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RADIO
MAGAZINE

The Daily News

EVERY
MONDAY

SAN FRANCISCO, MONDAY, MAY 12, 1924

SIMPLE RADIO SET WILL STAY

LANDLORD IS NEW FOE OF RADIO FANS

BY KENNETH WATSON
WASHINGTON, May 11.—Don't be surprised when you start to look for a new apartment if the landlord asks, "Have you a radio?"

It looks as if the radio will soon be in the same category with children and dogs as far as getting into some classes of apartments is concerned.

Newspapers in all sections of the country are starting to carry rent ads with the phrase, "No dogs or radios allowed."

Some landlords who have inserted such ads in newspapers here stated that they did not like their buildings marred by aereals. Others say that tenants not having radios kick on the noise.

It is an almost universal rule in apartment buildings throughout the nation that no victrola, piano or other music is permitted after 10 o'clock. Probably in a short time many landlords will be adding, "No loud speakers permitted after 10 o'clock."

Single Aerial To Serve Many

The coupling tube unit, perfected by Dr. A. H. Taylor and L. C. Young of the naval radio laboratories, permitting use of many sets on one aerial, will be given to the public as soon as patent papers are issued on it.

The device has been demonstrated on board the U. S. S. Colorado and showed that by placing one of the units between each receiver and a single antenna it was possible without interfering with others to receive signals over many different wave lengths at the same time.

Although the nature of the unit has not been made public, it is understood to consist of a resistance that is so high that it reduces the signal strength materially. The reduced signal strength requires at least a three or four-tube set for reception.

Radio frequency amplification in the form of regeneration eliminator is required to prevent interference between the several receivers.

Two stages of audio frequency and detector were used in addition in the experimental sets.

The new device will enable the traffic conducted by the navy to be increased and it is expected it will relieve the apartment house aerial situation by making it possible to use a single aerial for an entire building.

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—Columbia variometer, new, for phonograph loud speaker attachment, or something of equal value. C. H. GEREKE, 1000 Ashbury-st, Apt. 3.

TO SWAP—Willard rechargeable "A" battery for something of equal value. M. Finnegan, 120 Eugenia-st, San Francisco.

TO SWAP—Flewellling receiving set, mahogany cabinet. Fine for distance. For one r. c. loop or something of equal value. J. B. Vassallo, 676 Pennsylvania-av, San Francisco.

TO SWAP—Loose coupler crystal set, complete except for headphones; will exchange for other radio equipment. P. S. Jones, 1410 Milvia-st, Berkeley.

European amateurs are more successful in catching American stations than we are in hearing Europe.

ARMY NET



Capt. H. W. Webb

NEA Service

LEAVENWORTH, Kas., May 11.—An important mesh in the net of army communication over the United States has been completed here with the construction of one of the world's greatest radio stations.

It is known as WUD, is located at Fort Leavenworth and was built at a cost of \$300,000. Capt. H. W. Webb, army radio officer, was in charge.

The new station, says Webb, will be the central relay point between radio stations on both coasts and will serve the smaller stations in the sixth, seventh, eighth and ninth army corps headquarters at Chicago, Omaha, Fort Sam Houston and Fort Douglas, besides relaying messages from the Pacific to Washington.

A 10-kilowatt set, costing \$100,000, furnishes the base of the power. It is supplemented by a 5-kilowatt and a 150-watt tube set.

Sets Bootlegged In Poor Germany

Germany is having trials with another kind of bootlegging, radio being the attempted "prohibition" there.

Radio is not actually prohibited, but they are trying to collect a tax on all receiving sets and to forbid those who do not pay the tax from listening in.

Unfortunately for the government, there are as many clever amateur constructors as there are in other countries, so the police have their hands full. Enforcing of the tax is proving more costly than it would be to go without it.

The president of the Reich, however, has just issued a proclamation making the penalty for this illicit listening in both fine and imprisonment.

BROADCASTING REGULATIONS ARE CERTAIN

BY RUTH FINNEY

WASHINGTON, May 11.—Whether or not congress passes legislation regulating broadcasting, Secy. of Commerce Hoover will call a radio conference within the next few months.

Hoover has announced this, withholding the date only until it is definitely known what congress will do.

Unless broadcasters reach an agreement to prevent interference, the value of all receiving sets in the United States is menaced, he believes.

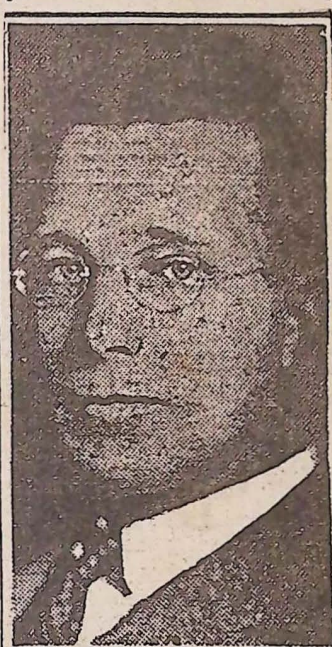
Practically all available wave lengths suitable for the average receiving set have been appropriated, yet requests for new broadcast permits are pouring in in increasingly large numbers.

In addition to the licensed sets, there are thousands of amateur broadcasters sending station to station calls.

There are now a total of 577 licensed broadcasting stations in the country. On Sept. 3, 1921, there were three.

At the request of Hoover, the United States census bureau is now making a radio census throughout the country.

LEADER



Prof. John H. Morecroft, who predicts survival of the simple receiver.

Connect your A battery first, keeping the B battery clear, to save your tubes.

DON'T THROW AWAY YOUR CRYSTAL SET

BY ISRAEL KLINE

NEW YORK, May 11.—Radio fans still dabbling with the simple one-tube receiving set need go no further.

Prof. John H. Morecroft, head of the department of electrical engineering at Columbia university, president of the Institute of Radio Engineers and pioneer in this science, gives them encouragement.

"Long distance reception is what every one is seeking just now," he says. "But that craze will soon die down. Broadcasting will resolve itself into more centralized control and local reception will be the final outcome."

Which means that the complicated "ultra-super-super" receiver is only a fad. Morecroft says so.

"Most of these new sets you read about today are only adaptations and complications of the three or four fundamental circuits in radio engineering," he points out. "Their only good is in the achievement of long distance reception, and in bringing out a far station through a loud speaker."

"But when broadcasting becomes localized, a small, simple one-tube set will be just as good, and much cheaper and easier to control."

Centralization Ahead

Morecroft is quite confident in his prediction of localized broadcasting. It will come about, he says, by a gradual diminution of the number of stations now broadcasting and centralization of those that remain.

"Then we shall have better broadcasting," he predicts. "The centralization of stations may ultimately mean government control, with one outstanding station sending out a program to all the others, from which local fans will receive them."

