FALL, 1993
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JOURNAL OF THE

CALIFORNIA HISTORICAL RADIO SOCIETY

FOR THE RESTORATION AND PRESERVATION OF EARLY RADIO

RADIO STAMPS

WIRELESS FRANKS. EKKO STAMPS. CINDERELLAS AND POSTALS

California Historical Radio Society

ON THE COVER: Radio Philatelia **(Stamps to us)** Journal Editors: Bart Lee & Adam Schoolsky

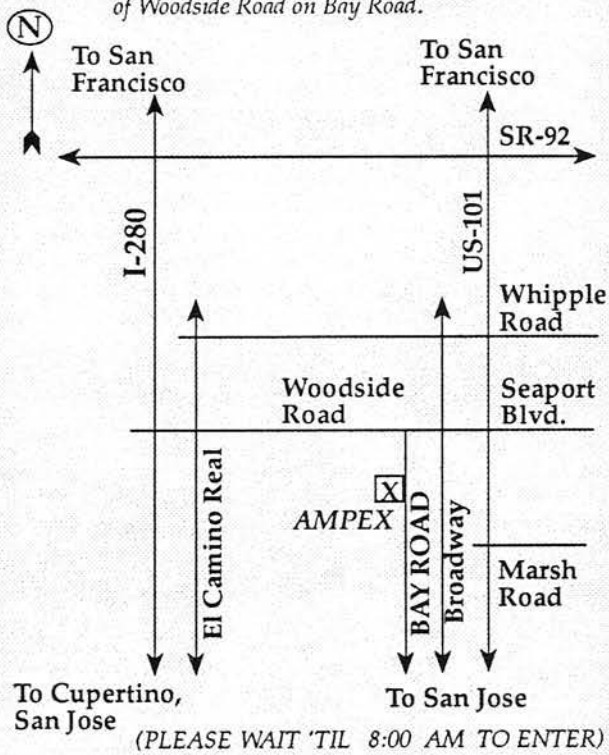
MEETINGS and SWAP MEETS: CHRS meetings are held 2-3 times per year. Locations are announced in CHRS publications and by mail. Swap meets are in February, May, August, and November at Ampex Corporation in Redwood City, PLEASE DO NOT ENTER BEFORE 8:00 AM. Regional meets at various Northern California locations are conducted from time to time. Contact the Public Relations Director if you want to sponsor a swap meet in your area. (17/2 Fall 93)

ABOUT CHRS

The California Historical Radio Society is a non-profit 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 in collecting, literature, programs, and the restoration and display of early equipment. The *Journal* of the Society is published quarterly, alternately in printed and audio tape format, and is furnished free of charge to members. Yearly membership dues are $15.00 (US funds, please). Submissions for the *Journal* are always welcome. Typewritten copy is preferred. Articles submitted on 3.5 inch IBM or Macintosh diskettes in ASCII or Microsoft Word are appreciated. Send all material to editor Bart Lee and include your name, address and phone number. You write about radio, and we'll print it. The *Journal* is copyright © 1992 by the California Historical Radio Society, all rights reserved. No part of this publication may be reproduced in any form, or by any means, without prior written permission from CHRS, except that you may make "fair use" of quotations of text fully attributed by you to source (this Journal) and author.

Map to AMPEX Corp. Swap Meet

Go to Lot "C" Three stop signs south of Woodside Road on Bay Road.



(PLEASE WAIT 'TIL 8:00 AM TO ENTER)

President's Perspective

by Adam Schoolsky

Welcome to the Autumn 1993 CHRS Journal. Again, we have some great articles. First, an outstanding lead article by Rick Ferranti about Remler, San Francisco's old time radio company. Rick's Dad worked for Remler for many years. We intend to interview him and one of his long time co-workers for an upcoming audio tape.

Thanks again to Bart Lee, for his article about the World War Two Foreign Broadcast Intelligence Service, based on his 1993 A.W.A. Short Wave Radio History presentation. Bart is knowledgeable about WWII era military sets and radio related history, and the history of short wave radio. Bart has also contributed all of the radio related stamps on the cover from his collection, and the article inside about radio philatelia. Thanks to Stefan Ponek for two notes, one on collecting and one on AM radio. We also have some outstanding articles about RF circuits, radio collecting, and some automotive material as well — vibrators, no less, and an analogy, too.

It's renewal time again. If your membership expires this year, we've included a renewal form. Please send it in soon, and give Hal Layer a break, OK?

Are you missing?...

If you are aware of any fellow members that have paid their dues and are not receiving their CHRS goodies, please have them drop us a note, or leave a message on the newsline (415) 978-9100. I check the messages once a week. Also, send all club correspondence to PO Box 31659, San Francisco, CA 94131. This will alleviate additional delays in processing your letter. We still need help with Journal preparation, tape production, answering mail, preparing for, collecting sellers' fees and cleaning up at swap meets. Please volunteer.

Help Wanted

We are looking for someone who will enthusiastically assume the leadership (Presidency) of the CHRS. For years now, Paul Bourbin, Bart Lee, Dale Sanford, Hal Layer, Will Jensby and I have kept things running, by some mystical process. Now you can have a chance. Generally, the basic qualifications are:

- Enthusiasm
- Strong Organizational Skills
- Spare Time
- Detail Oriented

Additionally, if you're adept with computers (Macintosh or PC) or are eager to learn, this is also helpful. If you are even remotely interested, please call me at home in the evenings, or enter your name next to "President" on the enclosed election ballot.

Unfortunately, my family and career no longer permit me to continue as a CHRS officer. I will work with the new officer(s) to ease the transition.

For some time, now, Paul, the Board members and I have discussed whether CHRS should continue in its current form, or not. It seems that many of you join CHRS for the swap meets. If this is your primary interest, and you don't care about the Journal, tapes, etc. we can reorganize, have swap meets, and discontinue the other club functions. So here's your chance to have your say. Please let me know your thoughts. It's my intention to resolve these questions before year end, and to have CHRS more closely meet your desires, and those of your fellow members.

That's all for now...

=Adam=

"I finally got the junk man to clean out all that old radio stuff in the basement."

Remler Reminiscences

by RICK FERRANTI, WA6NCX
254 Florence Avenue
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(617) 646-6343

Background on Remler Company:

Remler Company, Limited, was founded in 1918 and was in business until 1988, a remarkable span of 70 years in the San Francisco Bay Area. Some of its logos over this period are reproduced nearby. It was founded by Elmer Cunningham of vacuum tube fame (the name Remler is supposed to be Elmer spelled backwards with an extra "R" for Radio!). Cunningham was still General Manager in September of 1921. By 1922 the company was owned solely by co-founders Thomas B. Gray and Ernest G. Danielson. In the early 20's the company made radio components such as tube sockets, variometers, and switches. A little later they came out with detector panels and amplifiers. By 1924 they were marketing components for the first of a long succession of Gerald Best's 45 kHz low intermeduate frequency (i-f) superhets (one is in my collection.) In 1926 E.M. Sargent invented the first up-conversion superhet (i-f of about 3 MHz), and it was Remler who sold the kits for this "Infradyne" circuit.

In the spring of 1930, a fire destroyed the Remler factory at 260 First Street, but Gray and Danielson rebuilt the company headquarters at 2101 Bryant Street, where it remained for four decades. A photo of the facility appears in Figure 1. Tom Gray died in December 1931, and his son Robert Gray took his place.

In the late 20's, Remler started building complete receivers, first TRF sets and later superhet midgets and mantel radios. Almost everyone has seen one of their famous "Scotty" receivers, which were marketed from this period up to the time Remler got out of the consumer radio market in the early 1950's. During the 30's, Remler also marketed a low-cost line of consumer sets under the "Norco" label. Remler built ship-board radio and public address systems, and had brought out a line of microphones, when my father Guido started working there in 1937.

(The foregoing section on early Remler history includes material abstracted from an article appearing in the CHRS Journal, December 1981, written by Alan Douglas.)

Background on Guido Ferranti:

My father Guido Ferranti, is a native San Franciscan who grew up in what was known as the "Butchertown" district of The City. He graduated from Heald Engineering College (now Heald Institute of Technology) with a BS in mechanical engineering in 1933. He worked as a machinist for the Marchant Calculating Company in Emeryville (near Oakland) for a few years, then landed a job at Remler Company in 1937. His specialty was the set-up and operation of Brown and Sharpe automatic screw machines, a kind of automatic turret lathe, mechanically programmed to make precision production parts at high speed. Almost

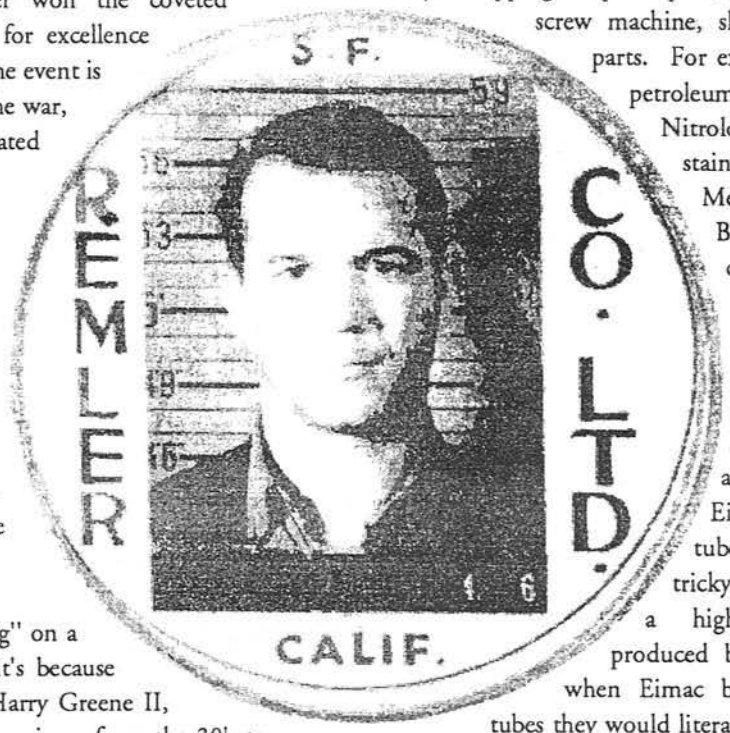
Figure 1. Remler Factory at 9th and Bryant Streets, San Francisco - circa 1940

any small machined part in a early radio set like a binding post, phone plug, etc. was made on an "automatic."

During his nearly 20 years at Remler, Mr. Ferranti rose from his original position to become the firm's assistant general production foreman. He left the company in 1954 to found his own machine shop, and retired from a highly successful business some ten years ago. He can still set up a "Brownie" in his sleep. A copy of his Remler identification badge appears nearby.

Remler Reminiscences, 1937 — 1954:

In the late thirties, Remler had about 70 employees. During World War Two, the number grew to about 400, with many of the production workers being women. A photo of some of the W.W. II personnel appears nearby. During the war, Remler won the coveted Army—Navy "E" award for excellence in war work. A photo of the event is shown in figure 2. After the war, the company consolidated down to its pre-war size.



President Bob Gray's son, Robert Gray II, was nicknamed "Scooter," though nobody remembers how or why. He used to practice the saxophone in his father's office, the tones resonating throughout the factory.

If you ever see the letter "g" on a Remler radio schematic, it's because the set was designed by Harry Greene II, Remler's chief electronics engineer from the 30's to the early 70's. One of his sons, Harry III, was my father's apprentice machinist, and went on to found his own successful machine business in Carson City. Harry's two other sons, Clay and Dick, also worked at Remler during W.W. II.

Dad still remembers finding gravel, of all things, inside some of the older screw machines he would service. The gravel was from the roof of the old First Street Remler factory; it fell into the machines salvaged from 1930 fire.

The powered raw stock advance mechanism for an automatic screw machine is a formidable device. Once, a piece of stock got sheared off by a misaligned feed and shot up into the factory ceiling, where it probably still remains.

The Remler ceiling also held other surprises. As in many older factories, much of the equipment was run by a large central motor driving pulleys and belts to the individual machines. This arrangement shook the ceiling so much that the vibration was clearly felt on the upper floors. After a few years it became obvious that individual motors in each machine would work a lot better, so my father slowly began converting each one. When he finished the last conversion and took down the overhead power driveshaft, he apparently missed removing one of the spacers. Not to worry -- it fell on his head several weeks later!

Remler did a good deal of outside contract work, jobshopping for punchpress, molding, tool and die, screw machine, sheet metal, and radio parts. For example, Remler made petroleum metering parts (out of Nitroloy, a fancy kind of stainless steel) for Brodie Meter of Oakland. Brodie insisted on a credit for every part not meeting their standards.

During W.W. II, Remler made tube caps and internal parts for Eimac transmitting tubes. There was a very tricky internal part requiring a highly polished finish produced by rolling. However, when Eimac built and tested these tubes they would literally explode! Apparently the rolling trapped solvents (required during the machining) in the part. After this, Remler supplied just the unrolled pieces, and Eimac finished them. No more blown tubes.

Also during the war, the Federal Communications Commission (FCC) heard reports of strange buzzing noises propagating worldwide on the shortwave bands. After an intensive search using their direction-finding equipment, the FCC found the source at Remler Company. Big Eimac tubes in Remler's unshielded induction heating equipment were pouring out the shortwave juice until the FCC forced them to shield their three machines!

Navy equipment made by Remler Company during the war had a "CRLnnnn" identifier; for example, the prized telegraph key in my collection is a Navy model CRL26012. Longtime family friend Elmer Talbert, W6PFC (now a silent key), was the tool and die machinist who did the key tooling; my father remembers making the knurled adjustment nuts by the thousands on his Brown and Sharpes.

Among the military radio sets produced by Remler after W.W. II was the R-122A/ARN-12, an airborne navigation receiver, crystal controlled for the 75 MHz beacon band (one's in my collection). According to Alfred Price's HISTORY OF U.S. ELECTRONIC WARFARE, Vol. II, Remler also made 30 airborne radar/communications intercept receivers called the S-120. These 1952 vintage sets covered a frequency range of 500 to 4,000 MHz and used some of the earliest production traveling wave tubes. Remler also produced an elaborate electronic training aid (sort of the ultimate "200-in-1 Electronic Build-It Kit") for the military; fellow Remler employee and family friend Pete Sanfilippo is pictured in the instruction book assembling one of the dozens of electronics panels included with the training aid.

After the war, Remler actually marketed a television receiver. It was not very successful, only about 1,000 being built. Even my father opted for another brand, a Hoffman manufactured in Los Angeles.

The post-war Scotties were rather handsome sets; one of the nicest is the Model 5100, with an ivory plastic cabinet and retractable handle. Despite this, the competition was fierce. Some 25,000 sets were sold on consignment by a fast-talking salesman Back East, but it turned out that less than 3,000 were actually paid for. Thousands of receivers were returned to the factory, most with broken cabinets, and that was the end of Remler's manufacture of consumer radio products. A little while later, Remler had an internal sale to let employees buy the consumer radio parts inventory at surplus prices.

Remler once produced a bakelite gearshift knob as a sales promotion gimmick -- in its top was molded a Scotty dog just like the ones on their radios. (I have one in my collection).

Some Remler Personalities:

Several persons famous in engineering and ham radio circles worked at Remler Company; these included:

Gerald M. Best, designer of the 50 kHz i-f Remler-Best Superhet kit in 1926. It's not clear whether this same person (with identical name, of about the right age, and living in the San Francisco Bay Area) later became a

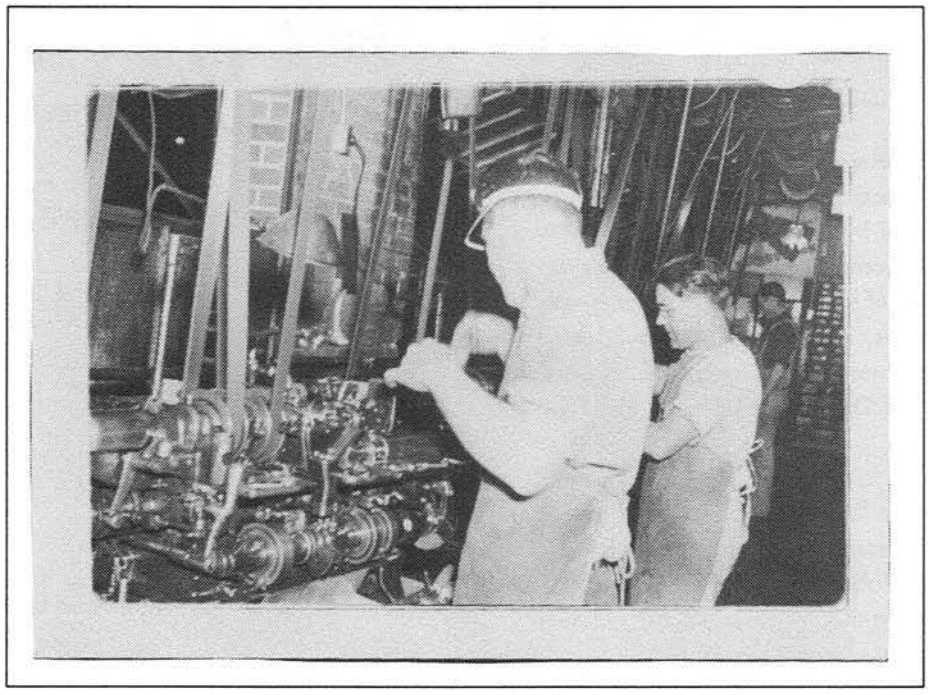


Figure 2. Belt driven machinery at Remler factory with employees Buzz Sinclair (l) and Guido Oppici (R).

famous Western railroad photographer.

