

RADIO DOINGS

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Copyrights and the Ether

Whether copyright laws will apply to compositions broadcast in the ether, requiring payments of royalties to the authors, composers and publishers by the broadcasting stations, is now up to the Senate Patent Committee. Considering the mass of testimony, pro and con, given in two days of hearing on the amendment to the Copyright Laws proposed by Senator C. C. Dill, which would eliminate broadcasters from paying fees to copyright holders, it may be some time before the Committee can digest the matter and make a report.

Senator Dill says he is personally interested in keeping radio free to the people, and he means it. Like free speech, religion and the freedom of the press, he wants radio un-handicapped and un-controlled. If moving pictures and automobiles took their people out of their homes, radio, he asserts, has a tendency to bring them back. He believes the listener-in should not be taxed, and is confident that through radio a universal language will develop which will better unite people of all nations, and may prevent future wars.

Opposition to his measure, the Dill Bill, S. 2600, is strong, however, and his ideals may be defeated in committee or later on the floor.

Leading musicians, authors, composers and publishers appeared before the Senate committee on April 17, in opposition to the Dill Bill. In general they were members of the American Society of Composers, Authors and Publishers, but some independents also testified.

Those present included Gene Buck, president of the society; Victor Herbert, vice-president; E. C. Mills, chairman of the administrative committee; Ellis Barker Butler, president of the Authors' League; John Philip Sousa, Augustus Thomas and Nathan Burkam, attorney for the Composers' Society.

Mr. Buck in an attempt to refute the testimony given to the committee recently by the National Broadcasters' Association, referred particularly to the so-called "war chest" of his society, which he said was for the prevention of adversity. He spoke of the organization and its work, stating that both he and the association have great regard for radio. He said he was appearing in opposition to the Dill Bill "for the life of song writing," and flatly denied that the Publishers' Association was a monopoly or trust of any kind. Questioned, Mr. Buck answered that the association, in asking broadcasters to pay for using songs, does not differentiate between a station operated by a radio manufacturer or one operated by a newspaper. He contended that when people hear a song over the radio they do not care to buy it, and said that the continual use of a song in the air made the people "sick of it."

Victor Herbert and John Philip Sousa also opposed the bill, contending that the present copyright law should not be changed.

E. C. Mills of the Publishers' Association explained that no well balanced broadcasting program could be made up of songs by one publisher or author, and that the radio advertised songs to death. Mr. Mills is looking forward to the time when radio fans will have to pay a fee for their amusement, and believes that radio is an unfair competitor of every form of amusement.

Ellis Parker Butler, on behalf of the Authors' League, told the committee that he did not think the Dill Bill should be considered for five or ten years, be-

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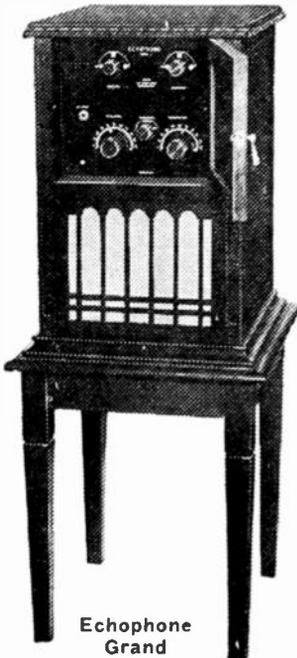
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Second to None in Its Price Class for
Performance

cause of the newness of the radio art, and that the bill would be a step backwards.

Augustus Thomas, playwright, stated that radio is eating into the proceeds of the legitimate stage. He believes the bill is unconstitutional and unwise.

Nathan Burkam, attorney for the association, went into the legal phases of the bill, contending that Congress gave a monopoly to song writers and authors through the copyright law.

During the second day's hearing Nathan Burkam for the Composers' Association; Charles Butler of the Authors' Association; Frank A. K. Boland for the American Hotel Association; Sidney S. Cohen, president of the Motion Picture Owners' Association of America, and Charles H. Tuttle appeared in rebuttal on behalf of the National Association of Broadcasters.

Mr. Tuttle stated that radio was the greatest blessing that science ever had given to man. He riddled the case of the composers, saying that they were anxious to pass the buck to the listener-in, but that they failed to show the broadcasters how this was possible even if they desired to do it. He claimed that the composers wanted the broadcasters to join with them in an agreement to charge the public, in which case it would be one of the greatest monopolies ever realized. He denied that radio was emptying the moving picture houses. The Composers' Association was said to be trying to tax the radio broadcasters and not the individual songs which they send out. He believes that the music publisher is opposing the bill and not the writers and authors.

Nathan Burkam, on behalf of the Composers' Association, accused all the broadcasters of broadcasting for profit, referring to them as "organized pirates," but declared that the composers were not monopolists.

Mr. Boland, speaking for the hotel owners, explained that exclusive rights in copyright law means legalized monopoly and, therefore, that the Composers' Association was a monopoly. He said that the association had commandeered all of the worth while music, but that radio was putting writers and songs on the map.

Mr. Cohen of the Motion Picture Association asked for certain amendments to the bill, claiming that the Composers' Association was making the copyright law a "blackjack."

Hearings on Radio Monopoly Soon

Within about ten days, the Federal Trade Commission will issue a call for hearings on the alleged radio monopoly, and summon witnesses to testify in connection with the answers filed recently.

Attorneys of the Commission are now going through the seven voluminous reports filed last Thursday, setting forth denials to the charges that the Radio Corporation of America and its affiliated companies had used unfair methods in competition and that a monopoly in radio communication had been created. The answers, practically all alike, deny the charges of the Commission, claiming that their agreements were not set forth fairly in the complaint. In one reply it is stated that the Radio Corporation was created at the request of the Government to develop communication in America. Replies were filed by the General Electric Company, A. T. & T. Company, Radio Corporation of America, Western Electric Company, International Radio Telegraph Company, Westinghouse Electric & Manufacturing Company, United Fruit Company and Wireless Specialty Apparatus Company.

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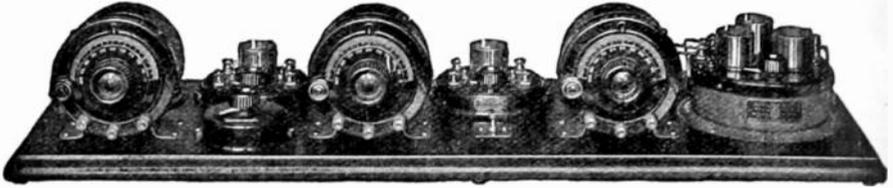
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ATWATER KENT

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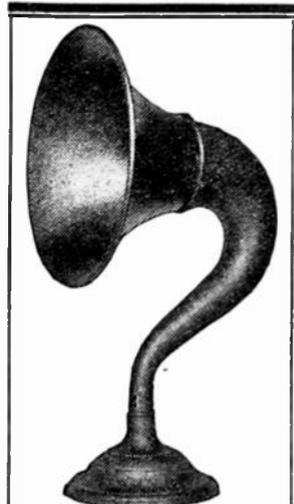


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A Truly Remarkable Receiving Set

OUTSTANDING among the advantages of this receiving set is its remarkable selectivity, and its wide range of operation:—the desired broadcasting station can be tuned in at will. It gives exceptional tone qualities and volume. You should hear it perform. Atwater Kent Radio Equipment includes complete sets and all parts necessary for the assembling of complete sets.

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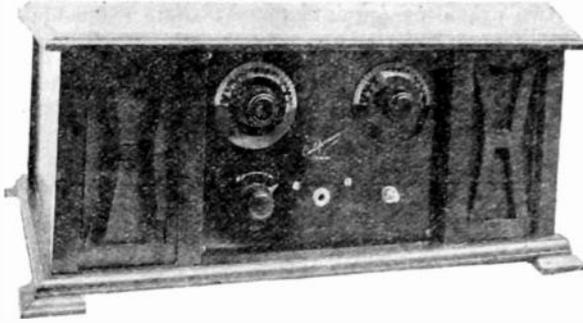
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"Consolette" Type C-1

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Consolette Model, complete with Tubes, Batteries and Loud Speaker, self-contained in beautiful mahogany cabinet.....

Price \$100

This set can be purchased through your local dealer;—if he hasn't one in stock, write direct to us or our distributors and we will gladly arrange for a demonstration in your town.

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One two megohm tubular grid leak.

Two audio frequency transformers of standard make.

All wiring should be done in as neat a manner as possible, and it is advisable that the multiple connections of "A" and "B" batteries be made as shown in the wiring diagram.

PHUSIFORMERS AS CONVERTERS OF REGENERATIVE SETS.

"CAN BE EASILY MADE NON-OSCILLATING AND NON-RADIATING."

It is impossible for mere man to calculate the innumerable number of receiving sets in use in radio reception today. There are hundreds of types of receivers, embodying hundreds of types of circuits, many of these employing regeneration in one form or another. It makes relatively little difference, for the purpose of this discussion, just what type of receiver or circuit is employed, so long as it has a detector tube and one or more stages of audio frequency amplification.

The popularity of non-oscillating tuned radio frequency amplification has overwhelmed the manufacturers in the past few months, with every indication of indefinitely continuing ascendancy. One of the foremost thoughts in the mind of every radio fan possessing a receiving set, not operating on this principle, is "How can I possess the new type of advanced receiver without taking a complete loss on the equipment I now have?"

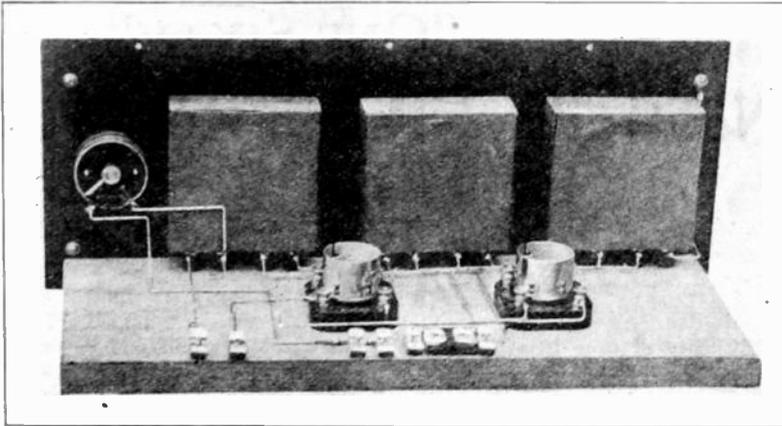


Figure 1—Rear view of the Cosmopolitan Conversion Phusiform set which when used in conjunction with a standard R.C.A. and any other receiver employing a detector and two steps of audio frequency makes these sets non-oscillating and Super-sensitive.

It is the object of this article to present the remarkable new method, and, in

This is RADIO

R F B

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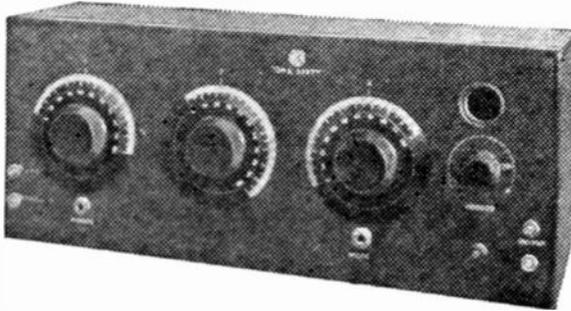
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THE R F B TWO TUBE REFLEX wired on mahoganite panel ready for cabinet

High-grade parts and good workmanship are used throughout.

The above machine complete and installed with \$17.50 Storage Battery and \$18.00 Loudspeaker—\$85.00

The Non-radiating Receiver



FADA "ONE SIXTY" Neutrodyne Radio Receiver

* * *

CLARITY

Clarity of tone is a feature that has made hosts of friends for the FADA "One Sixty" radio receiver. No matter where the station tuned in may be located—in the East, or in the West, the clarity of tone produced by the "One Sixty" is remarkably lifelike and pure. And so powerful is this wonderful receiver that the majority of broadcasting stations, both local and distant, can be heard clearly and plainly on a loud speaker.

In selectivity, volume, distance getting, clarity and fine appearance, the FADA "One Sixty" is unsurpassed. To hear it perform is to be convinced. It will be well worth your while to visit your dealer and see this receiver. Price \$120. This does not include tubes, batteries or phones.

F. A. D. ANDREA, INC.

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fact, the only one, through which this very desirable result can be achieved. The subject matter in the present installment will show a specific application to a well-known make of regenerative receiver, the Westinghouse R.C.

Figure 1 shows a picture perspective wiring diagram of a Cosmopolitan Phusiform Conversion set attached to the detector amplifying panel of the Westinghouse R.C. set. It will be noticed that the Westinghouse panel containing the present unit is not shown. This entire unit is abolished in the new arrangement. It is not necessary to remove this unit from the housing, but only to disconnect the straps on the lock connecting the tuning unit with the detector-amplifier panel. This illustration shows the preferred system of connections, and it is suggested that this wiring plan be followed in detail.

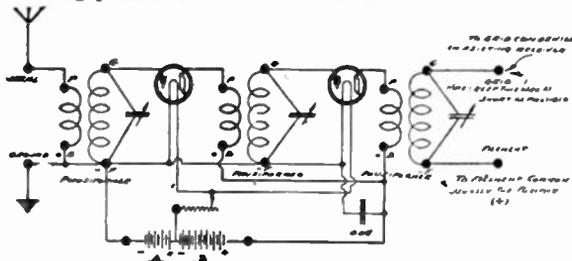


Figure 9—Schematic wiring diagram of the Phusiform Conversion set, designed to convert existing receivers to Phusiform type, non-oscillating tuned radio frequency.

Figure 2—Schematic wiring diagram of the Phusiform Conversion set, designed to convert existing receivers to Phusiform types, non-oscillating tuned radio frequency.

Figure 2 is a schematic wiring diagram of the Cosmopolitan Phusiform Conversion set itself, and this, in conjunction with the perspective view of the constructed set in Figure 1, showing the terminal arrangement, will enable any constructor to build and wire this complete outfit.

MAKING OVER YOUR PRESENT SET

In order to make this same adaptation of any circuit other than the R.C., it is only necessary to follow the diagrams as shown herewith, connecting the terminal marked "Grid" on the conversion set to the tuning element side of the grid condenser in the existing receiver. Where common "A" and "B" batteries are used for the operation of both the conversion set and the existing receiver, it is not necessary to wire from the terminal marked "filament" on the conversion set to the detector and audio frequency amplifiers.

R. C. RECEIVER

Fortunately the design of the R. C. set is one which lends itself admirably to such a conversion. In this specific application it is not necessary to alter or

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Let us build it for you, or show you how you can built it yourself.

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But such stations as
PWX, Havana,
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by Radyne owners.

What Radyne owners particularly like about their sets is the sweet, crystal like clarity of its reproduction—the ease and simplicity of operation — and distance. Well, convince yourself — have your dealer arrange a demonstration at your convenience.

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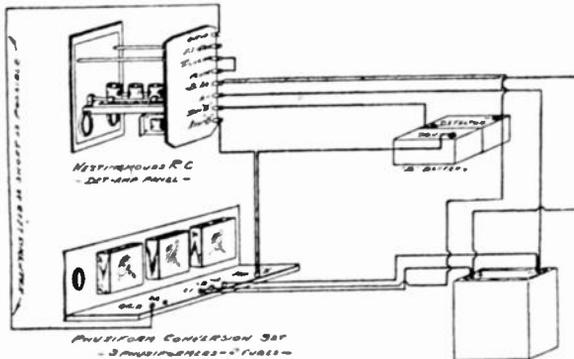
Los Angeles

876-464



STATION	T	I	T	Z	T	S
KPO	40	40	40	40	40	40
KMJ	31	37	33			
KW	54	56	56			
WKA	10	10	16			
WJZ	20	21	21			
WJR	44	47	44			
WOL	44	44	45			
WVA	44	56	54			
WV						
WV						
WV						

touch any of the interior wiring of the receiver, it being only necessary to disconnect the connecting straps on the back which serve to link the tuning element to the detector-amplifier panel.



Schematic of the Phusiform Conversion set illustrating its connections to the receiver with which it is to be used.

Figure 3—Schematic of the Phusiform Conversion set, illustrating its connections to the receiver with which it is to be used.

While the general procedure is the same in any existing receiver, this adaptation is sometimes found to be more difficult than in the particular case of the R. C. for the tuning element in many of the popular receivers is directly connected in the cabinet to the grid condenser. In the case of a receiver constructed along these lines, the wire leading from the grid condenser to the tuning unit must be disconnected, and the wire from the grid terminal of the Cosmopolitan Phusiform conversion set directly connected to the former tuning unit side of the grid condenser. Fortunately, also, in the R. C. set, the by-pass condenser in the plate circuit of the detector tube for by-passing the radio frequency currents (when it is operated as a regenerative receiver) around the primary of the audio frequency transformer, is so connected from the plate directly to the "A" battery that it serves as a by-pass condenser for reducing the tendency to oscillate when used in the Cosmopolitan Phusiform combination, as explained in the previous articles dealing with this subject.

WIRING NOTES

In the case of existing receivers in which a similar by-pass is not provided, it is advisable to connect a .006 microfarad condenser from the plate of the detector tube to the negative "A" battery lead. This has been clearly shown and explained in previous articles on this subject in the Evening Mail.

As mentioned in Figures 1 and 2, it is advisable to keep the length of the wire connecting the grid terminal of the conversion set to the grid condenser as short as possible. One of the wiring arrangements which facilitates this through a proper disposition of the apparatus is shown in photograph Figure 3. Here the R. C. set is mounted directly on top of the Cosmopolitan Phusiform conversion set, thus permitting the grid connection from the last Phusiformer to be wired to a Fahnestock clip mounted on the base board as shown in Figure 1. In this way a relatively short wire can be run to the grid terminal on the R. C. set. The grid terminal post on the R. C. set provides the connection to the former tuning element side of the grid condenser.

The third article in this series will discuss the use of the Phusiformer as a Wave Filter.

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This Five-Tube, Couple-Circuit Receiver, utilizing both radio and audio amplification, in its present form represents the most advanced technique in the design of such sets. Has selectivity, sensitiveness and high quality of reproduction.

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Same instrument as in Radiola VIII-B. Priced at
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SEVENTH & MAIN STS.

Vacuum Tube-Making an Exacting Process

STEPS OF ASSEMBLY NECESSARY BEFORE RADIO DEVICE IS COMPLETED

Although hundreds of thousands of dry cell vacuum tubes are now in use by radio enthusiasts, it is safe to say that only a very small percentage of the users know anything at all about their process of manufacture.

These little tubes, because of their convenience and low operating cost, added tremendously to the interest in broadcasting, and gave to the great general public an opportunity to obtain tube receivers. Before the coming of radiotrons WD-11 and UV-199, the greater number of receiving sets used the crystal detector and thus were limited in range.

Great care is necessary in the manufacture of these tubes, which, despite the fragile character of the material, are sturdy bits of apparatus, well adapted to stand fair handling and give constant service during long periods.

There are thirteen steps or processes of assembly before the tube, starting as raw material, takes its completed shape. There is also a test made after each assembly and still further tests after the tube is completed. These tests are so severe that once a tube has passed through them, it is rarely returned because of failure in operation.

THE FIRST STEP

The raw material from which the tube is assembled consists of the following: A glass blank, a thin glass stem, a short tube of glass, the filament, the plate and grid. The plates are shaped from rectangular bits of metal and the grid wires are wound into the spiral form they take in the completed tube.

The first step in the assembly process is spinning a flare on the end of the short glass tube. This tube is then called the flare.

Next is the inserting of the five wires in the flare. Looking at the WD-11 one can see five wires on the inner unit though there are but four leads at the base. The fifth wire is a blind insert to act as a support for the plate. The five wires are inserted in the end of the glass tube opposite the flare and the glass

(Continued on Page 23)

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This compact and high grade receiving set is a very popular model at the regular price of \$275. Extra special now, only. **\$210**

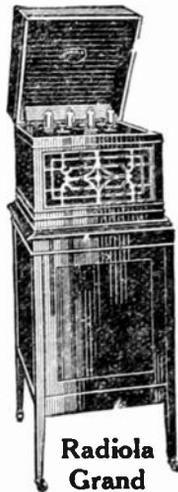
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NR-5

BESIDES BEING THE IDEAL RECEIVER FOR LONG DISTANCE RECEPTION — EVEN WHEN LOCAL STATIONS ARE BROADCASTING — THE NR5 IS UNSURPASSED FOR TONE QUALITY AND EASE OF OPERATION ON LOCAL BROADCAST.

