

PARADE TO OPEN RADIO SHOW

GALA DISPLAY WILL HERALD EXPOSITION

Radio enthusiasts of San Francisco and the bay cities today were invited by the Pacific Radio Trade Ass'n to join in a street parade of radio-equipped vehicles to be held on the opening day of the Pacific Radio Exposition in Exposition Auditorium, Aug. 16 to 21, inclusive.

In issuing the invitation, William P. Baer, manager of the show, said:

"We want every radio 'bug' in San Francisco and nearby cities to join in the parade, which will be the opening event of the biggest radio show ever held anywhere.

Fans To Parade

"Radio dealers, manufacturers and distributors from throughout the district will be on hand for the parade as well as city, county, state and government officials, and we want as many radio enthusiasts as have cars to join in the procession. All cars are to be suitably decorated with bunting, flags or flowers and should carry appropriate signs. We expect more than 200 motor vehicles, many of them radio equipped, to be on hand."

According to plans announced by H. W. Dickow, of the exposition executive committee, who is handling arrangements for the parade, a cordon of mounted police will lead the procession. Radio music will feature the parade, more than a score of the machines being equipped with receiving sets. The Magnavox Company of Oakland will have a special truck, equipped with a high-power set and ten loud speakers in the parade.

Disband at Auditorium
KPO, Hale Brothers' station, the official station of the exposition, will broadcast appropriate music during the parade. This will be carried to the public by loud speakers on the various machines in the procession.

The parade will start at Van Ness-av and Oak-st at 2 p m, Aug. 16, and will proceed down Market-st to the Ferry building and return to the Civic Auditorium, where it will disband.

The doors of the auditorium will be thrown open to the public at 6 o'clock the same evening and will be open from 2:30 p m to 11 p m thereafter, including Aug. 21.

Chinese Succumb To Lure of Radio

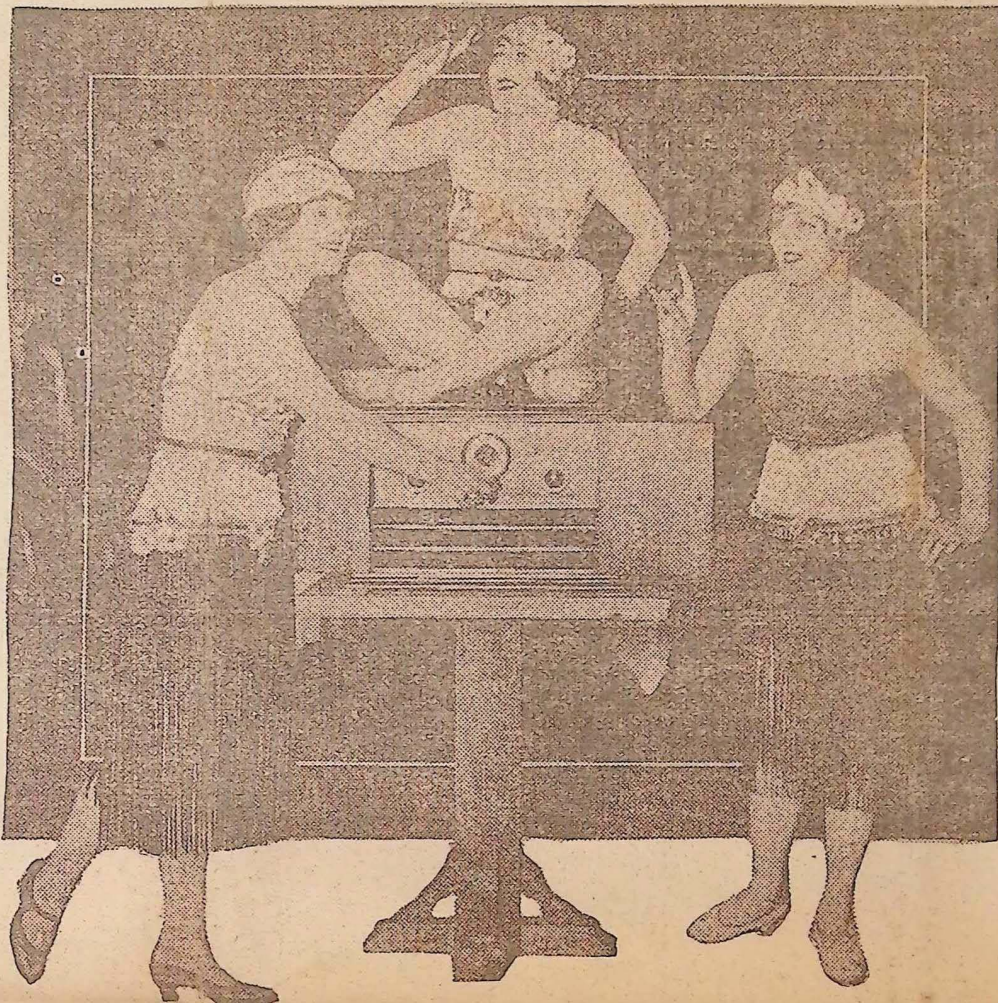
The U. S. Department of Commerce announces that China has awakened to the lure of radio. One of the leading Peking newspapers has installed a transmitting station and is broadcasting regular programs daily, consisting of educational talks, orchestral selections and vocal numbers. There is considerable demand for broadcast receiver sets among the Chinese and it is even said that the DX fever is rampant in the Celestial Republic. The seed sown by Dr. Mu, China's radio premier, seems to have fallen in good ground.

Eiffel and P. T. T.

PARIS—Eiffel tower and P. T. T. are again working on simultaneous transmission of the same messages or concerts, each on its own wave length. This method is now very popular in England and is used occasionally in the United States. P. T. T. is now working on 392½ meters exactly.

From license fees alone the British Broadcasting Co. gets a revenue of about \$1,190,000 a year.

SHAKE 'WICKED HOOF' BY RADIO



San Francisco girls are fast becoming ardent devotees of radio. Here are shown three Pavo Real "Radioettes" testing out one of the sets to be on display at the Radio Exposition beginning next week. Left to right: Zita Harrison, Nita Jewell and Ula Harrison.

S. F. 'SPARKS' REVOLUTION HERO

That adventure still lurks in the briny deep is affirmed by Marcel de Velez of San Francisco, following his recent experiences while radio operator on a Mexican vessel, the Coahuila, "wireless" published by Radio Corp. of America, states.

De Velez served with distinction in the signal corps of the American expeditionary forces in France. After the war he obtained a position with the Radio Corporation of America as operator on boats plying between Atlantic and Pacific ports.

In the early part of 1924, Velez found himself as senior operator, together with Cecil Parsons, junior operator, the only Americans on board the S. S. Coahuila, which was flying the Mexican flag. While in Manzanillo, Mexico, the Mexican revolution broke out and the ship turned rebel, under the orders of Capt. Lopez Fuentes.