E.M. Sargent, who designed the first commercial upconverting superheterodyne broadcast receiver. As mentioned above, the Remler "Infradyne" had an intermediate frequency of 3 MHz and several versions were marketed as kits from about 1927 to 1929. Sargent also designed and marketed regenerative and superhet ham communications receivers in the mid to late 30's out of Oakland, California.

Frank Jones, W6AJF, who wrote innumerable articles for the San Francisco-based magazine Radio, and later authored several editions of the RADIO HANDBOOK (the "West Coast Handbook"). Frank was a consulting engineer to Remler in the 1930's, and continued to be active through the 1980's, building UHF ham gear.

Byron Goodman, W1DX, longtime staffer at the American Radio Relay League and author of such early publications as the ARRL ANTENNA HANDBOOK in 1939. Frank Jones recommended Byron as chief engineer Harry Greene's lab assistant. Byron recalls his work at Remler during the 1934 - 1935 period:

"One thing I do recall was a huge "exponential" loud speaker that was being developed...This speaker was on the ground alongside the building. The opening was square, and maybe six or eight feet high/wide. I have no recollection of the power involved or the length of the horn or the size of the neck, but I think it could be heard at quite a distance! It was for some park (Yosemite?). There might be an interesting story there.

"Another thing I recall was that occasionally some competitive table model set would be brought into the lab and Harry trusted me with tracing out the circuit, to make sure that no company was beating us by devising a circuit with one less resistor or condenser."

Finally, Byron recalled to me how Remler president Danielson insisted that the engineering staff develop and demonstrate a high fidelity shortwave set. The demo room was full of acoustic resonances, so that the sound quality depended on where the set was placed. Needless to say, Remler never marketed a hi-fi shortwave set.

Dave Atkins, W6VX, who worked at Remler in 1930 and later marketed a line of his own variable capacitors in QST. Dave writes that he was in quality control and final alignment of superhet receivers, particularly the early Scotty.

John Kaar, founder of KAAR Radio, in Palo Alto, California (still a CHRS member).

Former CHRS member Ed Merrick, who worked at Remler from 1964-65 as an electronics technician. Ed remembers several Remler products, including an intercom system for Cape Canaveral, and a pair of handsets for Air Force One, the presidential aircraft. He also remembers Remler president Robert Gray's fancy cars!

Remler officials receiving Army/Navy "E" award for excellence during WWII. Founder Danielson second from left. Military man far right can't keep his finger out of the cake (or his mouth!)

The Remler Company's Final Years:

After my father left Remler in 1954, the company stayed at its Bryant Street location for another 20 years. In 1975 the majority of the fabricating equipment was sold, and Remler moved to Brisbane, just south of San Francisco. Most fabrication work was subcontracted, though engineering, testing, and light assembly were still done in their new location. Robert Gray Sr. died in April 1983, and left the company to his son, Robert Gray, Jr. (Scooter).
Remler branched out beyond the older line of marine communications and public address gear that was their mainstay for decades. In the mid-seventies they designed, patented, and marketed an ambulatory blood pressure recorder, originally built for the Cardiology Department of the UCSF Hospital.

Quoting from a 1987 letter from Paul Karp, then Remler Vice President and a Remler employee since 1941:

"The major portion of our work is still in the communication field. We designed and manufactured the ground communication system for the NASA Apollo Program and various types of systems for the Lockheed Satellite Program, Boeing's hydrofoil ships, U.S. Navy vessels, etc. The Remler Transluctance Handset is also still supplied to the major airlines. "

Sadly, President Robert Gray, Jr., the grandson of Remler's founder and a man still in his 40's, died suddenly in late 1987. Vice President Paul Karp, who then took over for Scooter, only lived a few more months. Without a President or Vice-President, Remler's telephone was disconnected and the building vacated in mid-1988, after 70 years of business. One of the oldest and longest-surviving pioneer companies in Bay Area electronics had closed its doors forever. ##

R. J. Cunningham
GENERAL MANAGER

EASTERN AND CENTRAL REPRESENTATIVE
HERBERT H. FROST
154 WEST LAKE ST.
CHICAGO, ILL.

REMLER RADIO MFG CO.
163 SUTTER STREET, SAN FRANCISCO, CALIF.
MANUFACTURERS OF
"APPARATUS THAT RADIATES QUALITY"
FOR RADIO EXPERIMENTERS

BULLETIN 1001 SEPTEMBER, 1921

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TELEPHONE: (415) 468-3435

Since 1918—A Pioneer in Electronics
COMMUNICATIONS EQUIPMENT • MILITARY ELECTRONICS AND COMPONENTS

BULLETIN NO. 3 REMLER PAGE_____ SECTION_____ FEB. 1, 1928

SERVICE FOR SET BUILDERS

GRAY & DANIELSON MANUFACTURING CO., 260 FIRST STREET, SAN FRANCISCO, CALIF.

A Collection of Remler Logos from 1921 to 1987

SHORT WAVE RADIO GOES TO WAR:
THE FOREIGN BROADCAST INTELLIGENCE SERVICE

by Bart Lee, xWPE2DLT
327 Filbert Steps
San Francisco, CA 94133
(415) 788 4072
Correspondence is invited.

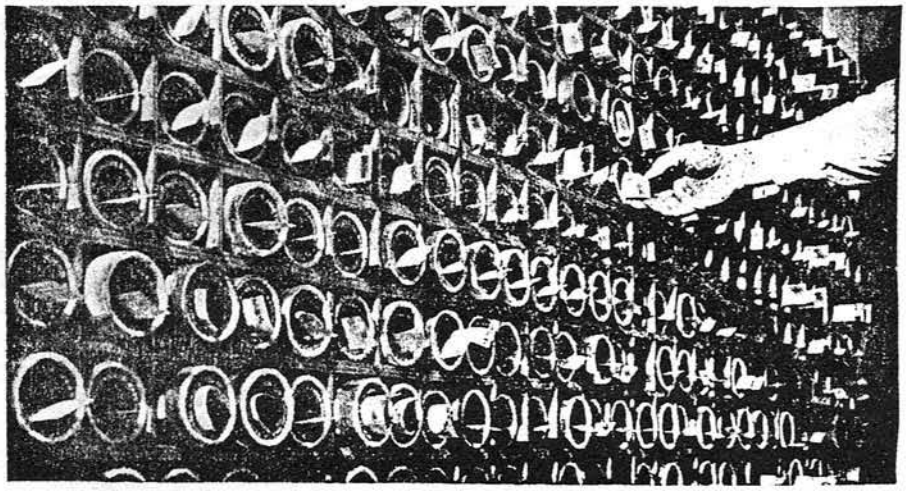
Listening to Second World War short wave broadcasts can send chills up the spine, fifty years later. It was a nightmare world the Nazis had in mind for us, and before we won that war, 70,000,000 people had died in the conflagration. Intelligence as well as armaments prevailed. A little known intelligence operation of that war was the U.S. Foreign Broadcast Intelligence Service of the Federal Communications Commission (FCC). These short wave radio listeners brought Americans the first news of the surrender of France. In the darkest moments of the Pacific War in April, 1942, they monitored the first news of the success of General Doolittle's air raids on Tokyo and other Japanese cities. They were the first to know that the strains of war had provoked the resignations of Japanese Chiefs of Staff. (The National Archives and Records Administration (NARA) in Washington, has preserved many of the recordings made off the short wave bands in this period. Some of these recordings, as preserved by NARA, and carefully selected, are commercially available at modest prices.)

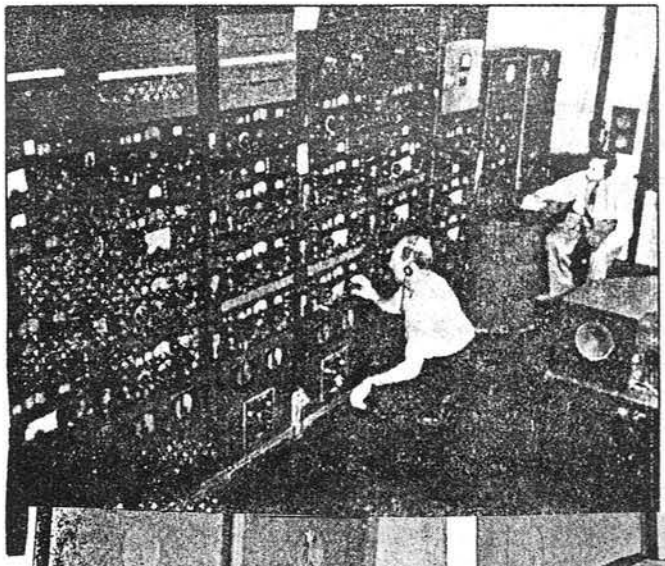
Short wave radio had become a major source of information around the civilized world in the 1930s. The radio fad that flourished with the rise of broadcasting in the 20s, revived again in the 30s with the coming of short wave broadcasting. Where it had once been a triumph to get a nearby city on the broadcast band, by 1934 foreign capitals were calling loud and clear (well, maybe with a little static). Radio Moscow had started broadcasting in furtherance of the Communist Revolution as early as 1929. Holland had taken to short wave two years prior. The British Broadcasting Corporation's (BBC) early experiments on short wave had grown into the Empire Service by 1935. The Nazis, from the Zeesen station near Berlin, broadcast to the world as early as 1934. The Japanese militarists soon followed suit. By 1939 the airwaves were full of the arguments soon to be resolved with blood and treasure.

In 1939, the first formal American monitoring began, sponsored by the Columbia Broadcasting System (CBS). A photo of that simple station in Queens, NY, appears nearby (from Popular Communications, Nov. '92). CBS also had a Studio Nine devoted to short wave monitoring and analysis of war news. While the war had started in 1939, it was not until 1940 that Europe convulsed (although the Japanese had been on the march in Asia since at least 1937). All of the combatant nations intensified their short wave broadcasting, as propaganda became a weapon of war. QSL cards from several of these

Miss Ann Wilkinson, French language monitor and daughter of Vice Admiral T. S. Wilkinson, shown listening at her post.

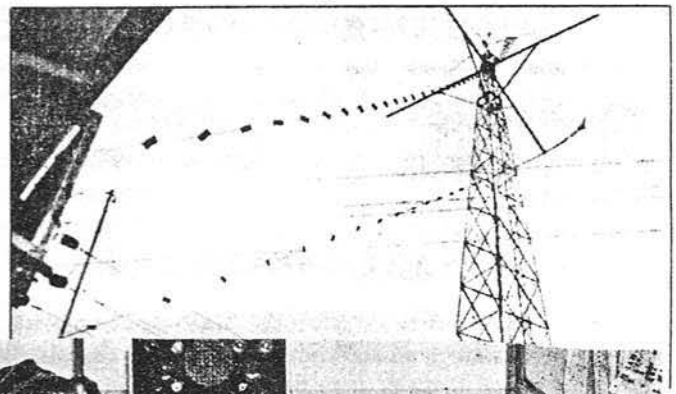
Wax cylinders containing the original intelligence that has been received from the elaborate receiver installation located at Silver Hill, Maryland, are kept for a period of forty-eight hours, and then are reshaven for further use.

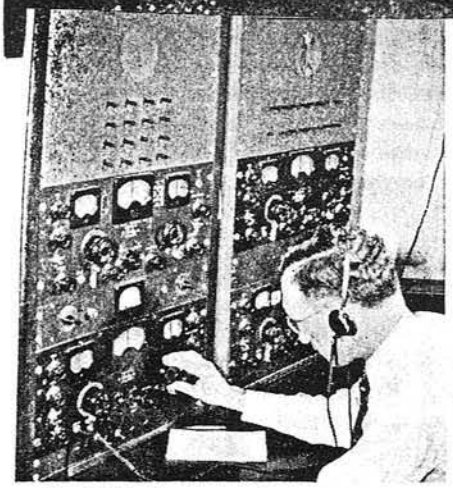




In this official FBIS photo, the bank of receivers in the racks are assigned to monitor specific frequencies. The operator seated at the desk (photo right) has his own receiver that he uses to tune around seeking out new active frequencies.

Part of the elaborate FBIS antenna system at the Silver Hill monitoring station in this official FBIS photo.





Frank X. Green, monitoring officer-in-charge, cruises the ether in search of new stations or program changes.

This monitoring officer, at Portland, Oregon, caught the sensational news that Tokyo had been raided by Gen. Doolittle's flyers. Japanese broadcasts are four times more difficult to interpret than any others.

stations are illustrated nearby.

In the United States, the Office of War Information (OWI) quickly had nearly 30 short wave stations on the air, directed to other nations as well as American service personnel. By 1942, the National Broadcasting Company (NBC) had established an elaborate monitoring station to log the broadcasts of other nations. Several photographs of this station in operation, with obvious wartime dramatization, appear nearby. (These theatrical scenes come from an article about official monitoring in the Mechanics Illustrated RADIO MANUAL dating from the first year or so of the war). NBC, it would seem, favored Hammerlund communications receivers. The BBC had its own monitoring service as well.

Princeton University in November of 1939 had set up the Princeton Listening Center in its School of Public Affairs. Lloyd Free of Princeton became the first Director of the official agency, when the FCC set up the Foreign Broadcast Monitoring Service in 1941. Harold Graves of Princeton was the Assistant Director. The agency's second Director was President Robert D. Leigh of Bennington College. After Pearl Harbor, the FCC changed the name of the agency to the Foreign Broadcast Intelligence Service. With initially four listening centers, in Oregon, Texas, Maryland and Puerto Rico, this Service set out to record significant broadcasts and to analyze enemy broadcasting for useful intelligence. The nature of its work can be gathered from the sorts of reports it issued:

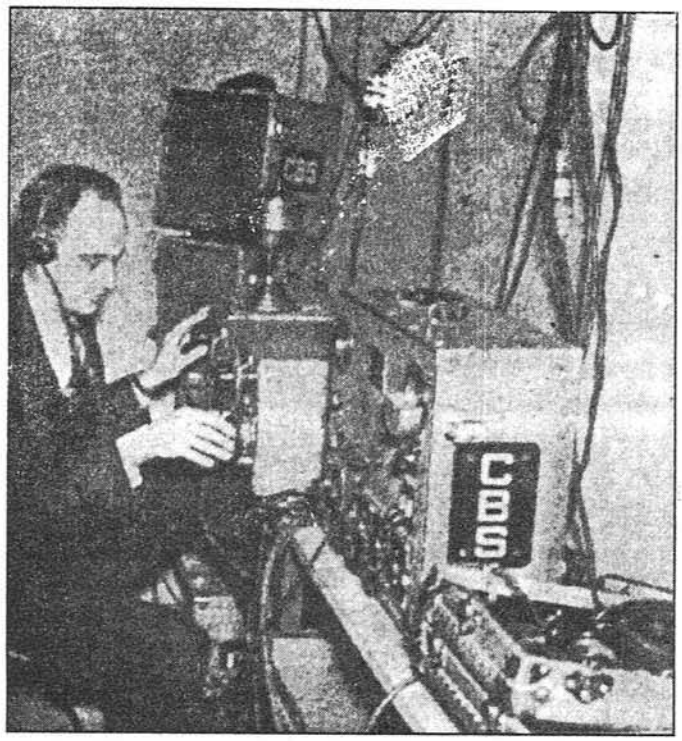
— Underground Movements and Morale in Japan
— Berlin's Claims of United nations Shipping Losses
— Reactions to the First Bombing of Japan
— New NAZI Portrait of the American Soldier
— Radio Tokyo's Racial Propaganda to the United States

(From Barnouw, THE GOLDEN WEB; see sources, below.)