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Behind the Scenes in a Broadcast Studio

NUMBER TEN—APPLAUSE

By DR. RALPH L. POWER, "The Sky Crier," Los Angeles Examiner Radio

When studio announcers ask you to write to the station so your applause letters and cards can be forwarded to the artists, I wonder if you realize that it is a small service which you can render in comparison to what they do for you.

In addition to trying rehearsals, together with the time of performances, there is many times an actual expense incurred by the artists, for which they are not reimbursed.

'Way down in Texas one of the agricultural colleges not long ago sent a glee club, band and a lecturer about two hundred miles to entertain radioland for an hour from one of the stations. The expense of travel amounted to somewhat over \$400.

Many of the soloists who sing for you from Southern California stations live in the suburbs and travel from twenty to sixty miles to and from the studio.

Not long ago a community program was arranged for a city up the coast and the entire town, it seemed, motored to the studio and provided an hour's entertainment.

Artists, therefore, not only expend their time and effort for you, but in a good many instances they actually spend a considerable sum of travel money, for which they receive no return other than the applause cards from the large invisible audience.

So, when you are comfortably seated in your home or at the club, don't put it off until tomorrow, for tomorrow never arrives. "Do it now" has become a trite slogan perhaps, but it is still a good one.

One of the New York stations now has a charge of \$400 an hour for firms that ask to put on a program which, in an indirect way, advertise the concern. Of course direct publicity is forbidden over the radio.

It is naturally difficult to forecast the trend of the problem of radio entertainment of five years away. It is certain, however, that there must be a medium between the commercial concerns which produce program hours with paid artists and the individual artists who perform without payment.

Whether it is the elimination of either one or a tax, either direct or indirect, upon radio equipment or sets rests largely with the public rather than with the stations.



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On

The "Thief of Bagdad" Set—May 24th Next

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Panel Cutting and Drilling

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A complete factory has been installed so that we are now in a position to contract to manufacture any set.

Manufacturers of SURACO RADIOS

SUMMERS RADIO CO.

1105 West First Street

LOS ANGELES

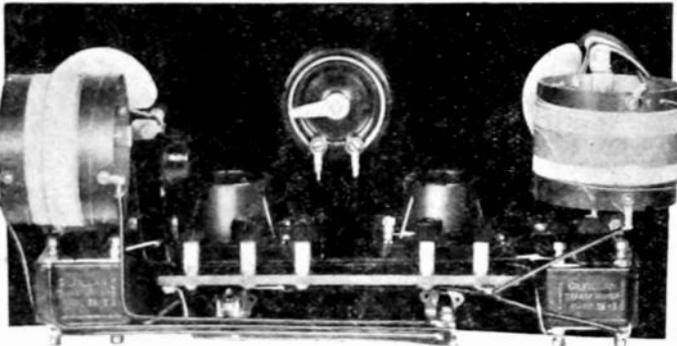
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Gilfillan Master Parts

in latest

Reflex Radio Frequency Kit



Rear View of Assembly—2-Tube with Crystal

Contains the Following Gilfillan Parts

RA-1 KIT	
2 R-1000	Reflex Transform- ers
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5 R-325	Binding Posts
2 R-300	Sockets

Price

\$25.50

Equal high quality has never heretofore been offered in a kit at such a low figure.

You'll find this Gilfillan Reflex Radio-Frequency Kit, and other popular Gilfillan made Radio Parts, at most good dealers. If your supply house cannot furnish you with genuine Gilfillan parts, accept no substitutes, but write to our nearest office.

GILFILLAN BROS., INC.

Oakland, Cal.

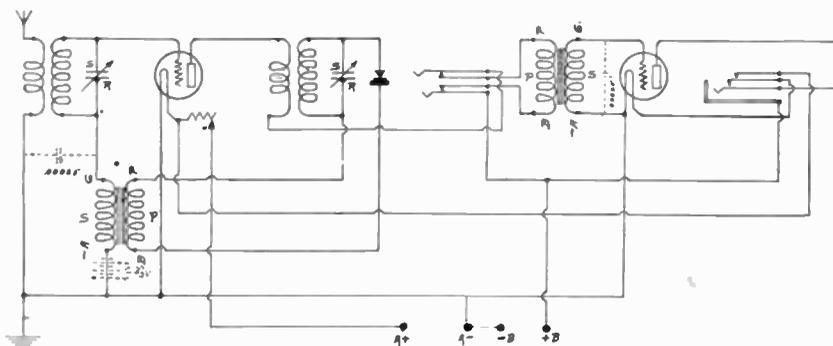
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RECOMMENDED HOOK-UP FOR REFLEX RADIO FREQUENCY SET AS BUILT
UP WITH GILFILLAN MASTER PARTS



A hook-up is illustrated above which is recommended for use with the new Gilfillan RA-I Kit, which has recently been placed on the market with splendid success. As will be noted this hook-up is quite simple, and exceptionally effective in clear reception results. This latest Gilfillan offering is of the two tube with crystal type. In some cases it is desirable to shunt a .00025 condenser across the secondary of the last transformer and include a $3\frac{1}{2}$ volt VCV battery between the neg. A battery and the secondary of the first transformer. These optional circuits are shown by a dotted line.

Are you on the right wave length? See Page 79

TELEDYNE NEUTRODYNE SUPER—HETERODYNE

The Best in Their Respective Class

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“TERMS”

SOUTHERN CALIFORNIA RADIO CO.

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LOS ANGELES

Signals Come in More Clearly

When Willard Recharge "B" Batteries Are Used

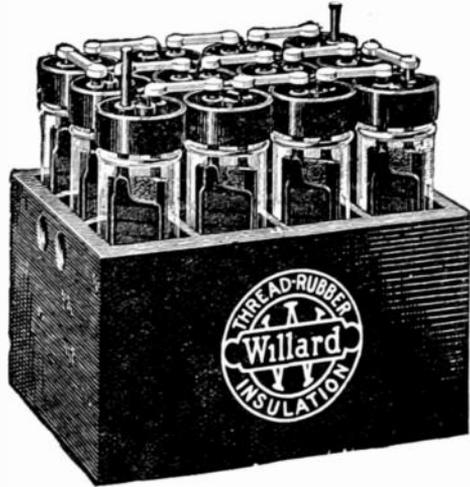
Not all noises are due to static, and when you hook on Willards you will find hissing and crackling noises, due to internal and external leakage, have disappeared.

Increased pleasure from your set is assured by use of Willard "B" Batteries.



RADIO "A" BATTERY

Heavy plates—Threaded rubber—
Unusual capacity.



4500 M. A. hour capacity

RADIO "B" BATTERY

Note the construction—Individual glass cells
that eliminate external and internal leakage.

WILLARD RADIO BATTERIES

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SANTA MONICA—Guy
Hammond

GARDENA—Gardena Bat-
tery & Ignition

SAN PEDRO—Auto Elec-
tric Service

Or

At Your Nearest Radio Dealer

(Continued from Page 17)

melted to the shape seen in the completed tube, thus holding firmly in place the wires. The glass tube with its wires inserted is now called the press.

The five wires are next cut to their proper lengths so that the plate, grid and filament can be mounted. These units are spot-welded in place by girl operators, each of whom is a highly skilled worker. The filament used in the WD-11 is a metal wire coated with oxides.

Now the glass blank is tubulated, or in other words, the thin glass tube is placed on its end after a small hole has been melted in the glass blank with a gas flame.

Next the press is sealed to the bottom of the blank. In this process the flare is held tightly to the bottom of the blank and a flame melts the glass sufficiently so that they weld together.

As the long glass stem is placed on the blank for the purpose of exhausting the tube, this process is the next in order. The long glass stem is inserted into a piece of rubber tubing which leads directly to the pumps which are two in number. An oil pump and a mercury vapor pump are used to exhaust the tube down to the required vacuum. Before the pumps are turned on, a covering which serves as an oven is pulled down over them and they are subjected to a high temperature to drive gases from the glass walls and metal parts.

Then the pumps are turned on and the tubes exhausted to a very low pressure which is at a much higher point of exhaustion than that given the electric lamp.

A coil of wire surrounds the tube when placed in the exhausting machine and by means of a high tension spark the vacuum is tested. Next the plate of the tube is heated red hot by a high frequency oscillating current generated from transmitting tubes to remove the gas from the plates and metal supports. The plate oscillations are next turned off and the filament heated to obtain the proper chemical reaction on the filament oxide and thus increase the possible electron emission. The pumps are turned off and a gas flame run around the bottom of the long glass tube until it melts off and forms the tip of the vacuum tube.

The tube is now completed except for the base, which is baked on by a machine, and then the tips which contain the leads from the inner unit of the tube are neatly soldered and surfaced.

Amplifier Data—Continued

HALL BERRINGER

The precautions given in last week's Radio Doings apply specifically to prevention of audio frequency oscillations. They also apply to the prevention of radio frequency oscillations, which may cause howling and which always reduces the efficiency of the amplifier system. A further precaution in the case of radio frequency oscillations is in the use of very small choke coils of a few turns in the grid leads of the amplifiers, or a small resistance in the grid leads. These act to prevent the circuits from oscillating.

(Continued on Page 27)

DO YOU WANT

A Perfect Receiving Set?
Genuine Neutrodyne Parts?
Complete Radio Satisfaction?

Then Go To—

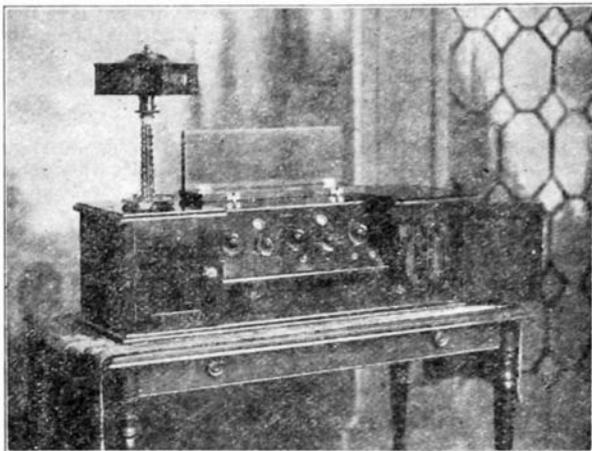
HENSEL ELECTRIC STORE

OPEN EVENINGS

567-073

214 So. Western Rve., Los Angeles

New Neutroflex Models - 3 Tube



De Luxe Model V carries a wonderful piano finish of light walnut. All metal gold plated. This model is self-contained, with storage batteries and loud speaker built in. When not in use the lid folds down, giving enclosed cabinet effect.

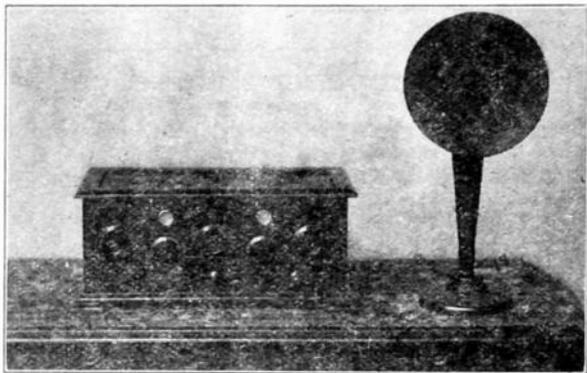
De Luxe Model V—Price \$250.00 (Complete)

NEUTROFLEX—The Most Beautiful Radio Set in America Is Now Ready for Delivery

When you buy or build your next set, you must consider Volume, Tone, and Distance. All these are combined in the Neutroflex. Never before has a receiver given such volume and at the same retained such quality of tone.

MODEL III

This is the same built receiver as the De Luxe Model V, but not self contained. The finish comes in black walnut, light walnut, red and brown mahogany.



Price \$100.00 (Less Equipment)

Come in and listen to the Neutroflex before you buy
WE HAVE PLENTY OF 301-A CUNNINGHAM TUBES

Phone
ATLantic 4548

C. D. TANNER CO.

Los Angeles
Calif.

528 W. Washington St.

Claire Forbes Crane

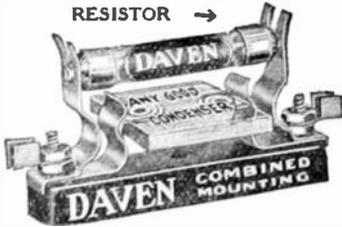
We know many in radioland like to see pictures of the artists who entertain them. Claire Forbes Crane, concert pianist, whose picture appears here, has delighted many of us with her talent. Mrs. Crane has charge of the matinee programs from KHJ, which have been put on by Barker Brothers, Los Angeles. There are few better qualified to talk on music in all its branches than Mrs. Crane, and her rendering of operas and classical music has, we are sure, inspired all who have heard her.

When such talent is available to the broadcast station the listening-in public can be assured of the highest class of music and entertainment. Mrs. Crane's voice is particularly fitted for broadcasting and we are never tired of listening to her.



Can You Do This?

RESISTOR →



THE DAVEN COMBINED RESISTOR-CONDENSER MOUNTING DOES BOTH

This may be the trouble with YOUR set—

You can probably change your grid leak for higher

Detecting Efficiency

The highest efficiency can only be obtained by changing both resistor and condenser

If your dealer cannot supply you, write

Daven Radio Company

Resistor Specialists

14 Campbell Street

Newark, N. J.

Murdock Radio Head Phones "Standard Since 1914"



Sohman Bros.



— NO LEAKS SINCE 1892 —

232-234 So. Spring St.

Los Angeles

Open Evenings

MAin 2924

Buy a Kellogg Radio Kit!

Here is an opportunity to build a good receiving set, using your own hook-up, at a nominal price.

The Kellogg Radio Universal Panel Kit contains all the apparatus for assembling a two-stage amplifying unit with the detector tube socket and rheostat. The only parts necessary to complete a radio set of the best grade are the Kellogg tuning units, for which the panel is already drilled.



Solder, spaghetti, both liquid and tubing, screws, nuts, etc., are all included. No time lost buying each part separately. Can't forget anything; everything there except, of course, the tuning units, and they depend on the kind of circuit used.

Money saved buying a compact outfit of this kind, packed in an attractive cardboard box, $17\frac{1}{2} \times 12\frac{3}{4} \times 3\frac{1}{4}$ inches.

Ask your dealer to show you the

No. 501 Kellogg Radio Universal Panel Kit List, \$43.00

USE—Is The Test



KELLOGG SWITCHBOARD & SUPPLY COMPANY

1066 West Adams Street, Chicago

**623 San Fernando Bldg.,
Los Angeles**

**1054 Mission St.,
San Francisco, Calif.**

(Continued from Page 23)

Stray fields, which spread out and cause coupling and transfer of energy between different parts of circuits depend upon the size and shape of coils used in the set. Naturally, large coils will spread the electric and magnetic fields considerably farther than small coils. Hence, small coils should be used wherever possible. This will explain why radio frequency transformers are gradually being more and more reduced in size. The coils on them are becoming smaller and smaller, so that the electric and magnetic fields are concentrated in the space around the coils themselves. The shape of the coil often influences coupling. Certain types of coils have very little leakage, and the lines of force are concentrated in the coil itself. Of these types the toroidal coil is the best example. In this type of coil the external field is reduced to a minimum, and hence coupling and transfer of energy is in a minimum. Wherever this type of coil can be effectively used it will be found to help considerably in reducing howling.

There are other types of noises, not due to regeneration and coupling, which often cause considerable annoyance. These are due to causes which result in small variations in plate current, which are considerably magnified by the amplifier before they reach the telephones. Some of these causes are:

1. Bad "B" batteries and run-down storage batteries. Any variations in battery voltage naturally make themselves felt, either as lower filament current or lower plate voltage, hence the final result is a varying plate current which produces noises. A run-down storage battery is apt to do this and an old "B" battery. But if one cell of the "B" battery is bad, it will make itself felt in harsh and grinding noises in the phones. Hence the solution is to watch your batteries and see that they are always in good condition.

2. Noises due to microphonic contacts. Anything which causes a variation in plate current will cause a noise in the phones. Poor contacts, which vary, and thereby alter the resistance in the circuit ultimately cause a variation in plate current and, hence, noises. All contacts should be firmly and securely soldered to avoid any such occurrence.

3. Noises due to gas and ironization. The presence of gases always results in somewhat erratic operation. Any variation in voltage may produce abnormal changes in currents due to presence of gas and ironization of the gas. These cannot, of course, be guarded against. However, by careful operation of the tube a good operator can secure excellent results by operating with proper potential.

4. Mechanical vibration of the tube. Whenever the tube is jarred or vibrates, noises are heard. This is due to the fact that the elements in the tube are also jarred and hence the relative distance between the element varies and the plate current varies in accordance. The best way to avoid noises due to mechanical vibration is to mount the tube either on springs which take up the vibration or on heavy rubber bases.

These are the principal causes of howling and tube noises and for best results should be eliminated as far as possible. The methods here outlined will yield satisfactory results if carefully observed.

(Finished)

EXCLUSIVE IN HOLLYWOOD

"The Californian"

This set is remarkable for its Tone Quality, Simplicity of Operation and Selectivity

Complete
Sets

" SMITHY "

Balanced
Parts to
Build

"The Neutrodyne Specialist"

5654 Hollywood Blvd., Hollywood Cal. OPEN EVENINGS HOLLY. 1734

6-8 A. M.
PACIFIC TIME

RADIO TIME TABLE

7-9 Mountain Time
8-10 Central Time
9-11 Eastern Time

STATION	WATTS	CITY	METERS	CALL	SUN.	MON.	TUES.	WED.	THUR.	FRI.	SAT.
					6 00-6 30 8 30-7 00 7 00-7 30	6 00-6 30 6 30-7 00 7 00-7 30	6 00-6 30 8 30-7 00 7 30-8 00	6 00-6 30 8 30-7 00 7 00-7 30	6 00-6 30 8 30-7 00 7 30-8 00	6 00-6 30 8 30-7 00 7 00-7 30	6 00-6 30 8 00-6 30 7 30-8 00
Reynolds Radio	500	Denver	360	K L Z			X				
Free Press	500	Detroit	517	W C X		X				X	X
Detroit News	500	Detroit	517	W W J	X			X		X	X
Woodmen of W	500	Omaha	528	W O A W	X	X					X

8-10 A. M. PACIFIC TIME

9-11 Mountain Time

10-12 Central Time

11-1 Eastern Time

STATION	WATTS	CITY	METERS	CALL	SUN.	MON.	TUES.	WED.	THUR.	FRI.	SAT.
					8 00-8 30 8 30-9 00 9 00-9 30	8 00-8 30 8 30-9 00 9 00-9 30	8 00-8 30 9 30-10 00				
S. F. Examiner	150	San Francisco	360	K U O		X	X				
Reynolds Radio	500	Denver	360	K L Z			X	X			
Star-Telegram	500	Fort Worth	476	W B A P	X	X					
News and Journal	500	Dallas	476	W F A A		X	X				
Palmer School	500	Davenport	484	W O C		X					
John Wanamaker	500	Philadelphia	509	W O O		X		X			
Federal Tel.	500	Buffalo	319	W G R			X				

FACTORY PRICES TO YOU

DISTANCE—SELECTIVITY
—VOLUME

Make your set step out

PHIPPS SUPER COILS

\$1.00

For Harkness and Reflex

SPECIALS

Rheostat 30 Ohm	\$.45	Phones	\$2.98
Detectors	.65	Horns	8.50
Sockets	.25	Coupler	.75
A. F. Transformers, 3-1	2.25	23 Plate Condensers	1.25
R-F Transformers	2.00	Two-Tube Portable Set	9.95

Plus 25c for Postage

Work Bench and Advice Free

D. C. PHIPPS

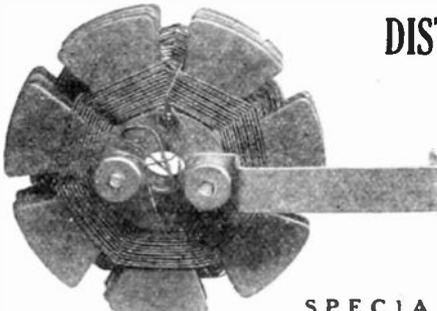
Distributor

WING RADIO PRODUCTS

Los Angeles, California

Phone TRinity 6434

726 S. Spring Street



10-12 A. M.
PACIFIC TIME

RADIO TIME TABLE

11- 1 Mountain Time
12- 2 Central Time
1- 3 Eastern Time

STATION	WATTS	CITY	METERS	CALL	SUN.		MON.		TUES.		WED.		THUR.		FRI.		SAT.	
					10 00-10 30	10 30-11 00	11 00-11 30	11 30-12 00	10 00-10 30	10 30-11 00	11 00-11 30	11 30-12 00	10 00-10 30	10 30-11 00	11 00-11 30	11 30-12 00	10 00-10 30	10 30-11 00
L. A. Times	500	Los Angeles	395	KH J	X	X	X											
Earl C. Anthony	500	Los Angeles	468	K F I	X	X	X											
Bible Institute	750	Los Angeles	360	K J S			X	X										
Angelus Temple	500	Los Angeles	278	K F S G			X	X										
So. Electric Co.	50	San Diego	244	K D P T	X	X												
Hale Brothers	500	San Francisco	423	K P O			X	X										
Tribune	500	Oakland	509	K L X	X	X												
Waener Brothers	250	Oakland	360	K L S					X					X				
Gould	5	Stockton	360	K J Q	X	X												X
Fallon & Co	100	Santa Barbara	360	K F H J	X	X												
Guy Greason	10	Tacoma	360	K F E J			X	X		X	X				X	X		
Rhodes Co	100	Seattle	455	K D Z E			X	X		X	X		X		X	X		
First Pres. Church	750	Seattle	360	K T W		X	X											X
Meier & Frank	50	Portland	360	K F E C														X
Reynolds Radio	500	Denver	360	K L Z			X				X							X
News and Journal	500	Dallas	476	W F A A			X	X		X	X		X		X			X
Palmer School	500	Davenport	484	W O C			X			X	X							X
Oregonian	500	Portland	492	K G W				X		X	X		X		X			X
Federal Tel. Co	500	Buffalo	319	W G R				X		X	X		X		X			X

Murdock Radio Head Phones "Standard Since 1914"

BRANSTON

Super-Heterodyne Kits

(New Type)

Including all frequency transformers, coupling units, with blue prints and drilling template.

