You'll like it.

"ON THE SHORT WAVES, 1923 - 1945", tells the story not only of broadcasting, but of short wave listening as well. Jerry quotes Hugo Gernsback in 1926: "I cannot imagine any greater thrill, than that which comes when I listen, as I often do, to a station thousands of miles away. It is the greatest triumph yet achieved by mind over matter." Jerry sets forth who the broadcasters were, and in the increasingly tense 1930s, what they were trying to do. He provides great detail on the listeners as well, not only the hobbyists and

the casual, but also the World War Two volunteers who monitored tirelessly for news of prisoners of war, to notify their families.

The book distills station histories, equipment, publications, ephemera (e.g., QSL cards and EKKO stamps), personal-ities, clubs and the events of the world, into 272 pages of well written and superbly illustrated text, with scholarly notes and a thorough index. Outstanding as it is as a source of historical material, its is even better for enjoyable reading by anyone with an interest in radio, its powers and its development. Not until the coming of the world wide web on the internet has a technology had so much impact on the world of nations.

Short wave radio, as Jerry tells its story, made us all internationalists, because it brought the voices of the world directly into our homes, not only our radio rooms, (however modest), but into our living rooms as well. Unedited, unmediated and unspun, we could hear the world and make up our own minds. DX took on world as well as national meaning, and the book lays it out. To this day, a short wave radio provides an unmatched ear to the world, and we should be thankful to Jerry for telling its history so well.

But what of an encore? A Compact Disk with this story, and with accompanying audio, and the illustrations in color? A coffee-table size book with color illustrations updated to Y2K+2? A second volume 1945 - 1995, the cold war in the ether? If Jerry Berg does any of these, you may be assured they will be of equally high quality with this book. Go buy it.

73 de Bart.

(Note of full disclosure: I am personally indebted to Jerry for his generous help in providing materials from the Committee to Preserve Radio Verifications (ANARC), and a pre-publication draft of his FINE TUNING article on which the book is based, for my presentations on short wave radio history at recent conventions of the Antique Wireless Association and my forthcoming Radio Spies article in the AWA Review.)

##

## New York Times 1912 VOICES HEARD BY WIRELESS

### Marconi Operator Picks Up Conversation 150 Miles Away

SAN FRANCISCO, Dec. 18.—A demonstration that wireless methods may be used for transmission of the human voice was made on the recent trip of the Pacific Mail liner *San Jose*, which reached here to-day from Panama. Last Monday, while off the Lower California coast, C. H. Kessler, the ship's Marconi operator, distinctly heard conversation while he was taking a wireless message. The conversation was a test of wireless telephones between Catalina Island and the mainland of California, and was carried on 150 miles from Kessler.

At noon, when R. H. Shimek relieved Kessler, he also heard scraps of conversation, as well as music from a phonograph. As several passengers were around the wireless room he gave them individual receivers, and they heard ragtime music distinctly, and even danced around the deck to the tunes. The Captain was called in and heard the music.

This experience was said to be the first of the kind ever recorded, and it suggests that the wireless at sea may yet be handled like the telephone, which would be a great economy in time of transmission, especially in the case of vessels in port.



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# Dr. de Forest Talks on Radio

Forecasts of the Near and the Distant Futures of Broadcasting, Television, Radio Apparatus and Radio Entertainment

**I**N the "Home Science University" series of Station WRNY, broadcast on January 11, 1928, Dr. Lee de Forest was interrogated by the Editor of Radio News on a number of radio subjects. The entire interview is published, *verbatim*.

**MR. GERNSBACK:**—The questions which I am going to ask you tonight, Doctor de Forest, are put to you in such a way as perhaps the man in the street would put them to you, if he had the opportunity or, may I say, the good fortune to speak to you. I shall try and make the questions as simple as possible; because you appreciate that, perhaps, not all of our listeners are technically inclined, and few can know all the technicalities. The first question is:

*"What do you consider the greatest step in radio progress for the year 1927?"*

**DR. DE FOREST:**—Mr. Gernsback, before I answer that and the following questions, I want to say to the radio audience, that my remarks tonight will not be too technical. From the tenor of the questions which are being proposed to me, I am talking on strictly radio technical matters; but I trust that I will use language that those really interested in radio will understand. Now in answer to your first question, I consider that the most important radio developments in 1927 come under the heads of the rapid elimination of "A" and "B" batteries for radio receiving sets, and the progress in the development of short-wave-length broadcasting. Great progress has also been made during the past year in the simplification and standardization of tuning devices; so much so that, for all local work, the single-dial control, even though this may operate three or four condensers, gives fine selectivity and adequate volume. The DX fan still wants individual-stage control with vernier condensers; but the great mass of radio listeners, who now overwhelmingly preponderate in and around our larger cities, are rapidly becoming educated to the fact that the very best they can obtain of radio anywhere comes from nearby stations. Therefore the extreme accuracy in tuning each individual R.F. amplification stage, in order to pick up with maximum volume long-distance stations, no longer appeals as it did.

**MR. GERNSBACK:**—Thank you, Doctor. Another question:

*What are your views on the present broadcast art?*

**DR. DE FOREST:**—It is a source of immeasurable gratification to me to observe the very marked increase in the quality of musical programs now being broadcast, as compared with that of two years, or even one year ago. This is particularly noticeable on Sundays; a lover of good music may then listen to his radio for hours at a time and hear nothing but music of the highest order. Today's radio is abundantly making good my prediction of many years ago, that radio would be instrumental, as no other institution of man's creation possibly could be instrumental, in a rapid develop-



Dr. Lee de Forest

ment of the public's taste for good music. Countless thousands are now educated to hunt for and genuinely appreciate a type of music of which five years ago they were entirely ignorant, or under no conceivable condition would trouble themselves to hear. This cultural influence of radio is cumulative, accelerative. I have no doubt that, five years from now, most of the cheap jazz and mediocre music which the public now enjoys will be as distasteful in the United States as it has always been among the more cultured and music-loving peoples of Europe.