Despite the importance of its work, the FBIS earned the enmity of powerful forces in Congress, who thought it the "nastiest nest of reds." The House UnAmerican Activities Committee went after its chief analyst, Goodwin Watson, and the assistant news editor, William E. Dodd, Jr. A rider on the war appropriations bills cut off their salaries. It was all an attack on the FCC's Chairman Lawrence Fly, who would not knuckle under to Congressional potentates. However, a new FCC Commissioner, Clifford J. Durr from Alabama, was Supreme Court Justice Hugo Black's brother-in-law. When the attack on the FCC's FBIS personnel got to the Supreme Court, Justice Black ruled against the Congressmen and for the FCC men in a ringing judicial

opinion applying the prohibition against Bills of Attainder against individuals by Congress. See United States vs. Lovette, 329 U.S. 303 (1946). These events are recounted in THE GOLDEN WEB.

During the war, the FBIS monitored millions of words a day, heard at listening posts in the United States (San Francisco, Portland, Silver Hill, MD), London, Stockholm and Algiers. The U.S. posts took in 1.2 million words, and the foreign posts another million and more. The recordings were done on site, or in Washington from landline audio from Silver Hill. The analysis was done in Washington. Information went out by teletype to 19 government agencies, the OWI, the British Ministry of Information, (and to the Provost Marshall with prisoner of war data). The teletype circuits handled some 150,000 words a day of analysis and information. The recordings were mostly made on wax cylinders, and retained for only 48 hours. The cylinders were then shaved and reused. Important broadcasts, however, were recorded on plastic Presto or paper disks and archived. The translators worked in Washington, from disks or working directly from audio transmitted over telephone lines from the receiving stations.



The CBS Forest Hills war news monitoring post as it looked in 1939, with William Whitford at the dials.

The west coast stations teletyped their Japanese code transcriptions to Washington for translation. This material included press broadcasts to Japanese stations,

A harmless propaganda broadcast is checked on the map, right, before being put on the teletype, below, for transmission to the FBI or its proper government agency.

They look relaxed—but these propaganda spotters never miss a foreign air signal.

War bulletins picked up by NBC are carefully checked and double-checked for accuracy before being put on your radio.

monitored in Portland. These broadcasts first disclosed the resignations of the two Japanese Chiefs of Staff in the middle of the war. The news of the surrender of France was buried in speeches broadcast in France at the time. A FBIS monitor had to listen to the recordings over and over to tease out their meaning. The success of the Doolittle Raid was detected by note of unusual words in Japanese newscasts, providing the needed clues.

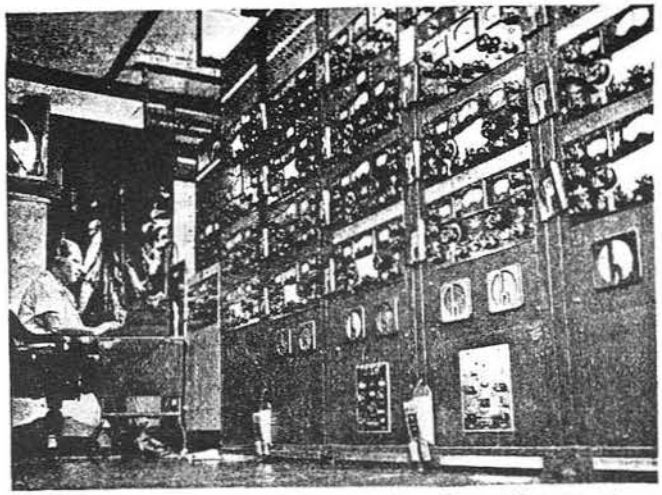
All FBIS operations required:

— Scheduling
— Interception
— Monitoring
— Recording
— Translating
— Editing
— Teletyping
— Reports
— Analysis
— Special Services

During the course of the war, special services included a live hook-up of Hitler's speech after the Italian surrender, provided to Roosevelt, Churchill and General Marshall and others, and expert testimony about enemy propaganda at a sedition trial. All speeches by enemy leaders were recorded on permanent disks, and furnished to OWI and the British for use in broadcasting, and archived. Much of this detail was laid out by Oliver Read in Radio News in January, 1945, in a thorough article on the FBIS.

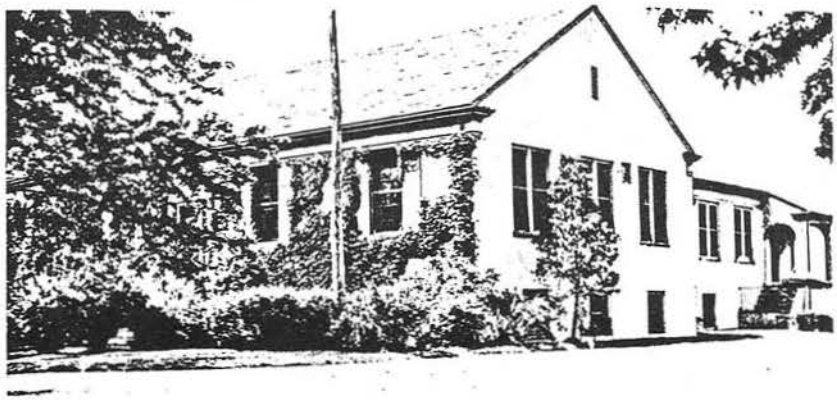
The Hallicrafters SX-28 was the favorite receiver of the FCC. It was used almost exclusively in the FCC counter espionage work, as reported by George Sterling, Chief of the Radio Intelligence Division (R.I.D.). (See 5 AWA Review, 1991). A R.I.D. listening and recording post, as presented by Sterling, appears in a nearby illustration, from the Spark-Gap Times (1963). Judging from the photographs released of the FBIS, the SX-28 was the exclusive receiver there as well. They were set up in banks of as many as 24 or more, each tuned to a specific station. At Silver Spring, MD, the audio went out over landlines carefully matched for impedance, to the translating and recording center in Washington.

Several SX-28s were used as surveillance receivers, looking for new frequencies and stations. This was a short wave listener's dream job, and it sure beat manhandling a B.A.R. on the western front. The manager of the Silver Hill station was Frank X. Green, former engineer of at least five pre-war broadcasting stations. He got to do the tuning around, along with his assistant, James G. Wedewer. Mr. Wedewer had been an officer of several short wave listening clubs. Many of the FBIS radio monitors had been amateur radio operators before the war. Many of the recordings made by the FBIS and other monitors during the war are available from the



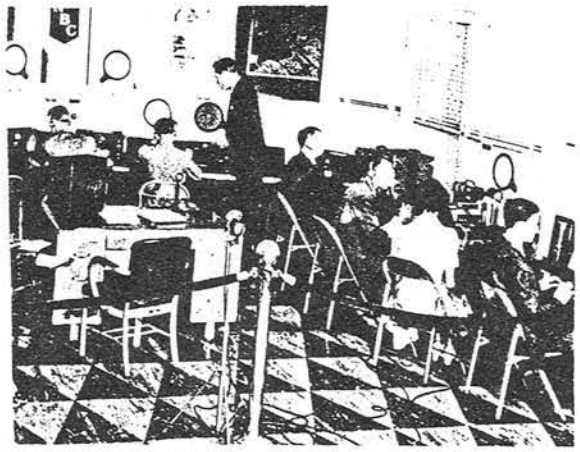
Monitoring officer "logs" transmissions from all parts of the world and notes the exact time which they are heard, together with any other information needed for future reference.

Radio transmissions are picked up by 29 SX-28 receivers and piped through the console (foreground) to the wax cylinder recorders located seven miles from this receiving station.



It looks like a harmless country home, but, in the building above, are the ever-alert ears of America's ace radio sleuths.

The news as Adolf Hitler would like us to hear it is picked up at an American listening post; below, and carefully combed.

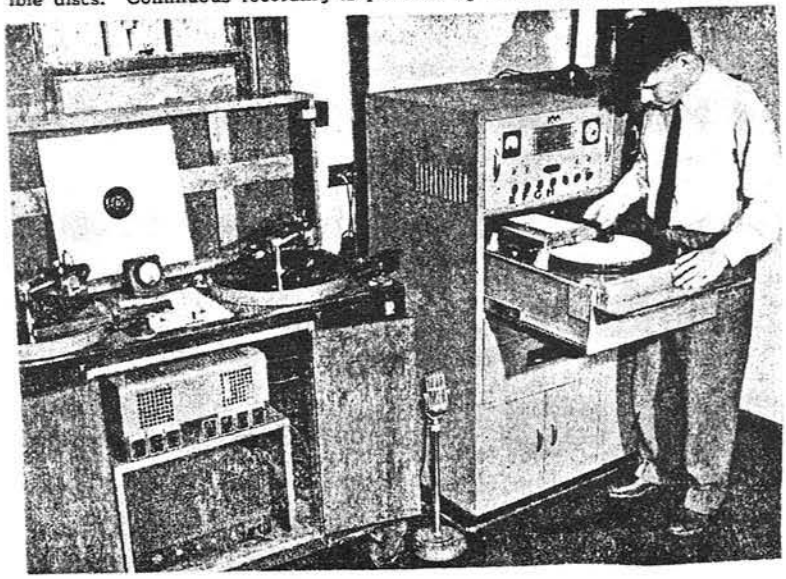


NBC's foreign listening post at Bellmore, Long Island, is a scene of never-ending attention to every foreign broadcast.

National Archives, which will be happy to send their lists and terms. Dunleavy-Wilson has selected some of the more interesting broadcasts in their commercially available tapes, for which the order form appears nearby.

After World War Two, the cold war quickly came to occupy the attention of intelligence agencies. With the need for the Berlin Airlift in 1947, the lines were drawn. The FBIS went over to the Central Intelligence Agency. New monitoring posts were established in Cyprus, and elsewhere around the world. At about the same time, the Central Security Service (with military personnel) began monitoring non broadcast signals for the National Security Agency. War work in the ether continued, as it does today.

David Cooper, FBIS Supervisor, records a broadcast on a Memovox machine. Over an hour's intelligence may be recorded on each side of the flexible discs. Continuous recording is possible by using duplicate machines.

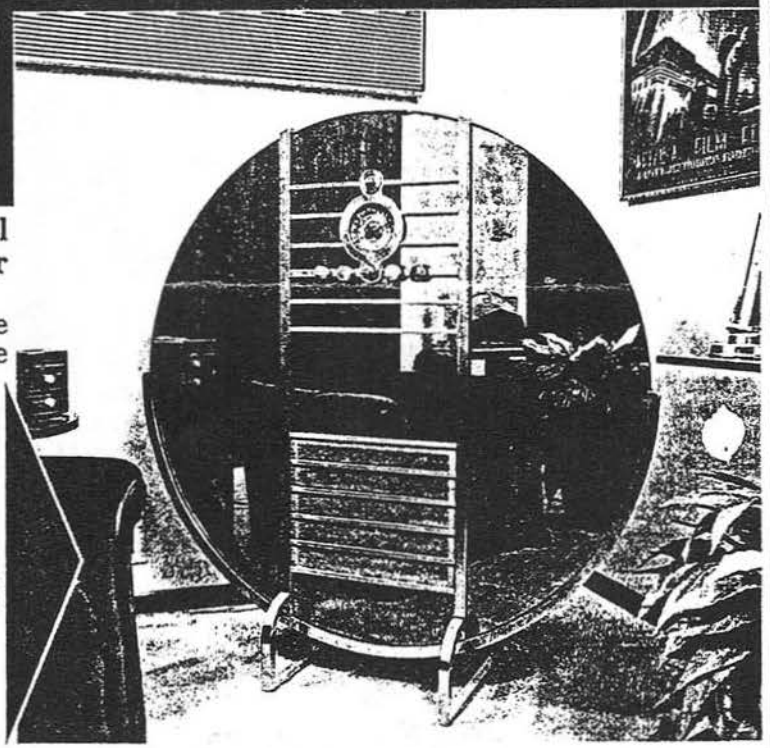


The following sources have been most valuable in compiling this note, and deserve appropriate credit. Most of the captioned illustrations accompanying this note are from Oliver Read's January, 1945 Radio News article, titled Foreign Broadcast Intelligence Service (p. 25). The NBC monitoring post photos are from the Mechanics Illustrated (1942?) RADIO MANUAL article Listening In On Hitler, by Charles J. Vests. The 1939 CBS listening post photo is from Popular Communications, August, 1993. Alice Brannigan's recent piece on the FBIS appeared in the November, 1992 issue of Popular Communications (p. 11). The photos with arrows in the captions are from her article, as is the photo of the two monitors with the SX-28s and the Hallicrafters speaker. Erik Barnouw, THE GOLDEN WEB, A History of Broadcasting in the United States (Oxford,1968), (Vol. II, p. 158) discusses both the FBIS and the attacks on the FCC. This source and the wartime QSL cards are courtesy of Jerry Berg of the Committee to Preserve Radio Verifications, except Zeesen and the BBC-Daventry, which are from my collection. ##

UH-OH! Look what turned up in the National Enquirer! (July 13, 1993)

LISTEN TO THIS! That old radio in your attic could be worth a fortune

REMEMBER THEM? Cathedral radios like these (left) can fetch $400.



Here's a radio announcement you'll want to tune in — that old radio in your attic could be worth up to $25,000!

That's how much a 1936 Spartan Nocturne floor radio — with a blue mirror and chrome trim facade — will get you.

A 1937 Spartan recently brought $3,500; a 1946 Magnavox Imperial, $2,500; a 1933 Emerson Mickey Mouse, $1,250, and a 1931 Philco, $450.

"Many people are looking for a radio that resembles one their family owned when they were a child," said David Johnson, coauthor of "Guide to Old Radios, Pointers, Pictures and Prices."

Believe it or not, this is one — & it goes for $25,000

"Some radios have increased five or six times in value during the past 10 years. And my guess is that the market will continue to increase."

The most valuable radios were built between 1929 and 1942, during a period called the golden age, said Johnson.

The most common are either a brown plastic table radio or one with a wooden cabinet from the 1930s and 1940s.

"The brown table radio will most likely be made from Bakelite, a plastic which was almost always either brown or black," he said. "They are generally worth around $40.

"But a radio made from Catalin — a translucent plastic in a wide range of colors — could be worth many times more. I sold one for $1,700.

"And cathedral-style radios which are curved or round with a semi-pointed top and wooden sides are also popular.

"Plain ones are worth $150. More elaborate ones, $400."

THREE-DIMENSIONAL Charlie McCarthy model from 1936, is $1,000.

Here are typical prices for some of the most sought-after radios in good condition:

Emerson Patriot, Model No. 400, made in 1940, red, white and blue Catalin table radio, about $1,500.

RCA, Model No. 9-X-4 or 9-X-14, made in 1939, burl onyx and brown Catalin table radio, $1,000.

Majestic, Charlie McCarthy model, made in 1936, table radio with three-dimensional seated figure, $1,000.

Arvin, Hopalong Cassidy Model No. 44IT, made in 1950, metal table radio with foil front panel, $375.

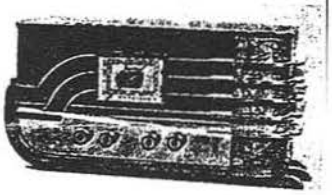
If you think you have a valuable old radio, you can get more information by checking Johnson's "Guide to Old Radios" and "Warman's Americana & Collectibles."

Look for both books at your local library or bookstore. Or they can be ordered by writing to the Chilton Book Company, 201 King of Prussia Rd., Radnor, Pa. 19089-0230.

You can sell an old radio at an antique show or by listing it in Antique Radio Classified, Box 2-V63, Carlisle, Mass. 01741.

— S. D. HUBBARD

MAGNIFICENT Spartan Nocturne floor radio (above) has a price tag that will floor you, too!



BLUE-MIRRORED table radio, the 1937 Spartan (above), sold for $3,500, while the colorful models (below) — made of the plastic Catalin — can bring up to $1,700.

RADIO STAMPS — On the Cover

by Bart Lee, xWPE2DLT
327 Filbert Steps
San Francisco, CA 94133
(415) 788-4072
Correspondence is invited.

Stamps are those little, stickum-backed, colored, and often colorful, perforated squares and rectangles of paper that entitle us to send letters when appropriately applied, for which we prepay in return for the stamps. Some people collect stamps with the fanaticism of radio collectors. (I know that is hard to believe but it is true). Some stamps, say, with upside-down airplanes on them, cost as much as catalins. Other stamps, little purple ones from long ago and far away, cost more than Marconi gear. De gustibus non est disputandum, as Petronius Arbiter used to say: There is no accounting for tastes. If you like to collect stamps, you know all of this already. What you may not know is that there are radio-related stamps of all kinds, readily available. One nice thing about collecting radio stamps is that they take up a lot less room than radios. An even nicer thing is that they tell us about some little-known radio history.