"Gen. Castro, who was in command of that district, came aboard and asked me to keep a steady watch and copy everything that the Mexican government sent," de Velez related. "I told him that the radio apparatus was American and that we were American operators, but that as long as he left us alone, we would do his work. To this he agreed. At the outbreak of the revolution, I wired the San Francisco office for instructions, and I was told to stand by the ship as long as possible."

Cut Off From World

Following the outbreak of the revolution, Manzanillo was entirely cut off from the world, all communications being cut and all shipping ceased, de Velez stated. Although the Mexican captain had ordered him to accept no messages unless they were authorized by him, de Velez came to the aid of the American consul, who was without means of communicating

with the United States government, and transmitted messages between the consul and state department. It was through the American radio operator that the American consul was able to call at different times three Pacific Mail passenger ships and one army transport to take American refugees.

Then followed a series of stirring events for the radio operator.

After an exciting engagement with the Mexican gunboat Progreso, in which the Coahuila was victor, the captain of the rebel boat was made commander of the Progreso, with the title of admiral of the rebel navy. Although asked to become chief operator of the Progreso, de Velez refused to accept the position with the rebel forces.

Finally, after sending a number of messages for the American consul, de Velez was discovered by the rebels in the act of transmitting, and ordered to stop sending at once. He was also commanded to dismantle his apparatus.

In three weeks the rebels were defeated and they surrendered to the federals. The captain of the Coahuila, being one of the leaders, was tried and executed.

"Pres. Obregon requested his agents to have us reinstall the set, de Velez stated. "This I agreed to do, and it certainly was some job, as we had no diagram for the charging panel, and when we dismantled the set, we had thrown a quantity of wires overboard. However, I finally got the set to working all right."

Portable Radio Sets Rage Among Hams

With the summer vacations at hand and the gypsy spirit coursing through the veins of local hams, portable radio sets and licenses are in great demand.

The latest hams to succumb to the portable set rage are 6CPW and 6CBUS. The former ham has a new license, 6AAC. His portable set is operated on ten watts. The new license of 6CBUS is 6BMS.

6A00, 121 Seventh-av, is Frank Thiebold. After an absence of about a year and a half, he is returning on the air with a 10-watt set. He will be remembered as an old "sparks" ham.

6RY reports that it recently worked 6AMM of San Jose with 90 volts on the plate.

6CLV has just put up a new aerial, rewired his set and brought all the radio frequency leads in with 1-inch copper strips. He reports that he is very QLS with the YL's. Now the mystery of his absence from the air is explained.

As the result of a strenuous tennis game indulged in by 6CMM and 6BBS, while visiting KPH recently, 6BBS suffered a sprained ankle.

6BQUI has arrived in San Francisco from a vacation of two weeks spent in the northwest, where he visited amateur stations in the seventh district.

The Lick-Wilmerding Radio Club will open its first meeting of the fall term Tuesday afternoon at the school.

SPECIAL TRAIN IS CHARTERED FOR S. F. SHOW

The unusual interest of eastern radio manufacturers and others who will attend the radio exposition at the civic auditorium next week is manifest in their engaging a special train to bring a party from New York City, according to C. E. Hubbard, manufacturer of Million Point Super-Crystals.

The special train will be joined at Chicago by several hundred more on Tuesday and will arrive here late Friday. Nearly every eastern firm of prominence in the radio business will have a representative here.

Masonic Band to Broadcast Music

KANSAS CITY, Mo., Aug. 11.—Ivanhoe Masonic Band will broadcast concerts every other Monday for the remainder of the summer, from station WDAF. The music will be played by the band in Ivanhoe Temple. Ivanhoe Band, with a membership of over 100, is Kansas City's largest musical organization playing public concerts.

Walter A. French, director of the band, is arranging for organ music to be broadcast later from the temple from the large pipe organ installed in the main lodge room.

German Bugaboo

German competition of cheap radio products is feared by French manufacturers, now that the restrictions on amateur radio in Germany are lifted. Besides supplying the growing home market, German manufacturers are spreading into other countries.

Radio for Cables

Cable lines, which connected various islands of the Philippines, have been abandoned for radio communication there. Twenty-eight radio stations are in the archipelago.

HOW TO SPEAK OVER RADIO

Speaking to a microphone is an art distinct from all other forms of public speaking, avers Wheeler McMillen, associate editor of Farm and Fireside, who's tried it.

"The resonant quality of voice plays a big part through the microphone," says McMillen, "but resonance is only half the secret of successful broadcasting. Some voices gifted with a clear, sharp, vibrating quality, are changed by the microphone to a series of incoherent blurs."

For effective broadcasting, he adds, use short sentences made of simple words. "If long sentences are used, make them compound. The beginning and ending of a paragraph should be made of short, pithy sentences packed with thought.

"A monosyllable with a long vowel is harder to pronounce sharply than a syllable with a short vowel. Listeners in cannot see the periods by radio; the speaker must make them evident.

"The sentence ending must never be ragged. Words are clearest and most easily pronounced that end in sharp consonants."

THIS WEEK'S AIR PROGRAMS

Monday

KPO-Hale Bros., San Francisco (423 Meters)

12 M—Time signals; Scripture by Father Henry I. Stark of Paullist Fathers, St. Mary's.

1 TO 2 P M—Rudy Selger's Fairmont Hotel Orchestra.

2:30 TO 3:30 P M—Mezzo-soprano solos, To the Sun; Just a Wearyin' for You; When Honey Sings an Old Time Song; Little Gray Home in the West; Mrs. Sydney Talbot of Nevada City; Mrs. Robert Starrett, accompanist.

Hawaiian program by Fuzzy's Trio: Along the Way to Waikiki; Kuu Ipo; Maui Girl (steel duet); One, Two, Three, Four (waltz); Hawaiian Hula Medley; Moani Ke Ala; When Irish Eyes Are Smiling; Kawaihau Waltz (guitar solo); Sunny Manoa; Hawaiian Lullaby.

4:30 TO 5:30 P M—Rudy Selger's Fairmont Hotel Orchestra.

5:30 TO 6:30 P M—Children's Hour. Stories by Big Brother of KPO, taken from the Book of Knowledge. Piano duet, The Mardi Gras; Leah and Dorothy Selix.

7 TO 7:30 P M—Rudy Selger's Fairmont Hotel Orchestra.

8 TO 9 P M—Organ recital by Theodore J. Irwin, official organist, at the Wurliitzer.

March Militaire Francaise (from "Suite Algerienne"); Overture (from "Suite") by Symphony Pathetique (first movement selected passages); Villanelle (a rustic song); To a Wild Rose (by request); Rondo (from "Mouquet"); musical comedy selection (from "Little Miss Bluebeard"); song melody, Love's First Kiss; La Cinquantaine; Melody—Op. 3, No. 3; Pizzicato.

9 TO 10 P M—Talk on "National Defense," by Lieut. L. W. Yarborough. Program under management of L. Polos.

Violin solos, Liebesleid; Lieberfreund; Ave Maria; Agnes Clegg.