**MR. GERNSBACK:**—That probably answers the next question, which I shall put to you anyhow.

*In what directions do you think present broadcasting should or can go? What are your views?*

**DR. DE FOREST:**—That calls for a somewhat more technical answer. As to the technical developments awaiting us in 1928,

*The accompanying lecture was recently given over Station WRNY, New York, during its regular Wednesday evening feature, "The Home Science University."*

*During this hour, well-known personages in the arts and sciences lecture at WRNY and Mr. Hugo Gernsback, Editor of this publication, conducts an open forum.*

I am sure that great strides will be made in the matter of improved quality of reproduction. The better type of console radio with built-in loud speakers, particularly the higher-priced ones with phonograph combined, will be more and more in demand. And as prosperity becomes more widely distributed, and particularly as the educative influence of radio, above mentioned, works its indirect benefits, more and more will discard their cheap "noise-boxes" in favor of more expensive and properly-designed amplifiers and loud-speakers. Much progress will be made in 1928 in the field of broadcasting with short wavelengths below 50 meters; but it will take more than one year to iron out successfully the intricate difficulties involved in building reliable receivers for operating on such short waves. It will be a long and slow process of infiltration that short-wave broadcasting must undergo before it can invade, to any large degree, the popularity which the present range of broadcasting channels now enjoys.

**MR. GERNSBACK:**—Dr. de Forest, you probably read a few days ago, that Harry Lauder said he would never broadcast. He said the present reception is not at all what it should be. I don't know whether you read that in the newspapers. That brings the question:

*"Wherein does the present-day radio set fail, if it does fail?"*

**DR. DE FOREST:**—I had not read that article; but it exactly fits with a statement made to me at luncheon today with a friend who recently met ten of the Players at the Players Club. He said he talked with them about radio, and he found that only one of the ten owned a radio set; five of the ten had owned radio sets but, with their ears so well trained to fine enunciation and fine music, they discarded the sets; and the other four were not interested in radio.

Many present-day radio-sets are deficient in the quality of their audio amplifiers and particularly in the loud speakers employed. The radio-frequency and detector systems have attained a high state of refinement, but too little attention has been paid up to date to the audio-frequency-amplifier end of the receiver. Too little iron is used in most of the transformers; too few amplifiers employ push-pull circuits; and there is too little inclination to employ expensive power tubes in the last stages; with the result that we frequently have distortion due to saturation in the transformers, or overloaded tubes somewhere along the line.

**MR. GERNSBACK:**—That partly answers my next question, which I will put to you if you have something more to say about it, and that is:

*What is lacking to make present day sets more perfect?*

**DR. DE FOREST:**—I think the greatest need in that direction is better audio-frequency



## Dr. de Forest Talks on Radio

amplification and, particularly, better loud speakers. I do not consider any of the cones now on the market come anywhere near the perfect loud speaker. Cones invariably favor some frequencies at the expense of others and most of the cones, while over-emphasizing the bass, put a mask of "paper rustle" over the higher frequencies. Although more expensive, more clumsy, and demanding more space, and altogether less artistic, there are certain types of non-metallic horns now on the market which, with proper loud-speaker units, give far better reproduction than any 18-inch cone. I strongly advocate a radio set built into a large console cabinet with sufficient room to take in one of the larger exponential horns. I know of one or two such combinations of radio and phonograph in one cabinet now being developed, though not yet on the market, which give incomparably better sound reproduction than anything with which the radio public is familiar.

MR. GERNSBACK:—

*Dr. de Forest, are you convinced that the present-day alternating-current set is a step in the right direction?*

DR. DE FOREST:—As to the technical developments awaiting us in 1928, very rapid progress has been made by a number of leading manufacturers in the solving of the problem of applying raw A.C. to the filaments of the tubes and several first-class sets are now on the market using these tubes, thereby being made entirely independent of "A," "B," and "C" batteries. There is no question that the trend of the industry is entirely in this direction and that, during the ensuing twelve months, we will see the storage battery eliminated, except for the cheaper class of sets. This will be a development which every user of radio must heartily appreciate. The storage battery has from the start been a very serious nuisance in the home and will shortly be quite superfluous wherever electric current, A.C. or D.C., is available. The better type of console radio with built-in speakers, particularly the higher-priced ones with phonograph combined, will be more and more in demand. And as prosperity becomes more widely distributed, and particularly as the educative influence of radio works its insinuating benefits, more and more will the radio public favor the more expensive and properly-designed amplifiers and loud speakers.

MR. GERNSBACK:—

*For the next question, Dr. de Forest, the new so-called "screen-grid" tubes make it possible to use much less current than the old-type tubes. Do you think multi-tube sets with little battery consumption a possibility, and that battery-operated sets might yet prevail in the future?*

DR. DE FOREST:—Notwithstanding the greater current economy which the double-grid tubes permit, I do not think that multi-tube sets for battery consumption will ever again be popular. I think the day of general use of the storage battery and the dry battery is rapidly drawing to an end. The great convenience and sense of satisfaction in knowing that you are not dependent upon a battery which may give out in the midst of a particularly-desired program, will outweigh any other considerations just as soon

as the socket-power units and the A.C. tubes are a little further perfected.

MR. GERNSBACK:—

*What are your views on television, in view of the past experiments by Baird of London, and by the research engineers of the American Telegraph & Telephone Corporation? Do you believe television attachments to radio sets a matter of the near future? If so, how soon?*

DR. DE FOREST:—I am quite naturally interested, and have inspected the work in television which has been carried on in this country, particularly that by the American Telegraph & Telephone Corporation. I must pay the highest possible tribute to the ingenuity and patient research which has made possible the system employed by the American Telegraph & Telephone Corporation. It is little less than a scientific miracle. Nevertheless, I know my views on television have been somewhat disappointing to those who wish to believe that in the next few years every one can have a moving-picture show at home, broadcast direct from his favorite theatre. Frankly, I cannot foresee such a millennium for the radio fan. Until some radically new discovery has been made in physics, some new principle or operation of which we today have no clear conception, television apparatus must continue to be extremely intricate, delicate, requiring the constant and most careful attention of highly-skilled experts, and be built and operated at very great cost. Until such a new discovery, therefore, I think we must limit our television expectations to an occasional demonstration under the auspices of one of the few great electrical engineering and manufacturing corporations. Television in the popular mind means radio broadcasts of distant scenes as they transpire.

I have little patience with some of those whose names are associated with the history of this new development, who seem willing to impose on the gullibility which the public evinces whenever the word "Television" is used. A few years ago it was impossible to get anyone to believe in wireless telegraphy, and later in the possibilities of the wireless telephone. Of recent years, however, the progress in popular science has been so phenomenal that general gullibility, or willingness to accept any prediction along the lines of invention, takes the place of the skepticism which formerly made the work of pioneers so difficult.

