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## "From Greenland's Icy Mountains to India's Coral Strands"

General interest in radio, especially in broadcasting, has not only developed in this country; its popularity has circumnavigated the globe from west to east, and is now going over the top and bottom. Recent reports indicate that this means of universal and rapid communication has reached the northern and southern extremities of the world.

Literally radio now reaches from "Greenland's icy mountains to India's coral strands," and even to the southern tips of Africa and South America.

Denmark is installing four transmitting stations in Greenland to communicate with Iceland and the main land of Europe; the Radio Club of Bengal, at Calcutta, India, is licensed to broadcast, and has installed a powerful receiving station which brings in London broadcasts; publicity and advertising in Chile have increased radio interest and nightly programs are sent out for urban and rural residents; while in South Africa arrangements for the broadcasting of music, instructions, etc., are planned for the natives by stations in Durban, Johannesburg, and Cape Town.

Radio, however, is still unknown in some countries such as Sicily, barely introduced in Portugal, and slow to develop in Japan, despite the fact that this novelty-loving race seized upon the phonograph and camera with great interest. In other lands it is prohibited, in Jamaica for instance. Operations are controlled by the governments in England, Germany, Denmark, Spain and Lithuania. In some countries foreign interests are striving to secure a monopoly, according to consular reports received by the Department of Commerce almost daily.

Although practically every American from the age of seven to ninety-seven knows considerable about radio, there are still countries whose citizens do not know what the word "listening-in" means, and few of them have ever tuned in a set. In Sicily, for example, the term "radio" usually means a new kind of talking machine, although perhaps there are a few who know it refers to wireless telephone, the use of which is forbidden by the government. "It is practically impossible to impart to even the most intelligent, the real idea of radio," Vice-Consul Leary at Palermo, writes, "because it has never been brought to their knowledge by literature or practical demonstration." Out of a population approaching 2,000,000 citizens, the Consul found only three of those interviewed who knew what he wanted, when he asked for tubes for a radio set. In the north of Italy, there are said to be a few hundred receiving sets which receive Eiffel Tower broadcasts, and probably Berlin, Brussels and London. The Italian government is known to have issued only four permits for broadcast receivers in Palermo, and it is doubted if more are authorized.

A few months ago, radio was scarcely heard of in Portugal. There was a complete lack of interest even when the papers reported that London was broadcasting and that America had been heard. There seemed to be a disposition to frown on such things as copper wires stretched from house tops through the medium of which far distant voices and sounds of gay music were mysteriously conjured

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into reality. One day a local shop imported a three-tube set from France and exhibited it in a window. The public inferred that the "thing to do" was to install a radio outfit. The machine was promptly marked "sold," and ever since a dozen or more people have been before the window. Lisbon woke up to the possibilities of listening-in. Shortly after an evening paper devoted a column to the possibilities of catching foreign programs, the heading stating in large type: "Here in Lisbon we can dance to the sound of jazz music being played in London." Popularity grew by such leaps and bounds, that the "Radio Academia de Portugal," in Lisbon, was founded. This is an amateur organization composed of some forty members. The instrument now operated by this club has two head-pieces and one loud speaker which so far whispers rather than speaks.

In Barcelona, Spain, a movement to develop the radio telephone has started, which may mean the opening of the market for apparatus to all countries. An association of radio dealers seeks to obtain a government concession to broadcast, which may be granted as restrictions are decreasing and the Marconi Company is becoming interested. During the great war, wireless operation was prohibited in Spain, and even after peace was established, offenders were sometimes arrested. Recently, however, a proposal to establish wireless stations without government permission or regulations was suggested, or the alternative, that government concessions be made to operators. There are today about 1000 receiving sets in Spain, showing a fair interest.

The Latvian government has not yet decided whether a general use of radio apparatus will be permitted. With the exception of government wireless telegraph stations, such apparatus is not in use, and one resident subject of a foreign nation who purchased a radio telephone receiving set was subjected to examination by local officials. Efforts to arouse interest in the possibilities of radio have met with little enthusiasm, although it seems that the local authorities are beginning to sense the advantages. Broadcasting concessions are desired by many promoters, but objection has been voiced by the National Opera, and the press will probably take the position that news broadcast during the evening would impair its value the following afternoon. Difficulty would arise also in the use of language, since the Latvian people use Lettish which is not universally understood.

Regular broadcasting is expected to commence in Austria on July 1, 1924, a concession for the purpose having been granted to a group composed of banks and electrical firms. The Post and Telegraph administration will soon issue radio regulations on the basis of the new contract.

Marking the inauguration of radio activities in the Canton of Zurich, the first broadcasting station is expected to be put into operation about June 1. This station is being erected by the Swiss Radio Association, the transmitting apparatus being mainly of Americann manufacture.

Two state-controlled radio stations are in operation in Lithuania, one located at Kovno, used exclusively for military purposes, and the other at Memel, operated for both military and private communication. Preparations for broadcasting of concerts are being made under the supervision of the Ministry of Communications, equipment having been purchased in France. A bill to regulate the use of radio apparatus in Lithuania has been placed before the Parliament.

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The erection of a 2 KW broadcasting station at Sao Paulo has been authorized by the Brazilian Minister of Public Works. The equipment will be furnished by the British Marconi Company and the station operated by the society known as the "Radio Educadora Paulista." Daily produce exchange quotations and other commercial information, newspaper items, lectures and concerts will be broadcast.

The Danish Radio Association is reported to have been unsuccessful in its efforts to raise funds for broadcasting by subscription, and broadcasting has consequently been curtailed. Last year, the "Dansk Radiofund" was established to broadcast concerts and the Danish Soloist Association offered close co-operation. The organization was to have been maintained through voluntary subscription from amateurs, dealers and manufacturers, but as sufficient funds were not received from amateurs, the Radiofund was unable to accomplish as much as was anticipated. The proposed leasing of the government broadcasting station at Lyngby had to be abandoned due to the heavy rental.

The Netherlands Indies government intends to erect two new wireless stations in Sumatra, one of which will be located at Bongkalis, a free port and transfer point for that section of Sumatra. The erection will probably begin in June, and upon its completion, the installation of a station at Belawan will be undertaken and should be in operation sometime during the fall of this year.

A recent German decree, regulating wireless communication, stipulates, among other things, that the erection and maintenance of wireless sending and receiving apparatus for communication in any form may only be carried on with the permission of the National Telegraph Administration.

A new broadcasting station in Leipzig, located in the "Johannishospital," began operation during the fair. This broadcasting station will be the second in Germany, but others are being constructed in Hamburg, Munich, Stuttgart, Frankfurt, Nuernberg, Breslau and Koenigsberg.

The House Merchant Marine committee has ordered the revised White Radio Bill reported out, and Chairman White of the sub-committee on radio is preparing his report for early presentation. It is expected that special consideration will be asked of the rules committee so as to advance the bill on the calendar.

Among the changes introduced are said to be provisions for a court review of decisions of the Secretary of Commerce, and a clause prohibiting radio interests from owning or controlling cable companies and vice versa. Those who appear to know the modifications made since the House hearings, believe some changes introduced and the broadening of the scope of the original bill will cause the Senate to demand further hearings before considering the regulatory measure.

Legislative jams, prevalent in closing sessions of outgoing Congresses, may jeopardize enactment in the Senate, if the House again passes the measure. Just as happened last year, the much needed regulations may again be lost in the shuffle.

Many proponents, including Secretary Hoover, feel that this would be very unfortunate. The Commerce Head needs aid in administering radio and plans to get it, bill or no bill. He is waiting, however, to see what Congress does, before announcing the date of the third radio conference.

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## Aerials

Hall Berringer

In radio communication it is necessary to have a device for radiating radio waves from the transmitting station and for receiving the radio waves from the air at the receiving station. Such devices are called aerials or antennas. Many types of aerials are in general use. The aerial is at once both the mouth and ear of the wireless station. Its site and arrangement will greatly determine the efficiency and range of the apparatus.

The site selected is preferably such that the aerial will not be in the immediate neighborhood of any tall objects, such as trees, smokestacks, telephone wires, etc., because such objects not only absorb an appreciable amount of energy when the station is transmitting message, but also noticeably shield the aerial from the effects of incoming signals and limit its range.

