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RADIO
MAGAZINE

The Daily News

EVERY
MONDAY

SAN FRANCISCO, MONDAY, JUNE 16, 1924

A. R. R. L. OFFERS U. S. RADIO AID

PAN-AMERICAN RADIO TESTS SUCCESSFUL

HARTFORD, Conn., June 16.—Radio signals, that cannot be heard in point to point communication in a section where there is a great deal of static, pass through the disturbed area with great ease and are picked up by outside stations without any trouble. Radio men, especially ship operators, have known this for many years. However, it has seldom been demonstrated on so large a scale as it was during the Pan American amateur radio tests of the American Radio Relay League and the Revista Telegrafica. While amateurs in North and South America could hear each other transmitting, operators in the Central American countries had great difficulty hearing either continent.

The mere question of distance is not as much of a handicap to amateurs operating on short wavelengths as static, the enemy of all kinds of radio communication. Probably Norman R. Woible of Collingswood, N. J., and Carlos Braggio of Bernal, Argentina, the amateurs, who first communicated between the two continents, heard one another with greater reliability over thousands of miles than the operators on two nearby ships in the Gulf of Mexico, where each letter often must be repeated many times. Meanwhile, both ship operators might be heard clearly on the Great Lakes.

During these Latin American amateur tests signals passed through the worst static belt in the world, apparently, without losing any of their strength or readability. Braggio's signals were heard equally well in North America, New Zealand and Europe. Nearly a dozen U. S. amateurs heard his call. The operator of Canadian station 1BQ reports reception of Braggio's signals, while the latter cabled that he had copied at least 50 calls of North American amateurs. From now on it is predicted South Americans will be active in international amateur radio.

Special Features On Air Tonight

An unusual educational program is offered by station KGO tonight. W. J. Marra will talk on "The Value of Business Letters." Professor Marra's address should be of particular value to those interested in better business letters.

In glancing over the week's program, several numbers vie for popular interest. Filipino music will be featured Thursday night, June 19, with solos rendered by B. R. Solis, Filipino pianist, assisted by a string quartette. Representing the Filipino Ass'n of San Francisco, of which he is president, Andrew Alamonte will deliver an address, "The Commercial Status of the Philippines."

Saturday evening, June 21, the first part of the KGO program will be given by the faculty of the Arrillaga Musical college, San Francisco.

Two interesting numbers will be offered by KPO tonight. Mrs. J. W. Wilson, Sydney, Australia, one of the few women justices of peace in the world, has been requested to deliver another of her interesting talks. She was complimented on her talk over the radio last week by Mayor Rolph, who said he would tune in on her address tonight. Mrs. Wilson will speak on "Australia," at 8 p. m.

VIOLIN VIRTUOSO



Miss Violet Silver, local violin teacher, who will entertain radio fans over station KPO tonight at 9 o'clock. Miss Silver, who has recently returned from the East, studied with Leopold Auer and Damrosch.

Church Has Problem

Attorney General Griffith of Kansas has the problem of deciding whether interference with radio sermons violates the state law against interference with religious worship. It was put up by the members of a little church at Norway, Kas., when sermons it received from Omaha were being interfered with by a closer station.

WAVELETS

Fifty-one Great Lakes ships are replacing their crystal receivers with tube sets.

Austria is forming a company for radio telephone service and broadcasting.

Moscow has three powerful broadcasting stations.

S. F. TO HOLD RADIO SHOW IN AUGUST

Eastern manufacturers of radio apparatus and radio dealers will travel to the second annual Pacific Radio Exposition to be held in the Civic Auditorium here Aug. 16 to 21, inclusive, on special "radio trains" according to A. S. Lindstrom, chairman of the executive committee in charge of the show.

The trains will be equipped with all the latest types of receiving apparatus, Lindstrom said, and it is planned to have different equipment in each car enabling the travelers to compare the performances of the various makes.

Plans for the exposition, which is being staged by the Pacific Radio Trade Ass'n, indicate that it will be the most elaborate of its kind ever held on the Pacific Coast. The main floor of the auditorium will be divided into 160 booths, separated by miniature radio towers from which will be strung decorated aeriols. Inverted loud speakers will hold flowers, further carrying out the radio plan of decoration.

According to Lindstrom, every national manufacturer of receiving apparatus will be represented and scores of dealers will have exhibits. More than 100,000 persons are expected to visit the show.

Other members of the executive committee are: P. L. Jensen, F. J. Cramm, H. W. Dickow and C. C. Langevin.

Club Radio Meet

Dallas, Tex., radio amateurs recently held their meeting by radio. Bad weather caused the amateurs to stay at home and still attend their regular meeting.

Operas Broadcast

Cincinnati will broadcast the operas and band concerts given at the zoo, through station WLW, every Monday evening. The weekly program will begin June 23.

U. S. RADIO NET FILLED BY 'HAMS'

WASHINGTON, June 16.—The United States has received an offer from the American Radio Relay League which may effect complete radio preparedness for the defense of the country.

By this offer every amateur in the league would be ready, with his short wave transmitting and receiving station, to help toward efficient communication anywhere and at any time. Co-operation of these amateurs would complete what is considered the most extensive army radio net in the world.

Even without the aid of the amateurs, Uncle Sam's radio net covers the country thoroughly. Their additional help means detailed control over all sections of the land.

The center of the radio net is Washington. From here major lines radiate to each of the nine army corps areas in the country. And each corps headquarters, in turn, controls a secondary net within its area.

All stations are conducted by radiophone, besides radio telegraph, except one.

These stations are kept in use even in time of peace, sending and relaying messages for the war department, the navy and the veterans' bureau. This not only keeps operators efficiently prepared at all times, but saves the government about \$120,000 a year in operating expenses.

Eagle Seeks Nest In Radio Antenna

Considerable excitement was caused at radio station WTAM of the Willard Storage Battery Co., Cleveland, O., recently when a large American eagle picked the station's antenna towers as a feeding place.

The bird had caught or stolen a large fish which was still alive as the eagle fed, and could be plainly seen from the ground as it flopped under its captor's talons.

A group of interested spectators watched the bird at its repast through the telescope of a surveyor's transit. The bird's visit lasted over half an hour. The station is located about five miles from the heart of the city and it is believed that this is the nearest an eagle has come to Cleveland for several years.

Test Radio for School

Now Oakland, Cal., is experimenting with radio for public school education. Following the experience of the New York schools, the Oakland school board has taken up lectures and other subjects through broadcasting station KGO.

IF WRONG, TRY AGAIN

BEFORE flinging the new receiver against the wall, try reversing connections.

Many a set can be made to work wonderfully by this simple method. Reverses the tickler or plate variometer in the regenerative set, and your difficulty may end.

The loop ends might be reversed to test for better reception in a set using this form of antenna.

And if a crystal is used, try changing the crystal or battery leads for better results.

It's all a matter of patient experimentation.

WHAT RADIO WAVES SAY

Whether they should install their own transformer, or use the set owned by station 6RY, was one of the problems discussed at the meeting of the San Francisco Radio Club Thursday night.

Chief Operator Wiley told the hams that Julius Brunton of the Brunton Co. was agreeable to their using 6RY's set, with certain provisions for members who use the apparatus. It was proposed that a log book be kept, each operator recording the time he opens the key and the time he signs off.