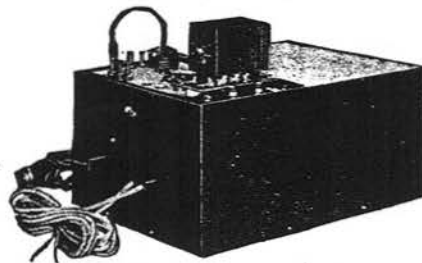
MR. GERNSBACK:—*According to your thoughts, Doctor, I presume what you mean by a new development in physics would be a television apparatus without revolving parts, such as that we have at the present time?*

DR. DE FOREST:—Yes, I think that such a development will eventually be made, but it will be the result of some discovery as radical and as unexpected as was the invention of the X-ray by Roentgen; and not until we have another Roentgen or Michelson who produces or makes a new discovery as radical as the X-ray was at the time he made it, may we bring into existence the television which we all would so gladly welcome.

MR. GERNSBACK:—I think you are a little too modest, Doctor, when you mention as an example the X-ray. Why didn't you say the vacuum tube? You are the one who invented that unexpected wonder. Let me ask you the next question.

*What, to your mind, while we are talking*

## electrify your set the easy practical Knapp way....



The Kit completely assembled with metal cover in place. Operates on 105-120 volts AC, 50 to 60 cycles.

## Knapp "A" POWER KIT

No expensive short lived AC Tubes, no troublesome re-wiring, no annoying hum. Increase instead of decrease the efficiency of your set, no waiting... the Knapp "A" Power gives you music *instantly* at the snap of a switch.

This absolutely dry "A" Power is not in any way a battery combination... not something to add to your battery... it is the most efficient "A" Battery Eliminator ever designed. It supplies unflinching "A" current to any set using 201-A or 6 volt tubes, regardless of number.

### Magic Silence

So silent is Knapp "A" Power, that you can place a pair of head phones directly across the output and not be able to detect a hum. This is made possible by the efficient Knapp filter system, consisting of 2 over sized chokes and 2 condensers of 1500 microfarads each. A new discovery makes these amazing capacities possible in the small space of 2x2x8 inches!

### Absolutely Dry

There is not a drop of moisture in this absolutely dry unit. The condensers are baked so that not a drop of moisture remains. The unique, fully patented, solid, full-wave rectifier is absolutely dry. No water... no acid... no alkali... no tubes... no electrolytic action. Nothing to get out of order. Nothing that needs attention.

### Assemble in Half an Hour

The Knapp "A" Power Kit is so easily assembled, that within half an hour after you receive it, you can have it in operation. The parts seem to fall in place. No drilling and very little soldering. Everything supplied, even to the screws, wire, drilled base-board and metal cover. It is so complete, that even a plug is supplied so that a "B" Eliminator may be operated from the same switch. We have never seen such simple instructions.

### Big Profits for Set Builders

Our president, Mr. David W. Knapp, is offering the set builders of America, for a limited time only, a money-saving, profit-making plan which is unique in the annals of radio. Send the coupon today, before it is too late.

Knapp Electric Corporation  
Port Chester, N. Y.

MR. DAVID W. KNAPP, Pres.  
Knapp Electric Corporation  
312 Fox Island Road,  
Port Chester, N. Y.

Send me complete information regarding the Knapp "A" Power Kit and your special discount to Set Builders.

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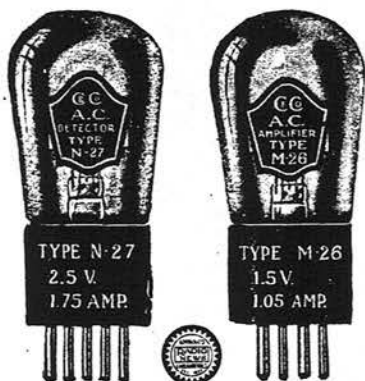
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# Ce-Co-ize your receiver!



Operating your A. C. Radio Set with a worn or defective tube is like running your car with a missing cylinder!

Replace the defectives with CeCo A. C. Tubes. They will work in harness with any other unworn tubes you have.

But you'll get better results, clearer tone, greater volume, longer life if you CeCo-ize your receiver by putting a CeCo Tube in every socket.

Your dealer will help you select the correct types for your set. Ask him.



Write for descriptive circular

C. E. MFG. CO., Inc., Providence, R. I.  
Largest Exclusive Radio Tube Mfrs. in World.  
OVER 3 MILLION TUBES IN USE

of vacuum tubes, is the ideal vacuum tube of the future? What should be its outstanding point?

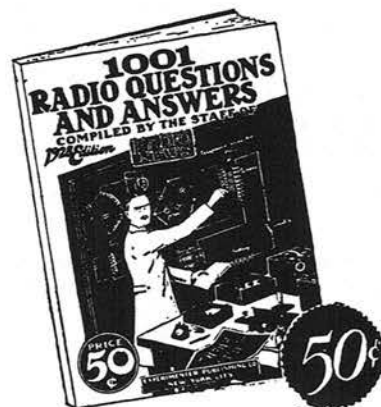
DR. DE FOREST:—I think the ideal vacuum tube of the future should operate without batteries, it should be small, ruggedly-built, absolutely free of all tube noises and non-microphonic. It goes without saying, that it should be operated without overloading and with absolute freedom of alternating-current or direct-current noises. I think that such a vacuum tube will be produced within the next two or three years.

MR. GERNSBACH:—That is very interesting, Dr. de Forest.

May I ask you, what are the latest developments on your "Phonofilm?" Has it been completely commercialized, and where, at the present, is it most used?

DR. DE FOREST:—Answering that question, it has not been commercialized completely, but everything is being done to prove, to most of the motion-picture magnates and authorities in this country, that it is going to occupy a very important part in almost all motion-picture programs in the future. In this respect, the attitude of the men that control the industry has completely changed within the last two years. I might say that great technical progress has been made during 1927 in perfecting talking motion pictures, including the method using phonograph records, and the Phonofilm method of photographing sound-waves on the margin of the film. Both systems have been amply demonstrated before the public in motion-picture theaters, so that it is now fair to draw certain conclusions relative to the practical and commercial possibilities of the two—the one exploited by Warner Brothers as "Vitaphone," and the other by the Phonofilm Company and by Fox under the name of "Movietone." It is only fair to state at the outset that Movietone is a complete copy of Phonofilm, differing in no essential manner from the earlier method, but having been exploited commercially to a much greater degree. The practical advantages of the Phonofilm method over that of the synchronized phonograph in producing, and also in reproduction, have been so clearly demonstrated to those who are familiar now with the actual manipulation of the two methods in studio and theater, as to confirm beyond any question the correctness of my prediction (made in 1919), that the success of the talking picture would lie eventually entirely with the method which photographs sounds on the film margin. With the Phonofilm method an entirely new art and technique had to be developed from the very beginning; whereas, with the synchronized phonograph we had a highly-developed industry of the past thirty years to fall back on. The first six years of Phonofilm pioneering resulted in solving the basic problems and demonstrating to any unbiased technician that the method was practical and could without question be eventually worked out to a point of perfection equal to, or excelling, the phonograph art. Both the modern method of recording and reproducing from the phonograph and that of recording and reproducing from the Phonofilm owe an immeasurable debt to the radio art, or more particularly to the art of vacuum-tube amplification. Without the highly-advanced technique along this line which the demands of radio broadcasting have produced, Vitaphone or the Phonofilm in their present states of perfection would be quite impossible. But taking full advantage of what the radio broadcasting art has