With this kit you can build the last word in radio receivers.

Regular price, \$36.50

Special Price \$26.90

For a few days only

Germain's Radio has been built on service

Whatever set you have we will gladly help you

Germain's Motto: TRUTH IN RADIO

GERMAIN'S

SIXTH AND MAIN • LOS ANGELES

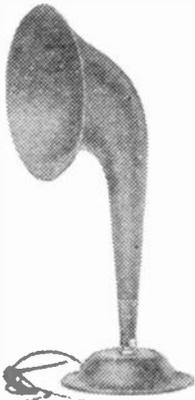
12-2 P. M.
PACIFIC TIME

RADIO TIME TABLE

1- 3 Mountain Time
2- 4 Central Time
3- 5 Eastern Time

STATION	WATTS	CITY	METERS	CALL	SUN.		MON.		TUES.		WED.		THUR.		FRI.		SAT.		
					12 00-12 30	12 30-1 00	1 00-1 30	1 30-2 00	12 00-12 30	12 30-1 00	1 00-1 30	1 30-2 00	12 00-12 30	12 30-1 00	1 00-1 30	1 30-2 00	12 00-12 30	12 30-1 00	1 00-1 30
L. A. Times	500	Los Angeles	395	KH J	X	X													
Bible Institute	750	Los Angeles	360	K J S	X	X													
Angelus Temple	500	Los Angeles	278	K F S G	X	X													
So. Electric Co.	50	San Diego	244	K D P T					X									X	
Warner Bros	250	San Francisco	380	K L S	X	X			X									X	
Hale Bros	500	San Francisco	423	K P D					X	X								X	
General Elec	1000	Oakland	312	K G O					X	X								X	
Herrold Lab'y	50	San Jose	360	K Q W					X	X								X	
Guy Greason	10	Tacoma	360	K F E J				X	X	X								X	
Rhodes Co	100	Seattle	270	K D Z E				X	X	X								X	
Honolulu Star Bul	100	Honolulu	380	K D Y X	X	X			X	X								X	
Honolulu Adver	500	Honolulu	360	K G U					X	X								X	
Reynolds Radio	500	Denver	380	K L Z					X									X	
Pyles Nichols	10	Denver	380	K O Z Q					X									X	
News and Journal	500	Dallas	476	W F A A	X	X												X	
Palmer School	500	Davenport	484	W O C					X	X								X	
Star	500	Kansas City	411	W O A F					X	X								X	
News	500	Detroit	617	W W J					X	X								X	
Radio Corp. of Am	500	New York	455	W J Z					X	X								X	
Herald	1000	Calgary	420	C F A C					X	X								X	
Federal Tel. Co	500	Buffalo	319	W G R	X	X	X		X	X								X	
Woodmen of W	500	Omaha	526	W O A W	X	X			X									X	

When the Receiving Set is Finished



You will want your family and your friends to listen in with you. A good Loud Speaker is the only way possible.

The same engineers which built the other Audiophone models, including Senior and Junior, developed this Baby

TRADE MARK
AUDIOPHONE
REG. U. S. PAT. OFFICE

Model. It is different from the others, and costs less, but gives good results. The price, \$12.50, is not much more than many of the better grade headphones. This Baby Audiophone is ready to connect to your set—requires no auxiliary batteries to operate. It is substantial in construction and good looking in appearance. The base is finished in dull gold bronze with the fibre horn of same color to match. Write for Bulletin No. 3013-X.

THE BRISTOL COMPANY WATERBURY, CONNECTICUT

2-4 P. M.
PACIFIC TIME

RADIO TIME TABLE

3- 5 Mountain Time
4- 6 Central Time
5- 7 Eastern Time

STATION	WATTS	CITY	METERS	CALL	SUN.		MON.		TUES.		WED.		THUR.		FRI.		SAT.		
					2 00-2 30	2 30-3 00	3 00-3 30	3 30-4 00	2 00-2 30	2 30-3 00	3 00-3 30	3 30-4 00	2 00-2 30	2 30-3 00	3 00-3 30	3 30-4 00	2 00-2 30	2 30-3 00	3 00-3 30
L. A. Times	500	Los Angeles	395	KH J		X	X												
Angelus Temple	500	Los Angeles	278	KFSG		X	X												
Electric Light Sup	100	Los Angeles	360	KNX			X												
So. Electrical	50	San Diego	244	KDPT				X											
Hale Bros	500	San Francisco	423	KPO					X										
S. F. Examiner	150	San Francisco	360	KUO				X	X										
Tribune	500	Oakland	509	KLX				X	X										
General Elec. Co	1000	"	312	KGO				X											
R. H. Horn	50	San Luis Obispo	212	KFBE		X	X												
Portable Wireless	100	Stockton	360	KWG	X	X													
Kimball-Upson	100	Sacramento	283	KFBK				X	X					X	X			X	
First Pres. Church	750	Seattle	360	KTW		X	X												
Post-Intelligencer	100	Seattle	270	KFJC				X	X	X									
Rhodes Co	100	Seattle	270	KDZE				X	X	X	X			X	X	X		X	
Oregonian	500	Portland	492	KGW				X	X	X	X			X	X	X		X	
Deseret News	500	Salt Lake City	360	KZN				X	X	X	X			X	X	X		X	
Reynolds Radio	500	Denver	360	KLZ				X	X	X	X			X	X	X		X	
Honolulu Adver	500	Honolulu	360	KGU				X	X					X	X	X		X	
Star-Telegram	500	Fort Worth	478	WBAP		X	X												
Palmer School	500	Davenport	494	WOC				X											
Daily News	500	Chicago	448	WMAQ				X						X	X			X	
Star	500	Kansas City	411	WDAF				X						X	X			X	
Free Press	500	Detroit	517	WDX	X	X		X	X	X				X	X			X	
News	500	Detroit	517	WWJ	X	X		X	X	X				X	X			X	
Drake Hotel	1000	Chicago	360	WDA P				X	X	X				X	X			X	
Radio Cor. of Am.	500	New York	455	WJZ				X	X	X	X			X	X	X		X	
Herald	1000	Calgary	420	C FAC				X	X	X	X			X	X	X		X	
Federal Tel. Co	500	Buffalo	319	WQR				X	X	X	X			X	X	X		X	
Westinghouse	1000	Pittsburg	328	KDKA				X	X	X	X			X	X	X		X	
Westinghouse	1000	Springfield	337	WBZ				X	X	X	X			X	X	X		X	

Owing to "daylight saving" time now in force in the East, all stations in East should show one hour earlier.

Murdock Radio Head Phones "Standard Since 1914"

Bring your radio troubles to us

Our technical service bureau is at the disposal of the trade and public for constructing, testing and repairing any kind of receiving set at very reasonable prices. We are glad to give expert advice on any matters pertaining to Radio.

We specialize on the Neutrodyne and Harkness circuits.

Radio Installation for apartment houses, hospitals, clubs etc.—1 to 200 horns from one receiver.

B. KRUGER & COMPANY

RADIO ENGINEERS

Construction, Design, Installation

Phone TRinity 8180

318 Stimson Bldg.

Los Angeles, Third and Spring Streets

Crosley Sets

"BETTER—COST LESS"

These sets are in stock NOW ready for prompt delivery

	List
Crosley Type V	\$ 17.60
Crosley Model 51	20.35
Crosley Type 3B	46.20
Crosley Type 3C	121.00
Super Six, Model VI	31.90
Super X-J	71.50

We also have the following types in transit:

	List
Crosley Model XL	\$132.00
Crosley Model IV	19.80
Crosley 3R3	71.50

COOK NICHOLS CO.

Los Angeles
411 S. San Pedro St.
TRinity 1350
FAber 4487

482 S. Fair Oaks St.
Pasadena

WHOLESALE ONLY

4-6 P. M.
PACIFIC TIME

RADIO TIME TABLE

5- 7 Mountain Time
6- 8 Central Time
7- 9 Eastern Time

STATION	WATTS	CITY	METERS	CALL	SUN.		MON.		TUES.		WED.		THUR.		FRI.		SAT		
					4 00-4 30	5 00-5 30	4 00-4 30	4 30-5 00	5 00-5 30	5 30-6 00	4 00-4 30	4 30-5 00	5 00-5 30	5 30-6 00	4 00-4 30	4 30-5 00	5 00-5 30	5 30-6 00	4 00-4 30
E. C. Anthony	500	Los Angeles	469	K F I	X	X										X	X		
L. A. Herald	500	Los Angeles	469	Herald			X	X		X	X		X	X		X	X		
L. A. Examiner	500	Los Angeles	469	Exam'n'r					X			X			X				X
Angelus Temple	500	Los Angeles	278	K F S G	X	X			X	X	X		X	X		X	X		X
Maxwell Elec.	100	Long Beach	234	K F O N					X			X			X				X
General Electric		Oakland	312	K G O			X	X	X		X	X	X		X	X	X		X
Hale Bros	500	San Francisco	423	K P O			X	X	X		X	X	X		X	X	X		X
Oakland Tribune	500	Oakland	509	K L X			X			X				X				X	
S. F. Examiner	150	San Francisco	360	K U O				X	X		X	X				X	X		X
Maxwell Elec	50	Berkeley	278	K R E						X								X	
Portable Wireless	100	Stockton	360	K W G			X	X		X	X		X	X		X	X		X
Gould	5	Stockton	360	K J Q					X	X		X	X			X	X		X
Radio Den	10	Santa Ana	268	K F A W			X			X				X				X	
Nielson Radio Co.	10	Phoenix	238	K F C B				X	X			X	X			X	X		
Post Intelligencer	100	Seattle	270	K F J C			X		X		X		X		X			X	
Star Electric	50	Seattle	283	K F H R				X	X		X	X		X	X			X	X
First Pres. Church	750	Seattle	360	K T W	X	X				X	X		X	X		X	X		X
Northwest Radio	50	Seattle	283	K J R			X	X	X		X	X		X	X		X	X	X
Meier & Frank	50	Portland	248	K F E C			X	X	X		X	X		X	X		X	X	X
Hallock & Watson	50	Portland	360	K G G			X	X	X		X	X		X	X		X	X	X
Pyle & Nichols	10	Denver	360	K D Z Q	X	X	X	X	X		X	X		X	X		X	X	X
Star-Telegram	500	Fort Worth	476	W B A P				X		X		X		X		X			X
News and Journal	500	Dallas	476	W F A A			X	X		X		X		X		X		X	X
Southern Egr. Exp.	500	San Antonio	385	W O A I					X	X		X		X		X		X	X
Palmer School	500	Davenport	484	W O C	X	X	X	X			X	X		X	X		X	X	X
Post Dispatch	500	St. Louis	546	K S D						X	X		X	X		X		X	X
Daily News	500	Chicago	448	W M A O			X	X		X	X		X	X		X		X	X
Drake Hotel	500	Chicago	360	W D A P			X	X		X	X		X	X		X		X	X
Free Press	500	Detroit	517	W C X	X	X	X	X		X	X		X	X		X		X	X
News	500	Detroit	517	W W J	X	X	X	X		X	X		X	X		X		X	X
Star	500	Kansas City	411	W D A F	X	X	X	X		X	X		X	X		X		X	X
Crosley Mfg. Co.	500	Cincinnati	309	W L W			X	X	X		X	X		X	X		X	X	X
Radio Cor. of Am.	500	New York	455	W J Z	X	X			X	X		X	X		X	X		X	X
John Wanamaker	500	Philadelphia	509	W O O			X	X	X		X	X		X	X		X	X	X
Federal Tel. Co	500	Buffalo	319	W G R			X	X	X		X	X		X	X		X	X	X
Westinghouse	1000	Pittsburg	326	K O K A	X	X	X	X		X	X		X	X		X		X	X
Westinghouse	1000	Springfield	337	W B Z	X	X	X	X		X	X		X	X		X		X	X
Woodmen of W	500	Omaha	528	W O A W	X	X	X	X		X	X		X	X		X		X	X
Willard Battery	1000	Cleveland	390	W T A M	X	X	X	X		X	X		X	X		X		X	X

Owing to "daylight saving" time now in force in the East, all stations in East should show one hour earlier.

Murdock Radio Head Phones "Standard Since 1914"

WE KNOW OUR STUFF

If you want your Neutrodyne repaired properly, bring it to us. We repair all types of radio sets
Radio sets built to order—by men who know your wants and can give you expert workmanship and prompt service.

STANRAD

2-Tube Set, complete with horn . . . \$68.50 2-Tube Set, wired . . . \$29.50
Radio Batteries charged in eight hours, 75c. Harkness Bakelite Coils, per set, \$2.00

Call TUcker 2433

We fix it or no charge. Sets called for and delivered.

1048 South Olive St. **STANDARD RADIO**

Los Angeles



**THE WORLD'S
FAMOUS
LOUD SPEAKER
AMPLION**

Mfd. by Alfred Graham Sons of London
Dist. in U. S. by Signal Electric Mfg. Co.

DEALERS—A limited quantity of this famous speaker arrived last week from England and are now ready for distribution. Get yours now from your jobber.

**GLOBE COMMERCIAL CO.
LOS ANGELES AND SAN FRANCISCO**

NOTE.—After May 1st the Los Angeles office of the Globe Commercial Co. will be located in the "Radio Building."

Radio!



TRinity
2914

Newbery Electric Corpn.
726 So. Olive St.

**RADIO
Sets and Parts**

A special sale on good standard equipment that we will offer to thrifty buyers:

\$25 Crystal Sets \$15
\$45 Tube Sets \$25

Several Kennedy Sets at

Half Price

Cardwell Condensers
.001, \$6; .0005, \$5
.00025, \$4.25

Full Line of Neutrodyne and Super-Heterodyne Parts

Radiolas — Kennedy Sets
Neutrodynes

demonstrated and sold with a guarantee of satisfaction

6-8 P. M.
PACIFIC TIME

RADIO TIME TABLE

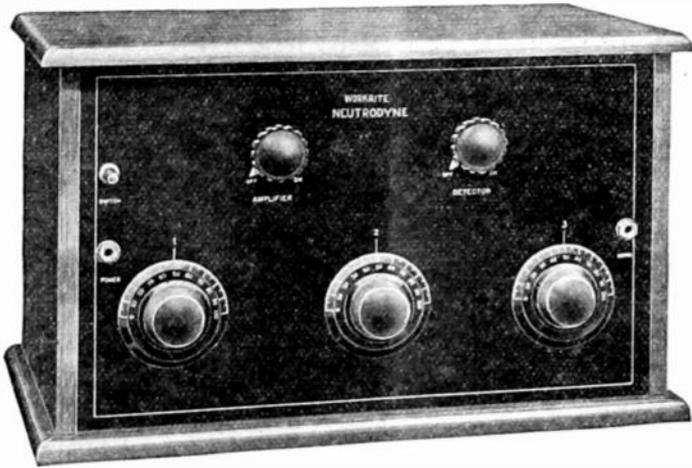
7-9 Mountain Time
8-10 Central Time
9-11 Eastern Time

