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RADIO
MAGAZINE

The Daily News

EVERY
MONDAY

SAN FRANCISCO, MONDAY, MARCH 31, 1924

SHOWDOWN IS NEAR IN AIR- RULE FIGHT

NEW YORK, Mar. 31.—Monopoly or government control? This question will be answered sooner than expected, through the suit brought by the American Telegraph and Telephone Co. against broadcasting station WHN, and through the action of the federal trade commission in investigating the alleged radio trust.

It is the first big call for a showdown in the radio broadcasting field.

Out of this fight, eventually, one of three results may be expected. Either

1. Radio broadcasting will be confined to a select few broadcasting stations licensed by a central monopolistic agency, or

2. Programs will be broadcast generally by government licensed stations, under direct control of the government, or

3. The government itself will take over the entire broadcasting field and run it as it does the postoffice.

These are the probabilities in view, as deduced from interviews with men deeply interested in the court action now pending.

Lax Rules Now

Not one of these exists at present. Under the lax radio law we have today, broadcasting, amateur transmission and commercial wireless have such broad liberties that they are beginning to interfere with one another to the dissatisfaction of millions of listeners.

The Dill-White bill now before Congress promises to relieve this confusion by exercising a little more stringent government control than has prevailed. It would assure all qualifying broadcasters freedom from encroachment by others, and would see to it that the radio listener gets high-grade service.

It is the closest approach to any of the three probabilities mentioned.

But, according to independent (Concluded on Page 6, Column 3)

IS THE HUMAN BODY A RADIO?

PARIS, Mar. 31.—Man is a wireless transmitter.

The time may come when man also will be a wireless receiver, tuned in to receive the tiny radio waves that are emitted by other bodies and to communicate with others by means of these waves.

This is the prediction of Georges Lakhovsky, eminent Parisian scientist, who has solved some of the most delicate problems of radio. He has enunciated the theory that all living creatures emit tiny radio waves and that many already communicate with one another, or are attracted to others, by means of these emanations.

Radio Ears

"Physiology teaches us that our sense of direction, of balance, of equilibrium, is due to certain tiny canals in the ear," says Lakhovsky. "It suggests to me that these may play the part of wireless receivers. Many insects have antennae that are more than feelers. They are wireless receivers and senders in all probability."

Many birds and animals are guided by special radiations, not by instinct or a peculiar sense, says Lakhovsky. "Owls and other night birds might get their food by help of radio waves emitted by their prey, he points out."

Some naturalists say bats are guided by their fine hearing and sense of smell. But Lakhovsky says he watched them in Paris while the noise and odors of taxis filled the air. Yet the bats caught insects in the air, guided, he believes, by radiations of their prey.

Wave Talk

"Prof. Blondlot," he goes on, "has maintained that man emits radiations that he calls 'N-rays.' This suggests to me that man, too, some day may be able to communicate by means of his own waves, just as I think in-

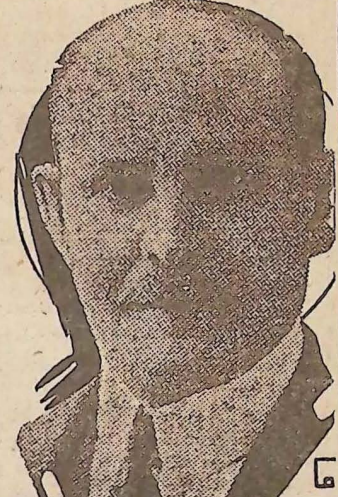


Georges Lakhovsky, radio scientist, sketches of the bat and mosquito, which Lakhovsky says, may be guided by radiations from their prey. Will men ever be able to communicate with each other by these same waves?

sects and other living things do now.

"When that day comes doctors may learn to distinguish between the waves emitted by a well man, and those of a sick person. And by using contrarays, the physician may be able to cure the patient without medicine."

"When we learn more about the waves man emits and how these waves are affected in intensity and length by various microbes, we will pass out of the domain of uncertain diagnosis. We will be positive. We will have a table of wave lengths which will be exact. And we will know what to do in each case."



DOES THE BAT 'SEE' BY RADIO?

"The possibilities are limitless. But we have just reached the edge of the subject."

KGO RETURNS N. Y. PROGRAM BACK TO WGY

With a receiving set almost in the shadows of WGY's towers in Schenectady, N. Y., A. Ford Williams of Scotia, N. Y., recently picked up a rebroadcast by KGO, General Electric Co., Oakland, of WGY's program.

The experiment was carried on in connection with the broadcasting of the alumni dinner speeches at the Massachusetts Institute of Technology, which were wired to Schenectady and then sent on two wave lengths, 380 meters for listeners-in and 105 for the next rebroadcasting station, which was KDKA in Pittsburgh.

KDKA sent program out on 326 meters for receivers and 94 meters for KFKX, Hastings, Neb., and 2AC in London.

KGO, in Oakland, picked up KDKA and rebroadcasted on 312 meters, which Williams tuned in on back in Schenectady, hearing a speech and "Good Night" from KGO.

Girl Beats Brother

Lovina May Knight, 12, amateur of Akron, O., made a better showing at her examination for a license than did her brother, two years older. She passed the test with a rating of 80.

Burlingame Station May Start Tuesday

Bay City radio fans who brouse around the 351-meter-wave length during the next few nights are going to get a pleasant surprise.

They will tune in on KFNZ and it will mean that the Royal Radio Shop of 310 Main-st., Burlingame, has joined the broadcasting family of this vicinity.

And from descriptions of the new station, the child will be

quite a lusty infant.

Stanley W. Younger, who will manage the station, says the station hopes to attempt its first broadcasting around 4 p. m., but it may not be able to get under way at that time.

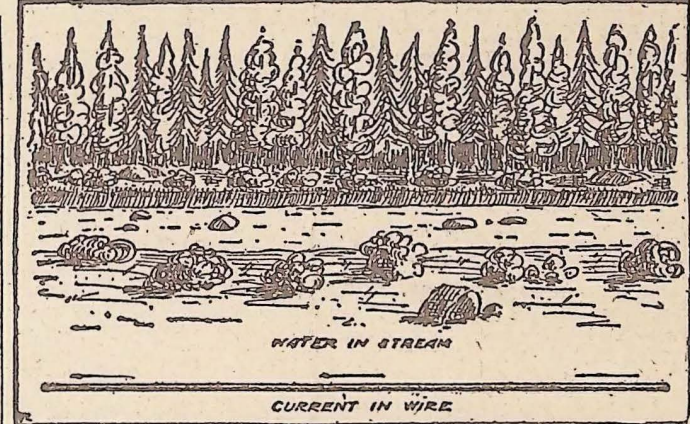
An afternoon program of phonograph records and two or three nightly concerts using peninsular vocal and instrumental talent are planned, Younger says.

Learn Radio FROM THE GROUND UP Starting Now

The rules of radio are also the rules of electricity. To understand how radio works we must first understand how electricity works, for radio receiving and sending sets are operated by ordinary electricity, and the same laws govern each.

Nobody pretends to know just what electricity is. We must be satisfied with understanding what electricity can do. All that need be remembered is that electricity is a "something" which flows along metal wires in exactly the same way that water flows along the bed of a stream. Electricians always call electricity "juice," in that way showing that they think of electricity as being very much like a liquid. It will help if you will think of it in the same way hereafter.

The wires which carry electricity from one place to another are like the rounded bed of a brook or stream in which water is flowing, or like the iron pipe which brings our drinking water to the faucet in



the kitchen. The electricity is brought from the power house by wires just as the drinking water is brought from the reservoir or lake in the country to our homes by means of iron pipes.

We have faucets by which we can let the water out of the pipe or shut it off, and we have switches by which we can turn electricity on and off as we need it. With the faucets we can run the water into a glass, a pail or a tub, put it into a hot-water boiler and sprinkle it upon the lawn. In the same way we have switches, "pull" sockets, plugs and receptacles in the baseboard for directing the stream of electricity into electric light bulbs, vacuum cleaners, electric heaters and curling-irons.

We can buy electricity from the power company, or if we live away out in the country we can make our own electricity and keep it ready for use stored up in batteries, as country people

store up drinking water in a tank in the attic. We can also buy small batteries which have a certain amount of electricity packed away inside of them, for our use in ringing the front door-bell or for lighting the bulbs in our radio sets.

The important thing to remember about electricity is that

SET FOR \$20

In response to hundreds of requests, David Dietz' instructions how to build a peanut tube set will be reprinted in next Monday's Daily News Radio Magazine. Read "Radio From the Ground Up" for a week and you will be able to build your own low-priced set, though you are entirely ignorant of the first principles today.

it must have a way to get back or it cannot come from the power house or battery and be used. There are always two wires wherever electricity is employed and the stream or current of electricity comes in one of them and goes out on the other, after performing the work we have arranged for it to do. The water which flows down the stream in the illustration could not have entered the brook at all if it hadn't first come from the ocean in the form of clouds and fallen upon the hillsides in the form of rain somewhere near the point where the brook started. If water comes, it must go back, and if electricity comes it, too, must go back again.

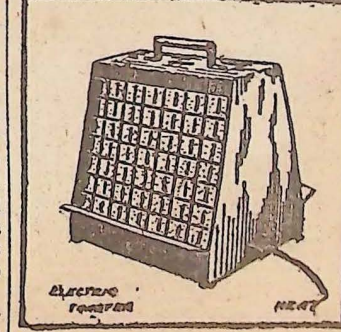
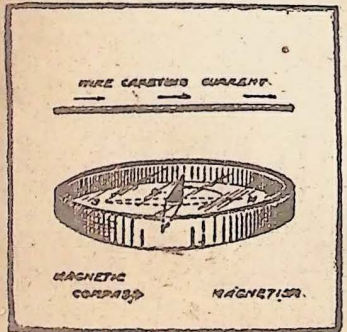
Electricity does two things, or has two "effects" by which we learn about it and which we use every day of our lives. The first of these, and the one we see most commonly, is the heating effect. Electric stoves, flat-irons, heaters and toasters are familiar household appliances. In these we use a small spiral of wire which does not carry the electricity very well, and when we force it through, anyway, the wire becomes hot. Usually it glows with a bright, cherry-red color. If we have a still smaller wire and put it inside a glass bulb from which most of the air has been sucked out, the wire becomes more than red hot. It gets white and gives off a good deal of light. Electric light bulbs operate because of this heating effect, and so do the bulbs of the radio set.

The second effect is the magnetic effect, and this may be a

little harder to understand. But if we place an ordinary compass or magnetized sewing needle underneath a wire carrying a current of electricity we shall find that the needle no longer points to the earth's North Pole, but swings around to a position at right angles or "crossways" to the wire. The electricity flowing in the wire exerts a magnetic force upon objects near the wire. If we shut off the flow of electricity the compass immediately points to the north as usual.

The magnetic effect of electricity is used not only in the production of electricity by machinery, but forms the very foundation of radio. It is the magnetic effect of electricity that we are going to study in understanding radio.

The second article of the series on "Radio From the Ground Up" will be published in the regular editions of Tuesday's Daily News. Look for it tomorrow and learn what it's all about.



THIS WEEK'S AIR PROGRAMS

MONDAY, MAR. 31

KPO-HALE BROS., S. F.

423 METERS

Noon—Time signals; Scripture.
1 to 2 p m—Rudy Selger's Fairmont hotel orchestra, by wire telephony.
2:30 to 3:30 p m—Matinee program under direction of Mme. Rose Florence—Lift Thine Eyes (from Elijah); O Del Mio Dolce Ardor; My Heart, the Bird of the Wilderness—Emily Beal, Janie Johnston, Martha Jalava; Pastorale—Leonore Kethley; Ritorna Vincitor (from Aida)—Emily Beal; Novelette, Minuet—Norman MacPherson; Nymphs and Shepherds—Janie Johnston; It Was a Lover and His Lass—Irene Carroll, Reba T. Ker, Helen McClory, Irma H. Vogt; The Old Refrain—Martha Jalava; L'Abandon—The Gypsies—Ensemble, Helen McClory and Irma H. Vogt, accompanists.

4 to 5:30 p m—Rudy Selger's Fairmont hotel orchestra.
5:30 to 6:30 p m—Children's hour; stories for children by "Big Brother" of KPO, taken from the "Book of Knowledge." His selections:
The Life of the Honey Bee; Fables of Aesop; the Slave; answers to children's questions.
7 to 7:30 p m—Dinner concert by Rudy Selger's Fairmont hotel orchestra.

8 to 9 p m—Dr. B. M. Rastall, manager of the Californians, Inc., will give a short talk on "Taking California East."
Selected passages from Beethoven's Ninth Symphony (Choral), with brief analytical notes by Theodore J. Irwin. This world famous composition will be performed on Tuesday evening, April 1, with chorus of 500 voices, orchestra of 125 pieces, and soloists, at the San Francisco civic auditorium; Alfred Hertz, conductor; program will conclude with four numbers performed during the San Francisco Spring Music Festival.

