

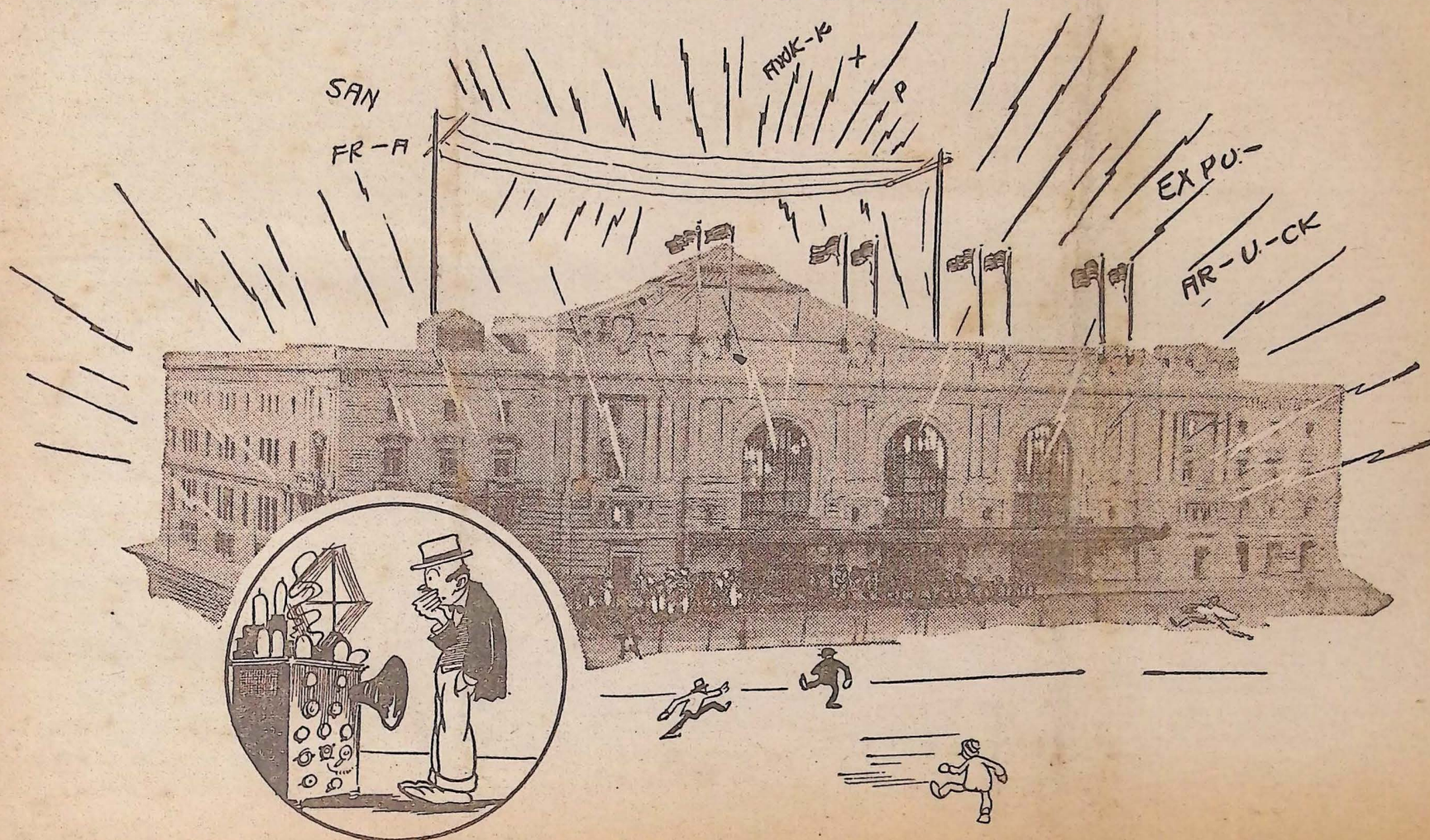
RADIO
MAGAZINE

The Daily News

EVERY
MONDAY

SAN FRANCISCO, MONDAY, AUGUST 18, 1924

RADIO WORLD TUNES IN ON S. F.



THE LID IS OFF! WEST'S GREATEST SHOW OPENS

LATEST SETS
EXHIBITED IN
GALA SETTING

THE west's greatest radio show opened in the Exposition Auditorium Saturday night.

When the doors of the spacious auditorium were thrown open and the Pacific Radio Exposition formally inaugurated at 6 p m, the greatest array of radio receiving sets and apparatus ever before assembled was exhibited to the public.

More than 10,000 spectators, including radio fans from all parts of the country, were present. The opening ceremonies were featured by an address by Sec'y of Commerce Hoover from the KPO station.

Herbert E. Metcalf of the Magnavox Co., of Oakland, and president of the Pacific Radio Trades Ass'n, which is sponsoring the exposition, officially presented the show to the public. **Discovery of Radio Great Scientific Achievement**

In his address Sec'y Hoover pointed out that the discovery of radio was one of the greatest of

RADIO SHOW BROADCAST BILL

The following daily program is being broadcast direct from the Pacific Radio Exposition in the auditorium by radio station KPO:

MONDAY, AUGUST 18

Matinee

12 M—Scripture reading in Russian and English—the Very Rev. Archpriest V. Sakovich of the Russian Orthodox Trinity church.
2:30 P M—Marimba band.
Contralto solos—Edna Fisher Hall, accompanied by Irma Harris Vogt.
Mezzo-soprano solos—Norma Garrett, accompanied by Mary Carr Moore.
5:30 P M—Big Brother; piano accordion solos, Walter Gamba.

Evening

8 TO 9 P M—Organ recital by Theodore J. Irwin.
9 TO 10 P M—Mezzo-soprano solos—Jean Center, accompanied by Lola Gwin Sma.
Soprano and tenor solos—Hana Shinozumi Iki and Harrison Coles, accompanied by Mabel Jones.
Aloha Troupe Hawaiians; S. Alama, director.
Cornet solos—J. L. Conrich, accompanied by Mrs. Conrich.
10 TO 10:30 P M—Carey Quartette.
11:15 P M—Special program. Organ recital for "DX" reception—Theodore J. Irwin.

TUESDAY, AUGUST 19

Matinee

2:30 P M—Soprano solos—May

Clarke Burns, accompanied by Master J. Burns.
Gary Fisher's Amphians of California cafe.

5:30 P M—Big Brother.
Recitations—Donald Gibson.
Violin solos—Ruth Hammerburg.

Evening

8 TO 10 P M—Dons of Peralta.
Saxophone solos—Mrs. George Empey.

Baritone solos—C. R. Marston, accompanied by Suzanne Passmore Brooks.

Piano solos—Suzanne Passmore Brooks.

Baritone solos—Norman Simon, accompanied by Walter Frank Wenzel.

Tenor solos—Erwin Holton.

Mezzo-soprano solos—Pearl Hosack Whitcomb, accompanied by Lincoln Batchelder.

Violin solos—Agnes Poyner.

Tenor and baritone duets—Erwin Holton and Norman Simon, accompanied by Walter Frank Wenzel.

WEDNESDAY, AUGUST 20

Matinee

2:30 P M—Popular songs—Baron Keyes, singing and playing his own compositions.

Banjo solos—Joe Zuccarello.

Popular songs—Mort Harris, accompanied by Peggie McDonald.

Radio christening of the infant

son of Mr. and Mrs. McGrath Perrin.

5:30 P M—Big Brother.

Evening

8 TO 10 P M—Scotch program: Bagpipe selections—James Lemon.

Scotch songs—Alick Sheriffs, bass.

Opening of French course. Address—Patrick Copinger, Gerant du Consulat-Generale de France.

Soprano solos—Lela Gordon Saling, accompanied by B. R. Solis.

Radio wedding.

Baritone solos—Harold Dana.

Violin obligato by Harriet French, accompanied by Agnes Herzer.

THURSDAY, AUGUST 21

Matinee

2:30 P M—Trio Artistique.

Whistling duets—Shirley Irvine and Miss Buckland, accompanied by Jean S. Sands.

5:30 P M—Big Brother.

Evening

8 TO 9 P M—Organ.

9 TO 10 P M—Soprano solos—Augusta Hayden. Violin obligato by Rudy Seiger, accompanied by Molly Pratt.

Harp solos—Marie Hughes Macquarrie.

Contralto solos—Annae K. Blotcky, accompanied by Walter Frank Wenzel.

HUGE DISPLAY
IS OFFICIALLY
INAUGURATED

of the show is an exhibit of radio apparatus by the United States navy. It is said by naval officials to be the most comprehensive display of government-used radio equipment ever exhibited. **All Types of Sets Are On Display**

All of the latest types of radio receiving sets are on display at the show, many of them not yet on the market. Among the new sets which are being exhibited for the first time are the new Magnavox, Sleeper, Monotrol, De Forest, Radyne, Fada, super heteroyne and others.

A. S. Lindstrom is chairman of the committee in general charge of the exposition. Other committeemen include C. C. Langevin, Don Lippincott, H. W. Dickow and H. J. Cram.

William P. Bear of Chicago is manager of the show, working under the general direction of the show committee.

The exposition will be open until Thursday night (Aug. 21) with afternoon and evening performances each day and morning sessions devoted exclusively to the trade.

scientific achievements. He stated that although the radio industry is as yet in its infancy, its potential possibilities and value to mankind are without parallel.

In order that the radio fans throughout the country might "listen in" on the various speakers at the exposition, a broadcasting station has been constructed on the stage. It is estimated that more than 250,000 people heard the program broadcast from the show through KPO, the official broadcasting station of the exposition.

In addition to the speakers, a

musical program was broadcast Saturday night under the direction of Mrs. Ada Morgan O'Brien, director of radio programs. Among the artists who participated in the program were Mme. Dorothy R. Talbot, soprano, and R. Victor Vogel, basso.

Display Most Elaborate
Gathered Together

The display of radio equipment at the show is the most elaborate ever gathered together and represents the last word in radio apparatus. The 150 booths which house the equipment are appropriately decorated to carry

out the spirit of the show. The pillars of the booths are miniature radio towers with inverted loud speakers serving as vases for flowers. The towers are joined with decorated antennae.

On the main stage is a fully equipped broadcasting studio in the shape of a huge loud speaker horn. Beside it is "the world's largest radio set," with a front panel 20 feet long and 9 feet high. Artists appearing before the microphones in the studio will give the effect of coming from the loud speaker of the gigantic receiving set.

One of the principal features

THIS WEEK'S AIR PROGRAMS

Monday

KPO—Hale Bros. (423 Meters)

12 M—Time signals from the naval observatory; reading of the Scripture in Russian and English by the Very Rev. Archpriest V. Sakovich of Russian Orthodox Trinity Cathedral.

1 TO 2 P M—Rudy Seiger's Fairmont hotel orchestra.

2:30 TO 3:30 P M—Selections by Marimba band.

Mezzo-soprano solos—Dweller in My Dreams, Mysterious Powers; Norma Garrett; Mary Carr Moore, composer, accompanist.

Violin solos—Max Dolin, conductor California theater orchestra.

Contralto solos—Edna Fisher Hall; Irma Harris Vogt, accompanist.

Mezzo-soprano solos—Some One Worth While, As We Part; Norma Garrett; Mary Carr Moore, composer, accompanist.

4:30 TO 5:30 P M—Rudy Seiger's Fairmont hotel orchestra.

5:30 TO 6:30 P M—Children's hour; Birds That Serve Us; The Story of Rumpelstiltskin; Aladdin and the Wonderful Lamp; Wynken, Blynken and Nod.

Piano-accompanied selections—Selected, Walter Gamba.