STATION	WATTS	CITY	METERS	CALL	SUN.		MON.		TUES.		WED.		THUR.		FRI.		SAT.	
					6:00-6:30	6:30-7:00	7:00-7:30	7:30-8:00	6:00-6:30	6:30-7:00	7:00-7:30	7:30-8:00	6:00-6:30	6:30-7:00	7:00-7:30	7:30-8:00	6:00-6:30	6:30-7:00
Bible Institute	750	Los Angeles...	360	K J S	X	X												
L. A. Times	500	Los Angeles...	395	K H J					X	X	X	X	X	X	X	X	X	X
E. C. Anthony	500	Los Angeles...	469	K F I		X	X				X	X	X	X	X	X	X	X
Angelus Temple	500	Los Angeles...	278	K F S G							X	X	X	X	X	X	X	X
Electric Light Sup.	100	Los Angeles...	360	K N X				X	X		X	X	X	X	X	X	X	X
Echaphone Radio	100	Long Beach...	234	K F O N				X	X		X	X	X	X	X	X	X	X
Hale Brothers	500	San Francisco...	423	K P O					X	X	X	X	X	X	X	X	X	X
S. F. Examiner	150	San Francisco...	360	K U O			X	X	X	X	X	X	X	X	X	X	X	X
Maxwell Electric	50	Berkeley	278	K R E						X	X	X	X	X	X	X	X	X
Tribune	500	Oakland	509	K L X						X	X	X	X	X	X	X	X	X
General Electric	1000	Oakland	312	K G O				X	X		X	X	X	X	X	X	X	X
Kimball & Upson	100	Sacramento...	283	K F B K			X	X	X	X	X	X	X	X	X	X	X	X
Fallon & Co	100	Santa Barbara	360	K F H J			X	X	X	X	X	X	X	X	X	X	X	X
Radio Den	10	Santa Ana	258	K F A W			X	X	X	X	X	X	X	X	X	X	X	X
Southern Elect	50	San Diego	244	K D P T			X	X	X	X	X	X	X	X	X	X	X	X
Neilson Radio Sup.	10	Phoenix	238	K F C B		X	X	X	X	X	X	X	X	X	X	X	X	X
McArthur Bros	100	Phoenix	360	K F A D			X	X	X	X	X	X	X	X	X	X	X	X
Love Elect. Co	10	Tacoma	360	K M O			X	X	X	X	X	X	X	X	X	X	X	X
Mullens Elect. Co	30	Tacoma	252	K G B				X	X	X	X	X	X	X	X	X	X	X
N. W. Radio Ser	50	Seattle	283	K J R			X	X	X	X	X	X	X	X	X	X	X	X
Excel. Motor Cy.	100	Seattle	360	K H O				X	X	X	X	X	X	X	X	X	X	X
First Pres. Church	750	Seattle	360	K T W		X	X	X	X	X	X	X	X	X	X	X	X	X
Star Electric	50	Seattle	283	K F H h			X	X	X	X	X	X	X	X	X	X	X	X
Oregonian	500	Portland	482	K G W	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Hallock & Watson	50	Portland	360	K G G	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Meier & Frank	50	Portland	248	K F E C			X	X	X	X	X	X	X	X	X	X	X	X
Apple Cy. Rad. Cib	10	Hood River	360	K O P			X	X	X	X	X	X	X	X	X	X	X	X
Adler's Music Store	5	Baker, Ore	360	K F D A		X	X	X	X	X	X	X	X	X	X	X	X	X
Boise High School	150	Boise, Ida	270	K F A U			X	X	X	X	X	X	X	X	X	X	X	X
Bunkerhill-Sul.Co	10	Kellogg, Ida	360	K F E Y			X	X	X	X	X	X	X	X	X	X	X	X
Telegram	100	Salt Lake	360	K D Y L			X	X	X	X	X	X	X	X	X	X	X	X
Reynold's Radio	500	Denver	360	K L Z			X	X	X	X	X	X	X	X	X	X	X	X
Western Radio	50	Denver	360	K F A F			X	X	X	X	X	X	X	X	X	X	X	X
Pyle & Nichols	10	Denver	360	K Z D Q		X	X	X	X	X	X	X	X	X	X	X	X	X
Fitzsimmons Hospital		Denver	642	A A 3			X	X	X	X	X	X	X	X	X	X	X	X
Sparks Hi School	10	Sparks, Nev	226	K F F R			X	X	X	X	X	X	X	X	X	X	X	X
Westinghouse El	1000	Hastings, Neb.	341	K F K X			X	X	X	X	X	X	X	X	X	X	X	X
Star-Telegram	500	Fort Worth	478	W B A P			X	X	X	X	X	X	X	X	X	X	X	X
News and Journal	500	Dallas	476	W F A A			X	X	X	X	X	X	X	X	X	X	X	X
Palmer School	500	Davenport	484	W O C		X	X	X	X	X	X	X	X	X	X	X	X	X
W. O. W	500	Omaha	626	W O A W		X	X	X	X	X	X	X	X	X	X	X	X	X
Daily News	500	Chicago	448	W M A Q			X	X	X	X	X	X	X	X	X	X	X	X
Post Dispatch	500	St. Louis	546	K S D		X	X	X	X	X	X	X	X	X	X	X	X	X
Westinghouse	1000	Chicago	636	W C X			X	X	X	X	X	X	X	X	X	X	X	X
Sweeney School	500	Kansas City	411	W H B		X	X	X	X	X	X	X	X	X	X	X	X	X
Star	500	Kansas City	411	W D A F			X	X	X	X	X	X	X	X	X	X	X	X
Drake Hotel	1000	Chicago	380	W D A P	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Crosley Mfg. Co.	500	Cincinnati	308	W L W			X	X	X	X	X	X	X	X	X	X	X	X
Albertan Pub. Co.	250	Calgary, Can.	410	C H B C			X	X	X	X	X	X	X	X	X	X	X	X
Detroit Free Press	500	Detroit	517	W C X			X	X	X	X	X	X	X	X	X	X	X	X
Radio Cor. of Am.	500	New York	455	W J Z	X	X	X	X	X	X	X	X	X	X	X	X	X	X
John Wanamaker	500	Philadelphia	508	W O O		X	X	X	X	X	X	X	X	X	X	X	X	X
Federal Tel. Co	500	Buffalo	318	W G R			X	X	X	X	X	X	X	X	X	X	X	X
El Buen Tono	500	Mexico City	425	C Y B			X	X	X	X	X	X	X	X	X	X	X	X
El Universal	500	Mexico City	600	C Y L			X	X	X	X	X	X	X	X	X	X	X	X
Willard Battery	1000	Cleveland	390	W T A M			X	X	X	X	X	X	X	X	X	X	X	X

Murdock Radio Head Phones "Standard Since 1914"

WORKRITE NEUTRODYNE

(Licensed under Hazeltine Patents No. 1450080)



Workrite Neutrodyne Model 201A—\$175.00, Complete
And we mean Complete

**Chicago and Ft. Worth on Loud Speaker
Through Local Broadcast**

J. S. Lesser, 7614 Willoughby, write us he receives
Chicago KYW, and Ft. Worth WBAP on loud
speaker through local broadcast.

Patterson Electric Company

239 South Los Angeles Street

Telephones: VAndike 8139, MAIn 5884 Los Angeles, Calif.

8-10 P. M.
PACIFIC TIME

RADIO TIME TABLE

9-11 Mountain Time
10-12 Central Time
11- 1 Eastern Time

STATION	WATTS	CITY	METERS	CALL	SUN.		MON.		TUES.		WED.		THUR.		FRI.		SAT.	
					8 00-8 30	8 30-9 00	8 00-8 30	8 30-9 00	8 00-8 30	8 30-9 00	8 00-8 30	8 30-9 00	8 00-8 30	8 30-9 00	8 00-8 30	8 30-9 00	8 00-8 30	8 30-9 00
L. A. Herald	500	Los Angeles	469	Herald	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Bible Institute	750	Los Angeles	360	K J S	X	X			X	X	X	X	X	X	X	X	X	X
L. A. Times	500	Los Angeles	395	K H J	X	X	X	X	X	X	X	X	X	X	X	X	X	X
L. A. Examiner	500	Los Angeles	469	Exam'n'r	X	X			X	X								
E. C. Anthony	500	Los Angeles	469	K F I	X	X			X	X								
Angelus Temple	500	Los Angeles	278	K F S G	X	X			X	X			X	X	X	X	X	X
Electric Light Sup	100	Los Angeles	360	K N X	X	X			X	X			X	X	X	X	X	X
Echophone Radio	100	Long Beach	234	K F O N			X	X	X	X			X	X	X	X	X	X
Hale Bros	500	San Francisco	423	K P O	X	X	X	X	X	X	X	X	X	X	X	X	X	X
S. F. Examiner	150	San Francisco	360	K U O					X	X								
Warner Bros	250	San Francisco	360	K L S					X	X					X	X	X	X
Oakland Tribune	500	Oakland	509	K L X		X	X	X	X	X					X	X	X	X
Maxwell Electric	50	Oakland	275	K R E					X	X			X	X				
General Elec. Co	1000	Oakland	312	K G O					X	X	X		X	X	X		X	X
T. Seifert	100	Bake'sfield	360	K D Z B					X	X			X	X			X	X
Portable Wireless	100	Stockton	390	K W G			X	X							X	X		
Herold Lab'y	50	San Jose	360	K Q W							X	X						
Kimball-Lapson	100	Sacramento	283	K F B K							X	X						
Gould	500	Stockton	360	K J Q					X	X			X	X				
Fallon & Co	100	Santa Barbara	360	K F H J												X	X	
Southern Elec. Co	50	San Diego	244	K D P T			X	X	X	X							X	X
R. H. Horn	50	San Luis Obispo	242	K F B E	X	X					X	X					X	X
Drake Radio	5	Santa Rosa	234	K F N V											X	X	X	X
Univ. of Ariz	150	Tucson	360	K F D H					X				X					
Nielson Rad. Sup	10	Phoenix	738	K F C B											X	X	X	
Post-Intelligencer	100	Seattle	270	K F J C			X	X	X	X	X	X	X	X	X	X	X	X
Excelsion Motor	100	Seattle	360	K H O			X	X	X	X	X	X	X	X	X	X	X	X
Rhodes Co	500	Seattle	455	K F O A			X	X	X	X	X	X	X	X	X	X	X	X
First Pres. Church	750	Seattle	380	K T W	X	X												
Star Electric	50	Seattle	283	K F H R					X	X								X
Mullens Elec.	50	Tacoma	252	K G B			X	X	X	X			X	X	X	X	X	X
State Col. of Wash	500	Pullman	330	K P A E			X	X	X	X			X	X	X	X	X	X
Oregonian	500	Portland	432	K G W			X	X	X	X			X	X	X	X	X	X
Hallock & Watson	50	Portland	340	K G G							X	X						X
Stubbs Elect	100	Portland	340	K G N														X
Meier & Frank	50	Portland	248	K F E C									X	X				
Apple Cy Rad. Cl	10	Hood River	360	K O P							X	X						
Boise High School	150	Boise, Ida	270	K F A U			X	X			X	X			X	X		
Virgin Radio Ser	50	Medford, Ore	283	K F A Y			X	X	X	X			X	X	X	X		X
Bunkerhill-Sul. Co.	10	Kellogg, Ida	360	K F E Y			X	X	X	X			X	X	X	X		X
Reynolds Radio	500	Denver	360	K L Z	X	X												
Pyle & Nichols	10	Denver	360	K D Z O					X	X			X	X				
Westinghouse El	1000	Hastings, Neb.	341	K F K X			X	X	X				X	X				X
Star Telegram	500	Fort Worth	476	W B A P			X	X	X	X			X	X	X	X		X
Dallas News	500	Dallas, Tex	476	W F A A	X	X			X	X	X		X	X	X	X		X
Palmer School	500	Davenport	484	W O C			X	X										X
Post Dispatch	500	St Louis	548	K S D					X	X	X	X						X
Star	500	Kansas City	411	W D A F			X	X			X	X			X	X		X
Woodmen of W	500	Omaha	526	W O A W			X				X	X			X	X		X
Westinghouse	1000	Chicago	536	K Y W					X	X	X	X			X	X	X	X
Drake Hotel	1000	Chicago	360	W D A P					X	X	X	X	X	X	X	X	X	X
Crosley Mfg. Co.	500	Cincinnati	309	W L W					X	X	X	X	X	X	X	X	X	X
Detroit News	500	Detroit	517	W W J					X	X	X	X	X	X	X	X	X	X
Radio Cor. of Am	500	New York	455	W J Z					X						X			X
Herald	1000	Calgary	420	C F A C	X	X			X	X								
Federal Tel. Co	500	Buffalo	319	W G R							X	X						
El Universal	500	Mexico City	500	C Y L					X	X					X	X		
El Buen Tone	500	Mexico City	423	C Y B									X	X				
Sweeney School	500	Kansas City	411	W H B			X	X										
Edgewater Beach	1000	Chicago	370	W G N			X	X	X	X	X	X	X	X	X	X	X	X
Westinghouse	1000	Springfield	337	W B Z					X	X	X	X	X	X	X	X	X	X
Westinghouse	1000	Pittsburg	326	K O K A					X	X	X	X	X	X	X	X	X	X

Owing to "daylight saving" time now in force in the East, all stations in East should show one hour earlier.

Neutrodyne Outfits

WORKRITE

Neutrodyne Kit—DeLuxe Model

- 3 WorkRite Neutroformers (Special Designs)
- 3 WorkRite E-Z-Tune Dials
- 2 WorkRite Neutrodons (New Style)
- Panel Chart, Mounting Angle and Complete Instructions.

The Kit is packed in a very neat box.

Price \$25.00

WorkRite Neutrodyne Outfit

Containing all parts listed below

- | | |
|------------------------------------|----------------------------|
| 3 WorkRite Neutroformers | 1 Double Circuit Jack |
| 2 WorkRite Neutrodons | 1 Closed Circuit Jack |
| 5 WorkRite Non-Microphonic Sockets | 2 A. F. Transformers |
| 1 WorkRite Rheostat | 25 ft. Buss Wire |
| 4 WorkRite Resistance Cart. | 1 Base Board |
| 3 WorkRite 1/4" E-Z-Tune Dials | 1—.25 mfd. Condenser |
| 9 WorkRite Marked Binding Posts | 1—.001 mfd. Condenser |
| 1 Panel 24x7x3/16 in. (Drilled) | 1—.00025 mfd. Condenser |
| 1 Brass Panel Shield | 1—5-ohm Grid Leak |
| | Screws, solder, lugs, etc. |

Build Your Own Five Tube Neutrodyne Set

This outfit contains the special parts from the DeLuxe Kit and is just what you have been looking for. No shopping around for the right parts. No doubt about the parts to get. No delay. No mistakes in assembling. In addition to the parts listed above, the Outfit contains a mounting angle and complete instructions. The WorkRite Neutrodyne Outfit is packed in an attractive box that will come in handy as a radio tool box. Can you imagine any more fun than building your own set with this outfit? Order one today.

Price \$70.00

TUBES

Apex Amplifying

Type 201A—1/4 amp. Each.....\$4.00

These tubes are absolutely guaranteed.

RADIO SUPPLY CO.

Successor to MOTOR CAR SUPPLY CO.

Open Evenings Till 9 P. M.

Telephone VAndike 6063

920 South Broadway

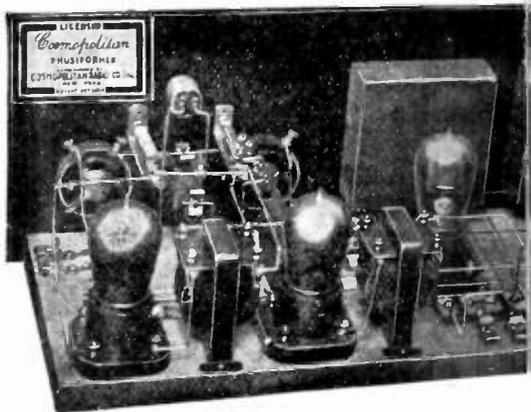
Los Angeles, California

Our New and Complete Price List Now Ready

Cosmopolitan PHUS



NATURAL
REPRODUCTION
SELECTIVITY
VOLUME



W D A F SPEAKING!!!

Kansas City, Mo., April 4th, 1924.

Cosmopolitan Radio Co., Inc.,
15 West 18th Street,
New York, N. Y.

Gentlemen:

I have had the pleasure of testing out one of your demonstrating sets containing three Phusiformers. I wish to state that during the entire test I noticed no regeneration or oscillation and that the stations in Massachusetts and California came in with great volume on a Loud Speaker. The Clarity of tone was remarkable.

In view of the result of this test we are building a five-tube set containing three Phusiformers, to use in our operating room.

Very truly yours,

DON D. JOHNSON,

Radio Operator, Kansas City Star, Kansas City, Mo.

Distr

Radio Supp

COSMOPOLITAN PHUSIFORMER CORPORATION
15 West 18th St., New York City

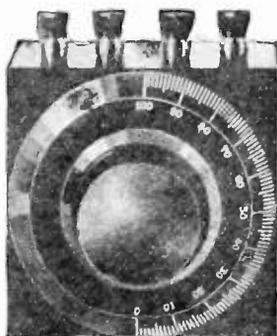
920 So. 100

FORMER Receiver

THE SET THAT IS
REVOLUTIONIZING
RADIO RECEPTION



*The Missing
Link in Radio*
\$9.50



1. No Oscillation
2. Non-radiating
3. Sensitive to distant station
4. Freedom from hand capacity
5. Synchronized and calibrated tuning
6. Simple operation and construction

Following is a partial list of its uses:

- Inductively coupled crystal circuit
- Tuned plate Ultra Audion circuit
- Single control regenerative circuit
- Wave Trap—one or two circuit
- Tuned Radio Frequency
- Radio Frequency ahead of Standard Regenerative Sets
- Neutralized 5 or 6 tube Radio Frequency
- Does not require separate instrument for neutralizing the circuit.
- The moment you hook up your circuit it is automatically neutralized, which means no squeals or howls, just the natural music as broadcasted, flowing clear as a bell from your loud speaker.

ors

y Company

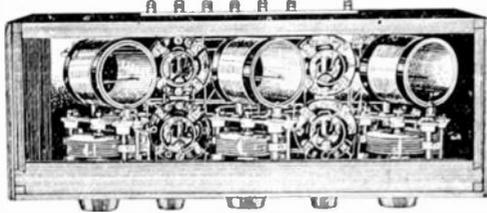
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SURE SALES COMPANY, 123 West Madison St., Chicago
Sole Western Representatives

The **GAROD** Neutrodyne[®]

(Licensed Neutrodyne Receiver)

THE RECEIVER FOR THE MAN WHO WANTS THE
DISTANT STATIONS

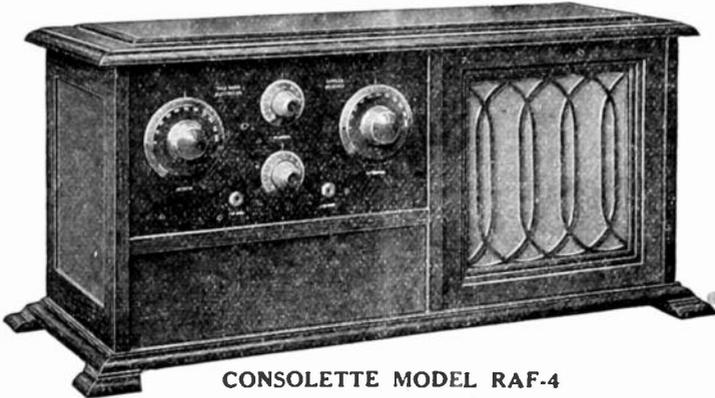


Price
\$135.00

Here we show you the "Works"—for that's what counts
in a Radio Receiver!

The GAROD Neutrodyne is based on the Hazeltine patent, but has been further developed and improved in the manufacturer's laboratory until it is now possible to offer you the "ultimate" in a neutrodyne receiver.

The "RAYFLEX" Receiver



CONSOLETTA MODEL RAF-4

Price **\$150.00**

(Complete with Built-in Timmons Talker, Tubes and Batteries)
The Receiver for Real Entertainment

Exclusive Distributors

YALE RADIO ELECTRIC CO.

Phone VERmont 8973

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LOS ANGELES

Dealers! Attractive Discounts and Prompt Service.

K H J—Los Angeles Times—395 Meters

Times Building, First and Broadway, Los Angeles. Owned and Operated by Los Angeles Times
John S. Daggett, Announcer and Manager

Daily, except Sunday and Monday, from 10 to 11 p. m., we will broadcast Art Hickman's Orchestra from the Biltmore Hotel. Sunday from 6:30 to 7:30 p. m. and daily except Monday, from 6 to 6:30, we will broadcast Art Hickman's Concert Orchestra from the Biltmore Hotel. 6:30 daily except Sunday and Monday: Music Memory Contest, through courtesy of Fitzgerald Music Co.

WEEK COMMENCING MAY 4, 1924**SUNDAY, MAY 4—**

10:00 a. m.

10:30 a. m. to 12:30 p. m.

7:00 to 7:30 p. m.

8:00 to 10:00 p. m.

Sermon from KHJ studio by Rev. Daniel T. Thomas.

Organ recital and entire religious service from First Methodist Episcopal Church. Arthur Blakeley, organist.

Organ recital from First Methodist Episcopal Church

Program presenting Sol Cohen, violinist; Claire Forbes Crane, concert pianist; Juliette de la Grazia, operatic soprano; Albert Keglovich, violinist, pupil of Sol Cohen.

MONDAY, MAY 5—

12:30 to 1:15 p. m.

Program presenting "Uncle Remus," E. M. Bonnell, through the courtesy of Barker Brothers. "The Rendezvous" Orchestra

TUESDAY, MAY 6—

12:30 to 1:15 p. m.

Program presenting Raymond Harmon, tenor, and Gladys Blackwell Pickering soprano, through the courtesy of R. E. Wales of the Chamber of Commerce of Los Angeles.

2:30 to 3:30 p. m.

Matinee program arranged by Claire Forbes Crane, through the courtesy of Barker Brothers.

6:45 p. m.

Professor Walter Sylvester Hertzog will tell stories of America. Children's program presenting the Sandman and Queen Titania.

7:00 to 7:30 p. m.

Elsie Apsit, pianist. Mrs. Malvina Dunn, reader.

8:00 to 10:00 p. m.

Program presenting Golden West Commandery Band, S. H. Perine, director. Floryane Thompson, soprano.

WEDNESDAY, MAY 7—

12:30 to 1:15 p. m.

Program presenting Lois Forrest, soprano, accompanied by Ethel Wilson. Mackie's Queens, Hawaiians, through the courtesy of the Dragon Cafe. Fred G. McNabb, lecturer.

2:30 to 3:30 p. m.

Matinee program arranged by Claire Forbes Crane, through the courtesy of Barker Brothers.

6:45 p. m.

Professor Walter Sylvester Hertzog will tell stories of America. Children's program presenting Dick Winslow, juvenile reporter.

