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RADIO  
MAGAZINE

# The Daily News

EVERY  
MONDAY

## IS THERE A RADIO TRUST?

### MOVIE MEN IN FIGHT TO END TAX GRABBING

Movie exhibitors are uniting with radio broadcasters in the fight on the music tax imposed by the Society of Composers, Authors and Publishers.

The society charges a fee for public rendition of music composed or songs written by its members. Many exhibitors and broadcasters contend the license fee is wrong in principle, as well as exorbitant, and they are gathering their forces to wage war on the composers.

Kansas City division of the Motion Picture Theater Owners of America has voted to combine strength with radio station operators, and similar action is expected in other parts of the country.

According to A. G. Hettelsheimer, prominent in the M. P. T. O. A. in Ohio, the situation was discussed at the exhibitors' convention in Columbus recently and theater owners were urged to refuse to play music published by the S. C. A. P.

A movement also is on to bring about a change in the copyright law which would end the practice of collecting royalties on sheet music or the public playing or broadcasting of this music.

**Tax-Free Music**  
The National Association of Broadcasters, which maintains a tax-free music plan, plans to extend this service to picture theaters. Movie exhibitors now may become Class B members of the Broadcasters Association, entitling them to the music privileges.

You may have wondered why some songs are sung and played over and over again by broadcasting stations. The reason, in many cases, is that they are tax-free. "Marcheta," which nearly every station seems to have on its program two or three times a week, is a case in point.

**Movies Not Hurt**  
Do the movies suffer because of radio popularity? Apparently not. During the seven months ended Jan. 31, the best months of the radio season, theater admissions took a jump.

This is shown by figures on admission taxes made public by the government. From July 1, 1923, to Jan. 1, 1923, to Jan. 31, 1924, collections increased more than \$5,000,000 over the corresponding period in 1922-23.

During January business at the boxoffices was better than at any time since June, 1921. The radio interest has been at its height since last fall, so that if other forms of amusement were to suffer as a result, as some movie and theatrical men feared, the slump would have come long before this.

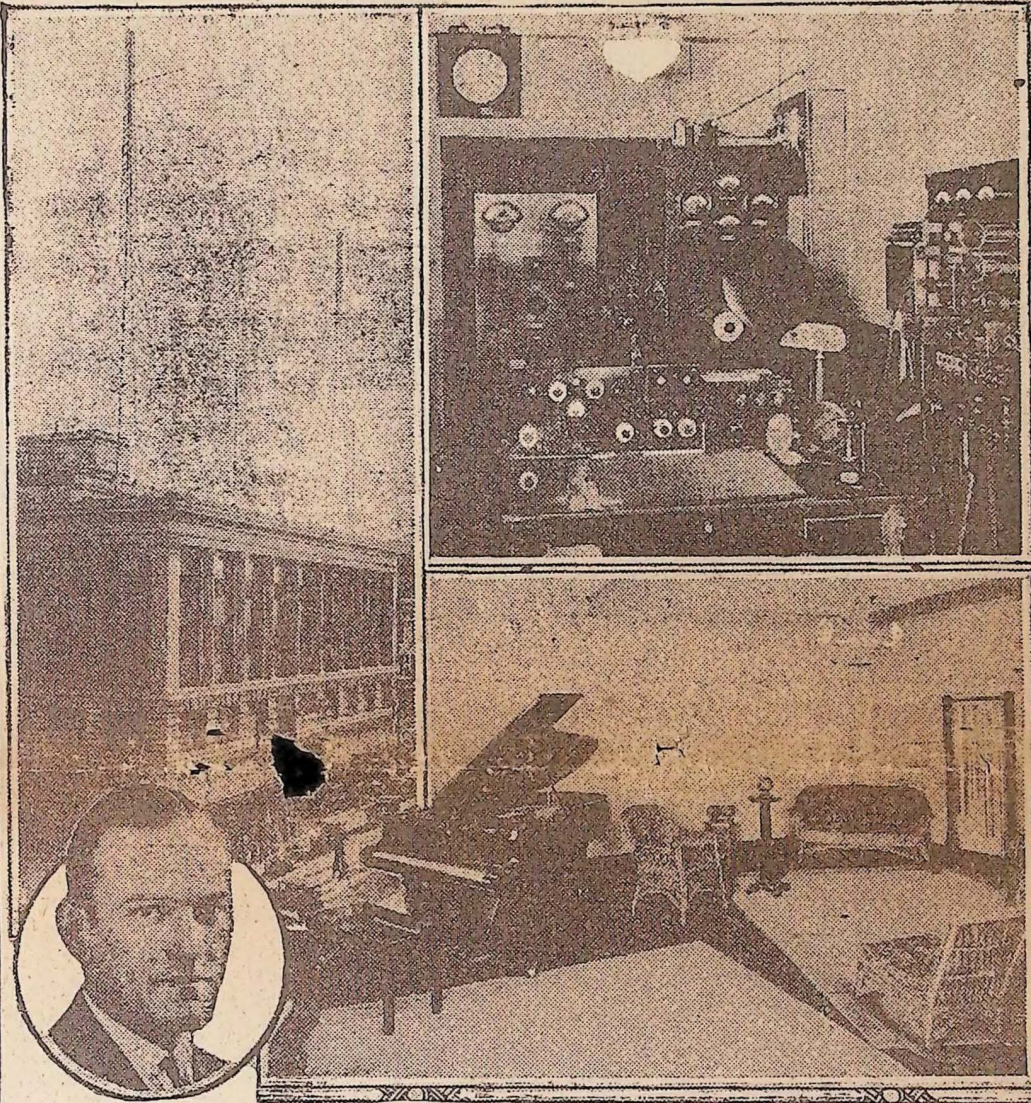
It is apparent that, just as the movie failed to kill stage performances, as was feared by some pessimists, the radio is not to be a competitor of the screen. Stage, screen and broadcasting station will continue in their different, but parallel paths, to entertain the great American public, which never seem to get enough forms of amusement.

### MUSIC LESSONS SENT OVER AIR

Elisba Olmstead, professor of music in Smith college, Northampton, Mass., is broadcasting music lessons, for which he charges a fee of \$1. The lessons are put on the air every Thursday. Folks desiring information as to their progress, send \$1 to Prof. Olmstead for a written examination and instructions for continuing their work.

### INTRODUCING STATION KPO---

When the Department of Commerce gave Hale Bros.' station the insignia KPO, it might well have been chosen to represent the description, "Klassy Programs Only" because, well—you know why. The next time you tune in on KPO refer to this picture in your mental filing cabinet. The handsome chap is Claire E. Morrison, director of the station. Above his super-slick hair is the antenna at Hale Bros. To the upper northeast is the control room, while his shoulder supports the concert studio. Smile for the folks, Claire. Attaboy!



### SET IN PIPE!

A Denver radio fan has set up his crystal radio outfit on his corn-cob pipe. And it works, he says. He can smoke the pipe while listening in.

### Government Will Test Wave Length

WASHINGTON, D. C., Mar. 24. — The U. S. government again will test sending and receiving radio stations, Apr. 4 and 21, when Station WWV, Bureau of Standards, will transmit standard frequencies or wave lengths for testing transmitting and receiving stations and calibrating wave lengths. The schedule covers frequencies between 500 and 2000 kilocycles, or 600 to 150 meters wave length.

United States and Canada have about 12 times as many broadcasting stations as all the rest of the world.

### POWER CAN BE BROADCAST, IS TESLA THEORY

NEW YORK, Mar. 24.—Transmission of power without wires—a new discovery that may revolutionize transportation and war—was announced by Prof. Nikola Tesla, radio scientist, according to a published article here.

With his discovery, Prof. Tesla is quoted, it is possible to transmit power for the operation of ships and aircraft.

A beam of electricity, Tesla believes, could destroy munitions stores on land or sea.

Tesla is preparing to erect a power station to prove his statements. His discovery, he said, is the result of two years' effort.

### Ambitious in Britain

LONDON, Mar. 24.—Weekly programs from the United States are being attempted for broadcasting in England. At the same time programs will be sent across to America.

### CALLS TRUST GOOD THING

"Radio has drained jazz dry. A talk on fish is worth more to a broadcasting station today than a jazz concert. The future of radio broadcasting will parallel the telephone business with just one big corporation broadcasting. This one company will either install its receiving sets and charge a rental, or sell them and get a royalty to pay the overhead of broadcasting. Then radio will be basically educational. It will have to be to hold attention."—H. D. Miller, director Medford Hillside Station, before New England crop-reporting conference, Boston.

### Japan Comes In

Japan is to have popular radio broadcasting within a month. But it is to be under strict government control.

### SENATOR SEES PLOT TO RULE BROADCASTS

BY C. C. DILL  
U. S. Senator From Washington  
WASHINGTON, Mar. 24.—Un-

less some form of regulation immediately is enacted in the radio industry, the United States will witness not only a monopoly in the manufacturing end which already exists, according to the Federal Trade Commission, but there also will be a monopoly of broadcasting which will amount to a strict censorship of our newest method of disseminating ideas, news and opinion.

### Combination Is Forecast

In other words, unless Congress adopts a bill similar to the one introduced by myself and Representative Wallace H. White jr., of Maine, a situation analogous to the press of the nation being in the hands of three large concerns, with the same views on all important subjects, will develop.

I have heard it predicted that the three large manufacturers, The American Telephone & Telegraph Co., The General Electric Co., and The Radio Corporation of America are due for a fight among themselves when they have forced the independents out of the field. That may be so, but such a fight will exist only for a short time. In the end they will combine and form a tighter monopoly than the United States ever has witnessed.

### "Bound To Be Monopoly"

Due to the fact that radio broadcasting rests on certain basic patents in the hands of a few persons there is bound to be a monopoly unless we step in and regulate the industry.

A monopoly of any form of communication such as this is indefensible. It would be like the inventor of the typesetting machine refusing to allow newspapers to buy from him and forcing all newspapers to become part of his company.

### BIG COMBINE EYED BY ONE PERIODICAL

Another charge that a combination is being effected to control broadcasting is made this week by The Fourth Estate, a periodical which is devoted to the interests of newspapers.

The writer fears that the radio will eventually provide real competition for the newspaper of the printed variety. He claims:

"Four great corporations of untold wealth in money and research, controlling practically all the radio patents of America, are quietly setting about to eliminate broadcasting stations and to seize control of the air by a chain of super stations. Resort to law already has begun. From this point it is only a step, so it is forecasted, to the dissemination of news and the circularization of advertising by radio, heretofore largely the function of the newspaper."

"Station WEAf, the ace of the radio combine's chain, asks the federal courts to enjoin station WHN, operated by theatrical men, from using the air, claiming patent infringements. The action is interpreted as the combine's opening gun to shut down all the 563 broadcasting stations, except the 40 which go on the air by grace of the combine."

"The action discloses an amazing agreement between the combine and broadcasters by which a pledge is exacted that no station, using combine patents, shall make a charge. WEAf (Continued on Page 3, Column 1)

### BLIND MAN WINS RADIO PRIZE

I hear the buzz of countless ships out on the boundless sea,  
I picture them; my thoughts expand; romance comes back to me;  
No more I moan for things of yore; my fate I calmly face—  
For radio sunshine floods my soul and I have found my place.

Frank Stewart, 3414 18th-st., who is blind, wrote that as his answer to the question: "Why are you enthusiastic about radio?" It wins first prize of \$10 for the best reply. Turn to the back page of this magazine for the other prize-winning letters.



# HOW TO MAKE REFLEX SET

BY DAVID DIETZ

Science Editor of The Daily News.  
The reflex sets appeal to many amateurs because they cut down the number of tubes necessary for a set.

Two stages of radio-frequency amplification and two stages of audio-frequency amplification require four tubes in the ordinary type of set. Only two tubes are required in the reflex set.

However, the reflex set is not an easy one to build. It calls for careful and neat workmanship. Where careless workmanship may decrease the efficiency of the ordinary set, it will often keep a reflex set from functioning at all.

Consequently, it's not advisable for the amateur to try to build a reflex set unless he has already had experience in building and operating radio sets.

Among the most popular reflex sets at the present time are the Grimes inverse reflex circuits.