KGO-GENERAL ELECTRIC CO.

OAKLAND-312 METERS

1:30 p m—New York stock exchange and weather reports.

3 p m—Short musical program; address: What Pedagogy Has to Learn from Mother—Cora L. Williams.

4 to 5:30 p m—Music by St. Francis hotel dance orchestra—Henry Halstead, leader.

6:45 to 7:30 p m—Final reading stock exchange, weather and news.

KLX-OAKLAND TRIBUNE

509 METERS

7 to 7:30 p m—News, weather, market and financial news.

8 to 10 p m—Broadcasting from Stephens Union hall, University of California, Berkeley, program arranged and directed by Radio Club of the U. C.—campus news bulletins, address by Robert W. Sproul, comptroller of the U. C. and secretary to the board of regents; violin solos by John H. Williams; vocal solos by Cornelius Harrington; piano solos by Gerald Secard; vocal selections by Sheer-Iron quartette.

KRE-BERKELEY GAZETTE

275 METERS

8 to 10 p m—Musical program.

KJH-LOS ANGELES TIMES

395 METERS

12:30 to 1:15 p m—Rosette Mexican Typical orchestra.

2:30 to 3:30 p m—Special program presented through courtesy of Herman Kolodkin, viola; and May McDonald Hope, pianist.

KFI-EARLE C. ANTHONY, INC.

LOS ANGELES-469 METERS

4:45 to 5:15 p m—Evening Herald news bulletins.

5:15 to 5:45 p m—Examiner news bulletins.

8 to 9 p m—Evening Herald concert.

9 to 10 p m—Ambassador hotel—Lyman's Coconut Grove orchestra.

KFAF-WASHINGTON STATE COLLEGE, PULLMAN, WASH.

330 METERS

7:30 to 8:30 p m—Spraying for Orchard Leaf Roller—Dr. A. L. Melander, zoologist; Teaching As a Profession—Dean A. A. Cleveland, school of education; Economic Effects of Artificial Leather—Prof. C. M. Brewster; Smut, Fruits and Their Care—Prof. M. D. Armstrong, horticulturist; musical numbers—Conner Stringed Trio; guitar solos—Ray Kromer, Spokane.

KFOA-RHODES, SEATTLE, WASH.

455 METERS

8:30 p m—Vocal and instrumental music arranged by Dr. Frank Loope.

KGO-MORNING OREGONIAN,

PORTLAND-492 METERS

11:30 a m—Weather forecast.

3:30 to 4 p m—Literary program by Portland Library Ass'n.

7:30 p m—Weather forecast and market reports.

8 p m—Piano recital by Mabel Ryder Williams.

9:30 p m—Scottish program, arranged by George C. Graham.

WJAZ-STAR TELEGRAM, FORT WORTH, TEXAS-476 METERS

5:30 to 6:30 p m—Old time fiddle music by Capt. Dunning of Tahoka, Texas.

7:30 to 8:45 p m—Concert by 50-piece band of Mosiah Temple Shrine; L. C. Meadows, director.

TUESDAY, APRIL 1

KGO-GENERAL ELECTRIC CO.

OAKLAND-312 METERS

1:30 p m—New York stock exchange and weather bureau reports.

4 to 5:30 p m—Music by St. Francis hotel dance orchestra.

6:45 p m—Final stock exchange reports, weather and news.

8 to 10 p m—Program by Troop 11, Boy Scouts of America, Veteran Troop, Oakland.

Part 1—Address—Boy Scouts—Scoutmaster Herbert Hauser; assembly of troop, bugle calls—Eagle Scout Ray Kennedy; pledge of allegiance to our flag—the troop; talk, What Scouting Does for Us Boys—Eagle Scout Jean Bell; camp song—The Ham Bone Solo part by Scout Master; address—The Scoutmaster; Home J. Bemiss; camp song, There Was a Bee—the troop; address, What the Boy Scout Organization Does for the Boy—Abe P. Leach, president Oakland Council of Boy Scouts; scout oath and laws—the troop; taps—Eagle Scout Ray Kennedy.

Part 2—Instrumental selection—Selected—Western Electric Jazz orchestra; soprano solos—Lo, Hear the Gentle Lark; Pirate Dreams—Alicia Scott, Ella Lawrie, accompanist; address—Hunting Wild Game in Africa (part 1)—H. A. Snow; baritone solo, Untill—Frank Miller; contralto solo—Adieu Forest (Jeanne d'Arc), L'Heure Exquise—Orlando, Ella Lawrie, accompanist; instrumental selection—Selected, by Western Electric Jazz orchestra; address—Hunting Wild Game in Africa (part 2), by H. A. Snow; soprano solos—For You Alone, Within the Garden of My Heart—

CHANGES IN PROGRAMS

Often the broadcasting stations are compelled, after announcing their programs, to make changes, because artists are taken ill, or for other reasons.

Complete programs, corrected up to the last minute, are published every day in the big radio news section of The Daily News.

Alicia Scott, Ella Lawrie, accompanist; baritone solo—The Trumpeter, by Frank Miller; contralto solo—The Dances Seguidilla (Carmen), by Oris Osborne, Ella Lawrie, accompanist; instrumental selection—Selected, by Western Electric Jazz orchestra.
10 p m to 1 a m—Dance music from orchestra in St. Francis hotel ballroom, San Francisco.

KPO-HALE BROS., S. F.

423 METERS

Neon—Time signals.

1 to 2 p m—Rudy Selger's Fairmont hotel orchestra.

2:30 to 3:30 p m—Matinee program under the management of Mannie Mark's New Shanghai Cafe orchestra.

4:30 to 5:30 p m—Rudy Selger's Fairmont hotel orchestra.

5:30 to 6:30 p m—Children's hour; stories for children by "Big Brother" of KPO, taken from the "Book of Knowledge." His selections:

The Story of Peter Pan; Alice in Wonderland.

6:30 to 7 p m—Presented by Chandler-Cleveland Motor Car Co.—Cleveland Six orchestra, under direction of Wilt Gunzendorf—Oh Baby; Rose of Old Madrid; violin solo—Mother Macbree, by Ben Lindholm; Mr. Radio Man; Won't You Remember, by Wilt Gunzendorf; piano solo—Selected, by Mel Lyons; East, On the Blue Lagoon, When I'm All Alone, by Pat Connolly and Gus Donohue; It's Not the First Time You Left Me.

8 to 9 p m—Spanish Night under direction of Marie L. Boutin School of Spanish Music; instrumental selection—La Golondrina, by Rudolph Peterson's orchestra; violin solo—Spanish Dance, by Violet Matkovich, Ruth Sriedlander, accompanist; address, Marcos G. Huilobro, consul of Chile; banjo solo—O Solo Mio, by Rudolph Peterson; violin solo—Selected, by Violet Matkovich, Ruth Sriedlander, accompanist; instrumental selection, Havana, by Rudolph Peterson's orchestra.

9 to 10 p m—Program under the management of Richard Waring, pianist: Soprano solo—Sweetheart, O Dry Those Tears, Kiss Me Again, by Josephine Hildick, Richard Waring, accompanist.

KLX-OAKLAND TRIBUNE

509 METERS

7 to 7:30 p m—News, weather forecast, market and financial news.

DISTANT STATIONS

KGO-MORNING OREGONIAN,

PORTLAND-492 METERS

11:30 a m—Market basket.

12:30 p m—Weather forecast.

2:30 to 4 p m—Talk by Jeannette P. Cramer, home economics editor of the Oregonian.

7:30 p m—Weather forecast and market reports.

7:45 to 8 p m—Talk for farmers; Oregon Agricultural College extension service.

KJH-LOS ANGELES TIMES

395 METERS

12:30 to 1:15 p m—Program presented by White's Californians of San Gabriel.

2:30 to 3:30 p m—Program presented through the courtesy of Barker Brothers.

5:30 to 7:30 p m—Children's program presenting Prof. Walter Sylvester Hertzog, telling stories of American history; The Sandman and Queen Titania, by H. G. Noble, harmonica; George M. Sterns, baritone; bedtime story by Uncle John.

8 to 10 p m—De Luxe program.

KJS-BIBLE INSTITUTE, L. A.

360 METERS

8 to 9 p m—Musical program by the Laurence A. Lambert Concert company; Laurence A. Lambert, baritone, Cleo Carroll, pianist, Isoline Harvey, violinist; Bible story by Lucile Corbett.

KFI-EARLE C. ANTHONY, INC.

LOS ANGELES-469 METERS

4:45 to 5:15 p m—Evening Herald news bulletins.

6:15 to 5:45 p m—Examiner news bulletins.

6:45 to 7:30 p m—George J. Birkel company program.

8 to 9 p m—Ambassador hotel—Lyman's Coconut Grove orchestra.

9 to 10 p m—Examiner concert.

10 to 11 p m—Concert. Vocal and instrumental.

WJAZ-STAR TELEGRAM, FORT WORTH, TEXAS-476 METERS

5:30 to 6:30 p m—Concert by the Municipal band of Alvarado, Texas.

7:30 to 8:45 p m—Concert of Hawaiian steel guitar music by Fred, Paul and Nanette Wagner.

WEDNESDAY, APRIL 2

KLX-OAKLAND TRIBUNE

509 METERS

8 to 10 p m—Studio program: Vocal solos—Love's Old Sweet Song; Dip, Boys, Dip the Oar, by Jackson Bennett; talk on popular books by their authors, including Stewart Edward White, Frederick O'Brien and others; stories—The Yankee Farmer (how a farmer beats wise guy); "Chi! Slim Twangs His Lyre (a tramp piece); It's Easy As Pie (telling a farmer how easy his life really is), by Earle Wilson; piano solo—Waltz, by Gertrude Nash; discourses—That Reminds Me, by Major A. H. Hutchinson; vocal solos—Large, When You and I Were Young, Maggie, by Jackson Bennett; Had But Fifty Cents; Ten Nights in a Mill Store, by Earle Wilson.

Talk—The Use of the "O" Battery, by J. A. Ramsey, National Carbon Co.

Piano solo—Selected, by Gertrude Nash.

Stories—On the Cannon-hall Express, Only a Dog, by Earl Wilson.

Dance music—California, I Am Coming; Fantasia, (caxophone solo) by Jules Smith; Broken Doll; Counting the Days; I Have Wanted Love on You; Coaxing the Piano, piano solo by Ev. Sutherland; Ida; (caxophone of Your

Smile, (cornet solo by Russell Jones);

House of David Blues; Good Night, by Ev. Sutherland's Oakland Syncopators.

KGO-GENERAL ELECTRIC CO.,

OAKLAND-312 METERS

1:30 p m—New York stock exchange and U. S. weather bureau reports.

3 p m—Short musical program; address; music by Mrs. Zay Rector Bevvitt.

4 to 5:30 p m—Music by St. Francis hotel dance orchestra, Henry Halstead, leader.

6:45 p m—Final stock exchange reports; weather and news items.

KRE-BERKELEY GAZETTE—U. C.

EAT & ELEC. CO.—275 METERS

8 to 10 p m—Whistling chorus—Linger Awhile, by chorus of California state school for the blind, under direction of Blanche Adella Hawkins, the American Robin, (first public appearance).

Quartette—Dreamy Melody, by Blanche Adella Hawkins, Kariton Scott, George Dyer, George Vahey, Mildred Jensen at the piano.

Whistling solo—The Wild Flower, by Blanche Adella Hawkins, the American Robin, assisted by Eleanor Webber, violinist; Helen Crawford at the piano.

Whistling quartette—When I Think of You, by Blanche Adella Hawkins, Kariton Scott, George Dyer, George Vahey, Claire Debois at the piano.

Whistling solo—Abandoned, by Blanche Adella Hawkins, assisted by Eleanor Webber, violinist; and Helen Crawford at the piano.

Whistling quartette—Humoresque, by Helen Hope, Florence Bush, Cynthia Scott, Kariton Scott, George Dyer, George Vahey, Mildred Jensen at the piano.

Whistling chorus—When the Lights Are Low, by chorus of the California state school for the blind.

Whistling solo—Waltz Song, by Blanche Adella Hawkins, the American Robin; Mildred Jensen at the piano.

Whistling quartette—A Smile Will Go a Long, Long Way, by Blanche Adella Hawkins, George Dyer, George Vahey, Kariton Scott, Claire Debois at the piano.

Whistling solo—Valse Bluette, by Blanche Adella Hawkins; Eleanor Webber, violinist; Helen Crawford at the piano.