7:00 to 7:30 p. m.

Mrs. Mabee and National Hymn Contest program.

8:00 to 10:00 p. m.

Program presenting Studebaker Radio Orchestra of Long Beach, through the courtesy of Glenn E. Thomas Company. Florence Van Dyke, soprano; Anton Chris, Hawaiian guitar; Lyle Blake Milligan, Woman Uncle Josh; Dr. Mars Baumgardt, lecturer.

THURSDAY, MAY 8—

12:30 to 1:15 p. m.

Program through the courtesy of Fitzgerald Music Company.

2:30 to 3:30 p. m.

Matinee musicale through the courtesy of Fitzgerald Music Co.

7:00 to 7:30 p. m.

Program presenting Ernest White's story, "A Trip to the Submarine Gardens at Catalina." Hi Moulton's Pasadenaans. Mary Hughes, 12 years of age, and Helen Edwina Hughes, 8 years of age, in duets. Dickie Brandon, screen juvenile.

8:00 to 9:00 p. m.

Program through the courtesy of the Fitzgerald Music Company. Maurice Saeta, impersonator.

9:00 p. m.

FRIDAY, MAY 9—

12:30 to 1:15 p. m.

Program presenting "Wally" Mallenius, tenor; Louise Kohlmeier Flack, contralto; Wallace E. Kruger, pianist.

2:30 to 3:30 p. m.

Matinee musicale through the courtesy of Barker Brothers.

6:45 p. m.

Professor Walter Sylvester Hertzog will tell stories of America.

7:00 to 7:30 p. m.

Richard Headrick, screen juvenile.

8:00 to 10:00 p. m.

Appreciation program through the courtesy of Ray F. Chesley.

SATURDAY, MAY 10—

12:30 to 1:15 p. m.

Program presenting Albert Broad, tenor, and Mrs. Emma Wippert Ahlsweide, pianist.

2:30 to 3:30 p. m.

Matinee musicale through the courtesy of Barker Brothers.

6:45 p. m.

Professor Walter Sylvester Hertzog will tell stories of America.

7:00 to 7:30 p. m.

Children's program presenting Helene Pirie, screen juvenile. Mildred Biescar, pianist, 11 years of age, and Henrietta Biescar, 13 years of age, pianist, pupils of Marguerite Hauher. Jeanne DeBard, singer and pianist, 5 years of age.

8:00 to 10:00 p. m.

Program presented by the Caulderon Club of Pasadena.

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	9:00 to 10:00 p. m.	Daily
Hotel Ambassador:	8:00 to 9:00 p. m.	Sunday, Tuesday, Thursday
	10:00 to 11:00 p. m.	Monday
	11:00 to 12:00 p. m.	Wednesday, Friday, Saturday

MUSIC WEEK

SUNDAY, MAY 4—

10:00 to 10:45 a. m.	L. A. Church Federation Service.
4:00 to 5:00 p. m.	Federated Church Musicians Vesper Service.
6:45 to 7:30 p. m.	Dr. Henry Foote-Perrin and pupils in concert.
8:00 to 9:00 p. m.	Ambassador Hotel concert.
9:00 to 10:00 p. m.	Examiner concert.
10:00 to 11:00 p. m.	Dutch Mill Orchestra.

MONDAY, MAY 5—

5:15 to 5:45 p. m.	Examiner News Bulletins.
9:00 to 10:00 p. m.	Examiner concert.
10:00 to 11:00 p. m.	Ambassador—Max Fischer's Cocomat Grove Orchestra.

TUESDAY, MAY 6—

5:15 to 5:45 p. m.	Examiner News Bulletins.
6:45 to 7:30 p. m.	Vocal concert.
8:00 to 9:00 p. m.	Ambassador—Max Fischer's Cocomat Grove Orchestra.
9:00 to 10:00 p. m.	Examiner concert.
10:00 to 11:00 p. m.	Special Music Week concert.

WEDNESDAY, MAY 7—

5:15 to 5:45 p. m.	Examiner News Bulletins.
6:45 to 7:30 p. m.	Nick Harris Detective Stories and concert.
9:00 to 10:00 p. m.	Examiner concert.
10:00 to 11:00 p. m.	Hollywoodland Community Orchestra.
11:00 to 12:00 p. m.	Ambassador—Max Fischer's Cocomat Grove Orchestra.

THURSDAY, MAY 8—

5:15 to 5:45 p. m.	Examiner News Bulletins.
6:45 to 7:30 p. m.	Y. M. C. A. concert, sales lecture.
8:00 to 9:00 p. m.	Ambassador Hotel concert.
9:00 to 10:00 p. m.	Examiner concert.
10:00 to 11:00 a. m.	Concert arranged by John Smallman, baritone.

FRIDAY, MAY 9—

5:15 to 5:45 p. m.	Examiner News Bulletins.
6:45 to 7:30 p. m.	Concert by Myra Belle Vickers.
9:00 to 10:00 p. m.	Examiner concert.
10:00 to 11:00 p. m.	Trinity Broadcast Orchestra.
11:00 to 12:00 p. m.	Ambassador—Max Fischer's Cocomat Grove Orchestra.

SATURDAY, MAY 10—

5:15 to 5:45 p. m.	Examiner News Bulletins.
6:45 to 7:30 p. m.	Closing Music Week concert.
8:00 to 9:00 p. m.	Florentine Redon, mezzo-soprano.
9:00 to 10:00 p. m.	Examiner concert.
10:00 to 11:00 p. m.	Popular concert.
11:00 to 12:00 p. m.	Ambassador—Max Fischer's Cocomat Grove Orchestra.

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MONDAY, MAY 5—

8:00 to 9:00 p. m. Evening Herald Radiolians, popular dance music. Milly Milstein and Bob Horwitz singing and playing their own compositions.

WEDNESDAY, MAY 7—

8:00 to 9:00 p. m. Concert program courtesy of Wiley B. Allen Company. A. E. Schiferman, Radio Talk.

FRIDAY, MAY 9—

8:00 to 9:00 p. m. J. P. Little and his Concert Band. Nellie Scott. Wynona Crawford.

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SUNDAY, MAY 4—

10:45 to 12:30 noon Regular services of the Church of the Open Door, including sermon by Dr. J. McInnis. Mrs. Irvin S. Fallis, soprano. Mr. Paul S. McConnell, organist.

6:00 to 6:45 p. m. Radio Vesper Service with sermon by Rev. T. C. Horton. Miss Paulene Plummer, organist. Mr. C. M. Books, baritone. Miss Wilma Krag, accompanist.

TUESDAY, MAY 6—

8:00 to 9:00 p. m. Program arranged by courtesy of Mrs. Florine Fay Fry, lyric soprano.

THURSDAY, MAY 8—

8:00 to 9:00 p. m. Miss Dorothy Dech, contralto. Mrs. Evelyn Pierce, reading. Mr. Charles W. English, tenor, accompanied on auto harp by Mrs. Charles W. English. Selections on Four-in-hand Bells, by Mr. Chas. English.

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SUNDAY, MAY 4—

- 10:30 to 12:30 noon. Organ and Chimes, Esther Frick Green. Communion service. Topic, "A Seaside Breakfast," by Aimee Semple McPherson.
- 2:30 to 4:30 p. m. Temple Silver Band; Choir. "Hew to the Line," by Aimee Semple McPherson.
- 7:00 to 7:30 p. m. The Peerless Orchestra of Wesley Methodist Church; Choir; Silver Band; Gertrude Wilding, child soprano; Sarah Karcher, violinist.
- 8:00 to 9:00 p. m. Evangelistic message, "Eternity—Where," Aimee Semple McPherson.

TUESDAY, MAY 6—

- 3:30 to 4:00 p. m. Organ recital, Esther Frick Green.
- 4:00 to 5:30 p. m. Eva Jennison, evangelistic singer; Dorothy Sauter, 'cellist; Abrasha Orlikoff, concert violinist; John Walker, tenor; Ruth Russell, soprano.
- 6:30 to 7:30 p. m. "Kozy Hour." Mr. and Mrs. A. T. Heard, trombone and cornet duets; Inez Lasley, soprano; Mrs. L. Proehl and Elsie Proehl, piano duets; the Belvedere Methodist Church vested choir of 25 voices, under the leadership of Mrs. St. Elmo Bateman; "Pilgrim's Progress," by Daphne Goss; "Mother's Story."
- 8:00 to 9:00 p. m. Auditorium service. Address by B. F. Pearson, superintendent of California Edison Co.
- 9:00 to 10:00 p. m. The Swanee Jubilee Singers with the "Plantation Melodies"; Margaret Knox McCray, contralto. "Evening Meditation."
- 10:00 to 10:30 p. m. Organ recital, Roy Reid Brignall.

WEDNESDAY, MAY 7—

- 2:30 to 4:30 p. m. Auditorium service. Great Organ and Choir. "Staggering Not at the Promises," Aimee Semple McPherson.
- 6:30 to 7:30 p. m. "Kozy Hour." A. J. W. Galbraith, basso; Francis Floto, bird whistler; Annie Lacey, child soprano; Essie Binkley Lucy, cornetist; "Fireside Story"; Frances Henking, reading; Ruth Thomas, accompanist and soloist.

THURSDAY, MAY 8—

- 3:30 to 4:30 p. m. Organ recital, B. Earnest Ballard, assisted by Margaret Kennedy, soprano.
- 4:30 to 5:30 p. m. Sarah Karcher, violinist; Mrs. W. C. Corning, soprano; Ada Lantz, soprano; Mrs. Lydia Pease and Mrs. Jessie Huntley, vocal duet; Mrs. R. W. Klages, soprano; Bessie Lincoln, piano solos; Credonia M. DeVoce, Salvation Army singer.
- 6:30 to 7:30 p. m. "Kozy Hour." Blanche Clá, soprano; Ruth Clayton, in story and song; Mr. S. T. Lashbrook, tenor; "Boys and Girls of Long Ago," a bedtime story by "Mother."
- 8:00 to 9:00 p. m. Splashing Water. Baptismal service and message.
- 9:00 to 10:00 p. m. Gray Studio program furnished by Wm. Butts Music Co., featuring Carl Edward Hatch, violinist, and associates. "A Song of David."

FRIDAY, MAY 9—

- 3:30 to 4:00 p. m. Organ recital, Roy Reid Brignall.
- 4:00 to 5:30 p. m. Jennie M. Durkee, ukulele and guitar soloist; Ruth Russell, soprano; Madeleine Gilliland, "The Happy Song Girl"; Mildred Wetkavaska, violinist; Ethel Miller Thomas and Eleanor Hope, colored soprano and contralto in solos and duets; Roy Reid Brignall, accompanist.
- 6:30 to 7:30 p. m. "Kozy Hour." Anne Burr Jecker, soprano; Dwight Sankey Tock, baritone; Mrs. R. W. Klages, soprano; Theodore Klages, age 13, violinist; "Pilgrim's Progress," Daphne Goss; "Children's Story"; Ruth Thomas, accompanist.
- 8:00 to 9:00 p. m. Crusaders in Song, Music and Reading; "National Messages," by Judge Carlos S. Hardy, justice Superior Court; Madeleine Gilliland, "The Happy Song Girl."
- 9:00 to 10:00 p. m. Gray Studio program, courtesy Maude Reeves Barnard; Temple Silver Band; male quartet. "The Family Altar."

SATURDAY, MAY 10—

- 3:30 to 5:00 p. m. "The Growth of the Rose," Mrs. Elizabeth E. Hughes; Grace Waldron, soprano; "Cheery Words for Shut-ins," Ruth Clayton; Gladwyn N. Nichols, cornetist.
- 5:00 to 5:30 p. m. Organ recital, Roy Reid Brignall.
- 6:30 to 7:30 p. m. "Kozy Hour." Program presenting "The Golden Trio" (Snowgrim Sisters); James R. Hood, baritone; Gertrude Wilding, child soprano; "Int. Sunday School Lesson Pre-view"; Roy Reid Brignall, accompanist.

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WEDNESDAY, May 7—7:00 p. m.
THURSDAY, May 8—2:50 to 3:30 p. m.
FRIDAY, May 9—9:10 p. m.



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 PROGRAM FOR WEEK OF MAY 4

SUNDAY, MAY 4—
 10:00 to 10:45 a. m. Radio church service by Rev. Samuel Hughes, pastor of the First Methodist Church of Santa Barbara.
WEDNESDAY, MAY 7—
 6:00 to 6:45 p. m. News items. Baseball scores. Short musical program.
FRIDAY, MAY 9—
 6:00 to 6:45 p. m. News items. Baseball scores.
 9:00 to 10:00 p. m. Santa Barbara State College Night, in charge of Marjorie Low.

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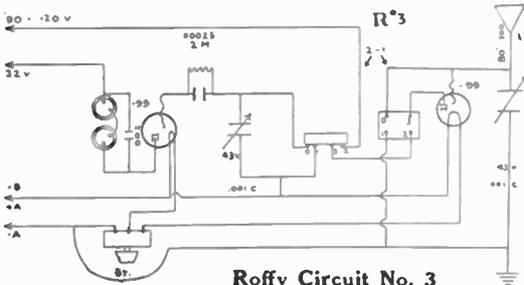
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3:00 to 5:00 Daily (except Sunday and Monday) Baseball scores, all leagues.

BROADCASTING PROGRAM FOR KLX FOR WEEK BEGINNING SUNDAY, MAY 4

SUNDAY, MAY 4—

9:30 to 10:00 p. m. Talk by Rev. John Snape, pastor First Baptist Church of Oakland; sacred songs.

MONDAY, MAY 5—

8:00 p. m. Program broadcast over private leased wires from the University of California. A descriptive talk on the University of California Summer School by Donald Bruce, Dean. Educational talks by members of the faculty of the University of California. Music.

TUESDAY, MAY 6—

3:00 to 5:00 p. m. Baseball scores, all leagues.

WEDNESDAY, MAY 7—

8:00 to 9:00 p. m. Continuation of the Request Program presented on Friday, May 2. Owing to the inability of several artists to appear on Friday night, arrangement was made to let them be heard between 8:00 and 9:00 p. m. on this date.

9:00 to 10:00 p. m. Instrumental program by Johnson's Californians.

10:10 p. m.

Organ music from American Theater; Clement Barker, organist.

FRIDAY, MAY 9—

7:30 to 10:00 p. m. Broadcast of Mills College Alumni banquet and events at Hotel Oakland over private leased wires through KLX.

7:30 p. m.

Music by the Mills College Trio. Songs by Luther Marchant. Banquet events: Toastmistress, Dr. Alice Luce (5 minutes); greetings from Russia by Varia Loschilova; greetings from France by Suzanne Vitry; greetings from the Orient by Esther Wong (given in foreign languages. Class speakers (3 minutes each): Freshmen represented by Margaret Mentley, "The Student Friendship Movement"; Sophomores represented by Marianne Strohn, "Internationalism in Literature"; Juniors represented by Eleanor Raas, "Internationalism in the Curriculum"; Seniors represented by Catherine Easterling, "The Youth Movement." Faculty speakers (5 minutes each): Mademoiselle Cecile Reau, "The French Teacher in America"; William Day Handcock, "Student Aims". Music by the American Theater Orchestra, Owen Sweeten, director, and from the American Theater organ, Clement Barker, organist, broadcast over private leased wires from the theater.

10:00 p. m.

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(Pacific Time)

WEEK OF MAY 4, 1924

SUNDAY, MAY 4—	
3:30 p. m.	Concert by KGO Little Symphony Orchestra and soloists.
MONDAY, MAY 5—	
1:30 p. m.	New York Stock Exchange and U. S. Weather Bureau reports.
3:00 p. m.	Short musical program. Address on the subject, "The Health of the Child."
4:00 to 5:30 p. m.	St. Francis Hotel Dance Orchestra, San Francisco, Henry Halstead, leader.
6:45 p. m.	Final reading, stock exchange and weather reports, and news items.
8:00 p. m.	Educational program, with musical numbers. Courses in Agriculture, Spanish, Music, Economics, and Literature.
TUESDAY, MAY 6—	
1:30 p. m.	New York Stock Exchange and U. S. Weather Bureau reports.
4:00 to 5:30 p. m.	Concert Orchestra of the St. Francis Hotel, San Francisco, Fermin Cardona conducting.
6:45 p. m.	Final reading, stock exchange and weather reports, and news items.
8:00 p. m.	Address, Charles K. Field, Editor Sunset Magazine, "Editorial Arrows." Musical program.
10:00 to 1:00 a. m.	St. Francis Hotel Dance Orchestra, San Francisco, Henry Halstead, leader.
WEDNESDAY, MAY 7—	
1:30 p. m.	New York Stock Exchange and U. S. Weather Bureau reports.
3:00 p. m.	Short musical program. Address by Cora L. Williams on the subject of "Group Thinking."
4:00 to 5:30 p. m.	Concert Orchestra of the St. Francis Hotel, San Francisco, Fermin Cardona conducting.
6:45 p. m.	Final reading, stock exchange and weather reports, and news items.
THURSDAY, MAY 8—	
1:30 p. m.	New York Stock Exchange and U. S. Weather Bureau reports.
4:00 to 5:30 p. m.	Concert Orchestra of the St. Francis Hotel, San Francisco, Fermin Cardona conducting.
6:45 p. m.	Final reading, stock exchange and weather reports, and news items.
8:00 p. m.	Program of classics from the old masters, featuring Trio Tartini.
FRIDAY, MAY 9—	
1:30 p. m.	New York Stock Exchange and U. S. Weather Bureau reports.
3:00 p. m.	Short musical program. A discussion of art.
4:00 to 5:30 p. m.	Concert Orchestra of the St. Francis Hotel, San Francisco, Fermin Cardona conducting.
6:45 p. m.	Final reading, stock exchange and weather reports, and news items.
SATURDAY, MAY 10—	
12:30 noon.	New York Stock Exchange and U. S. Weather Bureau reports.
4:00 to 5:30 p. m.	Concert Orchestra of the St. Francis Hotel, San Francisco, Fermin Cardona conducting.
8:00 p. m.	Chorus of First Presbyterian Church, Berkeley, and soloists.
10:00 to 1:00 a. m.	St. Francis Hotel Dance Orchestra, San Francisco, Henry Halstead, leader.

TUESDAY, MAY 6, 8:00 P. M.

Instrumental Selection—Sometime (Curc)	Mazda Banjo Quartet
Tenor Solo—Nirvanna (Adams)	Gwynfi Jones
Piano Solos—(a) To Spring (Grieg); (b) The Birdling (Grieg)	Muriel Clair Moorehead
Reading—Scene from "Waitstill Baxter" (Kate Wiggins)	Vera Frances Morse
Soprano Solos—(a) The Discontented Duckling (Gaynor); (b) My Balloon (Florence Berresford)	Maude Goodwin Ivanhoe
	Muriel Clair Moorehead, Accompanist
Hawaiian Instrumental Selection—Halona (Elia)	Toffer's Hawaiian Trio
Address—"Editorial Arrows"	Charles K. Field, Editor Sunset Magazine, San Francisco
Instrumental Selections—No, No, Baby (Curc)	Mazda Banjo Quartet
Tenor Solos—(a) Llwyn on (The Ash Grove), Old Welsh (Ditson); (b) Dafyad y gareg wen, Old Welsh (Ditson)	Gwynfi Jones
Piano Solos—(a) The Holy City (Chas. Godfrey, Jr.); (b) The Serenade of the Doll (Debussy)	Muriel Clair Moorehead
Monologue—"On the Train"	Irene Barrie

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- Soprano Solos—(a) Under the Greenwood Tree (Buzzi Peccia); (b) Far Away in Old Japan (Gaynor).....Maude Goodwin Ivanhoe
- Hawaiian Instrumental Selection—Hawaiian Medley (Stromberg).....Toffer's Hawaiian Trio
Ted Toffer, Steel Guitar; Clodye Andres, Spanish Guitar; Louis Reed, Ukulele
- THURSDAY, MAY 8, 8:00 P. M.
- Instrumental Selections—(a) Larghetto (Handel); (b) Allegro (Handel).....Trio Tartini
Natalie Bigelow, Violin and Viola; Pauline Gaines, Violin; Claire McClure, Pianist
- Contralto Solos—(a) In a Boat (Grieg); (b) The Sea Gull's Cry (Sinding).....Lena Frazee
Carol Jarboe, Accompanist
- Readings—(a) Thanatopsis (Wm. Cullen Bryant); (b) Her Opinion of the Play (Marc Cook).....Violet Willard
- Piano Solos—(a) Anitra's Dance (Grieg); (b) The Two Larks (Leschetizky).....Jeanne Krick
- Contralto Solos—(a) Sweet Wind that Blows (Chadwick); (b) Irish Love Song (Foote).....Lena Frazee
- Instrumental Selections—Two pieces for children: (a) Allegro non troppo (Mendelssohn); (b) Allegro assai (Mendelssohn).....Trio Tartini
- Tenor Solos—(a) Bid Me to Live (Foote); (b) Thoughts of You (Stickles).....Harold Houston
- Selections for Guitar and Mandolin.....Joseph Pastana, Guitar; Jess Cabral, Mandolin
- Soprano Solos—(a) Daffodils Are Here (Landon Ronald); (b) Thine Own Lovely Eyes (Murphy).....Matilda Stross
- Violin Solos—(a) Kashmiri Song (Finden); (b) Madrigal (Gabriel Marie).....Ethel Isaacs
- Baritone Solos—(a) Land of the Sky Blue Water (Cadman); (b) Invictus (Huhn).....Herlyn F. Morse
- Reading—"Something More".....Guy B. Kibbeo
- Soprano Solos—(a) The Hand of You (Jacobs-Bond); (b) The Year's at the Spring (Beach).....Matilda Stross

SATURDAY, MAY 10, 8:00 P. M.