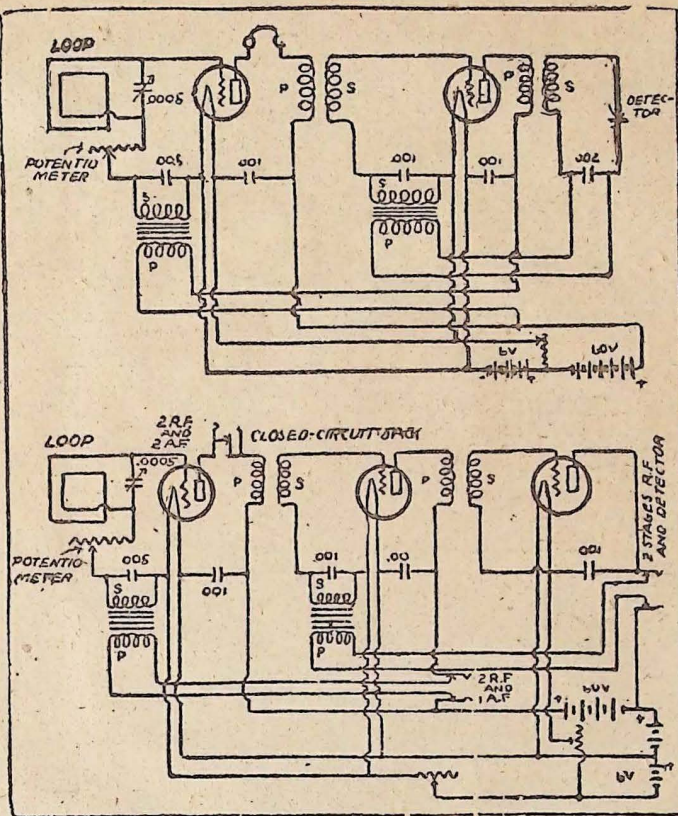
Two hookups for the Grimes circuit are given in the accompanying diagram.

One employs the crystal detector. The second employs a vacuum tube for a detector.

In each case, two tubes are used to furnish two stages of radio-frequency and two stages of audio-frequency amplification.

The second circuit has been equipped with jacks. This enables the phones to be plugged in on two stages of radio-frequency and the detector, and the loud speaker to be plugged in on two stages of radio-frequency and one of audio-frequency, or on two stages of each.

The cost of the crystal detector circuit will be about \$30. The vacuum tube detector will



cost about \$40. This, of course, is exclusive of phones and batteries.

## Apparatus

The following apparatus is required for the Grimes inverse reflex circuit employing the crystal detector:

One loop aerial.  
One variable condenser, .0005 mfd. capacity.  
Two radio-frequency trans-

formers.

One fixed condenser, .005 mfd. capacity.

One fixed condenser, .002 mfd. capacity.

Three fixed condensers, each .001 mfd. capacity.

Crystal detector.

One 400-ohm potentiometer.

One rheostat.

Two vacuum tube sockets.

"A" and "B" batteries.

The hookup for the set is shown in the accompanying diagram.

The amateur will find no difficulty in designing a panel and base for the set.

The variable condenser, potentiometer and rheostat should be mounted on the back of the panel with the controlling dials on the front of the panel.

The other apparatus should be mounted on the base.

## For Three-Tube Set

The following apparatus is required for the three-tube Grimes inverse reflex set:

One loop aerial.

One variable condenser, .0005 mfd. capacity.

Two audio-frequency trans-

formers.

Two audio-frequency trans-

formers.

Three vacuum tube sockets.

One 400-ohm potentiometer.

Two rheostats.

One fixed condenser, .005 mfd. capacity.

Four fixed condensers, each .001 mfd. capacity.

Two double-circuit jacks.

One closed-circuit jack.

The hookup for this set is given also in the accompanying diagram.

As in the case of the crystal detector set, the amateur should find the design of the panel simple.

## "C" Batteries Used

Sometimes difficulty will be encountered with certain tubes in the reflex circuits.

When this occurs, the use of a "C" battery is frequently advisable.

As most amateurs know, the "B" battery's function is to put a positive potential on the plate.

The "C" battery is used to put

a negative potential on the grid.

The values given for the fixed condensers in the diagram are probably the best. But in individual cases, some departure from them may be found advisable.

This, however, can be determined only by experiment.

## Adjusting Detector

If the crystal detector set is used, the adjustment of the crystal detector is the first step in the tuning process.

Unless the detector point rests on a sensitive spot on the crystal, the set will not function.

Tuning is then accomplished by means of the variable condenser. The potentiometer acts as a stabilizer and so must be given considerable attention while tuning.

In general, it will be found that the set will tune easiest by starting with the condenser dial set at zero. The potentiometer dial should then be turned to the critical point. This is just short of the point where the set begins to "squeal."

The condenser should then be turned slowly toward the maximum setting.

As the condenser dial is turned, the potentiometer dial will have to be turned back slowly to keep the set from "squealing."

The loop aerial, of course, has a directional effect and should also be employed in tuning.

When "fishing" for a certain station, try the loop in various positions.

Frequently it is also advisable to try varying the position of the loop after a station has been tuned in.

Keep the loop in the position which gives the loudest signals.

# HOW TO WORK SINGLE TUBE WITH SPEAKER

By ISRAEL KLEIN

To get most out of a single tube, try the single-tube-reflex receiver. Here, with the use of a crystal detector and the vacuum tube amplifier, stations up to 500 miles can be brought in on a loud speaker. Even farther distances can be obtained with the phones.

Use of a crystal for rectification in this connection has proved to be clearer than the vacuum tube, because of its freedom from the oscillation and the elimination of the howling and squealing we get in regenerative receivers.

The parts for this set consist of:

1 audio-frequency transformer, ratio 4½ to 1

2 radio-frequency transformers, for reflexing

1 rheostat

1 tube socket

2 variable condensers, 23 plate

1 phone jack

1 rubberized panel (about 8 inches by 10 inches)

1 wood base

5 binding posts

Bus wire.

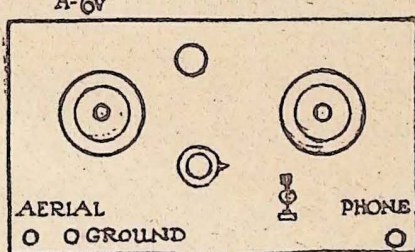
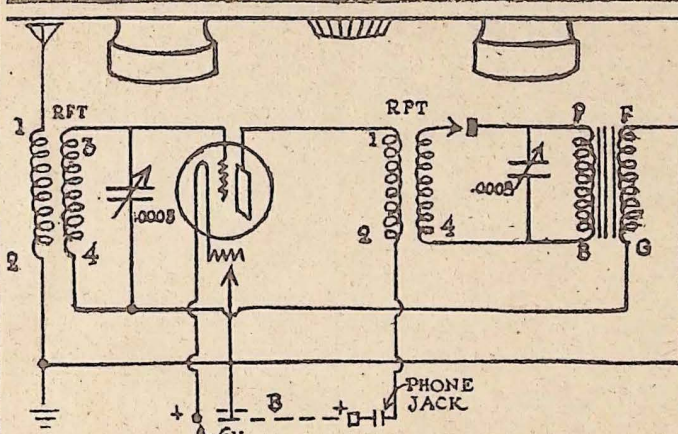
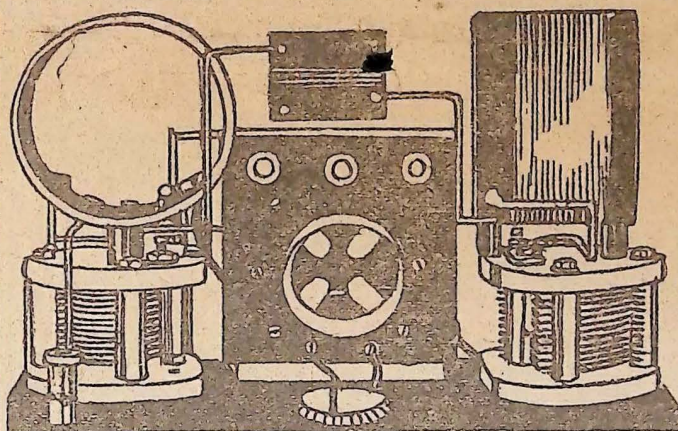
Thus, without the tube, batteries and phone or loud speaker, the set should cost not more than \$30.

## Transformers.

The radio transformers may be either made or bought. If bought, care should be taken that they are for reflexing. A kind that can be attached to the variable condensers can now be bought. The first transformer, at the left, is made as follows:

Get two formica cylinder forms 1-16 inch thick, 2 inches long and 2 5-8 inches in diameter. Drill two small mounting holes on each form, one hole on top and one on bottom, by which the form, when completed, can be attached to the condenser.

Four more holes are drilled in



Top view diagram, above, of Single Tube Reflex Set; Hookup, center; panel arrangement, below.

each form, for the terminals, points clamped down inside by which may consist of switch hexagonal nuts. Terminals 1

and 3 are on top; 2 and 4 below. Two small holes are also made for the wire to pass through. These are near terminals 1 and 3.

Solder end of wire to terminal 3 and wind 60 turns of 28 single cotton, single silk or double cotton wire evenly and tightly and solder other end to terminal 4. Wrap a 1-inch strip of empire cloth around this winding and then wind the primary winding on this. It consists of 15 turns, in the same direction as the larger secondary winding. The beginning is soldered to terminal No. 1 and the end to No. 2.

Then mount on condenser by attaching with short brass strips to the last plate.

## Care in Mounting

The second radio frequency transformer is wound like the first, except that the top winding or primary coil consists of 35 turns.

Be careful also that the second transformer is mounted at right angles to the first and that both sets of transformer and condenser are placed at opposite ends of the panel, in order to reduce any inductive effect upon each other to a minimum.

The audio-frequency transformer should be placed at the back of the vacuum tube and cross-wise, with the grid terminal near the left radio-frequency transformer and the plate terminal the other way. This makes each lead as short as possible.

The rheostat should have a resistance of 20 ohms.

## For Good Reception

Tube sockets, with contact points as far apart as possible are best, because this helps to cut down the capacity between the grid and plate of the tube.

Another help for better reception is the use of a thin sheet of copper to back up the front panel. It eliminates body capacity and does away with much unnecessary wiring. If this is done, be sure to keep it from short circuiting the condenser shafts, and attach all ground and negative A battery connections directly to it.

Extreme care should be taken in wiring. Joints should be soldered carefully. Leads should be as short as possible. But all corners of the wiring should be at right angles.

The crystal detector may be

any kind on the market, or one you can easily make yourself.

The tube best suited for this set, it has been found, is the UV201A, with a 6-volt storage battery or four dry cells in series. A UV199 tube might work just as well, with a tap off the second cell of the 6-volt A battery.

The B battery voltage may vary from 45 to 90 and even more.

## Operation

To operate the set, first adjust the crystal detector by setting both dials at the same point and moving the detector control until a strong click is heard.

Slowly turn both dials, at about the same positions, until a station is heard. Then turn the grid variable condenser for stronger response and manipulate the crystal for better reception.

Keep a record of the dial markings and the stations heard, to make tuning in easier later on.

Clarity and selectivity depend on proper crystal adjustment.

## Argentine Hears Columbus Station

A radio program broadcast by WPAL, Columbus, was received with absolute clearance at Tunuyan, Argentine Republic, 6000 miles away. This new record was revealed by a letter from Los Angeles, Chile, which quoted an article which appeared in "Revista Telegrafica," a radio paper published in Buenos Aires.

## IOWA STATION BROADENS OUT

Station KFNF, Shenandoah, Ia., is encouraged in its use of storage battery power by the number of letters it has received from distant points. Reports show the station has been heard from coast to coast. It operates on a wavelength of 266 meters.

## RADIO PHONES

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

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

# FARMERS TO HAVE OWN STATION

CHICAGO, Mar. 24.—How ya gonna keep them down on the farm?

Easy, by radio.

Sears, Roebuck & Co., the world's largest mail order house, will answer the age-old problem

of making farm life lively enough to compete with the attractions of the city by installing one of the finest broadcasting stations in the world.

The station will be completed Apr. 1 and will open soon after.

A complete university agricultural course will be sent out. Questions of farmers will be answered by experts. Big farm news stories will be sent out by the family which has no movie show at its immediate disposal.



## TELEPHONE CO. THREATENS TO SHUT UP WEAF

NEW YORK, Mar. 24.—A threat to silence its giant broadcasting station, WEAF, in view of the growing public agitation against the American Telephone & Telegraph Co. for its announced determination to enforce patent rights, was made by officials of the company yesterday.

H. B. Thayer, president of the A. T. & T., denied the company seeks a broadcasting monopoly of the air as charged.

"The reason why the American Telephone & Telegraph Co. instituted its patent suits," Thayer declared, "was to save radio from itself."

## Magazine Sees Trust Forming

(Concluded From Page 1) takes money from entertainers, and charges for advertising. If pressed to a logical conclusion the combine will create a monopoly of the air and step definitely right into the newspaper field.

Asserting that the newspaper has been the big brother of radio, the article asks: "Where do we go from here?" answering:

"Radio observers forecast an early arrival of the day when the 600 broadcasting stations on the western hemisphere will give way to a group of super stations stretching from coast to coast, and giving simultaneous service.

"They predict the 'simplification' of broadcasting, by monopolization of the art, and 'scientific' merchandising of its main selling product—the receiving set. Perhaps a federal law here and there will help to withdraw patent permits under which nearly all broadcasting stations are operated and thereby remove competition.