The S. F. R. C. extends an invitation to radio fans to visit them at their weekly meetings, which are held every Thursday night, at 8:15 p. m. The club, composed of amateur radio operators and broadcast listeners, hopes to organize a code class for radio fans, as soon as it becomes settled at the new headquarters.

6CHL, Arthur Martini, A. A. A. L., city manager, has been off the air for some time. This was quite a mystery to local hams, until they learned that Art is merely preparing for some real winter DX. Before 6CHL went off the air, he was using 100 watts, and getting 5½ to 6 amps. Art is quite proud of his ham station. He has been heard in

FANS LIKE NEW COLUMN

S. O. S.—Local hams swamped the Daily News radio department with doings in radioland last week. Broadcast listeners, get busy! Write in and tell us what stations you have heard, and what distances you receive. Write it short!

every state in the union. In place of his old rectifiers, he is using new synchronous rectifiers. Art reports that his twin cage is being raised, and he says that he expects to do a little Q. R. M. when he comes on the air again.

B. C. L., Sally B. writes in that she heard KFSG Angelus Temple, L. A. very clearly Friday night. She says that when it comes to delivering evangelistic talks, "Aimee McPherson has Billy Sunday beat a mile."

6CLS, J. I. Stevenson has decided there is no time more propitious than summer for doing DX. In the last few nights he has worked a number of 7s and a 9. 6CLS says that he gets good distance with his two new

five watters. He is reported Q. S. A.

6AWT may have a new rival in the air. 6BUF reports that he intends to come on the air soon with his 20 watt heap.

KPH and KFS have decided to use 5 watts for the benefit of the amateurs and B.C.L.'s. Who said HI?

6CMM, Dick Warner has established a record. He writes that his signals have been heard in every district except 1, 2 and 3. Dick swells out his chest when he speaks of all the friendly greetings he has received from hams, near and far.

The S. F. R. C. has admitted two new members into their fold. Brother Bud Messenell, 6AUN, and Brother Leslie B. Loomis, 6BL, are the new hams.

The Poly Radio Club announced that it blew out on all cylinders at its annual "blowout," last Friday night. Musical numbers and speeches were heard from Los Angeles and Portland on the club's superheterodyne.

Local hams will miss the calls of 6BDC, Wallace Schmidt, who died of heart disease last Monday night. The S. F. R. C. sent a message of condolence to his family.

THIS WEEK'S AIR PROGRAMS

Monday, June 16

KPO—Hale Bros., San Francisco

1 TO 2 P M—Rudy Selger's Fairmont Hotel Orchestra.
2:30 TO 3:30 P M—Piano solos, The Voice of Lir; Wind Sprite's Dance; Exultation; Henry Cowell, playing his own compositions.
Mezzo-soprano solos, Ave Maria; O Sole Mio; Josefina Cramis; Ruth Oskey, accompanist.
Recitations, selected; Katherine Carnes Page.
Piano solos, Romance; Etude; The Tides of Manana; Henny Cowell, playing his own compositions.
Mezzo-soprano solos, For All Eternity; Es War Ein Traum; Josefina Cramis; Ruth Oskey, accompanist.
Recitations, selected; Katherine Carnes Page.

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; The First Men in England; The Beloved Physician.
Piano solos, Caprice; Second Murka; Herald Kneeder, pupil of Helen Vallon.
6:30 TO 7:30 P M—Special program from Kiwanis Club dinner at Hotel Fairmont.
Soprano solos, Birth of Morn; There Is a Garden; I Love the Moon; Miriam B. Sellander; Mrs. P. H. Ward, accompanist.
Message from International president, Edward B. Arras.
Baritone solos, Mary, Kind and Gentle Is She; Little Mother of Mine; Charles E. Fisher.
Arthur H. Halloran, past president, will conclude the program with a short talk on the meaning of "All Kiwanis" night.

7 TO 7:30 P M—Rudy Selger's Fairmont Hotel Orchestra.
8 TO 9 P M—Talk, Col. Gillmore, "Down to Dusk Transcontinental Flight."
Organ recital by Theodore J. Irwin, official organist, at the Wurliitzer.
March, D Flat; overture, Light Cavalry; waltz, Wine, Women and Song; Symphony Pathétique, selections from First Movement; Barcarolle from "Tales of Hoffman"; gavotte, Dorothy (by request); Intermezzo No. 1 from "The Jewels of the Madonna" (by request); light opera selection, "The Count of Luxembourg"; song melody, Marcheta; fox trot, Why Did I Kiss That Girl?

Talk, "Australia," Mrs. J. A. Wilson, justice of peace of Sydney, Australia.
9 TO 10 P M—Piano solos, Valcek; Autumn; Helen Vallon.
Baritone solos, Ay, Ay, Ay (Argentina); Cancion Mexicana (Mexico); La Paloma Blanca (Mexico); Phileas Goulet.
Violin solos, Serenade; Oberliss "Mazurka"; Violet Silver, pupil of Leopold Auer; Mrs. J. F. Lewis, accompanist.
Piano solos, selected; Otto Cesana. Baritone solos, Berge Legere (old French); Nur wer die Sehnsucht kennt; Priere from "Le Cid"; Phileas Goulet.
Violin solos, Orientale; Violin Maker of Cremona; Violet Silver; Mrs. J. F. Lewis, accompanist.
Baritone solos, Tell Me Not of a Lovely Lass; Invictus; Good Night (Bohemian folk song); Phileas Goulet.
Piano solos, Rigaucon; Waltz in A Flat; Helen Vallon.
10 TO 11 P M—E. Max Bradfield's Band, playing in the Palace Hotel Rose Room Bowl.
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.
6:45 P M—Final reading, stock exchange and weather reports, and news items.
8 TO 10 P M—PART ONE

This part of the program is given by Henry Grobe, music dealer, Wiley B. Allen Co., San Francisco.
Instrumental selection, Serenade; Fred Dodge, saxophone; E. W. Metzger, banjo; Monte Bullock, drums; Ken Lewis, piano.
Soprano solos (a), To a Hilltop; (b), God Touched the Rose; Mrs. Arthur E. Hackett, Mrs. Henry Grobe, accompanist.
Saxophone solo, Look Down, Dear Eyes; Wylie Doran.
Orchestra selection, Medley.

PART TWO
Address, "The Constitution of the United States," Waldo F. Postel.
Instrumental selection, Stars and Stripes Forever; Arion Trio.
Contralto solo, If Happy Fortune; Virginia Treadwell.
Harmonica selection, Scotch airs; C. H. Lewis.
Mezzo-soprano solos (a), Ye Banks and Braes; (b), Annie Laurie; Martha Denham Macgregor; Verona Boyd Duncan, accompanist.
Instrumental selection, medley of Scotch airs; Arion Trio.
Piano solos (a), Scotch Poem; (b), Bridal Procession; Verona Boyd Duncan.
Soprano solos (a), My Ain Folk; (b), Within a Mile of Edinboro Toon; Nellie Clark.
Bagpipe selections (a), The 79th's Farewell to Gibraltar; (b), Cock of the North; Helen Denham Macgregor.
Mezzo-soprano solos (a), Coming Through the Rye; Martha Denham Macgregor; Verona Boyd Duncan, accompanist.
Bagpipe selections (a), Highland Laddie; (b), Strathspey; Helen Denham Macgregor.
Contralto solo, My Ain Country; Virginia Treadwell.
Cello solo, Flow Gently, Sweet Afton; Margaret Avery.
Soprano solo, Robin Adair; Nellie Clark.
Instrumental selection, Blue Bells of Scotland; Arion Trio.
10 P M TO 1 A M—Hotel St. Francis Dance Orchestra, San Francisco; Henry Halstead, leader.
KIX—Oakland Tribune (509 Meters)
7 TO 7:30 P M—News, weather and financial reports.
8 TO 9 P M—Program broadcast from University of California over private leased wires through KIX.
9 TO 10 P M—Studio program. Dance music.