The earliest radio stamps were issued by the wireless telegraphy companies. On the cover appear these "franks" of the Marconi company, the United Wireless Company, and the United Fruit Company wireless telegraphy division. These franks entitled the bearer to send a wireless message. They were often made available as complimentary perquisites to good customers, sought after customers, and company officials. The Marconi stamps issued to stockholders in 1913 for complimentary messages. They were printed on sheets, and issued in booklets of several pages of four stamps each. Most were perforated. The landline telegraph companies had long issued such franks, and the wireless companies merely followed suit. The Marconi frank is a near copy of the Western Union frank of the period. (Recently, Italy honored Marconi with an appearance on its 2000 Lira bill. Few other depictions on monetary instruments relate to radio. The collection of money is a whole 'nother subject; so, too, is the collection of stock certificates, many of which issued from radio companies).

The United Fruit Company had one of the earliest wireless networks to coordinate its Latin American operations, put together around 1908. It put its surplus capacity to work transmitting radio-grams, as a competitor to Marconi for maritime work, and perhaps also the cables. It supplied wireless telegraph franks as early as 1910, through 1913, to plantation owners to alert ships for crop pick-up and other purposes. It should be remembered that in those early days, competing wireless companies would not carry each others' traffic. As late as 1926 a Tropical Radio Telegraph Company (whose motto was "The Voice of the Americas") at least essayed radio-telegraph franks.

The United Wireless franks tell a story in themselves. The earliest, from 1908 on, are signed by its General Manager, C.C. Galbraith or its President C.C. Wilson. In 1912, the last year of issue, the signature is foregone

Radio Stamps Make Rare Collection

Postal authorities throughout the world have marked the rise of radio in rare stamp issues

STAMP collecting has come a long way from the old-fashioned system of assembling stamps according to country and issue. "Topical collecting," a new trend in this ancient hobby, picks out stamps on a specific theme, such as flowers, horses, medicine, or what have you.

Herbert Rosen, whose business is radio and whose hobby is stamps, combines the two in a unique collection of stamps picturing nearly every aspect of electronic communications. Starting with the scientists whose discoveries cleared the way for modern electronics, his collection takes us right through the current spread of TV to various countries of the world.

Part of this collection has been published in a book titled *Radio Philatelia* (reviewed in our April, 1956, issue). Mr. Rosen kindly gave us permission to reproduce some of his rare stamps.

First transatlantic radio signal, broadcast from Cornwall, was received by Marconi at this tower overlooking the Newfoundland coast. Now a historic landmark, the tower was pictured in this memorial stamp issued in 1928. Spanning ocean by "wireless" gave rise to marine radio, ending ages of dreaded isolation for ships at sea.

The hundredth anniversary of electric communications in Turkey, from the first use of wire telegraphy (1855) to modern radio, is celebrated in this 1955 stamp (left, below). The French stamp at its right illustrates early military radio, showing the antenna of the desert fort Sebha in the African colonies.

Paris rooftops sprouted antennas when TV came to France. The Eiffel Tower, like the Empire State Building in New York, makes an ideal antenna mast for the city and its surroundings. With more than 800 lines, French TV boasts the world's best picture quality. The 1955 postage stamp (above, right) symbolizes TV signals radiating over Paris skyline. Guatemalan stamp (above, left) marks introduction of radio-telegraphy in South America.

Argentina's mail offers "spoken letters" recorded on discs. Special "Fonopostal" stamp is issued for this unique service.

for authorization of the "Trustees in Bankruptcy." Shortly before, the United management had all been indicted for stock fraud. They certainly sold a lot a stock, and transmitted all too few messages. Yet in the present era when a start-up biotech company can sell for rising share prices before any products are even approved, let alone sold, or 110 times earnings with products, one has to wonder if the United Wireless management was as crooked as the prosecutors claimed, or merely prescient pioneers for what became the booming telecommunications industry. Lee deForest was also indicted in this period, and the Federal Judge thought he was a crook for sure, because deForest had claimed that someday radio would carry the human voice across the Atlantic.

In the 1920s, broadcasting caught on nationwide. It was, however, a relatively quiet ether into which these signals reverberated. Listeners were thus able to, and did, go after long distance reception — DX. To real DXers (as opposed to mere BCLs), the programming was often but tedium between station identifications. Dedicated DXers wanted written verifications from each station heard. The stations were flattered to have been heard so far away, and they were mostly happy to comply with verification requests. Letters were followed by QSL cards, and in the mid twenties, the EKKO stamp company came along. Its name is an obvious play on "echo" and the return of a QSL. It provided each station with a postage-like stamp with an eagle on it and the call letters. The station could send the stamps with or as verifications. Canadian stations got stamps with beavers on them, but the Cubans, close as they were, got no cigar — their stamps also had eagles. Other stations did up their own stamps. Fervid DXers could hear many stations around the country, and accumulate most of the EKKO stamps. EKKO sold a stamp album and kit for these DXers. Radio News in February, 1925 made EKKO stamps its cover subject with an article: The New Radio Stamp Fad.

Stamps of this sort, that are not really postage stamps, but seem to want to be, are called "cinderellas" by stamp collectors. There are other radio cinderellas as well. RCA in particular issued stamps in relation to its product line. The Quarter Century Wireless Association has issued stamps to its members. There are also tax stamps relating to radio, at least in England and maybe Canada. The BBC was financed by a user fee or tax on radios. Payment of the tax was shown by display of the BBC Radio Tax stamp on the receiver. Canadians also taxed such things, and there may be Canadian Radio Tax stamps. I have seen neither, but Paul Bourbin says he has seen the BBC stamp.

With the outbreak of the Second World War in 1939, military radio suddenly burst into prominence. This special set of German stamps features pictorial motifs of ground-based army signal service. Note schematic of tuned circuit at lower right. Primitive antennas on stamps are a far cry from the highly advanced but then-secret designs actually used.

Of all the Oriental countries, Japan was the first to take a serious interest in Western science. Having introduced broadcasting as early as 1925, Japan celebrated the 25th anniversary of its radio service in 1950 by a special stamp issue contrasting an old-fashioned microphone with a recent model patterned after American designs. Japan's radio is noted for high-quality transmissions as well as excellent programs.

Hungarian stamp (above, left) pictures the unsung heroine of all electronics: the patient, unknown worker who assembles the equipment. Spanish stamp (above, right) marks 25th year of Radio Barcelona.

Italians took to television (right) with typical gusto when their network finally reached all the main regions. Transmitters were designed with special radiation patterns to jibe with heavy population areas. Stamp at far right shows Monaco, whose powerful radio station perches atop a mountain overlooking Monte Carlo and the sea. One of Europe's few commercial stations, it can be heard throughout the Mediterranean area and recently formed the hub of broadcasting activities connected with the wedding of Grace Kelly and the Prince of Monaco. TV service has now been added.

Various nations have been issuing postage stamps relating to radio for many years. In 1956, a small book came out by Herbert Rosen called Radio Philatelia. It was reviewed in Popular Electronics in April, 1956 and some of the stamps in it illustrated in the July, 1956 issue. That article is reproduced nearby. Many nations have commemorated Marconi over the years, and France has commemorated Eduard Branley, inventor of the coherer that made Marconi's work possible. The Russians put Marconi's contemporary Alexander Popov on a series of stamps, along with his receiver circuits, with which he first detected lightning storms. Nikola Tesla appears on the stamps of the former Yugoslavia. The U.S. did a series on pioneering electronics including deForest Audions, as well as an International Telecommunication Union commemorative and one for Amateur Radio. The U.S. also honored inventors Edwin Howard Armstrong, Philo T. Farnsworth, Nikola Tesla and Charles Proteus Steinmetz. Radio has also appeared on stamps relating to space exploration and satellites. The

U.K. honored Marconi with four stamps issued for the 75th anniversary of the Marconi — Kemp experiments, in 1972. Both Newfoundland and Canada honored Marconi as well, for his 1901 transatlantic tests performed in Newfoundland. China and Japan have honored radio communications and facilities, as well as electronics, on recent stamps.

Stamp collecting is known as philately or philatelics, and there is certainly a radio philatelics. Collections of stamps about just one subject are known as topicals. There is an association of topical stamp collectors. As far as I have been able to determine, there is (as yet) no special interest group among the topical collectors for radio stamps. The American Topical Association would be happy to sponsor one, no doubt.

Stamps like the telegraph franks are known as "back of the book" because of where they are covered in the Scott master stamp catalog. I found out about the Marconi stamps from such a mention (without illustration) in the back of a 1989 Scott. Later I found other, old catalog pages illustrating the wireless franks among the telegraph stamps. Larry Nutting has been very helpful in this regard, particularly in supplying excerpts from George Jay Kramer's book, UNITED STATES TELEGRAPH STAMPS AND FRANKS (The Collectors Club, NY, 1992) and from Joseph S. and Stephen G. Rich, UNITED STATES TELEGRAPH ISSUES (Society of Philatelic Americans, 1947), both of which I have relied upon for some of the information in this note. Larry's 1992 Pricing Guide shows United Wireless franks selling for between $10 and $100.

There is a specialized dealer, Dr. Robert Freeman (7800 North 37th Ave., Phoenix, AZ 85051 (602 973 4021)) who has helped me get the wireless stamps on the cover, and who has access to more. The radio-related postal stamps are in the general parts of the catalogs for each country, and more easily available. I have been very pleased with the help I have had from stamp dealer Richard Hoffman (Philatelic Enterprises, P.O. Box 4569, Vallejo, CA 94590 (707 642 8650)) as well. Also, the U.S. Stamp Company (368 Bush Street, San Francisco, CA 94104 (415 421 7398)) can fulfill want-lists. Littlewood's Stamps is an excellent source for postals relating to radio and matters electrical: Bill Littlewood, P.O. Box 681, Brookfield, WI, 53008. I recommend all of these sources if you are interested in Radio Philatelia. — 73 —

A Day at the Swapmeet

By Stefan Ponek

If you're confused by the new breed of collector-dealer-speculator that's started showing up at radio meets, you're not alone. Heck, just going to get rid of a few items you purchased while under an attack of Saturday Morning Fever can throw you into a quandary of ethics, etiquette and outright fear.

As you unlock the trunk of your Honda, you're trying to remember how much you paid for that damn pink clock radio last fall. Then you notice out of the corner of your eye that forty-seven lurching, drooling guys with weird eyes are running toward you, holding out dollar bills at you and tripping each other, deliberately it seems. They're all pointing at different things, and none of it is unloaded yet. A woolly hand reaches over your shoulder and yanks the Detrola cathedral into mid-air.

"How much for this busted up cathedral..." (as the box of unwrapped open-pin tubes falls into the abyss created by the cathedral's removal).

"Oh, gee, I guess I'd like 50 for that, but it's not busted up..." (at least it wasn't).

"Huh! too much!" (as the ancient wooden cabinet thunks on the pavement and a knob falls off).

Later on, this guy is back whining because you sold it to somebody else and he really wanted it. "You dealers get really high prices," he says. Telling him you're not a dealer wouldn't make much difference because he now believes you probably strangle kittens for fun during the week, anyway. As he walks away, two old, old, old-timers, both of whom knew Marconi personally, come by and ask how much you want for the pink clock radio. When you tell them 10 bucks, they smile at each other and walk away, secure in the knowledge that you're the person responsible for over commercializing the hobby (and also making their IP-500s equal in value to a college education).

After realizing you let the box of tubes go for way too little at 50 cents each, that by selling at this meet instead of buying you missed out on a Charlie McCarthy that your buddy is gloating over getting for 125 dollars, you decide to pack up and donate the pink clock radio to the auction. You wonder why guys who deal in this stuff for profit do it. And how they do it. Then you see the tubes on another guy's table for 5 bucks each.

As you start to drive off, somebody is yelling at you. Now what. The club president says your pink clock radio didn't sell and you better go pick it up because you can't leave it. You quietly vow to stay away from garage sales forever, but deep in your heart, you know you'll repeat this scene over and over. You're a radio collector.... -30-

Whither Radio Collecting

by Earl Lucas
Los Altos, California
(415) 941-3675

I am old enough to have grown up with radio, and dumb enough to have been a car nut most of my life. So, I think one can probably extrapolate the history of the car hobby to the radio hobby.

Radio collecting didn't really get off the ground as early as car collecting. In addition, it was not a visible. Further, it has not attracted the social status of the society pages and the cutthroat competition extant with that crowd. This has some benefits for the low-budget collector and pure hobbyist. It has not enriched the greedy much; fortunately, in my view. However, when a market heats up, prices go up. There have been voices crying (usually in the wilderness) for years about originality, about not selling cars for more than you have in them and so on, to little avail. Recent cracks in the economy have severely damaged the car market (mark you well, you radio collectors with larceny in mind). These changes have put a lot of people "out!"

I used to frequent the seedier used car lots and try out Auburn Speedsters, Rolls Royce roadsters and whatever fender line caught my eye. Even though you could buy such cars for a hundred dollars or so prior to the Second World War, I seldom had the hundred bucks. The used car guys were so hard up they let me look and try anyway. Over the years I drove what people called "funny cars" and to which racial epithets were often attached. Even the used car guys would say, "Aw, come on kid! That thing uses to much gas. I gotta nice Model A over here." Even today this holds in the radio hobby. "Whattayah wanna have these old obsolete radios for? They don't even have stereo or FM!"

Now in the car collecting business (which it soon became) purists prevailed — up to a point, that is. A restored car today will perform far better than it did when new, simply because the lubricants, fuel and roads are far better. If they were real purists they would still be using 60 octane gas and 60 weight oils that required changing every 500 Mlles. Tires would last about same number of miles, by the way. No purists are that pure, though. We cannot draw a parallel with radio unless you get somebody with the capability of a John Eckland to redesign the whole works.

There are plenty of above and under cover things that do go on in the car hobby, though, if one can still call it that. Above ground we have modern paints. Original paints (for the true purist) didn't last long at all. Some are offended by non original colors, but Blackhawk doesn't hesitate to use metallic brown on a 1920's Rolls or the latest Cadillac color on a Hispano-Suiza. Nobody is going to put on an original color that will fade away in five years. Many a high ticket car out there has shell bearings put into an engine having originally poured babbit bearings. This is equivalent to substituting modern electronics for tubes "because they work better and last longer" as I see it. Likewise, the valves, pistons and so on are turned on modern machinery to modern tolerances for modern lubricants. The alternative would be to have them lapped in by hand and then the cars driven at low speeds for hundreds of miles to prevent heating or seizing. This, you will recall, was the way it was originally done.

Some collectors do not refinish cabinets. How far would the car hobby have proceeded if those cars had not been refinished? If you have a finish that looks like dried brown cow-dung, re-amalgamating will only make it look like shiny dried brown cow-dung. Cleaning off the old finish and oiling it doesn't make it look anything like original either.

I worry when I see an ad that says "table Sparton; has Bluebird chassis." Why do I worry? Well, for instance, there are at least three of a particular Buggati of which only one is known to exist! All the numbers and so on check out. Nearly every Dusenberg has a "Dusie-bird" on the hood, though this was a add-on. Nearly all have side pipes, but nowhere near all had these originally. I recently saw Cathedral fronts for sale at a swap meet. Very possibly more cathedrals may soon exist than were ever manufactured! There may soon be enough to drive the price down.

There is a guy back east that will make you any classic car you want, if you have the bucks. These cars are very difficult, if not impossible, to detect. This is one of the hazards of high prices. As the French say: "there are 37 known Corots, 60 of which are in the United States." (My numbers on the original may not be correct, but you get the idea.)

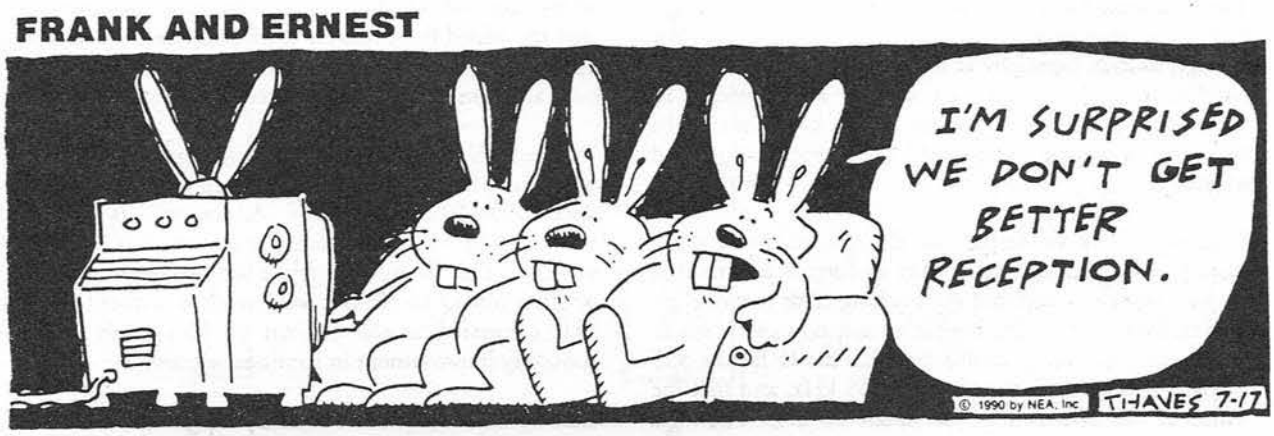
Let me assure you that if you restore an ordinary car, or even a minor exotic, you will have a lot more money in it than you will get out of it, not counting labor. There is a man in our area who restores Scotts, from the ground up, as they say in the car trade. He strips them down, re-chromes the chassis; he even has a jig for correct wiring. I understand he keeps them all, but figuring his labor at 25 cents an hour, he has more tied up in these radios than any market would bear. Yet one cannot object to a price that recovers what an honest man has in something, whether it be car or radio. Some of the letters to the editor are based on inexperience by this reasoning.