"Local receiving sets under such conditions need be constructed for reception of about 100 miles on the average. They can't help but make them simpler and cheaper, when the same programs will be sent out all over the country at the same time. There will be no more need for getting DX."

There's an opportunity for wired wireless, Morecroft adds. But it will be more limited than the localized form of broadcasting, he predicts.

"Wired radio probably is coming, but I can see only a limited use for it. Where there is an underground network of electric wires, as in New York, for instance, wired radio may be good for about a mile."

Part of Electrics

Morecroft is one of the few experimenters who does not patent his inventions.

"Whatever I learn and write about, I publish," he explains.

It's just one of the details of electrical engineering to him. As professor of electrical engineering at Columbia he can claim creation of most radio engineers of today. Many now scattered through various engineering laboratories were his students.

But fundamentally, he insists, they are electrical engineers specializing in radio. Which is the way he has of offering this advice to radio fans:

"Study the elements of electricity if you want to learn about radio."

Germans Bootlegging

Germany has her hands full with another kind of bootlegging—in radio. Since there is a tax on the use of receiving sets, the government has had trouble seeking out amateurs who build their own sets and keep it secret.

S. S. Leviathan Has Wonderful Outfit

The last word in radio efficiency is the apparatus recently installed on the giant ocean liner, the Leviathan, flagship of the United States lines, and largest vessel afloat.

From the time the Leviathan leaves her pier until her return, duplex watches are maintained at all times in the radio room to insure the reception and transmission of traffic without delay. This was made possible by

the installation of additional receiving equipment for tuning in stations on long and short waves simultaneously, combined with the ability to transmit and receive messages on different wave lengths at the same time.

For the entertainment of passengers, loud speaking apparatus can be connected with the ship radio station, and programs from radio stations on land reproduced.

Farallons Hear Pullman, Wash.

The Farallon Islands may be beyond the pale of civilization, but the inhabitants of the lonely isle should worry. Radio has brought them in touch with all the world. Recently the superintendent of the lighthouse wrote to station KFAE, at the Washington State College, Pullman, Wash., saying that the program came in so loud, signals were heard all over the room with the aid of a detector and one step.

All government hospitals will be equipped with radio receiving sets.

4,000,000 on Coast

The Pacific Coast has 4,000,000 radio fans, estimates Col. J. F. Dillon, radio supervisor for this district. California alone, he says, has more than 500,000 sets, and with three to a set figuring conservatively, he points to 1,500,000 listeners in our state alone.

Lepers Enjoy Radio

Station KDKA, Pittsburg, reports it penetrates even to the leper colony on the island of Molokai, Hawaii. Two radio receivers have been installed in the colony, and the first time they were put into use, KFKX, Hastings, Neb., was heard repeating KDKA'S program.

HOW CRYSTAL RECORDS OCCUR

BY ARTHUR COOK

Reception over distances of 1000 miles are possible, theoretically, with the crystal detector as they were in the old days when transmitting stations used high frequency spark signals.

Congestion in the city districts, however, has limited the crystal sets used there to 25-miles reception radius.

The use of the vacuum tube has caused much trouble, not only with crystal sets, but with other vacuum tube sets. Power lines in the city are another source of interference. Amateur transmitter form another. When

we consider all these, it may plainly be seen why the crystal has no chance in a city.

In the Country

In the country, where the above conditions do not exist, long distant records have been established. Some of these are radiated signals, but in the majority of cases they are genuine.

Another factor involved in long distance reception on crystal sets is the tendency of voice signals to vary in intensity and frequency. Spark signals, on the contrary, cause a sharp staccato note to be heard in the phones, which may vary in intensity, but does not vary in frequency. These were more easily detected by the human ear than

signals which vary in frequency.

On Ships

This accounts for crystal reception on ships, which in many cases have been able to receive over distances exceeding 1500 miles.

If you live in a sparsely populated district, where few vacuum tube receivers are operated, and you receive over distances of 500 to 800 miles on a crystal set, you are in all probabilities receiving them direct.

Such performance, however, cannot be guaranteed for all sets as they vary in efficiency of construction.

Most long distance crystal reception records are made in sparsely settled districts.

THIS WEEK'S AIR PROGRAMS

Monday, May 12

KFO—Hale Bros., S. F. (423 Meters)
12 NOON—Time signals from naval observatory; reading of the Scripture.

1 TO 2 P M—Rudy Selger's Fairmont Hotel Orchestra.
2:30 TO 3:30 P M—Matinee of Russian music.

Baritone solos by Paul Alexandroff Gray, member of Petrograd Grand Opera Co.; Theodore J. Irwin, accompanist.

Piano solos: Eugen Onegin, Thou Art the Peace of My Soul, Mischa Lhevinne; Staccato Etude, C Major, Mischa Lhevinne.

Soprano solos: The Poddler (Russian folk song); Baykovskaya Vay (The Pilgrim's Song); No Bye Myne Drug (Ebb and Flood); Pearl Hosack Whitcomb, singing in Russian; Irene Miller, 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 KFO, taken from the Book of Knowledge; The Magic Box; answers to children's questions; The Brave Little Dog of the Woods.

Piano solos: Allegro; Fairy Footsteps; Myrtle Harriet Jacobs, 12-year-old pupil of Joseph George Jacobson.

6:30 TO 7:30 P M—Program by Cleveland Six Orchestra of the Chandler-Cleveland Motor Co., under direction of Wilt Gunzendorf.

Worried; Hoodoo Man; The West, a Nest and You; Mighty Like a Rose; Rollin' O'Farrell.

7:30 TO 8:30 P M—Rudy Selger's Fairmont Hotel Orchestra.

8 P M—John B. McGroarty, author of the Mission Play, will talk from KFO.

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

March, Semper Fidelis; prelude, Tristan and Isolde. Three musical themes will be played in co-operation with music memory contest.

Arietta di Balletto; Serenata—Hastias Manana; exercise selection from La Tosca; Valse Triste; Morning, from Peer Gynt Suite; musical comedy selection from "Sally"; song melody, The Temple Bells are Ringing.

Soprano solos: Ave Maria; Cradle Song 1915; Solveys Song (in English); Mrs. Raymond Marshall, lyric soprano; Theodore J. Irwin, organ accompanist.

Soprano solos: O Mio Babbino Caro; Songs My Mother Taught Me; You'd Better Ask Me; Last Rose of Summer, Mrs. Raymond Marshall, lyric soprano; Theodore J. Irwin, organ accompanist.

9 TO 10 P M—Program by San Francisco Conservatory of Music: Lecture, "Mendelssohn and Schumann," by Ada Clement.

Children's hour, Lady Bird; Doris Weinstrom.

Piano selection, From Scenes of Childhood; Ruth Cook.

Vocal duets, Oh, Wert Thou in the Cauld Blast; Greeting; Rose and Lita Coghlan.

Piano, On Wings of Song; Elizabeth McCoy.