DISTANT STATIONS

KFOA—Rhodes Co., Seattle, Wash. (455 Meters).
8:30 P M—Regular monthly program of the Pacific States Electric Company, presenting a varied program of dance music by Babb's E. B. Ladies' Orchestra.
KGW—Morning Oregonian, Portland, Ore.—(492 Meters)
11:30 A M—Weather forecast.
3:30 P M—Literary program by Portland Library Ass'n.
7:30 P M—Baseball scores, weather forecast and market reports.
8:10 P M—Program by Miller's Merry-makers.
KHJ—Los Angeles Times, Los Angeles (395 Meters)
12:30 TO 1:15 P M—Program presenting Carl Allen and his Rendezvous Ballroom Orchestra from the Crystal Pier. E. M. Bonnell, "Uncle Remus."

Tuesday, June 17

KPO—Hale Bros., San Francisco

12 NOON—Time signals.
1 TO 2 P M—Rudy Selger's Fairmont Hotel Orchestra.
2:30 TO 3:30 P M—Organ recital by Theodore J. Irwin; Fox trot, Don't Mind the Rain; Homestead Melodies; waltz, Extase; Irish Airs, selected; popular waltz melody, "Nightingale"; Flower Song; light opera selection, "Erminie"; fox trot, "Mr. Radio Man."
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; How the Children Saved the Bears; How Our Ancestors Traveled; Eyes Front.
6:30 TO 7:30 P M—Program by Walter King's Jazz Orchestra.
7 TO 7:30 P M—Rudy Selger's Fairmont Hotel Orchestra.
8 TO 9 P M—Piano solos by Lionel Hurst.
Mezzo-soprano solos, Stars with Little Golden Sandals; In the Time of Roses; Dorothy H. Gregory; Cecil Callison Leo, accompanist.
Tenor solos, I'll Forget You; Col-

SAVE THIS COMPLETE SCHEDULE

This is the only COMPLETE broadcasting program published by a California newspaper. Radio fans are urged to preserve this magazine for reference during the week. Its small page size makes The Daily News Radio Magazine a handy accessory to your receiving set. Phone the Circulation Department if you desire another copy. Tell your friends about it.

Wednesday, June 18

KPO—Hale Bros., San Francisco

1 TO 2 P M—Rudy Selger's Fairmont Hotel Orchestra.
2:30 TO 3:30 P M—The United Bank and Trust Co.'s Synco-Harmonists.
Oriental Love Dreams; Limehouse Blues; The One I Love Belongs to Somebody Else; Eccentric; Song of India; California, Here I Come; Why Did I Kiss That Girl; Unfortunate Blues; Nobody's Sweetheart; Home in Pasadena; After the Storm; Mandala.
Lyric soprano solos, I Hear You Calling Me; A Dream; To a Hilltop; Sara Albert; T. Eugene Goudey, accompanist.
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; The Story of the Horse; Jack's Wonderful Socks; The Tale of Jenny Martin. Songs by Dorothy Dooley (12 years old).
7 TO 7:30 P M—Rudy Selger's Fairmont Hotel Orchestra.
8 TO 11 P M—E. Max Bradfield's Versatile Band, playing in the Palace Hotel Rose Room Bowl. During the intermissions Marie Maraport, soprano, "Dixie Song Bird," will sing old negro melodies.
Contralto solos, I Don't Want You to Cry Over Me; Oriental Love Dreams; Rock-a-Bye My Baby Blues; I Cried for You (by request); Ruth Ahearn; Carl Lamont, 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.
6:45 P M—Final reading, stock exchange and weather reports, and news items.
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Instrumental selection, Serenade; Fred Dodge, saxophone; E. W. Metzger, banjo; Monte Bullock, drums; Ken Lewis, piano.
Soprano solos (a), To a Hilltop; (b), God Touched the Rose; Mrs. Arthur E. Hackett, Mrs. Henry Grobe, accompanist.
Saxophone solo, Look Down, Dear Eyes; Wylie Doran.
Orchestra selection, Medley.

PART TWO
Address, "The Constitution of the United States," Waldo F. Postel.
Instrumental selection, Stars and Stripes Forever; Arion Trio.
Contralto solo, If Happy Fortune; Virginia Treadwell.
Harmonica selection, Scotch airs; C. H. Lewis.
Mezzo-soprano solos (a), Ye Banks and Braes; (b), Annie Laurie; Martha Denham Macgregor; Verona Boyd Duncan, accompanist.
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Contralto solo, My Ain Country; Virginia Treadwell.
Cello solo, Flow Gently, Sweet Afton; Margaret Avery.
Soprano solo, Robin Adair; Nellie Clark.
Instrumental selection, Blue Bells of Scotland; Arion Trio.
10 P M TO 1 A M—Hotel St. Francis Dance Orchestra, San Francisco; Henry Halstead, leader.
KIX—Oakland Tribune (509 Meters)
7 TO 7:30 P M—News, weather and financial reports.
8 TO 9 P M—Program broadcast from University of California over private leased wires through KIX.
9 TO 10 P M—Studio program. Dance music.

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8:10 P M—Program by Miller's Merry-makers.
KHJ—Los Angeles Times, Los Angeles (395 Meters)
12:30 TO 1:15 P M—Program presenting Carl Allen and his Rendezvous Ballroom Orchestra from the Crystal Pier. E. M. Bonnell, "Uncle Remus."

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Instrumental selection, medley of Scotch airs; Arion Trio.
Piano solos (a), Scotch Poem; (b), Bridal Procession; Verona Boyd Duncan.
Soprano solos (a), My Ain Folk; (b), Within a Mile of Edinboro Toon; Nellie Clark.
Bagpipe selections (a), The 79th's Farewell to Gibraltar; (b), Cock of the North; Helen Denham Macgregor.
Mezzo-soprano solos (a), Coming Through the Rye; Martha Denham Macgregor; Verona Boyd Duncan, accompanist.
Bagpipe selections (a), Highland Laddie; (b), Strathspey; Helen Denham Macgregor.
Contralto solo, My Ain Country; Virginia Treadwell.
Cello solo, Flow Gently, Sweet Afton; Margaret Avery.
Soprano solo, Robin Adair; Nellie Clark.
Instrumental selection, Blue Bells of Scotland; Arion Trio.
10 P M TO 1 A M—Hotel St. Francis Dance Orchestra, San Francisco; Henry Halstead, leader.
KIX—Oakland Tribune (509 Meters)
7 TO 7:30 P M—News, weather and financial reports.
8 TO 9 P M—Program broadcast from University of California over private leased wires through KIX.
9 TO 10 P M—Studio program. Dance music.