Whistling quartette—Imitations of birds of fields and forests, by Blanche Adella Hawkins, Cynthia Scott, Kariton Scott, George Dyer, Helen Hope, George Vahey; Florence Bush at the piano.

Whistling quartette—You, by Blanche Adella Hawkins, George Dyer, George Vahey, Kariton Scott; Claire Debois at the piano.

KPO-HALE BROS., S. F.

423 METERS

12 m—Time signals; Scripture.

1 to 2 p m—Rudy Selger's Fairmont hotel orchestra.

2:30 to 3:30 p m—Matinee program by Jack Palt's Entella Cafe orchestra.

4:30 to 5:30 p m—Rudy Selger's Fairmont hotel orchestra.

5:30 to 6:30 p m—Children's hour; stories for children by "Big Brother" of KPO, taken from the "Book of Knowledge." His selections:

The Life of the Ant World; The King's Quest; answers to children's questions; piano selections by Dorothy Cole, pianist.

7 to 7:30 p m—Dinner concert by Rudy Selger's Fairmont hotel orchestra.

8 to 11 p m—E. Max Bradfield's band playing in Rose Room Bowl of Palace hotel; during intermissions, Joseph Carey, blind composer, and his artists will sing Mr. Carey's own compositions and other songs. George N. Krull, baritone, will present several groups of songs, among them being an unpublished song of Carey's entitled, Night and the Stars are Mine. Krull will also sing The Americans Come, On the Road to Mandalay, Forgotten, and Drifting Down to Dixie. Carey's male quartette, premier harmony vocalists, will contribute several numbers, especially arranged for them by the composer.

DISTANT STATIONS

KJH-LOS ANGELES TIMES

395 METERS

12:30 to 1:15 p m—Program presenting Florence Mason Tatch, soprano, accompanied by Mrs. Nellie Goucher Schwartz, pianist.

2:30 to 3:30 p m—Program presented through the courtesy of Barker Brothers.

6:30 to 7:30 p m—Program presenting Prof. Walter Sylvester Hertzog, telling stories of American history; Bud Pente, pianist; bedtime story by Uncle John.

8 to 10 p m—Program presenting Paul G. Hoffman company; E. P. Murphy, reader, in The Go-getter, by Peter B. Kyn.

KFI-EARLE C. ANTHONY, INC.

LOS ANGELES-469 METERS

4:45 to 5:15 p m—Evening Herald news bulletins.

5:15 to 5:45 p m—Examiner news bulletins.

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—Hollywood Community orchestra.

11 to 12 p m—Ambassador hotel—Lyman's Coconut Grove orchestra.

KFOA-RHODES, SEATTLE, WASH.

455 METERS

8:30 p m—Recital of violin and piano selections presented by Arnold Krauss, violinist and concert master of the Seattle Civic Symphony orchestra, and Irene Hampton Thrane, leading accompanist and concert pianist of the Pacific Coast.

KGO-MORNING OREGONIAN,

PORTLAND-492 METERS

2:30 to 4 p m—Children's program.

7:30 p m—Weather and market reports.

8 to 9 p m—Concert by Elks band; W. A. McDougal, director.

9 to 10 p m—Alexander Hamilton Institute business talk by James Albert; subject, The Advertising Campaign.

10 to 11 p m—Dance music by George Olsen's orchestra by direct telephone from the Portland hotel.

KFAF-WASHINGTON STATE COLLEGE, PULLMAN, WASH.

330 METERS

7:30 to 8:30 p m—Murphy's Dance orchestra; talk on The Outlook for Agriculture; piano solos—Elsie Wicklund, Seattle; Preparing for the Fair—W. W. Underwood, extension service; Automatic Army Rifles—Lieut. A. B. Pence; Mining Talk—Dean L. O. Howard, School of Mines; The Balance of Power and War—Prof. C. Maushagen, history department.

WBAP-STAR TELEGRAM, FORT

KUO

KUO-S. F. Examiner (680

meters).

Daily except Saturday and Sunday.

9:05 to 9:20 a m—Weather forecast and news bulletin.

11:00 to 11:30 a m—Market report.

2:30 to 2:45 p m—Sporting news.

3:00 to 3:05 p m—Financial bulletin.

5:45 to 6:30 p m—Sporting news and financial report.

6:40 p m—Weather forecast.

Friday, add to daily schedule.

5:30 to 5:45 p m—Health bulletin.

Saturday only:

9:05 to 9:20 a m—Weather forecast and news bulletin.

2:30 to 2:45 p m—Sporting news.

5:45 to 6:30 p m—Sporting news and financial report.

Sunday only:

9:05 a m and 6:40 p m—Weather forecast.

WORTH, TEXAS-476 METERS

5:30 to 6:30 p m—Concert by talent from Venus, Texas.

7:30 to 8:45 p m—Concert by George Freeman's Sooner Serraders, the Texas hotel orchestra.

THURSDAY, APRIL 3

KGO-GENERAL ELECTRIC CO.

OAKLAND-312 METERS

1:30 p m—New York stock exchange and weather reports.

3 p m—Short musical program; Charles Keeler, poet; an afternoon of poems by the author.

4 to 5:30 p m—Music by St. Francis hotel dance orchestra; Henry Halstead, leader.

6:45 p m—Final stock exchange reports; weather and news items.

KPO-HALE BROS., S. F.

423 METERS

12 m—Time signals; Scripture.

12:15 p m—Commonwealth club speaker from Palace hotel—Frank G. Tyrrell, "Los Angeles Power Experience—Another View." This is in measure a reply to a recent address by Burdett Moody of the Los Angeles bureau of light and power.

1 to 2 p m—Rudy Selger's Fairmont hotel orchestra, by wire telephony.

2:30 to 3:30 p m—Organ recital by Theodore J. Irwin.

March—Hall American; Overture—Voyage to China; From Foreign Parts; Campus Ditties; fox trot—Selected; Valse Lenta; Sing Me Love's Lullaby; fox trot—Selected.

4:30 to 5:30 p m—Rudy Selger's Fairmont hotel orchestra, by wire telephony.

KLX-OAKLAND TRIBUNE

509 METERS

7 to 7:30 p m—News items, weather, market and financial news.

8 to 10 p m—Studio program:

Instrumental selections—Neil Gwyn Dances; Maytime, by the KLX Concert Trio—Harriet French, violin; Josephine Vander Ende, cello; G. H. M. Schulteis, piano and director.

Vocal solos—An Old Song Re-sung, Little Boy Blue, by E. Harold Dana; Violin solo—Selected, by Harriet French.

Instrumental selections—Forget Not (ballad); D'un Bloed Roule; Klx's Concert Trio.

Vocal solos—Havonunam Rnamir; The Wreck of the Julie Plante, by E. Harold Dana.

Cello solo—Selected, by Josephine Vander Ende.

Vocal selections—Parodies of "Whose Lays Is He?" (Parodies to be written by listeners-in and presented to KLX; names of composers to be announced.)—Ned Nicholson.

Instrumental selections—Carmen Overture; Minuet, by KLX Trio.

Vocal solos—The Great Awakening; Drink to Me Only With Thine Eyes (Old English); Tommy Lad, by E. Harold Dana.

Instrumental selections—I Love Thee (waltz); Gavotte, by KLX Trio.

DISTANT STATIONS

KJH-LOS ANGELES TIMES, L. A.

395 METERS

(Continued on Page 7, Column 1)

gram presenting Prof. Walter Sylvester Hertzog, telling stories of American history; bedtime story by Uncle John.

8 to 10 p m—Program arranged by Roy F. Chesley Ford Agency presenting Mr. and Mrs. Bickford, the Bickford Mandolin orchestra and Gail Mills Dimmitt, soprano.

KGO-MORNING OREGONIAN, PORTLAND, ORE.—492 METERS

8 to 8:15 p m—Accordion solos by Johnny Sylvester.

8:15 to 9 p m—Studio program of dance music by George Olsen's Metropolitan orchestra of Hotel Portland; Herman Kenin, director.

10 to 11 p m—Dance music by George Olsen's orchestra by direct telephone from the Portland hotel.

KFOA-RHODES, SEATTLE, WASH.—455 METERS

9 p m—Eddy Jackson and his sync

'INSIDE STORY' OF MONOPOLY IS PUBLISHED

NEW YORK, Mar. 31.—The inside story of the agreement between the four big concerns to divide up radio business among themselves was told here in an article in the New York World. The World claims:

"The four big companies entered into agreements in 1919, 1920 and 1921 for the purpose of enabling each other to do business without legal interference from each other for alleged infringement of patents. These were cross-licensing agreements, which had the effect of dividing up the radio business, and at the same time shutting off all possible competition.

"By the cross-licensing agreements the following rights and privileges were allocated:

"The A. T. & T. (and the Western Electric Co., whose common stock is owned by the A. T. & T.), got the right to sell broadcasting transmitting sets and the exclusive right to broadcast for toll and use radio inventions requiring wires such as the multiplex telephone and telegraph carrier systems for toll.

"The Radio Corporation got the right to operate trans-Atlantic and other long distance radio telegraph communication stations, to operate ship-to-shore radio telegraph communications, and the exclusive right to sell amateur radio receiving apparatus, which was to be manufactured by the General Electric and by Westinghouse. This included vacuum tubes for home radio receiving sets.

"The General Electric got the right to supply 60 per cent of the needs of the Radio Corporation, because through majority stock ownership in the Radio Corporation it controlled such important inventions as the Fleming valve and the Alexanderson alternator, used in trans-Atlantic radio transmission.

"The Westinghouse Co. got the right to manufacture 40 per cent of the Radio Corporation's needs.

"These agreements gave the A. T. & T. what might be developed into a radio monopoly, for this company got not only the exclusive right to charge for broadcasting—which it is doing at the rate of \$10 a minute—but also the right to use radio inventions requiring wires for toll.

"It already owned what it claims is a monopoly of modulation circuits utilizing vacuum tubes, developed by Western Electric engineers, and all rights in the vacuum tube amplifying circuit patents purchased from Lee A. De Forest in 1917.

"In other words, stripped of technical phraseology, this meant that the A. T. & T. had a natural monopoly in the long distance radio broadcasting because of its monopoly of telephone wires, and a second distinct advantage because it owned the vital vacuum tube grid audio patents.

"Recent developments in radio broadcasting have wiped out the A. T. & T.'s natural monopoly. Last Friday evening, at the dinner of the Massachusetts Institute of Technology at the Waldorf-Astoria, broadcasting was accomplished over a Radio Corporation broadcasting station entirely without the use of wires. London and San Francisco were reached by a brand new method of relay broadcasting.

"So the A. T. & T., if it wishes to maintain its hold on the radio field, has to prove in court that its vacuum tube, modulator and amplifier patents are basic and that all who broadcast from stations not bought from the A. T. & T. or licensed by it are infringing.

"To that end the A. T. & T. brought suit a few days ago against Station WHN and others, with the announced purpose of forcing a new stage of development in radio broadcasting and stabilizing the industry.

"Suit for infringement of patents has also been brought against the North American Co., which has been using public utility electric light and power wires for broadcasting purposes.

"Congress is now investigating, and the Federal Trade Commission is to investigate, be-

PHONE BOSS



H. B. Thayer, president of the A. T. & T., who denies monopolistic intentions of his company.

Government May Take Air Control

(Concluded from Page 2) broadcasters, if the government doesn't step in soon, the chance of a private monopoly is imminent. If A. T. & T. wins its suit over WHN, it would have good precedent to take similar action against all but 48 of the 561 broadcasting stations in the United States.

Few Immune

These 48 stations use transmission sets made by the Western Electric Co., of which the A. T. & T. is majority stock owner and most of whose radio patents it controls, and comply with certain requirements laid down by their contract with the Western Electric and the A. T. & T. for broadcasting.

Thus the A. T. & T. would the radio broadcasting field, if the court upholds its contentions.

Government broadcasting, the third probability, is the last resort. Herbert Hoover, secretary of commerce, in whose hands the White bill would put complete control of the radio field, thinks it inadvisable. He has expressed himself in favor of as much freedom in broadcasting as possible under government license.

But independent broadcasters maintain, if the A. T. & T. wins its suit and goes to the limit with the others, the four other large organizations combined with it, in the radio field will force the entire broadcasting situation into government hands.

Boxing Lessons Are Broadcast

Detective lessons by correspondence course was supposed to be the millenium, but now comes radio with the startling announcement of boxing lessons over the air.

Station WJZ, the pioneer in this field of instruction, broadcasts weekly lessons in the manly art of self-defense, for boys between 10 and 20, by Carl Temple.

Temple has had several years' experience in teaching the younger generation the manly art of self-defense, and feels confident that even though all the young listeners in do not learn to be boxers, the incentive to physical exercise will benefit every one of them.

Who knows but that a future pugilistic champion may have started on his career over the radio?