Songs, Hail the Noblest; Snow Bells; Margaret Hogan.

Piano, Rondo Capriccioso; Herbert Jaffe.

Song, On Wings of Song; Irene Roberts.

Piano, Evening; Irene Manning.

Songs, The Two Grenadiers; Andrew Robertson.

10 TO 11 P M—E. Max Bradford's Versatile Band, playing in Rose Room Bowl of Palace Hotel.

KGO—Gen. 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. Address on subject relative to Parent-Teacher Ass'n activities. Speaker to be announced later.

4 TO 5:30 P M—St. Francis Hotel dance orchestra, San Francisco; Henry Halstead, leader.

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

8 P M—Educational program, with musical numbers. Courses in agriculture, Spanish, music, economics and literature.

KLN—Oakland Tribune (509 Meters)

7 TO 7:30 P M—News items, United States weather bureau bulletin, market and financial news.

8 TO 9 P M—Educational program broadcast from Stephens Union Hall, University of California, at Berkeley, over private leased wire through KLN.

9 TO 10 P M—Studio program by the Rogers Orchestra.

Tuesday, May 13

KFO—Hale Bros., S. F. (423 Meters)
12 NOON—Time signals from naval observatory; reading of the Scripture.

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

2:30 TO 3:30 P M—Matinee of Welsh music.

Contralto solos, Mam al ba ban (The Mother and Babe); Ar hyd y nos (All Through the Night); Mrs. Gwyn Jones Tebbutt.

Lyric tenor solos, O-na-bydda in half ar hyd o than Summer Smiled for Aye); Yr hen Garder (The Old Minstrel); Theodore J. Phillips.

Contralto solo, Y doryn pur (The Bells of Aberdovey); Mrs. Gwyn Jones Tebbutt.

Lyric tenor solo, Y Golomen Wen

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.

(The Spotless Dove); Theodore J. Phillips.

Contralto and tenor duet, Hen wlad fy Nhadau, Mrs. Gwyn Jones Tebbutt, Theodore J. Phillips.

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

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KLN—Oakland Tribune (509 Meters)

7 TO 7:30 P M—News items, United States weather bureau bulletin, market and financial news.

8 TO 9 P M—Educational program broadcast from Stephens Union Hall, University of California, at Berkeley, over private leased wire through KLN.

9 TO 10 P M—Studio program by the Rogers Orchestra.

HERE, YOU RADIO FANS!

Our Washington Bureau has prepared another bulletin especially for you. It gives a complete up-to-date revised list of all broadcasting stations in the United States and Canada, giving the stations alphabetically by call letter, the owner, location and wave length.

This bulletin is separate from another, which tells where and how to get any information you may want about radio. This second booklet contains also a map of radio districts, the international Morse code and other valuable information.

If you want one or both of these bulletins, fill out the coupon below. If you send for only one, enclose five cents in postage stamps; if you want both, send eight cents in stamps.

CLIP COUPON HERE

RADIO EDITOR, Washington Bureau, San Francisco Daily News,
1222 New York-av., Washington, D. C.
Send me the bulletin (or bulletins) I have checked below, for which I enclose cents in loose postage stamps.
(Send 5 cents for one bulletin; 8 cents for the two.)

[] RADIO BROADCASTING STATIONS.

[] SOURCES OF RADIO INFORMATION.

NAME

STREET AND NUMBER

CITY STATE

WRITE PLAINLY—USE PENCIL, NOT INK.

Send to Washington, D. C.

Marchen No. 8; Arion Trio.

The living hall of the Baxter home.
Noon, on a June day.
Cello solo, Lamento; Margaret Avery.

Act II
Same as Act I, evening. About two weeks later.

Instrumental selections, (a) Serenade; (b) Raindrop Prelude; Arion Trio.

Act III
The hall in the Baxter home.
An evening in August.

Piano solo, Witcher's Dance; Joyce Holloway Barthelme.

Act IV
The Parcher home. The party is in full swing.

Instrumental selection, selections from "Faust"; Arion Trio.

KLN—Oakland Tribune (509 Meters)

3 TO 5 P M—Baseball scores, all leagues.

7 TO 7:30 P M—News items, United States weather bureau bulletin, market and financial news.

DISTANT STATIONS

KHJ—L. A. Times (395 Meters)

7 TO 7:30 P M—Children's program, presenting the Sandman and Queen Titania; Margaret Lawrence, singer, 10 years of age; Margaret Binford, pianist, 10 years of age; pupil of Grace Dixon; Pauline Bolt, reader, 11 years of age; bedtime story by "Uncle John."

8 TO 10 P M—Program arranged by Florance Thompson, soprano.

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

KGW—Oregonian, Portland, (492 Meters)

7:30 P M—Baseball scores, weather forecast and market reports.

7:45 P M—Talk for farmers, Oregon Agricultural College extension service.

CFAC—Calgary, Canada, Herald (430 Meters)

6:45 TO 7:45 P M—Red Cross talk and musical selections.

WBAP—Fort Worth Star-Telegram (476 Meters)

7:20 TO 8:30 P M—Concert by Leah and Rachael Parker, Greenville, Tex. (E. L. O. announcing.)

9:30 TO 10:45 P M—Concert presented by the Fort Worth Trades Assembly, H. D. Graham, director; orchestra and solo numbers. (G. C. A. announcing.)

KJS—Bible Institute, Los Angeles (360 Meters)

8 TO 9 P M—Courtesy of Dr. G. G. Bunnell, assisted by Madeline Royle, pianist; Victoria Percival, flutist; Virginia Kendrick, readings; Eddie Abdo, tenor; Della Mae Bunnell and Madeline Royle, accompanists.

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

6:45 TO 7:30 P M—Vocal concert.

8 TO 9 P M—Ambassador-Max Fischer's Coconut Grove Orchestra.

9 TO 10 P M—Examiner concert.

10 TO 11 P M—Don Meany night.

Wednesday, May 14

KFO—Hale Bros., S. F. (423 Meters)
12 NOON—Time signals from naval observatory; reading of the Scripture.

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

2:30 TO 3:30 P M—Organ recital by Theodore J. Irwin, official organist, at the Wurflitzer.

Fox trot, Lazy Daisies Grow; Suite; light opera selection, Queen's Late Handkerchief; waltz song, When Lights Are Low; old time popular song favorites; Melody; fox trot, Oriental Love Dreams.

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 KFO, taken from the Book of Knowledge; Funny Things Alive; The Rat, Bat and Lobster School.

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

8 TO 11 P M—Talk on Music Week by Father Ralph Hunt, director of parochial schools.

E. Max Bradford's Versatile Band playing in Palace Hotel Rose Room Bowl.

During the intermissions:
Violin solos, Caprice Viennois; Be-Have Me If All These Endearing

Young Champs; Zephyr; Claude M. Sweeten, violinist and conductor at Golden Gate Theater; William Keyt, accompanist.