"They predict the definite invasion of the newspaper field by further inventions which will transmit pictures and views of actual happenings of plays, games and what not, from which the home dweller to view advertising, perhaps pictorially presented much as is the custom of the motion picture exhibitor when he whets the appetite of his audience by screening pictorial flashes of the reels to come.

"They predict a development of the receiving set into a combination with the telephone on a working arrangement with the electric light companies and a redistribution of unified radio control, with broadcasting done by the American Telephone and Telegraph Co., manufacturing of receiving sets by the Westinghouse Electric Co. and General Electric Co. and the Radio Corp. of America, the infant prodigy of the other three acting as salesman for the outfit, besides administering the wireless telegraph of the nation."

### Used Loop, Too

Using an indoor aerial of lamp cord, Jose Franco Frazao, Lisbon, Portugal, heard WGY, Schenectady.

## 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 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.

## BLIND MAN BUILDS RADIO SET



Blindness hasn't prevented Joseph Alonzo of New York from enjoying radio as well as any fan in the country. Even to the point of building his own set. Yes, he built the one he shows here, and he's building more for other fans.

## Sad News, Brothers!

WHITE PLAINS, N. Y., Mar. 24.—Maud Ericson brought suit for separation today by her husband because he took away her radio set.

She alleges he ceased to love her and that she found solace in a wireless receiving set he had given her. When he took this away, together with other furniture of their home, she said, it was too much.

The judge granted her alimony of \$15 a week and \$150 counsel fees.

## Babson Predicts Big Radio Trade Increase

To those who believe that radio is still a fad, the following statement by Roger W. Babson, statistician and business authority, will prove interesting:

"It has been my experience that few people realize just how important, from a business standpoint, the radio industry has become. Just because an industry is comparatively new is not a reason for assuming that it is unimportant. The radio industry is new, but it has grown so rapidly that it compares very favorably with many long established industries.

"On the basis of figures for 1923, it is probable that the American people will spend approximately \$350,000,000 for radio equipment during 1924. A conservative estimate of the business in vacuum tubes alone is about \$50,000,000. At least five times as much, or \$250,000,000, will be spent for radio sets and parts.

### Figures Interesting

"It is interesting to see how the radio industry compares in dollars and cents with other large industries. Available fig-

ures on sporting goods, cameras, etc., show a value of about \$185,000,000 annually.

"The value of radio business is nearly twice as great as that of the carpet and rug business. For every dollar spent on furniture 33c is spent on radio. For every dollar spent for boots and shoes 25c is spent for radio. For every dollar spent for musical instruments 75c is spent for radio. The value of radio business amounts to nearly three-fourths of the entire jewelry business.

"This emphasizes the growing importance of radio from a business standpoint. It is not necessary for me to tell you of radio's importance from an educational and social standpoint. I see no reason why the radio industry should not continue to expand. There has been a decided improvement in the character of the broadcast programs, and we may doubtless look forward to still greater improvement.

"To sum the matter up, radio has passed through the fad stage and has become a utility. It has rightly achieved its proper permanent status among the important industries of the country."

## RADIO CHECKS STOLEN AUTOS

Automobiles are being found by radio, through the co-operation of automobile clubs. Among the first organization of this kind to make use of wireless was the Knoxville (Tenn.) Automobile Club. Each night it broadcasts the number and description of each stolen car.

## \$2,000,000 IS STATION'S COST

VANCOUVER, B. C., Mar. 24.—Direct communication with London and Australia will be provided for Canada when a \$2,000,000 wireless station, now projected, is completed here.

### Radio on Buses

Travelers on the buses of New York this year will be entertained during their journeys with radio. A large sightseeing bus company has made preparations to equip all its vehicles with radio receiving sets.

## 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. Judgment will not be passed on the comparative merits of standard equipment.

H. W. Bishop, 1373A Minna-st., asks:

I have a 1/2 inch spark coil, a 1500-meter loose coupler, crystal detector, a telephone receiver and a small condenser. Can I use any of these in making a set to receive the broadcast program?

Yes, with the exception of the spark coil you have enough equipment to build a crystal set.

Wm. A. Adam, 660 Wisconsin-st., asks:

Is it possible to amplify a crystal set? If so how? Can I adopt a crystal set to a tube set. Is there any way that I can get distant stations?

(1) Yes. It is quite possible to amplify the signals of a crystal set by the use of a standard two stage amplifier.

(3) A crystal set is easily adopted to a tube set. (4) The present range of a crystal set is from 20 to 30 miles.

## PATIENCE IS NEEDED FOR BEST RESULTS

Whether you bought your radio set or built it yourself, you want to get the best out of it. Accomplishing this, according to Jack Binns, radio expert, is a matter of care and patience.

The tuning dials of a receiver, he says, writing in the April number of Popular Science Monthly, are like the sensitive combination dial of a safe or bank vault. They require precise, careful manipulation.

For every broadcasting station there is a definite combination that will give best results. It is an excellent plan every time you bring in a new station to keep a permanent record of the tuning combination.

Note your dial settings and switch points, the stage on which you received the broadcasting, the quality of reproduction and other data that may be valuable.

### Other Simple Rules

Other simple rules for increasing efficiency of your receiver are given by Binns.

Do not force your set, for there is a limit beyond which it cannot go.

Do not let your set squeal, or you will waste precious energy and annoy your neighbors.

Do not twist the dials rapidly. They should be moved slowly and very carefully.

In regenerative sets begin tuning for the station with regeneration at zero, and when the station is heard increase regeneration until the signal is at its loudest.

Never increase the filament voltage of a tube above the value recommended by the manufacturer. Keep it below that point if possible. It is a matter of economy as well as efficiency.

If in doubt, use a voltmeter across the terminals of the tube socket.

### Beware of Blowouts

Take all tubes out of their sockets when cleaning the battery connections. Otherwise there's the liability of blowing out the tubes, which is a mighty costly accident.

## Plan For Radio When Building Your Home

Now that radio has come to stay, it would be wise for the fan who plans to build a home, to make provisions for an antenna.

The cumbersome equipment found on some houses and in some yards, leads many to believe that they make the property unsightly.

Here are some building suggestions:

Before equipment has been placed on the interior of the new house, select a spot between the walls where there will be no light or power wires.

From the first floor to the second floor, construct a lengthwise antenna, carefully insulated.

## CUP-WINNING RADIO OUTFIT VERY SIMPLE

MINNEAPOLIS, Minn., Mar. 24.—The amateur radio station in this city operated by Donald C. Wallace, winner of the "Department of Commerce Cup" awarded annually by Herbert Hoover, is one of the most efficient relay points in the Middle West. The entire set insofar as was practical was made by the operator himself, even to the erection of poles, winding of transformers and chokes and construction of rectifier. It is operated with utmost efficiency.

Aside from its value as a relay station for handling message traffic, this station, 9ZT, is regarded as an exceptionally valuable unit for emergency communication and has frequently been of aid while telephone and telegraph wires were out of commission. The operator considers it a duty to keep his station in readiness for work of this kind, which accounts for the station's consistent operation.

The transmitter utilizes one 250 watt radiotron tube. The Hartley circuit is used, and simplicity exists throughout the entire layout. A chest of drawers houses the surplus material. Extra apparatus is not connected in or near the circuit to avoid adding to the losses of all kinds through induction.

### Few Wave Changes

"It has been found poor policy to change waves," according to Wallace, "and except in rare instances, only two waves have been used—215 meters and 115 meters. All variations from these waves have been slight or rare—so that those who wish to communicate with 9ZT can count on finding it on the same wave. A special type of wave-meter is used and sometimes when a distant station is known to be listening for a definite wave, he is raised by the wave-meter method of adjusting the transmitter.

"The only adjustment for 115 meters is to connect the three condensers in series, on their low capacities (.0003 each), and move the plate tap seven turns. The antenna current is then six amperes. French 8AB was worked on this wave, 1MO doing the receiving. At that time the antenna current was only 3 1/2 amperes, as the simpler way to get maximum results had not been discovered."

Bedford branch of the Y. M. C. A., Brooklyn, N. Y., pays \$300 every Sunday for the privilege of broadcasting a minister's sermons.

## 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.

## RADIO BOOKS

Engineering, Industrial, Technical and Scientific Books

TECHNICAL BOOK COMPANY

Mills Building San Francisco

Phone Garfield 19

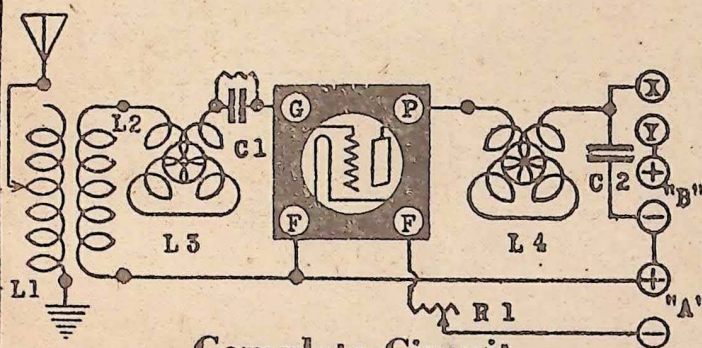
Representing

D. Van Nostrand Co., John Wiley & Sons, Inc., J. B. Lippincott Co., Longmans, Green & Co.

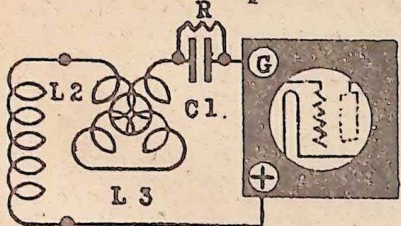


# HERE ARE NINE MOST POPULAR

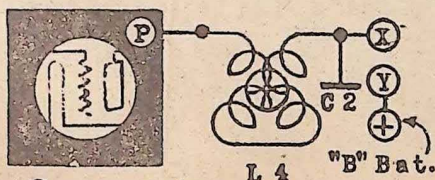
### Standard Regenerative Circuit



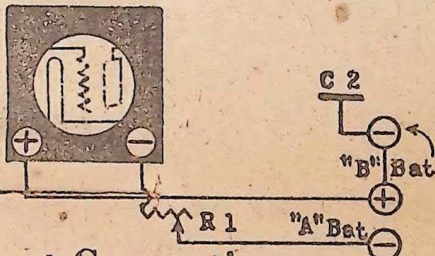
#### Complete Circuit



#### Grid Connections

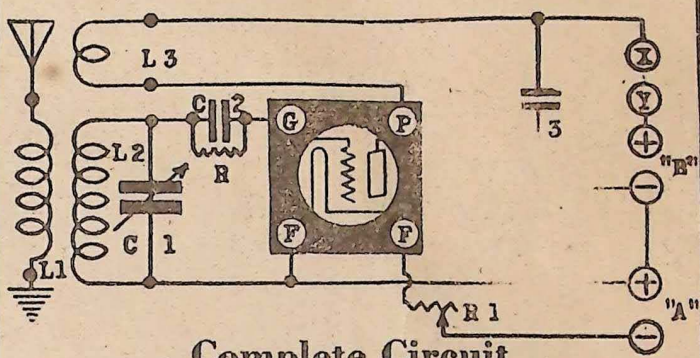


#### Plate Connections

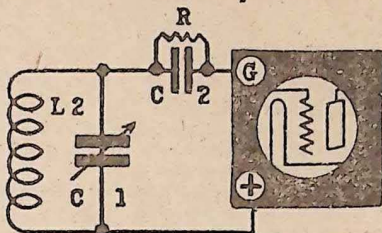


#### Filament Connections

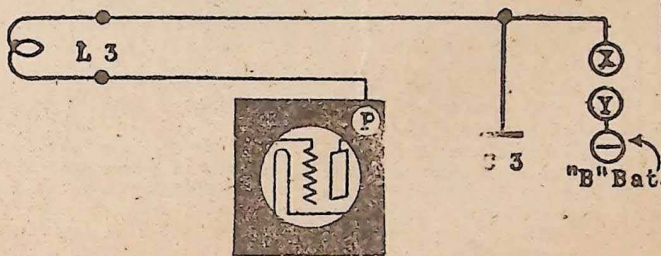
### Ambassador Coil Circuit



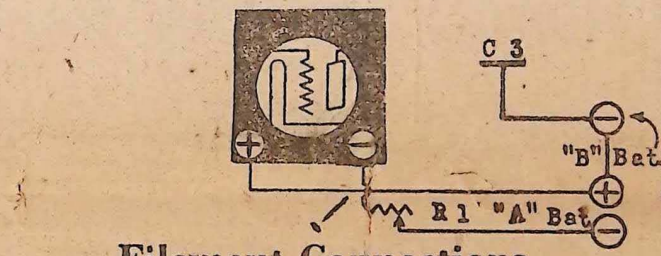
#### Complete Circuit



#### Grid Connections



#### Plate Connections



#### Filament Connections

### Circuit Constants

The drawings on this page are circuit drawings—a departure which will be greeted with acclaim by the radio enthusiast.