Piano solos, Funeral March of a Dead Hero; Music Box; The Girl With the Golden Hair; Louise Polos.

Piano solos, Legend; Hymn to the Sun; Serenade's Espanol; Agnes Hall.

Piano solos, Pantomime; Serenade; Fantasia Impromptu; Louise Polos.

10 TO 11 P M—E. Max Bradfield's Versatile Band.

KLX—Oakland Tribune (509 Meters)

8 TO 10 P M—Program broadcast from Stephens Union Hall, University of California campus, over private leased wires through KLX, under direction of Cyril Roche.

Orchestra selection (a), California, Here I Come; (b), When Lights Are Low; Denny Shaw and his orchestra from Winters' Hall, Richmond.

Vocal selections (a), Cherry Ripe; (b), Mignon; Mlle. Eugenie Kazan, prima donna soprano.

Piano solo, selected; Dennis Shaw.

Saxophone duet, selected; Lane and Roe.

Address, "The Pony Express," Greene Majors.

Vocal selection, Caro Nome (from "Rigoletto"); Mlle. Eugenie Kazan, soprano.

Orchestra selections (a), I Don't Know Why; (b), It Had to Be You; (c), I've Got the Blues; Dennis Shaw and his orchestra.

Piano solos (a), Hungarian; (b), Prelude; Kathryn Brown Palmer.

Vocal quartet selections (a), Where My Caravan Has Rested; (b), Lassie o' Mine; (c), I Don't; St. Edmund's Male Quartet, composed of Herbert Caswell, tenor; Prof. Francis Jones, second tenor; Ralph Wood, bass; Sam Bullock, second bass.

Orchestra selections (a), Tripping Along; (b), I'm All Broken Up Over You; Denny Shaw and his orchestra from Winters' Hall, Richmond.

Piano duet, Valse Brillante; Florence Clark, Ruby Williams.

Novelty numbers, selected; Gamble Brothers' Two-Man Band, Ralph and Howard Gamble.

Violin solo, selected—Ward McCracken.

Orchestra selections (a), Medley of favorite airs; (b), Hoodoo Man; (c), 31st Street Blues; (d), San; Denny Shaw and his orchestra from Winters' Hall, Richmond.

KGO-General Electric Co., Oakland (312 Meters)

1:30 P M—New York Stock Exchange and United States weather bureau reports.

4 TO 5:30 P M—Concert Orchestra of the Hotel St. Francis, San Francisco, Vinton La Ferrara conducting.

6:45 P M—Final reading, stock exchange and weather reports, and news items.

8 TO 10 P M—Instrumental selections (a), Still As the Night; (b), Second Valse; Arion Trio.

Soprano solo, Mattinata; Margaret N. Bunting.

Bass solos (a), La Joliva; (b), I due Granatieri; Jose E. Corral.

Oboe solos, selected; Edward Mundt.

Contralto solo (a), Mon coeur s'ouvre a ta voix ("Samson and Delilah"); (b), The Fisherman's Song; Oris Osborne (pupil of Homer Henley); Frank Svenson, accompanist.

Reading with musical accompaniment, The Selfish Giant; Vera Frances Morse; musical setting by Liza Lehmann; Esther Sittig, accompanist.

Instrumental selection, Autumn and Winter; Arion Trio.

Baritone solos (a), A New Heaven and a New Earth ("Holy City"); (b), Ah! Moon of My Delight ("Persian Garden"); Homer Henley; Oris Osborne, accompanist.

Soprano solos, Ethel Barnes Karmel.

Piano solos, Esther Hale Sittig.

Bass solos (a), Salvatore Rosa; (b), Canto del Olvido; Jose E. Corral.

Instrumental selections (a), Serenade; (b), No Spring; Arion Trio.

Travel Talk, "Crossing the Equator" (Java, Singapore); J. E. Barnes.

Soprano solos (a), Vale; (b), Thanks Be to God; Margaret N. Bunting.

Oboe solos, Edward Mundt.

Baritone solos (a), Rachem; (b), June, Homer Henley.

Soprano solos (a), The Nightingale's Song; (b), Charming Oiseau; Mrs. Homer Henley; Oris Osborne, accompanist.

Instrumental selection, Andantino; Arion Trio.

10 P M TO 1 A M—Henry Halstead and his dance orchestra playing in the Garden Room of the Hotel St. Francis, San Francisco.

Bass solos, Three for Jack; Friend of Mine; Syl Burkenroad; Johan Colet, accompanist.

Instrumental selections, Spanish Dance, Op. 12, No. 2; Melodie; Pacific Trio.

Soprano solos, Ah, Though the Silver Moon Were Mine; Robin, Sing Me a Song; Fawn Post Trowbridge.

Bass solos, The Builder; Out on the Deep; Syl Burkenroad; Johan Colet, accompanist.

Instrumental selections, Eleanor; Valse Danseuse; Pacific Trio.

Soprano solos, A Prospect; Yesterday and Today; Mrs. Phillip Aaronson.

9 TO 10 P M—Soprano duets, At Dawning; Waters of Minnetonka; Agnes and Florence McEachran.

Piano solo, Prelude A Flat; Prelude G Minor; Walter Frank Wenzel.

Mezzo-soprano solos, A Swan; Mother Sorrow; Agnes McEachran.

Soprano solos, Buzzi—Peccia—Paquita; Florence McEachran.

Piano solos, Reverie; Second Arabesque; Walter Frank Wenzel.

Soprano duets, O Solo Mio; Last Rose of Summer; Agnes and Florence McEachran.

Soprano solos, Could I; The Piper of Lore; Florence McEachran.

Mezzo-soprano solo, Call Me No More; Agnes McEachran.

10 TO 11 P M—E. Max Bradfield's Versatile Band.

KLX—Oakland Tribune (509 Meters)

3 TO 5 P M—Baseball scores.

6 TO 7 P M—Sunset matinee, presented for the children by Aunt Elsie of the Tribune: "The Witches' Cave," a play with pirates and witches and adventuring children. Characters: The Pirate and Witch Giggle Wiggle. Music by Aunt Elsie.

7 TO 7:30 P M—Financial news.

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10 P M TO 1 A M—Henry Halstead and his dance orchestra playing in the Garden Room of the Hotel St. Francis, San Francisco.

KFI—E. C. Anthony, Los Angeles (469 Meters)

5 TO 5:30 P M—Evening Herald news bulletins.

5:30 TO 6 P M—Examiner news bulletins.

6:45 TO 7 P M—Ince motion picture night.

8 TO 9 P M—Ambassador Hotel-Cocoanut Grove Orchestra.

9 TO 10 P M—Examiner program.

10 TO 11 P M—Aeolian organ recital.

KGW—Oregonian, Portland (492 Meters)

8 P M—Concert by George Weber and his orchestra.

KFOA—Rhodes Co., Seattle (455 Meters)

8:30 P M—The Admiral Oriental Line will give a diversified program including dance and concert music played by orchestra of the steamship President Madison.