FIRST PART

- Piano Solos—(a) Prelude (Assai lento), (Chopin); (b) Prelude (Presto con fuoco) (Chopin); (c) Valse (Vivace), (Chopin).....Marian Patricia Cavanaugh
(Twelve years old. Pupil of Jos. Geo. Jacobson)
- Soprano Solos—(a) Tes Yeux (Raby); (b) Flower of the Alps (Weckerlin).....Ruth Collins
Charlotte Collins, Accompanist
- Hawaiian Instrumental Selection—Honolulu Airs (Keliiaa).....Prof. John Keliiaa, Steel Guitar; Guillermo del Oro, Steel Guitar
- Original Poems.....Will R. Hill, the Old Home Poet
- Soprano Solos—(a) Ah, fors e lui (Traviata), (Verdi); (b) Laughing Song (Auber).....Ruth Collins
- Tenor Solos—(a) Vorrei (Tosti); (b) Cradle Song (Gaynor).....Harry Robertson
Harp Accompaniment by Barbara Merkeley
- Piano Solo—Second Hungarian Rhapsody (by request). (Liszt).....Marian Patricia Cavanaugh
- Soprano Solos—(a) The Dove (Tuscany Folk Song); (b) When I Was Seventeen (Swedish Folk Song).....Ruth Collins

SECOND PART

- This part of the program provided by the First Presbyterian Church, Berkeley, California, Rev. L. A. McAfee, Minister; George N. Calfee, Director of Music; Mrs. George N. Calfee, Organist. Solo Quartet—Mrs. Harold Johnson, soprano; Mrs. Clarence Page, contralto; Leon Mills, tenor; George N. Calfee, bass; and chorus of fifty.
- Chorus Selection—Festival Te Deum in E Flat (Buck).....Chorus of the First Presbyterian Church, Berkeley, Calif.
- Soprano Solo—"Hear Ye, Israel." (from Elijah), (Mendelssohn).....Mrs. Harold Johnson
- Vocal Selection for Tenor and Chorus—"Seek Ye the Lord" (Roberts).....Leon Mills and Chorus of First Presbyterian Church, Berkeley
- Bass Solo—Lord God of Abraham (Elijah), (Mendelssohn).....George N. Calfee
- Chorus Selection—"Let Mount Zion Rejoice" (Herbert).....Chorus of the First Presbyterian Church, Berkeley, Calif.
- Duet for Soprano and Contralto—"I Waited for the Lord" (Mendelssohn).....Mrs. Harold Johnson and Mrs. Clarence Page
- Contralto Solo—"O Rest in the Lord" (Elijah), (Mendelssohn).....Mrs. Clarence Page
- Chorus Selection—"The Heavens Are Telling" (Creation), (Haydn).

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EVENING PROGRAMS

SUNDAY—
 11:00 to 12:00 a. m. Radio Church Services.
 8:30 to 10:00 p. m. Rudy Seiger's Orchestra, from Fairmont Hotel.

MONDAY—
 8:00 to 8:30 p. m. Organ Concert.
 10:00 to 11:00 p. m. Palace Hotel Dance Orchestra.

TUESDAY—
 8:00 to 10:00 p. m. Studio Program.
 10:00 to 11:00 p. m. Palace Hotel Orchestra.

WEDNESDAY—
 8:00 to 11:00 p. m. Palace Hotel Orchestra.

THURSDAY—
 8:00 to 9:00 p. m. Organ Recital.
 9:00 to 10:00 p. m. Studio Program.
 10:00 to 11:00 p. m. Palace Hotel Dance Orchestra.

FRIDAY—
 Silent for evening.
 10:00 to 11:00 p. m. Palace Hotel Orchestra.

SATURDAY—
 8:00 to 12:00 p. m. Art Weidmer's Fairmont Hotel Dance Orchestra.

KFOA—Pacific Northwest Station—455 Meters

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Pacific Time

CARL E. HAYMOND, Program Announcer

MONDAY, MAY 5—
 8:30 p. m. The Carnation Milk Products Company of Seattle in their second monthly program will present Bab's B. B. Ladies' Orchestra, Margaret Dicken, leader. This orchestra during a recent broadcast from KFOA received hundreds of special requests during the course of their program, which proves their ability to please the listeners.

WEDNESDAY, MAY 7—
 8:30 p. m. A program of orchestra and vocal music featuring two employees of the Seattle Municipal Railway; Cecil Kennedy, "The Singing Motorman," and Harlowe Spurling, "The Singing Conductor," both of whom have excellent tenor voices.
 The five-piece orchestra, "Watt's Commonunadors," will furnish a special one-hour dance program.

FRIDAY, MAY 9—
 8:30 p. m. The program will consist of a soprano and violin recital given by Mrs. Herbert V. Preeg, talented lyric soprano, and Mr. Herbert V. Preeg, accomplished violinist, now playing with the Seattle Civic Symphony Orchestra.

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 See Page 79.*

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K F A E—State College of Washington—330 Meters

(State College of Washington, Pullman, Wash. Miss Alice L. Webb, News Editor.)

MONDAY, MAY 5—

8:30 to 9:30 p. m. "Can the Modern Church Prevent War?" Rev. Clay Palmer.
Soprano solos, Marguerite Miller, Spokane.
Mining Talk, Dean L. O. Howard.
Saxophone solos, Louis Wessen, Mt. Vernon.
Plant Pathology, Geo. Severance.
Piano solos, Irmingarde King, Spokane.
Guitar trio: Rex Turner of Huntington Park, Calif.; Reginald Cooper of Honolulu, and Horace Trimble of White Bluffs, Wash.
"Cod Liver Oil for Chickens," W. D. Buchanan.

WEDNESDAY, MAY 7—

8:30 to 9:30 p. m. Varsity Male Quartet recital.
Piano solos, Leighton Bailey, Spokane.
Tenor solos, Fred Marshall, Spokane.
"Main Crop Potatoes," C. L. Vincent.
"The Art of Home Furnishing," Dean Florence Harrison.
"The Business of Farming," R. N. Miller.
Lectures by Dr. E. A. Bryan.

FRIDAY, MAY 9—

8:30 to 9:30 p. m. "Bobbed Hair," one-act play, pupils of Mrs. Della C. Miller.
Soprano solos, Edith Wooddy.
"Purpose of Livestock Club Work," C. M. Hubbard.
Agricultural Talk.
Instrumental solos.
Review of New Books, Miss Alice L. Webb.

Mr. Dealer: Could you profitably use additional Capital? See Page 79



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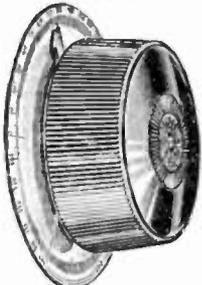
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K G W—The Morning Oregonian—492 Meters**PORTLAND, OREGON
(PACIFIC TIME)****PROGRAM FOR WEEK MAY 4 TO MAY 10, 1924**

- 11:30 a. m.
7:30 p. m.
SUNDAY, MAY 4—
6:00 p. m.
7:00 p. m.
- MONDAY, MAY 5—**
3:30 p. m.
7:00 p. m.
8:00 p. m.
9:30 p. m.
- TUESDAY, MAY 6—**
11:15 a. m.
12:30 p. m.
3:30 p. m.
- 7:45 p. m.
WEDNESDAY, MAY 7—
11:15 a. m.
12:30 p. m.
3:30 p. m.
8:00 p. m.
9:00 p. m.
10:00 p. m.
- THURSDAY, MAY 8—**
11:15 a. m.
12:30 p. m.
3:30 p. m.
- 8:15 p. m.
10:00 p. m.
- FRIDAY, MAY 9—**
11:15 a. m.
12:30 p. m.
3:30 p. m.
- 8:00 p. m.
8:30 to 10:30 p. m.
10:30 p. m.
- SATURDAY, MAY 10—**
3:30 p. m.
3:30 p. m.
10:00 p. m.
- PROGRAM FOR WEEK MAY 4 TO MAY 10, 1924
Daily except Sunday: Government weather forecast.
Daily except Sunday: Government weather forecast. Market reports.
- Church services under auspices of Portland Council of Churches.
George Olsen's concert orchestra in dinner program and baseball scores.
- Literary program by Portland Library Association.
Talk by representative of Parent-Teachers Association.
Recital by Halfred Young, tenor.
Selections from "The Firefly," by Portland Light Opera Association.
- Market Basket.
Concert by Civic Music Club of Portland.
Talk by Jeanette P. Cramer, home economics editor of The Oregonian.
Talk for farmers, Oregon Agricultural College extension service.
- Window Shopping.
Concert by Darby's Orchestra of Cotillion Hall.
Children's program.
Concert by Oregonian Plectral Quartet.
Alexander Hamilton Institute, business talk by James Albert.
Dance music by George Olsen's Metropolitan orchestra of the Hotel Portland. Intermission solos by Joe Ashton, tenor.
- Window Shopping.
Concert provided by Seiberling Lucas Music House.
Woman's story program. Installment of "The Midlander," by Booth Tarkington.
Studio program of Dance Music by George Olsen's Metropolitan orchestra of Hotel Portland, Herman Kenin, director.
Dance music by George Olsen's Metropolitan orchestra of the Hotel Portland. Intermission solos by Naomi Miller, soprano.
- Market Basket.
Program by Peck Holton's orchestra of The Wintergarden.
Talk for women, auspices Home Economics Department, Oregon Agricultural College.
Lecture provided by University of Oregon Extension service.
Silent.
Hoot Owls.
- Special musical program.
Children's program. Story by Aunt Nell.
Baseball scores, weather forecast, and dance music by George Olsen's Metropolitan orchestra of Hotel Portland. (2 hours.)

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(PACIFIC TIME) FORT WORTH, TEXAS

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DAILY—FEATURES—**SUNDAY, MAY 4—**

- 9:00 to 10:15 a. m. Complete services of the First Methodist Church, Rev. J. W. Bergin, pastor.
- 2:00 to 3:00 p. m. Organ concert from the Rialto Theater, Miss Margaret Agnew White, organist. (E. L. O. announcing.)
- 3:00 to 4:00 p. m. Concert sponsored by Mrs. Will S. Horn, violinist; J. F. Garnon, violinist, and Joecil Garrison, pianist. (E. L. O. announcing.)
- 9:00 to 12:00 Midnight concert.

MONDAY, May 5—

- 5:30 to 6:30 p. m. Concert by G. W. Mallory's quartet of Roswell, Texas. (E. L. O. announcing.)
- 7:30 to 8:45 p. m. Concert by the 50-piece Mosiah Temple Shrine Band. (G. C. A. announcing.)

TUESDAY, MAY 6—

- 5:30 to 6:30 p. m. Concert offered by the Reagan Literary Society of Denton, Texas. (E. L. O. announcing.)
- 7:30 to 8:45 p. m. Concert offered by Miss Virginia Jackson. (G. C. A. announcing.)

WEDNESDAY, MAY 7—

- 5:30 to 6:30 p. m. Monthly program by Mrs. Pearl Calhoun Davis, presenting pupil artists. (E. L. O. announcing.)
- 7:30 to 8:45 p. m. Concert by Dick Gaines' orchestra. (The Hired Hand announcing.)

THURSDAY, MAY 8—

- 5:30 to 6:30 p. m. Concert presented by Frank Agar, vocalist, and assisting artists. (E. L. O. announcing.)
- 7:30 to 8:45 p. m. Concert by the Fort Worth Euterpean Club, in its monthly recital. (G. C. A. announcing.)

FRIDAY, MAY 9—

- 5:30 to 6:30 p. m. Concert by Clare Drey's Choral Club of Brownwood, Texas. (E. L. O. announcing.)
- 7:30 to 8:45 p. m. Monthly program by artists of the College of Industrial Arts, Denton. (G. C. A. announcing.)

SATURDAY, MAY 10—

- 5:00 to 5:40 p. m. Review of the interdenominational Sunday school lesson and radio Bible class, conducted by Mrs. W. F. Barnum. A membership certificate will be sent fans writing in.

TIMMONS TALKERS

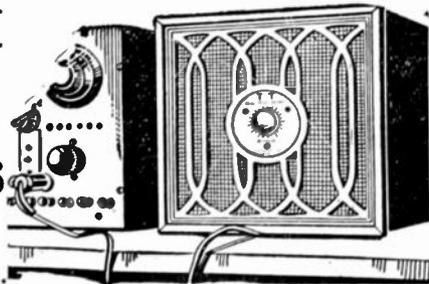
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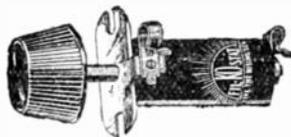
W F A A—Dallas News-Journal—476 Meters

(PACIFIC TIME) DALLAS, TEXAS
SPECIAL DAILY FEATURES

- MONDAY, MAY 5—**
10:00 to 11:00 a. m. Address, Dr. J. B. Cranfill, business man, on "Things That Are Real."
6:30 to 7:30 p. m. B. M. Taylor leading the Gospel-in-Song Quartet, male singers.
- TUESDAY, MAY 6—**
10:00 to 11:00 a. m. Address, Dewitt McMurray, editor The Semi-Weekly Farm News, in a medley of humor, pathos and wisdom.
6:30 to 7:30 p. m. Dramatic and musical program by the Council of Jewish Juniors.
9:00 to 10:00 p. m. Mrs. Anna Ledford, in pianologue, followed by the Lone Star Five
- WEDNESDAY, MAY 7—**
10:30 to 11:00 a. m. Musical program presenting The Red Headed Girl of The Dallas Journal's editorial staff.
Station WFAA will be silent for the remainder of the day.
- THURSDAY, MAY 8—**
10:30 to 11:00 a. m. Address, Judge Eugene B. Muse, on "There Ain't Nobody That's Anybody in Particular."
6:30 to 7:30 p. m. Mrs. J. P. Boone and assisting musical talent from North Texas Junior A. & M. College, Arlington, Texas.
9:00 to 10:00 p. m. The Circle Theater Orchestra, George W. Caldwell, director.
- FRIDAY, MAY 9—**
10:00 to 11:00 a. m. Address, Dr. Robert Stewart Hyer, president emeritus of Southern Methodist University, on the Sunday school lesson.
6:30 to 7:30 p. m. Varied program by talent from Josephine, Texas, D. G. Coffman in charge.
- SATURDAY, MAY 10—**
10:00 to 11:00 a. m. Address, Jack Lockett, blind assistant business manager of Dallas Painters' and Papehangers' Union.
6:30 to 7:30 p. m. Varied program by talent from East Texas State Teachers' College, Commerce.
9:00 to 10:00 p. m. Music of the Adolphus Hotel Orchestra, Lawrence Morrell directing, broadcast from the junior ballroom of the Adolphus,
- SUNDAY, MAY 11—**
4:00 to 5:00 p. m. Radio Bible Class, Dr. William M. Anderson, pastor First Presbyterian Church, teacher; Bible study and Gospel song.
5:45 to 7:15 p. m. City Temple Presbyterian Church service, Jack A. Davis playing piano selections; A. A. Cruz and his orchestra in recital; Dr. L. D. Young, pastor; J. Wesley Hubbell, directing choir;
7:45 to 9:00 p. m. Grace Methodist Orchestra, Earle D. Behrends, director.

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Davenport, Iowa—Pacific Time

- SUNDAY, MAY 4—**
 6:00 p. m. Church service. G. D. Fleeer, pastor St. Peter's Evangelical Church, Kewanee, Ill. Subject of sermon, "Christianity and Women."
 7:30 p. m. Musical program (1½ hours), the Palmer School Radio Orchestra, Erwin Swindell, conductor. A. W. Barlow, baritone; May Chambers, soprano.
- MONDAY, MAY 5—**
 6:00 p. m. Musical program. Novelty program furnished by W. O. Stevens, pianist, and McColl Sisters' Quartet, of Princeton, Ill.
 8:00 p. m. Musical program. Program furnished by Dubuque Girls' Novelty Orchestra.
- TUESDAY, MAY 6—**
 (No broadcasting after 6 p. m. Tuesday—Silent Night for WOC.)
- WEDNESDAY, MAY 7—**
 6:00 p. m. Organ recital from the B. J. Palmer residence. Program furnished by the Moline Woman's Club in connection with National Music Week.
- THURSDAY, MAY 8—**
 7:00 p. m. Orchestra program (1 hour). The Palmer School Radio Orchestra, Erwin Swindell, conductor, featuring: "La Rinascente," "Nestle," "I'm Irish," "Ohio Home," "Misty Moon," "Early Morning Blues" (popular selections released through the National Association of Broadcasters, of which WOC is a member.) V. B. Rochte, baritone soloist.
- FRIDAY, MAY 9—**
 6:00 p. m. Musical program (1 hour). Miss Betty, soprano; Ray Stephenson, violin; May Coddington Swanson, accompanist; Henry P. Hoffman, concertina.
 7:00 p. m. Weekly Tourists' Road Bulletin, as compiled by Touring Bureau, Davenport Chamber of Commerce.
- SATURDAY, MAY 10—**
 7:00 p. m. Orchestra program (1 hour). The Palmer School Radio Orchestra, Erwin Swindell, conductor, featuring "You Can Take Me Away From Dixie," "Forget Me Not," "Trying to Smile," "Forever Thinking of You," "Dreaming of You," "Tell Me, Egyptian Moon" (popular selections released through the National Association of Broadcasters, of which WOC is a member.) V. B. Rochte, baritone soloist.

Tune in on Station C. R. F. C. See Page 79

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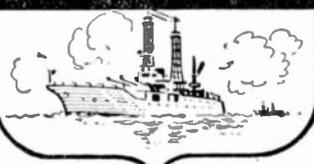
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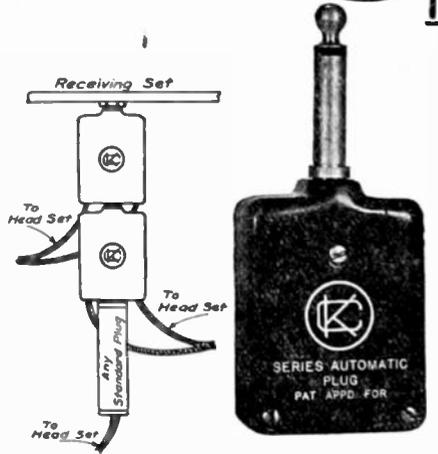
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FOR WEEK OF MAY 4 TO MAY 11, 1924

SUNDAY, MAY 4—

8:00 a. m.

Central Church service broadcast from Orchestra Hall, Chicago. Dr. F. F. Shannon, pastor Musical program under the direction of Daniel Protheroe.

5:00 p. m.

Regular meeting of the Chicago Sunday Evening Club. The speaker of the evening will be Dr. W. L. Sperry Musical program under the direction of Edgar Nelson.