Tenor solos, The West, a Nest and You; I Don't Want You to Cry Over Me; Rock-a-Bye Baby Blues; Harvey Orr.

Piano solos, Hoodoo Man; Carl Lamont.

Tenor solos, My Dear; Oriental Love Dreams; When Honey Sings an Old-Time Song; Harvey Orr.

Pianologue, Hot Time (by request); Carl Lamont.

KGO—Gen. 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. Address by speaker from the Cora L. Williams Institute for Creative Education.

4 TO 5:30 P M—Concert orchestra of the St. Francis Hotel, San Francisco, Permin Cardona conducting.

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

KLN—Oakland Tribune (509 Meters)

3 TO 5 P M—Baseball score, all leagues.

7 TO 7:30 P M—News items, United States weather bureau bulletin, market and financial news.

8 TO 10 P M—Studio program:

Vocal solos, Dawn; Hayfields and Butterflies; Lillian Klein.

Piano solo, Group 1; Nadine Shepherd.

Vocal solos, O Mio Babbino Caro; Good Morning, Brother Sunshine; Because I Love; Lillian Klein.

Piano solos, Group 2; Nadine Shepherd.

Vocal duet, Topsy and Eva (with solos); Dorothy Burke and Adele Leahy.

Vocal selections: March of the Men of Minstrel; Minstrel Boy; McKenzie Glee Club, Bernadette Prochetta, soloist.

Duet, Nightingale's Song; Anne Healy and Ethel Loker.

Overture by American Theater orchestra, Owen Sweeten, director. Broadcast direct from theater over private leased wires.

Vocal solo, Sea King; Frank B. Austin.

Vocal solo, One Fine Day (from "Mme. Butterfly"); Ruth McKenzie Wilbur.

Vocal selections, Open the Window; Kentucky Babe; La Paloma; Ladies' Quartet, Emma Kline, Catherine Lucas, Anna Davis and Jessie Goldstein.

Vocal solo, Di Provenza (from "Traviata"); Edwin Kern.

Orchestra music.

10:10 TO 10:30 P M—Organ recital by Clement, playing on American Theater organ. Broadcast through KLN over private leased wires.

DISTANT STATIONS

KHJ—L. A. Times (395 Meters)

6:30 TO 7 P M—Music memory contest through the courtesy of Fitzgerald Music Co., presenting Raymond Harmon, tenor.

7 TO 7:30 P M—Children's program, presenting Margaret and Eleanor Millington, child harpists; Mary B. De Witt, story teller; Dick Winslow, juvenile reporter; Catherine Craig, reader, 15 years of age; Elizabeth Carroll Swan, soprano.

8 TO 9 P M—Program arranged by Leslie Brigham, bass.

9 TO 10 P M—Program presenting the Studebaker Radio Orchestra, through the courtesy of Glenn Thomas Co. Long Beach; Dr. Mars Baumgardt, lecturer.

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

KGW—Oregonian, Portland, (492 Meters)

8 P M—Concert by Orpheus Male Chorus.

9 P M—Alexander Hamilton Institute Business Talk by James Albert.

10 P M—Dance music by George Olsen's Metropolitan Orchestra of the Hotel Portland. Intermission selections by Sorosis Quartet.

CFAC—Calgary, Canada, Herald (430 Meters)

6:45 TO 7:45 P M—Mrs. Frank J. Barker, Mary Barker, Mrs. George French and Mr. George French.

WBAP—Fort Worth Star-Telegram (476 Meters)

7:30 TO 8:30 P M—Concert by the Fort Worth Camp Fire Girls, Mrs. L. Walker, director. (E. L. O. announcing.)

9:30 TO 10:45 P M—Concert by Dick Gaines and his orchestra. (The Hired Hand announcing.)

KFAE—Washington State College (330 Meters)

8:30 TO 9:30 P M—Practical talk on Copper and Lead, Hugh M. Henton; readings, Bernice Witt, Spokane; concert by Mu Phi Epsilon, women's musical honor society; Diet for the Rural Home, Lella Hunt; Home Conveniences and Sanitation, A. B. Crane.

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

6:45 TO 7:30 P M—Nick Harris detective stories and concert.

8 TO 9 P M—Evening Herald concert.

9 TO 10 P M—Examiner concert.

10 TO 11 P M—Hollywoodland Community Orchestra.

11 TO 12 P M—Ambassador-Max Fischer's Coconut Grove Orchestra.

Thursday, May 15

KFO—Hale Bros., S. F. (423 Meters)
12 NOON—Time signals from naval observatory; reading of the Scripture.

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

2:30 TO 3:30 P M—Matinee of French music.

Apres un Reve, Mrs. Constance Hazi Wylie, pupil of Mme. J. G. Ferrier.

La Marseillaise, Andre Ferrier; M. I. Myers at the piano.

Tenor solos, Jal Fleure en Rose; O Paradis, from "L'Africain"; O Solo Mio; Odeale; Frank Terramont; Theodore J. Irwin, 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 KFO, taken from the Book of Knowledge; A Tale of Many Lands; The Sad Heart of Little Trott; answers to children's questions; Antonio's Wonderful Lion.

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

8 TO 9 P M—Talk on Music Week by J. M. Gwinn, superintendent of public schools.

Organ recital by Theodore J. Irwin, official organist, at the Wurflitzer.

March Slav; The Swan; preludes to third act of "Lohengrin"; song melody, Land of Sky Blue Water; First Movement, Fifth Symphony; Melodias; Il Ruscignuolo (May in Tuscany); light opera selection, Gypsy Love; Little Bird; Dance of Elvira.

Through the courtesy of Pearl Hosack Whitcomb, Mrs. Uliani Robertson, son of Honolulu will favor with some selections. Mrs. Robertson is on her way to New York for her third year of study with Mme. Sembrich.

Soprano solos, Schubert Serenade (with obligato); Song of the Opera; Mrs. Uliani Robertson; Theodore J. Irwin, accompanist.

Soprano solos, Pua Moh

The Radio Column

BY CARLTON E. BUTLER

Radio Engineer

(Continued from Saturday.)

In reviewing a hypothetical and true-to-life scene Saturday we left you tuning in and having the whistle of a reradiating set spoil your program.

You will try to bring in the station clear again. This will change the tuning of the other receiver slightly, and he will again endeavor to tune in on beat note reception, or in the valley between the two whistles.

He will grasp his condenser dials and turn up the filament rheostat on his detector tube a bit higher. When he does this you are in for a series of noises ranging from low musical whistles to a shriek.

If he is particularly selfish and thoughtless he will often take intense delight in twisting his tickler dial back and forth, in the hope that his effort will persuade you to leave him alone and hunt another station. He may vary the procedure by touching his grid leak with his finger and releasing it.

This little show happens nightly, but multiplied by a hundred regenerative receivers in the place of just one, as I have illustrated.