## Here are the answers to all your questions



## There'll be no Radio Trouble Wrinkles now!

Here are the solutions to Radio Questions of every conceivable nature.

Have you a question to ask about Radio?—about this circuit, that circuit—this method or that method of Amplification, Balancing, Regeneration, Transmission, Set Construction, Operation, Speaker Design, Control, Electrification, Accessory Installation, Antenna Possibilities—?

Then keep this book of 1001 Radio Questions and Answers always near at hand.

1001 RADIO QUESTIONS AND ANSWERS—wherever there is a question or a doubt you are certain to find a solution here.

These are the questions that the readers of Radio News have asked, are asking, and will ask—and now, with this book in your home, you can have them answered whenever you ask them.

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**CONRAD 6**

SINGLE DIAL CONTROL  
COMPLETELY SHIELDED  
GENUINE LICENSED CIRCUITS  
Manufactured under license grants of RADIO CORPORATION OF AMERICA and affiliated companies

The set that's the talk of the radio trade. Manufacture under license grants insures highest quality; chassis incorporates all features found in finest sets. Latest thing in radio receivers. Illuminated dial. Very selective and sensitive. Gets long distance stations with wonderful tone and volume. Table and console models in newest styles and designs.

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Conrad receivers will pass any test you demand. Try it in your home on our 30 day Free Trial Offer and be satisfied. If you are not, return the receiver to us and the money will be refunded. Write today for complete catalog and details of the Con-Rad Line of 1928 and our liberal 30 Day Free Trial Offer.

CONSUMERS RADIO CO.  
Dept. 142 4721 Lincoln Ave. CHICAGO

6 TUBES COMPLETELY ASSEMBLED \$34.75  
\$66.66  
BIG DISCOUNTS TO AGENTS



produced along these lines, there still remain very difficult and intricate problems in Phonofilm; particularly as regards the light-recording, sound-photographing means; and the successful taking off of sound from the photographic record on the film. And in between lie many problems in photography, exposure, development, printing, and protecting the sound record.

Great progress has been made in the perfecting of the "photion," or gas-filled lamp, which is placed in the camera and which, when connected to the output of the vacuum-tube amplifier, reproduces perfectly in light variations the electrical values impressed upon its terminals. The photion tube, which I first conceived in 1918 and patented in 1923, has thus far proved its distinct superiority over other methods of telephonic light control, such as the vibrating mirror and the "light-valve." (The latter is a type of bi-filar Einthoven string galvanometer, acting as a shutter to "valve" the light from a fixed source). While the photion is not yet fully perfected, its reproduction, in light fluctuations, of telephonic currents impressed upon it is so nearly perfect, throughout the useful range of audio frequencies, as to justify our faith in its continued supremacy in the field of sound photography. Its simplicity, compactness, lightness of weight, and ruggedness, as compared with that of the vibrating mirror and light-valve, argue powerfully for its continued use in preference to the other types.

Particularly do the above advantages hold for portable Phonofilm or Movietone equipment, where a light, easily-portable camera, to be quickly carried from a truck and set up at a moment's notice for recording swiftly-passing topical events, is absolutely essential. And the success of the audible topical weekly is already so abundantly demonstrated as to prove that, in the future, this feature will become more and more essential in every motion-picture program. Much progress has been made also in the design of compact portable amplifiers for such recording of outdoor news events.

The difficulties in securing perfect motion of the film past the light source in the camera have been eliminated during the past year; so that now it is possible to secure as perfect film motion with a cheap portable projection machine as can be obtained with the finest phonograph turntable.

For use in the projection room of the motion-picture theater highly improved amplifiers with sound "fade-in" and "fade-out" devices have been largely perfected. The Phonofilm amplifier for the theater has been made very compact and fool-proof, requiring practically no skill on the part of the motion-picture operator for its proper manipulation. Back of the screen has seen possibly the most striking advances of any in this art during the past year. New loud speakers of entirely novel design, permitting a naturalness of reproduction which is almost uncanny, have been worked out. A new form of screen, transparent to sound and possessing the necessary optical property to throw a brilliant picture, has been found; so that the sound no longer seems to emanate from one side or the other of the screen, but directly from the mouth of the speaker, wherever he may be in the picture. 1928 will see these various improvements, which I have described, exploited and demonstrated to the public in many hundreds of theaters scattered throughout the country.

The chief remaining problems in the talking-picture art lie, not in the theater or engineering laboratory, but in the motion-picture studio. There scenario writers, producers, artists and cameramen must gradually acquire working knowledge of the new art and how to take full artistic advantages of the countless and immeasurably rich possibilities which this new art has now brought forth, for the entertainment and cultural uplift of the motion-picture public.

MR. GERNSBACK:—My final question:

On what particular new thing are you working now, and can you tell us something about it?

DR. DE FOREST:—I am working exclusively on Phonofilm and allied problems at the present time. Among these are improved audio-frequency amplifiers and loud-speaker devices which can be used in connection with either Phonofilm or with radio, or the electric phonograph.

## When the SOS Flashes

(Continued from page 11)

January 7, 1904, establishing "CQD" as the official distress signal on and after February 1, 1904.

At the Radio Telegraphic Conference in Berlin, in 1906, the German government suggested "SOS" to replace "CQD." German ships had previously used a call "SOE" when they desired to communicate with all other vessels within range. Since the letter "E" consists of only one dot it is easily susceptible to loss by interference; so the delegates suggested that "S" be used as the last letter. "CQD" was superseded in July, 1908, by "SOS," selected as the international distress call by the Radio Telegraphic Convention held at Berlin. (To be exact, this call differs from "SOS" by the fact that the groups of dots and dashes are not separated like separate letters. This gives it a striking and attention-compelling note.)