Referring to the diagrams, X and Y in all drawings are connected. In the audio frequency circuit, X and Y will be the detector and the speaker or headphones.

**STANDARD REGENERATIVE:**—L1, L2, L3 and L4 are variometers, consisting of 70 turns of wire wound on a 1 to 2 megohm grid leak and a 1 to 2 megohm grid leak and L4 are variometers and C2 is a rheostat. The "B" battery is to 22½ volts.

**REFLEX:**—L1 is 20 turns of wire wound on the same tube and wound in the same direction as the variable condenser, and C2 should be about 90 volts.

**COCKADAY:**—L1, L2, L3 and L4 are variometers, consisting of 70 turns of wire wound on a 1 to 2 megohm grid leak and a 1 to 2 megohm grid leak and L4 are variometers and C2 is a rheostat. The "B" battery is to 22½ volts.

**AMBASSADOR COIL:**—L1, L2, L3 and L4 are variometers, consisting of 70 turns of wire wound on a 1 to 2 megohm grid leak and a 1 to 2 megohm grid leak and L4 are variometers and C2 is a rheostat. The "B" battery is to 22½ volts.

**WEAGANT:**—L1, the primary of the transformer, and L2 consists of about 40 turns of wire wound in the same direction as the variable condenser, and C2 and C3 are each .00025 fixed condenser. R is a 1 to 2 megohm grid leak. The "B" battery is to 22½ volts.

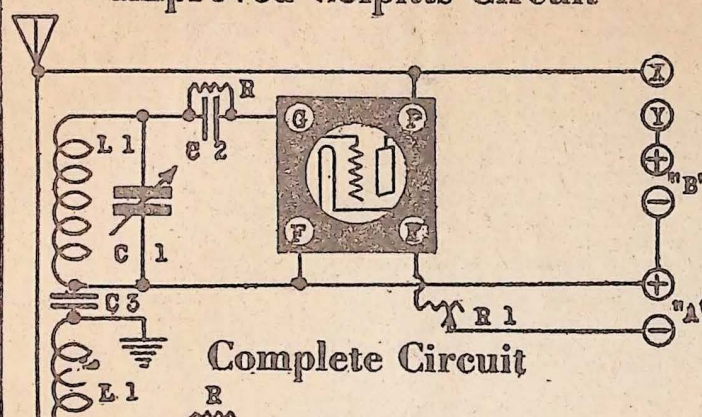
**TUNED PLATE:**—L1 is the primary of the transformer, and L2 consists of about 70 turns, tapped at the center, and used as the secondary. C1 is a .00025 fixed condenser, while C2 is a 2 megohm grid leak, and R1 is a 1 to 2 megohm grid leak. The "B" battery should have a variable voltage.

**IMPROVED COLPITTS:**—L1 is the primary of the transformer, and L2 consists of about 70 turns, tapped at the center, and used as the secondary. C1 is a .00025 fixed condenser, while C2 is a 2 megohm grid leak, and R1 is a 1 to 2 megohm grid leak. The "B" battery should have a variable voltage.

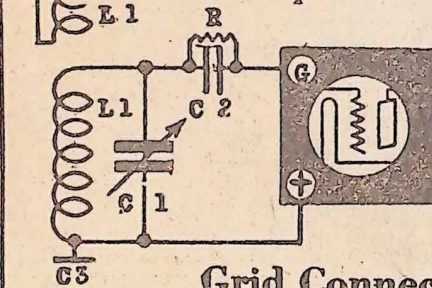
**MODIFIED REINARTZ:**—L1 is the primary of the transformer, and L2 consists of about 70 turns, tapped at the center, and used as the secondary. C1 is a .00025 fixed condenser, while C2 is a 2 megohm grid leak, and R1 is a 1 to 2 megohm grid leak. The "B" battery should have a variable voltage.

**AUTOPLEX:**—L1 is a 1250 turns of wire wound on a 3½-inch tube, and L2 is a 50 turns of wire wound on the same tube and every 5 turns. L3, the rotor of the variable condenser, and R is a 1 to 2 megohm grid leak. The "B" battery should have a variable voltage.

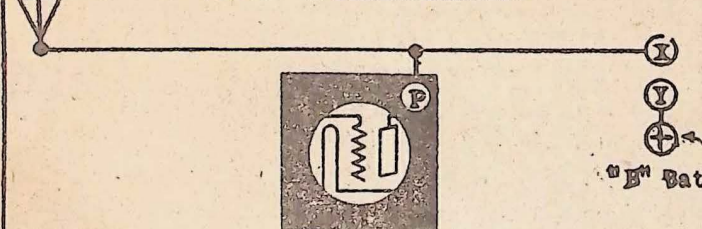
### Improved Colpitts Circuit



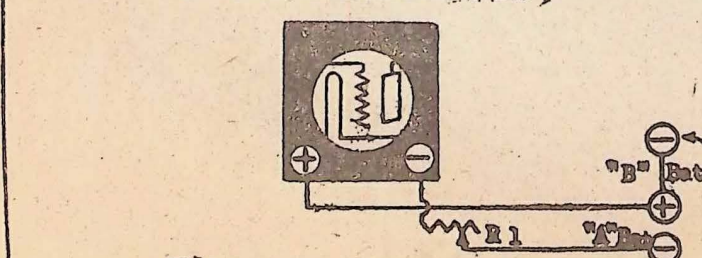
#### Complete Circuit



#### Grid Connections

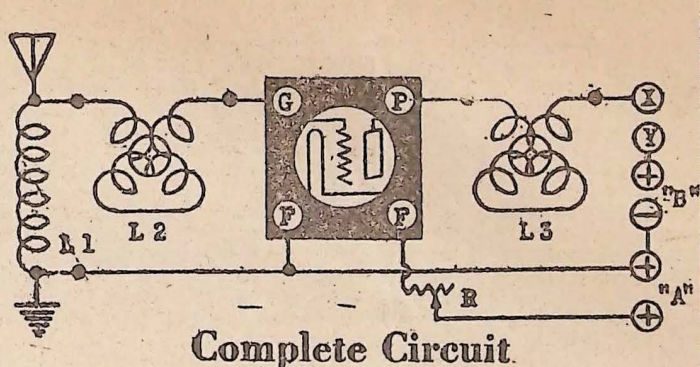


#### Plate Connections

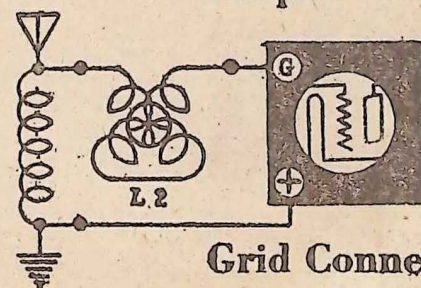


#### Filament Connections

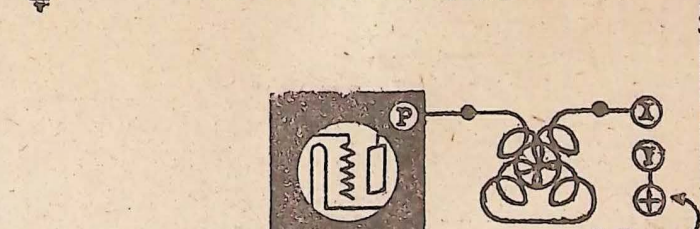
### Autoplex Circuit



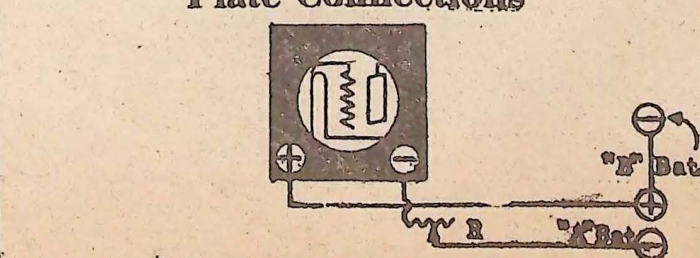
#### Complete Circuit



#### Grid Connections

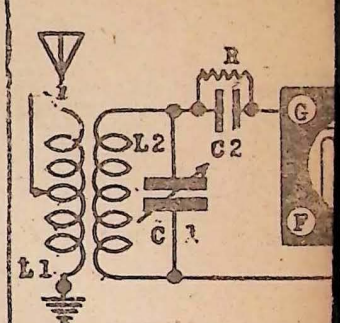


#### Plate Connections

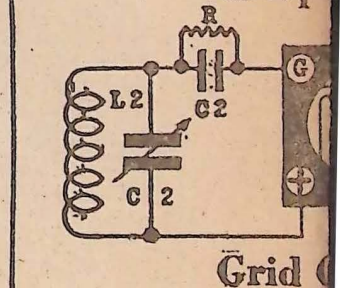


#### Filament Connections

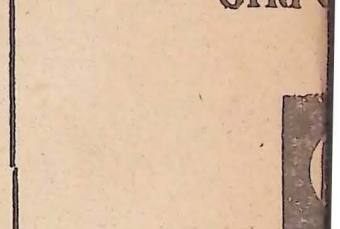
### Tuned Plate



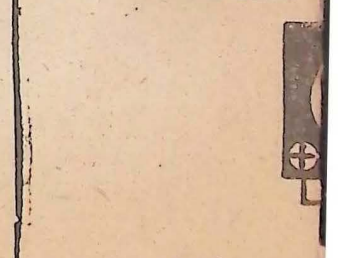
#### Complete Circuit



#### Grid Connections



#### Plate Connections



#### Filament Connections



# PROGRESSIVE CIRCUIT DIAGRAMS

## Notes for This Page

mark a new departure in radio circuit we have every reason to believe radio experimenters everywhere. which appear today, the terminals e points at which the phones are ey amplifier circuits which are to ignations for the input terminals. s on this page follow:—

VE:—L1 is the primary of vario- tapped every 10 turns; L2 is the 1 consisting of 50 to 80 turns. R is C1 is a .00025 fixed condenser. L3 is a .001 fixed condenser, while R1 should have a variable voltage up

on a 3-inch tube and L2 is 50 turns the same direction. C1 is a .0005 d between .001 and .002 fixed. potentiometer. The "B" battery

4 are component parts of the con- had best be bought rather than user, and C1 and C2 are each .0005 2 megohm leak, and R1 is a rheo- able up to 22½.

2 and 3 are component parts of oil and had best be bought rather condenser, and C3 is a .001 fixed. k, and R1 is a rheostat. The "B" voltage up to 22½.

ry, consists of 20 turns on a 3-inch 50 turns on the same tube and 3 is the rotor, consisting of about 005 variable condensers, and C1 is 1 to 2 megohm grid leak, and R1 should have a variable voltage up

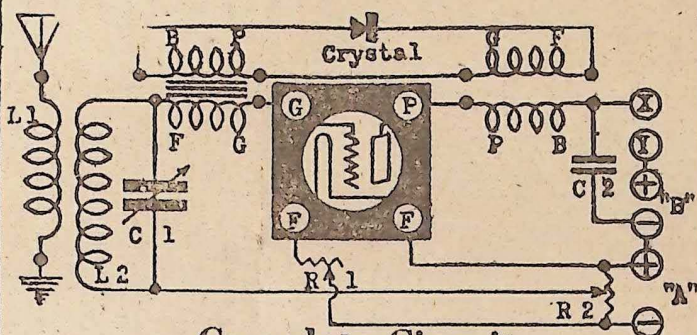
e primary of a vario coupler and con- very ten turns, and L2 is the rotor .0005 variable condenser, and C2 is C3 is a .001, also fixed. R is a 1 to the rheostat. L3 is the variometer. variable voltage up to 22½ volts.

L1 consists of about 50 turns on a 3- turns, wound on the same tube and in 95 variable condenser, and C2 is a should be a .0005 fixed. R is a 1 to is the rheostat. The "B" battery up to 22½ volts.

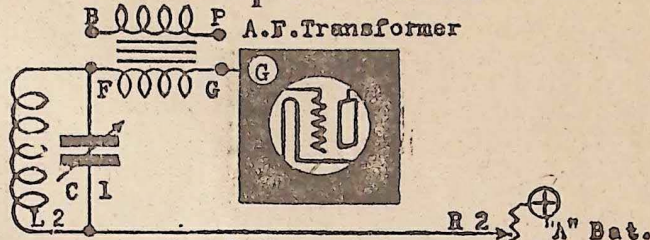
L1, the primary, consists of about and L2 consists of about 20 turns, in the same direction, and tapped of about 35 turns. C1 is .0005 fixed, while C3 is a .001, also and R1 is the rheostat. The voltage up to 22½ volts.

honeycomb coil, and L2 and ne rheostat. The "B" battery should s.