Tomorrow I will show a two-tube receiver, one stage of radio frequency and a detector that will not cause interference. Build it.

(Copyright, 1924, by the S. R. L. Technical Syndicate.)

RADIO FROM THE GROUND UP

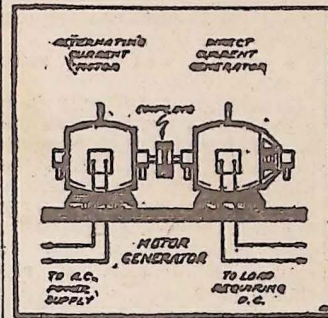
In the alternating current generator or alternator we have seen how the current generated changes its direction of flow every time the revolving coil of wire comes alongside the next magnetic pole. In order to carry the mechanical generation of electric current a step further and to produce current traveling always in the same direction, some means must be provided for reversing the direction of current flow just as the moving coil comes next to a magnet of different polarity.

The simplest method was found to be that of exchanging the outgoing power wires and connecting each to the generating wire to which the other had previously been making contact. The sketch shows how this is done in a simple direct current generator. Instead of employing the two "slip rings," or collector rings, as we did for the alternator, we now use what is termed a commutator. The word is derived from a root meaning "substitution." The two parts, or "segments," of the commutator are really two halves of a copper ring, not making electrical contact with each other.

One end of the generating coil is connected to one of the segments of the commutator and the other end to the other segment. Light, pliable fingers, called "brushes," rest against the segments—one on each,

and it is through these that the current is brought out. Just as the generating coil changes to magnets of opposite polarity, the brushes, too, change over to the other segments, and, although the current inside the dynamo actually does reverse, the changed commutator connections keep it flowing in the same direction outside.

The simple generator illustrated could not deliver very much current because the voltage generated by the rotation of a single loop of wire would be quite small. Hence, in commercial dynamos many loops of wire are used, and for every loop of wire there must be two segments on the commutator. This means that a more steady flow of current can be obtained, that the



voltage will be much greater, and that a much stronger flow of current can be secured.

The "curve" for the generated voltage of the alternator, you will remember, started above the zero line and then went below it as the polarity was reversed.

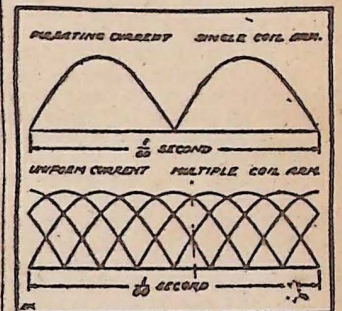
The curve for the direct current machine is similar as far as its general shape is concerned, but instead of going below the zero line it rises above the line the second time. This is due to the fact that the current does not change its direction, but is made up of a series of pulsations—all in the same direction. The height of the curve is attained when the voltage is greatest and when the loop of the wire is just passing the magnetic pole.

The "armature" or loop of the single turn dynamo would have to turn at the terrific rate of 60 revolutions per second to generate 60 direct current pulses per second, and in that way to make the current seem more or less steady. However, regular direct current generators use so many loops of wire and so many commutator segments that a steady flow of current can be obtained with much slower rotation. Since the brushes strike the segments of such a dynamo very closely together, the curves representing the pulsations from such a machine fall very close. The resulting current is thus very smooth. If it were not so, electric lamps lighted by direct current supply lines would flicker very noticeably.

Most suburban sections of this country are supplied with alternating current—"A. C." because that form of current travels more efficiently over long distances than direct current; "D. C." is more efficient once it gets to the place of use, however, and for that reason the central portions of large cities

are supplied with direct current.

For charging storage batteries a vibrating rectifier is commonly used, and the contacts of this device serve much the same purpose as the segments of the simple commutator. Where a large amount of current is necessary, as in a battery-charging station, where a great many storage batteries are charged together, a more powerful method of recti-



tying the A. C. to D. C. must be adopted. Here the so-called "rotary converter" is useful. This consists of an alternating current motor coupled to a direct current generator. The A. C. power supply is connected to the A. C. motor, which, in turn, operates the D. C. generator, and supplies, in that way, a large amount of current, depending upon the dimensions of the two machines. The use of two machines in this way is very common and represents a highly efficient method of changing A. C. to D. C., or vice versa. The device is often referred to as a "motor generator."

WEEK'S AIR PROGRAMS, CONTINUED

(Continued on Page 3, Column 1)

Piano solo, The Island Spell; Merrianna Towler.

Male quartet selection, I've Gwine Back to Dixie; The Sunset Four, J. W. Matthews, first tenor; C. W. Davis, second tenor; F. Griffith, baritone; Willard Zimmerman, bass; Flora Wilson Zimmerman, accompanist.

Flute solos, (a) Ilzento; (b) Nocturne; Rex M. Hamlin; Doris Osborne, accompanist.

Piano solos, (a) Tenth Rhapsody; (b) Liebestraume; Frank Svenson.

Tenor solos, (a) Elegie; (b) The Last Chord; Homer Henly.

Instrumental selections, (a) Nocturne; (b) Serenade; Bohemian Trio.

Address, "Enlarging Life's Territory," Rev. George W. Phillips, pastor Tenth Avenue Baptist Church, Oakland, Cal.

Mezzo-soprano solos, (a) Expectancy; (b) A Gift; Mrs. Ray Eitel Anear.

Violin solos, (a) The Clock; (b) Serenade; Henry Buttner; Richard Buttner, accompanist.

Piano solos, (a) Hymn to the Sun; (b) Humoresque; Merrianna Towler.

Male quartet selection, The Winter Song; The Sunset Four.

Instrumental selections, (a) Daffodils; (b) Little Buttercup (from "Pinafore"); Bohemian Trio.

Soprano solo, Mad scene from "Lucia"; Mrs. Homer Henly.

Contralto solo, Mon coeur s'ouvre a ta voix (from "Samson and Delilah"); Doris Osborne.

Instrumental selections, (a) Melody; (b) Villa (from "Merry Widow"); Bohemian Trio.

KLX—Oakland Tribune (569 Meters)

3 TO 5 P M—Baseball scores, all leagues.

7 TO 7:30 P M—News items, United States weather bureau bulletin, market and financial news.

DISTANT STATIONS

KHJ—L. A. Times (395 Meters)

6:45 TO 7 P M—Prof. Walter Sylvester Hertzog will tell stories of American history.

7 TO 7:30 P M—Children's program, presenting Wood's School of Kleeve Kiddies of Glendale; Dickie Brandon, screen juvenile; bedtime stories by "Uncle John."

8 TO 10 P M—Program through the courtesy of the Fitzgerald Music Co.

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

KGW—Oregonian, Portland, (492 Meters)

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

10 P M—Dance music by George Olsen's Metropolitan Orchestra of the Hotel Portland. Intermission solos by Lillian J. Swanson, soprano.