7 TO 7:30 P M—Rudy Seiger's Fairmont hotel orchestra.

8 TO 9 P M—Organ recital by Theodore J. Irwin, official organist, at the Wurliitzer; War March of the Priests; overture, Raymond; waltz, Christmas Roses; intermezzo, Love in My Heart; song melody, Love, Here Is My Heart; intermezzo, Serenade d'Amour; musical comedy selection, Little Miss Bluebird; popular waltz song, Lonesome and Blue; light opera selection, Gypsy Love; gavotte, Stephanie; fox-trot, Sing a Little Song.

9 TO 10 P M—Cornet solos: The Bohemian Girl; A Little Bit of Heaven; J. Lloyd Conrich; Mrs. Earl V. Burke, accompanist.

Tenor solos—Rodolfo's Narrative (from "La Boheme"); Longing; Harrison Coles; Mabel Jones, accompanist.

Soprano solos—One Fine Day (from "Madame Butterfly"); The Swallow; Hana Shimozum; Mabel Jones, accompanist.

Tenor solos—Friend of Mine, The Old Road; Harrison Coles; Mabel Jones, accompanist.

Soprano solos—Italian Street Song—Nina (from "The Firefly"); Aloha-O; Hana Shimozum; Mabel Jones, accompanist.

Cornet solos—My Heart at Thy Sweet Voice (from "Samson and Delilah"); My Old Kentucky Home; J. Lloyd Conrich; Russell Rothschild, accompanist.

10 TO 10:30 P M—Program under direction of Joseph Carey, blind composer, who will accompany the soloists:

Bass solos—In the Harbor of Home, Sweet Home (assisted by Carey's Male Quartette); Hello Mother, Hello Dad; Charles Delmar.

Tenor solos—When Honey Sings an Old-time Song, A Bungalow in Idaho (assisted by Carey's Male Quartette); Edwin Stott.

Baritone solo—Sierra Sue, Harold Bishopp.

Quartette—West, West, West in California; Harold Bishopp, soloist.

Tenor solos—My Old Irish Mother; You'll Never Be a Sister to Me; Ray Nealan.

11:15 P M—Special organ recital by Theodore J. Irwin for DX reception; Star Spangled Banner; Marche Russe (based on the Volga Boatmen's Song); overture, Stradella; melody, Op. 3 No. 3; gavotte (from "Mignon"); song melody, I Hear You Calling Me; concert fantasy on Sicilian Mariner's Hymn; prelude No. 20 C Minor; consolation, D flat—No. 3; grand operatic selection, Aida; introduction to third act "Lohengrin."

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 P M—Instrumental selection (a), Berceuse; (b), Entr'acte Valse; Arion Trio.

Vocal quartet, Spinning Chorus (from "Flying Dutchman").

Contralto solos (a), As One Alone; (b), The Fortune Hunter; (c), Sweetheart; Eva Gruninger Atkinson.

Duet for two sopranos, The Gypsies; Claire Harsha Upshur and Laura Broderick.

Vocal selections, Clam MacDonald double male quartet.

Instrumental selection, Minuet.

Trio for women voices, Thou Shalt Love the Lord (from "Eli"); California Ladies' Trio.

Soprano solos (a), Rose Softly Blooming; (b), Without Thee; (c), Murmuring Zephyrs; Claire Harsha Upshur.

Vocal quartet (a), Concert Waltz; (b), Comin' Through the Rye; California Ladies' Quartet.

Contralto solos, Indian Love Songs: 1. The Lullaby. 2. Love Song. 3. Pueblo Love Song.

Ruth Warrman.

Vocal selections, Clam MacDonald double male quartet.

Instrumental selections (a), In the Woodland; (b), Musette; Arion Trio.

Soprano solos (a), Thou Art So Like a Flower; (b), Call Me No More; (c), Villanelle; Laura Broderick.

Trios for women's voices (a), Bright Stars in Heaven; (b), Reverie; (c) Bedtime Song; California Ladies' Trio.

Vocal selections, Clam MacDonald double male quartet.

Instrumental selection, Ave Maria.

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.

KLX—Oakland Tribune (509 Meters)

3 TO 5 P M—Baseball scores.

6 TO 7 P M—Sunset matinee, conducted by Aunt Elsie of the Tribune staff. Witch Giggle Wiggle and the Irate Pirate will have an adventure at the witch's cave with adventuring children.

Witch Giggle Wiggle.

Etta Wilson Coleman.

The Irate Pirate, Fred W. Blanchard.

7 TO 7:30 P M—News items; weather.

DISTANT STATIONS

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

9 TO 10 P M—Concert from Examiner studio.

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

KGW—Oregonian, Portland (492 Meters)

8 P M—Concert by Percy A. Campbell and his American band.

Tuesday

KPO—Hale Bros. (423 Meters)

12 M—Time signals; reading of the Scripture.

1 TO 2 P M—Rudy Seiger's Fairmont hotel orchestra.

2:30 TO 3:30 P M—Organ recital by Theodore J. Irwin, official organist, at the Wurliitzer; Fox-trot, Mandalay; Valse Lente; light opera selection, Mikado; popular waltz song, When Lights Are Low; selection of Irish airs; nocturne, Midsummer Night's Dream; intermezzo, Pas de Deux; waltz, April Smiles; light opera selection, Chimes of Normandy; fox-trot, Hi-le, Hi-lo.

3:30 TO 4:30 P M—Soprano solos,

Dreaming Alone in the Twilight; Bowl of Roses; So This Is Love; May Clarke Burns; Mrs. Claude Allen, violin obligato; Joseph A. Burns Jr., accompanist.

Program by Gary Fisher's Amphians of the Cabiria cafe: Yes, Yes in Your Eyes, I Don't Know Why, Never Again, Patsy, Rock-a-bye My Baby Blues, It Had to Be You, Shino, Sweet Little You, Please, Jealous, Burning Kisses, Blue Evening.

Soprano solos—My Message; You, Dear and I; May Clarke Burns; Mrs. Claude Allen, violin obligato; Joseph A. Burns Jr., accompanist.

4:30 TO 5:30 P M—Rudy Seiger's Fairmont hotel orchestra.

5:30 TO 6:30 P M—Children's hour. Violin solos—Ruth Hammerburg.

Recitations—Radio, Bud Discusses Life; Donald Gibson.

7 TO 7:30 P M—Rudy Seiger's Fairmont hotel orchestra.

8 TO 9 P M—Program by the Dons of Peralta: Ten-minute talk on "Dons of Peralta" by Arthur C. Wheelock.

Spanish dance—La Paloma; Dolores and Chiquita Moreno.

Quartette—Soprano club quartette.

Baritone solo—Los Ojos Negros; A Spanish folk song; Willard J. Schindler; Russell French, accompanist.

Vocal selections—The Belle of St. Mary's; Come, Sing to Me; Lasso o' Mine; Truman trio, Hugh Williams, tenor; Ruth Hall Crandall, contralto; Charles Theo. Dresser, pianist.

Baritone solos—Pilgrim's Song, A Bridal March (Dolly), Otis Marston; Suzanne P. Brooks, accompanist.

Piano solo—Concert Waltz (from "The Ball Reminiscences") Opus 64; Suzanne Passmore.

Baritone solos—The Song of the Volga Boatmen (traditional), Two Lovers and Lizette; Otis Marston; Suzanne P. Brooks, accompanist.

9 TO 10 P M—Tenor solos—Drum-deon, You Along o' Me; Erwin Holton; Walter F. Wenzel, accompanist.

Soprano solos—Aria; My Heart Is Weary (from "Nadessda"); Life; Pearl Hossack Whitcomb; Lincoln Batchelder, accompanist.

Violin solos—Alice G. Poyner.

Baritone solos—In Questa Tomba Oscura, Pilgrim's Song; Norman Simon; Walter F. Wenzel, accompanist.

Piano solos—Etude in E Major, Ballad in G Minor, Lincoln Batchelder.

Duets—Solonne in Quest' Ore ("La Forza del Destino"); O Mimmi, tu Pul Non Torni ("La Boheme"); Norman Simon, Erwin Holton; Walter F. Wenzel, accompanist.

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.

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Duet for two sopranos, The Gypsies; Claire Harsha Upshur and Laura Broderick.

Vocal selections, Clam MacDonald double male quartet.

Instrumental selection, Minuet.

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Trios for women's voices (a), Bright Stars in Heaven; (b), Reverie; (c) Bedtime Song; California Ladies' Trio.

Vocal selections, Clam MacDonald double male quartet.

Instrumental selection, Ave Maria.

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.

KLX—Oakland Tribune (509 Meters)

3 TO 5 P M—Baseball scores.

6 TO 7 P M—Sunset matinee, conducted by Aunt Elsie of the Tribune staff. Witch Giggle Wiggle and the Irate Pirate will have an adventure at the witch's cave with adventuring children.

Witch Giggle Wiggle.

Etta Wilson Coleman.

The Irate Pirate, Fred W. Blanchard.

7 TO 7:30 P M—News items; weather.

DISTANT STATIONS

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

9 TO 10 P M—Ambassador Hotel-Cocoanut Grove Orchestra.

KGW—Oregonian, Portland (492 Meters)

8 P M—Concert by Percy A. Campbell and his American band.

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 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 report.

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.

10 TO 11 P M—Popular ballad program.

KHJ—Los Angeles Times (395 Meters)

7:30 TO 8 P M—Special program for the Hollywood Hospital presented through the courtesy of Mario Rubini, operatic tenor.

8 TO 10 P M—Program presented through the courtesy of John M. Cooper, architect and general contractor, arranged by Charlie Wellman, tenor.

10 TO 11 P M—Art Hickman's dance orchestra from the Biltmore Hotel.

KGW—Oregonian, Portland (492 Meters)

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

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

Wednesday

KPO—Hale Bros. (423 Meters)

12 M—Time signals; reading of the Scripture.

1 TO 2 P M—Rudy Seiger's Fairmont hotel orchestra.

FREE! WHILE THEY LAST, an A-1 long distance hookup to anyone calling at our store during **RADIO EXPOSITION WEEK.**

A-1 THE WONDER CRYSTAL: Our price 50c. We are selling 100 A-1 Crystals a day. Have you bought yours? On Demonstration at Our Store

Crosley Model 51 is a two-tube regenerative receiver, the biggest selling radio receiver in the world, with loud speaker volume on both local and distant stations. Our price... **\$18.50**

Crystal Set With Phone, our price... **\$3.00**

Lemco Crystal Set, formerly \$7.50; our price... **\$4.85**

Brandes Table Talker, regular \$10.50; our price... **\$6.60**

Brandes Superior Headset, our price... **\$3.90**

Brandes Navy Type Headset, our price... **\$5.85**

Scientific Headset, our price... **\$2.75**

Baldwin Headset, Type "C," regular \$12; our price... **\$6.50**

Thordarson Audio Transformer, ratio 3 to 1; our price... **\$2.75**

Thordarson Audio Transformer, ratio 6 to 1; our price... **\$3.45**

Eveready "B" Batteries, No. 767, 45 volts; our price... **\$2.85**

Eveready "B" Batteries, 22½-volt size, large type; our price... **\$1.45**

Shamrock Variocouplers and Variometers, regular \$3.50; our price... **\$2.95**

Fada Five-Tube Complete Set of Parts for Neutrodyne Receiver; regular \$65.60; our price... **\$39.25**

MANHATTAN ADJUSTABLE LOUDSPEAKER—Regular \$25.00; our price... **\$12.95**

I. S. COHEN'S SONS

1015 Market St., near Sixth

Mail Orders Given Special Attention

mont hotel orchestra.

2:30 TO 3:30 P M—Just a Dreamer, Somebody's Smile; Baron Keyes, singing and playing his own compositions.

Popular songs—Please, Knock at the Door; Mort Harris; Peggie McDonald, accompanist.