The nature of the ground over which the waves must travel also enters into the question, and is always considered in locating a station. In gliding over the surface of the earth, the waves generate weak currents in the earth itself. If the ground is very stony or dry, these earth currents encounter considerable resistance, and the possible distance of transmission over soil of this sort is very much less than if it were moist. Moist soil and water offer very little resistance, and the difference in the results obtainable at the receiving station when the waves travel over an area of this sort is very marked.

A station which can only send 100 miles over land can send messages three or four hundred miles over the ocean.

Forests exert a very decided effect upon the electric waves. Each individual tree acts as an antenna, reaching up into the air and absorbing part of the energy. The difference in the range of the station during the summer months and that of the same station in winter is considerable. In summer the trees are full of sap and, being much better conductors of electricity when in this condition, act in the capacity of innumerable aerials rising in the air, and able to absorb appreciable amounts of energy. During these same months the air becomes highly ionized, in which state the air molecules carry an electric charge, and are particularly opaque to the waves. This condition also usually exists in the presence of sunlight, the result being that the most favorable time for the wireless transmission of messages are the hours around midnight.

Locality is another factor which usually receives a fair share of attention in selecting the site. Certain sections of the country, for seemingly no apparent reason, are very hard to transmit messages, either to or from. Wireless stations located on the Pacific Coast, for instance, are more efficient than those situated along the Atlantic seaboard, while those in the tropical regions are only able to send short distances in comparison to those farther north or south. Messages seem to travel better in the direction of the lines of longitude than along the lines of latitude.

Aerials are of numerous classes and forms, but the most prominent types can be divided into two main groups, called respectively, the "flat-top" and "vertical" antenna.

The vertical aerials are the older form, and are usually employed for long

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Complete with all accessories, \$85.00

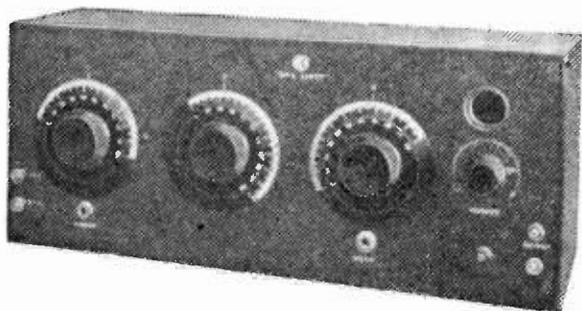
Wired on Panel, \$29.50

**RALPH F. BOWERS**

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LOS ANGELES

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## FADA "ONE SIXTY" Neutrodyne Radio Receiver

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### *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.

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Los Angeles and San Francisco

distance work or ultra-powerful stations. The aeriels intended for transmission from Europe to America, installed by Marconi, consisted of huge inverted pyramids, supported by four heavy lattice-work towers, over 200 feet high. Vertical aeriels also sometimes take the form of an umbrella, or fan, where only one supporting pole is available. Iron pipe masts may be employed for the purpose by setting on an insulating base. The umbrella aerial is used extensively in the army and portable sets. The flat-top aeriels are gradually coming into very extended use. They are used to the exclusion of all others on shipboard. They need not be so high as a vertical type aerial in order to be as efficient. Flat-top aeriels consist of a vertical portion and a nearly horizontal portion. The horizontal portion is practically useless, as far as its work in radiating waves is concerned, it being used for the purpose of increasing the capacity of the aerial. An increase in capacity in an aerial means that more energy can be stored and radiated. Flat-top aeriels have the objection, however, of possessing a directive action; this is, they receive, or radiate waves, better in one direction than in the other. A flat-top aerial always receives or transmits better in the direction that the ends point than in a direction at right angles to the wires.

(To Be Continued)

## The Radio Hay-Fever Season Is On

Summer has its hay fever.

Radio, its static.

Both are annoying and equally noisy.

The DX hounds will soon have nothing to do but listen to their home stations, for a change.

A recent few days of hot weather caused a noticeable lessening of distant mail in the Earle C. Anthony Station. In view of this and the normal cessation expected in the summer months, a letter from the Administration Headquarters of the Island of Nauru, five thousand miles from Los Angeles, caused considerable comment. Particularly interesting is this reception, when the officer in charge of the Nauru Radio wrote the KFI studio on what conditions they constantly receive the Anthony programs.

"We use only two valves for reception, the second one at audio-frequency. We can, however, get you with one valve, and have been receiving your broadcast program every evening that we listen in for it for over four months. The prevalence of tropical lightning throughout most hours of the day makes great amplification impossible, but we pick you up just after five o'clock, our time (which is eleven hours ahead of g. m. t.)."

As the sun is a regular six o'clock riser and retiree in the tropics, the Nauru residents can time their watches by it, and accordingly tune in on the late Earle C. Anthony concerts without staying up all night to hear them, as dwellers in the Eastern United States constantly do.

However, time in the south sea is supposed to have no meaning, so perhaps it doesn't make any difference to the time clock in the local ice factory when the radio fans "get down to work."

"MARGOT."

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## A Two-Tube Reflex Circuit

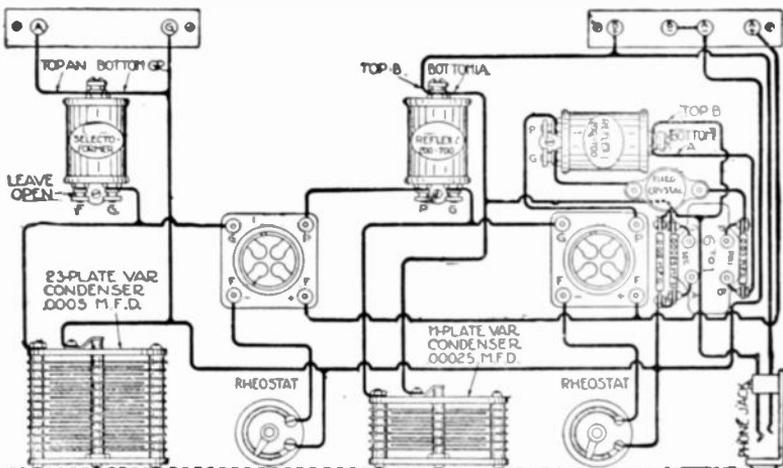
By FRANK D. PEARNE

Chief Instructor, Department of Electricity, Lane Technical High School, Chicago

Having constructed the single-tube reflex circuits, many fans are requesting information showing how their sets can be improved by adding more amplification. The circuit shown here is the standard two-tube Erla duo-reflex. This will also enable those who did not happen to see the single tube arrangement to construct this set from the beginning. It consists of a stage of straight tuned radio frequency amplification added to the one-tube circuit.

Before going into the wiring details one should understand that in this, as well as any other reflex arrangement, the condenser values and the transformer ratios have been carefully worked out and any deviation from the values given may be disastrous to the proper working of the set after completion.

The wiring should be done in a careful, workmanlike manner. It will be noted that a selectoformer is used as a coupler. This novel and efficient coupling device permits of very loose coupling and the transfer of energy from the antenna to the input circuit with very low losses, due to the correct coupling coefficient and low loss windings employed. It also does away with all coupler adjustments, switch taps, etc.



The aerial is connected directly to the "AN" binding post of the selectoformer. The ground connects to the "GR" post of same and thence to the rotor of the 23 plate condenser, continuing on to the negative filament lead. The "G" binding post is connected to the stator of the 23 plate condenser and also to the grid side of the first tube socket.

The post marked "P" on the first tube socket is connected to the "P" on the

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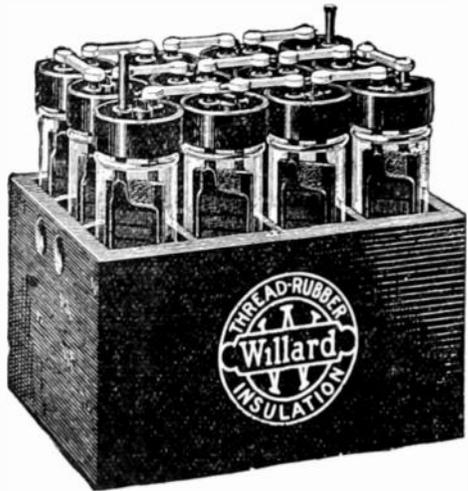
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Or

**At Your Nearest Radio Dealer**

No. 2 reflex transformer, passing through the primary winding to the positive binding post of the plate battery.