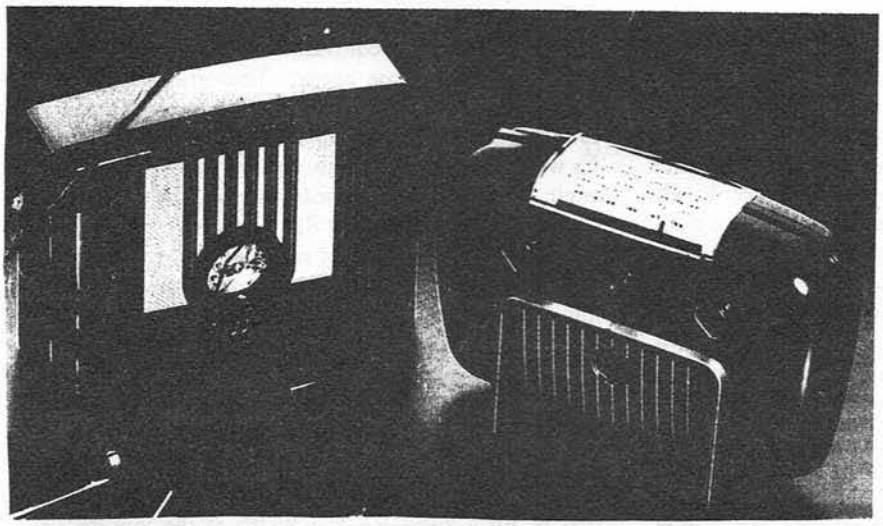
Now something else happened in the car dodge (which it became) that has greatly inflated prices and also resulted in a downfall that has not yet hit bottom. Unscrupulous auctioneers and dealers "bought" each others' cars at different auctions and ran the prices up beyond all reason. There was a wild public fad in which '57 T Birds were bringing 35 thousand bucks, unrestored. Ferraris went out of sight. Check the ads on these cars today. Another such deal was pulled off with the less exotic '50s cars, as well. Now prices have dropped back to something

more reasonable. This sort of thing happens when beginners and fast buck artists come together.
Another trend has entered the picture. A lot of people bought cars they wanted as youngsters, or one like dad or grandpa had. Same thing in radios. So, if they had the time, space or money, they bought every car they ever admired or wanted. Same thing in radios. Some decided this was a way to make a fast buck and bought everything in sight. Most of these get stuck. Same thing in radios.

Do big collectors inflate the market and run up prices? Sometimes. Just the publicity about a big bucks collector like Bill Harrah then brings both new collectors and con artists of all kinds into the market. This influx runs up the market. However, in the case of Bill Harrah, he was a tough bargainer and only paid top dollar for one-of-a-kind, custom bodied big cars or the rare and unusual. Sometimes he paid a good price for a "package" to get one he wanted. Nonetheless, a lot of people who drove 37 Chevy roadsters to Reno expecting to go home rich, but were quickly disabused of their fantasies and wound up the poorer for them. Harrah's expense, in any event, was in restoration. He more than anyone else made authenticity and perfection the criterion. Same thing in radios.

Finally, "collectibles" are always touted as great investments. As a matter of fact, all collectibles are very easy to buy and very hard to sell. In a real recession or depression (which I believe we are in now) collectibles are the first things to hit bottom. There have been times in the world when valuable paintings and silver were traded for rutabagas and rabbits! The moral to this story is this: Buy your radios for love. If you sink your money in as an investment, you will probably lose your shirt. You'll also find out, as the car guys have, that your kids aren't interested. ##





1940'S STYLE MINI RADIOS are scaled-down versions of the classic table radios that brought Jack Benny, "fireside chats" and the Big Band sound into homes throughout America during the war years. Updated with modern, transistorized circuitry, both AM/FM radios are designed with the same distinctive, rounded styling of the original bakelite-cabinet models and include rotary dials and analog station display. Both run on two AA batteries (included). Molded plastic housing. Specify Red or Black Model on Order Form. 3" H x 4½" W. (13 oz.)
53103B.....$29.95

These mini 1940's style radios are available from Hammacher Schlemmer Co. (800) 543-3366

Technical Talk: TUNED R.F. CIRCUITS of CONSTANT-BANDWIDTH

by Jim Lomasney, WA6NIL • 2501 Waverly Street
Palo Alto, CA 94301-3379 • (415) 321-8233

This is a proposed solution to a problem that existed forty years ago, when the conventional high-quality general coverage receiver was a superheterodyne with one or more tuned radio frequency (RF) amplification stages, a mixer with tracked RF oscillator and a low-frequency intermediate frequency (IF) amplifier. Dozens of different makes of such receivers were built. More than a few people still restore, modify or even design such receivers. (Who among us has not dreamed about building the ultimate receiver?)

The tuned RF circuit or circuits in such a receiver had conflicting requirements, most noticeably in the broadcast band (say, 535 to 1650 kHz). The "Q" defines the circuit bandwidth according to the formula:

$$BW = f/Q.$$

The Q should be as high as possible to reject IF, image and other spurious frequencies. Yet it must be low enough so that, especially at the low end of the band, the bandwidth should be at least as wide as the widest IF bandwidth, plus some allowance for tracking error in the oscillator frequency. The resulting compromises pleased nobody.

Suppose we try to design the RF circuits for a high-quality receiver of this kind. Let us further assume that we have somehow reduced the tracking error to a negligibly small amount. (This is a big assumption and is worth a separate article all by itself.) Say that the IF for the 535 to 1650 kHz range is the standard 455 kHz, and that the widest IF bandwidth is a nice square 10 kHz. Then the RF circuit bandwidth must be at least 10 kHz at the low end of the tuning range. Even this will round off the overall bandpass of the receiver. A top-of-the-line receiver would have three singled-tuned RF circuits (two RF stages and mixer) which would cut the gain at the band edges by 3 times 3 or 9 dB. This seems unacceptable. Yet the alternative is to go to wider RF bandwidth which will cost us spurious rejection.

With a 455 kHz IF, the image frequency is 910 kHz from the received frequency. Suppose we want 40 dB image rejection per circuit; by rule of thumb, the half-bandwidth of the RF circuit should be one one-hundredth of 910 kHz or 9 kHz, and the full RF bandwidth becomes 18 kHz. This is almost twice the IF bandwidth, so that the RF circuit response should be about 1 dB down at the edge of the 10 kHz passband, or 3 dB down for three tuned RF circuits. This seems acceptable. Let us go with 18 kHz bandwidth.

Let us assume that the normal RF circuit Q (which in practice means the coil Q) is constant over the tuning range, an optimistic assumption. If we make the bandwidth 18 kHz at 535 kHz, it will be 55 kHz at 1650 kHz. This is pretty bad. In practice, it might be still wider.

Can we do better? Let's start by making the RF coil Q much higher. With modern ferrites, a Q of 200 is not unreasonable, but say we can make a coil with a Q of 150 or better over the tuning range. Now let us put a small fixed resistor in series with the coil, to reduce its Q to 30 at 535 kHz. Now at the high end, 1650 kHz, the inductive reactance of the coil will be more than three times as high as at 535 kHz, so that the fixed resistor is smaller by comparison and the Q is increased, thus making the circuit bandwidth less.

To put some numbers on this, let the RF circuit capacitance be 400 pF (picoFarads) at 535 kHz. By the standard formula the capacitive reactance is 744 ohms, and of course the coil reactance is the same. Then the equivalent series resistance of the coil is 744/150 or 4.96 ohms. For a Q of 30 the total series equivalent resistance of the coil with fixed resistor is 744/30 or 24.8 ohms, so that the added fixed resistor is 24.8 minus 4.96, or about 19.8 ohms. Of course this resistor should be good at RF, such as a film type. A 20 ohm resistor would do just fine.

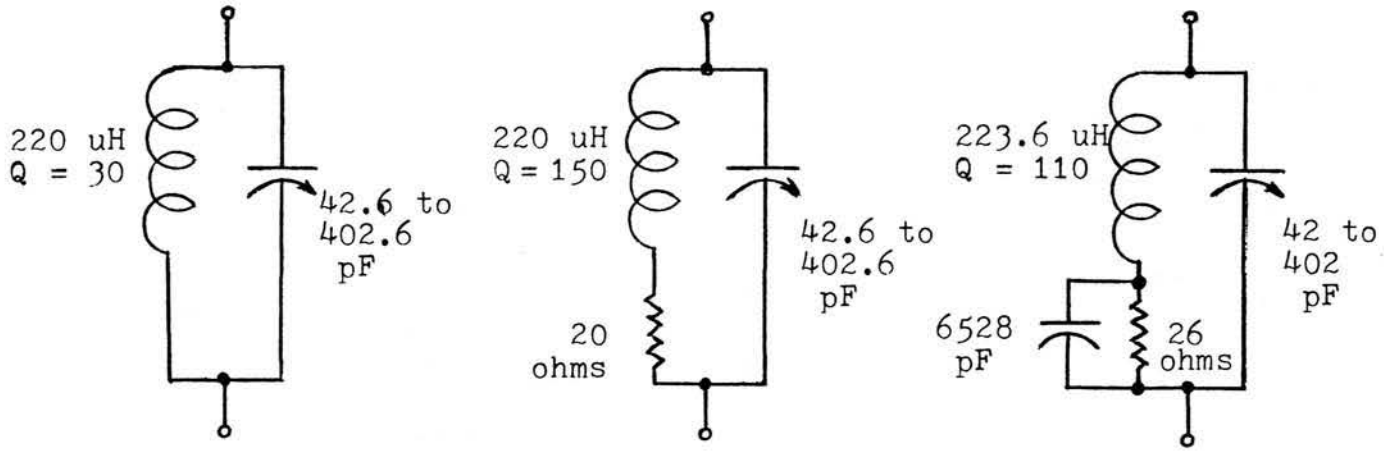
At the high end, 1650 kHz, the reactance of this same coil would be 2295 ohms and its equivalent series resistance 2295/150 or 15.3 ohms. Adding the 20 ohm fixed resistor gives 35.3 ohms and the circuit Q is 2295/35.3 or 65. This is a worthwhile improvement over the original coil Q of 30; the bandwidth is reduced to 25.4 kHz compared to the original 55 kHz, with a corresponding improvement in spurious rejection.

Can we do still better? Let us try replacing that 20 ohm series fixed resistor with a parallel resistor-capacitor combination. The capacitor will partially short out the resistor, more so at the high-frequency end of the range. It can be shown that, at any one frequency, the parallel-resistance and parallel-capacitance, Rp, Cp can be replaced by a series-equivalent Rs, Cs having the same impedance and phase angle. The series resistance and capacitance, Rs and Cs, will, however, vary with frequency. The impedance and phase of the series equivalent Rs, Cs will change most rapidly around the 45 degrees phase angle point, where the reactance of the capacitor Cp equals the parallel resistor Rp. For a first try we will put the 45 degree point about midway in the tuning range, and choose Rp, Cp to give the proper value of Rs at the low end of the tuning range.

A computer program TRAC8.BAS has been written to do the somewhat messy calculation and print out of the RF circuit Q and bandwidth at intervals over the tuning range. This program, in BASIC, is set forth nearby. It turns out that this circuit can actually overcompensate: that is, for a given RF bandwidth at the low frequency end, the bandwidth can actually decrease as the frequency increases over a large part of the band. This can be mitigated by not having such a high unloaded Q of the

RF coil. Also, the program as written tends to give bandwidth a little less than that asked for.
A few trials show that calling for a bandwidth of 19 kHz and an unloaded coil Q of 110 gives the specific results set out in the nearby table. The parallel RC combination is 26 ohms and 6528 pF (picoFarads = micromicroFarads). What the circuit actually sees is the equivalent series Rs, Cs. The series resistance, which adds to the coil damping, varies from 19.6 ohms at 535 kHz to 6.4 ohms at 1650 kHz, thus controlling the bandwidth. The series capacitance, which appears in series with the tuning capacitor like a padding capacitor, varies from 26662 pF at 535 kHz to 8645 pF at 1650 kHz. This is so much larger than the tuning capacitor itself (402.3 pF at 535 kHz to 42.3 pF at 1650 kHz) that it has little effect. The two capacitors in series vary from 396.3 pF at 535 kHz to 42.1 pF at 1650 kHz, so that the coil inductance will change from 220 uH (microHenries) without Cs to 223.6 uH with Cs. These small changes are easily taken care of in the normal alignment procedure.

In summary, two approaches have been shown for approximating a constant bandwidth in a tuned RF circuit. Both require that the RF coil have an unloaded Q much higher than the required bandwidth would indicate, which is possible today because of modern ferrite cores. The first approach uses a resistor in series with the coil to obtain the desired bandwidth at the low frequency end, while improving the selectivity at the high end by a factor of roughly two. The second approach uses a parallel RC circuit in series with the coil to obtain nearly constant bandwidth over the tuning range, and thus the maximum allowable selectivity over the whole tuning range. ##



(A) conventional

Bandwidth:
18 kHz at 535 kHz
55 kHz at 1650 kHz

(B) resistor in series

Bandwidth:
18 kHz at 535 kHz
25 kHz at 1650 kHz

(C) parallel RC in series

Bandwidth:
18.8 kHz at 535 kHz
19.5 kHz at 1650 kHz

Figure 1 - CONTROLLING BANDWIDTH IN RF TUNED CIRCUITS

```
2 CLS
3 PRINT"Program TRACK8 by James M. Lomasney 11/28/92"
4 PRINT"finds bandwidth-compensated tuned circuit for"
5 PRINT"broadcast-band application, using a parallel"
6 PRINT"RC circuit in series with the RF coil."
7 PRINT"(Unloaded circuit Q assumed constant with frequency.)"
8 PRINT"NOTE: Suggested frequency limits 535, 1650 kHz."
100 PI = 3.14159
110 PRINT
120 PRINT"low limit,high limit kHz ";
130 INPUT M,N
140 PRINT
150 P = SQR(M*N)                          'mean frequency
160 PRINT"Mid-frequency kHz = ";P
170 PRINT
180 PRINT"delta tuning capacitor pF ";
200 INPUT CV
210 B = N/M                               'frequency ratio
220 CO = CV/(B*B - 1)                     'C at frequency N
230 CM = CO + CV                          'C at frequency M
240 XC = 1E+09/2/PI/M/CM                  'reactance of C at freq M
250 L = 1000*XC/2/PI/M                    'RF coil nominal inductance
260 PRINT
270 PRINT"bandwidth desired at low limit frequency, kHz ";
280 INPUT W
290 Q = M/W
300 PRINT
310 PRINT"Q of unloaded RF coil ";
320 INPUT Q1
330 RU = XC/Q1                            'equiv.unloaded series R at freq M
340 RT = XC/Q                             'loaded series R at freq M
350 RK = RT - RU                          'compensating R at freq M
360 RP = RK/.753                          'required parallel R to yield RK
370 CC = 1E+09/2/PI/P/RP                  'parallel C, picofarads
380 PRINT
400 PRINT"parallel R, ohms = ";RP;"     parallel C, pF = ";CC
410 PRINT
420 G = 1000/RP                           'conductance, mmho
430 PRINT
440 F = M                                 'to find RS, CS at freq M
450 GOSUB 900
460 CL = CS*CM/(CS + CM)                  'actual C at freq M
470 F = N                                 'to find RS, CS at freq N
480 GOSUB 900
490 CH = CS*CO/(CS + CO)                  'actual C at freq N
500 CD = CL - CH                          'actual delta C
510 CP = CD/(B*B -1)                      'actual minimum C, at freq N
520 CW = CP + CD                          'actual maximum C, at freq M
530 XW = 1E+09/2/PI/M/CW                  'reactance of CW at freq M
540 LO = 1000*XW/2/PI/M                   'RF coil inductance, actual
550 PRINT"L microH = ";L;"    actual L microH = ";LO
560 PRINT
570 PRINT"Number of steps ";
580 INPUT SU
600 M1 = LOG(M)
610 N1 = LOG(N)
620 ST = (N1 - M1)/SU
630 PRINT
640 PRINT"FREQ kHz","Q","BANDWIDTH kHz"
650 PRINT
```

```
660 FOR F1 = M1 TO N1 STEP ST
670 F = EXP(F1)
680 GOSUB 900
700 XL = 2*PI*F*LO/1000                 'reactance of rf coil,ohms
710 RC = XL/Q1                          'unloaded RF coil series R
720 RJ = RC + RS                        'total series R at F
730 Q2 = XL/RJ                          'loaded Q at F
740 BW = F/Q2                           'loaded bandwidth,kHz
750 PRINT F,Q2,BW
760 NEXT F1
770 PRINT"another bandwidth ?  no = 0   yes = 1 ";
780 INPUT N2
800 IF N2 > 0 THEN 260
810 GOTO 999
900 REM: sub; given G and CC, finds RS, CS as function of F
910 JB = 1000*F/P/RP                    'susceptance CC, millimho
920 Y = SQR(G*G + JB*JB)                'admittance, millimho
930 Z = 1000/Y                          'impedance of series equiv, ohms
940 E = ATN(JB/G)                       'phase angle
950 RS = Z*COS(E)                       'series R, ohms
960 XX = Z*SIN(E)                       'series X, ohms
970 CS = 1E+09/2/PI/F/XX                'series C, picofarads
980 RETURN
999 END
```