KLJ—Los Angeles Times (395 Meters)

8 TO 9 P M—Program arranged through the courtesy of Gertrude Mountjoy Shoemaker.

9 TO 10 P M—Program presented through the courtesy of Barker Brothers, arranged by Claire Forbes Crane, James R. Harvey, tenor; Sibley G. Pease, pianist.

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EDISON DID IT!

Next week we will tell you how to work a loud speaker with an inexpensive crystal set without tubes or batteries, using a Million Point Super-Crystal.

KLS

Warner Bros., Oakland—(360 Meters)

11:30 TO 1:00 P M—Phonograph selections (daily except Sunday).

Sunday

12 M TO 1:00 P M—Radio Church of America, Rev. George Chambers; music in charge of Charles Dickens.

KUO

San Francisco Examiner—(360 Meters)

Daily—Except Saturday and Sunday

9:05 A M—Weather forecast.

11:00 TO 11:30 A M—Market reports.

3:30 P M—Financial bulletin.

6:00 TO 6:20 P M—Financial and garden hint broadcast.

6:40 P M—Weather forecast.

Saturday Only

9:05 A M—Weather forecast.

6:00 TO 6:20 P M—Financial and garden hint broadcast.

6:40 P M—Weather forecast.

Sunday Only

9:05 A M—Weather forecast.

6:45 P M—Weather forecast.

Additional Friday

5:45 TO 6:00 P M—Health bulletin.

Stories by Big Brothers of KPO, taken from the Book of Knowledge. Piano solos, Water Sprites; Mori Reve; Concert Polonaise; Helen Hurl, 10 years old (pupil of Mrs. H. I. Krick).

7 TO 7:30 P M—Rudy Selger's Fairmont Hotel Orchestra.

8 TO 8:30 P M—Theater Arts Club presents "The Curtain," a play by Hallie F. Flanagan; personal direction of Talma-Zetta Wilbur. The people of the play: Dr. A. A. Arbogast, Ruth, his daughter, Marilla Brintnall Sade, girl across the hall..... Eunice Woolsey Lestrade, New York policeman..... E. Marston Brown, Lestrade's assistant..... H. H. Hood Benson, Lestrade's assistant..... L. E. Fenster Scene: A small room in a New York apartment house.

8:30 TO 11 P M—E. Max Bradfield's Versatile Band.

KLX—Oakland Tribune (509 Meters)

3 TO 5 P M—Baseball scores.

7 TO 7:30 P M—Financial news.

8 TO 10:20 P M—Studio program: Instrumental selections, the KLX Instrumental Trio.

Reading, "Little Brown Boy," Mrs. George Duncan.

Violin solo, selected; Harriet French.

Recitation, "The Blessin' o' Belr Poor," Earle Wilson.

Instrumental selections, the KLX Trio.

Reading, "Angelina," Mrs. George W. Duncan.

Cello solo, selected, Harriet French.

Special: The controls of KLX will be switched to the American Theater at about 9 o'clock for the overture by the American Theater Orchestra, Owen Swenson, directing.

Talk, "Outlines of Women," Earle Wilson.

Violin selections, selected, Harriet French.

Instrumental selections, the KLX Trio.

Recitation, "Ten Nights in a Milk Store," Earle Wilson.

Cello solo, selected, Joziena Vander Ende.

Recitation, "The Shooting of Dan McGrew," Earle Wilson.

R-A-D-I-O SPECIALS

Manhattan Loud Speaker; regular price \$25; our price..... \$12.95

Thordarson 3 1/2 to 1 Radio Audio Amplifying Transformer; regular price \$3; our price..... \$2.75

Thordarson 6 to 1 Radio Audio Amplifying Transformer; regular price \$4.50; our price..... \$3.75

Coto Audio Frequency Transformer; 3 to 1; our price..... \$2.50

Burgess B Battery, 22 1/2 volts; our price..... \$1.25

Eveready 45-Volt B Battery; our price..... \$2.85

A-1 Wonder Crystal..... 50¢

Gets distance..... \$2.95

Shamrock Varicouplers and Variometers. Reg. \$3.50; our price..... \$2.95

Scientific Headset, 3000 ohms. World's greatest phone value. Our price..... \$2.75

Brandes Navy Type Headset; regular \$8.00; our price..... \$5.85

Fada Five-Tube Neutrodyne Knock-down Parts; regularly \$39.25; \$65.60; our price..... \$4.85

Lemco Crystal Set; regular \$7.50; our price..... \$1.85

23-Plate Vernier Condensers; our price..... \$2.35

Brandes Loud Speaker, reg. price \$10.50; our price..... \$6.60

Baldwin Headphones, type C; complete; our price..... \$6.50

I. S. COHEN'S SONS

1015 Market St.

Phone Market 9558

Mail Orders Promptly Filled

Instrumental selections, the KLX Trio.

Organ recital, broadcast over private leased wires from the American Theater; Clement Barker, organist.

KGO-General Electric Co., Oakland (312 Meters)

1:30 P M—New York Stock Exchange and United States weather bureau reports.

3 P M—Short musical program. Speaker furnished through the courtesy of the Cora L. Williams Institute, Berkeley.

4 TO 5:30 P M—Concert Orchestra of the Hotel St. Francis, San Francisco, Vinton La Ferrara conducting.

6:45 P M—Final reading, stock exchange and weather reports, and news items.

DISTANT STATIONS

KFI—E. C. Anthony, Los Angeles (469 Meters)

7:30 TO 8 P M—Georgia McGrove Fifield, musical readings.

8 TO 9 P M—Evening Herald, Frank Carr's Orchestra.

9 TO 10 P M—Examiner program.

10 TO 11 P M—Hollywoodland Community Orchestra.

11 TO 12 P M—Ambassador Hotel-Cocoanut Grove Orchestra.

KFOA—Rhodes Co., Seattle (455 Meters)

8:30 P M—Metropolitan Building Corridor under direction of Freda Tilden, will give their regular monthly program of vocal and instrumental numbers.

KGW—Oregonian, Portland (492 Meters)

8 P M—Concert by John Claire Monteith, baritone.

10 P M—Dance music by George Olsen's Metropolitan Orchestra, of the Hotel Portland.

KLJ—Los Angeles Times (395 Meters)

8 TO 9 P M—Program presented through the courtesy of the Platt Music Co., arranged by Edwin Lester of the Platt Music Co.

9 TO 10 P M—Program presenting the Filipino String Orchestra, Cafeteria. Al Schiller, pianist. Dr. through the courtesy of the Blue Bird Mars Baumgart, lecturer.

10 TO 11 P M—Art Hickman's Dance Orchestra from the Biltmore Hotel.

Thursday

KPO-Hale Bros., San Francisco (423 Meters)

12 M—Time signals; Scripture.

1 TO 2 P M—Rudy Selger's Fairmont Hotel Orchestra.

2:30 TO 3:30 P M—Piano solos, Morning; Valse A Flat; Elsie Ingalls, pupil of Mrs. H. I. Krick.