The "G" post of the same transformer is connected to the grid post on the second tube socket and to the stationary plate of the 11 plate condenser.

The rotor of this condenser is connected to the remaining binding post on the No. 2 reflex transformer, which is the return side of the secondary, and is also connected to the "G" post on the audio frequency transformer.

The "P" post on the second tube socket is connected to "P" of the No. 1 reflex transformer. The "B" of this transformer is connected to one spring of the open circuit jack. The other connection from this jack being made to the positive "B" battery binding post.

The fixed crystal detector is connected between the "P" binding post of the audio frequency transformer and "G" of the No. 1 reflex transformer. "A" binding post of the No. 1 reflex transformer, which is the return side of the secondary, is connected to the "B" of the audio transformer.

One side of each rheostat is connected to the negative "A" binding post and the other side of each is wired to the "A" minus of the tube sockets. The "F" positive binding post on each socket is connected directly to the "A" positive binding post.

A .001 fixed condenser is connected across the primary side of the audio transformer and a .00025 fixed condenser is set across the secondary of the same transformer.

Another fixed condenser, .002, is connected between "B" of the No. 1 reflex transformer and the "B" minus binding post. All of these fixed condensers should be solidly made and insulated between the plates with mica and plainly marked "tested capacity."

All parts should be mounted as close together as possible without interfering, so that the connecting wires will be very short. This wire should be No. 12 or 14 tinned copper. The entire apparatus should be mounted on a bakelite panel 14x6 and a baseboard which will fit in the cabinet to be used.

The material required for the construction of this set consists of the following: One 14x6 panel, cabinet and baseboard to fit, one selectoformer one 23 plate variable condenser and dial, one 11 plate variable condenser and dial, two 25 Ohm rheostats, one single circuit jack, two sockets, one 6 to 1 Erla audio transformer, one Erla fixed crystal, Erla reflex transformer Nos. 1 and 2, fixed condensers of .001, .002 and .00025 mfd. capacity, 20 feet of hook-up wire, binding posts, etc.

C301A tubes are recommended for this circuit and from 90 to 135 volts of "B" battery will give the best results. The set is very selective and loud, but its best feature is its unusual purity of tone. It can be logged on its two dials and once a station is registered you can return to the same points on the dials and get the station back again.

For increased volume on signals received, a stage of straight audio amplification should be added. This will provide loud speaker volume on distant stations. In adding this audio amplification a low ratio transformer of about  $3\frac{1}{2}$  to 1 should be used.

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## R. 1275 Jacks

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## R. 1350 Crystal Detector

This detector is of the permanent type, non-adjustable, specially selected and tested mineral. Mounting of bakelite dilecto, with gold treated wire.



## R. 200 4-In. Dial

Graduations extend clockwise for three-fourths of circumference. Knob of large taper type, allowing sure grip, fine adjustment. Dial provided with  $\frac{1}{4}$  in. hole with reducing bushing for use with  $\frac{3}{16}$  in. shaft, if needed. Same style dial also made in  $2\frac{1}{4}$  in. size (R. 450) for use on rheostat and potentiometer.

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# Gilfillan Bros., Inc.

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Licenseses General Bakelite Co.

## Composers and Broadcasters Still Battle

Another battle of composers and broadcasters was staged before the House Committee on Patents last week, but no decision was announced. Although a compromise agreement is looked for, no legislation is expected this session.

Thirty-six radio broadcasting stations out of about 560 are paying the American Society of Composers, Authors and Publishers \$16,500 per year for the privilege of broadcasting songs copyrighted by members of the society, E. C. Mills, an official of the society, testified before the Committee on Patents during the hearings, when several copyright bills, including the Newton and Johnson measures, were under consideration. Mr. Mills said that WEAf and WCAP are paying the society \$500 each. WOR, he said, is paying the society \$750 a year.

He explained that the Radio Corporation and the other "big four" broadcasters are not paying anything, although the Radio Corporation had offered to enter into a five-year agreement with the society. Discussing the several bills under consideration, Mr. Mills pointed out that the enactment into law of any of them would be a step backward, contending that less than 10 per cent of the songs are commercially valuable. He also stated that the society is not hostile to the radio and admitted that members of the society are not all agreed as to the value of radio publicity. They are all agreed, however, he declared, that a charge should be made for broadcasting copyrighted material. Even if composers permitted free use of their copyrighted material, it would not save the public anything, he believes.

Since the radio has come into use, the music publishing business has been very poor, he said, adding he did not believe more than five music publishing houses were solvent.

Charles H. Tuttle, counsel for the National Broadcasters' Association, appeared before the committee in rebuttal, testifying along the same line as given before the Senate Committee on Patents several weeks ago. He told the committee that, while the composers' society may have a right under the law to charge broadcasters for using copyrighted songs, the small broadcasters would certainly be forced out of business if this practice persisted, leaving only a few super-radio stations in the United States. He said that because the listeners-in are paying nothing for service, the broadcasters were anxious to keep their expense as low as possible.

Nathan Burkan, counsel for the American Society of Authors, Composers and Publishers, told the committee that the enactment of the Newton bill would perpetuate "parasitic practices" of the radio broadcasting stations and the moving picture industry. The bill proposing to exempt broadcasters from the payment of royalty for reproducing popular songs, he said, would be unconstitutional because it would destroy property rights under the present law.

Gene Buck, president of the American Society of Composers, Authors and Publishers, went into detail regarding the revision of the copyright laws as provided for in the Newton and Johnson bills.

**"RAY-DEE-ARTCRAFT Selection is YOUR Protection" (See Page 22)**

### SPECIALS IN USED PARTS

Type AC-2, Model C, Magnavox Power Amplifier, with Type R-3, Model B Magnavox Horn, \$65.00. Type R-3, Model C, Magnavox Horn, \$20.00. Grebe CR-9, Long Distance Receiver (new price \$135.00), \$75.00. Radiola Model V, \$50.00.

See the New  
Californian

**"SMITHY"**

X-L  
Crystal Set

*"The Neutrodyne Specialist"*

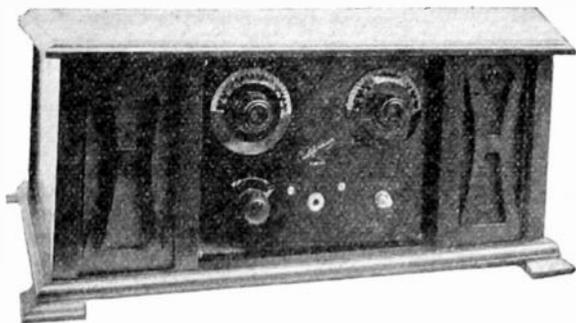
5654 Hollywood Blvd., Hollywood Cal.

OPEN EVENINGS

HOLLY. 1734

# "The Californian"

*"Radio's Best from the Golden West"*



*"Consolelette" Type C-1*

This 2-tube Super Reflex Broadcast Receiver  
is unsurpassed for its

**Clarity of Tone**

**Simplicity of Operation**

**Volume and Selectivity**

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, wire direct to us or our distributors and  
we will gladly arrange for a demonstration in your town.*

---

Distributors

**Myers Electric Supply Co., Inc.**

1729 South Los Angeles St., Los Angeles, Cal.

## The Californian Radio Co.

Phone MAin 896

POMONA, CALIF.

891 N. Gordon St.

## Short Wave Experiments Successful

Radio engineers of the U. S. Naval Research Laboratory were so impressed with their results of recent experiments with short-wave transmission and reception in daylight, that they have designed a new short-wave transmitter for the Naval Airship Shenandoah, according to Dr. A. H. Taylor, chief of the Laboratory.

Through the co-operation of amateurs in over 40 states, some stations distant a thousand or more miles, NKF, at Bellevue, D. C., has secured excellent results in two-way communications on 3000 kilocycles or 100 meters, in radio telegraphy and also in radio-phone transmission tests. The reliability of short waves and their ability to carry for long distances, especially in the daytime, Dr. Taylor points out, has resulted in the construction of a transmitter which will go as low as 80 meters with a steady wave. He believes that short waves do not follow ordinary transmission laws.