DISTANT STATIONS
KFOA—Rhodes Co., Seattle, Wash. (455 Meters).
8:30 P M—Regular monthly program of the Pacific States Electric Company, presenting a varied program of dance music by Babb's E. B. Ladies' Orchestra.
KGW—Morning Oregonian, Portland, Ore.—(492 Meters)
11:30 A M—Weather forecast.
3:30 P M—Literary program by Portland Library Ass'n.
7:30 P M—Baseball scores, weather forecast and market reports.
8:10 P M—Program by Miller's Merry-makers.
KHJ—Los Angeles Times, Los Angeles (395 Meters)
12:30 TO 1:15 P M—Program presenting Carl Allen and his Rendezvous Ballroom Orchestra from the Crystal Pier. E. M. Bonnell, "Uncle Remus."

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.
6:45 P M—Final reading, stock exchange and weather reports, and news items.
8 TO 10 P M—PART ONE

This part of the program is given by Henry Grobe, music dealer, Wiley B. Allen Co., San Francisco.
Instrumental selection, Serenade; Fred Dodge, saxophone; E. W. Metzger, banjo; Monte Bullock, drums; Ken Lewis, piano.
Soprano solos (a), To a Hilltop; (b), God Touched the Rose; Mrs. Arthur E. Hackett, Mrs. Henry Grobe, accompanist.
Saxophone solo, Look Down, Dear Eyes; Wylie Doran.
Orchestra selection, Medley.

PART TWO
Address, "The Constitution of the United States," Waldo F. Postel.
Instrumental selection, Stars and Stripes Forever; Arion Trio.
Contralto solo, If Happy Fortune; Virginia Treadwell.
Harmonica selection, Scotch airs; C. H. Lewis.
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7:30 P M—Baseball scores, weather forecast and market reports.
8:10 P M—Program by Miller's Merry-makers.
KHJ—Los Angeles Times, Los Angeles (395 Meters)
12:30 TO 1:15 P M—Program presenting Carl Allen and his Rendezvous Ballroom Orchestra from the Crystal Pier. E. M. Bonnell, "Uncle Remus."

Ground; Sunset Club.
Vocal duets (a), Juanita; (b), The Sweetest Story Ever Told; Misses Dolly and Thelma Jones.
Vocal solos and chorus (a), Sweet Genevieve, James Gillich and Sunset Club; (b), When You and I Were Young; Ralph Sedwick and Sunset Club.
Marimba selections, Charles Birnbaum.
Solo, with violin obligato, Song, Smile Slumber; Ethlyn Hampel, vocal; Stephen Hampel, violin.
Pilgrim chorus from "Tannhauser," Sunset Club.
Violin solos (a), Meditation; (b), Rondo; Warren Brauer.
Good-Night quartet from "Martha," Mr. Sedwick, Miss Clevenger, Mr. Keefe and Sunset Club.
Organ recital by Clement Barker, broadcast direct from the American Theater over private leased wires through KIX.

DISTANT STATIONS
KFOA—Rhodes Co., Seattle, Wash. (455 Meters)
8:30 P M—Dance music by Earl Gerden's five-piece orchestra; also several vocal selections.
KGW—Morning Oregonian, Portland, Ore.—(492 Meters)
11:30 A M—Weather forecast.
3:30 P M—Talk by Jeanette P. Cramer, home economics editor of the Oregonian.
7:30 P M—Baseball scores, weather forecast and market reports.
8 P M—Old time music by Walkers Bros.' orchestra of Forest Grove, Ore.
10 P M—Dance music by George Olsen's Metropolitan orchestra of the Hotel Portland.

KHJ—Los Angeles Times, Los Angeles (395 Meters)
6 TO 6:30 P M—Art Hickman's Concert Orchestra from the Biltmore Hotel.
6:45 TO 7:30 P M—Children's program presenting Prof. Walter Sylvester Hertzog. Hatty Mueller, pianist-composer. Dick Winslow, juvenile reporter. Bedtime story by Uncle John.
8 TO 10 P M—Program arranged through the courtesy of Margaret Fern Melrose, soprano. Dr. Mars Baumgardt, lecturer.
10 TO 11 P M—Art Hickman's Dance Orchestra from the Biltmore Hotel.

Thursdays, June 19
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—Musical program.
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; When Betty Lost Her Way; The Peasant and the Three Robbers; What a Big Gun Can Do.
Piano solos, The Hunting Song; Hungarian; Charles Bell, 11 years old, pupil of Mischa Lhevinne.
7 TO 7:30 P M—Rudy Selger's Fairmont Hotel Orchestra.
8 TO 9 P M—Organ recital by Theodore J. Irwin; March, March of Victory; Valse Trieste; Serenade D'Armour; hymn tune, Ninety and Nine (by request); Symphonic Poem (Les Preludes) selected passages; song melody, La Golondrina; light opera selection, "Robin Hood"; Pastoral; Scarf Dance; fox trot, What Does the Pussy Cat Mean?
9 TO 10 P M—Baritone solos, Avant de quitter ces lieux (from "Faust"); The Blind Ploverman; On the Road to Mandalay; Norman Simon.
Piano solos, Valse Caprice; Gavotte; Etude Heroique; Elsa Naess.
Contralto solos, Mon Coeur S'ouvre a ta voix (from "Samson and Delilah"); Chanson Indoue; Mrs. Florence Meyers.
Baritone solos, Caro mio ben; I Hear a Thrush at Eve; For You

Alone; Byron Hahnemann.
Piano solos, Finnish folk song with variations; Invitation to the Dance; Elsa Naess.
Contralto solos, Bild der Nacht; Sapphische Ode; Standchen; Mrs. Florence Meyers.
Duets, Break Deviner Light; Sing Me to Sleep; Mrs. Florence Meyers and Norman Simon; Walter Frank Wenzel, accompanist.
10 TO 11 P M—E. Max Bradfield's Versatile Band.
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.
6:45 P M—Final reading, stock exchange and weather reports, and news items.
8 TO 10 P M—PART ONE

This part of the program is

TEXAS "HAMS" HOLD MEET OVER RADIO

DALLAS, Tex., June 16.—An experiment to determine whether it is possible to hold a club meeting by radio, with all members seated comfortable in their homes, has been tried out successfully by amateur radio fans in this vicinity. The meeting was called to order by the president, motions carried and all business transacted with as much ease as though the members were gathered in one room.

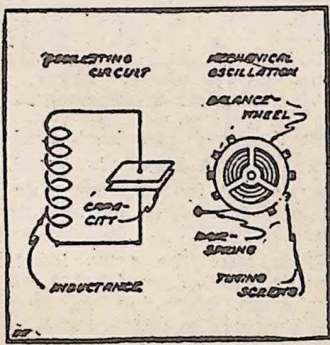
The idea was conceived by members of the West Gulf Amateur Fone Club, which organization was started recently by local representatives of the American Radio Relay League, the national association of radio telegraph amateurs. Practically all members have installed radio-phone transmitters in their homes. Due to bad weather the suggestion was made that the members hold their meeting "in the air." Notices were sent to all club members suggesting a wave length of 190 meters.

At the appointed time all members were at their seats when the president started up his radio-phone and called the meeting to order. The roll was called by the secretary and, as their names were spoken, the members picked up their microphones and answered "present."