TUESDAY, MAY 6—

5:00 to 6:30 p. m.

Musical program by the following artists: Edna Benson, soprano; Alice Letart, pianist; Jack Rothblatt, baritone; Sallie Menkes, accompanist; Ken Hudson, Hawaiian guitar.

WEDNESDAY, MAY 7—

5:00 to 11:00 p. m.

Musical program, courtesy of the Sherwood Musical School; direction of Ermy Bary.

7:00 to 11:00 p. m.

Midnight Revue. This is a Chicago Evening American—Westinghouse feature, broadcast from the KYW studio in the Hearst building. Artists and program will be announced by radio.

THURSDAY, MAY 8—

5:00 to 6:20 p. m.

Musical program, courtesy of the C. G. Conn Co. This program will be phoned from KYW's studio in the Edison building.

FRIDAY, MAY 9—

5:20 to 11:30 p. m.

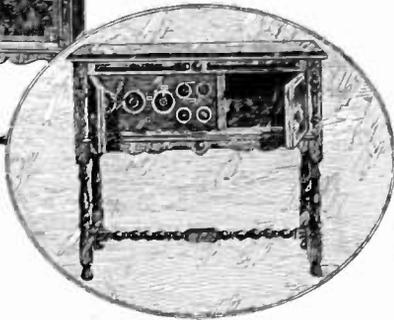
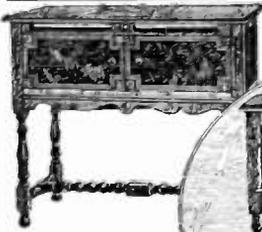
Speeches furnished by the American Farm Bureau Federation. Midnight Revue. This is a Chicago Evening American—Westinghouse feature, broadcast from KYW's studio in the Hearst building, Chicago.

SATURDAY, MAY 10—

8:00 to 10:30 p. m.

Musical program. Louise Messinie, soprano; Sallie Menkes, accompanist; Frederic Irving, bass baritone; Elsie Clement, pianist. Ted Brown Music Co. will also furnish artists for this program. To be broadcast from KYW'S studio in the Edison building. Late show. This will be broadcast from KYW's studio in the Congress Hotel. Program will be announced by radio.

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K S D—St. Louis Post-Dispatch—546 Meters

Weekly Program, Week of May 5th
Pacific Standard Time

- MONDAY, MAY 5—**
6:30 p. m. Music program broadcast direct from the Grand Central Theater.
- TUESDAY, MAY 6—**
6:00 p. m. Program by Western Military Academy Band, Capt. C. S. Porter, conductor; Capt. A. L. Williams, pianist. Address by G. L. Olienses on "Asphalt."
- WEDNESDAY, MAY 7—**
4:30 p. m. Program of Abergh's Concert Ensemble, broadcast direct from Hotel Statler.
7:00 p. m. Concert by St. Paul's Church Band of Waterloo, Ill. E. B. Boris, conductor.
9:00 p. m. Broadcasting direct from Hotel Statler dance music played by Rodemich's Orchestra.
- THURSDAY, MAY 8—**
6:00 p. m. Concert by Chorus, Glee Club and Quartet of Eden Evangelical Seminary at the Odeon and broadcast direct from that theater.
- FRIDAY, MAY 9—**
6:00 p. m. Artist recital by Helen Stevens-Phillips, coloratura-soprano; G. Mario Lanza, tenor; Arthur Koch, concert pianist and conductor.
8:00 p. m. Special artist recital by William A. LeMaster, grand opera baritone; Joseph Littau, pianist-conductor.
- SATURDAY, MAY 10—**
6:00 p. m. Missouri Theater Orchestra concert specialties broadcast direct from the theater.

Radio Dealers multiplied by C. R. F. C. equals Big Business. See Page 79.



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Pacific Standard Time

- 8:55 a. m. Daily except Sunday—Arlington Time Signals.
 9:00 a. m. Daily except Sunday—Weather Forecast.
 9:15 a. m. Daily except Sunday—Concert.
 6:55 p. m. Daily except Sunday—Arlington Time Signals.

SUNDAY, MAY 4—

Services of the Calvary Episcopal Church, Pittsburgh, Rev. E. J. Van Etten, minister.

MONDAY, MAY 5—

- 2:30 p. m. Organ recital by Howard R. Webb, from the Ritz Motion Picture Theatre, Pittsburgh, Pa.
 5:00 p. m. Concert broadcast from Carnegie Music Hall, Pittsburgh, Pa., by the Chamber of Commerce chorus, Harvey B. Gaul, conductor.

TUESDAY, MAY 6—

- 5:00 p. m. Concert by the East Liberty Orchestra, Oscar Demmler, director, from Schenley High School, Pittsburgh.
 6:00 p. m. Concert by the Tuesday Musical Club, from Carnegie Music Hall.
 7:30 p. m. "Another Air Cooled Program," under the direction of B. H. Mustin of the McKinley Gregg Automobile Co.

WEDNESDAY, MAY 7—

- 5:00 p. m. Concert by the Mendelssohn Choir, Ernest Lunt, director, from Carnegie Music Hall, singing "The Cross of Fire."
 6:00 p. m. Concert from the School of Fine Arts, Carnegie Institute, Pittsburgh, Pa.

THURSDAY, MAY 8—

- 5:00 p. m. Apollo Male Chorus concert, directed by Harvey B. Gaul, from Carnegie Music Hall.
 5:45 p. m. Concert by Carnegie Steel Company chorus, from Schenley High School, Pittsburgh.
 7:30 p. m. Concert by talent from the Nixon Theatre, Pittsburgh, Pa.

FRIDAY, MAY 9—

- 5:00 p. m. Concert by the Ladies' Chorus of the Pittsburgh Musical Institute, Charles N. Boyd, director; Gaylord Yost, violin; Roy Schumacker, violin; Romaine Smith Russell, soprano; Wm. Oetting, organ; Martha B. Steckel, reader; Dalmeyer Russell, piano.

SATURDAY, MAY 10—

- 4:15 p. m. Organ recital by Dr. Charles Heinroth, director of music, Carnegie Music Hall, Pittsburgh, Pa.
 5:00 p. m. Concert by the Westinghouse Band, T. J. Vastine, conductor. Program: Overture, "Barber of Seville" (Rossini); Serenade, "A Toil," (To You) (Czibulka); Ballet "Egyptian" (Luigini); Serenade "Walther's Trampled" (Wagner); Dance "Oriental" (Lubomersky); Fantasia "Sannambula" (Cavillini); Suite "Espangiole La Ferie" (Lacome); Waltz "Golden Showers" (Waldteufel); excerpts from Fairy Opera, "Hansel and Gretel" (Humperdinck).

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 Standard Parts Two Tube as Low as \$17.35 and up.

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The Na-ald Circuit booklet, "What to Build," is just off the press. Printed by the rotogravure process and richly illustrated, this booklet is extremely useful.

"What to Build" illustrates and gives full specifications for selected and tested circuits, including the

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The Two-Stage Amplifier here described operates 1,000 hours on one charge of a 60-ampere hour battery.

This booklet is now being packed with all Na-ald products. If your dealer's stock does not have it, send the cover of any Na-ald carton or 15c for it.

Ask for the No. 400 De Luxe 75c Socket for Neurodyne and Superheterodyne Sets. "It's the contact that counts."

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Springfield, Mass.

Letters to the Editor

Dear Sirs:

I have seen the answers received by the other fellows, so I thought I would try my luck.

Friday night, April 18, I heard Calgary, Canada. They were playing an organ recital, and quite often people would sing. The piece I heard lasted almost a half hour, when they finally stopped. The announcer gave the name of the station, but I only caught three words of the call, because of the code which started. I thought I heard the last letter. It sounded like CKCS, or CKCX. He said the next program would be next Tuesday.

If any of the readers of the "Radio Doings" can let a little light upon my question, I will thank them through Radio Doings.

Yours for Radio Doings,
CHARLES SWANSON,
 Box 593, Exeter, Calif.

Gentlemen:

In answer to the question asked by Mr. Louis J. Ward, I think his station must have been CFCN, Calgary, Canada. The Canadian National Railway was broadcasting a program from this station on about that date. They operate on a 440 meter wave length.

As to question of Mr. Roy Higginson in the same issue, I think his station was WLAG, Minneapolis, Minn. I heard them on about that date. They operate on a 417 meter wave length.

Yours truly,
C. T. BUSHNELL,
 Banning, Calif., April 21, 1924.

Dear Sir:

I would appreciate it very much if one of your readers could tell me what station at Oceanside and La Jolla were talking to each other on April 22 from 6:30 to 7:00 p. m., on about 445 meters. One would tell the other that he had one minute to go, then thirty seconds. This was repeated several times.

Yours respectfully,
ORVAL L. McADAMS,
 288 N. 8th St., Colton, Calif.

Dear Sir:

Can you tell me what station on Monday evening, between 8:30 and 9, was broadcasting a talk on bird calls and songs? My set was working poorly, and I could catch only occasional words. They seemed to be working on about 400 meters.

Yours truly,
DEWITT B. WILLIAMS,
 3219 Mission Drive, San Diego, April 22..

Thames.

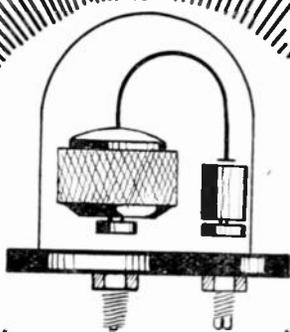
Grow with Radio. See Page 79

MR. AND MRS. RADIO FAN:

You, with that small amount of idle money, may profit by listening in on the following information. Don't scorn those few dollars because they seem insignificant. Do you realize their power? You are as entitled to the cream of investments as the \$5,000 or \$10,000 man. If an investment as small as \$200 would show you a probable 20 per cent earning, would you make it? Start in with as little as a two-cent stamp, and write for information. That costs but little effort that (take my word for it) you'll never regret it. Address: Mr. G. R. Clarke, Box 586, Long Beach, California.

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The **Lincoln Detector**

**Price
\$2 00**



Letters to the Editor

Hamlin, Kansas, April 22, 1924.

Editor, Radio Doings.

"TNX" for April 20 Radio Doings and for giving my letter to proper persons. Some questions in this issue rather indefinite. Mr. Baume, Palms; likely a Canadian station, selection, God Save the King. GKCH, Canadian National Railway, Ottawa, recently (April 19), gave this selection as their last. L. J. Wood, Colton; note above. A. Burrell; WMC, WL, 500 m., uses a river steamer whistle between selections. R. Higginson; WLAG, 417 m., sometimes has lady announcer, WBAH, 417, nearly always has.

Two more new Canadian stations: CHCM, Riley & McCormick, Ltd., Calgary. CKCX, Burns J Co., Ltd., Calgary.

Who owns CYX, Mexico City? About 380 meters, I think. Where is VMG?

Hope this letter will be of help to some of the readers.

73'S & C U L.,

J. A. BROCKHOFF, Hamlin, Kansas.

P. S.—Received answers to my first published letter from Pomona, Pasadena, San Diego and Boise, Idaho.

Dear Sir:

I would appreciate it if any of your readers could tell me what station was broadcasting between 2:30 and 3 o'clock, Wednesday morning, April 16th? There were men singing, who called themselves the "Broncho Busters." They sang "Turkey in the Straw." I could hear the singing real plain, but could not get the call letters. There seemed to be four letters.

Yours truly,

B. S. HEAD, 1557 Munson Ave.

Editor, Radio Doings,
Van Nuys Bldg., Los Angeles, Calif.

Dear Sir:

The writer is only one of thousands in whose radio life "Radio Doings" plays a vital part. And he finds the "Letters to the Editor" very interesting. It is wonderful to know that on Monday night John Doe heard ABC, BVD, PDQ, and XYZ. And think of the thrill Mr. Doe gets when he reads his literary accomplishment in print next week and sees his own delightfully familiar name set in capitals at the bottom.

Let's hear from some of you fans on some of the bigger more vital topics of radio. We are facing a thunderbolt being hurled at the very foundation of this great new industry that means so much to every one of us, in the recent demand of the "Un-American Society of Composers, Authors and Publishers," made upon the broadcasters. And not a word has appeared in "Letters to the Editor," to indicate that we listeners are even interested. And how many of us have taken

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Letters to the Editor

the trouble to write a line to Uncle John just to say we are back of him. We are all too busy tooting our own little horns!

Let's get together and elevate this column of ours out of the cloudy realms of selfish interest into the sunlight of bigger things more vital to the industry and to us listeners as a whole.

The enclosed copy of the writer's letter to Uncle John may start the ball rolling.

Very truly yours,

SBK.

SANFORD B. KELLOGG.

Radio KHJ, The Times,
Los Angeles, Calif.
Dear Uncle John:

I am not a singer or a musician, just one among millions of lovers of good music and, therefore, lovers of radio. But there is much music in my home, and I therefore purchase not a little sheet music, just for the home pleasure. There are thousands like me.

Last night, on going over my pile of sheet music, I discovered that every single piece, without exception, which I have purchased since the advent of radio into the home a year ago was introduced to me by radio. My library also contains three books introduced to me by radio, the only books bought during the year.

If this "Un-American Society of Composers, Authors and Publishers" would investigate facts, they would find that radio is their most effective advertising medium by over one hundred per cent. And it costs them nothing! THEY, and not the Broadcaster, are the ones who should pay toll on the ether highways. Their demand that the Broadcaster pay is the most grotesquely absurd idea that modern American business has ever been asked to swallow! Why do not the manufacturers of musical instruments form a "Society" and try to force these same publishers to pay, instead of charge, for space in their columns? The idea is not a whit more absurd!

The enclosed envelope contains a copy of this letter which I will ask you to kindly address and mail for me to the American Society of Composers, Authors and Publishers. I want them to know whose music I am not buying, whose music I will not buy.

Yours very truly,

SBK.

SANFORD B. KELLOGG.

Broadcasting information on C. R. F. C. See Page 79.



"Death Valley" Permactect Price \$1.00

The "Death Valley" PERMATECT is constructed expressly for Reflex Circuits. Recommended by Radio Engineers. Will stand up under any High Plate Voltage. This Product is also an ideal detector for a crystal set.

"Death Valley" Crystal Price 30 Cents

The "Death Valley" Crystal is a natural mineral with every point sensitive. The Volume and Clarity has not been equaled. Will stand up under any conditions, as it cannot be damaged. Sold only in sealed packages.

Unless You have a "DEATH VALLEY" PRODUCT You Have Not Developed the Maximum Efficiency of Your Set.

At Your Dealer's or Mailed Upon Receipt of M. O.

Pacific Coast Distributor, V. P. LANCE, San Fernando, Calif.

We Are Moving!

We wish to announce that we will be closed on Saturday, May 3rd, as we are moving on that date to our new location in the RADIO BLDG., located at Eleven Eleven Wall St.

For the present our telephone numbers will remain the same: VAndike 4353 and TRinity 6464. Our new switchboard will not be installed by the telephone company for several weeks.

We will be open for business Monday, May 5th. We invite every dealer, jobber or agent in this section to meet us in our new quarters.

Shipping facilities have been added that will enable us to give you far superior service to that maintained in the past. Many new lines have been added. Our stock has been materially increased. With our new equipment and added facilities for handling merchandise, we believe that we have the largest and best equipped radio house West of the Mississippi River.

We take this opportunity of thanking the many hundreds of dealers and friends who have made this move possible.

The Wholesale Radio Electric Co.



????

Sutter, Calif., April 15, 1r24.

Dear Editor:

Question.—Have an exceptionally fine set built up by myself. It is an ultra-audion hook-up, but modified somewhat. Det. and 2-stage, but cannot get my B battery voltage low enough for tube. as it clicks off and I cannot get distant stations. This is a new tube. The old one worked fine, but I have it topped on 16 volts, but it is not low enough yet. Please answer in Question and Answer Department soon.

HARRIE R. EACHUS.

Answer.—Exchange your tube. It is very soft.

San Bernardino, Calif., April 21, 1r24.

Editor, "Radio Doings:"

Question.—I am a reader of "Radio Doings," and have been for quite a spell. I take this opportunity to express my appreciation of this wonderful little publication. I don't think I can get along without it. Also I have a question to ask. Would like to know what Pacific Coast broadcasting station broadcast a marine band concert on the evening of Saturday, April 19th, between seven-thirty to a quarter to nine, on a wave length of about 425 meters?

Note:—This station either had no call letters assigned or neglected to announce them at all.

I remains a Booster for "Radio Doings."

EMMET H. EDWARDS, Care County Hospital, San Bernardino, Calif.

P. S.—Please answer in "Radio Doings."

Answer.—Perhaps some of our readers can help you.

McFarland, Calif., April 22, 1924.

Dear Sir:

Question.—I have a 4-tube Lee-Crossey model XJ., and have this difficulty when I tune in with a distant station, some nearby station comes in and will not be tuned out. Is there any way to overcome this?

Very truly yours,

L. B.

Answer.—Decrease length of antenna. If this does not help, use wave-trap.

A MESSAGE FROM M.-A.-R.-S.

The PHUSIFORMER added to your single Circuit Set—CR-5 or RC—will make a real distance set of it. Let us show you.

Complete set of Parts for "BEST" SUPER-HETERODYNE described in May "RADIO."

One, Two and Three Tube Reflexes

Radiola IV, Echophone, Neutrodyne

Credit If Desired

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Phone VERmont 7836



?? ??

Dear Sir:

Question.—I have an airline grand four-tube receiving set. It has C-300 detector tube, one UV-200 radio frequency amplifier and 2-stage UV-200 amplifier. For the first month I did not have noise; got Cincanitia stations in Wisconsin, Kentucky, KFI, KHJ, KPO, KLX, KGO, all California stations good and loud. It don't work right now. I can't get distance; get California, but it has a gushing or frying sound; don't pick up stations good. Can you tell me the reason of the noise?

I have 120 feet aerial, 35 feet high, use a 90 volts B battery; have changed all tubes, but don't make any difference; can't find loose connections. I am a subscriber to Radio Doings. I will send envelope. Please tell me what I can do to stop noise. I have a wave trap; helps some.

JOHN W. EMPEY, Bloomington, Washington County, U'tah.

P. S.—I don't know what kind of a hook-up. I'm wiring diagram.

Answer.—Your tubes have gone soft. Purchase A tubes for radio and audio frequency amplification.

Dear Editor:

Question.—I have a little home-made single-circuit set and have had fair results. I am using a New York 43-plate and vernier condenser, a Pearlco coupler and a No. 199-tube. My aerial is about thirty feet from the ground and sixty-five feet in length. On account of electric wires in the vicinity it was necessary for me to build my aeria at a distance of forty feet from the house and connetc the lead-in near the lengthwise center of the aerial, and to prevent its coming in contact with a near-by roof I keep the wires taut as I have tried to show in the above sketch. There are no high voltage lines in or near our blocy. I get KGO, KHJ and KFI very loud and distinct, especially the first named. I can't seem to get Sacramento or Santa Barbara, or any of that class of stations on the coast. Hardly ever get KPO, and have never had Portland or Seattle. Had KFKX a number of times, but hardly loud enough to enjoy. I have been getting KFON recently, and, of course, the local broadcast and the two churches in Los Angeles. Can you give me a hint as to why I don't get the small stations along the coast, and why I can't bring in Portland or Phoenix? Do you think I would have better luck with a 23-plate condenser? I know this is too long for an answer in the column, so will enclose self-addressed envelope. I get your most excellent magazine every week and couldn't get along without it. It's a bigger nickel's-worth than the Saturday Evening Post.

Very truly, CHAS. B. WELCH.

Answer.—Location, geographical conditions affect your reception from certain directions. No. 43-plate condenser is O. K.

Our one, two and three tube Harkness Sets are built with the best of parts and the most careful workmanship, and give perfect results, in clarity of tone, volume, selectivity and distance.

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Bring your Radio problems to me; or, if you figure on buying a Radio Set come in and let's talk it over. I'll prove that my experience in the Radio field since 1907 is worth something to you.

C. R. PARKER

Phone TUCKER 2747. Personal Service 1216 So. Hill St., Los Angeles
ECHOPHONE—RADIOLA—NEUTRODYNE—REFLEX SETS

???