After a While, Tiny Chinese, Strangers Now; Baron Keyes.

Banjo solos—Joe Zuccarello.

Popular songs—In a Little Rendezvous, Birmingham Papa; Mort Harris; Peggie McDonald, accompanist.

Rip-saw Blues, Blase (piano novelty), The World Loves a Lovel; Baron Keyes, composer.

Popular songs—Nancy; selected; Mort Harris; Peggie McDonald, accompanist.

Marcheta's Sister; Castilian Nights; Cook Me a Duck; Baron Keyes, composer.

Christening of infant son of Mr. and Mrs. Magrath G. Perrin, Leonce Gilman, Wesley Methodist Episcopal.

Soprano solos—Slumber Song; Berceuse (from "Jocelyn"); Mrs. Jessie Pugsley Perrin.

4:30 TO 5:30 P M—Rudy Seiger's Fairmont hotel orchestra.

5:30 TO 6:30 P M—Children's hour.

7 TO 7:30 P M—Rudy Seiger's Fairmont hotel orchestra.

8 TO 9 P M—Bagpipe selections; James Lemon.

Bass solos—Lassie o' Mine; My Ain Wee House; Alick G. Sheriffs; Maude G. McFaul, accompanist.

Bagpipe selections—James Lemon.

Bass solos—Rose of My Heart; Come to the Fair; Alick G. Sheriffs; Maude G. McFaul, accompanist.

Soprano solos—Sognat (I Dreamt), I've Been Roaming; Lela Gordon Saling; R. Solois, accompanist.

Introduction to the conversational French course with talk by Hon. Patrick Appinger, Gerant du Consulat Generale de France, Edna K. Barker, director of course. Marie Louise Boutin, director College Francaise and professor for l'Alliance Francaise, instructor.

Soprano solo—Carry Me Back to Old Virginia; In Italy; Lela Gordon Saling; R. Solois, accompanist.

Radio wedding. Mischa Lhevinne, Russian pianist, and Maybelle Gartrell will be married at 9 p m; Rev. James S. West, First Baptist church, officiating. Wedding march played by Uda Waldrop, San Francisco municipal organist, on the great Civic auditorium organ. E. Harold Dana, baritone soloist; Agnes Herzer, accompanist; Harriet French, violin obligato.

9:30 TO 10:30 P M—Program by Aloha Troupe Hawaiians; Sam Alama (director), guitar; John Manaku Jr., steel guitar; Patric Hoapili, guitar; Harry Fisher, guitar; Harry Mahoe, ukulele.

Paloma Blues, instrumental march; I Love You, Honolulu; I Love You, California; King's Serenade; Amama—Hula; Aloha-Oe (Farewell to Thee); Moae—Hula; One, Two, Three, Four—P. Hoapili; Dusky Maid, Waikiki beach song; Rock-a-bye My Baby Blues; Forget Me Not, Na Lei O Hawaii, She Sang Aloha, Ulwell O Kaala.

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

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

bureau reports.

3 P M—Studio 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.

KLX—Oakland Tribune (509 Meters)

3 TO 5 P M—Baseball scores.

7 TO 7:30 P M—News items; weather.

8 TO 10:30 P M—Studio program. Recital of pupils of Walter Horace Bundy.

Violin solos (a), Romance from Second Concerto; (b), Humoresque; Philip Aldrich. Mrs. Carl Anderson, accompanist.

Vocal solos, selected; Miss Harriet Gill.

Vocal duets (a), Hunting Song; (b), Starboard Watch; Ralph Sedwick, Walter H. Bundy.

Soprano solos (a), Love Sends a Little Gift of Roses; (b) Lullaby; Miss Marguerite Graham.

Saxophone solos, selected; E. W. Derbridge.

Ladies' chorus (a), Old Uncle Moon; (b), Ashes of Roses.

At about 9 o'clock the controls of KLX will be shifted to the American Theater for the overture by the American Theater Orchestra (Owen Sweeten, directing), broadcast over private leased wires from the theater pit.

Vocal numbers, two songs about Peggy; (a), Low-Back Car; (b), Sweet Peggy; E. H. Phillips.

Vocal duets (a), Sweet Alton; (b), Long, Long Ago; Misses Dolly and Thelma Jones.

Piano solo, selected; H. Stromberg.

Vocal arrangement, gems from "Bohemian Girl"—(a), Then You'll Remember Me, Ralph Sedwick; (b), I Dreamt I Dwelt in Marble Halls, Mrs. W. Russell; (c),

CLUB TO SEND RADIOGRAMS FREE AT SHOW

As a feature of its exhibit at the Radio show, the San Francisco Radio Club announces that it will accept messages from visitors free of charge, to be sent to any point in the United States. These messages will be sent through the ham stations of the A. R. R. L.

The S. F. R. C. booth will be shared by the American Radio Relay League. An information bureau has been established, where fans may secure expert advice on all questions pertaining to radio.

Northern California hams of the A. R. R. L. will hold a grand powwow at the S. F. R. C. headquarters, 1380 Bush-st. on Aug. 28. It is planned to escort the visiting delegation from the ferry to headquarters with an automobile parade. Bartholomew Molarini, 6AWT, district superintendent, and 6CHL, Arthur Martini, city manager, will preside at the convention.

2CKH, city manager of the New York branch, A. R. R. L., visited the R. F. R. C. meeting Thursday night. He reports that, although he has been successful in "working" San Francisco hams, he hopes to get even better results this fall with his new high-power set.

6RK, who will be remembered as an old "sparks," is back in San Francisco. He will be heard on the air during his short stay here.

Rapid progress in radio is reported by members of the S. F. R. C. code class.

6BUF wants it known that his portable call is 6BMS.

6BTC has just gone on the air, using loop aerial for transmitting. He reports that he is doing good local work, operating on 5 watts.

Harry H. Carman of Freeport, Long Island, otherwise 2ELQ, is called the country's best known amateur radio broadcaster. He has been heard in San Francisco, Catalina, Cal., England, France and other distant points.

6CHL, city manager, is again asking that all members who have not already sent in their names and addresses do so at once, as the state superintendent wants the list immediately.

Big Navy Display Exhibit Feature

The exhibit of radio apparatus by the United States Navy at the Pacific Radio exposition is one of the chief features of the many outstanding displays on view.

Never before has such an all-inclusive exhibit of navy apparatus been shown, according to government officials.

Of particular interest is a multi-vibrator set and a U. S. Navy type frequency meter. The multi-vibrator set, used at the Mare Island Navy Yard, is one of the only two in the United States, the other being at the U. S. Bureau of Standards at Washington, D. C. This equipment regarded as the acme of perfection in electrical construction, is used to measure or calibrate frequency meters or wave meters at coast broadcasting stations.

The frequency meter is used to calibrate ship and coast radio stations and to keep their assigned frequencies constant, or to check all transmitting sets to ascertain if they are working on their officially assigned wave lengths. Both of the government instruments will be in operation at the exposition.

Broadcast Licenses

Broadcasting stations licensed to transmit under agreement with the American Telephone & Telegraph Co. pay a license of from \$500 to \$3000. This is paid only once, to cover the entire use of the licensed apparatus.

RADIO CONTRABAND

Radio is contraband in China and importation of sets are prohibited. Yet several hundred sets are in use in Shanghai alone.

NEW SUPER-HETERODYNE AT SHOW

Here's the new super-heterodyne set, making its debut at the Pacific Radio Exposition. That distracting decoration, which is NOT a part of the apparatus, is Miss Irene Tracey—who'll show you all about how the set works, at the show.



'Ham' to Seek Thrills In South Sea Trip

CHICAGO, Ill., Aug. 18.—Having penetrated the polar regions with MacMillan, amateur radio is now about to take the opposite extreme and set forth on an adventure into the South Seas.

The auxiliary ketch Big Bill, which is preparing to sail from this city in the interests of the Deep Waterways Commission on a two-year trip that will ultimately take it around the world, will have as its radio operator, E. C. Page of Evanston, Ill., a young amateur and member of the American Radio Relay League.

The selection of Page has been approved by Captain A. J. Dukan who will be in command of the vessel, following his recommendation by local representatives of the A.R.R.L. He will have for his equipment Zenith radio apparatus capable of working on both commercial

and amateur wave lengths, including the shorter waves. Page expects to communicate regularly with amateurs. The official radio call assigned to the vessel is WHU.

From a radio standpoint much interest is being taken in the expedition which is being organized and outfitted under the supervision of William Hale Thompson, former mayor of Chicago. It will offer an opportunity to study the efficiency of the shorter wave lengths in the climate peculiar to southern waters.

The vessel, which has a crew of seven men, will proceed down the Mississippi River, through the Panama Canal, and from thence around the world. It is expected that in addition to operators in the United States consistent radio communication will be maintained with amateurs in South America, Europe and Australia.

DIRECTS DAILY BROADCASTING

The task of sorting the mass of correspondence connected with the broadcasting of the radio exposition's daily program devolved upon Mrs. Ada Morgan O'Brien, who is shown here, busy at the job. The entertainment for the show was arranged by Mrs. O'Brien and she officiates all the time "Mike" is showing the world what a good job she's done.



Talking to England

Long-distance talks with London and other British cities may be common after the erection of a contemplated 200-kilowatt radio telephone station in England. Engineers are now talking to England, although their activity is experimental.

STOPPED BY WIRELESS

Germany claims first honors for developing a railway brake controlled by radio. The apparatus is being kept secret by the railway department.

Suffix "dyne" at end of many circuit names comes from Greek "dynamis," meaning power.

INDUSTRY TO FOOT BILLS

According to David Sar-noff, vice-president and general manager of the Radio Corp. of America, the radio fan needn't fear a tax for the privilege of listening in.

"Broadcasting," he says, "will be primarily supported by the radio industry itself, and from the returns on the sale of radio apparatus. A fair method of determining the amount to be paid by each member, or portion of the industry, will be worked out and this will be based on a percentage of the sale price of the radio devices."

KGO Presents Program for Equator Fans

That radio listeners south of the equator, in the islands of the South Seas, New Zealand and Australia may enjoy a better broadcast service from KGO between 10 p m and 1 a m, Henry Halstead and his orchestra, playing in the Hotel St. Francis, will be heard on Monday, Tuesday, Thursday and Saturday nights. Soloists from Halstead's orchestra will play between the regular dance numbers, keeping up a continuous broadcast.

It is winter time now south of the equator, and the best season for radio reception. A difference of 19½ hours in time between New Zealand and the United States makes it difficult for listeners south of the equator to "log the Yanks" unless broadcast after 10 o'clock, Pacific time. However, some reports have been received of KGO programs broadcast between 8 and 10 p m.

Radio in Cuba

Aside from the fact that no amateur spark stations are permitted in Cuba, regulations regarding amateur transmitting stations are very liberal and somewhat similar to those in the United States, according to F. W. Borton of Havana. In a letter to the American Radio Relay League, he says that amateurs are allowed use of wavelengths from 75 to 200 meters.

Radio in Canada

Radio fans in Canada continue to pay a \$1 license fee for their receiving sets. Fees for other sets have been raised. They are \$2.50 for amateur code transmitters, \$10 for amateur phone stations and \$10 for ship stations.

GALA PARADE OFFICIALLY OPENS SHOW

San Francisco's reputation for elaborate pageants was upheld Saturday when more than 200 automobiles, many of them equipped with radio receiving sets, paraded as an opening event of the Pacific Radio Exposition.

The parade started from Van Ness-av and Grove-st at 2 p. m. and proceeded down Mission-st to the Embarcadero, thence up Market-st to the Civic Auditorium.

A cordon of mounted police headed the procession. Following this were cars carrying officials of the exposition and radio enthusiasts. All cars were appropriately decorated with radio show banners and insignia.