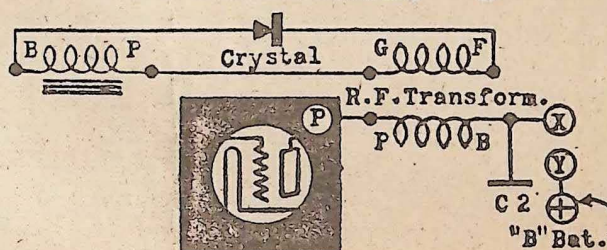
### Reflex Circuit



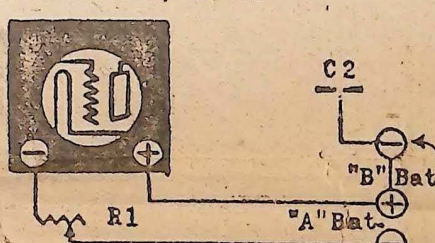
### Complete Circuit



### Grid Connections



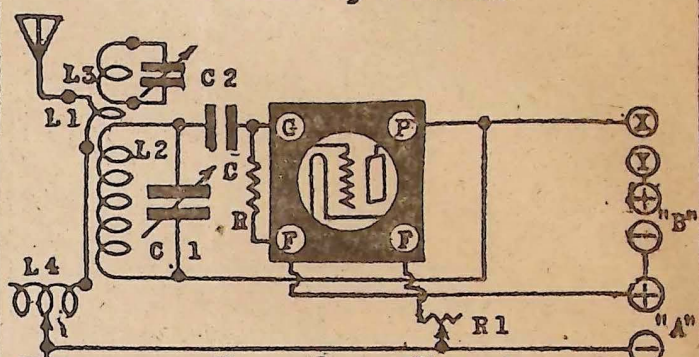
### Plate Connections



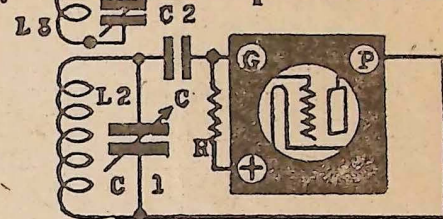
### Filament Connections



### Cockaday Circuit



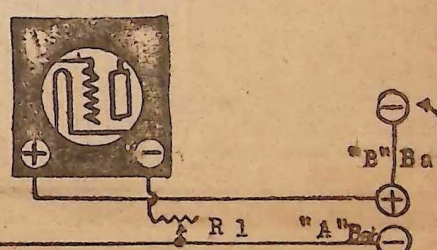
### Complete Circuit



### Grid Connections



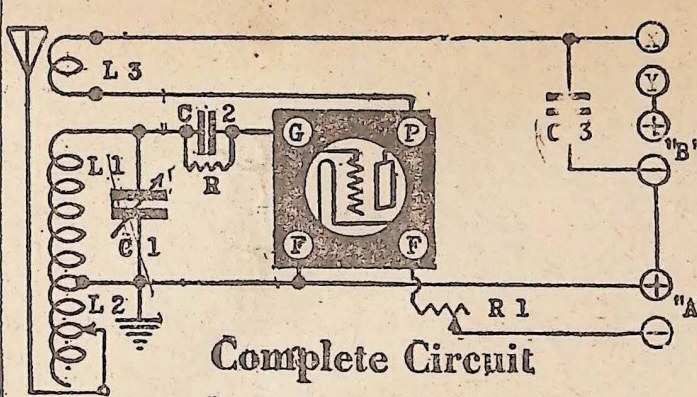
### Plate Connections



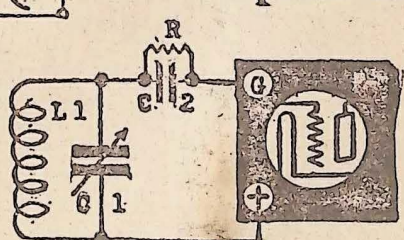
### Filament Connections



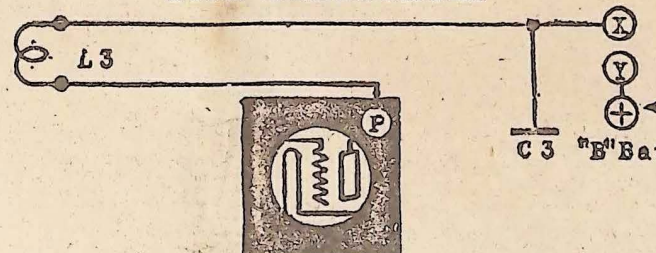
### Modified Reinartz Circuit



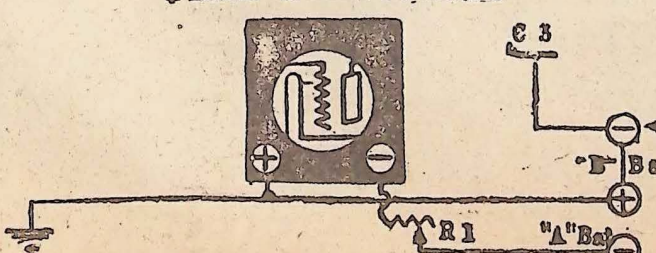
### Complete Circuit



### Grid Connections



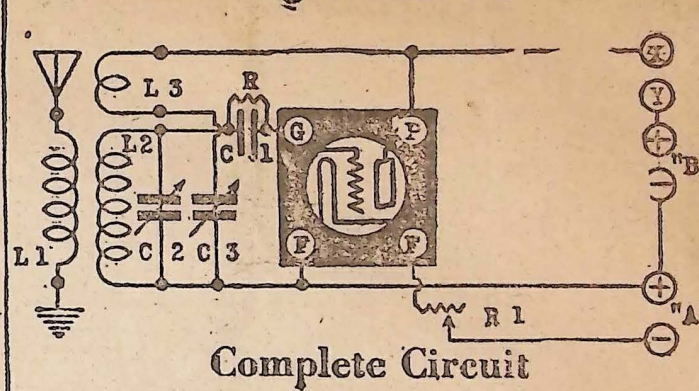
### Plate Connections



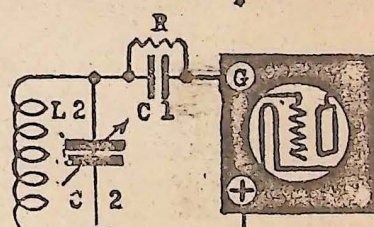
### Filament Connections



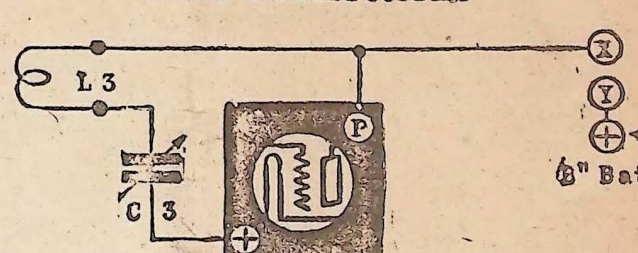
### Weagant Circuit



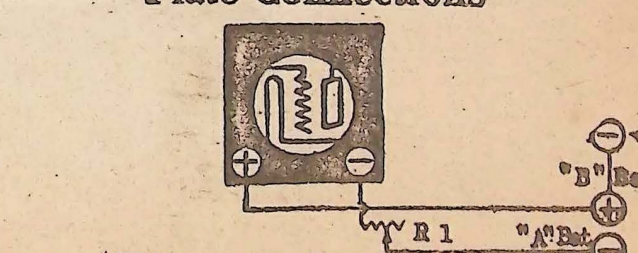
### Complete Circuit



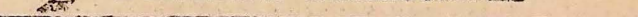
### Grid Connections



### Plate Connections



### Filament Connections





THIS WEEK'S AIR PROGRAMS

MONDAY, MARCH 24

KFO-HALE BROS., S. F. 423 METERS

Noon—Time signals; Scriptures.  
1 to 2 p m—Rudy Seiger's Fairmont Hotel Orchestra, by wire telephony.  
2:30 to 3:30 p m—Hans and Mitzel, Swiss zither-harpists and yodelers, in their big musical act, "Alpine Life," with harp-zither intermezzi, singing, yodeling.  
4:30 to 5:30 p m—Rudy Seiger's Fairmont Hotel Orchestra.  
5:30 to 6:30 p m—Children's hour; stories for children by "Big Brother" of KFO, taken from the "Book of Knowledge." His selections: The Maid of Saragossa; Some Fish of Sea and River; A Pair of Magic Slippers.  
Essay contest announcements.  
W. Gamba, piano-accompanist, will render Marine March; Yes, We Have No Bananas; That Old Gang of Mine; A Smile Will Go a Long, Long Way.  
7 to 7:30 p m—Dinner concert by Rudy Seiger's Fairmont Hotel Orchestra, by wire telephony.  
8 to 10 p m—A. W. Widenham, business manager San Francisco Symphony Orchestra, will give a talk on San Francisco Music Festival.  
Piano solo—Selected, by Charles Pollette.  
Contralto solos—Melisande in the Wood; Ould Doctor MaGinn, by Ruth Scott Laidlaw. Accompanied by Constance Duncan.  
Tenor solos—Little Mother of Mine; Until, by R. H. Dodge. Accompanied by Theodore J. Irwin.  
Soprano solos—Elegie; The Slinger; by Kathryn Clark Smith. Accompanied by Charles Pollette.  
Saxophone sextette—Serenade; The Mill in the Forest; by Thielke's Sextette.  
Tenor solos—Call Me Back, Pal o' mine; My Buddy; by R. H. Dodge. Accompanied by Theodore J. Irwin.  
Soprano solos—Als die Alte Mutter; The Open Secret; by Kathryn Clark Smith. Accompanied by Charles Pollette.  
Piano solos—Selected, by Charles Pollette.  
Contralto solos—Memory; I'm a-Longin' for You; by Ruth Scott Laidlaw. Accompanied by Constance Duncan.  
Tenor solos—Darling Nellie Gray; I Passed by Your Window; by R. H. Dodge. Accompanied by Theodore J. Irwin.  
Saxophone sextette—Sextette from "Lucia"; Rose of an Hour; by Thielke's Sextette.  
Soprano solos—Whims; Caprice; by Kathryn Clark Smith. Accompanied by Charles Pollette.  
10 to 11 p m—E. Max Bradfield's Versatile Band playing in the Palace Rose Room Bowl.  
KLN—OAKLAND TRIBUNE 509 METERS  
7 to 7:30 p m—News, weather report, market and financial summary.  
8 to 10 p m—Program by Radio Club, University of California. Broadcast from Stephens Union Hall, over private leased wires through KLN.  
Campus news by A. S. J. H. Helly Bureau.  
Lecture by Prof. Frederick M. Blanchard, University of California. Subject, "Shakespeare as an Orator."  
Baritone solos—Care Mio Bien; Macusha; Time Enough; by Howard C. Hansen, '26. Marjorie V. Wilson, accompanist.  
Special program of popular selections: Already; Forgetful Blues; Shine; Oriental Sunset; Orange Grove; Siberian Rhapsody; Oh, Baby; That's My Baby; Somebody Stole My Gal; Papa Loves Mammy; Oh, Sister, Ain't That Hot; Black Sheep Blues; by Collins and Dreiske's Rio Nido Orchestra composed of "Del" De La Saux, '25, piano; Charlie Gilmore, '25, drums; "Hal" Dreiske, '24, saxophone; "Bim" Martin, '24, saxophone; "Al" Moore, '27, banjo; "Wazzy" Wosnak, '27, trombone; "Cy" Collins, '24, cornet, and Ed. Cykler, '26, helicon.  
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 by Mrs. W. F. Smith, "The Parent-Teacher Association—a Vital, Living Force."  
4 to 6 p m—Music by St. Francis Hotel Dance Orchestra, Henry Halstead conducting.  
6:45 to 7:30 p m—Final reading, stock exchange, weather reports and news.  
KBE—BERKELEY GAZETTE 275 METERS  
8 p m—Concert by California Music League.  
KZM—HOTEL OAKLAND 360 METERS  
6:45 to 7 p m—Code practice.  
DISTANT STATIONS  
KFAE—STATE COLLEGE, PULLMAN, WASH.—320 METERS  
7:30 to 8:30 p m—Effective Summer Following, by Prof. F. J. Sievers.  
Baritone solos—By Paul Chivers. Geographic History of Columbia River, by Prof. G. P. Jenkins.  
Piano solos—By Lillian Pettibone. Spray Poisoning of Bees, by Prof. E. A. Slocum.  
Banjo solos—By Ray Treasher.  
KFI—EARLE C. ANTHONY, INC., LOS ANGELES—469 METERS  
4:45 to 5:15 p m—Evening Herald News.  
5:15 to 5:45 p m—Examiner news.  
8 to 9 p m—Evening Herald concert.  
9 to 10 p m—Examiner concert.  
10 to 11 p m—Ambassador Hotel—Lyman's Coconut Grove Orchestra.  
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.  
8:30 p m—Concert by artists from Mu Phi Epsilon.  
KHL—LOS ANGELES TIMES 395 METERS  
12:30 to 1:15 p m—Request program featuring Floryane Thompson, soprano, accompanied by Grace Eaton Dow.  
WBAP—STAR-TELEGRAM, FORT WORTH, TEX.—476 METERS  
5:30 to 6:30 p m—Concert by band of John Tarleton Agricultural College, Stephenville.  
7:30 to 8:45 p m—Concert by Peacock's Fiddle Band.