CFAC—Calgary, Canada, Herald (430 Meters)

8 TO 10 P M—The Gaiety Orchestra.

WBAP—Fort Worth Star-Telegram (476 Meters)

7:30 TO 8:30 P M—Concert offered by Mabel Holmcamp Neely. (E. L. O. announcing.)

9:30 TO 10:45 P M—Concert by the Hemphill Helms Masonic Lodge Orchestra. (G. C. A. announcing.)

KJS—Bible Institute, Los Angeles (360 Meters)

3:30 P M—Woman's story pro-Glee Club, California Bible College; Herbert C. Richter, director and bass soloist; Mrs. C. E. Anderson, organist.

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

6:45 TO 7:30 P M—Y. M. C. A. concert.

8 TO 9 P M—Ambassador Hotel concert.

9 TO 10 P M—Examiner concert.

10 TO 11 P M—Concert arranged by Harry Porter, baritone.

Friday, May 16

KPO—Hale Bros., S. F. (423 Meters)

12 NOON—Time signals from naval observatory; reading of the Scripture.

12:45 P M—Talk broadcast from the Commonwealth Club luncheon at the Palace Hotel.

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

2:30 TO 3:30 P M—Organ recital by Theodore J. Irwin.

Fox trot, Sawmill River Road; waltz, Artists' Life; Three Dances (Henry Eighth); light opera selection, Yeoman of Guard; waltz song, Hula-Hula Dream Girl; Gavotte; Andante, Concerto; Dance Orientale; fox trot, Mr. Radio Man.

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

KGQ—Gen. 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; book reviews by Wilda Wilson Church.

4 TO 5:30 P M—Concert orchestra of the St. Francis Hotel, San Francisco, Fernin Cardona conducting.

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

KLX—Oakland Tribune (569 Meters)

8 TO 5 P M—Baseball scores, all leagues.

7 TO 7:30 P M—News items, United States weather bureau bulletin, market and financial news.

8 TO 10 P M—Studio program presented by the Oakland Real Estate Board.

Vocal selections, Hall, California; The West, a Nest and You; Oakland Real Estate Board Glee Club.

Vocal selections, Group 1; KLX Concert Trio.

Vocal solos, selected; Mms. Dorothy Raegan Talbot.

Talk, "What Is a Realtor?" Willard White, president Oakland Real Estate Board.

Group of Boost Songs, In This Good Old Town of Mine; We're Going Back to Washington; If I Had a Rooster; Oakland Real Estate Board Glee Club.

Vocal solos, Group 2; Mms. Dorothy Raegan Talbot, Clare Darrimon, accompanist.

Vocal selections, Group 2; KLX Concert Trio.

Talk, "Functions of the Glee Club," B. R. Schroder, president Oakland Real Estate Glee Club.

Vocal selections, Little Gray Home in the West; Golden Gate; quartet from Glee Club, composed of G. L. Brown, E. P. Jones, R. E. Wastell and B. R. Schroder. Solo by Ralph E. Wastell with club chorus.

Vocal solos, Group 3; Mms. Dorothy Raegan Talbot; Claire Darrimon, accompanist.

Talk, Five-minute Home Town Talk, Fred Reed, winning talk in competition with 30 others at national real estate convention in Cleveland, O.

Vocal selections, Group 3; KLX Concert Trio.

Vocal solo, They Called It Oakland; Earl B. Leonard.

Violin solo, selected; Harriet French.

Vocal solo, selected, Mms. Dorothy Raegan Talbot.

Vocal selections, Group 4; KLX Concert Trio.

Vocal selections, Boost songs (to Tune of Carolina in the Morning).

DISTANT STATIONS

KHJ—L. A. Times (395 Meters)

7 TO 7:30 P M—Children's program, presenting Richard Headrick, screen juvenile; bedtime story by "Uncle John."

8 TO 10 P M—Norwegian program through the courtesy of Mr. Belland.

10 TO 11 P M—Art Hickman's

KUO

San Francisco Examiner—320 Meters

Daily Except Saturday and Sunday

9:05 A M—Weather forecast.

11:00 TO 11:30 A M—Market report.

8:20 P M—Financial and garden hint broadcast.

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.

dance orchestra from the Los Angeles Biltmore Hotel.

KGW—Oregonian, Portland, (492 Meters)

8 P M—Oregon High School Debating League in final debate for championship.

10:30 P M—Hoot Owls.

CFAC—Calgary, Canada, Herald (430 Meters)

Friday—Silent night.

WBAP—Fort Worth Star-Telegram (476 Meters)

7:30 TO 8:30 P M—Concert by the Aeolian Trio. (E. L. O. announcing.)

9:30 TO 10:45 P M—Monthly concert offered by Texas Christian University. (G. C. A. announcing.)

KFAE—Washington State College (330 Meters)

8:30 TO 9:30 P M—Readings, Mrs. H. H. Langdon, Pullman; Bee Frolic Time, B. A. Slocum; Campus orchestra program; vocal selections; The New Books, Alice Webb; instrumental selections.

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

6:45 TO 7:30 P M—Glenda Boston and her Seal Beach orchestra.

8 TO 9 P M—Evening Herald concert.

9 TO 10 P M—Examiner concert.

10 TO 11 P M—Maud Reeves Barnard and pupils.

11 TO 12 P M—Ambassador-Max Fisher's Coconut Grove Orchestra.

Saturday, May 17

KPO—Hale Bros., S. F. (423 Meters)

12 NOON—Time signals from naval observatory; reading of the Scripture.

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

2:30 TO 3:30 P M—Recitation, "A Stadium Sunset," Mrs. A. M. Collier. Poem dedicated to the University of California Memorial Stadium, recited by Mrs. DeWitt-Warr.

Program by Mannie Marks and New Shanghai Cafe Orchestra. Mannie Marks, leader; drums, traps and maracas; Vin Plunkett, piano; Keith Lord, banjo; Dick Allen, violin; Tony Santisaban, trumpet; Dave Sheren, saxophone and clarinet; Harry Chmitz, saxophone, clarinet, oboe; Walter Lovegrove, trombone.

Orchestra, Oh, Baby! After the Storm.

Song, Why Did I Kiss That Girl?

Ned Nicholson.

Orchestra, Sobbin' Blues.

Marimba solo, Aloha, Mannie Marks.

Song, A Smile Will Go a Long, Long Way, Grace Daly.

Orchestra, Blue Grass Blues.

Song, In the Evening, Ned Nicholson.

Marimba solo, Sleep, Mannie Marks.

Orchestra, Love Came Back.

Song, I Can't Forget; Grace Daly.

Orchestra, Steppin' Out; Hoodoo Man.

Song, Whose Izzy Is He? Ned Nicholson.

Piano solos, Roy Henshaw.

Orchestra, Home in Pasadena.