The acts of the convention were not ratified by all nations until about a year later, so "CQD" remained in force long enough to call rescue ships to the wreck of the *Republic* in 1909.

"SOS" came into prominence when the *Titanic* sank in the North Atlantic, April 14, 1912. As soon as the plight of the big ship was realized, Captain E. J. Smith ordered Operator Jack Phillips to broadcast the distress call. Immediately the aerial of the sinking vessel radiated "Come at once! We've struck a berg! It's a CQD, OM!" (The "OM" is the radio sign meaning "Old Man," which adds a friendly personal touch to the dots and dashes.)

Then Junior Operator Harold Bride suggested, "Send 'SOS.' It's a new signal and it may be your last chance to send it." So Phillips flashed "CQD" and then "SOS."

"CQD, 'SOS' from MGY. We have struck iceberg. Sinking fast. Come to our assistance. Position Lat. 41.45 N., Long. 50.14 W. MGY." (MGY was the radio call of the *Titanic*.)

Phillips went down with the ship, but Bride was among those rescued by the *Carpathia*. That tragic scene enacted in mid-ocean proved without a doubt the true value of "SOS," the call that still vibrates the ether as a signal for help and silence.

And so loud speakers become quiet when it sounds, as if to pay tribute to those who have "gone down to the sea in ships."

# Enjoy LOUD SPEAKER OPERATION from a CRYSTAL

NO "TUBES" - NO "B" BATTERIES - NO COSTLY "ELIMINATORS"

WITH  
THE SKINDERVIKEN  
TRANSMITTER  
UNIT

Simple microphone unit provides a most effective and inexpensive way to satisfactory speaker operation. Easy to build and operate circuit.



Everybody can do this now with a Skinderviken Transmitter Unit. The unit is fastened to the diaphragm of the speaker unit. It will act as a "microphonic relay." Every time an incoming signal actuates the diaphragm, the electrical resistance of the microphone unit will be varied correspondingly and the current from the battery, in series with it and the loud-speaker, will fluctuate accordingly. Thus the problem of securing sufficient power to actuate the Loud-Speaker is simply and adequately solved.

The results from this very novel and simple unit will astound you.

The expense of this hookup is trifling compared to elaborate tube circuits that give no greater actuation of the speaker.

Besides this there are many other valuable uses in Radio Circuits for this marvelous little unit. Every builder of Radio sets should have a few on hand.

### LISTENING THROUGH WALLS

This Unit makes a highly sensitive detectaphone, the real thing—you listen through walls with ease. Plenty of fun and real detective work too.

### CONDUCTING SOUND THROUGH WATER

Make yourself a miniature submarine signaling apparatus like those used during the war. Simple circuit with this microphone unit gives splendid results.

### 12-PAGE INSTRUCTION BOOKLET

containing suggestions and diagrams for innumerable uses mailed with each unit.

**We Pay \$5.00 in Cash**

for every new use developed for this unit and accepted and published by us.

### SEND NO MONEY

Order as many as you want—use the coupon below. When the postman delivers your order you merely pay him 95c plus a few cents postage. If you order two units you pay him only \$1.75, plus postage.

PRESS GUILD, INC. R-4-28  
16-18-R—East 30th St., New York, N. Y.

Please mail me at once.....Skinderviken Transmitter Units, for which I will pay the postman 95c. plus postage, or \$1.75 plus postage if I order two units.

Name.....  
Address.....  
City.....State.....



#### PAPA WAS NO JACK BARRYMORE!



MOTHER (wife of famous radio announcer): "Now run along to bed, kiddies; and, when you say your prayers, don't forget to do as daddy said, and pray that television may never come." — Wm. G. Mortimer.

#### THE CONTROL THAT FAILED

FIRST HOUSEMAID: "Is Professor Wise absent-minded?"

SECOND DITTO: "Is he? Last night, when the baby cried, he twisted its nose to eliminate the static."



#### THE BOOKSHELF UP-TO-DATE

LYDIA: "I've often thought how romantic it would be to be cast away on a desert island."

NYDIA: "What ten-tube set would you take with you?"

#### POSITIVELY THE LATEST

VAN: "He's the last word in radio announcers."

PHAN: "Yes, he's the guy who signs off the station every night!"

—Wm. G. Mortimer.

#### SPEECHES GO ON FOREVER

FIRST WEARIED VOTER: "What did you think of Senator McBuncombe's speech over W A A K last night?"

SECOND W. V.: "I think they ought to have given him a shorter ravel-length."



#### TOO TECHNICAL!



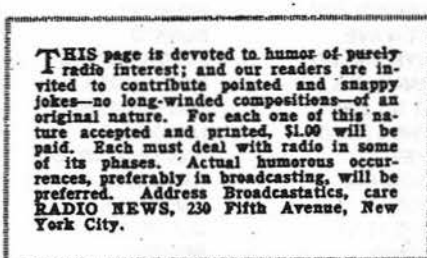
MABEL: "I just love to sit with Jim in a darkened room with the radio playing soft music."

MARJORIE: "Oh, I might with some boys—but Freddy will keep both hands busy on the dials."

#### NOT A BARK IN A BARRELFUL

HOQUES: "Say old man, how do you manage to get such perfect radio reception?"

JOQUES: "I blow New Silver cigarette smoke into my loud speaker, to ease its throat."



#### HOW HE REMEMBERED

CHANCE ACQUAINTANCE: "So you live in Wolfville, eh? Didn't you have a terrible storm down there last summer?"

RADIO FAN: "We sure did. That was the night my aerial blew down."

#### NOR THE AUDIENCE (LUCKILY)

FIRST MICROPHONE: "A good mike is a broadcaster's best friend."

SECOND MICROPHONE: "Yes, it will never tell him when he has halitosis."



#### NO DOUBT ABOUT IT!

LOUD SPEAKER (in its best static manner): "Bang! Crash! Help! Police! Murder!! BANG!!!"

RADIO FAN (whose location is more pacific): "Hooray! I've got Chicago!"



—Mrs. Bill Howard.

#### NOT THAT KIND

JOHNNIE: "I got Greece on the radio last night!"

MOTHER: "Well, you wipe it off before your father sees it!"

—Leslie Carpenter.

#### ALWAYS FOLLOW INSTRUCTIONS

SHARPE (radio expert): "What on earth are you grinding up that copper wire for?"