TUESDAY, MARCH 25

KGO—GENERAL ELECTRIC CO., OAKLAND—312 METERS  
1:30 p m—New York Stock Exchange and weather reports.  
6:45 p m—Final stock exchange reports, weather and news.  
8 to 10 p m—Comedy—Come Out of the Kitchen, by A. E. Thomas. (Given

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.

by KGO Players under direction of Wilda Wilson Church.)

CAST  
Burton Crane (from the north).... Howard Irwin  
Solon Tucker (his attorney and guest).... J. Spencer Riley  
Paul Daingerfield (alias Smithfield).... Virgil Markham  
Charles Daingerfield (alias Brindlebury).... Gerald Malsby  
Randolph Weeks (agent of the Daingerfields).... Conrad Kahn  
Thomas Lefferts (statistical poet).... Richard Ehlers  
Ollie Daingerfield (alias Jane Ellen).... Pearl King Tanner  
Elizabeth Daingerfield (alias Araminta).... Lenore Everett  
Mrs. Faulkner (Tucker's sister).... Mary Harper  
Cora Faulkner (her daughter).... Rose Brown  
Amanda (Ollie's black mammy).... Vera Morse  
Place: The Daingerfield mansion in Virginia. Time: The present.  
Instrumental selections—Walter's Prize Song, by Bohemian Trio.  
Act 1—Drawing room of the Daingerfield mansion.  
Instrumental selections—Serenade; Menuetto; by Bohemian Trio.  
Act 2—The kitchen. Two days later.  
Instrumental selections—Humoresque; Alf on the G String; by Bohemian Trio.  
Act 3—The dining room. The same day.  
Instrumental selections—Hejre Kati, by Bohemian Trio.

KFO-HALE BROS., S. F. 423 METERS

Noon—Time signals from the naval observatory; Scriptures.  
1 to 2 p m—Rudy Seiger's Fairmont Hotel Orchestra.  
2:30 to 3:30 p m—Tenor solos—Old Ballads, by Thomas Alexander; own accompaniment.  
Piano solos—Prelude G Major; Prelude E Major; Sonata Op. 32 No. 2; Valse Chromatique; Valse G Major; Polonaise Militaire; by Sam Rodetsky.  
4:30 to 5:30 p m—Rudy Seiger's Fairmont Hotel Orchestra.  
5:30 to 6:30 p m—Children's hour; stories for children by "Big Brother" of KFO; Conquerors of the Sea; Little Goody Two Shoes; The Maple Tree. Answers to Children's Questions.  
6:30 to 7 p m—Cleveland Six Orchestra—Cover Me with Kisses; Sobbing Blues.  
Saxophone solo—Saxophobia, by Allen Papes.  
Dream Daddy; Baby Mine; Home in Pasadena.  
Saxophone solo—Pale Face, by Wilt Gunzenborfer.  
Lovey Carol; Back; Melody of Old Favorites; Somebody Stole My Gal.  
7 to 7:30 p m—Dinner concert by Rudy Seiger's Fairmont Hotel Orchestra.  
8 to 8:10 p m—Talk—San Francisco Music Festival, by Chester Rosecrans.  
8:10 to 10 p m—Play—The White-headed Boy, by Lennox Robinson. Direction of Everett Glass.  
This is a charming Irish comedy portraying the daily doings of the Geoghegan family. In Ireland a "white-headed boy" is a half-spelled, potted darling of the family. Mrs. Geoghegan is left a widow with six children. George, the oldest, has grown old in caring for the large family. The mother sacrifices everything and everybody for Denis, her youngest and her "white-headed boy." Denis has always had his life ordered for him and finally revolts and takes the bit in his teeth and brings the story to a delightful and unexpected ending.  
The cast is as follows:  
Mrs. Geoghegan.....Virginia Sciaroni  
George.....Joseph Carson Sturgis  
Peter.....Walter H. Krieger  
Kate.....Estelle Kane  
Jane.....Helen Craig Gowney  
Baby.....Margaret Tomson  
Denis.....Arthur Pierson  
Donough Brosnan (engaged to Jane).....Louis Wood White  
John Duffy (chairman rural council).....Guy B. Kibbee  
Della (his daughter, engaged to Denis).....Josephine Clement  
Hannah (a servant).....Mary Gowney  
Aunt Ellen.....Carolyn Green  
Scene: Mrs. Geoghegan's house, at the head of the street.  
10 to 11 p m—E. Max Bradfield's Versatile Band playing in the Palace rose room bowl.

KZM—HOTEL OAKLAND 360 METERS

6:45 to 7 p m—Phonograph music concert.

KLN—OAKLAND TRIBUNE 509 METERS

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

DISTANT STATIONS

KFI—EARLE C. ANTHONY, INC., LOS ANGELES—469 METERS

4:45 to 5:15 p m—Evening Herald News.

5:15 to 5:45 p m—Examiner news.

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

KHL—LOS ANGELES TIMES 395 METERS

12:30 to 1:15 p m—Program presented by Major and His Orchestra of the Bandzovous, Ocean Park.

2:30 to 3:30 p m—Matinee musicale through courtesy Southern California Music Co., N. W. Devereaux arrangement.

6:45 to 7:30 p m—Weekly visit of the Sandman and Queen Titania.

8 to 9:30 p m—Program of Beatrice Fenner's compositions.

9:30 p m—E. P. Murphy in "The Go-Getter," by Peter B. Kyne.

KJS—BIBLE INSTITUTE, L. A. 360 METERS

8 to 9 p m—Organ recital by Miss Lewella Smith.

Contralto solos—By Mrs. Suzanne F. Sackett.  
Zylophonist—Clifford Reginald Carpenter.  
Short gospel address—"Does God Believe in You?" by Rev. Luther A. Arthur.

KGO—MORNING OREGONIAN, PORTLAND—492 METERS

11:15 a m—Market basket.

11:30 a m—Weather forecast.

12:30 p m—Concert by Civic Club of Portland.

3:30 to 4 p m—Talk by Jeannette P. Cramer, home economics editor of the Oregonian.

7:30 p m—Weather and market reports.

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

WBAP—STAR-TELEGRAM, FORT WORTH, TEX.—476 METERS

5:30 to 6:30 p m—James E. King's "University of Eskola" Band.

7:30 to 8:45 p m—Monthly program by the Fort Worth Harmony Band.

WEDNESDAY, MARCH 26

KFO-HALE BROS., S. F. 423 METERS

Noon—Time signals; Scriptures.

1 to 2 p m—Rudy Seiger Fairmont Hotel Orchestra.

2:30 to 3:30 p m—Program under management of Sven H. Nielson.

Soprano solos—Inter Nos; As We Part; by Mrs. Anthony J. Silva. Accompanied by Theodore J. Irwin.

Baritone solos—Keep on Hopin'; Because; by Sven H. Nielson. Accompanied by Theodore J. Irwin.

Soprano solos—An Old Fashioned Town; Daddy's Sweetheart; by Mrs. Anthony J. Silva. Accompanied by Theodore J. Irwin.

Baritone solos—Hein Liche Grusse (in German); Madrigal de Mai (in French); by Sven H. Nielson. Accompanied by Theodore J. Irwin.

4:30 to 5:30 p m—Rudy Seiger's Fairmont Hotel Orchestra.

5:30 to 6:30 p m—Children's hour; stories for children by "Big Brother" of KFO; Indiana of Canada; The Lord of the Lions; The Old Couple at the Mill; The Small Fish of the Sea.

Talk by Hon. J. Emmett Hayden. Topic: Music Festival of San Francisco.

7 to 7:30 p m—Rudy Seiger's Fairmont Hotel Orchestra.

8 to 8:10 p m—Talk—Your Boy and Me, by R. H. Eisler.

8:10 to 8:30 p m—Miss Francis Dougherty, Orpheum star, in popular and character songs, and Batti Bernardi, popular Australian tenor, in operatic gems. Miss Dougherty's selections follow: Kentucky Sure as You're Born; Maggie; Dancing Dan; Wet Wash Ball.

8:30 to 10 p m—Owing to the fact that Thursday is the opening day of the Pacific Music Festival, which will change their date from Thursday to Wednesday, and the Palace Hotel Orchestra, E. Max Bradfield's Versatile Band, will take Thursday evening.

Program by Pacific Musical Society, broadcast from the Fairmont hotel.

During the intermission there will be a short talk on the San Francisco Music Festival.

Schubert's two violin and piano; Larghetto Fugue; Canon; Gigue; by Mr. and Mrs. Samuel Savannah and John Crogan Manning.

Lasciatemi (Mordre); Strampelchen; The Dream; Song of Sunshine; by Jennie Elchwald. Hazel Nicholls at the piano.

Piano solos—Magic Fire Scene; Waltz; Rhapsodie; by Audrey Beer Sorel.

Serenade, Op. 72 (two movements). Andante, Tempo Marcia; by Mr. and Mrs. Samuel Savannah and John Crogan Manning.

10 to 11 p m—E. Max Bradfield's Versatile Band playing in Rose Room Bowl of the Palace Hotel.

KLN—OAKLAND TRIBUNE 509 METERS

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

8 to 10 p m—Vocal solos—Because I Love You, Dear; La Boheme; by Mrs. Florence Mabel Dunning; Mrs. Anna V. Staley, accompanist.

Recitation—The Shooting of Dan McGrew; by T. F. Kilgallon.

Orchestra—Say It With a Ukulele; I Love You; Olson's Claremont Orchestra; Ralph Olson, piano and director; Roy Lowentfels, saxophone and clarinet; Hugh Morrison, saxophone; Ted Wolf, violin; Richard Neidt, drums and traps; Bill Lowentfels, trumpet; Jack McCrudden, banjo.

Vocal solos—I'll Forget You; Dear Little Boy of Mine; by Mrs. Florence Mabel Dunning; Mrs. Staley, accompanist.

Recitation—A Fool There Was; (by request); T. F. Kilgallon.

Instrumental selections—The One I Love; Whose Izzy Is He? Is He Yours or Is He Mine? Olson's Claremont Orchestra; vocal accompaniment by Ned Nicholson.

Vocal solo—In the Evening; Ned Nicholson.

Vocal solo—Absent; by Mabel Florence Dunning.

Instructive talk to radio fans by J. A. Ramsey of the National Carbon Company. Subject, "Noisy B' Batteries."

Instrumental selections—Rock-a-bye Baby Blues; I Don't Want You to Cry Over Me; Somebody Stole My Gal; Forget Me Not; You Can Take Me Away From Dixie, But You Can't Take Dixie Away From Me; Since Ma's Been Playing Mah Jongg; Where the Lazy Daisies Grow; When the Shadows Fall; Mindin' My Business; Olson's Claremont Orchestra.

DISTANT STATIONS

KZM—HOTEL OAKLAND 360 METERS

6:45 to 7 p m—Code practice.

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 by F. F. Smith, "Modern Tendencies in Physical Education."

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

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—Orchestra concert.

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.

KFAE—WASHINGTON STATE COLLEGE—320 METERS

7:30 to 8:30 p m—Concrete Construction for the Farm, Prof. L. J. Smith.

Keeping Household Accounts—Dean Florence Harrison.

Piano solos—Katherine Fowler, Seattle.

Clothing Problems—Miss E. Belle Alger, clothing specialist.

Care of the Infant—Dr. D. T. Ford.

Marimbaphone duets—Cicloh and Regina Cooper, Pullman.

KUO

KUO—S. F. Examiner (360 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.

6:40 p m—Weather forecast.

Sunday only:

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

Dramatic readings—Leone Webber, Spokane.

Soprano solos—Alice Pike, Spokane.

KGO—OREGON JOURNAL 360 METERS

9 p m—U. S. Public Health Service Bulletin.

Address under auspices of P. A. T. Association on "Balloon Tires," by C. A. Powell of Powell & Wolack.

Talk on "Interesting Facts in Northwestern History," by Ray Conway.

KHL—LOS ANGELES TIMES 395 METERS

12:30 to 1:15 p m—Music, news, weather report.

2:30 to 3 p m—Matinee musicale arranged by the Southern California Music Company.

6:45 to 7:30 p m—Children's program—Bedtime story by "Uncle John."

8 to 9 p m—Program through the courtesy of Long Beach Woman's Lyric Club.

9 to 10 p m—Pryor Moore's Trio; Lela Journey Probst, reader; Burkmasters' Hawaiian Quartette.