Frequency kHz	Q	Bandwidth kHz
535	28.5	18.8
566	30.3	18.7
598.8	32.2	18.6
633.5	34.3	18.5
670.2	36.5	18.3
709	38.9	18.2
750	41.4	18.1
793.5	44.1	18
839.5	46.9	17.9
888.1	49.8	17.8
939.5	52.9	17.8
994	56	17.8
1051.5	59.2	17.8
1112.5	62.5	17.8
1176.9	65.8	17.9
1245.1	69.1	18
1317.2	72.4	18.2
1393.5	75.6	18.4
1474.2	78.7	18.7
1560	81.7	19.1
1650	84.5	19.5

Nominal bandwidth = 19 kHz Unloaded Q = 110
Resistor Rp = 26 ohms Capacitor Cp = 6528 pF

Book Review: FINE TUNING'S 1992-'93 PROCEEDINGS

by Bart Lee

Every year since 1987, the short wave listeners' club, *Fine Tuning*, has published its Proceedings, collecting refereed articles of interest on and to the short wave listening hobby. All of this work has been first rate, and some of it outstanding, such as the propagation studies. In the current Proceedings, Fine Tuning presents Jerry Berg's history of short wave listing: Shortwave Broadcast DXing: The Foundation Years. Jerry heads the Committee to Preserve Radio Verifications of ANARC (Association of North American Radio Clubs), which has archived 25,000 QSL cards. His history of short wave listening and broadcasting (up to 1940) is both unique and outstanding. His access to the CPRV collection (and his own collecting) provides historic and historical illustrations that cannot be seen anywhere else.

Jerry quotes Hugo Gernsback on shortwave in 1926: "I cannot imagine any greater thrill than that which comes to me 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.." And so it was, for thousands by the 1930s. Anybody could hear anywhere for themselves. Propaganda, so thorough in the war years, first polluted the ether in 1936, during the Spanish Civil War. This, too, could often be heard in the United States. Signals from every continent rolled in, including Antarctica with the Byrd expedition. This history also covers the shortwave listening hobby press (still flourishing today in Popular Communications and Monitoring Times) and the listeners' organizations (persisting today in the North American ShortWave Association {NASWA} and the Association of DX Reporters {ADXR}).

In addition to Jerry's shortwave history, Proceedings presents a study of two of the best of the old receivers, the ones that glow in the dark: HRO: Portrait of a Classic, by Elton Byington, and The Hallicrafters SX-28, The Classic Shortwave Receiver, by John Bryant. Chuck Dachis, "the Hallicrafters Collector" also lays out the genealogy and development of the radio so many of us first owned: The Hallicrafters S-38, 1935 to 1962. Another article explores the Collins 51S-1. For anybody feeling tempted by radios made out of silicon chips and computers, reviews appear of the NRD-535D (maybe the best non-military radio you can buy); the Drake R-8, an American made close second, superior for short wave broadcast rather than utility listening and half the price; and the English Lowe HF-150, maybe the best little shortwave set money can buy for $500. (Sony gear is in another universe, although to be sure, some of it, and Panasonic gear as well, is first class). Aside from all the good history, the Proceedings supply a wealth of materials of interest to short wave listeners, the best that's written. Back issues are available. 1990 presented Chuck Dachis on collecting and restoring techniques for communications receivers. 1988 reviewed the Hammerlund HQ-150 and the HQ-180 ("one of the all time great tube sets"), and the Collins-designed R-390A. An order form for Proceedings appears below. CHRS recommends the Proceedings.

Order direct from the publisher, Fine Tuning Special Publications, c/o John Bryant, RRT #5, Box 14, Stillwater, OK 74074 USA.

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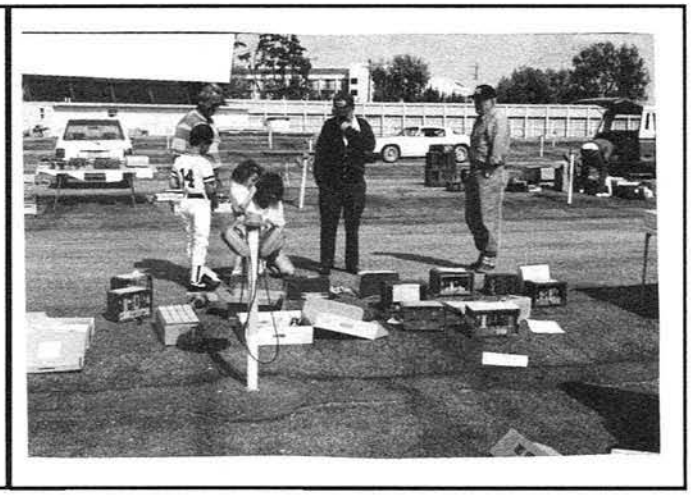
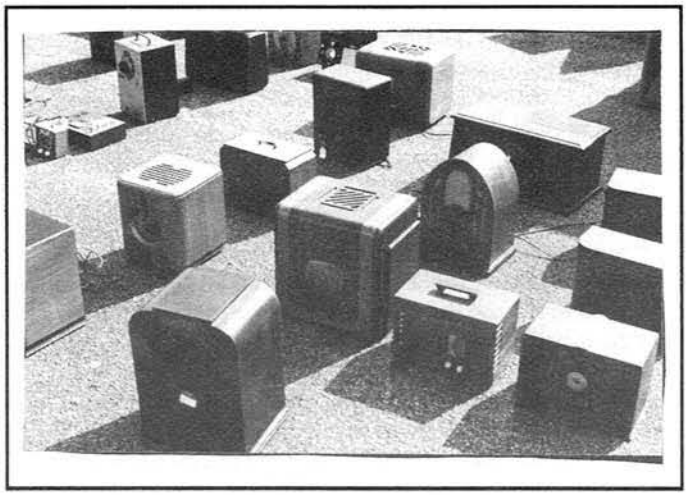
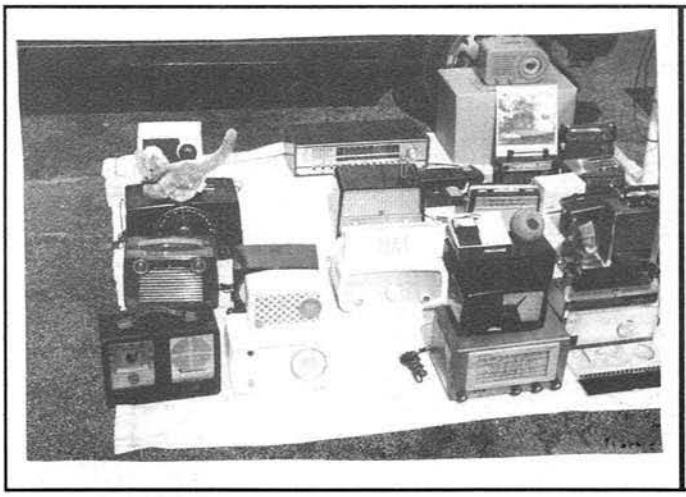
Annual San Luis Obispo Swap Meet
Saturday June 6th, 1993

Swap meet host Dan Steele (R) selling some goodies.



Slim Pickins!





CPR FOR AUTO RADIO VIBRATORS

by Larry Drees, from the Northern California Newsletter of the Cadillac La Salle Club, Vol. 92, no. 4

If your "pride and joy" dates back to the mid '50's or earlier, chances are that its radio is "blessed" with a vibrator power supply. The vibrator internally works much like a door buzzer. When power is applied to its coil, the armature is attracted to the coil. The first contact closes, shorting the coil and the coil loses its current. As a result, the magnetic attraction ceases and the armature springs away from the coil. The second contact then closes. This occurs approximately 115 times a second. This action is used to "fool" the power transformer into thinking that alternating current, AC, is applied to its primary, by alternately grounding each end of the primary with the battery supply connected to the center tap of the power transformer.

When your radio has not been used for a long period of time, the vibrator contacts may oxidize and leave you with silece instead of the familiar hum of the vibrator and the sound of your favorite "oldies" station. When you finally find that spare vibrator you wisely salted away ten years ago, you find that it also fails to function. You may be able to coax one or both of the vibrators back to life using a simple trick I learned some years ago from Carl Larry Steig. Carl credits Skinned Knuckles magazine as his source.

THIS DISCUSSION DOES NOT APPLY IF YOU HAVE INSTALLED A SOLID STATE REPLACEMENT FOR YOUR ORIGINAL TYPE VIBRATOR. Solid state vibrators are notoriously unforgiving of even momentary overloads or incorrect polarity. Do not use them to troubleshoot another defective radio. The buffer capacitor should always be replaced before a new vibrator of either solid state or original type is installed.

The 6 or 12 volt battery supply is not sufficient to break through the undesired oxidation on the contacts. The application of 120 volts AC (with current limited by a 60 watt light bulb) to the contact connected to the vibrator coil will often break through the oxide. The lamp should glow at about 1/2 of normal brightness as each vibrator contact is closed less than 1/2 of the time. A pulsing of the lamp brightness is often seen as the vibrator frequency of approximately 115 Hz. beats with the 60 Hz. line frequency.

A second 60 watt lamp connected to the second (non-coil) contact of the vibrator will remove the oxide from it. This is important, because although the vibrator may vibrate, loss of the second contact would result in a low D.C. plate supply voltage. Both lamps should glow at approximately equal brightness.

A NOTE OF CAUTION; Remove vibrator from the radio for these tests. Always unplug the 120 VAC when making connection to the vibrator. Keeps hands clear of the vibrator when the 120 VAC is applied. Do not leave the 120 VAC connected any longer than required to remove the oxide to lessen the chance of damage to the vibrator. [Using an isolation transformer and a ground fault circuit interrupter are also good ideas].

Diagram A shows the connections to a twelve volt, three prong vibrator used in 1953 and later radios using vibrators. Diagram B applies to six volt, four pin vibrators used from 1940 through 1952. Note the two different internal connections and two different pin diameters. Cadillac used several types of synchronous vibrators prior to 1940. The contact arrangements are too varied to cover in this article. These vibrators use a second set of contacts instead of a rectifier tube to produce the plate supply voltage. The second set of contacts must also be free of oxide to produce the proper plate voltage. The same testing principles apply to these vibrators. One lamp is used to find the contact associated with the coil and make the vibrator vibrate. The second lamp is used to "clean" each of the remaining contacts in turn. Mark the installed position of the vibrator before removal from the radio as some of these vibrators can be rotated 180 degrees, which will result in the wrong polarity of plate supply voltage and non-operating of the radio. ##

Diagram A shows the connections to a 12 V. 3 prong vibrator used in 1953 and later radios using vibrators.

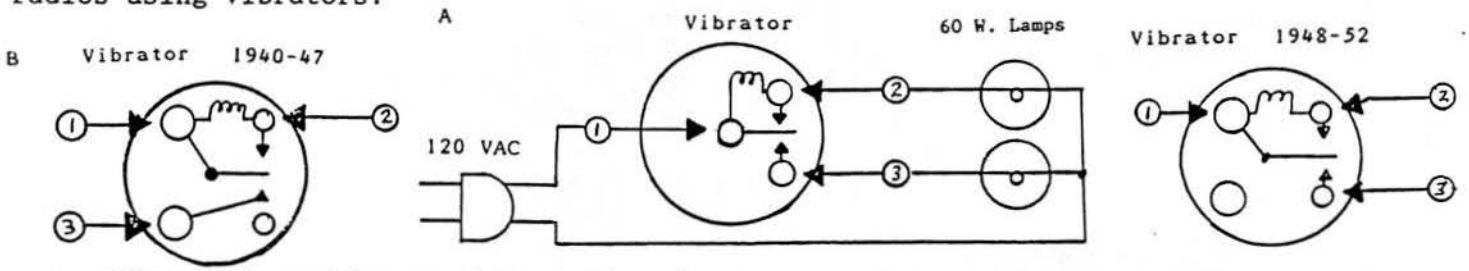
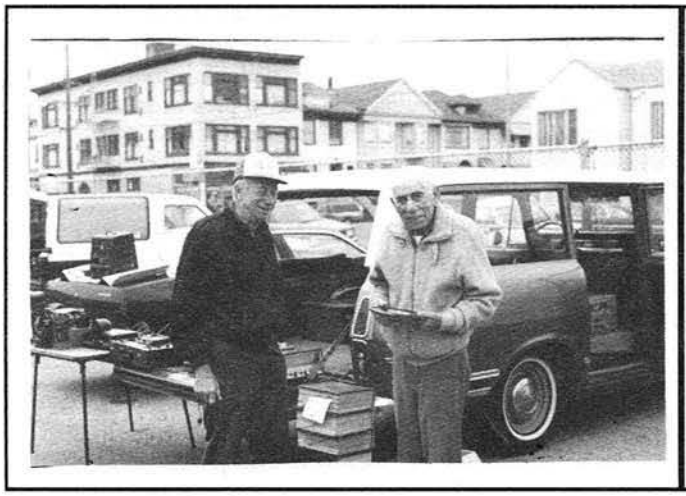


Diagram B applies to 6 V. 4 pin vibrators used from 1940 thru 1952. Note the two different internal connections and two different pin diameters.

Annual San Francisco Swap Meet
Saturday July 10th, 1993



Swap meet host John Wentzel (L) and Alfred Woolf (R).

Let's make a deal!

AC/DC SAFETY – A Letter

Bill McGowan
2029 Harbor Blvd. #9
Costa Mesa, CA 92627

Editors:

I recently rejoined the club and sold at the recent San Luis Obispo show.

I received my Summer CHRS Journal yesterday, and read John Eckland's Article "Improve The Performance of your AC/DC sets." John rebuilt a Crosley Farm Radio. In its original condition the radio did not present a AC shock hazard, as it was a battery set. John's article states several times that this chassis presents a shock hazard. But if you look at the schematic it is more than a shock hazard.

It is ***deadly.*** One side of the AC line goes to the chassis via a lamp fuse and the on-off switch. If the AC plug is inserted into a now polarized wall outlet the wrong way, the chassis is at 117 VAC above ground. There are a lot of old houses which do not have polarized AC outlets. I have seen AC cords with non polarized plugs. Also, the fact that a wall plug is polarized does not mean it is wired correctly. John added a 6.3 VAC filament transformer, a choke, and a new output transformer, which was a lot of work. He ended up with a deadly chassis. One solution would have been to use a standard power transformer with a 3 AMP 6.3 VAC filament winding. By using a bridge rectifier he could eliminate the choke, because he would now have full wave rectification. The choke would be replaced by a resistor of the right value and wattage to achieve the DC voltage required. The value of resistor would also depend on the AC secondary windings of the new transformer. I would try to buy one at an electronic swap meet. In that case, you really do not know what you are buying, but sometimes the values are printed on the case.

I have a Westinghouse Model H-147 built in 1947. It is a standard 5 tube set using miniature tubes. I recapped the set and was surprised to see that I had a deadly chassis. See the schematic. Westinghouse must have realized it was a deadly chassis, as they used a double pole single throw on-off switch. I wonder how many people received the shock of their life when the set was on. (In 1947, polarized house wiring was not used as far as I know.)

I believe the easiest thing for me to do with this set is to lift all the chassis grounds and install a floating ground buss. The floating ground buss is then connected to the chassis via a 150K resistor and 0.1 mFd cap. Philco was using this method by 1951. This circuit reduces the current to a safer value.