DULLE (radio novice): "Well, I'm putting in my radio set and RADIO NEWS says a good ground wire is the most important thing about the installation."



—Paul Harvey.

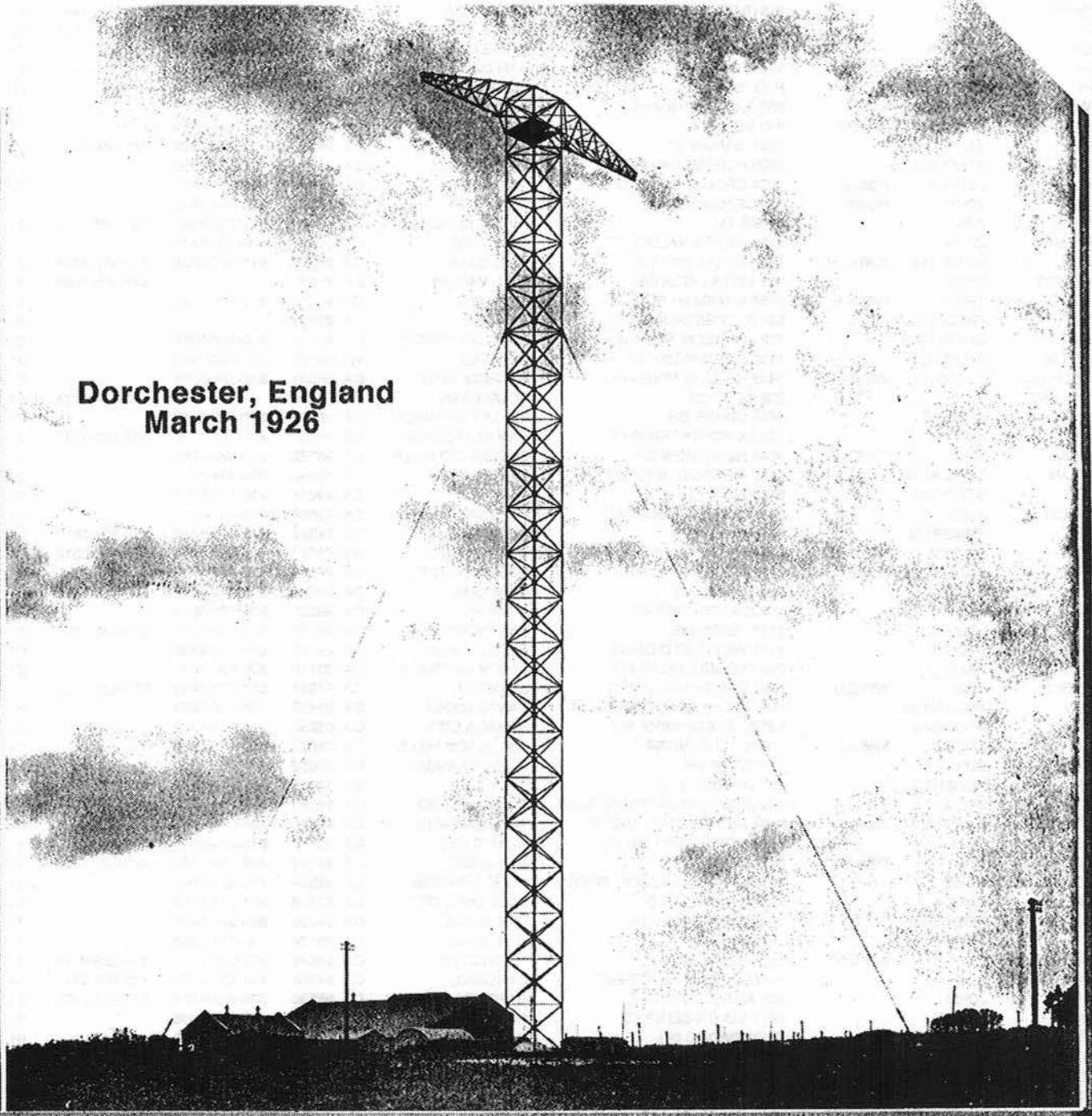
#### SOLVING THE MYSTERY

DOCTOR: "You're color-blind, my good man!"

JONES: "Ah! I bet that's why I always get the Blue Chain program when I try to tune in the Red!" — Wm. G. Mortimer.





A black and white photograph of a tall, lattice-structured radio tower. The tower is the central focus, extending from the ground to the top of the frame. It has a complex lattice structure with many cross-braces. At the top, there is a horizontal arm with a small, dark, rectangular object in the center. The background is a cloudy sky. In the foreground, there is a dark silhouette of the ground with some buildings and utility poles. The text "Dorchester, England" and "March 1926" is printed on the left side of the image.

**Dorchester, England  
March 1926**

**WHERE ENGLISH MESSAGES LEAVE FOR THE UNITED STATES**

One of the majestic towers of one of the new beam stations of the British Marconi Company. The station is located in Dorchester, Dorsetshire and was chiefly erected to communicate with stations on the east coast of the United States. Tests with the new equipment have been progressing for some time

# His vintage voltage specialty will soon go down the tubes

**D**on Steger, keeper of the filament, versed in the Sanskrit of radio schematics, hoards a vast repository of tubes. Thousands of tubes. Cool, dark, quiet, gloriously obsolete, mostly worthless.

They are stacked like toothpaste on shelves in his shop. They are classified according to size and voltage. They come in cardboard boxes with vital red and black information. The boxes have familiar names like Philco, RCA, Raytheon. The boxes are faded now and squelched by layers of dust.

Some of the tubes are as fat as pickles. Some of the tubes are baby fingers. Some of the tubes are from the 1920s. Organ transplants on ice. One imagines that if you plugged such tubes into a vintage radio, the tubes would heat to an oven's glow, and, magically, you would hear a haunting melody from another era.

Don Steger is that rarity. A tube man. His blue eyes don't gleam at the

sight of spidery transistors. Solid state is mostly peanut brittle. Silicon chips hold no content or soul for him. In the face of electronic innovations, Steger remains cast in Bakelite, his heart's circuitry hand-soldered.

Steger owns a place lost to time and clutter called Vintage Sound. Vintage Sound, off the dial of Connie Drive, is scattered in a lowly shack made of warped wood and sheet metal. It is a boneyard of old radios, a bygone signal that barely rasps. In a few more months, Vintage Sound will click off for good.