One of the most interesting features of the parade was a truck carrying an exhibit of the Magnavox Co. of Oakland. Ten huge loud speakers were mounted on the float and march music received by radio from the exposition's official station was amplified for the benefit of spectators.

Another feature of the parade was a battery of 15 Checker taxicabs, each equipped with the latest types of radyne radio receiving sets.

More than a mile long, the parade was witnessed by thousands of spectators who flanked the line of march.

World Flight to Be Told Over Radio

Radio fans will have an opportunity of hearing at first hand the experiences of the world flight aviators, when the aviators reach the United States.

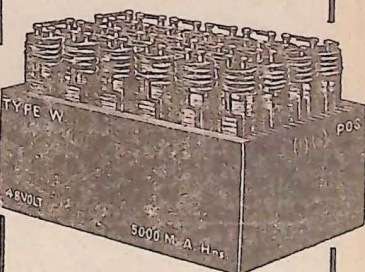
From the aviators themselves will be broadcast the colorful log of the history-making flight.

Not alone will the experiences of the airmen be told by themselves after they make their landing in the port of Boston, but day by day as they approach Halifax and fly south along the Atlantic seaboard, the progress of their triumphant return will be told through broadcasting stations. This is made possible through arrangements perfected with the intelligence department of the U. S. army.

Radio on the Farm

One farm in every 17 in Ohio is equipped with radio, reports C. J. West, federal crop statistician for that state. He adds that they are in 7500 rural homes in that state.

A Larger, Still Better Rechargeable New York "B" BATTERY



48-Volt

\$13.80

Fully Guaranteed

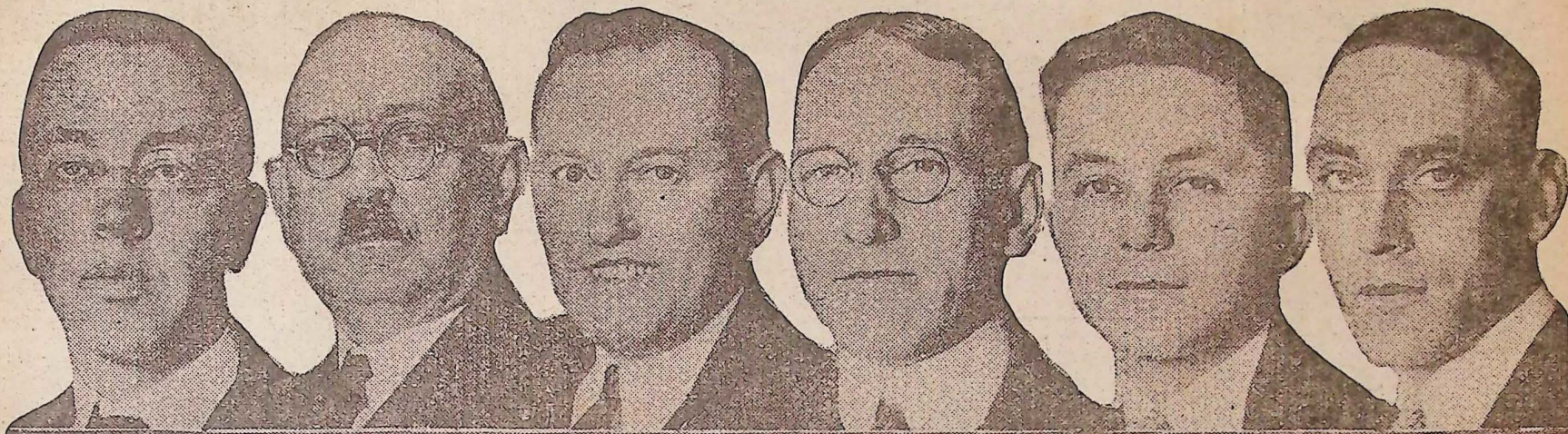
YOU CAN pay higher prices if you like—

BUT

you can't buy a better battery if you try

New York-Pacific Battery Co.
987 Post St.,
San Francisco
Phone Prospect 4130

HERE ARE MEN TO CREDIT FOR SHOW'S SUCCESS



These are the men responsible for the success of the big exposition. Drawn from the industry which is king in San Francisco this week, they have spent considerable time and energy in laying plans for the show and bringing them to fruition. The acclaim with which the show has been heralded speaks for their success in carrying out their task. They comprise the committee in charge of the show. They are, from left to right: Don Lippincott, F. J. Cram, A. S. Lundstrom, chairman, William P. Bear, manager of the show; C. C. Langevin and H. W. Dickow.

RADIO CHAIN STORES SHOW BIG GROWTH

The phenomenal growth of the radio industry during the last few years would put the magic powers of Aladdin and his lamp to shame.

But N. Feldstern, radio engineer, required no Aladdin or magic lamp to lead him to success. Service to the public and satisfaction for customers are the factors of his success.

It is only two years ago that Feldstern, a successful engineer and merchandiser, and J. E. McCusker established a small store, catering to the radio public. Since then they have built the American Radio Stores, Inc., as one of the largest coast-to-coast radio store chains in the United States. Feldstern is president. McCusker is treasurer. The latter formerly was chief United States inspector for New England.

The first free radio school on the Pacific coast, offering instruction to radio fans, was established by Feldstern. The school also was the first of its kind in the United States.

With five stores in Philadelphia, one in Chester Pa., one in Boston, Mass., several being opened in the Middle Western and Southern states, and one in San Francisco, the organization offers a unique and valuable service to the radio public.

Gilfillan Co. Neutrodyne Hit at Show

Gilfillan Bros., Inc., one of the foremost radio manufacturers in the United States, have acquired the license of the Radio Service Laboratories of Asbury Park, New Jersey, to manufacture Neutrodyne receiving sets. The latter firm was one of the 14 licensed manufacturers of Neutrodyne operating under license granted by the Hazeltine Corporation of Jersey City, N. J., holders of the Neutrodyne patents. The absorption of the Radio Service Laboratories by Gilfillan interests, and the operation of their plant as the eastern factory of the Los Angeles firm, makes possible the manufacture of Neutrodyne sets on the Pacific coast. The firm has been engaged in the manufacture of parts for nearly every kind of radio set on the market and has built up a national reputation.

The Gilfillan Neutrodyne embodies new features of operation and convenience that promise to make it exceedingly popular.

The walnut cabinet contains space for the "B" battery and may be entirely closed when not in use. The essential parts are segregated into three panels with a door to each. It is a straight line set, with loud speaker jack and ground, antennae and "A" battery posts at the rear. When in operation the doors of the cabinet can be completely closed with no plugs or wiring visible from the front to detract from the rich appearance of the handsome cabinet. This last feature takes the Gilfillan Neutrodyne out of the ordinary class and makes a "parlor" piece out of it.

'Hubby's' Best Alibi Destroyed By Radio

OMAHA, Neb., Aug. 18.—Women may finally clinch one of the most favorite alibis husbands have for an evening out.

It's the regular weekly lodge meeting.

For now lodge meetings can be attended at home—by radio.

The pioneer in this new departure from the regular diversions of men is the Woodmen of

the World, from whose headquarters here regular proceedings are broadcast monthly to the members at their homes. The organization has its own broadcasting station, WOAW, which is said to have one of the largest fraternal radio assemblages in the world.

Helps Travelers

Earl E. May, president of the Chamber of Commerce at Shenandoah, Ia., conceived this idea when he visited the station last year. It was to hold a world radio camp or lodge meeting, once a month, for the benefit of those who could not attend the meetings in person.

This is of special benefit to those living in towns where no local camp is chartered and to members on the road.

To these men, May believed, the Woodmen of the World could bring their meetings and rituals by radio, whether they be in hotels, isolated homes or trains—provided they have a radio receiver nearby.

Nothing Omitted

May was made consul commander of the camp and as such performs the rituals. At each meeting, May stands before the microphone, holding the ax symbolizing woodcraft and reading the rituals.

The entire proceedings of the camp meeting are broadcast. These include roll call, reading the minutes, reports of committees, initiations, orations and prescribed rituals.

Besides the order of business and the rituals, a social program is broadcast, including vocal and instrumental music, so that the members of the Woodmen of the World lack nothing in their radio camp meetings.

And their wives learn what the men do at lodge meetings.

Big Radio Year Is Predicted By U. S. Chief

That the outlook for radio this coming year is exceptionally rosy, is the belief of Chief Radio Supervisor W. D. Terrell, in a statement made when he visited San Francisco recently.

While looking over the field in the local district, Terrell stated that he was very favorably impressed with conditions on this coast.

Interference from amateurs during the silent evening periods is lessening, Terrell pointed out. He also believes that there is a general growing interest in broadcasting, both among the broadcasting owners and the listeners-in, due probably to the fact that the industry and art is getting on a stable basis.

Terrell emphasized the importance of radio to the farmers of the nation. Besides the practical value of weather, market and stock reports, he pointed out that farmers and suburban residents take great delight in the excellent evening entertainments broadcast daily.

WDAF, Kansas City, broadcasts piano lessons twice a week.

TELLS "MIKE"



There's a pretty face behind the entrancing voice from WGR, the station atop the Hotel Statler, in Buffalo, N. Y., and run by the Federal Telephone and Telegraph Co. The voice belongs to Miss Helen M. White, who is shown here. When she doesn't "announce," Miss White acts as private secretary to the manager of the company.

COMPLETE LOG IS KEPT UP AT KGO STATION

"Every minute the great voice of KGO is on the air, a complete record is kept of all program numbers and changes of apparatus, giving the exact time for each," said Howard I. Milholland, studio manager of KGO, today.

In the control room of the studio building, an operator tunes in KGO on a radio receiver like other listeners, keeping a record of each musical number, song or speech, showing the time it was broadcast, or any changes in equipment which are made during the program. A similar record is kept in the power house. These records or "logs" are very interesting and valuable to the KGO engineers who have many occasions to refer to them for performance record of any certain piece of apparatus under known conditions. Many valuable improvements are made as a result.

Another is kept in the control room by a licensed operator listening in continuously to ship transmission on the 600-meter wave length, keeping a record of the ships he hears. This 600-meter receiver is a three-circuit regenerative with detector and two stages of audio frequency and is very selective. The law requires broadcasting stations to listen in three minutes out of each fifteen of the time they are on the air for possible distress signals from ships, but at KGO listening on 600 meters is continuous during the time the station is on the air.

LEARN HOW TO GET THE MOST OUT OF YOUR 'B' BATTERY

See the demonstration board that has been the sensation of radio shows in every part of the country.

See it operated. Listen to the lecture. Learn how much current your tubes take from your "B" battery.

Watch the plate current jump when the plate voltage is increased.

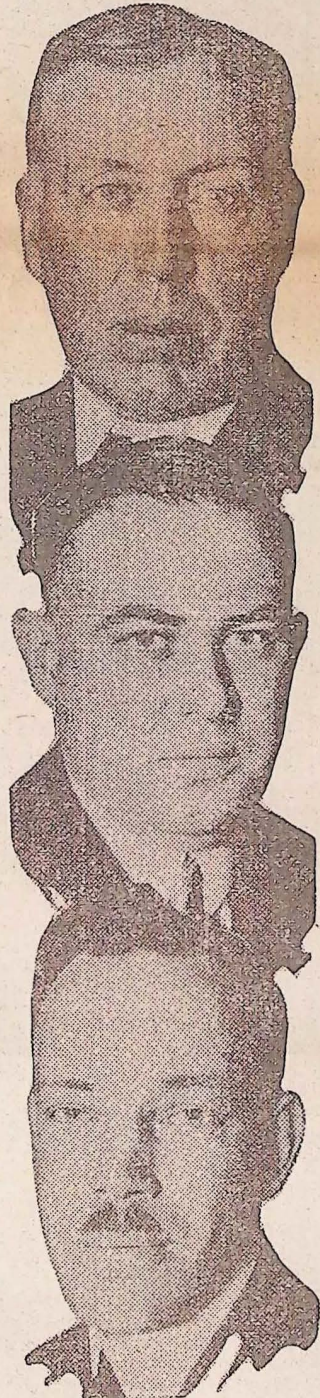
And see how it drops when the Eveready "C" battery is switched in, adding months to the life of your "B" battery!