The short-wave Shenandoah set just completed and tested during the past week, is for use on 3000 k/cs. This set was designed for use when the Shenandoah goes to the North Pole, where it will be daylight most of the time. It is operated by a 24-volt storage battery, kept charged during operation, but good for a number of hours transmission in an emergency. Telephone transmission for a short distance, as in making landings and mooring the ship, can be handled by this set, and also CW transmission. A motor generator will supply a plate voltage of 750 volts. In keeping with needs for economy in weight and space aboard the airship, this one-wave set is both small and light.

The above is the aircraft's auxiliary transmitter; she will also be supplied with the most powerful transmitter ever installed in an airship. The big set operates AC CW over a range between 500 and 200 k/cs, and may be operated simultaneously with the short-wave set. The intensity of short wave signals received is so great, Dr. Taylor, who is especially interested in amateur short-wave work, is looking for further co-operation during the northward flight of the Shenandoah, and expressed a desire that all 100 meter receivers be on the job. The airship can receive anything between 135 meters and 25,000 m., Dr. Taylor says.

Take a

# PORTABLE TELEDYNE

With You on Your Vacation

*"The Ideal Set for Camping"*

Phone BEacon 7439 for Demonstration

## SO. CALIF. RADIO CO.

1302 So. Hoover St.

LOS ANGELES,

CALIF.

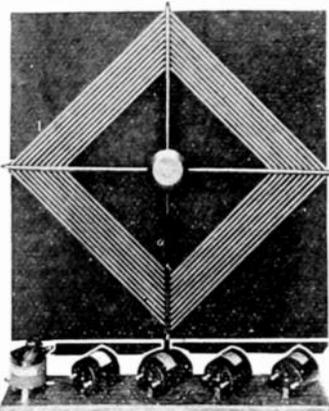
## Ray-Dee-Artcraft Announces New Policy: Direct to public at reduced prices!

### SPECIAL NOTICE:

Hereafter RAY-DEE-ARTCRAFT PRODUCTS will be sold direct to the consumer—thus eliminating Distributor, Dealer, Jobber, etc., profits. The public will benefit by a DIRECT FROM MANUFACTURER policy which includes intelligent advertising and increased production with no decrease in quality of RAY-DEE-ARTCRAFT PRODUCTS.

#### DID YOU KNOW:

That our Type 10-A Super-Heterodyne Intermediate-Frequency Transformer is a Tuned Radio-Frequency Transformer?  
That Tuned Radio-Frequency Amplification is five times as sensitive as untuned transformers?  
That all the Super-Heterodyne Transformers on the market, with the exception of our Type 10-A, are all Untuned RF Transformers?  
Then is there any wonder that our Type 10-A Intermediate-Frequency Transformers out-perform all the rest?



Showing the Ray-Dee-Artcraft Super-Heterodyne Kit.

#### CONTAINS:

- 1—Special Input Transformer.
- 3—Intermediate Tuned RF Transformers, type 10-A.
- 1—Osc. Coupler.
- 1—Framework for Loop.
- 1—Circuit and instructions for building 8-tube set.

Price was \$40  
NOW ONLY

## \$28.50

Order Direct from This Ad!

## The Ray-Dee-Artcraft Instrument Co.

Office and Factory: 1005-17 Tribune St.  
REDLANDS, CALIFORNIA

“RAY-DEE-ARTCRAFT Selection Is YOUR Protection.”

#### WHAT A FEW OF THE USERS SAY ABOUT 'EM!

MR. R. W. WHISTON, 1808 Buckingham Rd., Los Angeles, Calif., says: “I can hear KYW (Chicago) louder on the detector jack of the Super than I can with 2 stages of audio on a 5-tube NEUTRODYNE, and the Neutrodyne using aerial and ground!” He also says that he hears WOR (Newark, N. J.) and many others, all on the loud speaker!

MR. H. P. McCORMACK, Placer Radio Mfg. Co., Auburn Calif., writes: “Just a line to let you know what I think of your new Super-Het. It's sure a “ringer!” We have constructed three or four different types, but this is the first to fill the bill as to clearness, all the others distort so bad. As to distance, it's actually impossible to believe that it can be done. IF I WERE TO SEND YOU A LIST OF WHAT I HAVE RECEIVED, NO ONE WOULD BELIEVE IT!”

MR. C. E. JACKSON, Radio Dept., Hook Drug Co., Indianapolis, Ind., writes: “We had the pleasure of beating a (name of this super on request) and selling a set built in our shop, and customer is getting coast to coast on loud speaker using only a loop! On Springfield he has to turn loop to cut volume and KFI and KHJ come in like they were local!”

#### Tuned Radio-Frequency Amplification Does It!

GUARANTEE: We guarantee to the publication carrying this advertisement that each Ray-Dee-Artcraft Super-Heterodyne Kit is exactly as represented. Money back in ten days if not satisfied.

## Advance in Naval Radio Communications

Recent advances in radio communication in the Navy include the gradual elimination of spark sets and the substitution of tube transmitting sets, until the sparks have been almost eliminated. The employment of multiplex radio operation, and the application of automatic records in the reception of radio press reports are other advances effected recently.

Tube apparatus has been applied to all battleships, the new cruisers, and has been installed on many submarines, with excellent results. With the discontinuance of old sparks, freedom from interference is noted, and the ability of radio personnel in the operation of the latest types of transmitters has increased. Increased efficiency is seen and eventually all naval craft will be equipped with tube sets.

Submarine radio communication has increased by new installations from between 10 and 100 miles, with the spark sets, to between 200 to 600 miles with the tube sets. The use of tube sets is considered a long step in development and increases the security of submarine commanders.

Multiplex operation, permitting several messages to be sent and received simultaneously, developed aboard the Battleship Colorado, is now used on several of the battleships successfully and it is planned to so modify the radio equipment and receiving rooms on board many ships so as to increase the facilities of fleet operation.

Radio equipment for capital ships will eventually include separate receiving rooms on flagships, aircraft carriers, and battleships, so that they may operate in duplex.

Reports from the fleet indicate that the copying of press reports with an automatic recorder has met with success and may lead to the reduction of the number of operators necessary to man the many circuits aboard naval vessels.

## Murdock Radio Head Phones "Standard Since 1914"

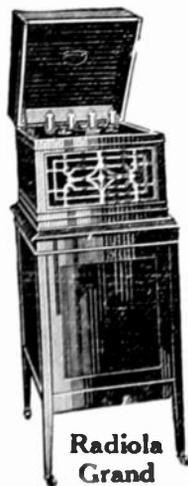
# MAKE US PROVE IT!

*"There's a Radiola for Every Purse"*

Our Easy Time Payment Plan makes it possible for one and all to own a high-class receiving set.

**RADIOLA GRAND, was \$350, now  
\$265 complete and installed**

A small payment down puts this instrument in your home. Pay balance in easy monthly payments. Phone, call or write for a demonstration in your home without obligation on your part.



**Radiola  
Grand**

**Standard Radio Equipment Co.**

*Retail Sales Agents Radio Corporation of America*

806 So. Figueroa St.

Los Angeles

VAndike 8658

*"It Fills a Gap"*

# SUMMER!

Lowered Range, Magnified Atmospherics, But

## The Neutroflex

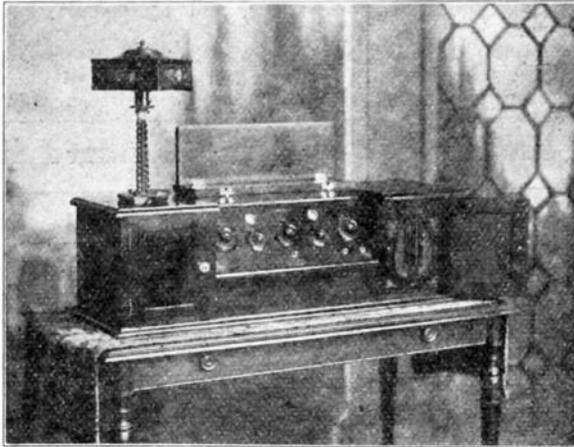
With its three selector circuits and discriminating mineral  
Detector

### OVERCOMES

These handicaps in a way surpassed by none, and almost  
Suppresses

### STATIC

Price  
**\$250.00**  
complete



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.