Quartet, My Wonderful One; What'll I Do?; California Quartet.

Violin solos, Nocturne in D Flat 1; Caprice 24; Clyde Morris Gates.

Piano solos, Finnish Folk Song; Prelude; Elsa Naess.

Quartet, Gypsy Trail; California Quartet.

Violin solos, Romanza Anduluzo, Op. 22; Allegro Moderato (Seventh Concerto Op. 76); Clyde Morris Gates.

4:30 TO 5:30 P M—Rudy Selger's Fairmont Hotel Orchestra.

Philadelphia, Pa. 1122 Market St. Boston, Mass. 1122 Market St. San Francisco, Cal. 1122 Market St.

AMERICAN RADIO STORES, INC.

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SWITCH POINTS—Marconi type, heavy nickel plated, with nuts. Dozen, special..... 8¢

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Complete, guaranteed receiving set! Wonderful, including phone, lead-in, aerial, etc. Nothing more to buy. No tubes or batteries needed. Simple and easy to operate. Brings in local and distant broadcast entertainments clear and loud within a 50-mile radius. Orders filled at sales office.

R. & O. MANUFACTURING CO.

Room 661 Pacific Bldg., San Francisco

RADIO TAXIS WILL CARRY SHOW GUESTS

For the first time in the history of radio taxicab patrons are to have the opportunity of enjoying the varied programs of the air while "taxi-ing" from one point to another. This was the announcement of the Checker Cab Co. today which has been designated the official taxicab company for the Radio Exposition, Aug. 16 to 21.

A fleet of Checker cabs will be equipped with complete radio outfits by the Pacific and Atlantic Radio Co. Each driver has been specially schooled in the operation of the radios so as to assure taxi passengers the fullest possible enjoyment of the air programs.

San Francisco's first radio taxicabs will make their bow to the public Saturday, Aug. 16, the opening day of the Radio Exposition with a parade of the cabs led by an escort of mounted police.

Chinese Radio Puzzles Fans

PEKIN, Aug. 11.—The Chinese paper Shun Pao is now allotting a certain amount of space regularly to radio news and hookups. The only disadvantage to this is that the American amateurs located in China, are unable to tell which is the description and which is the diagram.

Use of radio receivers is forbidden in the German occupied areas.

SHE LIKES RADIO WAVES BEST



Old King Neptune is fast losing his prestige with mermaids. Miss Alpha Brothers, prominent local swimmer, is such an enthusiastic radio fan that she takes her set to the swimming pool with her. The set is one of the latest designs to be displayed at the Radio Show to be held in Exposition Auditorium beginning next week.

RADIO BOOSTS INTEREST IN GOOD MUSIC

MADISON, Wis., Aug. 11.—Radio is largely responsible for increased interest on the part of the general public in better types of music, says Prof. P. W. Dykema of the University of Wisconsin school of music.

"Give the best music adequate performance and its appeal is immensely extended," says Prof. Dykema. "Most wrong notions about classical music are based upon singing or playing that is so poor that the ideas of the composer are not evident."

"Radio, by bringing to communities all over the United States performances of the great masters by fine organizations, is doing much to acquaint our people with the beauties of music."

Prof. Dykema thinks that radio is also influencing jazz. "Largely through the influence of radio, jazz music has become more refined, complex and harmonious," he says.

Radio Brightens Life In Murman

BERLIN, Aug. 11.—Life has ceased to be dull for the inhabitants of Lawosor, little village on the coast of Murman, since the soviets have installed a radio. The set permits the inhabitants to remain in contact with the outside world from which they are separated otherwise for six months during the year.

WAVELETS

Westminster Abbey, St. Paul's and other European cathedrals will install loud speakers.

Great Britain may institute a regular service of broadcasting to schools.

Radio messages dealing with forest fires are given priority in Norway.

Radio will be installed in Belgian army barracks for the entertainment of troops.

Jamaica, Long Island, fixes the curfew hour of 9 o'clock for loud speakers.

Method of setting clocks automatically by radio from Arlington time signals has been tested in Washington.

World Radio Fair To Open In N. Y.

NEW YORK, Aug. 11.—The attention of the radio world is focused upon the first radio world's fair, to be held in Madison Square Garden and the 69th Regiment Armory from Sept. 22 to 28. It is planned to introduce inventions from all parts of the globe.

Half a dozen recognized radio engineers are now busily engaged trying to perfect systems for transmitting pictures. Managers of the exposition have high hopes of being able to broadcast the world's first program of "radio motion pictures" on the opening night.

WEEK'S AIR PROGRAMS, CONTINUED

Olsen's Metropolitan Orchestra of the Hotel Portland.

KHJ—Los Angeles Times (395 Meters)

8 TO 9:30 P M—Program presented through the courtesy of the Radio Corporation of Southern California, arranged by B. J. Sacta.

9:30 TO 10 P M—Program presenting Hatch Graham, singer and banjoist.

10 TO 11 P M—Art Hickman's Dance Orchestra from the Biltmore Hotel.

Friday

KPO—Hale Bros., San Francisco (423 Meters)

12 M—Time signals; Scripture. 12:45 P M—Talk broadcast from Commonwealth Club luncheon at Palace Hotel.

1 TO 2 P M—Rudy Selger's Fairmont Hotel Orchestra.

2:30 TO 3:30 P M—Organ recital by Theodore J. Irwin, official organist of KPO.

Fox trot, Blue Hoosier Blues; Waltz; operatic selection, Coppelia; musical comedy selection, You're in Love; popular waltz song, Moonlight Memories; Whistler and His Dog; section, old time favorites; Bercense; fox trot, Somewhere.

4:30 TO 5:30 P M—Rudy Selger's Fairmont Hotel Orchestra.

KLX—Oakland Tribune (509 Meters)

3 TO 5 P M—Baseball scores.

7 TO 7:30 P M—Financial news.

8 TO 10:20 P M—Studio program:

KGO—General Electric Co., Oakland (312 Meters)

1:30 P M—New York Stock Exchange and weather reports.

3 P M—Studio musical program.

4 TO 5:30 P M—Concert Orchestra of the Hotel St. Francis, San Francisco, Vinton La Ferrera conducting.

6:45 P M—Final reading, stock exchange and United States weather bureau reports.

DISTANT STATIONS

KFI—E. C. Anthony, Los Angeles (469 Meters)

6:45 TO 7 P M—Aeolian organ recital.

8 TO 9 P M—Evening Herald-Blue Moon Syncopators.

9 TO 10 P M—Examiner program.

10 TO 11 P M—Anna Priscilla Risher program.

11 TO 12 P M—Ambassador Hotel-Cocoanut Grove Orchestra.

KFOA—Rhodes Co., Seattle (455 Meters)

8:30 P M—"Pep" Harding has arranged a program including vocal solos, pianologues and violin selections. She will be assisted by Mabel Grace Robertson, soprano; Mason Stewart, baritone; Marguerite Brown, pianologues.