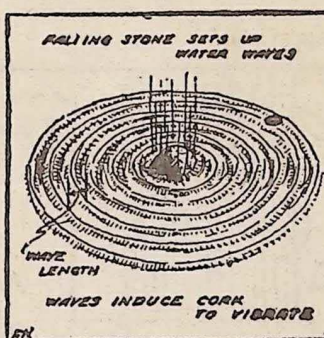
As each set had been carefully tuned in advance all members of the club heard everything that took place. Amateurs in nearby towns had been invited "to attend," and it was interesting to hear the voices of these out-of-town members since they seldom had the time and facilities to attend the regular meetings.

Although radio waves are invisible, they are not especially mysterious. You cannot see waves of sound, but you know they are vibrations of the air and that they spread out in all directions from the source of the sound. If you drop a stone into a quiet pool of water, a circle of waves will instantly start out, followed by other circles. A cork floating on the surface of the water will bob up and down over each wave as it passes. The waves will depend for their size and their distance from each other upon the size and weight of the stone.

A radio transmitting station creates a "splash" in very much the same way. Radio waves, however, are not vibrations of the air, since they pass through a vacuum and through substances like wood and stone very readily. Hence scientists have assumed the existence of another substance called "ether," whose particles are supposed to be so extremely small that they fill up the crevices or "chinks" in everything else, just as water



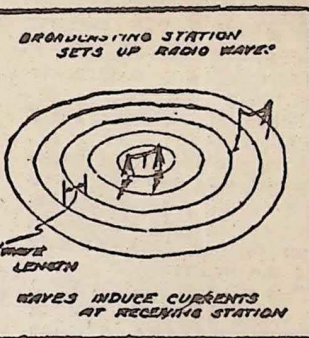
RADIO FROM THE GROUND UP



occupies all the extra space inside a sponge.

Long and Short Waves
The transmitting station may be likened to the big stone causing the splash in the water. The sending station causes the splash in the ether, and the waves which spread out cause electric current to flow up and down in radio receiving aerials which they pass. If the sending aerial has a large capacity and a large inductance, a longer period of time is required for the oscillating current to vibrate up and down along its wires, and for this reason the waves will leave the aerial at a greater distance apart. The length of the wave or "wavelength" is the distance from one wave to the next one, and it is mathematically convenient to state the length in meters.

Radio waves now in common use vary in length (distance apart) from 100 meters to about 15,000 meters. No doubt longer waves will be used some day, and waves upward of 1000 meters are used mainly by high



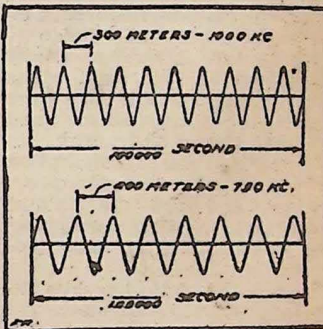
power and transoceanic stations, because a long wave is the natural result of the high and large aerial used for long distance and high power. Commercial business between ships and shore and naval communication are usually confined to the limits of 600 and 1000 meters and broadcasting stations are allotted waves between 220 and 550 meters. Since it is most convenient for amateur stations to employ small aerials, custom, and later government regulation has given wavelengths near 200 meters for private enterprise.

Frequency
The term "frequency" specifies the number of waves passing a given point in one second, and means just what it does in the case of 60-cycle lighting current—60 alternations or waves every half second, or 120 alternations per second. Radio waves travel at the rate of 300,000,000 meters per second, which is equivalent to 186,000 miles per second. Therefore a 400 meter wave has a frequency of 750,000 cycles (1,500,000 alter-

nations) per second. This is commonly referred to as 750 kilocycles. In the minute fraction of time of 1-100,000th of a second, just seven and a half waves would pass a given point. Now with a 300 meter wave the frequency is greater, since the waves are closer together (shorter) and the frequency is 1,000,000 cycles, or 1000 kilocycles. This means that just 10 of the 300 meter waves would pass the given point in the above-mentioned space of time.

It's like a line of soldiers passing a point in single file. If they are far apart they don't pass so frequently, but if they are close together they pass very often. Remember—a short wave means a high frequency while a long wave means a low frequency.

The frequency of the radio wave is determined by the capacity and inductance of the transmitting antenna and associated circuits. Considering the aerial as a tuned circuit we may represent it as a coil of wire—its inductance—shunted by a fixed condenser—its capacity (Concluded on Page 4, Column 5)



WEEK'S AIR PROGRAMS, CONTINUED

(Concluded From Page 2)

gram arranged through the courtesy of the Sherwood School of Music. Bedtime story by Uncle John. 8 TO 9:15 P M—Program presented through the courtesy of the Fitzgerald Music Co. 9:15 TO 10 P M—Program presenting Mackie's Red Moon Serenade. Stewart Watson, baritone.

Friday, June 20

KPO—Hale Bros., San Francisco (423 Meters)
12:45 P M—Talk broadcast from the Commonwealth Club luncheon at the Palace Hotel.
1 TO 2 P M—Rudy Seiger's Fairmont Hotel Orchestra.
2:30 TO 3:30 P M—Organ recital by Theodore J. Irwin: Fox trot, I Love You; waltz, The Bat; selection, old time popular melodies; serenade, Spring Morning; light opera selection, "Sally"; song melody, Song of India; song melody, Mighty Lak a Rose; Runesque; fox trot, Shine Away Your Blues.
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.
3 P M—Short musical program. A few moments with new books.
4 TO 5:30 P M—Concert Orchestra of the St. Francis Hotel, San Francisco.
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.
7 TO 7:30 P M—News, weather and financial reports.
8 TO 10:20 P M—Studio program. Program arranged and presented by the Magnavox Co. of Oakland. Katherine Petersen; Nadine Shepard, accompanist.
Piano solo, Kammenol Ostrow; Gerard Tallander.
Basso solo, La Partideo; Rodrigo Kern.
Address, "Summertime Reception," Herbert E. Matcalf of the Magnavox Co.
Vocal solo, Tes Yeux; Berthe Andre.
Vocal duet, Tutti le feste al templo (from "Rigoletto"); Rodrigo Kern, bass; Berthe Andre, soprano.
Piano solo, Scherzo in B Minor; Gerard Tallander.
Vocal solo, La Paloma; Rodrigo Kern, bass.
Violin solos, (a), Meditation; (b), Souvenir; Miss Alice Dolan.
Vocal duet, See the Pale Moon; Rodrigo Kern, bass; Berthe Andre, soprano.
Selections by the American Theater Orchestra, Owen Sweeten, director; broadcast direct from the theater over private leased wires through KLX.

Soprano solos (a), Flower Rain; (b), Indian Love Song; (c), French Bergerettes; Berthe Andre.
Piano solo, Norwegian Bridal Procession; Gerard Tallander.
Vocal solos (group two), Katherine Petersen; Nadine Shepard, accompanist.
Basso solo, El Pederoso, Rodrigo Kern.
Cornet solos (group one), Grace Helen East.
Soprano solo, Pace, Pace, mio Dio (from "La Forza del Destino").
Duet from "Chimes of Normandy," Rodrigo Kern, bass; Berthe Andre, soprano.
Cornet solos (group two), Grace Helen East.
Organ recital broadcast from American Theater over private leased

wires through KLX. Clement Barker, organist. Good Night.