Learn through this striking demonstration how to take full advantage of the long life which has been built into Eveready "B" batteries.

See it at the
NATIONAL CARBON COMPANY'S
Exhibit Booths, No. 43 and No. 45

EVEREADY
Radio Batteries
—they last longer

AID EXPOSITION



The task of handling the multiplicity of duties incident to directing the Sixth U. S. Radio district, with headquarters here, devolved upon these three men. They have taken an active part in the preparation of the displays and plans for the big exposition now under way at the auditorium. They are: (Top), Major Dillon, in charge of this district, and Inspectors Edwin W. Lovejoy (center), and B. F. Linden.

HAMS IN EAST HEAR SIGNALS SENT FROM S.F.

6RY, the local battery-equipped amateur radio station at 1330 Bush-st., was heard last week by two eastern stations—9BAB, Des Moines, Iowa, and 8RY, Sullivan, O. Both stations reported 6RY as coming in very strong and clear, according to postcard acknowledgments received by Julius Brunton & Sons Co., operators of 6RY.

Recently 6RY did some very successful DX work, carrying on phone conversations with three different Canadian stations. Acknowledgment postals were received from 5HG, 5GO and 5GG, all of them reporting 6RY's phone as coming in clear and very loud.

A few days ago 6RY worked 6AMM, San Jose, by phone, using exceptionally low voltage. Only 100 volts of Willard Radio batteries were used in this experiment, and the San Jose station reported 6RY phone coming in very loud. Normally 6RY is a 10-watt phone, using 500 volts of Willard Radio batteries. It is a revised Hartley with a grid tickler circuit.

Keep Batteries Clean and Dry

Watch the water level of the battery. Do not allow the water to reach as low as the tops of the plates. Add distilled water until the electrolyte is well above the plates. Never use tap water in a storage battery. The chemicals in the water will destroy the battery. If the battery leaks, do not try to fix it at home, but take it to a reliable battery service station.

Keep the top of the battery clean. Any water allowed to remain on top of the battery will cause a small amount of leakage, which is a slow discharge of the battery. Use old cloths when cleaning any part of the battery because the acid in time will destroy the fiber of the material.

Permanent Exhibit

The Permanent Industrial Exposition at Newark, N. J., is including radio among its features. A powerful broadcasting station will transmit exposition news daily.

Applause Cards

Percy W. Andrews, radio manager of a New York corporation, is said to be the inventor of applause cards. He conceived the idea while homeward bound on a train.

U. S. FINDS AIR 'SPOOKS' WITH BIG SET



United States Radio Inspector E. W. Lovejoy patrolling the ether with the government's big "Spook Detector," which locates power leaks detrimental to radio signal reception.

The "Sherlock Holmes" of radio is one of the most unusual exhibits at the Pacific Radio Exposition which opened in Exposition Auditorium Saturday night.

This is the "spook detector" in the booth of Col. J. F. Dillon, United States radio supervisor in the Sixth U. S. Radio district. The "spook detector" is a special receiving set, operating from loop antenna, with which leaks in high power lines and transformers are located. These leaks wreak havoc with receiving sets in the vicinity, making reception of broadcast programs impossible.

When a "spook" is reported to the local office of the radio inspector, the "Sherlock Holmes" is immediately dispatched to locate the leak which is then remedied.

Census Taken of Radios On Farms

WASHINGTON, Aug. 18.—Some indication of the number of receivers in the United States will be forthcoming for the first time in the history of the country when the farm census is completed next March by the bureau of the census.

Officials of the bureau have just completed their tentative questionnaire which will be sent to 6,500,000 farmers in December and will be effective as of Jan. 1, 1925. The suggestion was made that it would be of particular interest to know just how many farmers had sets and for that reason the bureau has included a question which reads: "Is there a radio outfit on this farm?"

WHAZ, Troy, reports having been heard in Peru, 4000 miles away, in a direction at right angles to the sending aerial.

MANY "FIRSTS" IN RADIO

Broadcasting stations throughout the country claim "first" for some sort of feature or another.

Besides claiming first place among America's broadcasters, Station KDKA, at East Pittsburgh, maintains it was the first American station to be heard in England.

Station WWJ, of the Detroit News, claims the distinction of being the first newspaper to broadcast.

WOO, the Wanamaker broadcasting station at Philadelphia, claims to be the first store in America to erect wireless station. It maintained communication with the New York store ever since May 22, 1911.

Several other "first" honors are claimed by others.

Radio in Spain

Radio is growing in Spain since the government has permitted amateurs the use of wavelengths below 150 meters and power up to 100 watts. There are now about 100 amateur transmitters in the country.

General call for German vessels is DEUT, first four letters of the native name for Germany.

WNYC Kills WEA

There are many complaints that WNYC, the station of the city of New York, drowns out WEA, the station of the American Telephone and Telegraph Co. This must be a source of satisfaction to Hon. Grover Whalen, who fought WEA for the right to have a city-owned station, and won.

RADIO BRINGS MORE SAFETY FOR AVIATORS

"From the standpoint of commercial aviation, radio is the one means by which air navigation may be conducted with peculiar safety," says Maj.-Gen. James G. Harbord, in June Aero Digest.

"For," he continues, "by means of radio aircraft may communicate with surface stations, with other aircraft, and also receive the necessary information to take advantage of weather conditions and keep constantly in close touch with the world below."

"Communication is the essence of modern strategy and tactics. The airplane equipped with radio furnishes the quickest and most reliable means of communication known to modern warfare."

"Without radio, military and naval aircraft are nerveless instruments and their co-ordinating duties would be seriously hampered were it not for the remarkable aid which radio gives under all conditions."

Radio Play Best Appreciated in Darkened Room

With the drama brought into the home by radio, a new problem has arisen, according to Mrs. Wilda Wilson Church, director of radio plays over KGO.

Many radio listeners are rapidly learning that it is necessary to put themselves in the proper frame of mind to appreciate a drama over the air.

In the theater, one listens to the tribulations of heroes and heroines among appropriate settings—in the shadows of darkened theaters and in the glow of faint lights.

"Radio fans find that they can concentrate on the plays received over the air much better," Mrs. Church stated, "if they lower the lights in the room, thereby creating an atmosphere similar to that of the theater. In this way they can lose consciousness of self and other people about them."

Radio vs. Politics

Radio has turned politics upside down. In the "good, old days," a political orator could tell a string of funny stories, make a flamboyant stab at oratory and get away with it. The microphone is a great leveler. It demands short, snappy speeches. The radio audience wants the political speaker to "get down to brass tacks" and "cut it short." The spellbinder has been booted into limbo. He has gone where the woodbine twineth. Another scalp for radio.

RADIO FROM THE GROUND UP

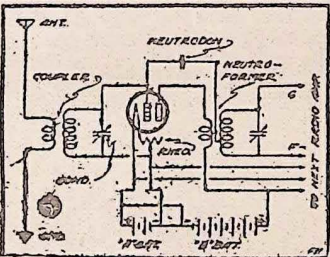
Not differing from audio amplification in its essential principles, radio frequency amplification handles the impulses received from the aerial in their original form, oscillations of hundreds of thousands of times per second, and strengthens them before they are delivered to the detector. In this way signals from great distances may be heard which to the detector tube alone would be entirely out of range.

A most useful circuit for adding the stage of radio frequency to the regenerative receiver is shown herewith. Let us trace its wiring briefly. The antenna is coupled to the set through the "untuned" coil of 15 turns, as described for the simple regenerator. The secondary winding of this fixed coupler has fifty turns of wire spaced about one-eighth inch from the primary, and this secondary is tuned by a .0005 mfd. variable condenser. Since the tube is an amplifier, one side of the secondary is connected directly to the grid of the tube, while the other side normally is placed on the negative of the filament circuit.

The Transformer

Now, with as many as 15 turns on the primary of the radio transformer, the radio frequency amplifier tube will oscillate

when the two variable condensers are set for the same wavelength. The effect is then much like the tuned plate circuit, where regeneration is secured



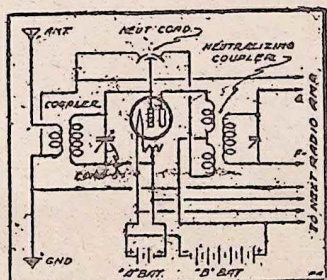
by tuning both grid and plate circuits of a tube. To control this oscillation the return lead from the secondary of the radio frequency (R. F.) tube is not made direct to the negative of the filament but to the movable contact arm of a potentiometer. This instrument consists of a resistance winding of about 300 or 400 ohms, whose ends are connected across the filament battery. Any desired voltage may be impressed upon the grid, within the limits of the filament battery, by adjustments of the movable contact, and in this way the tube may be brought fairly close to the point of oscillation. The actual regeneration is really obtained in the detector circuit by means of the tickler coil, and the circuit as a whole is a

very satisfactory and sensitive method of reception, for both radio frequency amplification and regeneration are employed.

Two or three stages of radio amplification are often used for greater sensitivity. Great care is then required to keep the system from oscillating on account of the presence of a number of tuned circuits set to the same wavelength. The feedback of energy takes place both by plain induction between the coils and through the small capacity formed by the elements of the R. F. amplifier tubes. Coils, however, are usually mounted so as to have no inductive coupling between them.

Neutralization

Several methods are in use



for overcoming this tendency toward oscillation in a multistage radio frequency amplifier. The neutrodyne utilizes a novel method, involving a condenser

of small dimensions equal to the tube capacity between the grid and a portion of the secondary of the radio frequency transformer, so as to pick off and impress on the grid a charge equal in intensity but opposite in polarity to the charge causing oscillation of the tube. This condenser is called a "neutrodyne" and the transformer a "neutrodyne"—these being coined names, however.

The circuit uses two stages of radio frequency neutralized in this fashion. Another scheme, which is quite popular and under the control of the operator, employs a small variable condenser for the same purpose. Here, however, a special coil is provided to pick up the opposing charge, and this extra coil is equal in size and closely coupled to the primary of the transformer. It carries an extra plate which is connected to the filament. A variation of the neutralizing or "compensation" condenser would change the tuning of the tube's grid circuit without this extra plate. But with it a reduction in capacity between the neutralizing plate and the grid electrode of the condenser is automatically accompanied by an equal increase between the grid electrode and the filament, thus keeping the tuning constant while adjusting to control oscillation.

RADIO WIRE

Any SIZE—Any QUANTITY—Any COVERING

Single Silk Covered and Enamel Wire

From 30 to 39—AT HALF PRICE

WESTERN ELECTRIC MOTON and REPAIR WORKS

150 Fourth St., S.F.

A-1 THE WONDER CRYSTAL GETS DISTANCE

"During the month of July I received Houston, Dallas, Fort Worth, Kansas City and Hastings quite often with an A-1 Crystal I have had in use for six months. That is, without chipping or cleaning."—G. B., San Antonio.

A-1 THE WONDER CRYSTAL

LASTS LONGER

"I have five other kinds but none are nearly as loud as the A-1."—P. J. M., Oakland.

"With A-1 Crystal I work the loud speaker on KGO and can hear it in every room in the house."—W. S., Alameda.

A-1 THE WONDER CRYSTAL

GIVES LOUD SIGNALS

Sent Postpaid, 50c Each

60c If Sent C. O. D.