Mode 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*

Phone  
ATLantic 4548

# C. D. TANNER CO.

Los Angeles  
Calif.

528 W. Washington St.

## Tuberculous Cow Detected—Owner “Paged” by Radio

Radio led to the detection of a cow suspected of having tuberculosis and then found the farm it was kept on. Fanciful as it may sound, here is the recent occurrence as reported to the United States Department of Agriculture by Dr. W. T. Conway, a Federal veterinary inspector stationed in Pittsburgh.

A farmer near Wilkensburg, Pa., had been a regular listener-in on the series of talks being broadcasted from Pittsburgh on the activities of the Bureau of Animal Industry. One of the talks was on the subject of tuberculosis eradication. His interest thus aroused turned to one of his own cows which had been noticeably unthrifty and affected with a bad cough.

He went to the local office of the Bureau of Animal Industry for advice. The inspector in charge informed the State representative of the case. The State man then made three futile attempts to reach the farm by following the directions which the farmer left. Failing to reach the inquirer in this manner, the farmer was “paged” by radio from station KDKA. It was announced that efforts had been made to reach him and if he were listening in to get in touch again with the office.

Two days later the farmer came to the office. Arrangements were then made to conduct the State representative to the farm for an examination of the suspected animal. The symptoms were suspicious and arrangements were planned for an official test.

### Nineteen Stations Shut Down in April

List of 19 Class A and C broadcasting stations deleted during April, 1924:

| Call | Station                                                       |
|------|---------------------------------------------------------------|
| KDYW | —Smith-Hughes & Co., Phoenix, Ariz.                           |
| KDZF | —Automobile Club of Southern California, Los Angeles, Calif.  |
| KFCM | —Richmond Radio Shop, Richmond, Calif.                        |
| KFEJ | —Greason, Guy, Tacoma, Wash.                                  |
| KFHS | —Dow, Clifford J., Lihue, Hawaii.                             |
| KFJW | —LeGrand Radio Co., Towanda, Kansas.                          |
| KFBO | —Glenwood Technical Association, Minneapolis, Minn.           |
| KNV  | —Radio Supply Company of California, Los Angeles, Calif.      |
| KSS  | —Prest and Dean Radio Research Laboratory, Long Beach, Calif. |
| KIS  | —City Dye Works and Laundry Company, Los Angeles, Calif.      |
| WABB | —Lawrence, Dr. John B., Harrisburg, Pa.                       |
| WBAD | —Sterling Electric Company, Minneapolis, Minn.                |
| WBBI | —The Indianapolis Radio Club, Indianapolis, Ind.              |
| WCAY | —Kesselman O'Driscoll Music House, Milwaukee, Wis.            |
| WEAR | —Baltimore American and News Publishing Co., Baltimore, Md.   |
| WJAF | —Press Publishing Company, Muncie, Ind.                       |
| WMAW | —Wahpeton Electric Company, Wahpeton, N. D.                   |
| WMAZ | —Mercer University, Macon, Ga.                                |
| WPAQ | —General Sales and Engr. Co., Frostburg, Md.                  |

## NOTICE

### Neutrodyne and Super-Heterodyne Owners

#### WE ARE PRODUCING RESULTS

If we can't make your set perform, there will be no charge. Does your set have the proper amount of Selectivity, Good Tone Quality and are you getting Distance? If not, let us examine it free of charge.

*Satisfied Customers Is Our Recommendation*

*Elite* RADIO SHOPPE

132 So. Western Ave.

Open Evenings

Los Angeles

# DEALERS!



*Exclusive Distributor for  
Southern California*

Why shop around — buy tubes one place, sets another—and parts another, when you can buy them all here and save time?

We endeavor to stock only standard lines that have been consistently advertised, as a dealer will realize that such a line must have merit and possess real selling qualities to enable the manufacturers to spend so much in advertising.

Standard lines — good discounts — and the real personal service that make it so pleasant to do business with a firm is what we have to offer.

For future reference we wish to list below a few of the lines we handle:

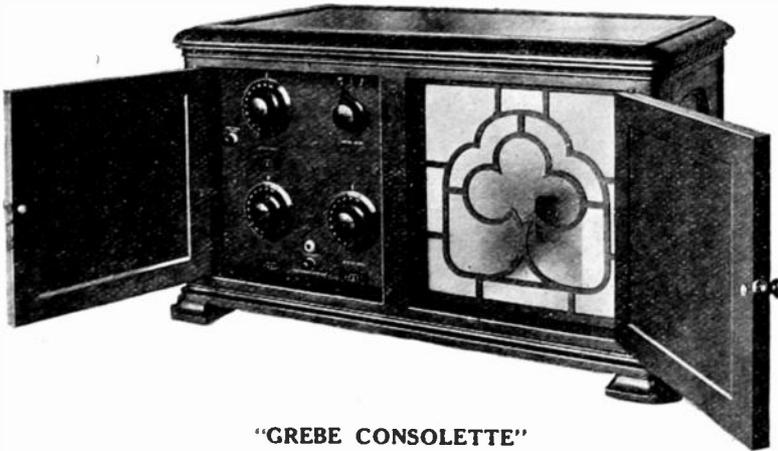
Acme  
Gilfillan  
K. and C.  
Naald  
Pacent  
Signal  
Comet Batteries  
Franco  
Dutho  
Red Seal Dry Cells  
Twin Cells  
Eveready Wet Batteries  
Columbia Wet Batteries  
Phoenix Wet Batteries  
Hoosick Falls Radio Products  
Eby Binding Posts  
King Radio Company

E. I. Books  
Elec. Research Lab. (Erla)  
Cutter Hammer  
Carter Radio  
Fansteel Prod. Co. (Balkite Chargers)  
Handy Chargers  
Fahnstock Elec. Co.  
Sterling Mfg. Co.  
Home Chargers  
Dubilier Condenser and Mfg. Co.  
Magnetite Crystals  
M. P. M.  
Radio Argentite  
Allen Bradley Co.  
Chas. Branston Co.  
A. H. Grebe Co.  
Great Western Radio Corp.

Chelten Elec. Co.  
Mignon Elec. Mfg. Co.  
New York Coil Co.  
Sexton Condensers  
Univernier  
Greival Detectors  
Accuratune Dials  
Electrad  
Durham  
C. R. L.  
Hafner Hydrometer  
Bristol Horns  
Schwarze Phones  
Peerless Phones and Coils  
Dictogrand Horns, Phones  
Baldwin Phones  
Shamrock Mfg. Co.  
Telerado  
Manhattan Elec. Co.  
Mercury Table Talkers

Morisson Units  
R. Mitchell Co.  
Workrite Mfg. Co.  
Premier Radio  
Radio Panels  
Formica Panels  
Celeron Panels  
Kraeuter Pliers  
Weston Elec.  
Four-Way Plugs  
Coto Coil Co.  
Electrical Appliance  
Sampson Elec. Co.  
All American  
Federal Transformers  
Crescent Transformers  
Modern Transformers  
Jefferson Transformers  
Thordeson Transformers  
Dayton Mfg. Co.