DISTANT STATIONS

KFOA—Rhodes Co., Seattle, Wash. (455 Meters)
8:30 TO 9:30 P M—James Hamilton Howe, dean of American College of Music, presenting his monthly program; an operatic recital consisting of solos, duets and orchestra numbers.
KFSG—Angelo Temple, Los Angeles (278 Meters)
8 TO 9 P M—Crusaders' Chorus; address by Judge Carlos S. Hardy, justice superior court; Ada Lantz, soprano; evangelistic address by Almee Semple McPherson.
9 TO 10 P M—Gray Studio program, courtesy of Maude Reeves Barnard and pupils; the Angelus Temple Silver Band, Gladwyn N. Nichols, musical director.

KGW—Morning Oregonian, Portland, Ore. (492 Meters)
11:30 A M—Weather forecast.
3:30 P M—Lecture provided by Home Economics Extension Service, Oregon Agricultural college.
7:30 P M—Baseball scores, weather forecast and market reports.
10:30 P M—Hoot Owls.

KHJ—Los Angeles Times, Los Angeles (395 Meters)
6 TO 6:30 P M—Art Hickman's Concert Orchestra from the Biltmore Hotel.
6:45 TO 7:30 P M—Children's program presenting Prof. Walter Sylvester Hertzog. Weekly visit of Richard Headrick, screen juvenile.
8 TO 10 P M—San Pedro night, arranged through the courtesy of Mollie Chustas.
10 TO 11 P M—Art Hickman's Dance Orchestra from the Biltmore Hotel.

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Saturday, June 21

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

1 TO 2 P M—Rudy Seiger's Fairmont Hotel Orchestra.
2:30 TO 3:30 P M—Popular piano selections by David Zimet. Program by the steamship H. F. Alexander Orchestra.
3:30 TO 5:30 P M—Tera dantsat. E. Max Bradford's Versatile Band, playing in Palace Hotel Rose Room Bowl.
8 P M TO 12 M—Talk, "Bring a Friend to California," Mildred Pollock, playground commissioner of San Francisco. Dance music by Art Weidner's Orchestra, playing at the Fairmont Hotel. KPO Trio during intermissions.
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.
8 TO 10 P M—PART ONE

This part of the program given by members of the faculty of the Arrillaga Musical College (V. de Arrillaga director), San Francisco.
Piano solos (a), Graziela; (b), Alt Wein; Raymond White.
Soprano solos (a), Shadow Song (from "Dinorah"); (b), Sing, Smile, Slumber; Frances D. Woodbridge.
Piano solos (a), Prelude and Fugue in F Minor (Book Two); (b), Toccata; George Edwards.
Basso solos (a), Autumn Song; (b), The Shepherd of Watteau; Mynard S. Jones.
Piano solos (a), Valse in A Flat; (b), Waldesrauschen; Raymond White.
Soprano solos (a), There Are Fairies at the Bottom of Our Garden; (b), Berceuse from Jocelyn; Frances D. Woodbridge.
Melodist, The Dream of Wild Bees;

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.

Mynard S. Jones, accompanied by the composer.
Piano solo, Polonaise; George Edwards.
Reading, "Bradford, You're Fired," Guy B. Kibbee.

PART TWO

This part of the program is given by the Musical Art Society Male Quartet, assisted by Vern Kelsey, pianist.
Vocal selections (a), The Cossack; (b), Spring; Musical Art Society Male Quartet, Gwynfi Jones, first tenor; Lyman S. North, second tenor; Jack Edward Hillman, baritone; Richard Lundgren, bass.
Tenor solos (a), My Beloved Queen; (b), Somewhere a Voice Is Calling; Gwynfi Jones.
Basso solos (a), O Isis and Osiris (from "Magic Flute"); (b), To Scenes of Peace (from "Magic Flute"); Richard Lundgren.
Duet for tenor and baritone, In This Solemn Hour (from "The Force of Destiny"); Gwynfi Jones, Jack Edward Hillman.

Vocal selections (a), Cradle Song; (b), Siberia; Musical Art Society Male Quartet.
Tenor solos (a), Then You'll Remember Me (from "Bohemian Girl"); (b), Let Me Like a Soldier Fall (from "Marta"); Lyman North.
Duet for tenor and baritone, The Passage Birds' Farewell; Gwynfi Jones.

A-1 CRYSTALS GET DISTANCE IN SAN FRANCISCO

"Have only a small crystal set, but Sunday (also late last night, Wed.), I got Los Angeles clear enough to get the announcements and music."—S. W. R., 14th St.
"I pick up Los Angeles, KHJ and KFI." At 11 p. m., June 6, listened to jazz orchestra at KFI. It came in fine.—E. P., Madrid St.
A-1 SUPERSENSITIVE CRYSTALS
Sent postpaid, 50c each.
60c C. O. D.
California Radio Minerals
Harry Grant, Jr.
904 Oak Grove Ave.,
Burlingame, California

Jones, Jack Edward Hillman.
Vocal selection, Serenade; Musical Art Society Male Quartet.
10 P M TO 1 A M—Hotel St. Francis Dance Orchestra, San Francisco; Henry Halstead, leader.
KLX—Oakland Tribune (509 Meters)
3 TO 5 P M—Baseball.
7 TO 7:30 P M—News, weather and financial reports.

DISTANT STATIONS

KGW—Morning Oregonian, Portland, Ore. (492 Meters)
11:30 A M—Weather forecast.
3 P M—Children's program. Music by Katherine Doran, pupil of Mrs. T. J. Dorgan, pianist. Story by Aunt Nell.
10 P M—Baseball scores, weather forecast, and dance music by George Olsen's Metropolitan orchestra of Hotel Portland. (Two hours.)
KHJ—Los Angeles Times, Los Angeles (395 Meters)
6 TO 6:30 P M—Art Hickman's Concert Orchestra from the Biltmore Hotel.
6:45 TO 7:30 P M—Children's program presenting Prof. Walter Sylvester Hertzog. Helene Pirie, screen juvenile; Margaret Johnston, violinist. Thornton Ward, reader, 7 years old. Bedtime story by Uncle John.
8 TO 10 P M—Santa Ana program, presenting Ollima Matthews, violinist. Manuella Budrow, soprano. Caesar Cionfoni, trombone; Earl Frazer, pianist; Edward Burns, cellist.
10 TO 11 P M—Art Hickman's Dance Orchestra from the Biltmore Hotel.

Sunday, June 22

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

11 TO 12 A M—Organ prelude, Theo. J. Irwin. Prayers and sermon, Dr. H. H. Bell, executive secretary of San Francisco Church Federation, "The Mighty Challenge." Soloist, Mrs. Sydney Stoner, contralto.
3:30 TO 10 P M—Rudy Seiger's Fairmont Hotel Orchestra.
KGO—General Electric Co., Oakland (312 Meters)
11 A M TO 12 NOON—Non-sectarian church services, Tenth Avenue Baptist Church of Oakland. Rev. George W. Phillips, pastor. Musical selections.

RADIO SALE EVERY DAY

Used and new radio apparatus bought, sold and exchanged. Save yourself half. Receiving sets, all kinds, for less than price of parts. All guaranteed for one year.
RADIO ELECTRIC SUPPLY CO.
Phone Kearny 1519. 539 Call Bldg.

Radio Specials!