In this connection, how about broadcasting setting-up exercises in the morning for radio fans?

Hearty "Applause"

A single night's program by WJAX, Cleveland, brought in more applause than any large theater in the country can give in one night. The operators counted 3500 letters of appreciation for a single night recently.

cause the A. T. & T., if it wins its suit against WHN, can win against all other independents and so obtain a monopoly of the air. If it wins its suit against the North American Co. it even wins control over public utility wires so far as radio broadcasting goes.

MESSAGES ARE NOW RADIOED FROM VESSELS

Should you become financially embarrassed while on shipboard after having lost your coin in any of the numerous games oft suggested on such a trip, just get mamma or papa on the wire and—

It's being done by the Radio Corporation of America.

Step to your ship's operator, write down your message, and presto.

The Marine Bureau, "RC New York," will get the message and send it by wire to its destination.

The plan also works vice versa. If the wife or numerous relatives want something particular purchased while you are abroad, or wish to inquire as to your health, they do it from the telegraph office.

The Marine Bureau, upon reception of the message, picks out a radio station nearest the ship, wires the message and it is relayed to the ship.

Over 130 of the principal vessels can be reached.

To insure passengers uninterrupted communication with land at all times, the American steamer Leviathan has been equipped with special long range apparatus with changes being made on other vessels.

WAVELETS

WGY broadcasts a weekly sport review every Monday night at 8:15.

Inspect your B battery regularly if you want it to live long.

A vacuum tube fuse, to prevent blowouts, is being perfected.

Life of a vacuum is from 1000 to 3000 burning hours.

Canada has 38 broadcasting stations.

Atlantic City wants publicity by installing a radio station.

Mexico City has three broadcasting stations, the only ones in all Mexico.

Too much filament voltage, or excessive B battery strength, may cause tube blowouts.

Only eight broadcasting stations in the United States transmit on 1000 or more watts.

More than half the broadcasters in the United States use only 50 watts power or less.

Chinese natives are prohibited from buying and operating receiving sets.

The 200 radio broadcast listeners in Chile are glad to receive phonographic music, if any.

A bit of solder and touch of flux makes the best connection.

Radio dates back to the discoveries of Heinrich Hertz, the German scientist, about 1887.

Sixteen stations in the United States now broadcast on battery power alone.

KRE ANNOUNCER



C. B. Flood

Flood, at KRE, Is War Veteran

BY J. E. WIGGINS

Radio Editor Berkeley Gazette

G. B. Flood, announcer at KRE, the Berkeley Gazette radio station, operated from the Claremont Hotel, has had years of experience as both radio telegraph and radio telephone operator, having served during the World War with the navy, and since that time has been engaged in the radio business in Berkeley.

Flood was radio chief on the sub-chaser detachment operating in the Mediterranean during the last months of the conflict. The detachment operated from Corfu, Greece, to Brindisi, Italy, maintaining a base at Corfu.

The above photograph was taken at Gibraltar in February, following the signing of the armistice, when the detachment was on its way back to the United States for demobilization.

Flood and L. H. Kettenger operate the KRE station, Flood acting as announcer in the palm room, where the Berkeley Gazette studio has been fitted out, and Kettenger managing the set, which is placed in the tower, high above all the surrounding houses.

Owing to the location of the set and the work the operators have been putting on the equipment, the modulation and clearness at KRE is very good now, and Flood and Kettenger plan starting soon to increase the range.

The KRE outfit is a 50-watt set, operating on a 275-meter wave length.

"Alarm Clock" Next

PHILADELPHIA, Mar. 31.—An invention whereby radio users can leave their sets and be notified through distinctly audible signals whether music, lectures or other forms of entertainment are being received in their absence, has been designed.

ARMY SURGEON CLAIMS RADIO CURES 'VETS'

SAN DIEGO, Mar. 31.—Radio not only entertains, but acts as a curative agent also, according to Acting Army Surgeon D. O. N. Lunberg at Camp Kearny, who is demonstrating this latest use of radio in the army hospital.

"In tuberculosis," says Dr. Lunberg, "we have to diminish the fatigue point to the lowest possible minimum while undergoing treatment. Under proper medical restrictions, our central station can be counted upon to be of great value to the patient from many angles.

The medical staff of this hospital is glad to have radio serve such a useful purpose."

This practical application of the therapeutic properties of radio was made possible through a unique installation by an electric company of this city. The community service, an organization which looks after the recreational needs of the army men at Camp Kearny, financed the project with money raised by a benefit performance of "Iolanthe."

Preacher Claims He Was Barred

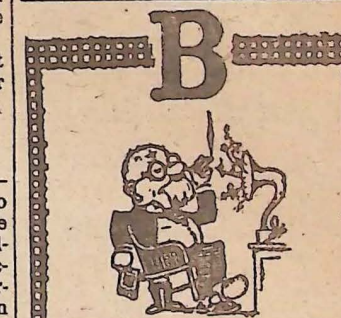
NEW YORK, Mar. 24.—Charges that his efforts to broadcast his Modernist Bible lectures and to obtain a broadcasting outfit of his own had been defeated by officials of the American Telephone and Telegraph Co., Rev. Charles Francis Potter, Modernist pastor of the West Side Unitarian Church, issued a protest last night against any monopoly of the air.

Potter said the A. T. & T. had refused to broadcast his lectures from WEAU, declaring its program full, and had discouraged him when he inquired about a broadcasting outfit of his own.

Boy Radio Class Making Record

CINCINNATI, O., Mar. 31.—The youngest class of radio construction the Middle West has been found.

The boys are some 60 members of the Lafayette Bloom Junior High School in this city, between the ages of 10 and 14, and they have built almost every kind of radio receiver, from the simplest to the most complicated, under the direction of Rankin Jones jr, instructor in electricity at the school.



Says Little Ampere: "Why buy radio B batteries more than once? Willard Rechargeable B Batteries last as long as your set, or longer."

Willard Radio Batteries

They're Rechargeable

For Sale by Your Radio Dealer or

Julius Brunton & Sons Co.
1280 Bush St.
Ask for Booklet.

Willard A Batteries for less re-tuning

A

Benjamin Franklin Radio Stores
Home Office 1129 Market Street San Francisco

The Long Distance Receiver

NEUTRODYNE 5 TUBE

WIRED IN beautiful Walnut Cabinet

\$100.00

\$30.00 Below Regular Price

Benjamin Franklin Radio Stores
1129 Market

We give time.

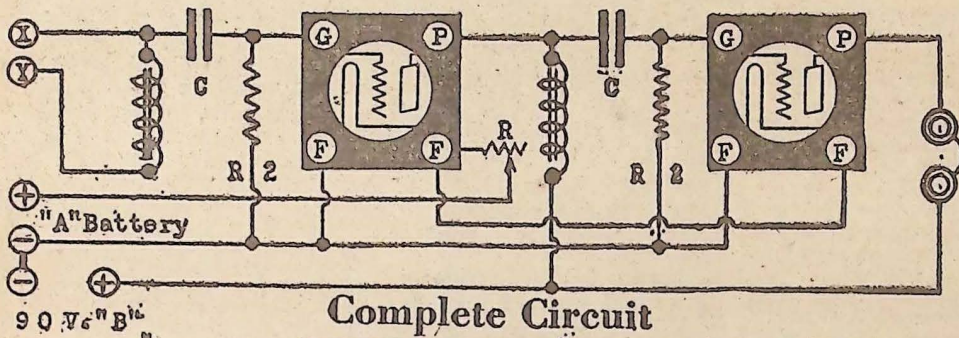
Why not use your Credit?

FREE DEMONSTRATIONS AFTERNOONS AND EVENINGS

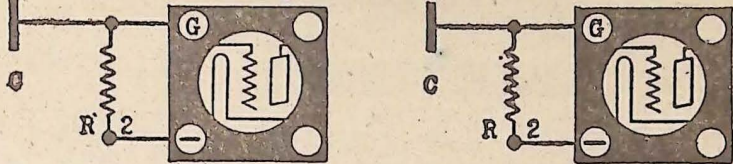
UPSTAIRS

HERE ARE SIX MORE POPULAR

Choke Coil Audio Frequency Amplification



Complete Circuit



Grid Connections

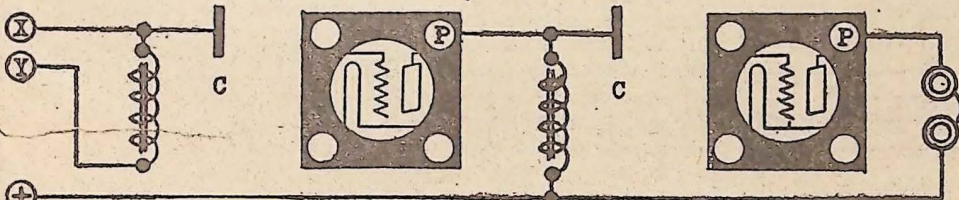
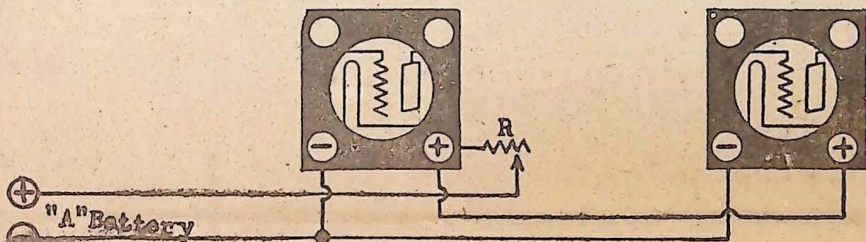
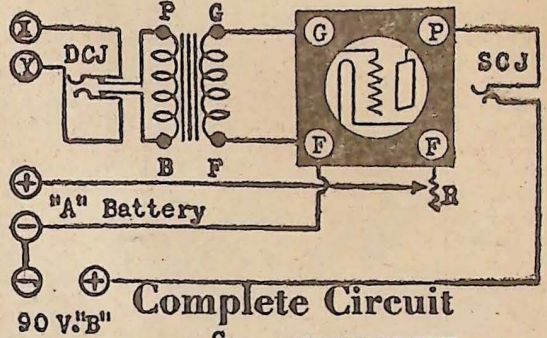


Plate Connections

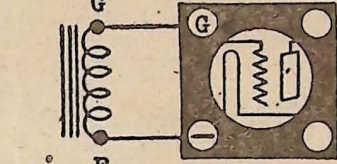


Filament Connections

1 Stage of Audio Frequency Amplification



Complete Circuit



Grid Connections

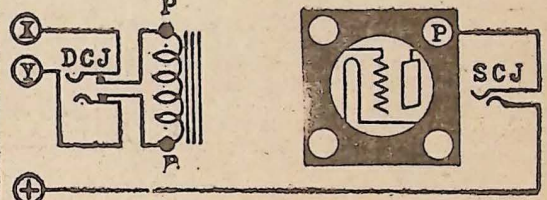
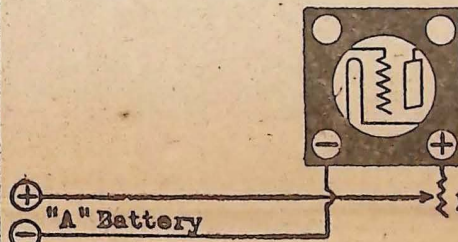


Plate Connections



Filament Connections

HERE IS KEY TO CIRCUITS

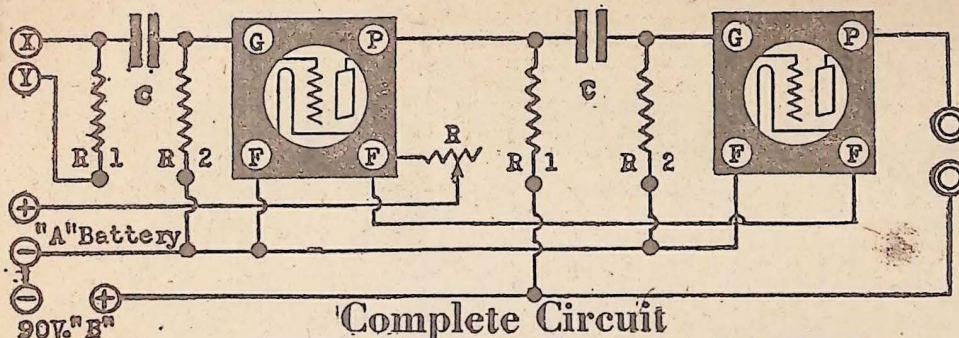
In the drawings on this page, X and Y, the input and output terminals, they should be connected accordingly to X and Y, the output terminals in last week's drawing. Note that a separate "B" battery is used in all the circuits. This is a much more efficient method than tapping off for the detector plate voltage.

In amplifier circuits such as the Reo Autoplex, etc., this extra battery should be dispensed with and plate leads from audio frequency tubes should be connected to Y.