KGW—Oregonian, Portland (492 Meters)

8:15 P M—Studio concert by George Olsen's Metropolitan Orchestra of the Hotel Portland; Herman Kenin, director.

KHJ—Los Angeles Times (395 Meters)

8 TO 9 P M—Program arranged through the courtesy of Tilda Rohr, contralto.

9 TO 10 P M—Program presenting Charlie Wellman, jazz tenor. Bill Hatch, pianist. George W. Hood, reader.

10 TO 11 P M—Art Hickman's Dance Orchestra from the Biltmore Hotel.

Saturday

KPO—Hale Bros., San Francisco (423 Meters)

1 TO 2 P M—Rudy Selger's Fairmont Hotel Orchestra.

2:30 TO 3:30 P M—Program presented by Chandler-Cleveland Motor

Car Co., Wilt Gunzendorfer's Cleveland Six Orchestra:

Sweet Little You; Red Hot Mama; Memory Lane.

Saxophone solos, Love Sends a Little Gift of Roses; Wilt Gunzendorfer, Lazy; June Moon; New Kind of Man.

Piano solo, selected; Mel Lyons, Where is That Old Girl of Mine?; I Don't Know Why.

8 TO 12 P M—Art Weidner and his popular artists. During the intermissions:

Talk, "Greeting to the Radio World," Arthur Halloran, editor of Radio.

Addresses.

Soprano solos, Tarantella; Last Rose of Summer; Mme. Dorothy R. Talbot; Claire Darrimon, accompanist.

Bass solos, The Turnkey (from "Rob Roy"); Song of Hydras the Cretan; H. Victor Vogel; LeRoy Henshaw, accompanist.

Soprano solos, Mad Scene (from "Lucia"); Home, Sweet Home; Mme. Dorothy R. Talbot; Claire Darrimon, accompanist.

Bass solos, To Scenes of Peace Retiring (from "The Magic Flute"); The Pirate's Song (from "Treasure Island"); H. Victor Vogel; LeRoy Henshaw, accompanist.

KLX—Oakland Tribune (509 Meters)

12:30 P M—New York Stock Exchange and United States weather bureau reports.

4 TO 5:30 P M—Concert Orchestra of the Hotel St. Francis, San Francisco, Vinton La Ferrera conducting.

8 TO 10 P M—Instrumental selection, Trio in D Minor (Molto Allegro ed Agitato); Fern Backman, violin; Vernal Deane, cello; Wilhelmina Wolthus, piano.

Baritone solo, Asleep in the Deep; Paul Benson.

Violin solos (a), Hymn to the Sun; (b), Gavotte; (c), Serenata; Fern Backman.

Soprano solo, Song of the Open; Beatrice L. Sherwood.

Piano solos (a), Melody; (b), Romance; Wilhelmina Wolthus.

10 P M TO 1 A M—Dance music, Hotel St. Francis Orchestra.

Sunday

KPO—Hale Bros., S. F. (423 Meters)

11 TO 12 M—Organ selections, Theo J. Irwin; sermon and prayers, Dr. B. W. Wise, Methodist pastor; soloist, Belle Jacobs Lewis, soprano.

8:30 TO 10 P M—Rudy Selger's Fairmont Hotel Orchestra.

KFI—Earle C. Anthony, Inc., L. A. (469 Meters)

10 TO 10:45 A M—L. A. Church Federation service.

6:45 TO 8 P M—Metropolitan theater program.

8 TO 9 P M—Ambassador hotel concert orchestra.

9 TO 10 P M—Program from Examiner studio.

10 TO 11 P M—Packard Six orchestra.

KHJ—L. A. Times (395 Meters)

10 A M—Sermon from KHJ studio.

10:30 A M TO 12:30 P M—Organ recital and entire religious service from the First Methodist Episcopal church, Arthur Blakeley, organist, and Rev. Elmer E. Helms, pastor.

8:30 TO 7 P M—Art Hickman's Concert orchestra from the Biltmore hotel.

7 TO 7:30 P M—Organ recital from the First Methodist Episcopal church, Arthur Blakeley, organist.

8 TO 10 P M—Program presented through the courtesy of Hellman Commercial Trust and Savings bank, arranged by A. K. Berland.

KGO—General Electric Co., Oakland (312 Meters)

11 A M TO 12 M—Prayers, sermon, "A Light From the Earth"; instrumental selections.

3:30 TO 4:30 P M—Concert, KGO Little Symphony Orchestra.

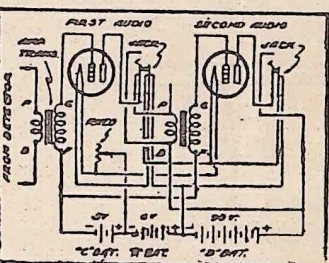
7:30 P M—Prayers, sermon, "The Most Impressive Experience of a Tremendous Month." Sacred music.

RADIO FROM THE GROUND UP

The two forms of amplification for which the tube is employed differ only in the frequency of the electrical impulses. In one case the radio frequency amplifier amplifies energy whose frequency is hundreds of thousands of times per second. The audio amplifier, on the other hand, operates on much lower frequencies—those of voice or music which are only a few hundred times per second and within the range of hearing.

The audio amplifier is the simpler and will be considered first. The detector tube is operated in the usual way, the circuit given this time being most practical and up to date.

The primary winding consists of 15 turns of No. 20 wire wound on a 4-inch tubing. This serves to transfer the energy of the detector circuit and the primary is not tuned in any way. In this case the aerial is merely a collector of energy and impulses of all broadcast wave lengths pass through the primary. The secondary, started about an eighth of an inch away, consists of 50 turns and the tuning is done by a 23-plate or .0005 mfd. variable condenser.



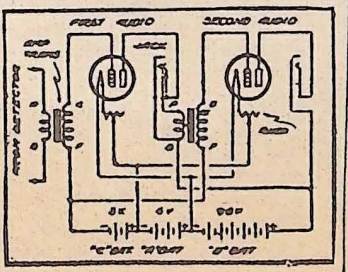
The grid condenser is .00025 mfd. and the leak two megohms. In place of the phones in the plate circuit we find the primary winding of the audio frequency transformer shunted by a .002 phone condenser. Regeneration is obtained by the usual tickler coil method, a movable coil wound with 40 turns of wire being coupled to the secondary of the coupler. The secondary winding of the transformer has a great many more turns than the primary, so that there is a step-up of voltage in the transformer in addition to the amplification of the tube itself. This increased voltage is impressed upon the grid of the amplifier tube, and on account of the greater power required to operate the phones a higher "B" battery voltage is needed.

Transformer Ratio

Transformers are advertised to have a "ratio" of 5 to 1, 8 to 1, etc. Provided the primary has sufficient turns to make the

transformer efficient for clear amplification of the low frequencies of voice and music, this statement of ratio is an indication of the amplification to be expected within the transformer. If the ratio is too high the amplifier will yield plenty of volume, but the clearness will be spoiled. Ordinarily a ratio of 3 or 4 to 1 is sufficient. This must be multiplied by the amplification constant of the tube to find the total increase in sound volume over that heard on the detector. This would make the amplification about 28-times for the single stage of audio amplification shown.