California Radio Minerals

Harry Grant, Jr.

904 Oak Grove Ave.,

Burlingame, California



DONS TO HOLD CONTEST FOR OLD FIDDLERS

A fiddlers' contest by radio! That's the latest stunt arranged by the Dons of Peralta, sponsors for the East Bay's annual festival to be held in September.

Old time fiddlers who play by ear and not by note, who cannot read music, who keep time with their feet, using their heels and toes to indicate the precise rhythm, are eligible.

KLX radio broadcasting station will have charge of the elimination contests and the radio fans of the nation—at least all those who are within hearing distance of KLX—will decide on the fitness of the fiddlers to participate in the final contest during Obaplesla Week in September. Ten will be chosen for the final contest.

Wheelock Originates Idea

Arthur C. Wheelock, chairman of the Dons' publicity committee, originated the idea of an old-time fiddlers' contest.

"There's many an old-timer who can handle the bow and who can play the old-time melodies by ear who never learned to read music," said Wheelock. "And it's these old fellows that we want in the contest. Fiddlers who can play 'Turkey in the Straw,' 'Arkansas Traveler,' 'Susquehanna' and other tunes of the long ago are the fellows that will carry off honors in this contest."

Wheelock urges every fiddler who wants to enter the contest to send in his name and address to the Fiddlers' Contest Committee, Dons of Peralta, 510 15th-st, Oakland, at once.

Meanwhile the radio will flash an announcement of the event.

Prizes To Be Given

Valuable prizes, including a splendid violin as first prize, will be awarded the winners, according to Wheelock.

Tone, time, tune, and temperament, will be the chief points upon which the judging will be based.

And so the old-time fiddlers will fling their best tunes upon the waves of the air and a hundred thousand radio fans, more or less, will pick the 10 best fiddlers who will be in the final contest at the Municipal Auditorium during festival week.

Prince of Wales to Speak Over Radio

The Prince of Wales, who as Lord Renfrew sails for America on the S. S. Berengaria the last week in August, is expected to speak to the radio audience from one of the Canadian stations. There is a possibility that he may speak from Col. Green's New England station before he leaves for his ranch in the Calgary district.

Rare Ceremonies via Radio

LIVERPOOL, Aug. 18.—No cathedral has been consecrated in England since the 13th century. Much interest attaches, therefore, to the fact that the whole continent of Europe the historic events of the ecclesiastical events of the consecration of Liverpool Cathedral, one of the historic events of the ecclesiastical century, which is about to be radiocast in England.

Prepare for Fair

Amateurs not only in the United States but in other countries are experimenting on receiving and transmitting sets to take part in the amateur builders' contest at the Radio World's Fair in Madison Square Garden, New York, Sept. 22 to 28. Entries are coming in from Europe, South America and other foreign points.

Census Figures in Month

WASHINGTON, Aug. 18.—Officials of the bureau of census who are tabulating radio and parts manufactured in this country express the belief that a preliminary statement will be available in about a month. The radio census is being made in conjunction with the regular electrical machinery report.

NEW SET WINS FAIR BOOSTER



Bernice Talmadge hearkening to the tuneful strains of the Radio Show broadcast program as received on the new Sleeper Monotrol.

Pretty Bernice Talmadge just can't catch 'em shut eye at night without hearing her bedtime story over the Sleeper Monotrol first. Here we find her sitting up waiting for that Uncle Remus recital, beside the latest model of the Sleeper Monotrol to be put on the market. This outfit is now on display at the Pacific Radio Exposition—the radio set, not Bernice.

LET'S SWAP

TO SWAP—One new "Brande" loudspeaker and a radio frequency transformer for a good pair of headphones.—Michael Bruno, 645 Bay-st.

TO SWAP—One bakelite panel, 10x14, two double contact sockets, two double circuit jacks, two plugs, one Skinkerdiven button, one 80 ohm receiver, three rheostats, 11 plates for variable condenser, one dial, one knob, for any kind of a loudspeaker, or for sale or what have you? Phone, write or call H. Tobias, 1478 15th-st, Market 4178, between 5:45 and 6:45 any week day.

TO SWAP—Three-tube radio set, console model; will trade for any kind of Ford. West 4930.

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 Millas.

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. 1366 26th-av. Irvin Manning.

TO SWAP—New 3-tube set, in cabinet, with batteries and tubes, for parts of Erla reflex set, or what have you? F. Miller, 4341 23rd-st.

HE'LL SPEAK FROM AUDITORIUM



Fans who listen in on the daily programs broadcast from the Pacific Radio Exposition, will hear Donald Gibson, shown here, in a recitation, "The Radio," during children's hour.

Diver Broadcasts From Ocean Floor

Radio fans are to be given a new sensation in radio entertainment.

Many strange things and many strange sounds have been broadcast, from the rattle of a snake to the voice of an aviator high in the heavens, but one of the most unusual is broadcasting of sounds from the bottom of the Atlantic Ocean.

Fans tuning in on station WIP, Philadelphia, will hear the marvels of the sea told by a deep sea diver. In his diving helmet he will have a special microphone, connected by lead cable to the boat and from there to the radio station.

POLITICS TO RULE WAVES IN CAMPAIGN

NEA Service

NEW YORK, Aug. 18.—New York broadcasting stations are taking first steps toward opening the air to Republicans, Democrats and La Follette followers for the coming presidential campaign.

Officials of the Radio Corp. of America, operating stations WJZ and WJY, in New York, and WRC in Washington, have already arranged to allow 10 and 15-minute intervals to representatives of the two major parties. They are ready to furnish equal time to Sen. La Follette and his adherents.

Others Held Down

Beginning with the acceptance speech of John W. Davis, on Aug. 14, radio listeners will tune in on political talks throughout the country. For other stations are prepared to permit free use of the air to campaign orators representing the three principal nominees.

Some of these stations that are expected to follow the example of the Radio Corp. will be: WGY, Schenectady; WBZ, Springfield; KDKA, East Pittsburgh; KYW, Chicago; KGO, Oakland; WOR, New York; WEA, New York, and many other of the larger broadcasters in the country.

Strict Neutrality

C. B. Popenoe, program director of station WJZ, promises strict neutrality in operating the stations.

The speeches will be limited to from 1500 to 1800 words, except the acceptance talks of the candidates, and an endeavor will be made to see that they are adapted to broadcasting. The addresses will be examined by the broadcasting station's official censor or manager, before they are presented.

Andes No Barrier to S. A. Radio Fans

The Andes, gigantic mountain range which forms the backbone of South America, is no barrier to radio waves, according to results of radio tests recently conducted by an engineer in Peru with Buenos Aires. As a result of his efforts, practically all of the western republics of South America can be opened up to radio broadcasting.

Not only has the Peruvian engineer been successful in getting Buenos Aires on the radio, but Pittsburgh, Pa., and Hastings, Neb., have been heard very distinctly, despite the uncertain receiving conditions existing in this area.

Radio for Aviation Field

BERLIN, Aug. 18.—A law has been passed in Germany calling for the installation of a radio set on every aviation landing field. The set must be capable of receiving meteorological bulletins from all parts of Europe and of communicating with all passenger planes while in the air.

Liberal in Cuba

Cuba is quite liberal in her dealings with amateurs, although no amateur spark stations are permitted. The "hams," however, have privileges somewhat like those held by their friends in this country. Their wavelength range is from 75 to 200 meters.

Doctor by Radio

Sen. Marconi, famous Italian radio engineer, predicts physicians soon will be summoned and their advice taken by radio. He asks, "Who can say that in the future some means will not be perfected to permit the doctor to study his patient and diagnose his complaint by wireless?"

Contributions Taken

In the effort to pay for broadcasting, station WHB, Kansas City, has been soliciting its listeners for voluntary contributions. To date, more than \$3000 has been contributed.

Broadcast From Train

Experiments in transmitting messages from moving trains have been conducted recently in England.

ANSWERS

Questions addressed to this department will be answered by L. E. Day of the Day Radio Laboratory, 693 Mission-st. No hookups will be printed.

H. B. Disher, 868 Valencia-st, San Francisco, asks:

(1) What will be the effect of adding more plates in aerial circuit? (2) I can hear KPO and KGO plainly with the receiver held six inches from my ears. Will this allow me to use loud speaker? (3) I cannot hear KZM or KRE and can hear KLS only faintly. How can I fix set so as to get these stations without losing signal strength from other stations?

(1) The addition of more plates or a larger condenser will allow you to tune in to stations of lower wave lengths. (2) It is sometimes possible to operate a crystal set on loud speaker, and suggest that you try it. (3) If you will use a 43-plate variable condenser and 80 turns of wire in the antenna circuit and increase the secondary circuit to 60 turns, shunted with a 23-p variable condenser, this should correct your difficulty.

Emil Flick, 1236 38th-av, Oakland, asks:

(1) What is the average maximum distance of a 5-tube neodyne receiver? I have one that I constructed myself and the best that I can do now is Seattle and Los Angeles. (2) Would you advise the addition of two more neutroformers to my set, making it a 7-tube set in all?

(1) You are getting the average maximum distance on your set now for this time of year. You will find it just as easy to get eastern stations in the winter time as to get coast stations now. (2) The addition of one more neutroformer might help the distance reception, but at the same time you will also amplify all other noises, such as static, which is objectionable. This would be very good to do next fall when reception is better. We doubt whether using two additional stages of radio frequency would be an advantage, as you would experience great difficulty in controlling oscillation. The set would have to be very well shielded. We would not advise you to construct this unless you have had a great deal of experience with sets. The best thing to do would be to construct an audio-frequency push-pull amplifier. In this way you would be able to away with some of the objectionable noises.

J. King asks:

Kindly publish in your column the windings of the coils for a Harkness reflex.

Answer—Radio-frequency coil 1 is made by winding the secondary of 60 turns of No. 28 double, silk-covered wire on a bakelite tube 2 1/2 inches in diameter and 2 inches long. The primary winding of 20 turns, same size wire, is wound directly over the secondary in the same direction, the two windings being separated by a piece of heavy insulating cloth or paper. Coil 2 consists of a secondary of 60 turns over which is wound a primary of 32 turns, using the same kind of wire and same size tube as in case one. These figures are based on the use of the average make of .0005 mfg. variable condensers.

J. J. Higgins, 2090 Mission-st, San Francisco, asks:

Have a two-tube Harkness reflex set. Should I be able to hear Los Angeles and Portland? (2) Have a 60-foot aerial and 25-foot lead-in.

(1) It is doubtful whether you will be able to get Los Angeles on your set this time of year. This is the closed season for DX reception. Occasionally you might hear long distance on the head phones. (2) You have about the correct amount of aerial for your set.

---THE BEST
Thousands say so
WHY
EXPERIMENT?



40c postpaid
It is unconditionally guaranteed

WEEK'S AIR PROGRAMS, CONTINUED

(Concluded from Page Two)

Phillip Aldrich, Carl Anderson, violin; Mrs. Carl Anderson, accompanist.
Vocal numbers (a), Give a Man a Horse He Can Ride; (b), Romeo in Georgia; Roy Burns.
Ladies' chorus (a), Believe Me, If All Those Endearing Young Charms; (b), Angel's Serenade; James Gillick.
Vocal arrangement, The Songs My Mother Used to Sing; Walter H. Bundy, assisted by Marguerite Graham.
Ladies' chorus, "Lullaby."
At about 10:10 o'clock the controls of KLX will be shifted to the American Theater for an organ recital by Clement Barker.