*Keep this list for ready reference. We are now maintaining a three-hour delivery service and can show you real speed on your orders.*



"GREBE CONSOLETTTE"

FABer 3672

# Wholesale Radio Electric Co.

Eleven-Eleven Wall St., Los Angeles

"Radio Building"

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       |           |
|----------------|-------|---------|--------|-------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                |       |         |        |       | 6:00-8:30 | 8:30-9:00 | 6:00-8:30 | 8:30-9:00 | 6:00-8:30 | 8:30-9:00 | 6:00-8:30 | 8:30-9:00 | 6:00-8:30 | 8:30-9:00 | 6:00-8:30 | 8:30-9:00 | 6:00-8:30 | 8:30-9:00 |
| Reynolds Radio | 500   | Denver  | 380    | K L Z |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| Free Press     | 500   | Detroit | 517    | W C X |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| Detroit News   | 500   | Detroit | 517    | W W J |           | X         |           | X         |           |           |           |           |           |           |           |           |           |           |
| Woodmen of W.  | 500   | Omaha   | 528    | WOAW  |           | X         |           | X         |           |           |           |           |           |           |           |           |           |           |

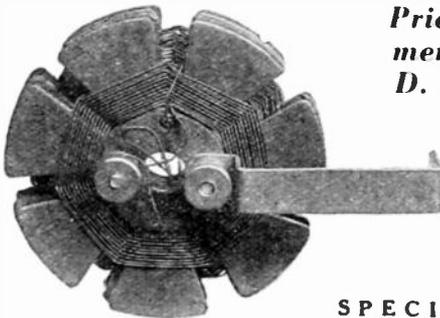
8-10 A. M. PACIFIC TIME

9-11 Mountain Time

10-12 Central Time

11-1 Eastern Time

| STATION          | WATTS | CITY          | METERS | CALL    | SUN.      |            | MON.      |            | TUES.     |            | WED.      |            | THUR.     |            | FRI.      |            | SAT       |            |
|------------------|-------|---------------|--------|---------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|
|                  |       |               |        |         | 8:00-9:30 | 9:30-10:00 | 8:00-9:30 | 9:30-10:00 | 8:00-9:30 | 9:30-10:00 | 8:00-9:30 | 9:30-10:00 | 8:00-9:30 | 9:30-10:00 | 8:00-9:30 | 9:30-10:00 | 8:00-9:30 | 9:30-10:00 |
| Echophone Radio  | 100   | Long Beach    | 234    | K F O N |           | X          |           |            |           |            |           |            |           |            |           |            |           |            |
| S. F. Examiner   | 150   | San Francisco | 360    | K U O   |           | X          |           | X          |           |            |           |            |           |            |           |            |           |            |
| Reynolds Radio   | 500   | Denver        | 380    | K L Z   |           |            |           | 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          |           | X          |           |            | X         | X          |           | X          |           | X          |
| Palmer School    | 500   | Davenport     | 484    | W O C   |           |            |           | X          |           | X          |           |            | X         |            |           |            |           | X          |
| John Wanamaker   | 500   | Philadelphia  | 609    | W O O   |           |            |           | X          |           | X          |           |            | X         |            |           |            |           | X          |
| Federal Tel.     | 500   | Buffalo       | 319    | W G R   |           |            |           | X          |           | X          |           |            | X         |            |           |            |           | X          |



Prices are down in the Basement. The Pair which make D. X. Stations Easy.

## DISTANCE—SELECTIVITY —VOLUME

Phipps Super Coils, \$1.00  
Navy Type Detectors, \$1.00

### SPECIALS

|                           |         |                     |        |
|---------------------------|---------|---------------------|--------|
| 3-Tube Reflex Complete    | \$48.00 | A. F. Transformers  | \$2.25 |
| 2-Tube Reflex Complete    | 45.00   | 23-Plate Condensers | 1.25   |
| 1-Tube Reflex Complete    | 39.00   | Phones              | 2.98   |
| 4-Tube Special Complete   | 58.00   | Phone               | 1.00   |
| 2-Tube Portable Set, only | 9.95    | Horns               | 8.50   |
| Mounted Crystals          | .10     | A Tubes             | 3.75   |
| Sockets                   | .25     |                     |        |

Our factory is equipped to manufacture any radio product you may have.

## D. C. PHIPPS

Distributor

WING RADIO PRODUCTS

Phone TRinity 6434

Los Angeles, California

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 |
| L. A. Times        | 500   | Los Angeles   | 395    | KH J    | X           | X           | X           |             |             |             |             |
| Earl C. Anthony    | 500   | Los Angeles   | 469    | K F I   | X           | X           | X           |             |             |             |             |
| Bible Institute    | 750   | Los Angeles   | 360    | K J S   | X           | X           | X           |             |             |             |             |
| Angelus Temple     | 500   | Los Angeles   | 278    | K F S G | X           | X           | X           |             |             |             |             |
| So. Electric Co    | 50    | San Diego     | 244    | KD P T  | X           | X           |             |             |             |             |             |
| Hale Brothers      | 500   | San Francisco | 423    | K P O   |             | X           | X           |             |             |             |             |
| Tribune            | 500   | Oakland       | 609    | K L X   | X           | X           |             |             |             |             |             |
| Waener Brothers    | 250   | Oakland       | 360    | K L S   |             |             | X           |             | X           |             | X           |
| Gould              | 5     | Stockton      | 360    | K J Q   | 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           |
| Rhodes Co          | 100   | Seattle       | 455    | K D Z E |             | X           | X           |             | X           |             | X           |
| First Pres. Church | 750   | Seattle       | 360    | K T W   |             | X           | X           |             |             | X           | X           |
| Meier & Frank      | 50    | Portland      | 360    | K F E C |             |             |             |             |             |             | X           |
| Reynolds Radio     | 500   | Denver        | 360    | K L Z   |             | X           | X           |             | X           | X           | X           |
| News and Journal   | 500   | Oakias        | 478    | W F A A |             | X           | X           |             | X           | X           | X           |
| Palmer School      | 500   | Davenport     | 484    | W O C   |             | X           | X           |             | X           | X           | X           |
| Oregonian          | 500   | Portland      | 492    | K G W   |             |             | X           |             | X           | X           | X           |
| Federal Tel. Co    | 500   | Buffalo       | 319    | W G R   |             |             | X           |             | X           | X           | X           |

## Murdock Radio Head Phones "Standard Since 1914"

# RADIO

A department complete in every way. A place where you can get information that can be relied upon. See our display of Radiolas and our big stock of parts.

## Remler Super-Heterodyne Parts

Complete, less tubes, batteries and loud speaker

# \$75<sup>00</sup>

# 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 | 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 |
| L. A. Times        | 500   | Los Angeles   | 395    | KH J    | 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           |            |           |           |
| Angelus Temple     | 500   | Los Angeles   | 278    | K F S G | X           |            |           |           | X           | X          |           |           |             | X          | X         |           |             |            | X         | X         |             |            |           | X         | X           |            |           |           |
| So. Electric Co.   | 50    | San Diego     | 244    | KOPT    |             |            |           |           | X           | X          |           |           | X           |            |           |           |             | X          |           |           |             |            | X         |           |             |            |           | X         |
| Warner Bros.       | 250   | San Francisco | 380    | KLS     | X           | X          |           |           | X           | X          |           |           | X           | X          |           |           |             | X          | X         |           |             |            | X         | X         |             |            |           | X         |
| Hale Bros.         | 500   | San Francisco | 423    | KPO     |             |            |           |           | X           | X          |           |           | X           | X          |           |           |             | X          | X         |           |             |            | X         | X         |             |            |           | X         |
| General Elec.      | 1000  | Oakland       | 312    | KGO     |             |            |           |           | X           | X          |           |           | X           | X          |           |           |             | X          | X         |           |             |            | X         | X         |             |            |           | X         |
| Herrold Lab'y      | 50    | San Jose      | 360    | KQW     |             |            |           |           | X           | X          |           |           | X           | X          |           |           |             | X          | X         |           |             |            | X         | X         |             |            |           | X         |
| Guy Greason        | 10    | Tacoma        | 350    | KFEJ    |             |            |           |           | X           | X          |           |           | X           | X          |           |           |             | X          | X         |           |             |            | X         | X         |             |            |           | X         |
| Rhodes Co          | 100   | Seattle       | 270    | KOZE    |             |            |           |           | X           | X          |           |           | X           | X          |           |           |             | X          | X         |           |             |            | X         | X         |             |            |           | X         |
| Honolulu Star Bul  | 100   | Honolulu      | 380    | KOYX    |             | X          | X         |           | X           | X          |           |           | X           | X          |           |           |             | X          | X         |           |             |            | X         | X         |             |            |           | X         |
| Honolulu Adver     | 500   | Honolulu      | 360    | KGU     |             |            |           |           | X           | X          |           |           | X           | X          |           |           |             | X          | X         |           |             |            | X         | X         |             |            |           | X         |
| Reynolds Radio     | 500   | Denver        | 360    | KLZ     |             |            |           |           | X           | X          |           |           | X           | X          |           |           |             | X          | X         |           |             |            | X         | X         |             |            |           | X         |
| Pyles Nichols      | 10    | Denver        | 360    | KOZQ    |             |            |           |           | X           | X          |           |           | X           | X          |           |           |             | X          | X         |           |             |            | X         | X         |             |            |           | X         |
| News and Journal   | 500   | Dallas        | 476    | WFAA    |             | X          | X         |           | X           | X          |           |           | X           | X          |           |           |             | X          | X         |           |             |            | X         | X         |             |            |           | X         |
| Palmer School      | 500   | Davenport     | 484    | WOC     |             |            |           |           | X           | X          |           |           | X           | X          |           |           |             | X          | X         |           |             |            | X         | X         |             |            |           | X         |
| Star               | 500   | Kansas City   | 411    | WDAF    |             |            |           |           | 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         |
| Radio Corp. of Am. | 500   | New York      | 485    | W J Z   |             |            |           |           | X           | X          |           |           | X           | X          |           |           |             | X          | X         |           |             |            | X         | X         |             |            |           | X         |
| Herald             | 1000  | Calgary       | 420    | C F A C |             |            |           |           | X           | X          |           |           | X           | X          |           |           |             | X          | X         |           |             |            | X         | X         |             |            |           | X         |
| Federal Tel. Co    | 500   | Buffalo       | 319    | WGR     |             | X          | X         | X         | X           | X          |           |           | X           | X          |           |           |             | X          | X         |           |             |            | X         | X         |             |            |           | X         |
| Woodmen of W       | 500   | Omaha         | 528    | WDAW    |             | X          | X         |           | X           | X          |           |           | X           | X          |           |           |             | X          | 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.