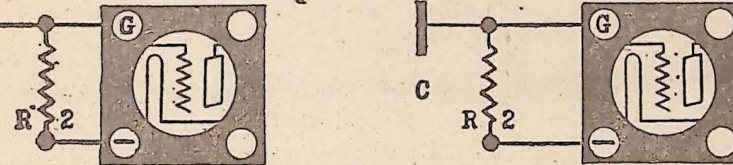
The R's in the drawings are rheostats. DCJ's are double control jacks; SCJ's are single control jacks. The R1's are 50 ohm resistors and the R2's are variable grid leaks. In the first stage of both the choke coil and the resistance coupled circuits C is a .01 microfarad condenser, and in the second stage it is a fixed condenser.

Preserve this page for your drawings.

Resistance Coupled Audio Frequency Amplification



Complete Circuit



Grid Connections

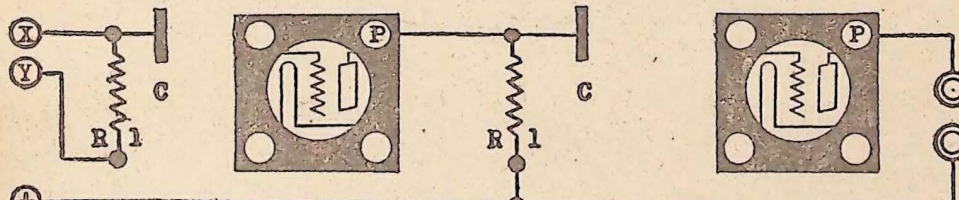
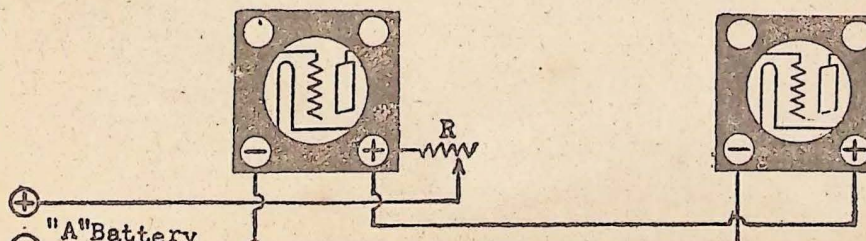
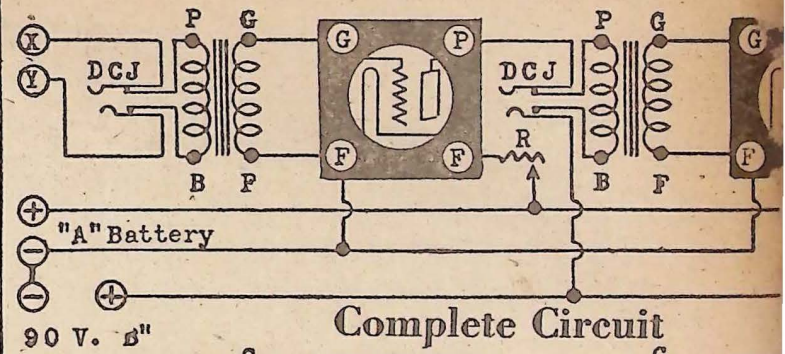


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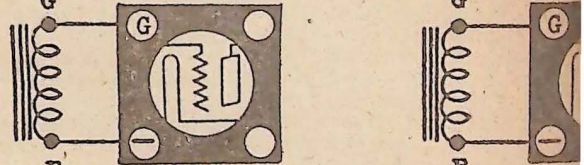


Filament Connections

2 Stages of Audio Frequency Amplification



Complete Circuit



Grid Connections

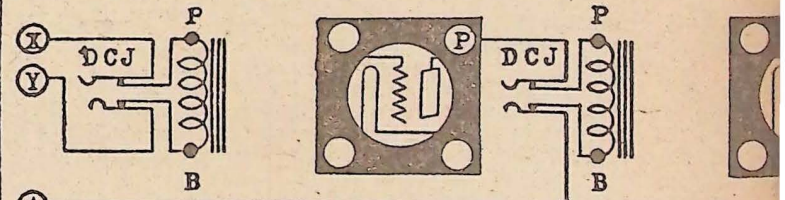
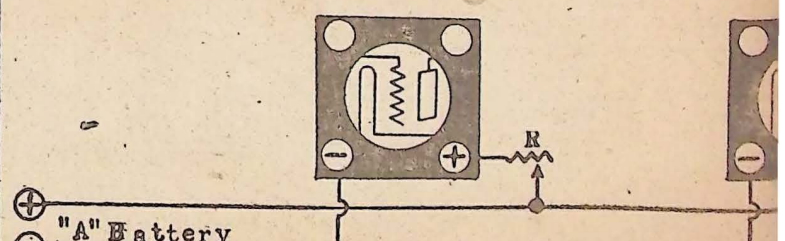


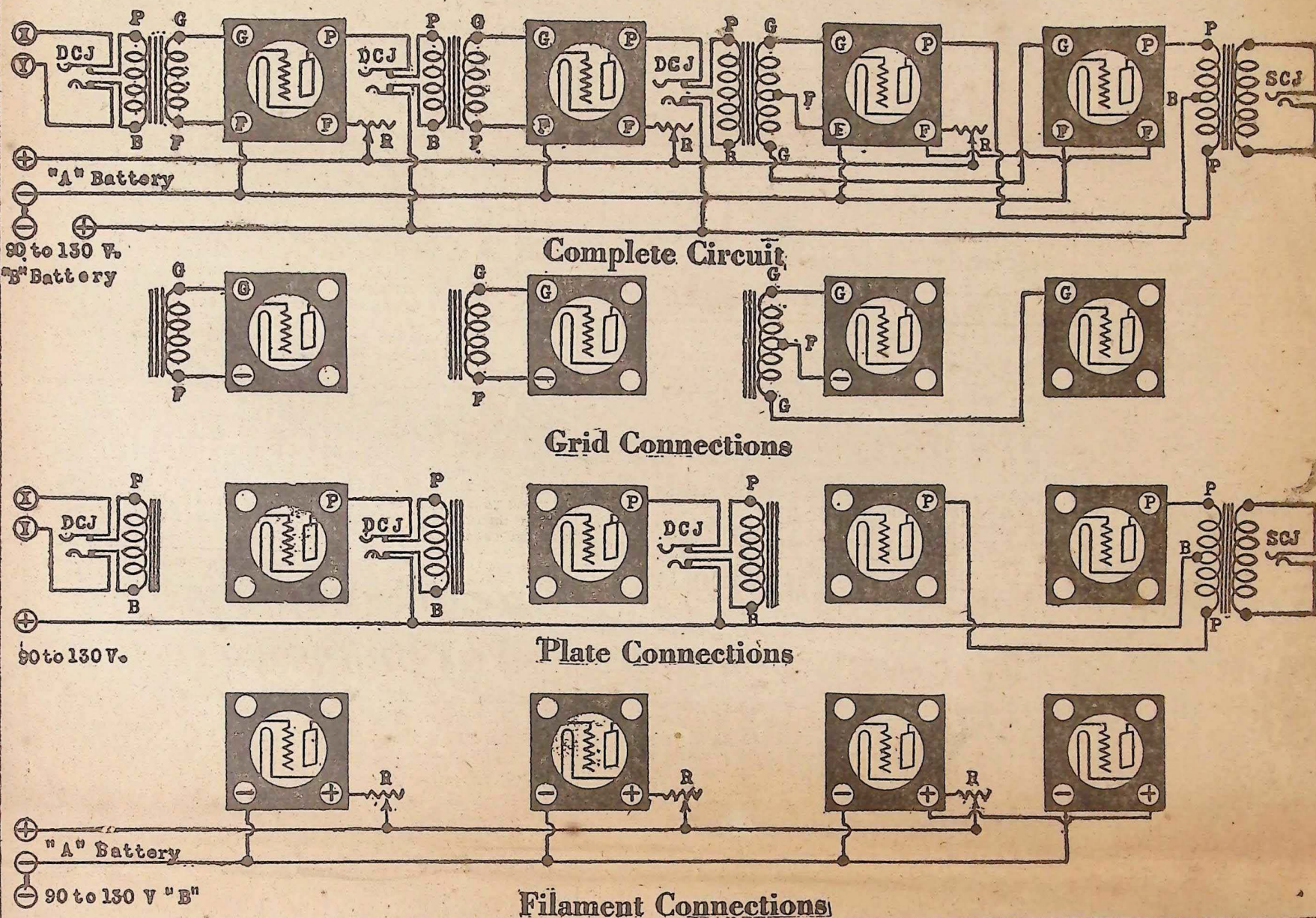
Plate Connections



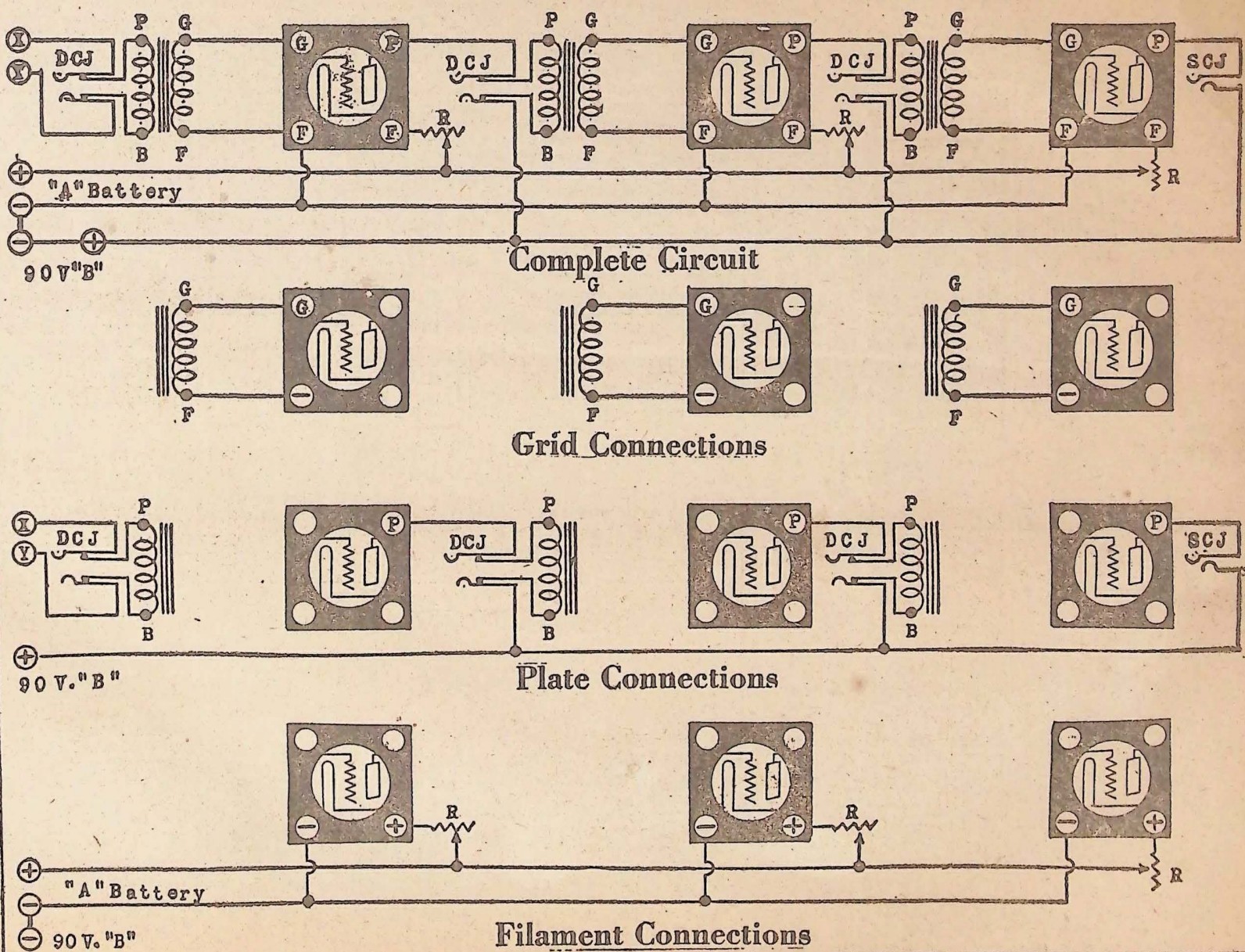
Filament Connections

PROGRESSIVE CIRCUIT DIAGRAMS

2 Stages of Audio Frequency and Push-Pull Amplification



3 Stages of Audio Frequency Amplification



RADIO FREQUENCY CIRCUIT

BY DAVID DIETZ

Daily News Science Editor

Radio-frequency amplification holds the limelight in the radio world today.