In all cases, anyone repairing AC/DC radios should use an AC ***Isolation Transformer,*** which can be obtained from Antique Electronic Supply in Tempe, AZ. This will prevent you from receiving minor shocks if the capacitor from the floating ground buss is good, or a deadly shock if it is shorted.

Good Luck,
Bill McGowan

From the VEEP...
by Bart Lee
A.W.A. — Journals — Museum

CHRS members George Durfey, Larry Nutting, Will Jensby, Mike Adams and I attended the Antique Wireless Association conference in Rochester, NY in September. A.W.A. invited Mike Adams to present his video on San Jose's Doc Herrold and his early (1909) broadcasting. Mike's presentation was the hit of the conference. A.W.A. focused on Westinghouse this year, so Westinghouse's Frank Conrad and his early Pittsburgh station KDKA played a prominent role in the presentations. Mike's video on Doc Herrold's broadcasting 10 years before KDKA sounded a useful counterpoint. The achievements of each of these pioneers can be appreciated all the more for our knowing more about their era, and its ferments, wireless among them, on both coasts.

The A.W.A. conference did enjoy an impersonation, by Westinghouse historian Charles Rauch, of George Westinghouse himself, telling the story of his industrial empire. A slide show presented the operations of the Westinghouse Historical Electronics Museum in Maryalnd, emphasizing radar.

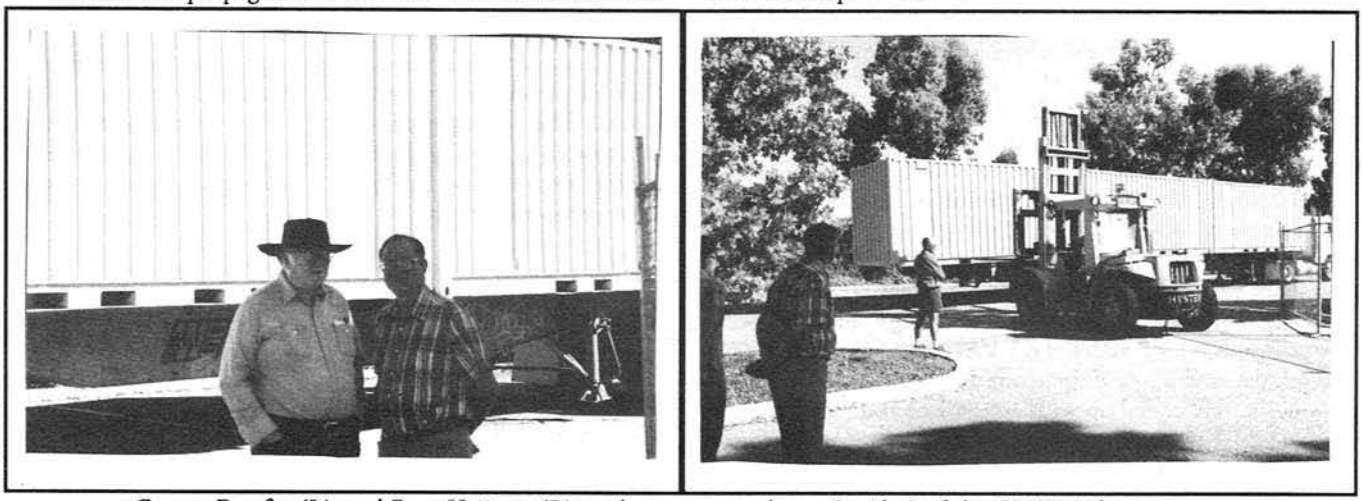
One story from that presentation that deserves to be retold is how amateur historian of technology Don Helgeson (of Chicago), spotted the only surviving radar antennas from the Pearl Harbor type of radar (SCR-270). This radar detected the Japanese attack — only to have the intelligence ignored at Headquarters. Don found them in Canada, and made the contacts that got them safely into the Historical Electronics Museum, a unique accession. Don, who publishes RADARHist, is a friend of CHRS. We have supplied him with radar history information. More would be appeciated.

A.W.A. invited me back to make another presentation on the history of short wave broadcasting. I spoke about the Foreign Broadcast Intelligence Service, and played tapes of W.W. II propaganda broadcasts. The FBIS article in this Journal derives from that work. Some photos from A.W.A. appear nearby. The swapmeet was over by Thursday afternoon, and pretty much deserted by Saturday. (The last couple of CHRS swapmeets compare favorably to A.W.A. at least in enthusiasm and quality, if not quantity). If you had come for the weekend, there was little to see. The auction had a great selection of communications receivers this year, and a great deal of other material. A.W.A. has compiled a history of recent auction prices that we may be able to present in the next Journal, once 1993 prices are integrated.

Here at CHRS, we are looking for more material for our audio-tape Journals. For some years I have been supplying historical tapes, and can continue to do so. We would also like to have other materials, such as interviews with old-timers, personal reminiscences, off the air recordings, whatever. We call on you to supply these recordings, so we can present them to the membership.

Journal editing is always a challenge, and we are pleased that John Eckland will soon take over production. This Journal is as good as it is because so many of you contribute notes, letters and articles. Please send more. We have liked every submission we have received. This Journal is well regarded nationally because of the quality of its articles. Thank you all for the good work.

The Electronics Museum of the Perham Foundation is in new boxes: 40 foot marine cargo containers. These are in storage in Silicon Valley. The City of San Jose is inching towards a letter of intent to enter into a contract that will site the Museum at Kelly Park as part of the San Jose Historical Museum. Once the letter of intent is signed, fundraising for a new building at Kelly Park can start. Nearby are two photos of some of the containers, and Foundation President Don Koijane and Board Member George Durfey. The Electronics Museum's new site could also provide a center for CHRS activities, and its now large library. I hope that CHRS and its membership can help the new Museum re-institute itself in San Jose. It would be most fitting for Doc Herrold's 1909 "San Jose Calling" transmitter, as preserved and restored by Doug Perham, to come to rest in its home town, and for us to help. — 73 —



George Durfey (L) and Don Koijane (R) at the temporary home [trailer] of the CHRS Library

A.M. REDUX – IN STEREO by Stefan Ponek

After hearing a demonstration of the newest AM stereo broadcasting, I think it's only a matter of time before we see a real comeback for AM broadcasting.

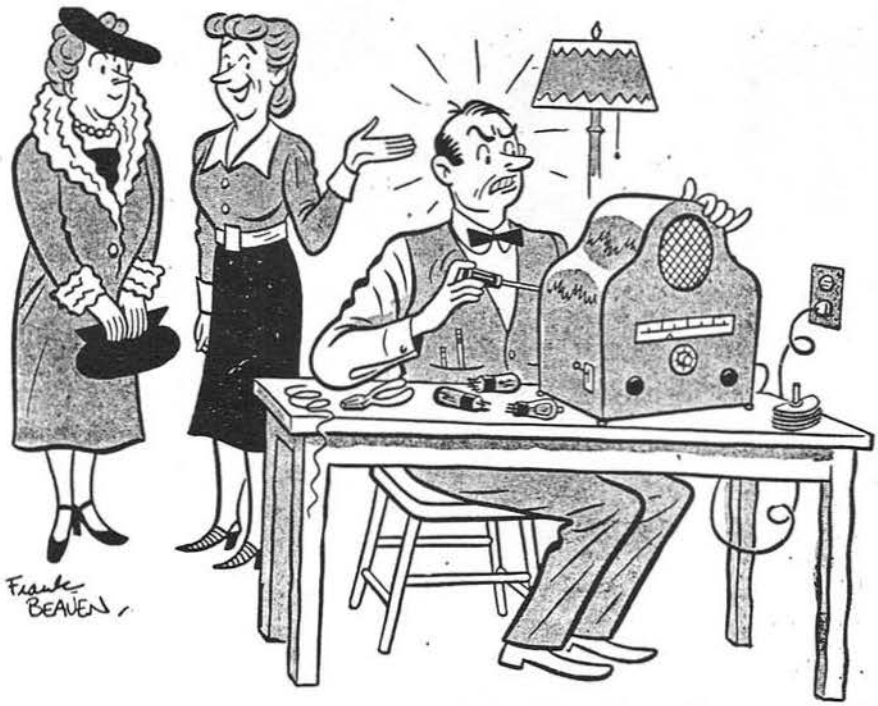
Beginning in the next year or so, the FCC will open up the "Expanded Band" on AM, where the old Police band used to be, from 1610 - 1705 kHz. There are 800 applicants for the new positions, so each major city may see up to five new, properly spaced, ten thousand watt stereo AM stations. The stereo is made possible by the "C-Quam" process developed by Motorola, which just won the six-year battle for FCC approval over other systems. It's accomplished by modulating" the L-R signal on a 90 degree-shifted main carrier, detectable by a Motorola chip now being put in most new radios. In conjunction with new noise-blanking technology, and marketed under the "AMAX" designation, these new receivers will bring an amazing quality of reception to cars and homes.

Sony has a walkman with AM stereo already, and a new Denon tuner with AMAX has become the industry's standard (and probably a hot future collectible!). Other stations not in the expanded band will likely be broadcasting stereo, as they decide it's worth doing. Many of them tried it in the mid-80's before the FCC type approved C-Quam, and feel a bit burned from the experience.

The demonstration I saw was at the National Association of Broadcasters convention in Dallas. They had a local station simulcasting stereo music on both FM and AM, and with the Denon Tuner, would switch from one to the other. Over seventy percent of the people guessed wrong! Because I listen to AM on my Miller Hi-Fi crystal set, I was less impressed than most, but with the stereo and noise-blanking, the sound was, in my opinion, better on the AM!

It was less flat, partly because it's squeezed into a 7.5 kHz spectrum limit, but more colorful-sounding. It was certainly just as quiet! AMAX is a group of AM broadcasters dedicated to its improvement, and the AMAX standard for receivers is being met by most auto manufacturers, and many other new receivers.

For most of us, however, we need only click up to the old police band on the big Philco to hear those new stations as they come on. It's going to be tempting to wire in those new chips and hide them down in the tar of a block condenser, though. -30-



Suggested by: Rodney Hudson, Falconer, N. Y.

"He calls it his wonder radio—he wonders if it will ever work!"

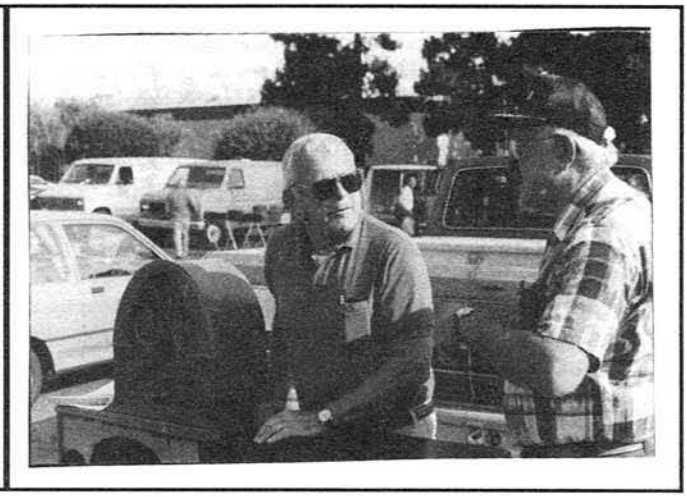
RADIO-CRAFT for AUGUST, 1945

DENNIS THE MENACE

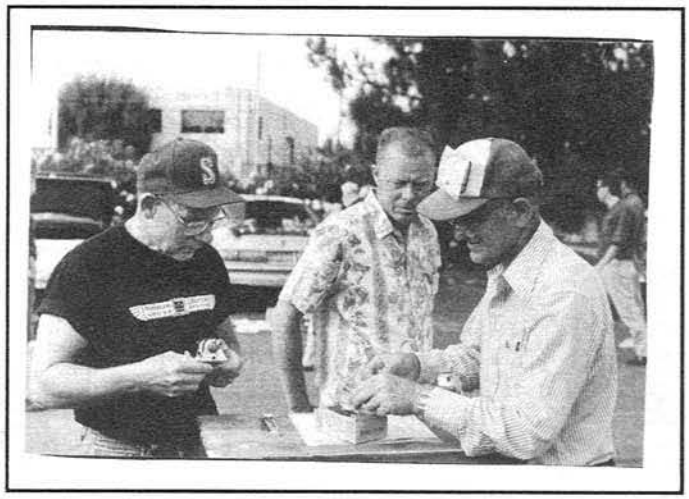
"MR. WILSON SAID IT CAN'T PICK UP ANY ROCK AND ROLL STATIONS."

Quarterly Ampex Swap Meet in Redwood City
Saturday August 7th, 1993

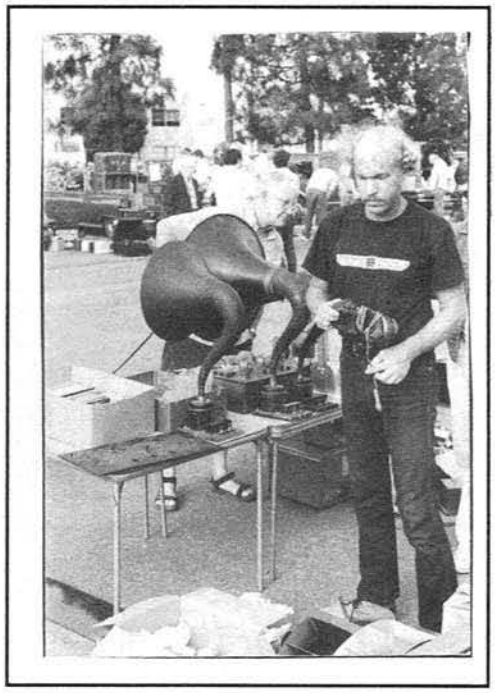
Photos by Gary Hascall



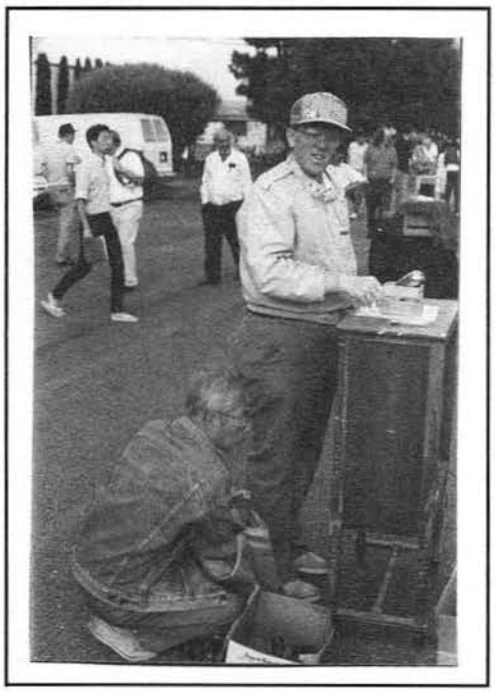
Howard Griffin (L) selling a nice Philco Cathedral



Leonard Cartwright (R) is the meter repair expert



Paul Mundt: ' Mr. Western Electric'



"I give you One Dollar!"

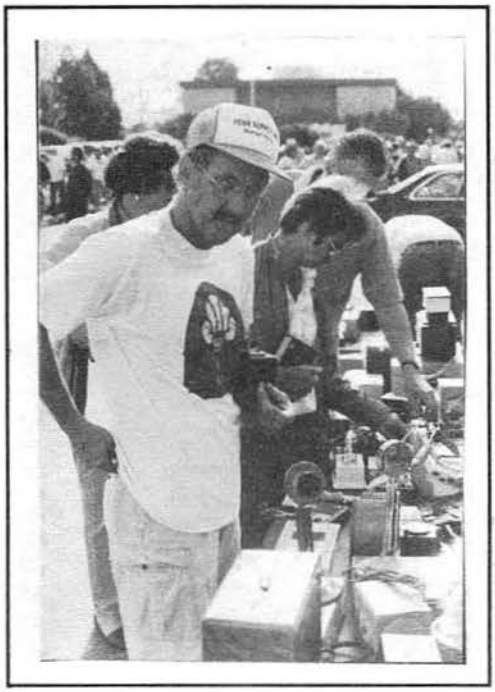
Sal Trentino (L) examins a rare tube.

Hey, a Radio Wife that's still smiling...

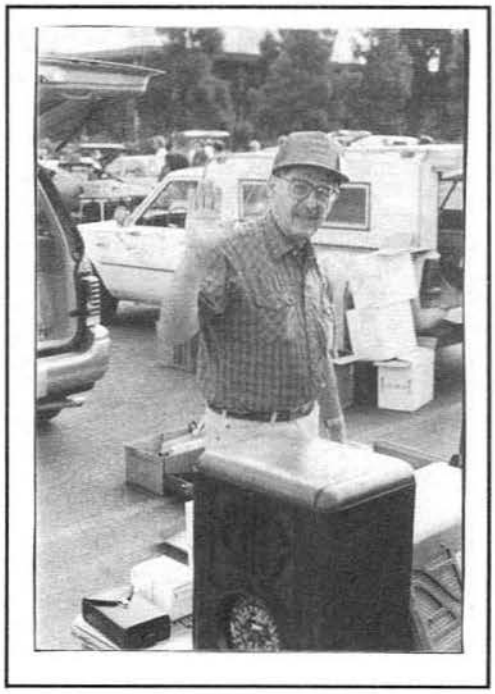
Peter Hughes

More Ampex...