### AUDIOPHONE

TRADE MARK  
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 | 2 00-2 30 | 2 30-3 00 | 2 00-2 30 | 2 30-3 00 | 2 00-2 30 | 2 30-3 00 | 2 00-2 30 | 2 30-3 00 | 2 00-2 30 | 2 30-3 00 | 2 00-2 30 | 2 30-3 00 |
| L. A. Times        | 500   | Los Angeles     | 395    | KH J    |           | X         |           |           |           | X         |           |           |           | X         |           |           |           | X         |
| Angelus Temple     | 500   | Los Angeles     | 278    | K F S G |           | X         |           |           |           | X         |           |           |           | X         |           |           |           | X         |
| Electric Light Sup | 100   | Los Angeles     | 360    | K N 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         |
| So. Electrical     | 50    | San Diego       | 244    | K D P T |           |           |           | X         |           | X         |           |           |           | X         |           |           |           | X         |
| Hale Bros          | 500   | San Francisco   | 423    | K P O   |           |           |           | 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         |
| Tribune            | 500   | Oakland         | 509    | K L X   |           |           |           | X         |           | X         |           |           |           | X         |           |           |           | X         |
| General Elec. Co   | 1000  | "               | 312    | K G O   |           |           |           | X         |           | X         |           |           |           | X         |           |           |           | X         |
| R. H. Ho'n         | 50    | San Luis Obispo | 212    | K F B E |           | X         | X         |           |           | X         |           |           |           | X         |           |           |           | X         |
| Portable Wireless  | 100   | Stockton        | 360    | K W G   |           | X         | X         |           |           | X         |           |           |           | X         |           |           |           | X         |
| Kimball-Upson      | 100   | Sacramento      | 263    | K F B K |           |           |           | X         | X         | X         |           |           |           | X         | X         |           |           | X         |
| First Pres. Church | 750   | Seattle         | 360    | K T W   |           | X         | X         |           |           | X         |           |           |           | X         |           |           |           | X         |
| Post-Intelligencer | 100   | Seattle         | 270    | K F J C |           |           |           | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         |
| Rhodes Co          | 100   | Seattle         | 270    | K D Z E |           |           |           | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         |
| Oregonian          | 500   | Portland        | 492    | K G W   |           |           |           | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         |
| Deseret News       | 500   | Salt Lake City  | 360    | K Z N   |           |           |           | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         |
| Reynolds Radio     | 500   | Denver          | 360    | K L Z   |           |           |           | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         |
| Honolulu Adver     | 500   | Honolulu        | 360    | K G U   |           |           |           | 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         |
| Palmer School      | 500   | Davenport       | 484    | W O C   |           |           |           |           |           | X         |           |           |           | X         |           |           |           | X         |
| Daily News         | 500   | Chicago         | 448    | W M A Q |           |           |           | X         |           | X         |           |           |           | X         |           |           |           | X         |
| Star               | 500   | Kansas City     | 411    | W D A F |           |           |           | X         | X         | 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         |
| Drake Hotel        | 1000  | Chicago         | 380    | W D A P |           |           |           | 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         |
| Herald             | 1000  | Calgary         | 420    | C F A C |           |           |           | X         | 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         | X         |
| Westinghouse       | 1000  | Pittsburg       | 326    | K D 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         |

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

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Let Us Build Your Set or Rewire It So It Will  
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We specialize on SUPER-HETERODYNE and NEUTRODYNE. It will pay you to come in and see us.

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Our next shipment will arrive May 26th. Place your back orders now to insure delivery.

## The New Crosley 51R Portable

For your summer vacation will arrive about July 1

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*Now in Stock:*

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**Experimenters!**

The new multi-tube circuits call for careful layouts, and the use of ACCURATE capacities.

Where a .001 or a .00025 mfd. fixed condenser is specified, be sure that the value is ACCURATE.

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Fixed Condensers  
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Variable Resistances

at reasonable rates.

We also calibrate wave-meters and wave traps.

**Don't guess—know!**

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 | 7:00-7:30 |
| 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         | X         | X         |           |
| E. C. Anthony        | 500   | Los Angeles    | 469    | K F I   | X         | X         |           |           |           |           |           |           |           |           |           |           |           |           |           |
| Angelus Temple       | 500   | Los Angeles    | 278    | K F S G |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| Electric Light Sup.  | 100   | Los Angeles    | 264    | K N X   |           |           |           |           | X         | X         |           |           | X         | X         |           |           |           |           |           |
| Echaphone Radio      | 100   | Long Beach     | 234    | K F O N |           |           |           | X         | X         |           |           |           | X         | X         |           |           |           |           |           |
| Hale Brothers        | 500   | San Francisco  | 423    | K P O   |           |           | X         | X         | 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   |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| Tribune              | 500   | Oakland        | 509    | K L X   |           |           | X         | X         |           |           |           |           | X         | X         |           |           |           |           |           |
| General Electric     | 1000  | Oakland        | 312    | K G O   |           |           |           |           | 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      | 268    | K F A W |           |           | 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         |           |
| Weilson Radio Sup.   | 10    | Phoenix        | 238    | K F C B |           | 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.   | 50    | Tacoma         | 252    | K G B   |           |           |           |           | 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         |           |
| Excel. Motor Cy.     | 100   | Seattle        | 380    | K H Q   |           |           |           |           | X         |           |           |           | X         |           |           |           |           |           |           |
| First Pres. Church   | 750   | Seattle        | 360    | K W     |           | X         | X         |           |           |           |           |           | X         |           |           |           |           |           |           |
| Star Electric        | 50    | Seattle        | 283    | K F H R |           |           | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         |           |
| Oregonian            | 500   | Portland       | 492    | 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         |           |           |           |           |           |           |
| Meier & Frank        | 50    | Portland       | 248    | K F E C |           |           |           |           | X         |           |           |           | X         |           |           |           |           |           |           |
| Apple Cy. Rad. Clb   | 10    | Hood River     | 360    | K Q P   |           |           | 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         |           |
| Bunkerhill-Sul.Co    | 10    | Kellogg, Ida   | 360    | K F E Y |           |           | 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         |           |
| Fitzsimmons Hospital |       | Denver         | 542    | A A 3   |           |           |           |           |           |           |           |           | X         | X         |           |           |           |           |           |
| Sparks HI School     | 10    | Sparks, Nev    | 226    | K F F R |           |           |           |           |           |           |           |           | X         | X         |           |           |           |           |           |
| Westinghouse EI      | 1000  | Hastings, Neb. | 341    | K F K X |           |           |           |           | X         |           |           |           | X         |           |           |           |           |           |           |
| Star-Telegram        | 500   | Fort Worth     | 476    | W B A P |           |           | 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         | X         |           |
| W. O. W              | 500   | Omaha          | 626    | W O A W |           |           | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         |           |
| Daily News           | 506   | Chicago        | 448    | W M A Q |           |           |           |           | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         |           |
| Post Dispatch        | 500   | St. Louis      | 548    | K S D   | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         |           |
| Westinghouse         | 1000  | Chicago        | 536    | K Y W   |           |           | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         |           |
| Sweeney School       | 508   | Kansas City    | 411    | W H B   |           |           | 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          | 1008  | Chicago        | 390    | W D A P | 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         | X         | X         |           |
| Albertan Pub. Co.    | 250   | Calgary, Can   | 410    | C H B C |           |           |           |           |           |           |           |           | X         |           |           |           |           |           |           |
| Detroit Free Press   | 500   | Detroit        | 617    | W C 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   | 609    | W O O   |           |           | 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    | 500    | C Y L   |           |           |           |           | X         |           |           |           | X         |           |           |           |           |           |           |
| Willard Battery      | 1000  | Cleveland      | 390    | W T A M |           |           |           |           | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         |           |
| Wee'inghouse         | 1000  | Pittsburg      | 328    | K D K A |           |           |           |           | X         |           |           |           | X         |           |           |           |           |           |           |
| Canadian Nat. Ry     |       | Ottawa         | 435    | C K C H |           |           | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         |           |
| Chamber of Com       | 50    | El Paso        | 268    | W D A H |           |           | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         | X         |           |