The neutrodyne is a special kind of radio-frequency amplification. The superdyne also makes use of it.

It is a mistake, however, to think that you cannot employ radio-frequency amplification unless you are prepared to sink \$75 or \$100 into your radio sets. It can also be used in simple sets.

Consequently, the amateur planning to build a one-tube single-circuit set is urged to stop and reconsider.

That is because such circuits create sufficient radiation to interfere with reception by all neighboring amateurs.

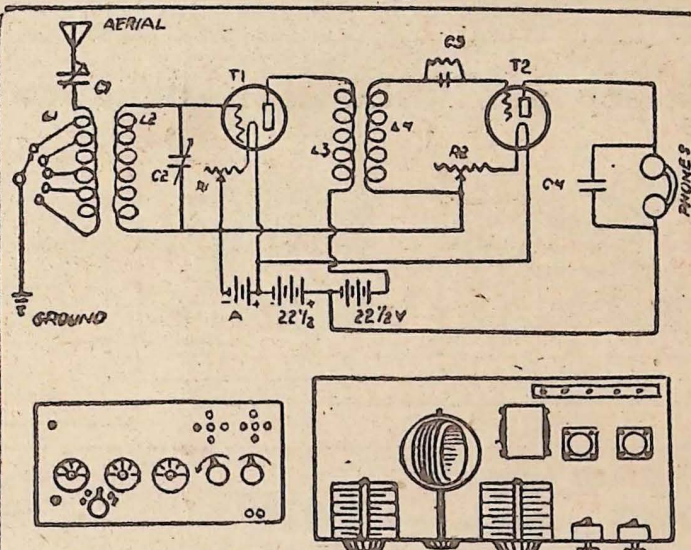
For about \$12 more, a radio-frequency circuit can be built which will not radiate.

And besides that, it will also be a better circuit, giving greater range and louder signals.

Such a circuit is described below. Just as two stages of audio-frequency amplification can be added at any time to a single circuit set, they can also be added to this set.

Parts Needed for Set

The accompanying diagram gives a schematic diagram of the



connections for the circuit.

It also shows how the completed panel should look and how the apparatus is arranged on the base.

The panel should be 20 inches long and 8 inches high. The base should be 20 inches long and 10 inches wide.

In addition, a strip of insulating material six inches long and one inch wide is needed. This is mounted at the back of the

base on two small blocks of wood and serves as a sub-panel for the battery binding posts.

The apparatus needed for the set is referred to by letters in the diagram, as follows:

L-1 and L-2, primary and secondary, respectively, of the vario-coupler.

C-1 and C-2, variable condensers.

L-3 and L-4, primary and secondary, respectively, of the

radio-frequency transformer.

C-3, grid leak and condenser.

C-4, phone condenser.

T-1 and T-2, vacuum tubes.

R-1 and R-2, rheostats.

Aerial, ground, batteries and phones are indicated in the usual manner.

How to Assemble Set

The exact dimensions for drilling the panel, of course, depend entirely upon the construction of the various parts purchased for assembling the set.

Two binding posts should be mounted at the extreme left of the panel. These are for the aerial and ground connections.

The apparatus is then mounted on the panel in the following order: The first variable condenser, the vario-coupler, the second variable condenser, the two rheostats.

Holes for observing the vacuum tubes are drilled above the rheostats.

Two binding posts are mounted at the right for the phone connections.

The vacuum tube sockets are mounted on the base behind the rheostats.

The radio-frequency transformer is mounted to the left of the first socket.

The grid leak and condenser is mounted on the base near the grid connection of the second vacuum tube.

The phone condenser is mounted on the back of the panel across the phone binding posts.

Five binding posts are mounted on the insulating strip at the back of the base. These are for the battery connections.

All connections should be made with bus bar wire and soldered.

If desired, the panel can be shielded with tin-foil and the connecting wires covered with "spaghetti" insulating tubing.

How to "Tune In"

Either a UV201-A or C301-A tube should be used in the first socket as the radio-frequency amplifying tube.

For the detector tube, a UV200 or C300 is best.

If it is desired to use dry batteries instead of a storage battery for the "A" battery, UV199 or C299 tubes can be used in both sockets.

Tuning is no more difficult with this set than it is with the ordinary single-circuit set.

The first variable condenser and the rotary switch control the tuning of the aerial circuit.

The secondary circuit is tuned in by means of the second variable condenser.

The vario-coupler secondary controls the degree of coupling between primary and secondary circuits.

Radio Ear Is Newest Malady to Hit Fans

Attention, radio fans!

If you have a radio ear, listen in. Do you suffer from ear strain and ear fatigue after "listening in" on your radio?

If you do, you have a radio ear, say ear specialists at Johns Hopkins university.

Their advice is to stop listening in for a while and rest your ears. As the eye suffers from

Highbrow Stuff Is Hit in New York

NEW YORK, Mar. 31.—Not only has radio become a popular medium for entertainment, but it is a great source of instruction, according to reports on programs offered by Station WEAJ under the auspices of Columbia university.

Following the success of a recent course of lectures on Robert Browning poetry, a series of lectures on "Practical American Politics" will be given by Schuyler C. Wallace of Columbia over the radio.

Spokane Public To Build Station

SPOKANE, Wash., Mar. 31.—Plans for building and maintaining a mammoth radio broadcasting station in Spokane were discussed recently by a committee in charge of the first Radio Show here.

The station will cost about \$30,000, and funds will be raised by popular subscription.

BASKETBALL RETURNS SENT

COLUMBUS, O., Mar. 17.—The basketball game between Purdue and Ohio State universities last week was broadcast play-by-play with such success that dozens of alumni radio fans declared in letters to Station WBAO it was equal to watching the game.

Relaying Broadcasting

KDKA at Pittsburgh is sending its concerts on to the Pacific Coast by means of a relay broadcasting station at Hastings, Neb. The operation is performed on short wave-lengths, making this a duplicate experiment in future broadcasting.

Most Powerful Station

The radio station located in the Malabar mountains, Java, is thought to be the most powerful station in the world. Poulsen arcs are used for transmission. They draw 2400 kilowatts of power.

the strong light, the ear suffers from strain due to sputtering and loud explosive sounds and scratches heard through the receivers.

Failure to rest the radio ear, specialists say, may result in serious headaches and development of nervous disorders. These ailments are particularly traceable to radio fans who have ear trouble. The auditory nerves of some radio fans are more sensitive than others. It is those who have excessive sensitiveness of hearing who quickly develop the radio ear.

On the other hand, persons who have normal auditory nerves need have no fear of listening in on their set for hours. The radio is most restful to most persons.

It is very important, however, to have the radio set adjusted correctly, so that much of the explosive noises, whistling, sputtering and scratches, may be avoided.

PUBLIC MAY WATCH WBBX

CHICAGO, Mar. 31.—

The new broadcasting station WBBX is not only to be the first in sending out exclusive programs for farmers, but is to have another unique feature. Its studio will be provided with glass windows, on the mezzanine floor of Hotel Sherman, so that passersby may see the radio being broadcast.

The agricultural program will consist of a farm news digest, addresses by noted agricultural leaders, farm advice, agricultural courses and other general information of interest to farmers.

The station may be opened early in April.

Private Wireless

By the use of a "scrambler" and an "unscrambler," private messages may be flashed by radio with perfect secrecy. The transmitting machine automatically "scrambles" the message and the receiver straightens it out so it can be understood.

Around the World

Children listening in on WGI, Medford Hillside, Mass., weekly, are taken on a virtual trip around the world by wireless. Music from various countries, in regular succession, is presented to furnish the round trip sensation.

AMATEUR SET SENDS SON TO SICK MOTHER

NEW BEDFORD, Mass., Mar. 31.—When Mrs. Hattie Hiller of Mattapoisett was stricken suddenly by shock during a recent storm friends found it utterly impossible to notify her son, Albert Hiller, chief of the Plymouth fire department as all regular means of communication by telephone and telegraph had been cut off.

After trying in vain to make connections for some time her physician, Dr. Blair, finally called upon Irving Vermilya, New England division manager American Radio Relay League, to rush the message by amateur radio. Vermilya quickly tuned his station to a wave length of 310 meters and, under his experimental license 1XAL, made an appeal by voice for all listeners to notify Hiller of his mother's illness.

The message was broadcast and repeated for five minutes. An approximate power of 1000 watts was used in making the call. The regular power supply had completely failed at the time, but this fortunately did not cause serious delay as the station was equipped with storage batteries for just such emergency work.

The following day Vermilya saw Chief Hiller in his fire department car pass through on his way to Mattapoisett. Hiller later said that at least 10 persons had told him they had received the radio broadcast and he had promptly set out at the break of day.

Radio Exports

Radio apparatus exported to other countries amounted in value last year to \$3,448,112, an increase of more than 20 per cent over the exports of 1922. Most of it went to Argentina, Quebec, Ontario, Australia, Panama, Mexico and England.

Service Becomes An Important Feature

Perhaps one of the most important developments in radio at the present time is service in connection with the making and operation of sets.

Service is as important to radio as service and service stations have been in the development of the automobile industry and in time will have as important an effect on the radio industry.

The extent of research and service work now done by leading manufacturers of radio ap-

Broadcasting Station Was Unknown In 1910

WASHINGTON, Mar. 31.—When congress in 1912 first turned its attention to federal regulations of radio, the status of radio communication as told to the House Marine Committee by Secretary Hoover was as follows:

No broadcasting stations.
123 land stations for code

Deaf Boy Hears Music Program

BIRMINGHAM, Ala., Mar. 31.—One of the most amazing stories told in connection with radio is that of Roy Clark, a native of Dallas, Ala., who, born deaf and dumb, heard for the first time over the radio.

Clark was a guest at a radio party, and was invited to tune in on a concert. He amazed the other guests by signifying in sign language that he had heard the concert.

WE BLUSH!

Here is what a reader thinks of us:

"The Daily News' Radio Magazine has been of great value to me; it is the first and best news that has ever been published in any paper in this city. There are many facts given in this paper on each day's program, and I wish it great success.—Conrad Jonsane, 362 Cumberland-st."

No use printing a hook-up of the new harmonic super-heterodyne designed by Maj. E. S. Armstrong, because it's too complicated, he says.

transmission, of which one was trans-oceanic.

485 American ships equipped with radio apparatus.

1224 amateur stations in operation.

Today radio has attained the following proportions:

561 broadcasting stations.

790 land stations, of which 12 are transoceanic.

2725 American ships equipped with radio apparatus.

16,590 amateur stations in operation.

In the U. S. today, Hoover estimated, there are three million to five million receiving sets and a radio audience of "anywhere from 10,000,000 to 20,000,000 people."

New York City Battling WEAJ

NEW YORK, Mar. 31.—A fight to suppress Station WEAJ of the American Telephone & Telegraph Co. has been launched here by Commissioner of Plants and Structures Whalen, who will ask city aldermen to pass an ordinance forbidding the company or any other local company to broadcast with generating power above that allowed other stations.

Whalen contends that other stations are drowned out when WEAJ is broadcasting.

FAN TOTAL IN ENGLAND BIG

LONDON, Mar. 31.—That radio fans are increasing by leaps and bounds is proved by the increasing number of licenses issued to fans. While Great Britain had only 30,000 licensed listeners in last year, this year there were over 580,000, according to the latest figures.

COPS TUNE IN ON CALLIOPE

Station WSB, Atlanta, almost got into difficulties the other day when they attempted to broadcast the harsh notes of a circus calliope at midnight. The police objected, but entered in the spirit of carnival revelry when they found out what it was all about.

Costly Broadcasting

Tune in for WEAJ, New York, and you will more than likely hear a solo, lecture or concert that costs its originators \$10 a minute, to broadcast. This is the only station in the country through which advertisers are permitted to broadcast at that rate.

HERE'S THE NEW SUPER-PLIODYNE SET

BY ISRAEL KLEIN

Unlike the super-heterodyne in principle, yet equal to it in simplicity of control and in wide range, degree and selectivity of reception.

A nine-tube receiver, using six stages of tuner radio frequency and two of audio-frequency, with only two controls! No howling, no re-radiation, yet fine selectivity.

Successfully operated on a 12-foot aerial!

These are the characteristics of the new "Super-Pliodyne" receiver designed by C. L. Farrand, New York consulting radio engineer, who exhibited his set recently before the Radio Club of America at Columbia University.

Farrand, in his receiver, has overcome the difficulties met in construction of even two or three-stage tuned radio-frequency circuits. The controls are so intricate and the balance so delicate that it is almost impossible to tune them.

On the Dial

This intricacy has been avoided in the super-plyodyne by the simple method of creating a bank of variable condensers, all timed at the same time by a single dial working the condensers by means of worm gear arrangement. The condensers are electro-statically shielded from one another and are adjusted beforehand for single control.