It is well to remember that the audio amplifier does scarcely anything in the way of increasing the distance over which signals may be heard. It is only a method for increasing the loudness of what may already be heard on the detector. If the signal is too weak to affect the detector tube it can



never be amplified by the audio frequency method.

It is important that the "F" lead from the secondary to the audio transformer be connected to the negative side of the filament battery. Otherwise the strong fluctuations impressed upon the grid from the secondary would at times make the grid positive. In that case it acts like the plate to an extent, and, having a positive charge, draws electrons to it. This causes a current to flow from the filament through the transformer to the grid and distorts the voice or music impulses in that way.

Two-Stage Amplifiers

Standard audio amplifier circuits are given in which two stages are employed and in which the total amplification may be of the order of 700 or 800 times. In one case special filament control jacks are shown in which the illumination of the tubes is controlled as required by the insertion of the phone plug. Transformers in the two-stage amplifier should be several inches apart or be at right angles to each other in order to minimize inductive reaction between the two stages, which may result in a howling noise. This is analogous to regeneration, the only difference being in the frequency at which the feedback of energy takes place.

GETS ENGLAND ON 1-TUBE SET

EXPERT USES LOOP AERIAL, HEARS BRITAIN

CHICAGO, Aug. 11.—E. T. Flewelling, famous radio engineer, announces he has succeeded in hearing Poldhu, England, on a single tube!

This remarkable achievement is made even more so by the knowledge that signals were heard at a distance of 3500 miles with a loop as antenna.

According to Flewelling, the receiver used was a super-regenerative circuit invented by him. The station heard was 2YT, which was said to have been using Marconi's new "direct ray" transmission system, on 94 meters, when its broadcast signals were heard.

"It is but a demonstration of what can be done in radio," is Flewelling's comment. "Very soon, by next winter perhaps, you will find such reception common on better made sets. The short wave and directed transmission are part of the secret. Sensitive sets, well designed, are another factor."

Use of Batteries Being Eliminated

NEW YORK, Aug. 11.—Batteries, including the A. B. and C types, are nearing the end of their usefulness.

Instead, inventions are popping up to replace these local power sources with coils or other instruments for attachment to the electric wiring in the home.

Two recent inventions point to the death of batteries in the near future. One is a small device which permits the use of alternating current to light the filaments of radio and audio frequency amplifying tubes.

It cannot yet be applied to detector tubes, although efforts are being made in this direction. The hum and distortion ordinarily accompanying A. C. currents is said to be eliminated by the use of this device.

Weekly Mother Talks

Weekly talks to young mothers will be broadcast every Wednesday morning from WEA, New York. The Federation of Child Study and several other child health organizations are fostering the lecture series.

LET'S SWAP

These "Swap" advertisements will be published free of cost until further notice in the Monday Radio Magazine of The Daily News. The article to be traded must be radio equipment. Keep the wording concise.

TO SWAP—Three-tube radio set, console model, will trade for any kind of Ford. West 4920.

TO SWAP—Vibrating reed charger, for one of silent type. Also large loose coupler and (or) bakelite panel for any of these: tube, soldering iron, transformer, socket, rheostat. 2512 McGee, Berkeley, or phone Berkeley 17W, after 7 p. m.

TO SWAP—Variocoupler, Bradley leak and 43-plate condenser for two variometers and 1250-turn dual-lateral coil. 3761 Army-st. John Millias.

TO SWAP—WD-12 tube, slightly used, for one UV-199 radio tube. C. Herm, P. O. Box 443, Redwood City.

TO SWAP—Three WO-11 tubes, one new, two almost new, with Kellogg sockets, for three UV-199-5 or C-299-s with sockets. 1306 26th-av. Irvin Manning.

TO SWAP—One audio transformer for a variocoupler. Michael Bruno, 645 Bay-st.

TO SWAP—One G. E. R. F. transformer, four condensers, two signals, two Kelloggs. What have you? K. H. Neely, 1654 Page-st. Park 6967.

TO SWAP—New 3-tube set, in cabinet, with batteries and tubes, for parts of Bria reflex set, or what have you? F. Miller, 4341 53rd-st.

TO SWAP—Harkness ref. coils; all American, 10-1 and trans. and Freshman detector; all new; for good radio freq. trans. and good peanut tube with socket. E. W. Braga, 1005 Jones-st. Prospect 5022.

TO SWAP—One audio frequency amplifier on panel, with "C" batteries, using Kellogg transformer, for two new "C-299" tubes, or with self cheap. Phone Valencia 954.

SMASHES RECORD WITH ONE TUBE



E. T. Flewelling, famous Chicago radio engineer, and the single tube super-loop set with which he reports he heard England, 3500 miles away.

FROM CLERK TO INVENTOR

Who's Who on C. Francis Jenkins, inventor of the motion picture projector and the radio photo transmitter.

Born near Dayton, O., in 1868.

Worked five years in northwest logging camps, then to cattle ranges and silver mines of southwest.

Next, clerk in the U. S. treasury department at Washington.

Worked on inventions at night.

Showed first motion picture projector June 6, 1894.

Sold his interest in the invention for \$2500!

Has some 300 patents to his credit, some for paper box machinery.

Hobby is taking flights in his own airplane.

Adjustable Tube

Eiffel tower broadcasting station at Paris is experimenting with a new kind of vacuum tube which can be taken apart for repairs and adjustment. The tube is the invention of Prof. F. Holweck of the Institute de Radium.

President Will Speak Over Radio

Notification ceremonies and the speech of acceptance by Pres. Coolidge Aug. 14 will be broadcast direct from Continental Memorial Hall, Washington, D. C. Frank W. Mondell, permanent chairman of the Cleveland convention, will make the notification address. The ceremonies will be held at night to facilitate broadcasting to the nationwide audience. The 21 stations which radiated the Republican national convention will be linked together by land wires and connected to the microphones in Washington.

International Week

NEW YORK, Aug. 11.—International Radio Week will be held Nov. 23 to 30, inclusive, according to the Radio Week committee of the National Radio Trade Ass'n, who conducted this event last year.

Radio on Taxicabs

Taxicabs may be dispatched and guided through city streets if the work of W. O. Arzinger, radio engineer of Birmingham, Ala., is adopted. His apparatus may be tested by the taxi companies of that city.

JUICE WRECKS AERIALS TOO NEAR WIRES

CHICAGO, Aug. 11.—Continued tragedies to radio fans who have tried to erect aerials near high-powered electric lines have caused one of the larger electric light and power companies to distribute a set of safety rules for the prevention of such accidents.

E. S. Hight, engineer in charge of operations of the Illinois Power & Light Corporation, specifies them as follows:

Antennae or any part of same must not be attached to arc light poles, or any poles carrying wires at a greater potential than 220 volts.

"These wires must not be installed above or below any electric light or power wires, or nearer than three feet from them.