THURSDAY, MARCH 27

KGO—GENERAL ELECTRIC CO., OAKLAND—312 METERS

1:30 p m—New York Stock Exchange and weather reports.

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

8 to 10 p m—Instrumental selections—Stack-o-Lee Blues; Magic Eyes; by Claremont Hotel Orchestra, Horace Hadd, director.

Philip Ashcroft. My Old Irish Mother.

Piano solo—Greeting to Spring; (Violet Wheeler Rucker); played by the composer.

Soprano solos—Waltz Song from "Romeo and Juliet; Last Rose of Summer; by Mildred Erickson.

Instrumental selections—Dream Daddy; Candelabra Blues; Claremont Hotel Orchestra.

Address—The Fascination of Golf, Part I, by Hay Chapman.

Saxophone solo—Danette; "Bob" Derblige.

Tenor solo—The Bell in the Light-house; by Philip Ashcroft.

Instrumental selection—Somebody Stole My Gal; Claremont Hotel Orchestra.

Soprano solos—Brilliant Bird; Robin in Adair; by Mildred Erickson.

Piano solo—The Spirit of Progress; (Violet W. Rucker); played by the composer.

Tenor solo—In An Old-Fashioned Town; by Philip Ashcroft.

Address—The Fascination of Golf Part II, by Hay Chapman.

Instrumental selection—A Smile Will Go a Long, Long Way; Claremont Hotel Orchestra.

Soprano solos—Serenade; Bonnie Sweet Beanie (Scotch melody); Mildred Erickson.

Piano solo—Call of the West; (Violet Wheeler Rucker); played by the composer.

Instrumental selections—Sunshine of Mine; Blue Grass Blues; Claremont Hotel Orchestra.

KLN—OAKLAND TRIBUNE 509 METERS

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

KFO-HALE BROS., S. F. 423 METERS

Noon—Time signals; Scriptures.

1 to 2 p m—Rudy Seiger's Fairmont Hotel Orchestra.

2:30 to 3:30 p m—Jack Fair's Entella Cafe Orchestra.

4:30 to 5:30 p m—Rudy Seiger's Fairmont Hotel Orchestra.

5:30 to 6:30 p m—Children's hour; stories for children by "Big Brother" of KFO; Ants in Armour; Beauty and the Beast; The Princess Who Became a Goose Girl.

Piano solo—Waltz; Frolics; by Mrs. P. F. Schallack, pupil of Mary Melrose Gardner.

7 to 7:30 p m—Dinner concert by Rudy Seiger's Fairmont Hotel Orchestra.

Talk—Redfern Mason. Topic: Beethoven's 9th Symphony.

8 to 11 p m—E. Max Bradfield's Versatile Band, playing in the Rose Room Bowl, Palace Hotel. During intermission there will be a short talk on the San Francisco Music Festival.

KZM—HOTEL OAKLAND 360 METERS

6:45 to 7 p m—Phonograph music.

DISTANT STATIONS

KFI—EARLE C. ANTHONY, INC., LOS ANGELES—469 METERS

4:45 to 5:15 p m—Evening Herald News.

5:15 to 5:45 p m—Examiner news.

6:45 to 7:30 p m—Y. M. C. A. concert, sales lecture and bedtime story.

8 to 9 p m—Ambassador hotel concert.

9 to 10 p m—Examiner concert.

10 to 11 p m—Vocal and instrumental concert.

KHL—LOS ANGELES TIMES 395 METERS

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

2:30 to 3 p m—Matinee musicale through courtesy Southern California Music Company.

6:45 to 7:30 p m—Children's program. Diddle Brandon, screen juvenile.

Bedtime story by "Uncle John."

8 to 10 p m—Program through courtesy Mrs. A. F. Borden.

KJS—BIBLE INSTITUTE 360 METERS

8 to 9 p m—Program arranged by Clarence V. Herin, bass soloist, Magnolia Avenue Christian Church, Los Angeles.

KGO—MORNING OREGONIAN, PORTLAND—492 METERS

11:15 a m—Window shopping.

11:30 a m—Weather.  
12:30 p m—Concert.  
3:30 to 4 p m—Woman's story program. Installation of "The Midlander" by Booth Tarkington.  
7:30 p m—Weather and market reports.

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 Kenia, director.

10 to 11 p m—Dance music by George Olsen's Orchestra.



# RADIO IS USED BY MAGICIANS IN FOOLING US

BY THE RADIO EDITOR

Radio has given the stage magician a brand new bag of tricks.

Nearly every person in the United States at one time or another has been mystified by the performances of an adept in the practice of the so-called black magic.

All of us have returned from a show to sit sometimes for hours discussing the possible methods the magician might have used to accomplish his illusions.

That, of course, is what makes the mystifier a high-salaried success. We know we have been fooled, but we don't know how.

That's where radio has proved so valuable to performers during the past few years.

Who hasn't seen the clever faker who appears before the footlights and announces in a lengthy and serious speech that he will transmit his thoughts to the young lady remaining on the stage while he walks among the members of the audience?

One successful variation of the trick is to have the woman partner in the act sit at a piano. The male member goes into the audience and asks that names of popular songs be whispered to him, claiming he will transmit the thought to the woman at the piano.

One after another members of the audience name the songs and the "hypnotized" young woman bangs them off on the musical instrument, although the man in the audience hasn't said a word aloud.

How is it done? He has a microphone hidden in his shirt front. Counterpoise and antenna are concealed in his clothing. The young lady has headphones hidden in her hair, or perhaps a loud speaker concealed in the piano.

As he bends over to listen to the name of the requested song, the microphone is directly in front of the mouth of the person speaking and he or she unwittingly tells the young lady the very secret that is supposed to be concealed by the whisper.

One prominent performer wears the entire set in a high turban.

# CONVICTS SEND OUT JAZZ



JEFFERSON CITY, Mo., Mar. 24.—

Every time the thirty musical convicts of Missouri state prison broadcast their selections from station WOS, in the capitol dome here, they get thousands of letters, telegrams, telephone calls and gifts from appreciative listeners.

Yet none is permitted to return a single word of thanks!

This is the ironic reality behind the happy, jazzy selections for which fans throughout the country tune in WOS.

Without a word, these prisoners, serving terms of from two years to life, walk out of confinement with their instruments twice a month, to heap further entertainment on men, women and children already enjoying the comforts and pleasures of home. After the concert they return behind the prison bars to serve out their terms for breaking the law.

The best of these is Harry M. Snodgrass, known to the fans who have heard him as "king of the ivories," and adjudged recently the eighth best radio entertainer in the country.

Snodgrass is serving four years for robbery in St. Louis. He fell in with bad company when barely out of his teens and made one break. It was his last, he says, for he plans on a musical career after his release.

Most of the others in the band and orchestra look forward to a similar career when they get out. But Virgil W. Coombs, the band leader, will have enough of music when he goes free in July. Back to the farm for him, he says.

Offers of jobs come in regularly from appreciative listeners. Recently the owner of a large eastern summer resort appealed for a parole for Snodgrass. But the prison authorities decided it would be unfair to pardon any of the prison musicians just because he was more accomplished than any of the other prisoners.

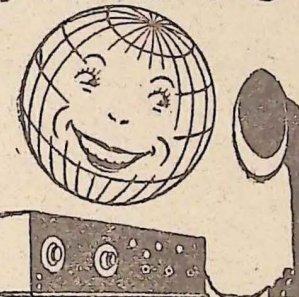
But jobs are awaiting them. One member of the band on his release recently got a job with a Kansas community band. His playing by radio attracted attention of the leader of the Kansas band.

Thousands of fans enjoy the jazz music broadcast by the Missouri State Prison Band, above. Harry M. Snodgrass, below, its pianist, has been voted eighth best radio entertainer in the country.

## TWO FILAMENTS IN LATEST TUBE

PARIS, Mar. 24.—Two filaments instead of one are contained in a new vacuum tube manufactured here. The tube is known as the Junot vacuum tube. This gives the tube twice the life of the ordinary tube, because when the first filament burns out, the second one can be used.

## RADIO



## The Whole World Listens

and enjoys the radio broadcasting programs. Hundreds of stations throughout the country send forth into the air their daily and nightly concerts, useful lectures, etc.

Demonstrations given in your home or in our Radio Demonstration Room.

You can listen in on one of our Radio Service Neutrodyne Receivers.

201A 1-amp. Tubes in stock, \$5.00

ESTABLISHED 1905  
**T. WHITE EASTMAN**

Between Twenty-third and Twenty-fourth Streets  
SAN FRANCISCO

# MYSTERIES OF BRAIN LINKED WITH RADIO'S

SAN DIEGO, Mar. 24.—If

ever there was prospect of revealing the mysteries of thought and its attendant brain processes, it is more certain now than it ever was. Radio is the cause.

No less radio scientist than John Stone of San Diego, foresees the tremendous possibilities in the field offered by radio.

Stone holds more than 120 patents for telephone and telegraph inventions and has done remarkable service in the field of wireless. Last year the Institute of Radio Engineers awarded him its medal for his wireless work.

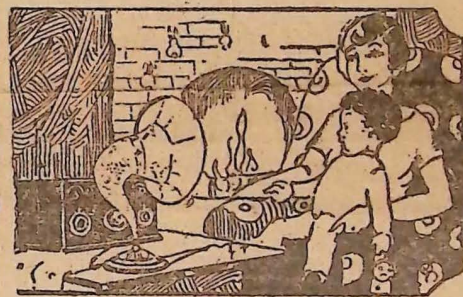
"The vacuum tube is a veritable means by which this mystery may be solved. According to Stone:

"The vacuum tube is a veritable electrical microscope whose power to magnify electrical effects is enormously greater than the visual magnifying power of the corresponding optical instrument.

"May we not reasonably expect that in the near future this prodigious magnifying power of our electrical microscope will be used to detect and measure the minute electrical impulses upon which all our physical functions are predicated?

"Indeed, may we not look even further forward with the hope that by means of this electrical microscope of almost limitless magnifying and resolving power we may be able to detect and study the brain currents which accompany thought—the brain currents which may indeed be the stuff which makes thoughts."

## Where to buy



"Radio at its best"

# Radyme Long Distance RADIO RECEIVER

RADYNE is "Radio at its best," the set with which so many people have been bringing in those wonderful long distance programs you have been reading about. And if you have not seen and heard the RADYNE you do not know how fascinatingly enjoyable radio really can be. For a real treat, go to any one of the places listed below and ask for a RADYNE demonstration.

Manufactured by the Great Western Radio Corporation, represented exclusively by the ATLANTIC-PACIFIC AGENCIES CORPORATION, Rialto Bldg., San Francisco.

- Hall Electrical Co., 37 California St.
- General Repair & Electric Co., 708 Mission St.
- Levy Electric Co., 1230 Polk St.
- Edgar M. Jacobs, 533 Haight St.
- E. A. Portal Co., 463 Geary St.
- Peerless Radio Supply Co., 723 Market St., 717 Market St., 136 Montgomery St.
- Ferrari Mercantile Co., 1230 Polk St.
- De Forest Radio Agency, 1230 Polk St.
- Lose Electric Shop, 1138 Sutter St.
- J. H. Bruce, 479 Sutter St.
- Warner Bros., 350 Market St., 428 Market St., 976 Market St.
- Frank J. Klimm, 456 Ellis St.
- Hetty Brothers, 372 Ellis St.
- Federal Telegraph Co., Hobart Bldg.
- Hansen Electric Co., 620 Valencia St.
- Tracy Electric Co., 1027 Irving St.
- Shipman & Lauer, 1318 Polk St.
- B. M. Sanders, 3345 24th St.
- Richmond Radio Shop, 421 Macdonald Ave., Richmond.

## Best Bets in Air Features

SAN FRANCISCO TIME

(Copyright, 1924, by the U. P.)

WOO, Philadelphia (503 meters), 6:10 p m—Erno Rapee and orchestra.

WEAF, New York (492 meters), 5:15 p m—Address by Sec'y Henry C. Wallace, direct from Washington.

WLW, Cincinnati (309 meters), 6 p m—Concert by the Stiles male chorus and quartet of the First Baptist Church of Middletown, O.

WOS—Jefferson City, Mo. (440 meters), 6 p m—Dance program by the Missouri state prison orchestra.

WWJ, Detroit (517 meters), 6:30 p m—Wentzell Hall, national radio star.

KPO, Hale Bros., San Francisco (423 meters), 8 p m—Musical program.

KLX, Oakland Tribune (509 meters), 8 p m—Popular music and lecture.

## AIR PROGRAM—CONTINUED

(Concluded From Page 6)

from the orchestra in St. Francis Hotel ball room, San Francisco; Henry Halstead, leader.

KZM—HOTEL OAKLAND 360 METERS

6:45 to 7 p m—Phonograph music concert.

KLX—OAKLAND TRIBUNE 560 METERS

7 to 7:30 p m—News items, weather KPO—HALE BROS., S. F. 423 METERS

1 to 2 p m—Rudy Seiger Fairmont Hotel Orchestra.