Never before at this price! Five-tube Neutrodyne Receiver, knockdown parts, No. 167A; regularly sells at \$65.60. Our price. \$49.75

Scientific Headset, 3000 ohms; fully guaranteed; world's greatest phone value. \$2.75

Brondes Loud Speaker; list price \$10.50; our price. \$7.20

Brondes Navy Type Headset; list price \$8.00; our price. \$5.85

Brondes Superior Headset; list price \$6.00; our price. \$4.10

Electric Soldering Iron; list price \$3.00; our price. \$1.75

Burgess B Battery, 45-volt; list price \$5; our price. \$3.15

Many other values at great savings. Call or write for our prices.

I. S. Cohen's Sons

1015 Market Street

Near 6th

Phone Market 9553

All Mail Orders Shipped Promptly

Save 50%

at least by making your own

7-tube Super Heterodyne

RADIO SET

We supply all the parts, also

a blue print and instruction

book which enables you to

build a perfect long distance

set. This work is interesting

and instructive. The services

of our radio expert free to all

of our customers.

P. A. Smith Co.

638 4th St.

Phone Sutter 4151

Ask for Radio Dept.

RADIO GREAT STIMULANT TO SAVING HABIT

Hurrah for the American boy! All the little Johnnies and wee Willies have a staunch champion in Conrad Richter, San Francisco pioneer radio dealer, who has weathered 20 years of catering to the wants of local radio bugs.

"Radio has made the boy fan economical," Richter declares. "Before the advent of the radio craze, the average boy would spend his money at the movies, shooting craps, or on sweetmeats. Nowadays little Johnny will take his own lunch to work, save his carfare money by walking, and take all the stray nickels Uncle Jim or daddy might give him to invest in radio equipment."

Not only is radio aiding in the educational development of the American boy, but it is playing a great part in building the morale of future American citizens, says Richter. Instead of spending his time loafing on street corners, or at the movies each night, the radio-boy fan is busy at home with the construction of his set, or receiving broadcast programs.

In this connection, Richter forecasts the American back-to-the-home movement. Radio is binding the American family more closely, he says. The American hearth will once more become an established fact, and the apartment fad, with its tendency towards disintegration of the family, will disappear. Mother, dad and the kiddies keep the home fires burning today by listening to radio programs.

"When the radio bug hits little Johnny," says Richter, "the youngster will come in with his savings and buy parts for a simple set. Then he will experiment, and, as usually happens with radio bugs, soon becomes dissatisfied with his small set. Of course, dad usually sees no reason why Willie can't be satisfied with a crystal set, until Willie builds a one or two tube set, and tunes in on distant programs. Then radioitis hits dad and mother, and when father starts buying radio parts, he doesn't know where to stop!"

Atlantic City on Air

Radio fans will enjoy the pleasures of Atlantic City through station WIP, Philadelphia. A remote control station on the steel pier will be connected by direct line wire with the broadcasting station at Philadelphia.

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—One new De Forrest tube and pair of Baldwin phones type "B," for a 23 or 43 plate condenser, and one vario-coupler 150-600 wave meters. Phone Market 690.

TO SWAP—A dandy crystal set, complete with headphones; almost new; in fine condition; gets all local stations. Phone Market 1412.

TO SWAP—One-loop aerial and a C-300 detector tube for radio apparatus. 415 Miguel-st. Phone Mission 3611, after 6:30 p.m.

TO SWAP—6-volt amplifying tube for set headphones; value \$3 to \$5. P. S. Jones, 1410 Milvia-st., Berkeley. Phone Berkeley 2274J.

TO SWAP—Two dandy crystal sets, in exchange for phonograph attachment or other parts. H. J. Pratt, 441 Fourth-av. Phone Bayview 7663.

TO SWAP—Columbia variometer, new, for phonograph loud speaker attachment or something of equal value. C. H. Gereke, 1000 Ashbury-st., apt. 3.

TO SWAP—Remler variometer for two 23-plate condensers. H. E. Geay, 2911 Shattuck-av., Berkeley.

TO SWAP—Two \$4 Feri variometers and a 1250-turn honeycomb for a complete variocoupler and 23-plate variable condenser. John Kriel, phone Valencia 2680.

TO SWAP—Four tubes, 199 or 201, for a good radio set. Joe Kabb, 164 East-st.

TO SWAP—Tungar 2½-amp. charger, brand new, for magnavox and pay difference for Tungar 5-amp. charger. Martyn, Valencia 1717.

THIS WON'T OSCILLATE!

BY ISRAEL KLEIN

NEA Service Radio Editor

A single circuit receiver that will not re-radiate?

Convert it into a three-circuit tuner. It's easy.

Sounds like a freak, but it isn't.

It's a good, workable single-tube set, with just as good results as the regenerating variety, yet keeping the circuit from feeding back directly into the antenna.

This effect is brought about by the simple expedient of disconnecting the antenna from the primary inductance and installing an intermediary inductance of about eight turns of bus bar.

Even where this is not used, however, extreme care in tuning could keep the tube from oscillating and prevent interference with surrounding sets.

The parts for this set include:

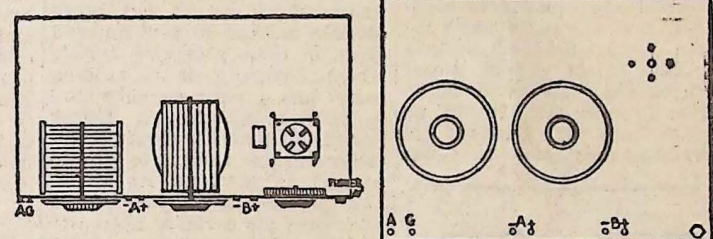
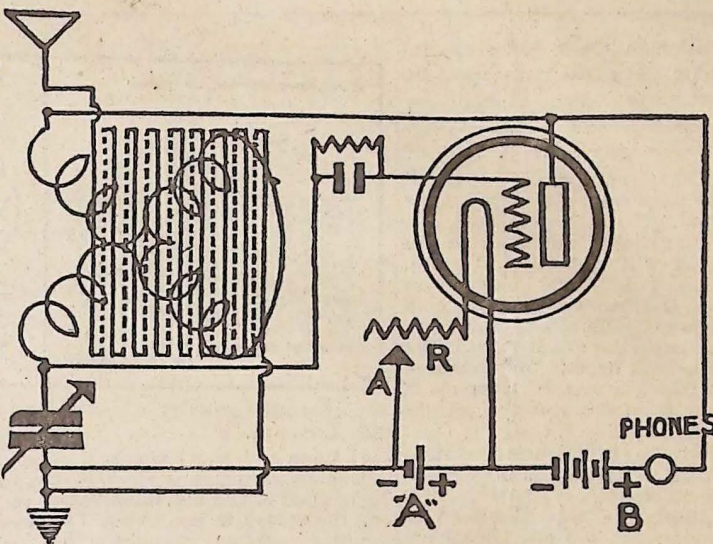
- 1 variometer
- 1 23-plate variable condenser
- 1 .00025 grid condenser and leak
- 1 vacuum tube socket
- 1 rheostat—6 ohms
- 1 panel, 7 by 11 inches
- 1 baseboard, 6 by 11 inches
- 23 feet bus bar
- 1 phone jack
- 6 binding posts.

Phones Only

This, besides the regular equipment of vacuum tube, dry and storage batteries and phones. Loud speaker cannot be used effectively with this circuit.

In winding the antenna inductance of bus wire, eight turns around and parallel to the primary, four on each side, would be sufficient to act as a virtual wave-trap against oscillation of the set. It also sharpens reception considerably.