Under the auspices of St. Mary's College graduating class:

Piano selection, Jubel Overture (two pianos); Pierrot, Impromptu Valse (two pianos); Harris P. Callanan, Conrad M. Ochoa, Celestine G. Scoles, William W. Keller.

Old Black Joe (one piano); Harris P. Callanan, Conrad M. Ochoa, William W. Keller.

8:30 TO 5:30 P M—Tea dansant; E. Max Bradfield's Versatile Band, playing in the Palace Hotel Rose Room Bowl.

8 TO 12 P M—Dance music by Art Weidner and his popular orchestra. This orchestra plays at the Fairmont Hotel every Saturday night and the music is broadcast over the KPO.

During the intermission of the KPO Trio, Bonnie Egan, Jimmie Raymond and Harry Hume, will sing popular songs. This is a regular feature at KPO every Saturday.

KGQ—Gen. 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 St. Francis Hotel, San Francisco, Fernin Cardona conducting.

8 TO 10 P M—PART I

Special program by the KGO Little Symphony Orchestra, Carl Rhodhamel conducting, assisted by Esther Hjelte, pianist, and Andrew T. Byrne, baritone.

March, Tannhauser.

Overture, Raymond.

In a Persian Market (descriptive).

Piano solos, (a) Nocturne in C Minor; (b) Valse; Esther Hjelte.

Baritone solos, (a) The Island of Dreams; (b) Preguntale a las Estrellas; Andrew T. Byrne.

Lyric pieces (Brooklet and March Grotesque).

Valse from "Coppelia."

March of Triumph.

PART II

Given by members of the Mu Zeta Rho Musical Society of the College of the Pacific, San Jose, Cal.

Piano solo, The Maiden's Wish; Beatrice Walton.

Soprano solos, (a) At Dawning; (b) Still as the Night; Margaret Michael.

Readings, (a) Vendetta; (b) A Dream Ago; Marjorie Morris.

Piano solo, Reflections in the Water; Gladys Ryan.

Violin solo, Souvenir; Ruth Madden.

Contralto solo, When Sweet; Bessie Kroft.

Piano solo, Dr. Gradus ad Parnassum (from "Children's Corner"); Jeanette Grattan.

Readings, (a) The Scarlet Spider; (b) Afterglow; Marjorie Morris.

Piano solo, Caprice Espagnole; Eolline Coppie.

KLX—Oakland Tribune (569 Meters)

3 TO 5 P M—Baseball scores, all leagues.

7 TO 7:30 P M—News items, United

Radiophone Specials

Scientific Headsets, world's greatest phone value, \$2.95

Manhattan Headsets, regularly sell at \$7.00, \$3.10

Swedish-American Headset, regularly sell at \$8.00, \$3.35

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Mail Orders Filled. Phone Market 9558

States weather bureau bulletin, market and financial news.

DISTANT STATIONS

KHJ—L. A. Times (395 Meters)

7 TO 7:30 P M—Children's program, presenting Audrey Wood, 8 years of age, and Helen Kallio, 12 years of age, pianists, pupils of Dorothy Casselman; A. T. Babenco, whistler; Onolee Jones, 11 years of age, cellist; Homer Aschmann, 3 years of age, reader.

8 TO 10 P M—Program through the courtesy of "Bonnie" Helen Mackintosh, Scottish prima

NEW DEVICE TESTED FOR SEA SAFETY

NEA Service

MONTREAL, May 11.—Radio may play an important part in the experiments to be undertaken by Prof. W. R. Boyle of the University of Alberta, for a means to warn ships of the approach of land, icebergs or other ships.

Prof. Boyle has already carried his experiments to an advanced point and is contemplating bringing them to their conclusion, with the final adoption of an effective warning device after the summer tests he will make on the St. Lawrence river, Belle Isle straits and along the Labrador coast.

Secrecy veils the entire test, but it is almost certain that the instrument to be finally brought out will be of some electrical nature. That radio will play an important part in its construction and use is also considered probable.

A radio device is now being used on transatlantic liners entering New York harbor, by which they can follow a definite route along the channel deepened especially to make their entrance feasible. This, however, requires the transmission of a current from a cable laid at the bottom of the channel, to be picked up by apparatus on shipboard.

Discovery of an obstruction, not emitting any electrical discharge, however, may require the use of some sort of sounding device on the ship, highly sensitive and probably made along radio-frequency lines.

Dr. Boyle has already decided on the effectiveness of the apparatus as regards ships and land, and is only undecided about its availability against icebergs. His experiments along the Labrador coast are expected to satisfy him on this point.

Weak Batteries Cause Failures

Many complaints of failure of receiving sets to receive properly are due simply to run-down batteries.

At such a time the best tests are your eye and your ear, if you do not have a voltmeter.

If the signals have merely become fainter, the trouble is ordinarily due to the B battery being run down. Signals are no longer received with their usual volume when the battery voltage has been reduced to 17 volts for each 22½ volt cell.

Reduced signal volume is also due to lowering voltage of the A batteries. This is usually apparent in the brilliance of the filament when the tubes are turned on, also.

When the A batteries have so run down that the variation of the rheostat has little effect on the brilliance of the filament, it is time to discard them if they are dry cells or change them if they are storage batteries.

The most reliable way to determine the battery condition is to use a cheap voltmeter and test them each week.

WAVELETS

There are 25,000 radio dealers in the United States.

WJAZ, Chicago, has changed its call letters to WGN.

One megohm is equal to 1,000,000 ohms resistance.

WTAS, Elgin, Ill., is the official broadcasting station of the American Legion.

British broadcasters plan another district radio broadcasting station in Belfast, Ireland.

Jazz music and coarse humor are prohibited in the programs of KFGZ, Berrien Springs, Mich.

Trans-Atlantic traffic of the Radio Corp'n of America has risen to a rate of 90,000 words daily.

About 20,000,000 fans have filed complaints about interference with the Department of Commerce.

Policies against theft, fire and even depreciation of radio sets are being issued in England.

Eighty per cent of the sales by radio dealers are made for radio parts.

Ten per cent radio tax, say its opponents, will cost manufacturers \$10,000,000 and the public \$25,000,000 annually.

RADIO BRIDE



The minister had just arrived and the bride's father tuned in on the wedding march a Cleveland broadcasting station was sending out. Then the nuptial knot was tied for Warren L. Ensign and wife. But when the bride was about to say she would obey, the static overwhelmed her reply. So maybe, she'll be boss of the Ensign household after all.

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.

Joseph F. Affalter, 43 Duncan-st., San Francisco, asks:

(1) Does a radiola in the district cause static? (2) How far should a five-tube set receive? (3) Is my aerial too long for a five-tube set if it is about 125 feet long? (4) Do high tensioned wires cause trouble in tuning distant stations?