341 N. Normandie Place, Los Angeles, Calif., April 19, 1924.

Radio Doings,
Van Nuys Building.
Gentlemen:

Question.—I wonder if any of the "DZ" fans could tell me what station broadcasted what I think was a play on evening of Monday, April 8, about 11 p. m. I caught the words "Burton"—and "gold has no value" and "tired of going around when gold has no value," an orchestra played several selections and a woman spoke at some length, but I couldn't get the announcer's call.

Also would appreciate very much answers to the following questions:

1. I have a 3-circuit regenerative 3-tube set, using 2-variometers, 1 vario coupler, 2 condensers, use dry batteries. Please advise whether wet batteries would give me greater distance?

2. Would a step radio frequency give added distance? I have one of radio and one of audio at present.

3. Which is the more selective, a single or double wire aerial?

4. If aerial is parallel to electric light wires would it prevent receiving distant stations?

Thanking you in advance for the courtesy of answers in Radio Doings.

Yours truly,

A. S. BARNEY.

Answer.—Storage battery would give greater volume and distance—used with A tubes. A one wire antenna is advisable. No.

Santa Maria, Calif., April 19, 1924.

I am a regular reader of your wonderful magazine. Please answer me the following questions:

A.—Have Benjamin set, 3 tubes operating on dry cells. Can I use 6-volt tubes without having to change rheostats?

B.—My condenser is 23-plate venier, how long should my aerial be?

C.—What is the external detector jack in this set for, and how used?

D.—What is the best wire aerial? Stranded copper or bare telephone wire? Which gives more volume?

E.—How much "B" battery should be used on this set if 6-volt tubes were to be used?

F.—What are the ohms resistance on rheostats using UV-199 tubes—and on rheostats using C-301 6-volt tubes?

B. E. CROSS,
Santa Maria, Calif.

A.—Yes.

B.—Must have more data to give you this data.

C.—Stranded wire will give best all around results.

D.—22½ to 45 volts on detector, 90 on amplifier.

E.—51v-volt tubes, 6 ohm rheostat.

F.—Thirty to sixty ohms for UV-199 tubes.



DUTHO RECHARGEABLE STORAGE "B" BATTERIES

Provide Clear Reception

Have 3500 M. A. Hours capacity. Designed especially for larger sets demanding steady plate current. for loud, clear, undistorted reception. Note low prices delivered. 750 M. A. hours Dutho "B" Batteries are for portable and other sets. New technical features make them fool-proof and insure long life. Shipped dry, with liquid in separate container. Thousands in use.

Shipped anywhere prepaid. Certified Check or money order must accompany order.

Here's what they cost you delivered

Super-Dutho
3500 m a hours
24 v \$9
45 v \$17
90 v \$32

S Type Dutho
750 m a hours
24 v \$5
45 v \$9
90 v \$17

Write for booklet on Storage "B" Batteries

DURKEE-THOMAS Products Co.

1228 Folsom Street, San Francisco

DEALERS:—Write for Special Dealer Proposition

(703)

Los Angeles, Calif., April 21, 1924.

Gentlemen:

Enclosed please find my check for \$2.00, for which please send to my home address, 887 South Bronson, the "Radio Doings" for one year.

Will you please tell me how I can increase my radiola portable No. 2 for using one more stage of amplification? I thought of putting this in where the batteries are as my batteries are separate from the set.

Also, is it possible to change this set in any way so it can be used with a loop?

Yours very truly,

GEORGE D. NORDENHOLT, 1216 Pacific Mutual Building,

Answer.—It is possible to add one step of audio frequency in same box. To use with loop one or two steps of radio frequency amplification must be added.

2225½ H Street, Sacramento, Calif., April 21, 1924.

Gentlemen:

Question.—I have a three-tube single circuit receiver with the X side of my A battery grounded. Would grounding the negative be any improvement?

KFIA at Seattle was the station Mr. Hanson heard.

Louis J. Wood heard CFCF at Montreal, Canada, operating on 440 meters.

I think D. L. Brown heard WJAZ at Chicago, operating on 448 meters.

Roy Higginson probably heard WLAG, at 417 meters

2. What is the proper B battery voltage for a C-00 and 2 C-310 A's?

Sincerely yours,

ALBERT R. VANDERCIOK.

Answer.—Ground negative of A battery.

C-300 tubes take from 16 to 22½ volts.

C-301-A tubes take from 22½ to 90 volts.

ANNOUNCEMENT

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For Price List or Parts and Free Advice

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Address.....

The Radio Building

During the past three or four years we have noted, as everyone else has, the vast change and improvement in radio and radio conditions in general. We have witnessed the transformation of a loose coupler mineral detector, and headphone of two or three years ago, into the modern sets of today—a work of art—the mere pressing of a button frees the air, with crystal clarity the fascinating strain of some dance orchestra; or with the turn of a dial, the voice of a master will hold you spellbound with his golden voice.

The broadcasting station—an experiment three or four years ago, consisting of a 10 or 50 watt transmitting set, broadcasting phonograph music, has been replaced by the giant commercial transmitting station of today, 500 and 1000 watt in power, capable of being heard thousands of miles, operated by skillful, experienced operators, under the supervision of experts, the highest class and types of artists. From a small insignificant business of 1922, radio has rapidly advanced until it has achieved a high status among the important industries of this country today. Quoting a report made by Roger W. Babson, economist and business authority, it has been estimated that the people in America will spend \$350,000,000.00 for radio in 1924. The report goes on to state that it is interesting to see how radio industry compares in dollars and cents with other large industries. Available figures on sporting goods, cameras, etc., show a value of about \$185,000,000.00 annually. Sales of radio equipment are running nearly twice as large as all kinds of sporting goods.

The value of radio business is nearly twice as big as that of the carpet and rug business. For every dollar spent on furniture, thirty-three cents are spent on radio. For every dollar spent on boots and shoes, twenty-five cents is spent for radio. For every dollar spent on musical instruments, including phonographs, pianos, etc., seventy-five cents is spent for radio. The value of radio business amounts to nearly three-fourths of the jewelry business as a whole, including clocks, watches and novelties. Of the many changes and improvements in the radio sets, broadcasting, etc., there has also been a great deal of change and building up of the merchandising houses handling radio. Small stores of yesterday have become large, substantial business houses of today. Fortunes have been won and lost in radio. The experimenters and men interested in wireless, and later in radio at its conception a few years ago, have become executives and men of high standing in this profession today.

Among the pioneers in the radio industry of Southern California is Mr. Wm. A. Breniman. Before and after the war Mr. Breniman served on commercial ships

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Most Complete Line on the Coast

Monodyne Tube Set, complete.....	\$27.50
Sterling Voltmeter.....	2.75
Filko-stat.....	2.00
Accuratune Dials.....	3.75
Erla Reflex Transformers.....	5.00
WD-11, WD-12 Tubes, large stock.....	5.00
UV-199 and C-299, 201-A, 301-A Tubes.....	5.00
Diodide Detector Tube with Socket.....	2.50
All American Transformers.....	\$4.50 and 4.75
Bristol Loud Speaker.....	12.50
Dictagrand Loud Speaker.....	24.50
Adapters and Sockets for UV-199 Tubes.....	60c up
Connecticut Sodion Tube.....	6.50
Homecharger Gold Seal.....	18.50
No. 4500 Cotocoil Transformer.....	2.50
Harkness Coil—Silk Wound.....	pair 3.00
Sodium Tubes, ¼ amps, Detector Tubes, 1 ½, 3, 4, 6.....	4.50
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Cardwell Condensors, 11 plate, \$4.25; 17 plate.....	4.75
Cardwell Condensors, 21 plate, \$5.00; 41 plate.....	6.00
Ballantine Transformer.....	9.60
Ballantine R. F. Amplifier.....	15.00
T. N. T. Superhetrodyne Transformer.....	Each 3.50
Tungar Charges, 50 cye., 2 amp.....	22.50

Sleeper Monotrol

The Long Distance Set

Complete with Tubes, Batteries, Loud Speaker and Loop Ariel, \$195.00

No. 65 Federal Transformer.....	7.00
Mercury Table Talker.....	8.50
Parts for Fada 5-tube Set.....	65.60

SPECIAL SALE OF RADIO BOOKS

	Reg.	Sale
Wireless Telegraphy, by Bucher.....	\$2.25	\$1.15
Experimenters' Manual, by Bucher.....	2.25	1.15
Wireless Stations, by Edelman.....	3.00	1.50
Sleepers—Radio Hook-Ups.....	.75	.50
Radio Phone Receiving.....	1.50	1.00
Radio Instruments and Measurements.....	2.25	1.00
Radio for Everybody.....	1.50	.90

We have for Immediate Delivery

Erla Parts, Fada No. 160 Receiver, \$120.00; Neutrodyne Parts

Gilfillan, Sleeper and Remler Parts

Acme Transformers

Amstran Transformers

Bradleystad and Bradley Leak, \$1.85

Full line Transmitting Parts

Citizens Call Books, 50c

Radio News Handbooks \$1.00

Cabinets, built to order, \$3.50 up

1924 Price List Now Ready

RADIO SUPPLY CO.

Successor to MOTOR CAR SUPPLY CO.

Open Evenings Till 9 P. M.

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920 South Broadway

Los Angeles, California

Our New and Complete Price List Now Ready

as a wireless operator, purser and super-cargo, and has traveled or touched at practically every important port of the world. During the war Mr. Breniman served in the U. S. Navy overseas. When the opportunity of radio merchandising presented itself, Mr. Breniman was one of the first to realize the possibilities and to take advantage of this great opportunity, and started the Radio Concert Equipment Company. On March 1st the name Radio Concert Equipment Company was changed to the Wholesale Radio Electric Company. To meet the requirement for larger quarters, due to the expansion of business, the Wholesale Radio Electric Company has constructed a building located at 1111 Wall Street, Los Angeles.

This building is two stories in height, Class "A," and will contain over 15,000 square feet of floor space, which will be devoted entirely to radio. Every convenience and labor-saving device will be installed to enable this company to take care of its orders and transact business in the shortest possible time. Very elaborate displays have been arranged to present merchandise to the dealers in an attractive manner. Demonstration arrangement has been worked out very carefully. The entire first floor will be taken as a salesroom and shipping room of the Wholesale Radio Electric Company. Offices of this company will be located in the fore part of the second floor. The balance of the second floor for the present time has been partitioned off into very attractive offices, which will be occupied by agents of practically every well-known, advertised line of radio merchandise on the market today, including a few of the following: Dubelier Condenser Mfg. Co., Electrad, Inc., C. D. Tusca Co., Rauland Mfg. Co., Charles Freshman & Co., Electrical Research Lab., Consolidated Instrument Co. of America, F. A. D. Andrea, Inc., Shelton Elec. Co., Ross Braid Co., R. Mitchell & Co., The Modern Electric Mfg. Co., Sydnor Electric Co., Trimm Radio Mfg. Co., Bell Mfg. Co., Shamrock Mfg. Co., Durham & Co., King Sewing Machine Co., Fahnstock Electric Co., Baldwin Pacific & Co., M. M. Fleeron & Co., Inc., Chelsea Radio Co., The Hartford Inst. Co., Dixie Supply Co., United Mfg. & Distributing Co., Coto Coil Co., A. C. Brady Co., Fansteel Products Co., and many, many others will be represented.

The following well-known concerns in the radio trade will be located in the Radio Building: Carl Stone Co., Room 208; Cloyd Marshall Co., Room 207; N. S. Lewis Co., Room 203; F. L. Tomlinson Co., Room 205. It is expected that the Atlantic-Pacific Agencies Corp., Yale Electric Corp., and Pacific Agencies will also maintain offices in this building. A very well-arranged demonstration room will be constructed for the convenience of representatives and agents in this building, to enable them to test out sets and experiment.

The Wholesale Radio Electric Company will move into their new quarters on Saturday, May 3rd, being closed that day, and expect to be open for business the following Monday at noon.

We have just been informed that the Western Radio, Inc., are going to construct a one-story building, to be located at 1224 Wall St., 100 yards to the south, the Leo J. Meyberg Co. is located at 1022 Wall St., 100 yards to the north. The Electric Corporation is located about 200 yards to the west, and the Lincoln Radio will soon occupy new quarters about two blocks to the southwest. It will be seen that this section is fast becoming the radio center of Los Angeles, and we believe it will be a great help to the dealers in having these large houses centralized.

THE CHANCE OF A LIFETIME FOR SALE

A well established, profitable Radio Retail Business in the heart
of Los Angeles.

Owner will sacrifice stock and good will at a loss

For particulars call or write the Editor, Radio Doings.

Tested and Listed as Standard by Underwriter's Laboratories



A new battery charger, noiseless and indestructible

The FanSteel Balkite Battery Charger for Radio "A" (6 volt) Batteries is an entirely new type of rectifier, based on the use of FanSteel Balkite, a new and rare metal developed for this purpose.

1. It is entirely noiseless.
2. It cannot deteriorate through use or disuse.
3. It has no moving parts.
4. It has nothing to adjust or get out of order.
5. It cannot discharge or short-circuit the battery.
6. It requires no attention other than an occasional filling with distilled water.
7. It will not overcharge.
8. It cannot fail to operate when connected to the battery and line current.
9. It is unaffected by temperature or fluctuations in line current.
10. It is simple, efficient and indestructible except through abuse.
11. Without added attachments the charger may also be used to charge "B" storage batteries.
12. *It can be used while the radio set is in operation.*

FANSTEEL
Balkite
PATENTS
APPLIED FOR *Battery Charger*

The FanSteel Balkite Battery Charger will charge the ordinary 6 volt radio or automobile storage battery at 3 amperes, from 110-120 AC, 50-60 cycle current.

Price, \$20

Distributor

CARL A. STONE CO.

537 San Fernando Bldg.

Los Angeles

Thirteen New Broadcasters Licensed

LIST OF CLASS "A" BROADCASTING STATIONS

Call	Station	Frequency Wave Length Power		
		Kcys.	Meters	Watts
KFPQ	Clifford M. Esler, Denison, Texas.....	1300	231	10
KFPR	Los Angeles Co. Forestry Dept., Los Angeles, Cal.	1300	231	500
KFPS	Carter A. Ross Motor Service Co., Casper, Wyo.	1240	242	10
KFPV	Heintz & Kohlmoos, Inc., San Francisco, Cal.	1270	236	50
KFPW	St. John's M. E. Church, S., Carterville, Mo..	1120	268	20
WABB	Harrisburg Sporting Goods Co., Harrisburg, Pa.	1130	266	10
WCBT	Clark University, Collegiate Dept., Worcester, Mass.	1260	238	250
WCBU	Arnold Wireless Supply Co., Arnold, Pa....	1180	254	50
WCBV	Tulahoma Radio Club, Tullahoma, Tenn....	1190	252	10
WEAR	The Evening News Publishing Co., Baltimore, Md.	1150	261	50
WIAY	Woodward & Lothrop, Washington, D. C....	1100	273	100

NEW CLASS "B" STATIONS

WHO	Bankers Life Company, Des Moines, Iowa..	570	526	500
WLS	Sears, Roebuck & Company.....	870	345	500

TRANSFERRED CLASS "C" TO CLASS "A"

KFBE	Reuben H. Hern, San Luis Obispo, Cal.....	1240	242	50
KFDH	University of Arizona, Tucson, Ariz.....	1120	268	50
WIAS	Home Electric Company, Burlington, Iowa..	1060	283	100

Making your money make money can be reduced to a mathematical science without risk. See Page 79.

Murdock Radio Head Phones "Standard Since 1914"

Prest and Dean Radio Electric Co.

Complete Line of Radio Sets and Supplies

Colin B. Kennedy Sets—"The Royalty of Radio"

742 East Fourth Street, Long Beach

Phone 635-213

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LET US HELP YOU

WINCH RADIO SHOP

4301 South Western Avenue

OPEN EVENINGS

SETS

REPAIRS

PARTS

"Out of the Air"

By LISTENER-IN

Here is a summary which shows how big radio already has grown. At the beginning of 1924 there were in this country approximately 3,000,000 radio receiving sets, 10,000,000 listeners, 543 licensed broadcasting stations, 250,000 persons directly and indirectly connected with the industry, 3,000 manufacturers of radio apparatus, 1,000 wholesale dealers in radio sets.

Great Britain has 580,000 broadcasting listeners compared with 30,000 a year ago.

Life of a vacuum tube is from 1,000 to 3,000 burning hours.

A Washington amateur has built a miniature crystal set small enough to place within a single radio head-phone.

On April 22nd at Geneva, an international conference of broadcasting experts convened to discuss terms of an agreement to regulate broadcasting, eliminating conflicts between stations.

The Radio Sales and Service Company, 826 West Seventh street, Los Angeles, have installed a broadcast station for the benefit of their customers so that they can have music at any time desired, and also for the testing of sets at times when local stations are silent. The call letters are KFPG, wave length 238 meters and power 100 watts.

At the regular monthly meeting of the Radio Division of the Music Trades Association held at the City Club, Los Angeles, Mr. H. N. Sessions, commercial engineer for the Southern California Edison Company, gave a most interesting and humorous lecture on a new circuit. Mr. Sessions has been good enough to promise Radio Doings an article on his interesting "circuit," which we hope to print in an early issue with a diagram.

A new company has been formed to handle radio "paper" from dealers. This concern will fill a long felt want in the trade and we feel sure that many of those engaged in the radio trade will welcome it. The officers are well known to radio dealers and will inspire their confidence. Offices have been opened in room 708 Farmers & Merchants Bank building, Long Beach. The officers are: R. M. Woods, president; C. R. Kierulff, vice-president; W. D. Rios, secretary; H. K. Smith, treasurer.

KGO—General Electric Co., Oakland, Calif. Every Monday from 8 o'clock on, are now broadcasting lectures and instructions on agriculture, language, music, economics, and literature. This will be of great help and interest to many located in out-of-the-way places. This station is one of the most powerful in the country and most any kind of tube set, within reasonable distance of Oakland, should have no trouble in picking them up.

The Yale Radio Electric Company has been appointed exclusive distributor for the well-known Garod Neutrodyne Receiver in Los Angeles and surrounding territory.

Tuesday evening, while our radio expert, Dea Andrews, was trying to get Boston on his crystal set, he heard some very wierd whistling coming through the air. It was so uncanny that his curiosity was aroused. He would like to know if any other fan has had similar demonstrations.—"Wolf Howls."

INTRODUCING TO OUR FRIENDS OF RADIO LAND CALIFORNIA RADIO—— FINANCE CORPORATION

Executive Offices:

Farmers and Merchants Bank Building
Long Beach, California

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The purpose of this corporation is to finance first-class installment contracts of responsible dealers in Radio apparatus.

You must realize the importance of the Radio business, and its wonderful future—which means unusual profits for a finance corporation entering this virgin field, together with the practical business experience of those who manage it; their common sense and honesty, cannot fail to produce success from the exceptional opportunities available.

FOR A SAFE, CONSERVATIVE INVESTMENT, WRITE
FOR PARTICULARS

708 Farmers and Merchants Bank Building
Long Beach, Calif.

\$1000.00 REWARD

Will be paid by the Mineral Products Co. to anyone, if the following statements prove incorrect:

I Am Working a Manhattan Loud Speaker, No. 2555—Price \$25

Also a Madera Speaker—Price \$15.00

With The Original Argentite Radio Crystal

The music being Broadcast from All L. A. Stations can be heard plainly over a large room, and fairly over two rooms.

No Batteries—No Amplification—No Tricks

Just a Plain Crystal Set and a Good Crystal. Located about 30 blocks from nearest L. A. Station. (Signed) The Argentite Man.

**You Have Tried the Rest—Now Try Original Argentite
The Best in the World**

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Will not burn out, no matter how strong your batteries may be. A perfect Reflex Crystal.



A Crystal with a Reputation and a Real Guarantee.



**3
Loud
Speakers**



Accept No Substitute.

We are protecting you and our crystal with the above Trade-mark. See that your box carries this Triangle of Quality, Service, Efficiency.

The Rare Mineral Crystal contained in this package has been tested and is guaranteed to be the finest detector obtainable. Money will be refunded if not absolutely satisfactory.

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A Real Radio Crystal, mined and manufactured in California, for the Radio Fans of California and the world.

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