Right now, Steger is holed up in his shop, sitting on a stool, this bedlam of tools and radio ganglia on a bench before him. The doctor has lake-blue eyes, thinning hair, a steady hand, a



BOB SYLVA

shy humor. Steger himself is in surprisingly good tune. At 72, he looks to be a man in his late 50s.

Steger's patients are on the table. One is a radio the size of a Royal typewriter from a

'39 Buick. The other is a Delco eight-tube set from a '55 Chevy. He specializes in repairing consoles and classic car radios, all powered by tubes.

There is a small demand for his peculiar expertise. "Nostalgia," he says. "People come in and say, 'This radio belonged to my grandfather.'"

Classic car collectors are picky about keeping their automobiles in stock condition.

For Steger, the appeal of old radios is one part mechanics, one part archaeology. In some instances, Steger says, tubes give greater aural brilliance than

solid state. But that's for audiophiles. Steger is a Latinist, who can read baffling schematics, who's trying to keep a dead language alive.

"It's something you understand," says Steger of an electronics that is discrete, that utilizes a pasta primavera of components (capacitors, resistors, transformers, tubes, looms of wires). "It's a technology that you want to see last."

Steger grew up in North Dakota. Like many boys of his era, he took radios apart. Unlike most boys, he could put them back together. Though he was trained in radio repair, and holds an engineer's license, his actual career was in radar systems. Steger sold and maintained radar installations to military bases around the country, a line of work that landed him at McClellan Air Force Base in Sacramento.

In 1981, Steger opened up a side business in radio repair. It kept him in pin money, provided him a circle of companionable radio buffs. A collector himself, Steger's two prized possessions are a 1918 De Forest U.S. Army crystal set, and a '63 Crown Imperial (with mint tube radio) that he drives on weekends.

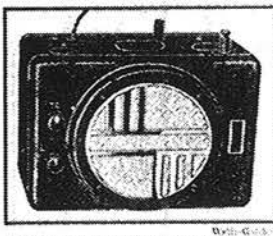
Recently, his landlord sold the building and Steger has to be out of his shop by September. He has no regrets. "No, I'm glad," he says. "It's time." Wandering through the radio graveyard, he has to pack up all these parts, carcasses, dials, schematics and tubes.

Tubes that will never glow to life again.

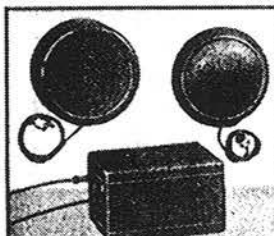
## CAR RADIO RECEIVERS FOR 1937



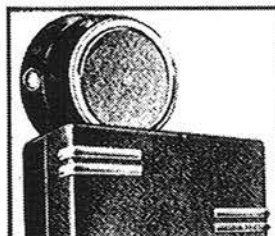
General Electric Co. Here is a modern, tube car radio receiver, the Flash, built around the characteristics of the new line of G.E. pistol tubes. Its outstanding feature is the use of AUTOMATIC FREQUENCY CONTROL, which automatically corrects slightly off-tune adjustments for added listening safety. Range, 150 to 1,600 kc.; output, 4 W.; has A.V.C. and antenna-matching facilities. See circuit page (right).



Wells-Gardner. This latest 6-tube, Series 43 car set is of the simplest type, with remote control. It has an output of 6 W. from a 6AC, and has a sensitivity of 1 microvolt (tablets). Tone control is continuously variable. One-touch mounting. The "A" dial is a 5 A. Circuit develops AUTOMATIC BASS COMPENSATION at low-volume levels. Frequency range: 155 to 1,575 kc.



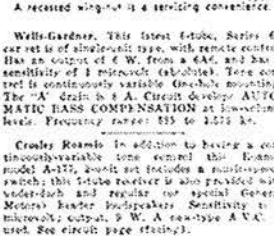
Crosley. This 6-tube, Series 43 car set is of the simplest type, with remote control. It has an output of 6 W. from a 6AC, and has a sensitivity of 1 microvolt (tablets). Tone control is continuously variable. One-touch mounting. The "A" dial is a 5 A. Circuit develops AUTOMATIC BASS COMPENSATION at low-volume levels. Frequency range: 155 to 1,575 kc.



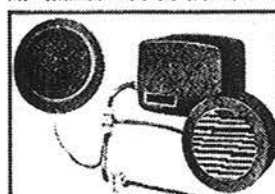
Zenith. Here is an 8-tube, high-quality automobile receiver, type 4M-195, with a maximum sensitivity (at 1 W. output) of 0.5 microvolts; maximum available output is 5 W. Operates on ear antenna or any of following types: undercar, over-the-top (standard), over-the-top (top), "flect" with, and bumper pin, all of which are available from the same factory. Equipped with both built-in noise filter and provision for phonoinput (either or both of 2 loudspeaker types: dash and speaker).



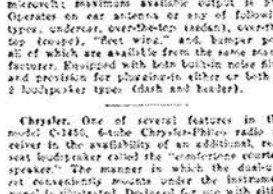
Chrysler. One of several features in this model C-1450, 6-tube Chrysler-Philco radio receiver is the availability of an additional, rear-seat loudspeaker called the "comfortone" courtesy speaker. The manner in which the dash-unit is constructed permits removal of chassis from case without soldering wires; tubes and vibrator may be replaced without removing chassis from casing.



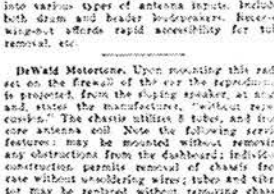
DeWald. Upon mounting this radio set on the firewall of the car the reproduction is projected from the slanting speaker, at once and under the manufacturer's "without repair" warranty. The chassis utilizes 8 tubes, and the one antenna coil. Note the following service features: may be mounted without removing any obstructions from the dashboard; individual construction permits removal of chassis from case without soldering wires; tubes and vibrator may be replaced without removing chassis from casing.



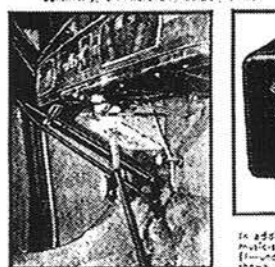
Sensitron. 6-tube, output, 5 W.