2:30 to 3:30 p m—Piano solos—Tarentella; Etude; Carnival; by Virginia Miller, pupil of Mme. Sidorina Eckley.

California Collegians' Orchestra. 3:30 to 5:30 p m—E. Max Bradford's Versatile Band playing in the Palace Hotel Rose Room Bowl.

8 to 12 p m—Dance music by Art Weidner and his popular dance orchestra. During intermissions of this orchestra the KPO Trio will sing popular songs. This Trio is a regular feature at KPO every Saturday.

DISTANT STATIONS

KGW—MORNING OREGONIAN 492 METERS

11:30 a m—Weather. 3:30 to 4 p m—Children's program; bedtime story by Aunt Nell. 10 to 12 p m—Weather, dance music by George Olsen's orchestra. KHJ—LOS ANGELES TIMES 395 METERS

6:45 to 7:30 p m—Bedtime story by "Uncle John."

8 to 10 p m—Program through the courtesy of Barnes Music Co., arranged by E. M. Bonnell, "Uncle Remus."

Hudson-Essex male quartet—Carl Crockett, Lute Crockett, Lute Eldridge and C. E. Barton.

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—Agnes Woodward arranging vocal, whistling and instrumental program.

8 to 9 p m—Whistling concert.

10 to 11 p m—Vocal and instrumental concert.

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

SUNDAY, MARCH 30

KGO—GEN. ELEC., OAKLAND 812 METERS

2:30 p m—Concert by KGO Little Symphony orchestra.

KLS—WARNER BROS., OAK. 360 METERS

12 to 1 p m—Church services under auspices Radio Church Service of America.

KPO—HALE BROS., S. F. 423 METERS

11 to Noon—Speaker: Ensign C. E. Stairs, prison chaplain, Salvation Army. Topic: "The Criminal."

Solos by Miss Nelda Houz—Peace Be Unto You; God Be Merciful to Me."

8:30 to 10 p m—Rudy Seiger's Fairmont hotel orchestra.



# RADIO BUG BROADCASTS HER CONFESSION!

BY MARGIE GLASS

No, I told myself, I would never fall for this new fangled fad, but as it is said, "the harder they are, the easier they fall."

Anyway, this is how I became a radio bug:

It happened when the boss had gone for two weeks. You know how it is. Some of the boys in the office were inclined to be mechanical. Billy was a real genius. One day he brought down the cutest little radio in a cigar box. He set up an antenna, and then tuned in, and the fun was on. We didn't do anything else while the boss was away but listen in.

She's Slipping!

In the morning we would get the weather and the time and business information. At noon we would dine on radio music, and in the afternoon listen to a concert.

The boys had a contest in which they tried to outwit one another in constructing the cheapest set. All you would hear around our place were the terms: Spider forms, crystals, enameled wire, No. 22, cat's whiskers, etc.

It was going great until the boss got back. The first few days he eyed the antenna and



radio suspiciously. Then one day he listened in, and heard "Die Wacht Am Rhine."

That was too much for the boss, who was a 101 per cent

American and still felt sore against Germany, because he had speculated in German marks. He told the boys to take the radio down.

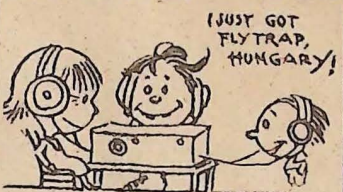
She Falls!

Well, after listening in, I kind of became a radio fanatic myself. Not that I would admit it, of course. But around Christmas, my two kid brothers kept pestering me for a radio set. I decided to get one for them, of course, not for myself.

Frank, the office boy, offered to make me a set, and I had so much fun going around buying the equipment. I wanted to get a cheap set, and before I would buy an article, would go to several stores and get the cheapest. The result was that I won the booby prize in the office for constructing the cheapest set.

I acquired quite a radio education. Before I had known nothing of the terms, but now

I could roll them off as glibly as any expert. I went into one Market-st store and asked for some cat whiskers. The salesman seemed to get an awful kick out of this. He told me he didn't have any, but he had some nice detectors. I don't know how cat whiskers originated, but I'll say it's the cat's



meow when you tune in on some nice concert and the detector won't work.

She Suffers!

Well, finally we got our set rigged up. It was a wonderful Christmas present, the kids

thought. The whole family, consisting of eight people, adults and children, were very enthusiastic. But our troubles began when eight people tried to listen in on two receivers. Cohen on the telephone had nothing on us. Someone would tune in on some concert. Then he would hear some of the family's favorite music over the radio.

"They are playing 'bla, bla,'" he would shout, and then the family tackled. Everyone wanted to hear "bla bla," but by the time the receivers were adjusted, the number had been finished, and no one had heard anything.

We use system now. Every member of the family has a certain time to tune in, and you can bet I hold on to the receivers as long as I can.

Radio sure is a great thing, and I am glad I am a radio bug.

## Radio Fans Enthuse And Then Tell Why

The prize winners in the "Why are you enthusiastic about radio?" contest are the following:

1st—Frank Stewart, 3414 18th-st, \$10.

2d—Millie H. Olds, 2232 4th-av, \$5.

3d—Mrs. C. M. Bennett, 125 MacDonald-av, \$3.

4th—H. A. Highstone, 9511 Birch-st, Oakland, \$2.

The contest brought hundreds of replies, and selection of the best was extremely difficult.

The prize-winning letter is published on page 1 of this section.

Second prize was taken by Miss Olds' letter, which follows:

I am a radio enthusiast because it brings the best from gifted singers, musicians and eloquent speakers, even to the remotest places, and, by a twist of the wrist, without harming the feelings of a performer, he can be silenced and succeeded by another, somewhere else. All this at home!

Here is the third prize letter, from Mrs. Bennett:

By radio I enter a vast cathedral, hear the word of God and listen to prayer; am cheered and comforted by excellent music; entertained and instructed by bright minds; enjoy timely talks and bulletins of current events. Radio is a loved, appreciated messenger to a lonely "shut-in."

And here is the fourth prize winner, by Highstone:

Because it is ever new; because the marvel of it remains unchanged by the years. I am an old-timer in radio, but still my first wonder and incredulity come sweeping back when a distant station shrills its message in my ears. The grandest sport in the world!

Following are some of the excellent letters which made picking of the prize winners so hard: Dreams Come True

A blind child, dreaming of Oriental kings, whose slaves played sweet music all the live-long day, wished she might have music all her waking hours.

Years passed. Her dream came true! My radio has fulfilled my childhood's dream. What king had more slaves than have I?—Elizabeth A. Long, Menlo Park, Box 157A.

Further Peace

Radio brings the nations closer together, thereby furthering international chivalry and peace; brings information and inspiration to thousands, infinite happiness to music-lovers, tender comfort to the blind and shut-ins, and is a harbinger of great joy at a time the whole world sorely needs it.—Bessie Fel, Apt. 10, 1504 Franklin-st.

Predicts Wonders

The spirit of mortal is proud because of the discovery of radio, yet radio is but the key that unlocked the door of an ante-room leading to nature's wonderful store house. It is only a question of time when the mysterious mortal brain will make

of man a god.—William Smith, 819 Mission-st.

Full Value

I am enthusiastic about radio because it is one of the best things that the working class can invest their money in. The profits are wonderful. Without a radio they get very little entertainment that can be compared to that which is heard on the radio.—May Gittins, Daly City.

She Uses Poetry

The radio I think is great. We get the news from every state. The religious services and concerts are fine. It cheers the shut-ins all the time. The farmer gets the latest prices and weather forecast, too. Young and old enjoy the radio.—Myrtle Lorenson, 121 White-st.

All Benefited

I am enthusiastic about radio because I am gaining more knowledge of worldwide affairs. People of all classes are being benefited by it, also homes are being made more cheerful during the long evening hours. The mind and ears are being made more alert by listening in.—William Cummings, 537 Harrison-st.

Gives Contact

Radio is the medium through which one comes in contact with the rest of the world. It gives a broader knowledge of the affairs outside of one's own community, and by a turn of a dial enables one to hear the world's greatest artists, while reclining in comfort at home.—A. W. Johnson, 2502 Bryant-st.

Pleases Friends

I like my radio because I love to have the whole country for thousands of miles around, at my finger tips. I can listen to the finest artists, returns of fights, ball games, etc., at the small cost of keeping up my batteries. I can invite my friends to my set in knowledge that they will not be disappointed in the best of the hundreds of concerts I can take for them from the ether.—George Poullaries, 3345 21st-st.

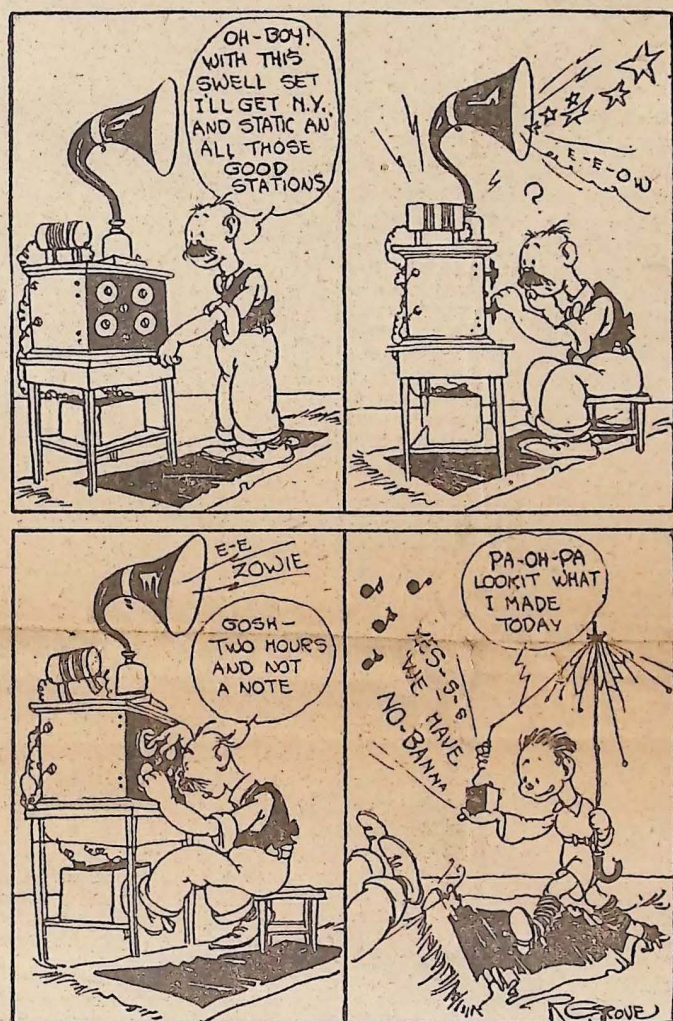
Gives Human Touch

Radio is one of the most beneficial inventions science has given mankind. Through it one hears the celebrated artists and lecturers and is brought in touch with the affairs of fellow men.—Leslie C. Johnson, 221 Day-st.

Improves Citizen

I am enthusiastic about radio because, being an ardent lover of music, I can listen in and simultaneously be transported

## BUGS



to that wonderful realm where in the "Pied Piper" dwells. The knowledge I derive from the educational features helps to broaden my ideas, thus enabling me to become a better citizen.—Diana Pimstone, 300 Montcalm-st.

Awakens Interest

I am enthusiastic about radio because it has brought to me a new and wonderful form of instruction, education and entertainment that I can receive in my own home at almost any hour. It has awakened within me a desire to learn more of the wonders of science.—T. R. Hilborn, P. O. Box 555.

Aids Shut-ins

I am a radio enthusiast because this scientific discovery has been the means of bringing music, news and happiness to those whose occupations have cut them off from the outside world. The radio brings the cities near to the men of the forest.—Ralph Gilliland, 2863 Washington-st.

These persons deserve honorable mention:

BY ROY GROVE

## LIBRARY NOW FEELS EFFECT OF NEW RIVAL

United Press

CONCORD, N. H., Mar. 24.—The radio has become a formidable rival of the public library.

Where formerly reading after supper was the chief diversion in the American home, nowadays the radio is the great attraction. Only when the receiving set is not working properly does the 20th century family turn to books and magazines.

These facts are pointed out by Miss Grace Blanchard, city librarian of Concord.

Miss Blanchard asserts that there has been a drop in the circulation of books throughout the country and that the free library will never again become the attraction it formerly was.

## PHONE CO. ASKS STATION TOLLS

NEW YORK, Mar. 24.—Broadcasting stations infringing on A. T. & T. patents may obtain licenses for prices ranging from \$1 for educational and other public institutions to \$2000 for private companies, announces W. E. Harkness, assistant vice-president of the company.

WHN and other independents object to the licenses, says Charles Pope Cauldwell, counsel for WHN, because of restrictions set by the A. T. & T. on time to broadcast and power to be used.

# B



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# A

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