"When being installed the wires must not be thrown over any wire of any kind, unless it is positively known that this wire does not carry any voltage.

"Transmitting sets must not be connected to secondary lighting or power circuits to which any other customers are connected. A separate transformer must be set up for any such connection to the radio apparatus.

"Any transmitting or receiving set attached to a secondary circuit must be provided with a thorough and adequate ground which is not connected to a gas pipe."

Use Radio to Aim Guns

MANILA, P. I., Aug. 11.—Radio spotting from army airplanes aided in the annual coast artillery practice at Fort Mills in the Philippines, the average error of the deviation from the target being only 12 yards at a range of 11,000 yards. So successful was the radio spotting that both artillery and aviation officers plan close co-operation in the future.

Radio Finds Truant

MANCHESTER, Eng., Aug. 11.—A flamingo from the zoo located in this city, having got out of its cage and been lost, the radio station put out a call for any information regarding the bird. Radio fans who heard the appeal started out to find the wanderer, and it wasn't very long before an answer came back that the truant had been located and returned to its home.

Homes under construction are being wired for radio.

ANSWERS

Peter Santina asks:

I have Lemco tuner, No. 100, with which I have had fair results until lately. I found a broken wire in it, which I repaired, but it still refuses to work.

(3) What is the meaning of DX stations and DX reception?

It is difficult to tell why your set will not function. Suggest you very carefully going over the entire wiring for loose or broken connection. If you are unable to find it, suggest going to some radio dealer and let him inspect it for you. (2) DX is the term applied to long distance or difficult radio reception.

F. Hage, 4039 Irving-st, San Francisco, asks:

Saturday night, July 19, after local stations had signed off, I picked up what I thought must have been the Hawaiian Islands. My aerial faces the ocean and is only a few blocks from it. Is this good reception for a three-tube Wizard Miloplex hookup?

There are two stations in the Hawaiian Islands that were on at that time, KFHS and KDXY. Suggest that you write to them telling them what you received and the time you heard them. In this way you will be able to determine whether it was either one of those stations.

F. Mimand, 2716 Pine-st, San Francisco, asks:

Would you please show me how to improve the selectivity of the superdyne?

It would be difficult to say through this column how to make this set more selective without seeing it. If it is one of the factory built sets with the small fixed condensers for variation of the antenna, these condensers may be removed and a small inductance put in. Wind 12 turns of No. 22 DCC wire on a piece of bakelite tubing three inches in diameter. Tap every four turns. This will give you the same number of taps as you have contact points when the small condensers have been removed. The switch arm is connected to the aerial and the last tap goes to the ground connection. This inductance is coupled to the first inductance and may be placed under and fastened to it.

Carl Heim, Redwood City, asks:

(1) Can WD-12 tubes be used with a Harkness reflex set? (2) I can hear local stations but cannot tune out KGO. (3) It also works when the crystal is off. What could be the trouble?

(1) WD-12 tubes may be used with this set. (2) Do not use over 75 feet in the aerial. Too much aerial decreases selectivity and prevents the set from reflexing properly. (3) If with a smaller aerial the set still refuses to reflex try reversing the connections on the second reflex coil. The addition of a "C" battery is an improvement with the use of small tubes.

Jack Didier, San Francisco, asks:

Can I change my crystal detector for a dry cell tube in the hookup enclosed? What connections must be made and what comparative results will it give?

Yes, you can change this set into a tube set, but very little would be gained. Suggest that, if you wish a tube set, you build one of the following: Ultra-audion, Harkness one-tube or Roberts. Any one of these circuits are easily constructed, inexpensive and the circuit may be obtained from most any current magazine.

F. H. Stenberg, 76 Lansing-st, San Francisco, writes:

I am planning on getting a Harkness reflex set, but have been told that vacuum tubes are short lived in such a set. Is this true?

This is misinformation instead of information. The vacuum tube, with ordinary care, should last about 1000 hours.

Harold Flathmann, 2847 61st-av, Oakland, writes:

I have a pair of Baldwin phones that have become demagnetized. Can they be fixed?

Yes. Suggest that you return them to Nathaniel Baldwin Co., Salt Lake City, Utah. This is their factory and they will be pleased to repair them for you.

Contests in the Air

Air contests are being planned for the new broadcasting station to be erected soon for the Kansas State Agricultural College, at Manhattan, Kas. They will be practically vivid reports of the actual sport battles of the college.

REFLEX AIDS 1-TUBE SET

BY ISRAEL KLEIN

NEA Service Radio Editor
After a crystal set comes the use of a single tube set.

But fans nowadays ought not jump to any kind of single tube set, discarding their crystal altogether. For there circuits now that make the best of the single tube and combine the advantages of the crystal with it.

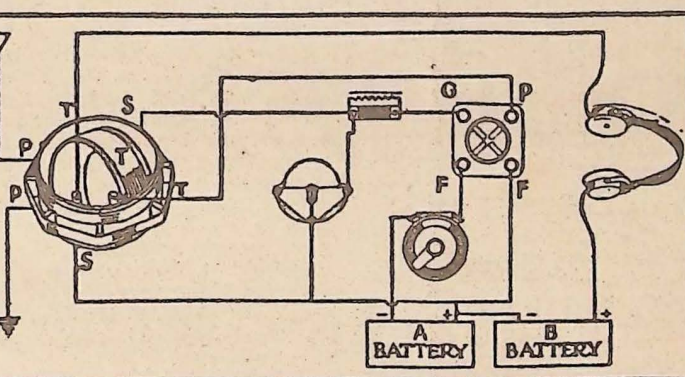
Such is the reflex circuit. By reflex is meant the double use of a tube in radio and audio frequency. It gives the most one can get out of a tube.

That single tube is both radio and audio amplifier, while the crystal acts as detector.

The circuit here shown is a simple hookup based on this idea. It combines the idea of regeneration with the latest in reflex.

Parts of Set

The parts of the hookup are:
One 75-turn honeycomb coil, L1.
One 50-turn honeycomb coil, L2.
One .0005 mfd variable condenser, C1.
One .00025 mfd variable con-



Hookup diagram of single tube reflex receiver.

denser, C2.

One crystal detector, D.

One rheostat, R.

One audio frequency transformer, about 4 to 1 ratio.

Bus wire, etc., for connections.

How They Work

Coil L2 is practically part of the radio frequency transformer, coupled inductively with the antenna inductance, L1, affording regeneration.

The condensers, C1 and C2, are 23-plate and 11-plate respectively.

The tube for this circuit should be a UV-201A, or a C-301A, while the rheostat controlling the filament current

should be about 15-ohm resistance.

There are practically two controls on this set, although the honeycomb coils should be mounted on hinged posts so as to produce the best and clearest results.

Distance to any considerable degree should not be expected on any single tube reflex set. These actually are amplifiers for a detector hookup, providing for radio and audio-frequency amplification. The set will bring in stations farther away than those obtainable with a crystal alone, but too much should not be expected.