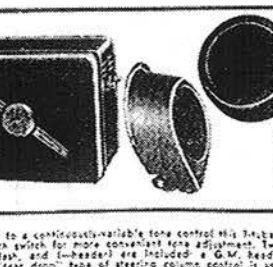
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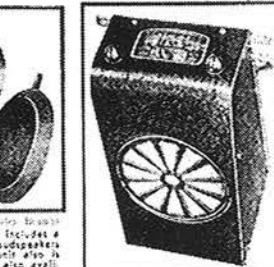
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**Don Steger is a long time CHRS member and Chairman of our Sacramento Chapter. Don will be moving his tools and tubes and soon will be repairing radios again at another shop. Article from Sacramento Bee, 7-01.**



## A Book Review

By: Paul Joseph Bourbin

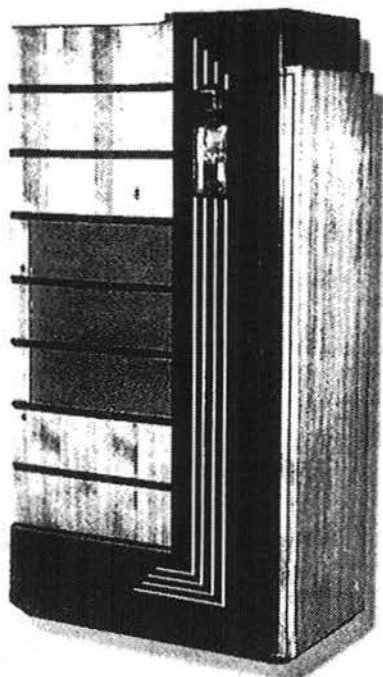
**'The Complete Price Guide to Antique Radios: Pre War Consoles'**  
By: Mark V. Stein. Published by Radiomania Books in 2000. 235 pages; softbound. Suggested retail price: \$29.95.

"I have always favored console radios." PJB

Most radio companies put their better chassis and speakers in consoles. High-quality equipment and the larger box made for the best sound. Since the set was intended to be more expensive, the larger cabinet provided a bigger canvass, and the availability of fancy hardwoods provided a wider pallet, for cabinet designers. Hence, some of the most beautiful radio, and best sounding, sets ever produced were consoles. Alas, one has only so much space, and a device that was meant to be a prominent part of one's living room, takes a lot of it. Since most collectors have only a limited amount of space to devote to their hobby, they can provide space for only a few consoles; and they want only the very best. Therein lies the rub: while console radios were the top-of-the-line sets for many manufacturers, collectors can afford a limited amount of space to house them. Many collectors are interested in numbers and one can house a large number of sets in the space taken by one console. Therefore, while there will always be a strong demand for the best console sets, lesser ones often go begging for a home even though they are better quality sets compared to other sets in greater collector demand. Other, smaller sets, have had books devoted to them for quite a while. One can find a number of books written about transistor sets, Catalin radios etc. Heretofore, the only mention of consoles has been in books of a comprehensive nature. Therefore I was quite pleased to receive a review copy of this book.

The first part of the book is a discussion of console sets: what are their characteristics and what a collector should look for when

## The Complete Price Guide To Antique Radios: Pre-War Consoles



By Mark V. Stein

acquiring and evaluating a set. Also included is a list of repair, part and restoration sources for the console collector, including their websites. The list of sources provided has a decidedly east-of-the-Rockies slant to it. The rest of the book consists of monochrome pictures of hundreds of sets arranged alphabetically by manufacturer and thence by model number. The picture size, layout and quality are quite consistent throughout the book. This shows that the author was using his own artwork, not merely copying out of catalogues etc. Beneath each picture is the name of the manufacturer (using the company's logotype whenever possible), the approximate year of manufacture, the number of chassis (if greater than one), the number of tubes, the number of bands, the current value, and, occasionally, a brief note of interest.

The book is quite comprehensive, yet this reviewer was rather astonished to find two of his small collection of consoles not listed. The author plans to issue supplements, so this problem should be rectified. The pictures seem to be a bit dark, low in contrast and lacking



in detail. It is often difficult to discern the shape of the knobs, the authentication of which would be a major use of this book.

The reviewer's perusal revealed no glaring errors. In the reviewer's opinion, price guides are like last week's stock reports: more of historical interest than showing current value. However, it can be useful for showing the relative value for trades. The author has a novel way of dealing with Scott radios; he lists and values chassis and cabinets separately. If one has both, one is supposed to combine values. This reviewer wonders if this will lead to an interest in collecting cabinets sans chassis! All in all, if one has an interest in console radios this book is a significant addition to one's library for use as an identification and trading reference.

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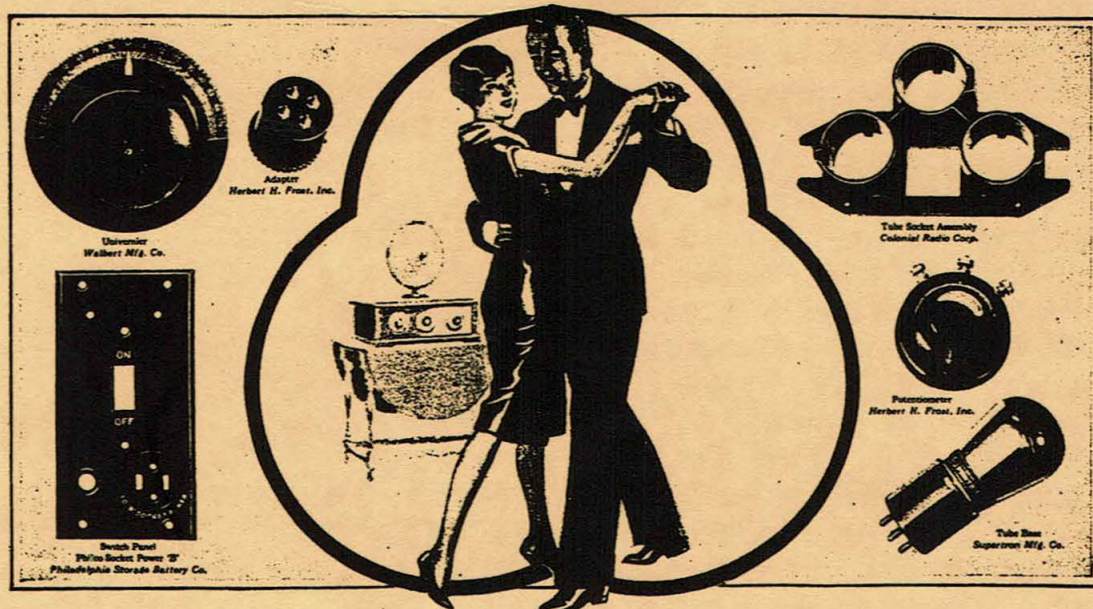
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