DISTANT STATIONS

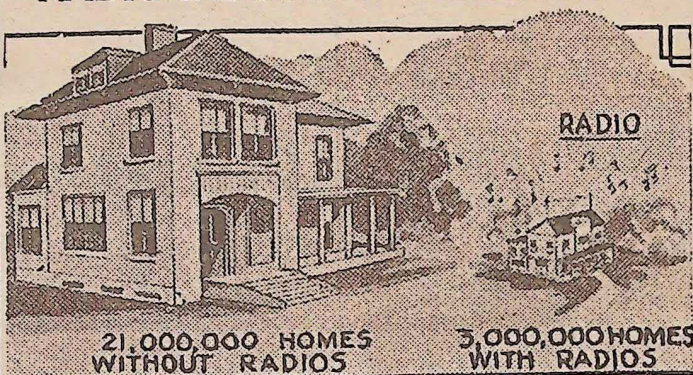
KFI—E. C. Anthony, Inc., Los Angeles (469 Meters)
8 TO 9 P M—Evening Herald, Frank Carr's orchestra.
9 TO 10 P M—Program from Examiner studio.
10 TO 11 P M—Hollywood Community Orchestra.
11 TO 12 P M—Ambassador Hotel-Cocoanut Grove Orchestra.
KHJ—Los Angeles Times (395 Meters)
8 TO 9 P M—Program presented 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, playing through the courtesy of the Blue Bird Cafeteria. Dr. Mars Baumgart, lecturer. Charlie Wellman, jazz tenor, and Bill Hatch, pianist.
10 TO 11 P M—Art Hickman's dance orchestra from the Biltmore Hotel.

Thursday

KPO—Hale Bros. (423 Meters)
12 M—Time signals; reading of the Scripture.
1 TO 2 P M—Rudy Seiger's Fairmont hotel orchestra.
2:30 TO 3 P M—Whistling solos—Morning Mood ("Peer Gynt Suite"); Spring Song; Shirley Irvine; Jane Sargent Sands, accompanist.
Readings—Women of India; An Idyl of Ideals and Idols; G. L. A. Shaffer, composer.
Whistling duets—Chanson; Moon Moths; Shirley Irvine and Elaine Buckland; Jane Sargent Sands, accompanist.
2 TO 3:30 P M—Program by Trio Artistique: F. G. Aspre (director); violin; Lenore Ewald, piano; Arthur Landesen, cello.
Instrumental selections—Hungarian Dance No. 5; The Song of Songs; Trio Artistique.
Violin solo—Pale Moon, Feste G. Aspre; Lenore Ewald, accompanist.
Instrumental selections—L'Arlésienne Suite No. 2; By the Brook; Trio Artistique.
Instrumental selections—Heart Throbs; Ecstasy; Celebre Menuet; Trio Artistique.
4:30 TO 5:30 P M—Rudy Seiger's Fairmont hotel orchestra.
5:30 TO 6:30 P M—Children's hour. Piano solos—From Foreign Lands; Chaconne; Helen Tomlinson; pupil of Mary Melrose Gardner.
Piano solos—A Curious Story; Fur Elise; Haruku Kanki; pupil of Mary Melrose Gardner.
7 TO 7:30 P M—Rudy Seiger's Fairmont hotel orchestra.
8 TO 9 P M—Organ recital by Theodore J. Irwin: March, Perambulator; overture, Poet and Peasant; waltz, Gold and Silver; serenade, Mandolinata; Andantino—D Flat; song melody, Calm as the Night; Gavotte; musical comedy selection, Sally; waltz, Tres Joli; serenata, Hasta Manana; light opera selection, Pinafore; fox-trot, Paradise Alley.
9 TO 10 P M—Piano solo, Melody; Walter Frank Wenzel.
Soprano solos—Lungi Dal Caro Bene; Love, I Have Won You; Augusta Hayden; Molly Pratt, accompanist.
Harp solos—Prelude; medley of old melodies; Fantasia; Marie Hughes Macquarrie.
Contralto solos—Swing Low, Sweet Chariot (negro spiritual); A Birthday; Annae K. Blotcky; Walter F. Wenzel, accompanist.
Reading (by the author)—San Francisco, City of Enchantment; Adelyn Brinkley Jones.
Soprano solos—California Lullaby, I Passed by Your Window; Augusta Hayden; Molly Pratt, accompanist.
Piano solo—Passe Pied; Walter Frank Wenzel.
Contralto solos—Hindoo Chant, Mah Lindy Lou; Annae K. Blotcky; Walter F. Wenzel, accompanist.
Harp solos—Minuet; A Japanese Sunset; The Swan; Marie Hughes Macquarrie.

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 Ferrera conducting.
6:45 P M—Final reading, stock exchange and weather reports, and news items.
"SUZETTE"
8 P M—Bernard Francis Moore's three-act comedy, presented by the KGO Players, under the direction of Wilda Wilson Church. Music by the Muscous Trio: Natalie Levin, violin; Joziena Van der Ende, cello; Wilhelmina Wolthus, piano.
Cast
Joseph Bradford, a member of the stock exchange.... Fred Thomas
Tom Blackmore, his partner.... Conrad Kahn
Bob Bradford, Bradford's son.... Barry Hopkins
Edwin Blackmore, Blackmore's son.... Bert Horton
James, Bradford's servant.... John Bacon
Mrs. Archibald, Bradford's housekeeper.... Dorothea Wilson
Etta Bradford, Bradford's daughter.... Lenore Everett
Dora Blackmore, Tom's niece.... Bertha Spring
Matilda, the cook.... Mary Harper
Time, June.
Place, Bradford's summer home on the Hudson.
To the Spring, trio.
Act I
Sensations!
Romance Sans Paroles, trio.
Act II
Complications!
Under the Leaves, trio.
Act III
Explanations!
The Solitary Wanderer, trio.
KLX—Oakland Tribune (509 Meters)
2 TO 5 P M—Baseball scores.
7 TO 7:30 P M—News items; weather.

RADIO INDUSTRY "SOME BABY"



The money bags show how rapidly the radio industry has grown in practically five years, or even less, of existence, so far as popularity is concerned. Yet it is only starting, as the comparison of homes (above) shows.

Friday

KFI—E. C. Anthony, Inc., Los Angeles (469 Meters)
8 TO 9 P M—Ambassador Hotel-Cocoanut Grove Orchestra.
9 TO 10 P M—Program from Examiner studio.
10 TO 11 P M—Lillian Martin arranging concert.
KHJ—Los Angeles Times (395 Meters)
8 TO 9 P M—Program presenting the Gaylord Trio, playing through the courtesy of the Gaylord Apartments.
9 TO 10 P M—Program presenting Mary Olive Horton, dramatic soprano. The Piggly Wiggly Trio; the Community Broadcasters of Pasadena in a one-act play, "Radio."
KPO—Hale Bros. (423 Meters)
12 M—Time signals; reading of the Scripture.
12:45 P M—Talk broadcast from Commonwealth club luncheon at Palace hotel.
1 TO 2 P M—Rudy Seiger's Fairmont hotel orchestra.
2:30 TO 3:30 P M—Fox-trot, Tonight's the Night; waltz, Ecstasy; Liebesfreud; overture, Beautiful Galatea; Caballetto; popular waltz song, Sleep; light opera selection, Yamen of the Guard; gavotte, Holberg Suite; operatic selection, La Tosca; fox-trot, Adoring You.
4:30 TO 5:30 P M—Rudy Seiger's Fairmont hotel orchestra.
KGO—General Electric Co., Oakland (312 Meters)
1:30 P M—New York Stock Exchange and United States weather bureau reports.

JUST WAVELETS

For economy buy a honey-comb coil, rather than make one.

Socket connections should be as far apart as possible.

Great Britain has three classes of receiving licenses—broadcasting, construction and experimental.

Naval broadcasting station at Washington sends out an average of 20,000 words daily.

There are more than 18,000 amateur stations in this country. Average manufactured receiving set costs \$100.

Broadcasting of news in India is forbidden.

Keep storage battery well filled, especially in summer.

Wilson was the first U. S. president to broadcast his voice. Sunlight shortens the life of a storage battery.

Keep batteries in a cool place. Fans in Germany are taxed 50c a month for reception.

There are about 1000 receiving sets in Spain.

Gas pipe should not be used for ground.

Keep spaces between turns even on spiderweb coils.

Receivers are being installed in lonely lumber camps in Canada.

There are more than 500 broadcast listeners in Hongkong.

France has one private and three government broadcasting stations.

Station WSB, Atlanta, broadcasts road and touring advice

Saturday

KPO—Hale Bros. (423 Meters)
12 M—Time signals; reading of the Scripture.
1 TO 2 P M—Rudy Seiger's Fairmont hotel orchestra.
2:30 TO 3:30 P M—Program by Tau Mu Dance orchestra; Bob Taylor, director.
3 TO 4 P M—Art Weidener and his popular artists.
4 TO 5 P M—Talk on Boy Scouts by Raymond O. Hanson, scout executive.
KGO—General Electric Co., Oakland (312 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.
Part I
Baritone solo, A Son of the Desert Am I; Howard Le Moine.
Contralto solos (a), Ah, Love But a Day; (b), Dawn in the Desert; Marjorie S. Stoner.
Tenor solos (a), Sing Me to Sleep; (b), The Song That Reached My Heart; (c), A Little Song; J. G. Walker.
Instrumental selections (a), Pilgrim Chorus; (b), Sweet and Low; Alwyn Brass Quartet.
Euphonium solos (a), Dio Possente, Deo d'Amour; (b), Rooked in the Cradle of the Deep (with variations); Ernest Paul Alwyn.
Cornet duets (a), Two Friends; (b), Serenade; Thomas Valerga and Richard Vosmer.
Contralto solos (a), At Nightfall; (b), Sacrament; (c), Just Before the Lights Are Lit; Marjorie S. Stoner.
Instrumental selections (a), Sextet from Lucia; (b), Annie Laurie; Alwyn Brass Quartet.
Trombone solo, La Paloma; George Cracknell.
Tenor solos (a), Thora; (b), My California Rose; J. G. Walker.
Cornet solos (a), My Heart at Thy Sweet Voice; (b), Polka di Concert; Thomas Valerga.
Instrumental selections (a), Swanee River; (b), The Lorelei; Alwyn Brass Quartet.
Part II
This part of the program will be given by the McAdam family, Stockton: Helen Murray, mezzo-soprano; Mrs. Murray McAdam Yerbury, contralto; David McAdam, tenor; John McAdam, baritone.
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.
KLX—Oakland Tribune (509 Meters)
2 TO 5 P M—Baseball scores.
7 TO 7:30 P M—News items; weather.
8 TO 10:20 P M—Studio program: Band selections, Alameda Scouts' Band.
Piano solos, selected, John Hoebern. Band selections, Alameda Scouts' Band.
Vocal solos (a), The Swallows; (b), Gay Butterfly; Dresda Poole, soprano; Caro Roma, accompanist.
Band selections, Alameda Scouts' Band.
Piano solos, selected, John Hoebern. Band selections, Alameda Scouts' Band.
Vocal solos (a), Rendezvous; (b), Villanelle; Dresda Poole, soprano; Harriet Poole, accompanist.
Controls of KLX will be shifted to the American Theater for incidental music by the American Theater Orchestra (Owen Sweeten, directing), broadcast over private leased wires from the orchestra pit.
Organ music from the American Theater organ, broadcast over private leased wires from the theater; Clement Barker, organist.