The variometer can be of any



Hookup of non-oscillating "single circuit" set, above. Below, right, panel arrangement; left, top view of parts arrangement.

standard make, reception being dependent on a perfect instrument. A vernier on the variometer would help critical adjustment. A vernier adjusted rheostat also helps.

The B battery voltage is 22½. The tube may be a UV-200 or C300.

Operation

To operate the set: Insert the vacuum tube, connect the batteries and turn the rheostat until a hissing or frying noise is heard in the telephones.

Set the variometer at zero and

turn the condenser knob gradually until a signal is heard. Then adjust the variometer until maximum signal strength is obtained.

Even with the extra inductance coil, it is essential that the set be kept from howling. The coil prevents radiation, but it is not fool proof. If howling is heard, turn back the rheostat slightly, or readjust the variable condenser, until the noise dies out.

The best adjustment is just at the point before howling sets in.

HEISING SYSTEM EXPLAINED

BY ELWOOD H. FRAZER

The method of transmission described by Raymond Heising possesses three important features: First, the carrier wave is suppressed and is not radiated into the ether; second, the voice frequencies are concentrated upon one band instead of two, an upper and a lower, as obtains with present methods of modulation, and third, only a small fraction of the power required for carrier wave transmission is necessary to secure equal results with the new system.

Elimination of Squealing

The suppression of the carrier wave is of tremendous significance. This discovery applied to radio broadcasting, would eliminate 90 per cent of the squealing now encountered in broadcast reception. Squealing is caused by a heterodyne effect between the carrier of the broadcasting station to which you are listening and a continuous wave radiation from an oscillating receiver listening to that same station. Since there would be no carrier wave with the new system of transmission, there would be no heterodyning when a listener employs a radiating receiver. The only occasion for squeals would occur if two receivers were oscillating on practically the same wave length with an energy of the same order of magnitude at the observing point.

While the saving of transmitting energy is of some importance in broadcasting, it is of vital importance in bringing about the commercial application of transatlantic telephony, where large amounts of power are necessary. Only one-third the energy necessary for carrier transmission is needed for the single side band method.

So far as broadcasting is concerned, a valuable result of suppressing the carrier is the reduction of fading. An analysis of the results obtained in transatlantic tests shows that fading is reduced by perhaps two-thirds. This is an important step in securing service of a commercial standard.

Transmission on a single side band just doubles the number of stations which can operate over a given span of wave length without interference. The result is better broadcasting, less interference and more reliable long distance reception.

An essential feature of a receiver in order to pick up transmission is the use of a local oscillator which supplies the missing carrier wave for reception purposes. This oscillator must be accurate within 20 to 30 cycles, as compared with the carrier wave which is generated by the transmitter but suppressed before radiation takes place. If the local heterodyne in the receiver is not accurate the distortion is very

great. It is not, however, a serious disadvantage that a local oscillator of such accuracy is required, as a good home constructor can make one without much difficulty.

The Heising process is too technical to describe accurately here. Suffice it to say that an elaborate layout of filters is required. The first element of the transmitter is a low power oscillator which is modulated with the audio frequency current which it is desired to transmit. Steps are then taken to separate the upper and lower side bands and to blot out the upper side band by means of a filter. High power amplifiers bring up the remaining currents to an order of magnitude sufficient to transmit the desired distance.

Transatlantic Reception

In actual tests loud speaker reception is easily obtained on the other side of the Atlantic with sufficiently accurate reproduction that speakers may be identified by their voices.

Just how soon transatlantic radio telephony on a commercial scale will become a reality is dependent upon the amount of traffic which such a system would obtain from the public, for the expense of carrying on conversation over this distance is considerable. The number of wave lengths available for international use is somewhat limited, which reduces the number of international radio speech circuits which may be operated simultaneously. But, as in the case of long distance telephony, engineering genius will meet the requirements of the times.

Esperanto in Use

Esperanto, the "international language," has finally been put to practical use. The new broadcasting station in Czechoslovakia is broadcasting lectures in this tongue.

Any Set Cheaper?

Berlin residents can buy a midget radio set for \$1.75. The antenna can be placed in the owner's hat, so that the set can be carried anywhere.

DUO-LATERAL COIL IS MOST EFFICIENT

BY ARTHUR COOK

The honeycomb coil, otherwise known as the duo-lateral coil, is an ingeniously wound type of coil which makes a better appearance in the radio set than the usual sort.

In addition, the honeycomb coil has been designed to serve a certain purpose.

In the early days of radio, coils for the most part consisted of a number of turns of wire wound on a tube of insulating material, but it was found that the coil had a definite capacity which depended greatly on the material on which it was wound, the length of the tube on which it was wound and the relative position of one turn to the one following it.

Of the various types of these coils, the drum wound, and multi-bank wound coil was found to be most efficient.

Capacity

The length of the insulated tube on which the windings were wound was reduced, but the capacity between turns was still there, and the capacity of the coil was found to vary with this. The honeycomb coil has done away with much of this.

The honeycomb coil is wound on an insulated tube, three inches in diameter and one inch wide. The windings are spaced so that distance between each is the same, and are wound in a criss-cross manner.

These coils are made in sizes ranging from 25 to 1500 turns which makes it possible to reach a definite band of wave lengths with each coil. The manufacturers provide charts so the amateur may determine what wave lengths he can reach with one coil, shunted with a variable condenser.

Efficient

The honeycomb coil is provided with a plug arrangement so different sizes may be used, making the reaching of all wave lengths possible with one receiver by simply changing coils.

Two honeycomb coils make an efficient radio-frequency transformer, and a good coupler. A single coil may be used as a loop on a supersensitive receiver, such as the superheterodyne.

A later development in the honeycomb coil is known as the lattice-wound coil. The internal capacity of this coil has been further reduced. The windings of this coil cross those directly under them at right angles.

Radio From the Ground Up, Cont'd

(Concluded From Page 3)
(between earth and wires.) If the inductance is large and the condenser large the current will take more time for each oscillation, because more time is needed to traverse the wire and to charge up the large condenser. With a smaller coil and smaller condenser, the oscillations would be much more rapid, and as a result a shorter wavelength would be produced. Such an oscillating circuit is much like the balance wheel of your watch, which maintains a steady back and forth movement because of its weight and stabilizing action of the hairspring.

ANSWERS

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

Eugene Scandalara, 669A Minna-st., asks:

What time may amateurs use the air, and on what wave length?

The air may be used by amateurs any time, except from 8 to 10:30 p.m. week days and Sunday, and during Sunday church services. Amateurs may use any wave length up to 200 meters.

Subscriber asks:

Can I use two steps of audio amplification on a crystal set?

Yes. Disconnect headphones and connect the primary of the first audio transformer on crystal set where you would ordinarily put headphones.

Paris has decided to open a credit of 20,000 francs for the teaching of radio in its schools.

FOR ACCURATE NEWS

There is only one way to be certain of getting the best of the news of the radio world as it occurs daily. That is by having The Daily News sent to your home each afternoon. If you are not a regular subscriber, mail this coupon to the Circulation Department and receive The Daily News. The price is only 50c a month.

Name

Street and number.....

Send this coupon to The Daily News, 340 Ninth-st, San Francisco; or just telephone and say, "I want The Daily News."