The only other control on the set is the dial for the antenna inductance.

Farrand's design is such that from three to 10 stages of radio-frequency may be used.

Oscillation is avoided by use of a new principle, by which any number of radio-frequency stages may be employed. Between the grid and the plate of each tube Farrand has connected a non-inductive, low capacity resistance, which changes the phase of the coupling current flowing between the grid and plate circuits, nullifies most of the feedback caused by the capacity of the circuit and the tube, and absorbs what remains as it is fed back.

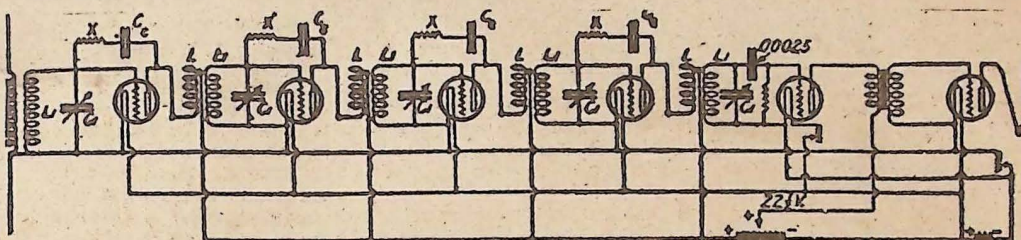
Resistances

Says Farrand:

"The value of resistance necessary to nullify the grid to plate coupling is dependent upon the design of the tube, as well as the circuits, and is not critical. For storage battery tubes now in commercial production, a resistance ranging between 25,000 and 35,000 ohms gives satisfactory performance for multistage operation. One hundred thousand ohms is a satisfactory value for the present dry cell tubes and may vary between 90,000 and 120,000 ohms."

Describing his hook-up further, Farrand goes on:

"A condenser is inserted in series with the resistance between grid and plate to prevent the plate battery from flowing through it to the filament. It is



Hook-up of six-tube plyodyne receiver.

purely a blocking condenser and may range between 1 microfarad to .001 microfarad and is only needed to permit the amplifier tubes to be operated on common plate battery.

Transformers

"The transformer windings should preferably be tightly coupled. A suitable design consists of 100 turns of No. 26 B. & S. wire on a tube, two inches in diameter and 2 1/2 inches in length, comprising the secondary. The primary should be wound with about 25 turns of the same wire on a concentric cylindrical tube of about 1 1/4 inches in diameter.

"The primary is wound in opposite direction to the secondary. The end of the primary winding directly under the grid end of the secondary should be connected to the plate battery. The other terminals follows as usual.

"The secondary tuning condenser should have a capacity of .00025 mfd."

Coupling these condensers together involves such hard work to adjust each correctly in relation to the others, that this is the most difficult part in hooking up the receiver.

Three-Stage Radio

Farrand gave a hook-up for three stages of radio, a detector and two stages of audio-frequency amplification and showed how regenerative amplification, equal in increased volume to two stages of audio, may be obtained. This is done by omitting the nullifying resistance of the third radio stage and controlling the feedback by means of a potentiometer on the grid of the same tube.

Equal results may be obtained by use of a variometer in the plate circuit of the detector tube. But if this is done the nullifying

resistance on the third radio tube must remain.

"In the use of three stages of radio-frequency amplification without regeneration," Farrand says, "it is not necessary to take any particular precautions, except disposing the transformers

at right angles, and using care to provide for short grid leads, and that the grid lead of one tube does not run close to the grid lead of another."

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, 1322 New York-Bay, 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.

Lead in Broadcasting

United States and Canada

have about 12 times as many broadcasting stations as all the rest of the world combined. There are over 600 stations in the two countries. The rest of the world has about 50 stations.

Here's a Hint, Fans

An ordinary crystal detector when shunted across the grid condenser in the receiver in place of the grid leak will give excellent results at times. It is well worth while trying and will increase the signal 20 or 30 per cent.

GET THE REAL FACTS—FIRST

The Daily News publishes a radio news department EVERY DAY—the largest and most complete in San Francisco. The Daily News is the ONLY newspaper that prints COMPLETE and ACCURATE programs of ALL the broadcasting stations, corrected every day up to press time. If you are not already a regular subscriber, fill out this coupon, send it in and have The Daily News delivered every afternoon at your home or office. The price is only 50 CENTS A MONTH.

Name

Street and Number

Mail to 340 Ninth St., San Francisco—or just telephone Market 400 and say "I want The Daily News."

Farrand's receiver has been successfully operated on an aerial only 12 feet long.

Tested out recently, Farrand reports he was able to tune out, without regeneration, a 492-meter station in New York to receive the signals of a 509-meter station in Philadelphia.

He has made further improvements on the set, to improve its transoceanic.

RAILROADS IN S. O. S. CALL TO EASTERN FANS

BY VERNAL E. FULLER

BOSTON, Mass., Mar. 31.—Amateur radio operators situated in northern New England were of great help during the big storm which recently swept this section of the country.

One of the first to seek the assistance of amateurs was the superintendent of telegraph of the Boston & Maine Railroad. When he found it was impossible to get train reports through the regular channels, he got in touch with Waldo J. Kelley, radio ICPI of Watertown, Mass., and asked if it was possible to communicate with the principal cities along the line. Kelley succeeded in raising P. Francis Hahn, radio 1HK of Manchester, N. H., and after three hours of hard work through interference of all kinds, was able to report to the superintendent that everything was clear between the cities of Boston, Dover, Portsmouth and Portland.

While the B. & M. traffic was being cleared, officials of the New York, New Haven and Hartford Railroad called Kelley and asked him to reach stations in the vicinity of Cape Cod. Finding that station 1RA in Somerville was in commission and ready to help, Kelley assigned the southward traffic to him. This station soon located three trains between Boston and the Cape.

When he returned from his day's work, George W. Lang, operator of station 1KA, of West Somerville, was pressed into service and picked up Elio G. Gavallini, operator of 1RR, who was in charge of the Western Union office at Plymouth, Mass. He took his report of conditions and quickly turned it in to the Boston office.

Concert Joins Chums

DETROIT, Mar. 31.—A radio concert, in which one was playing, terminated in the reunion of two friends, when Juanita Lorgion Berry, violinist, broadcasting here, was heard in Cleveland by Mrs. Frank Smith, an old school chum.

There are 12 transoceanic radio stations along the U. S. coast.

THE WEEK'S AIR PROGRAMS CONTINUED

(Concluded from Page 1)

12:30 to 1:15 p. m.—News items, weather report, music.

2:30 to 3:30 p. m.—Program presented through the courtesy of Barker Brothers.

6:30 to 7 p. m.—Children's program presenting Prof. Walter Sylvester Hertzog telling stories of American history; the weekly visit of Richard Headrick; bedtime story by Uncle John.

7 to 7:30 p. m.—Organ recital from First Methodist Episcopal church; Arthur Blakeley, organist.

8 to 10 p. m.—Program presenting the Studebaker Radio orchestra from Long Beach; Floryane Thompson, soprano, and Walter F. McEntire, lecturer.

KFOA—RHODES, SEATTLE, WASH. 455 METERS

8:30 p. m.—Program arranged by James Hamilton Howe, dean of the American College of Music, which will consist of octette pianoforte selections, to be given for the first time over radio. Violin solos and duets, clarinet, vocal and pianoforte solos will make up this classical recital.

KFAE—WASHINGTON STATE COLLEGE, PULLMAN, WASH. 330 METERS

7:30 to 8:30 p. m.—Mandolin and guitar solos and duets—Valenciano and Conchucos, Filipino students. Secret Diplomacy—Prof. C. H. Weddy, economics department. Alfalfa in Rotation with Wheat Benefited by Gypsum—Prof. R. P. Cope, agricultural chemist. Book Chat—Alice Webb, editor general publications. Increase of Mechanical Power in Everyday Use—H. H. Langdon, M. E. Piano solos—Margery Segessenmann of Spokane. Vocal numbers.

SATURDAY, APRIL 5

KPO—HALE BROS., S. F. 423 METERS

12 Noon—Time signals; Scripture. 1 to 2 p. m.—Rudy Selger's Fairmont hotel orchestra.

2:30 to 3:30 p. m.—Mission Pioneer program under direction of Major A. H. Hutchinson.

Address—Major A. H. Hutchinson. Address—Aims, Purposes and Pledge of the Pioneers, by Malcolm Ross of Sutter Pioneers.

Violin solo—Viennese Popular Song, by Emmet Dohrmann of '49ers Pioneers club.

Recitation—My Brother, by Leonard Hoover of Sutter Pioneers.

Recitation—Your Mission (Answer), by Winfield Lee of Muir Pioneers.

Chorus—Pioneer Song, by John Muir Pioneer club.

Violin solo—Slumber Song, by Emmet Dohrmann of '49ers Pioneers club.

Recitation, He Never Told a Lie, by Winfield Lee of Sutter Pioneer club.

Comic song parodies—John Muir Pioneer club.

Address—What Pioneering Has Done for Me, by Malcolm Ross of Sutter Pioneer club.

Humorous songs—I Know What Consolation Is; Sunday School Rhymes, by quartette—Fred Mack, Winfield Lee, Leonard Hoover and Hugh Robinson.

Recitation—A Mile With Me, by Leonard Hoover of Sutter Pioneers.

Recitation—A Mile With You (answer), by Malcolm Ross of Sutter Pioneer club.

Piano solo—Midnight Rose, by Willis Burns of Grizzly Pioneer club.

Song—It Ain't Goin' to Rain No More, by Sutter Pioneer Quartette.

8:30 to 9:30 p. m.—E. Max Bradfield's versatile band playing in the

Palace Rose Room Bowl.

8 to 12 p. m.—Dance music by Art Weidner and his popular dance orchestra. This orchestra plays at the Fairmont hotel every Saturday night and the music is broadcast by wire telephony over KPO. During intermissions of orchestra KPO Trio will sing popular songs. This trio—Benjie Berman, Jimmie Raymond and Harry Hume—is a regular feature at KPO every Saturday.

KGO—GENERAL ELECTRIC CO., OAKLAND—312 METERS

12:30 p. m.—New York stock exchange and weather reports.

4 to 5:30 p. m.—Music by St. Francis hotel dance orchestra; Henry Halstead, leader.

8 to 10 p. m.—"It Pays to Advertise," A farcical fact in three acts by Roy Cooper McGraw and Walter Hackett, given by the KGO players under direction of Wilda Wilson Church.

CAST

(In the order in which they speak.)

Mary Grayson Lois Austin Johnson, the butler Conrad Kahn

Comtesse De Beaulieu Mlle. Wehrlemann

Rodney Martin Harold Minger Cyrus Martin J. Spencer Riley

Ambrose Peale Dan Tothoro Marie, the maid Eva Loubens

William Smith Page Monroe Miss Burke Ruby Cole

Donald McChesney David Barnwell George Bronson Jennings Pierce

Ellery Clark Lawrence Tullos Time: Present. Place: Any large city.

Instrumental selection—The Arise-crat March, by Arion Trio.

Act 1—Library at Cyrus Martin's home.

Instrumental selection—On Wings of Music, by Arion Trio.

Act 2—Rodney Martin's office.

Instrumental selection—Serenade, by Arion Trio.

Act 3—Library at Cyrus Martin's home.

Instrumental selection—Sizeliotta, by Arion Trio.

10 p. m. to 1 a. m.—Music, St. Francis hotel dance orchestra; Henry Halstead, leader.

KLX—OAKLAND TRIBUNE 500 METERS

7 to 7:30 p. m.—News items, U. S. weather bureau report.

DISTANT STATIONS

KFI—EARLE C. ANTHONY, INC., L. A.—469 METERS

4:45 to 5:15 p. m.—Evening Herald news bulletins.

5:15 to 5:45 p. m.—Examiner news bulletins.

6:45 to 7:30 p. m.—Instrumental program.

8 to 9 p. m.—Vocal and instrumental concert.

9 to 10 p. m.—Examiner concert.

10 to 11 p. m.—Vocal and instrumental concert.

11 to 12 p. m.—Ambassador hotel—Lyman's Coconut Grove orchestra.

KHJ—LOS ANGELES TIMES 395 METERS

12:30 to 1:15 p. m.—Program arranged by Alexander Cameron, presenting the Clan Cameron, in a Scotch program.

2:30 to 3:30 p. m.—Program presented through the courtesy of Barker Brothers.

6:30 to 7:30 p. m.—Children's program, presenting Prof. Walter Sylvester Hertzog, telling stories of American history; Bernice Van Loan Gaines, composer; Tilda Rohr, contralto, and Marjorie Vorhes, violinist.