Sunday

KPO—Hale Bros. (423 Meters)
10 A M—Hebrew services, Rabbi Fried.
11 TO 12 M—Undenominational services. Dr. French E. Oliver, prayers and sermon, "Solving World Problems"; soloist, May Clarke Burns, soprano.
3:30 P M—Rudy Seiger's orchestra.
KGO—General Electric Co., Oakland (312 Meters)
11 A M—Services from the First Presbyterian church, Oakland, Calif. Rev. Frank M. Silsley, pastor.
Prelude: "The Last Hope;" anthem, "Christian, the Morn Breaks Sweetly O'er Thee;" anthem, "God Is a Spirit;" from "Woman of Samaria;" sermon, "Christ and the Modern Mind," Rev. Frank M. Silsley; postlude, Walter B. Kennedy.
3:30 P M—Concert by KGO Little Symphony orchestra and vocalists, Carl Rhodehamel conducting: Valse Parisienne; overture, Stradella; selection, Parsifal.
Tenor solos—Carl Anderson: Three boat songs: (a) Volga Boat Song (b) Barcarolle (c) Venetian Boat Song.
Piano solos—Helen McClory.
Tenor solos—Three Irish songs: (a) Off in the Still Night (b) Off to Philadelphia (c) Wearing of the Green.
Piano solos—Helen McClory.
KGO Little Symphony orchestra: Selection—Prince Ananias; Russian Dance; Shadows; Andante (violin solo) played by Josephine Holub.
7:30 P M—Evening services from the First Presbyterian church, Oakland: Prelude—"Andante Grazioso;" choir hymn, "Day Is Dying in the West;" anthem, "My Faith Looks Up to Thee;" anthem, "If Thou But Suffer God;" sermon, "America's Doubtfulers and Elijah's Challenge," Rev. Frank M. Silsley; postlude, Walter B. Kennedy.

WHO STARTED IT, ANYWAY?

The controversy about who's the father of broadcasting won't be easy to judge, considering the complexity of claims.
Station WWJ, owned by the Detroit News, for instance, enters into the wrangle on the claim that it began a regular broadcasting schedule on Aug. 30, 1920, more than two months before station KDKA, at East Pittsburgh, Pa., began its regular schedule.
However, KDKA maintains broadcasting had been going on more or less regularly ever since October, 1919, while station WGI, at Medford Hillside, Mass., still claims actual first prize for its claim of having started broadcasting in December, 1916.

Why Buy Radio Batteries More Than Once?

When you buy Willard Rechargeable B Batteries, you're through going down into your pocket for B Batteries every little while.

For, unlike the ordinary battery which lasts only a few months, Willard Rechargeable B's are good for years—with average care at least five, and probably more.

Just figure up how much you'll save if you don't have to spend a cent for new B batteries in the next five years.

The real value of Willard Rechargeable B Batteries, however, is to be measured, not in dollars and cents, but in improved results.

Don't fail to see our exhibit at the RADIO show

JULIUS BRUNTON & SONS CO.
1380 Bush St., S. F.

San Francisco August 16-21 Civic Auditorium

"ASK YOUR RADIO DEALER"

Willard STORAGE BATTERIES

Willard

DISTANT STATIONS

KFI—E. C. Anthony, Inc., Los Angeles (469 Meters)
8 TO 9 P M—Tilda Rohr, contralto, arranging concert.
9 TO 10 P M—Program from Examiner studio.
10 TO 11 P M—Packard popular program.
11 TO 12 P M—Ambassador Hotel-Cocoanut Grove Orchestra.
KHJ—Los Angeles Times (395 Meters)
8 TO 10 P M—De luxe program.
10 TO 11 P M—Art Hickman's dance orchestra from the Biltmore Hotel.
KGW—Oregonian, Portland (492 Meters)
10 TO 12 P M—Police reports, baseball scores and weather forecast.
Music by George Olsen's Metropolitan orchestra of the Hotel Portland.
KRE—Berkeley Gazette (278 Meters)
8 TO 12 P M—Dance music by Horace Heidt's orchestra of the Hotel Claremont.

Sunday

KPO—Hale Bros. (423 Meters)
10 A M—Hebrew services, Rabbi Fried.
11 TO 12 M—Undenominational services. Dr. French E. Oliver, prayers and sermon, "Solving World Problems"; soloist, May Clarke Burns, soprano.
3:30 P M—Rudy Seiger's orchestra.
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11 A M—Services from the First Presbyterian church, Oakland, Calif. Rev. Frank M. Silsley, pastor.
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RADIO NOW LEADING INDUSTRY

U. S. LIFTS BAN ON USE OF AMATEUR SETS

BUSINESS HAS BIG GROWTH IN THREE YEARS

Within three years radio has increased 35-fold in value!

Such is a sample of the remarkable growth of this industry.

Yet it is still in its swaddling clothes.

While inventors are searching for means to develop this science toward even a semblance of maturity and stability, the industry based on their ingenuity is progressing far ahead of them. It is a phenomenon that has never been equaled in commercial history, not even in the automotive field.

Three years ago just about the time wireless telegraphy was becoming popular as radio, production of radio apparatus and wireless telegraph supplies amounted to less than \$10,000,000 for the entire year of 1921, and was only about half that at the beginning of that year. This year Roger W. Babson, famous economist, estimates sales of radio sets and parts will amount to \$350,000,000!

That's a conservative estimate, he says.

He doesn't take into account, either, the money spent by broadcasters and other large corporations for concert talent, for investigations and for experimental work that is being pushed ahead in this field.

Other Items

He doesn't figure maintenance and overhead and the many other items which, if combined with the sales and other expenditures, would make this almost a billion-dollar industry, even today.

It is in considering the sales figures, however, that Babson can compare radio with the other large industries in the United States. It is one of the 35 greatest businesses in the country, along with furniture, leather, chemicals, sugar refining and other important industries.

In a review of this new business in Radio News, Babson points out that the value of the radio business is nearly twice as great as the carpet and rug business, and of sporting goods.

Other figures show the same development. Production of radio tubes in 1921 was little over 100,000. Today it is far into the millions. One laboratory alone, of a big radio manufacturing corporations, turns out from 11,000 to 13,000 vacuum tubes a day.

Air Congested

Broadcasting had just about started in 1921, with only a dozen or more stations on the air. Now between 500 and 600 broadcasters are filling the air nightly and causing such congestion that there is talk of limited broadcasting in the future.

Three million homes today have radio receiving sets—practically all converts since 1920 or 1921.

To supply the growing host of radio fans, there are 3000 manufacturers of radio sets and parts. Distributing these are 500 electrical, 250 radio, 200 hardware and 50 talking machine jobbers. Selling the apparatus direct to the users are 15,000 electrical dealers, 8000 department, hardware, drug and furniture stores, and 3000 radio, music, sporting goods and auto supply stores.

Radio Travels by Night

ROME, Aug. 18.—In a recent interview for the press, Senator Marconi, who has been making such remarkable tests of short-wave radio telephony between Poldhu, England and Australia, told his interviewers it had been determined that these radio waves reached Sydney, Australia, by crossing the half of the world in which it is night.

Highest Station

Station PS, mounted atop one of the Serrath mountains, in Santos, Brazil, is said to be the highest radio station in the world.

SHOW TO NAME BABY BY RADIO



And now they christen them by radio!

Heretofore, comparative privacy has attended the christening of babies but a precedent in the dubbing of children will be established in San Francisco Wednesday afternoon when the infant son of Mr. and Mrs. McGrath Perrin of this city will be formally christened at the Pacific Radio Exposition.

Rev. W. Bateman of the Wesley Methodist Episcopal church will officiate at the unique ceremony which will be broadcast through KPO, the official broadcasting station of the show.

The infant will be christened Lenonce Gilbert Charles Perrin, a long name for such a tiny boy.

Pretty Girls Pass Out Show Programs

Not "radio" but one of the most attractive features of the radio show in Exposition Auditorium is the group of "program girls" who distribute the official program of the exposition to visitors.

These six pretty misses are costumed as farmerettes in green and white checked suits and white blouses. Marion Young is "captain," the assistants being Marie Hattrup, Ada French, Mimi Krebs, Naomi Kastner and

Grace Mikoda.

They have the task of distributing 50,000 copies of the official program, each volume of which contains 140 pages, carrying photographs of the officers and committeemen, complete program of daily trade meetings, daily broadcast program, lists of exhibitors, descriptions of exhibits, etc.

The programs are being distributed under the direction of H. W. Dickow of the show committee.

Five-Element Tube

A five-element tube has appeared at exhibitions before electrical engineers. It promises great economy in the construction of future sets, doing what perhaps three to five three-element tubes do today.

Wed by Radio During Show

One of the most novel stunts at the Pacific Radio Show will be a radio wedding, in which Maybelle Gartrill, 3022 Wheeler-st., Berkeley, will become the bride of Mischa Lhevinne, noted Russian pianist. The ceremony, which will be broadcast through KPO (Hale Bros. station), will be the first radio wedding ever to take place in the West. The wedding march will be played on the great Municipal organ by Uda Waldrop. The ceremony will take place Wednesday night in full view of the thousands of visitors who are expected to attend the show to witness the unusual spectacle.

Kolster Compass on Yale, Harvard

The Kolster Radio Compass is to be immediately installed on board the steamships Yale and Harvard, plying between San Francisco, Los Angeles and San Diego, purchase contracts having been closed between the Los Angeles Steamship Company and the Federal Telegraph company, sole owners and manufacturers of the compass.

The Kolster Radio Compass insures ships against disaster and consequent loss of life and property. The ships will be able to determine their exact position in the densest fog.

The Kolster Radio Compass was invented and developed by Dr. Frederick A. Kolster of Washington, D. C., and San Francisco.

Waves Get Shorter

A Paris amateur has succeeded in talking to Algiers on waves of 35 meters, while Marconi and others have been using even shorter lengths. Some engineers predict communication on wavelengths the fraction of a meter in length.

CAMPAIGN WON TO OBTAIN NEW WAVELENGTHS

HARTFORD, Conn., Aug. 18.—Amateurs of America will hereafter be free to send and receive messages at any time of day or night, under conditions which will insure against interference with broadcasting.

This will be the effect of a decision of the bureau of navigation, Department of Commerce, by which amateurs are permitted to use special low wavelengths in transmission outside of the "quiet hours" heretofore allotted them. The action was obtained after an extended campaign and urgent application made by the American Radio Relay League, the national association of radio amateurs.

Heretofore, amateurs were generally confined to the use of wavelengths between 150 and 200 meters, and then only during certain hours when possible interference with broadcasting would be at a minimum.

In one of London's largest streets only two houses have no radio sets.

LARGEST SET IN WORLD AT EXPOSITION

One of the most novel features of the Pacific Radio Exposition is the world's largest radio set.

The panel of the set is 20 feet in length and nine feet high and is stationed on the main stage of the Civic Auditorium, where the show is in progress. The set is equipped with tubes and dials, the latter so large that a man can hardly span them. A loud speaker, with its bell so large that it contains a complete studio from which the programs of the exposition are broadcast.

C. C. Langevin, of the show committee, is the originator of the device.

A-1 CRYSTALS Get Distance

Why use tubes when I get KFSG, KFI, KHJ and KGW during summer using A-1 crystals? A-1—The Wonder Crystal—Works loud speaker. Ideal for reflex. Price 50 cents.

J. MIGUEL, 2140 Clinton Ave., Alameda, Calif. Phone Ala. 2304W.

AS USUAL SAN FRANCISCO KNOWS HOW



The public has approved the radio exposition in no uncertain terms. Words of approval are heard on every hand from the visitors to this exposition.

The radio exposition is an outstanding credit to San Francisco and the radio interests that made it possible. It is another forceful demonstration of the fact that "San Francisco Knows How."

Everyone should see this magnificent exposition.

ADMISSION TWENTY FIVE CENTS

Besides the regular afternoon and evening musical program consisting of vocal and instrumental selections, Mr. C. J. McDonald, Superintendent of Perishable Food for the Southern Pacific Company, will speak at 8:30 o'clock. These addresses will be heard through the Public Address System and broadcast over KPO. See this great exposition tonight.

A co-operative exposition under the auspices of
Pacific Radio Trade Association