Jim Falls (L) and Chris Galantine admire a rare McMurdo Silver



Ekkehart Willms collects telephones and radios

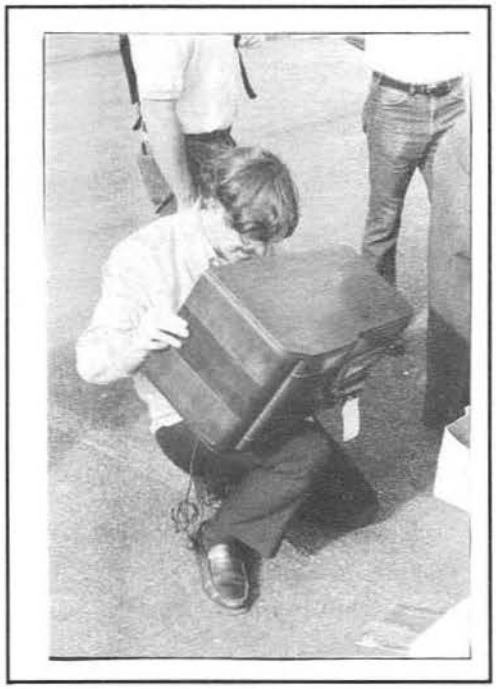


Stan Lopes

Ev Farey's back and his short collector friend

More Ampex...

"It plays great, and you can also use it as a lunch box!"

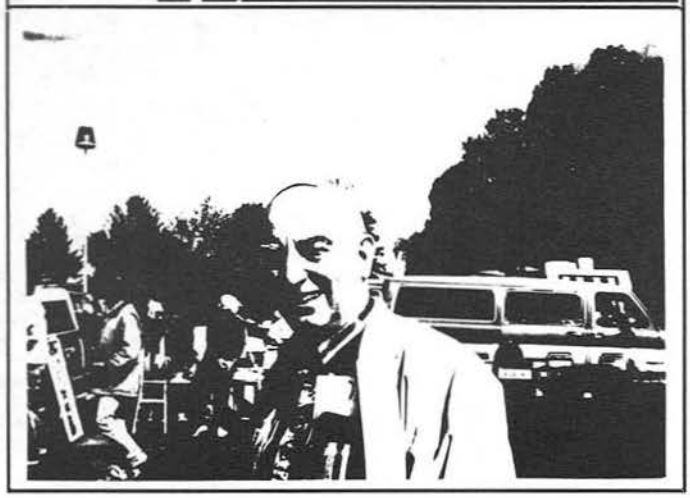


"Hey, are these spiders 'original?'"

Scenes from the 1993 AWA Conference in Rochester, N Y:

Top: No, not the Three Musketeers! But (L to R) Larry Nutting, Mike Adams, Bart Lee

Bottom: Will Jensby



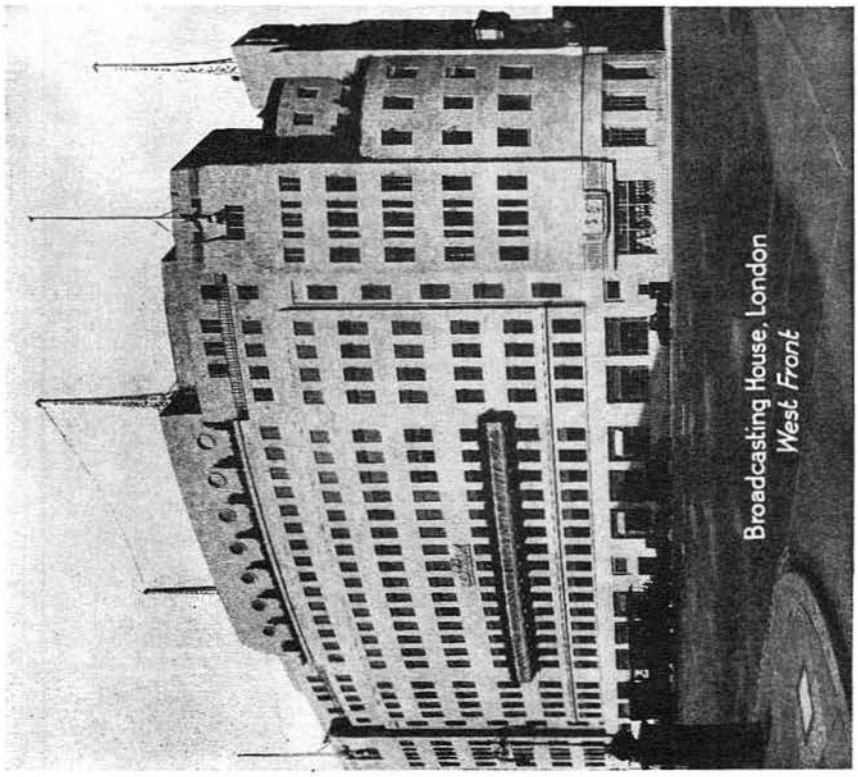
Last But Not Least...
Thoughts from Chairman Paul Bourbin

THE SWAP-MEET AT THE WESTERN RAILWAY MUSEUM OF THE BAY AREA ELECTRIC RAILROAD ASSOCIATION NEAR FAIRFIELD, CA. WAS A MOST PLEASANT EVENT. I SPOTTED A FEDERAL DX IN THE ORIGINAL BOX, THREE CATALINS AND MORE CATHEDRALS THAN I HAD SEEN IN A LONG TIME. IN FACT, THERE WERE THREE OF THE SAME MODEL! THERE WERE ALSO A LOT OF TUBES; MORE BLUE TUBES THAN HAVE APPEARED AT A MEET IN A LONG, LONG TIME. IT WAS ALSO THE MEET FOR RIDER'S MANUALS. WHILE THIS MEET IS INTENDED FOR THOSE MEMBERS WHO LIVE IN THE EAST BAY AND THE NORTH COUNTIES, PEOPLE COME FROM ALL OVER THE STATE.

SPEAKING OF MEETS, I WOULD LIKE TO THANK ALL OF OUR MEMBERS WHO ARE RESPECTING THE 8:00 A. M. STARTING TIME. I AM SURE THAT THIS IS ONE OF THE REASONS THATOUR MEETS THIS YEAR HAVE BEEN THE LARGEST YET. THE MEETS HAVE BEEN ATTENDED BY MORE PEOPLE FROM FARTHER AWAY THAN EVER BEFORE. AND I AM SURE WE ALL APPRECIATE THE EXTRA TWO OR THREE HOURS EXTRA SLEEP. LET US HOPE THAT THIS WILL CONTINUE NEXT YEAR.

1993 HAS BEEN A GOOD YEAR FOR CHRS. I HOPE THAT NEXT YEAR WILL BE AN EVEN BETTER ONE FOR CHRS, BUT THAT REQUIRES THE COMMITMENT OF ALL THE MEMBERSHIP. IT DOES NOT REQUIRE ALL OF YOUR FREE TIME, JUST A FRACTION. YOU CAN SEE WHAT A DOZEN PEOPLE HAVE ACCOMPLISHED, IMAGINE WHAT A FEW SCORE COULD DO. LET YOUR CONSCIENCE GUIDE YOU.

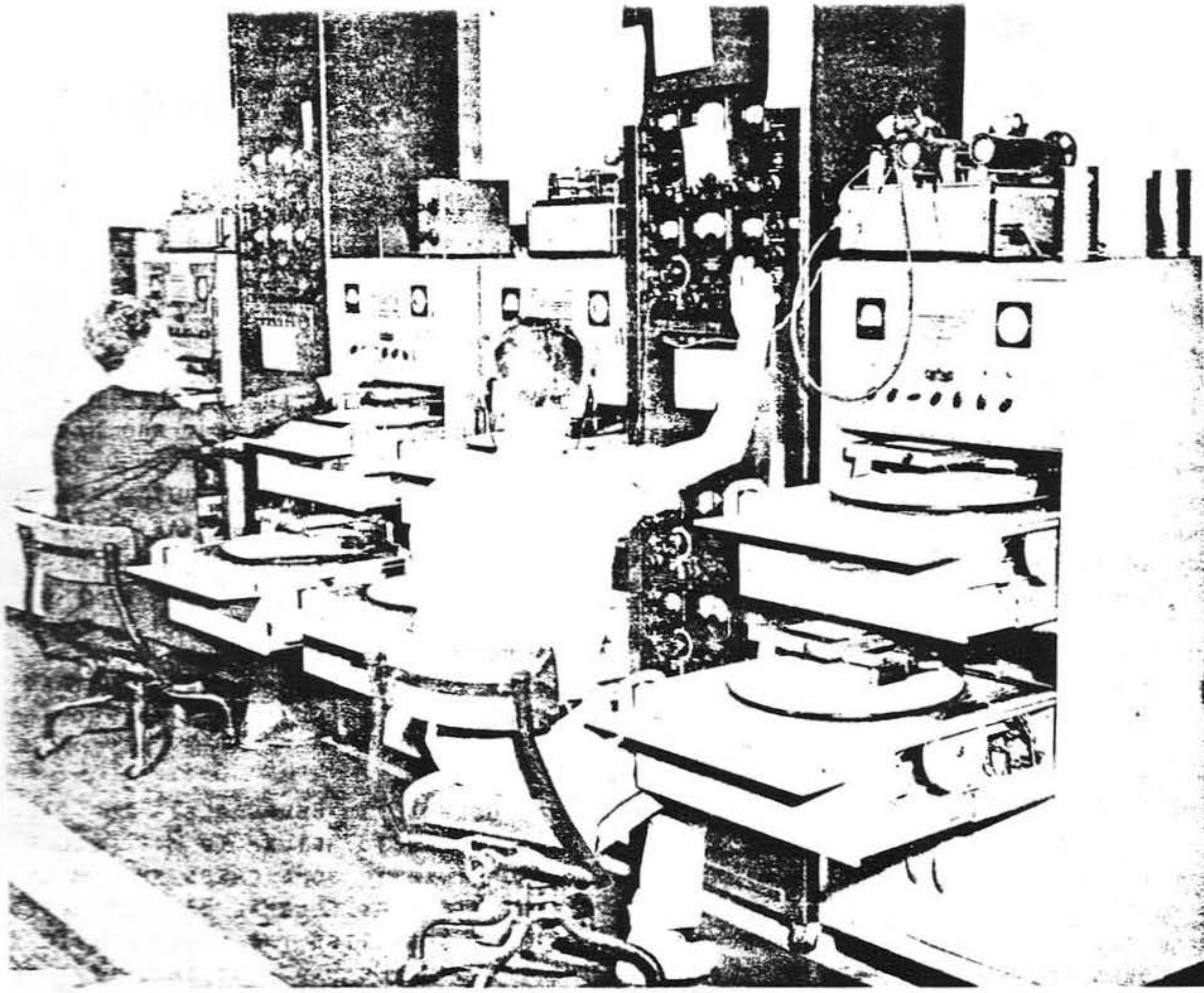
IT IS MY SINCERE HOPE THAT CHRS WILL FLOURISH IN THE COMING YEARS. I TOAST THE YOUNGER GENERATION. SEE YOU AT THE MEETS – PJB.



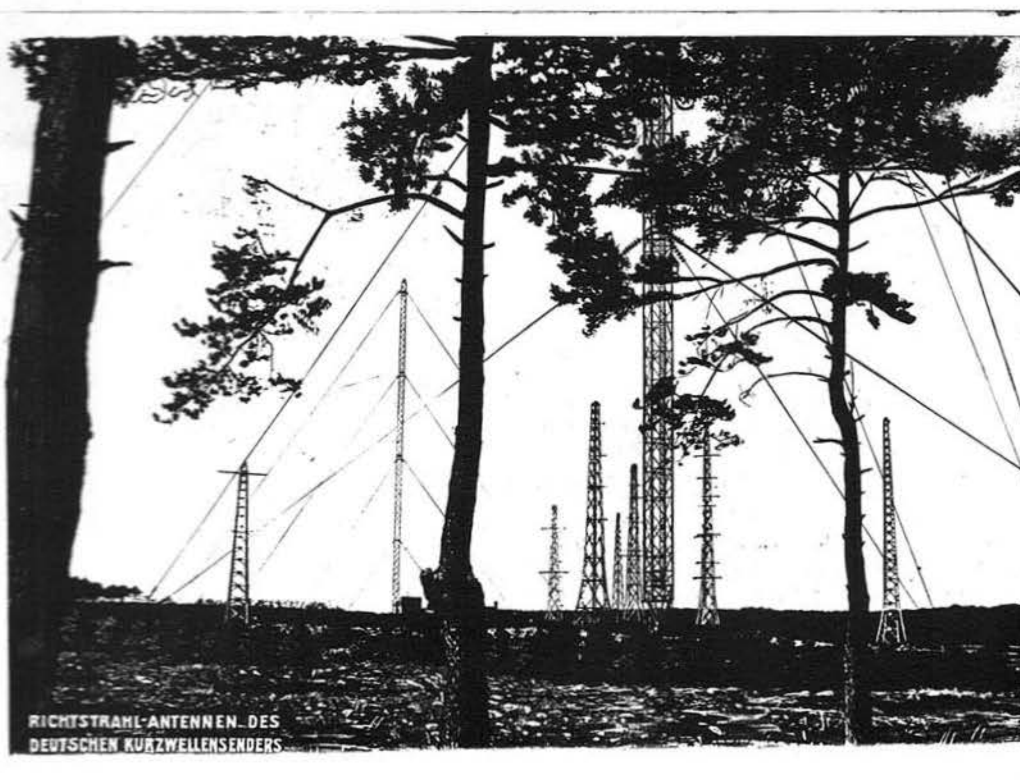
THE BRITISH BROADCASTING CORPORATION
thanks you for reporting on reception of the
Empire Broadcasting Station at Daventry.

BBC c.1939

THE FIFTH COLUMN THREATENS



NDA BOYS OF RID RECORDING ENEMY PROPAGANDA FOR FCC FOREIGN BROADCASTING INTELLIGENCE SERVICE. RECORDED MATERIAL TRANSLATED AND ANALYSED FOR THE MILITARY AND INTELLIGENCE AGENCIES OF OUR GOVERNMENT.




AMATEUR RADIO
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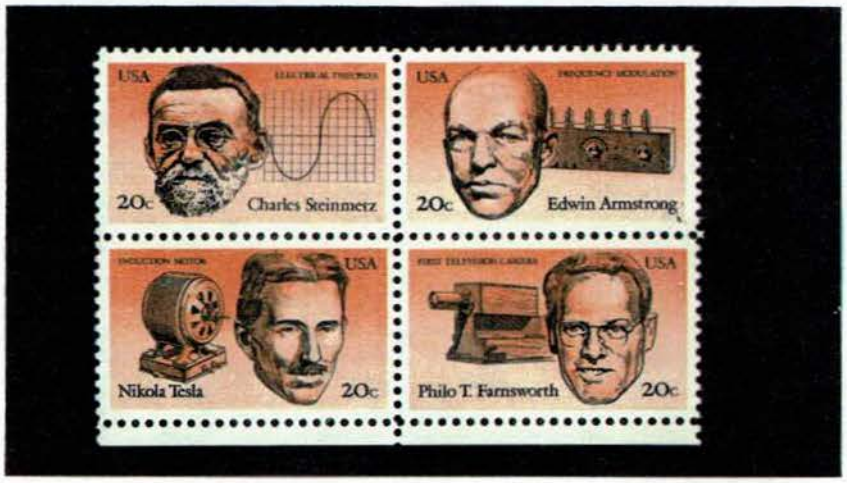
USA
20c Charles Steinmetz
USA
20c Edwin Armstrong
USA
Nikola Tesla 20c
USA
Philo T. Farnsworth 20c


30
30
TREINTA CENTAVOS


CENTENARIO DE MARCONI
PORTUGAL
1.50


60


Progress in Electronics
Progress in Electronics
Progress in Electronics
Progress in Electronics


9p
Marconi/Kemp experiments 1897


NIKOLA TESLA
SLAVIJA


INTERNATIONAL TELECOMMUNICATION UNION
1865
1965
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MAKE SURE THE SET YOU BUY HAS THE NEW
RCA
ALL METAL TUBES


NIPPON
50


NOBELPRIS
1909
SVERIGE 70