(1) A radiola set does not cause static. (2) A five-tube set should receive all stations on the loud speaker from 1000 to 2000 miles. (3) Suggest cutting down the length of your aerial to 85 feet, if you are troubled with too much interference. (4) Yes, high tension wires cause trouble in tuning distant stations. Be sure that your aerial is at right angles to all power wires.

Joseph Rea, Corte Madera, asks:

(1) How far distant can I tune in, according to the enclosed program? (2) What kind of a condenser should I use? (3) Does lightning affect the aerial on the house or set?

(1) You should be able to receive any station within 40 miles on your crystal set. (2) Use a .001 fixed condenser, across your headphones, as shown in your diagram. (3) Lightning might affect your set, unless properly equipped with a lightning arrester.

Wesley Getts, 76 Vicksburg-st., asks:

Would you please tell me which of these circuits is best for DX work, using one tube: the Autoplex, Cockaday or Haynes?

Would suggest the use of an Autoplex circuit, as the best work for a one-tube set.

Radio Conference

Another Pan-American radio conference is scheduled to meet at Mexico City, May 27. Representatives of all American countries in the Pan-American group will participate in an effort to find means of facilitating radio communications and producing greater efficiency in the science.

BUILDING A WAVE TRAP

BY ISRAEL KLEIN

While DX is the rage, the wave trap ought to be handy for fans troubled with local interference.

Especially is this simple contrivance helpful in elimination of nearby broadcasters and in reducing to a minimum reradiation from an oscillating receiving set.

Anyone with the least mechanical ingenuity and at little expense can build this wave trap. It consists of the following parts:

A 3-inch, thin cylindrical form, 4 inches long, and composed of a good non-conducting material.

A few feet of No. 22 or 20 DCC wire.

A good 23-plate variable condenser, not vernier.

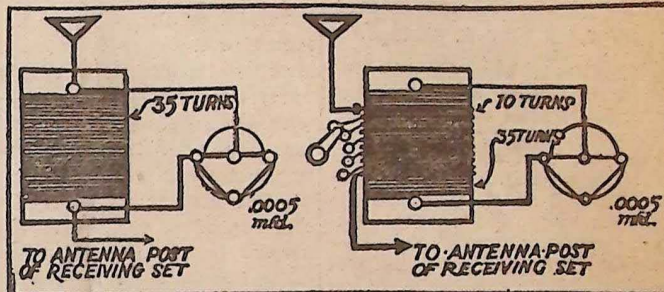
A switch and five switch points.

Where great difficulty is encountered in tuning out a local station, because of its broadness in transmission, and its extreme proximity, and where there are more nearby broadcasters trying to force their programs into your receiving set, the trap shown in diagram at right should be used.

Simpler Form

But in case of only a single violator in your district, the simpler hookup will do. This is constructed as follows:

Wind the 22 DCC wire round the tubing for about 35 turns and hook one end to the aerial lead-in and the other direct to the aerial binding post of the receiver. Shunt the condenser



Two forms of wave trap, showing connections of parts.

across the two terminals of the coil.

To operate this trap, set the dial of the tuner in your receiver a little off from the local station that you want eliminated and adjust the trap variable condenser until the local station's signal is as faint as you can possibly get it. Then tune in the distant station and again adjust the trap circuit.

This careful adjustment should be made without vernier attachment on the wave-trap condenser, so that you may know at exactly what point to set the condenser whenever you want to tune out the local station.

In case of more trouble than from just one local station, the more complicated wave trap should be used.

For More Violators

On top of the 35 turns of wire, and in the same direction, wind 10 turns of the same wire, midway between the terminals. This is the primary and the larger coil the secondary of a separate inductance.

The primary of 10 turns

should be tapped every second turn, so that any station desired may be eliminated by variance not only of the condenser, but of the primary inductance.

In this case, the variable condenser is shunted across the secondary, but the aerial lead-in is brought direct to the primary coil of the wave trap and the switch connected to the aerial binding post of the receiver.

If the materials used in this device are efficient, the receiver should be very selective. Double silk or cotton-covered wire should be used, but never enamelled or any other form of wire. The tubing must be thin and of hard rubber or other good dielectric material.

Of all parts, the condenser must be best. It must have extremely low loss, designated so by the manufacturer, and must be efficiently built.

Be careful to keep the device about a foot away from the receiver, so as not to couple it too closely and affect reception rather than help it.

Radio Station Must Eliminate Noise

BY L. C. F. HARLE

Electrical Engineer

When the broadcast engineer lays out his station, he must see that no sounds exist in the studio except those which he wishes to broadcast.

He makes his studio walls very thick and of very dense material. He lines the inside of his studio with some sound-absorbing material.

Even then he may have rotating machinery, the vibration of which gets into his studio through the vibration of the building. He supports the machinery on elastic material, such as heavy sheets of cork or rubber, and finally gets his studio free of noise.

He then faces the problem of transmitting his broadcasting program with absolute fidelity. How much he loses of the original music is one phase of his problem which he solves through the design of equipment which will reproduce all sounds without the slightest departure from their original nature.

An essential part of such apparatus is a distortion microphone which converts the sound into electrical energy. Microphones are extremely inefficient and require that the electrical energy which they make available be greatly amplified.

The amplifying system multiplies the energy from the microphone several billionfold before it delivers it to the antenna system. If accidental noises enter the earlier stages of such an amplifying system, they may be extremely minute and still be sufficient to utterly destroy the nature of the sound which is being amplified.

To overcome these, the broadcast engineer makes all electrical connections permanent. He makes parts which support current-carrying conductors of the finest grade of insulating material, and he keeps his amplifier system warm by artificial heating so that no condensation of atmospheric moisture can occur.

To eliminate the influence of nearby electrical disturbances requires different treatment. He accomplishes this by completely housing the entire system in an absolutely continuous metallic housing. His microphone is enclosed in a metal casing. His amplifier and batteries are in a metal-lined cabinet and all interconnecting conductors are enclosed in flexible metal tubing.

Sending Troubles

There remains the problem of applying his sound energy to the radio frequency transmitter and sending it off without the addition of any noises. When he listens to his station he will probably hear irregular crackling or crunching sounds, or musical hum, or both.

If the former, some irregularity in the operation of his equipment is taking place—mechanical shock, improper insulation, or moisture. He corrects these as he did in the amplifier.

Elimination of the hum is a bit more difficult. The cause invariably harks back to the source of power.

Reception of amateur radio signals sent across the continent by day is reported by Ernest Hobbs of Schenectady, N. Y.

MANUFACTURER PRESENTS A SET TO UTAH CITY

SALT LAKE CITY, May 5.—Salt Lake is getting a \$25,000 high-power broadcasting station through the generosity of Nathaniel Baldwin, radio manufacturer.

The new station is to be erected atop the Hotel Utah, and for the first two years will be under the direction of the Salt Lake Chamber of Commerce. It is expected to start operation about Oct. 1.

**\$4.95 Complete
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