8 to 10 p. m.—Program of Bernice Van Loan Gaines' compositions presenting Tilda Rohr, contralto, and Marjorie Vorhes, violinist.

KGW—MORNING OREGONIAN, PORTLAND—492 METERS

11:20 a. m.—Weather forecast.

8:30 to 4 p. m.—Children's program;

bedtime story by Aunt Nell.

10 to 12 p. m.—Weather forecast; dance music by George Olsen's orchestra by direct telephone from the Portland hotel.

WBAP—STAR TELEGRAM, FORT WORTH, TEXAS—476 METERS

6:30 to 6:50 p. m.—Review of the interdenominational Sunday school lesson and radio Bible class by Mrs. W. F. Barnum. Those writing in will be enrolled and sent a certificate of membership.

SUNDAY, APRIL 6

Organ Prelude—Theo. J. Irwin. Solos—May Clark Burns, soprano. Lord's Prayer—Rev. J. W. Lundy.

D. D., associate pastor Howard Presbyterian church of San Francisco.

Sermon—Rev. J. W. Lundy.

DISTANT STATIONS

KHJ—LOS ANGELES TIMES 395 METERS

10 a. m.—Sermon from KHJ studio by Rev. Edgar Fay Daugherty, pastor of the First Christian church.

10:30 a. m. to 12:30 p. m.—Organ recital and entire religious service from the First Methodist Episcopal church; Arthur Blakeley, organist, and Rev. Elmer D. Helms, pastor.

7 to 7:30 p. m.—Organ recital from the First Methodist Episcopal church; Arthur Blakeley, organist.

8 to 10 p. m.—Program through the courtesy of the Fitzgerald Music Co. WBAP—FORT WORTH, TEXAS 476 METERS

11 a. m. to 12:15 p. m.—Complete services of the First Methodist church; Rev. J. W. Bergin, pastor.

4 to 5 p. m.—Organ concert by Miss Margaret Agnew White of the Blaine theater.

11 to 12 p. m.—Popular concert by Fred Cahoon's WBAP Southern Serenaders orchestra.

SWAPPING BED TIME STORIES WITH CHINA

BY WILLIAM PHILIP SIMMS

Daily News Foreign Editor

"Good evening. This is Station CFRA broadcasting: China Federal Radio Administration, at Shanghai. Before we proceed with our usual bedtime story telling how little Wee Sing poked the dragon's eye out with his mother's mah jongg counter, Hop Lee, the celebrated Canton chef, will tell housewives how to prepare eggs for yung and chop suey."

American radio fans will soon be listening in on some such conversation as that. Programs will soon be coming from the other side of the Pacific ocean—across six thousand miles of salty sea. And Yankee jazz will be making the same mighty

leap, quickening the pulse of Chinese Tutchuns along the upper reaches of the Yangtze-kiang, as far as Thibet and western Mongolia beyond the Gobi desert.

Preliminary work is now in full swing near Shanghai, for the erection of the world's mightiest wireless station. It is to be built for the China Federal Radio Administration at a cost of several million dollars. It will be higher than Eiffel tower, Paris, by several feet, and designed to reach easily any part of the world.

This marks the end of what has been one of the bitterest diplomatic battles which the Far East has known for years.

It began in 1921 when the

Federal Telegraph Co. of California announced that it had a contract to build five huge wireless stations for the Chinese government, the main tower to be near Shanghai, with others at Canton, Hankow, Peking and Harbin.

Immediately several other nations chimed in, particularly Japan. China, they claimed, was tied up and could not make any such contract. Japan claimed a 30-year monopoly for herself by virtue of a contract made by the Chinese Navy in 1918 with Mitsui & Co., for a station at Peking.

Ni pand tuck, the battle has raged ever since, our State Department upholding the American concern by invoking the

open-door policy, or equal rights for all. It was not easy, but—the first American tower is at last under way.

Until the United States began a far eastern service and started giving China American news of American doings, American news filtered in through Japanese or English sources.

Whatever happened in the United States, China was given the Japanese version of it, or the British version, or both, but seldom the American version. About the only reliable American news China ever got was a mere dribble in the form of a "handout" at the American legation in Peking.

As international rivalry is extremely bitter in the Orient, it

generally happened that the Chinese heard only the worst about us, and the most unfavorable side at that. But Japanese news and British news was always pictured in agreeably delicate rosy shades.

Already partially remedied by an American news agency, this astounding situation will soon end. Direct wireless connection with China will mean quicker and cheaper communication, both for news and business. It will do away with the interested go-betweens virtually amounting to a censorship between the two countries, and allow Chinese and Americans to get acquainted really for the first time.

Radio broadcasting and swapping bedtime stories are bound to help a lot.

UNDERGROUND 'AERIAL' IS NEW DEVELOPMENT

WASHINGTON, Mar. 31.—Dig a hole in your backyard and place your radio "aerial" in it, if you would be up to date!

That is, of course, granting that Dr. James Harris Rogers, famous inventor, has proved his theory. Some time ago he started experimenting with underground antennae. Today Dr. Rogers, resuming his work after a short illness, freely predicts that underground transmission will supersede aerial transmission.

Dr. Rogers reveals that perfect communication was carried on with points 200 miles away, during experiments he conducted. Interference, he declared, is practically eliminated, difficulties of day reception are reduced to a minimum and the power required for transmission is considerably less than for aerial antennae.

Abandons Aerial

One of Dr. Rogers' underground sets consists of a loop antenna let down into a metal-covered well. He has practically abandoned his high strung aerial on the roof of his laboratory, nightly hearing foreign stations on his submerged set.

Dr. Rogers believes underground transmission to be an important development in radio science, and predicts it will make possible the concentration of broadcasting at a group of powerful stations.

"These stations," he believes, "will be at strategic points over the country. Reception will be clear and strong in every set, interference from so many different wave lengths being eliminated. The stations will operate something like a telephone switchboard, tuning in for the programs they desire to rebroadcast in their vicinity."

"Communication with transatlantic and transpacific points will be among the usual things. But all of this will come only through underground and submarine transmission," Dr. Rogers says.

While Dr. Rogers thus would eliminate the weaknesses of radio communication, other inventors are continuing their attempts to perfect aerial transmission.

One of the tasks before the radio division, bureau of standards, is to eliminate "fading" and to devise means to confine broadcasting to its particular wave-length. Once this is done the aerial should enjoy as clear and strong reception as Dr. Rogers claims for the underground apparatus.

Radio fans will remember that Dr. Rogers' first experiment with underground antennae played an important part during the war, when many enemy communications were heard on underground wireless network.

DO YOU GET MARKET NEWS?

The Bureau of Agricultural Economics, 62 Appraisers bldg., San Francisco, wants to know how many radio fans pick up the market news broadcast from local radio stations and those in Los Angeles and Portland.

BUGS



LET'S SWAP

What have you that you don't want? What do you want that you don't happen to have?

The radio habit is like the automobile habit—you start with a flivver set and windup tuning in on a Rolls-Royce affair. In making the transition there are many parts left over that somebody else may need. Somebody else may have something that you want badly. Why not swap?

The Daily News Radio Magazine will publish "swap" ads free, but the article to be traded must be radio equipment.

Married by Radio

MARLOW, Okla., Mar. 31.—A new use of radio originated when B. L. Lewis and Catherine Lewis were married recently in Marlow, Okla., to the tune of Mendelssohn's "Wedding March," played over the radio 200 miles away in Fort Worth, Tex.

Bahamas Gets U. S.

CLEVELAND, Mar. 31.—Down in the Bahamas, land of Easter lilies and onions and more than 1 1/2 per cent liquor, they are getting radio concerts from here, according to word received by station WJAX, the Union Trust Co.

Peanuts Now Perform on Air

Say it with peanuts seems to be the motto of some Davenport (Ia.) grocer, who recently left a basket of the delicious confection at station WOC for P. S. O. radio orchestra as a token of his appreciation of their program.

During the program the WOC announcer acknowledged receipt of the gift, and to show that the nuts were fresh and crisp, cracked one of the shells before the microphone.

The stunt was so unusual that hundreds of radio fans from all over the country wrote to the station and said that the sound was received very naturally and clearly. Reports came from points from Philadelphia to Denver and from Texas to Canada.

RADIO TALKS AID STUDENTS

KANSAS CITY, Mo., Mar. 31.—A new use of radio has been found by shorthand classes of Central High School here. Each night embryo stenographers listen in on the radio, and take down speeches and talks in shorthand, which they afterward transcribe.

Radio Firm Prospers

NEW YORK, Mar. 31.—Radio business is so good the Radio Corporation of America pays holders of preferred stock 7 per cent dividends.

DROP NICKEL HEAR RADIO, LATEST STUNT

A nickel deposited in a coin-controlled radio receiver set, recently invented by D. J. Richardson, of Washington, D. C., will bring to the radio fan, wherever he may be, music in the air. Music lovers heretofore have contented themselves with dropping a nickel into a phonograph-record box and hearing music ground out, but now the radio fan may tune in on concerts, talks or lectures, wherever there is a coin-controlled radio receiver set.

Enterprising dentists, shoestand proprietors, barbers and railroad companies will install coin-controlled radio receivers, to while away the patron's time.

The device presents unique features, and differs from other vending machines in that it assures patrons that it is in working operation before the deposit of a coin. This is good news to patrons of gum machine, candy machines and other vending-slot schemes.

In accordance with the printed directions and pressing a push-button on the box, programs, if any are being received, come on the air intermittently. By depositing a coin, service is assured for a certain length of time, at the end of which time it may be resumed upon the deposit of another coin.

ANSWERS

Mrs. Reise, 3236 Geary-st, asks:

(1) I have a set of which I am enclosing diagram. Why is it not possible to get longer distance when local station comes in so loud.

(2) My aerial is 100 feet long and 30 feet high.

(1) Diagram sent in is of the standard regenerative circuit with the omission of small radio frequency by pass condenser connected across the negative "B" battery and the headphones. We refer you to diagram No. 1 of last Monday's issue of this magazine. This shows clearly the correct diagram. The variable condenser that you show in the dotted lines in your diagram is a refinement that is very good.

(2) Your aerial is one that should give you good results, proving it is well insulated from the ground and all connections are soldered. The addition of a two-step amplifier would increase the volume of all stations heard many times.

W. A. Rice asks:

How can I attach a wave trap to a crystal set?

The wave trap is put in series with the antenna. That is, the antenna is disconnected from the set and attached to one binding post on the trap. The other tap on the wave trap is attached to the antenna binding post of the set. The ground connection on the set remains the same.

Radio Greets Stork

SCHENECTADY, N. Y., Mar. 31.—The stork now travels to radio music accompaniment.

The first sound to greet the little ears of Greta Elnora Andrews as she entered the world at Woodland, Mich., was music from WGY, the General Electric station here, according to a letter from Dr. F. T. Andrews, the father.

Dr. Andrews said Schenectady came in clearly and "provided entertainment for the mother."

Coast Stations Not to Be Sued

NEW YORK, Mar. 31.—Newspapers which are broadcasting free programs and which have purchased Western Electric equipment will not be disturbed, whatever the outcome of the American Telephone and Telegraph Co.'s suit to protect its patents, according to J. D. Ellsworth, phone company official.

Fourteen newspaper stations were classed as "safe." Four are Pacific Coast stations. They are: KLL, Oakland Tribune; KGW, Portland Oregonian; KFI, Los Angeles Examiner; Record, and Earle C. Anthony, Inc., and KHJ, Los Angeles Times-Mirror.

Static Is Puzzle

BATAVIA, N. Y., Mar. 31.—Radio fans offer \$50 to person discovering and eliminating the cause of interference in the air when radio concerts are on. A buzz is ruining the music.

Give Chimes Concert

CINCINNATI, Mar. 31.—First chimes concert was given by station WSAI, United States Playing Card Co., which installed a set of chimes recently.

WED COUPLE BY AIR MUSIC

COLUMBUS, O., Mar. 31.—The wedding of Dorothy Jane Fisher of Athens and John E. Parmiter of Amesville at the broadcasting studio of radio station WPAL, was perhaps the most widely attended wedding ever held in Columbus.

After the ceremonies an informal ceremony was held at the telephone and hundreds of congratulatory messages were received by the couple.

KGO IS HEARD EASILY IN N. Y.

KGO, General Electric Co., Oakland, was easily heard by Mrs. James R. Boyle in Providence, Rhode Island, the other night.

Mrs. Boyle was using a five-tube set constructed by her son. She says she also succeeded in bringing in KGO on four tubes in second audio.

RADIO PHONES

Manhattan Headset, 2000 ohms; list price \$7.00; sale \$3.10
Scientific Headset, 3000 ohms; world's greatest radio phone \$2.95
value

I. S. COHEN'S SONS
1015 Market, near 6th St.
MAIL ORDERS FILLED