Murdock Radio Head Phones "Standard Since 1914"

# Notice to the Trade

On June fifteenth we will open a branch factory at 239 South Los Angeles St. under the direction of EMMETT R. PATTERSON, formerly of the Patterson Electric Company, who have been retailing WORKRITE Neutrodyne sets.

Mr. Patterson is closing out his entire retail business and will devote his entire organization to the manufacture and sale of WorkRite sets and parts to the trade.

## WATCH FOR FURTHER ANNOUNCEMENT

Dealers — write for attractive proposition on the Work-Rite Neutrodyne sets and parts.  
Licensed under Hazeltine's Patents No. 1450080.

# Workrite Manufacturing Co.

CLEVELAND, OHIO

Western Branch

239 So. Los Angeles St. Telephone VAndike 8139

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 | 9:00-9:30 | 9:30-10:00 | 9:00-9:30 | 9:30-10:00 | 9:00-9:30 | 9:30-10:00 | 9:00-9:30 | 9:30-10:00 | 9:00-9:30 | 9:30-10:00 | 9:00-9:30 | 9:30-10:00 |
| L. A. Herald        | 500   | Los Angeles     | 469    | Herald   |           |           | X         | X          |           |            | X         | X          |           |            | X         | X          |           |            |
| Bible Institute     | 750   | Los Angeles     | 360    | K J S    | 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          |
| L. A. Examiner      | 500   | Los Angeles     | 469    | Examin'r |           |           |           |            | X         | X          |           |            |           |            | X         | X          |           |            |
| E. C. Anthony       | 500   | Los Angeles     | 469    | K F I    | 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          |
| Echophone Radio     | 100   | Long Beach      | 234    | K F O N  |           |           | 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          |
| 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          |           |            | X         | X          |           |            | X         | X          |
| General Elec. Co    | 1000  | Oakland         | 312    | K G O    |           |           | X         | X          | X         | X          |           |            | X         | X          |           |            | X         | X          |
| T. Seifert          | 100   | Bakersfield     | 360    | K D Z B  |           |           |           |            | X         | X          |           |            |           |            |           |            | X         | X          |
| Portable Wireless   | 100   | Stockton        | 350    | K W G    |           |           | X         | X          |           |            | X         | X          |           |            | X         | X          |           |            |
| Herold Lab'y        | 50    | San Jose        | 360    | K Q W    |           |           |           |            | X         | X          |           |            |           |            |           |            |           |            |
| Kimball-Upson       | 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          |           |            | X         | X          |           |            |
| Southern Elec. Co   | 50    | San Diego       | 244    | K D P T  |           |           | 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         | 238    | 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          |
| Excelsior Motor.    | 100   | Seattle         | 360    | K H Q    |           |           | 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          |
| First Pres. Church  | 750   | Seattle         | 380    | K T W    | X         | X         |           |            |           |            |           |            |           |            |           |            |           |            |
| Star Electric       | 50    | Seattle         | 283    | K F H R  |           |           |           |            | X         | X          |           |            |           |            |           |            | X         | X          |
| Mullens Elec.       | 50    | Tacoma          | 252    | K G B    |           |           | X         | X          | X         |            |           |            | X         | X          |           |            | X         | X          |
| State Col. of Wash. | 500   | Pullman         | 330    | K T A E  |           |           | X         | X          |           |            | X         | X          |           |            | X         | X          |           |            |
| Oregonian           | 500   | Portland        | 492    | K G W    |           |           | X         | X          | X         | X          |           |            | X         | X          | X         | X          |           |            |
| Hallock & Watson    | 50    | Portland        | 340    | K G G    |           |           |           |            | X         | X          | X         | X          |           |            |           |            | X         | X          |
| Stubbs Elect        | 100   | Portland        | 310    | K G N    |           |           |           |            |           |            | X         | X          |           |            |           |            |           |            |
| Meier & Frank       | 50    | Portland        | 248    | K F E C  |           |           |           |            |           |            |           |            | X         | X          |           |            |           |            |
| Apple Cy Rad. Cl    | 10    | Hood River      | 360    | K Q 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          |
| Bunkerhill-Sul. Co. | 10    | Kellogg, Ida    | 360    | K F E Y  |           |           |           |            | X         | X          |           |            | X         | X          |           |            | X         | X          |
| Reynolds Radio      | 500   | Denver          | 360    | K L Z    | X         | X         |           |            | X         | X          |           |            |           |            |           |            |           |            |
| Pyle & Nichols      | 10    | Denver          | 360    | K D Z Q  |           |           |           |            |           |            |           |            | 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         |            |           |            |
| Palmer School       | 500   | Davenport       | 484    | W O C    | X         | X         |           |            | X         | X          |           |            |           |            |           |            |           |            |
| Post Dispatch       | 500   | St Louis        | 546    | K S D    |           |           | X         | X          |           |            | X         | X          | X         | X          |           |            |           |            |
| Star                | 500   | Kansas City     | 411    | W D A F  |           | X         | X         |            | X         | X          |           |            | X         | X          |           |            | X         | X          |
| Woodmen of W        | 500   | Omaha           | 526    | W O A W  |           |           | X         |            | X         |            | X         | X          |           |            | X         | X          | X         | X          |
| Westinghouse        | 1000  | Chicago         | 536    | K Y W    |           |           |           |            | X         | X          | X         | X          | X         | X          | X         | X          | X         | X          |
| Orake 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 Cer. of Am.   | 500   | New York        | 465    | W J Z    |           |           | X         |            | X         |            | X         |            |           |            | X         |            | X         |            |
| Herald              | 1000  | Calgary         | 120    | C F A C  | X         | Y         |           |            | X         |            |           |            | X         | X          |           |            |           |            |
| W. W. Grant         | 500   | Calgary         | 440    | C K C X  |           |           |           |            | 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     | 426    | 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        | 1800  | Springfield     | 337    | W B Z    |           |           |           |            |           |            |           |            |           |            | X         | X          | X         | X          |
| Westinghouse        | 1000  | Pittsburg       | 328    | K O K A  |           |           | X         | X          | X         |            |           |            | X         | X          | X         |            |           |            |

# Radio Supplies

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            |
| Apex Tubes.....                                         | 4.00            |
| 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 Sodian 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            |
| Sodium Tubes, ¼ amps. Amplifier Tube.....               | 4.50            |
| 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 Chargers, 50 cyc., 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   |
|-----------------------------------------|--------|--------|
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| 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    |

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1924 Price List Now Ready

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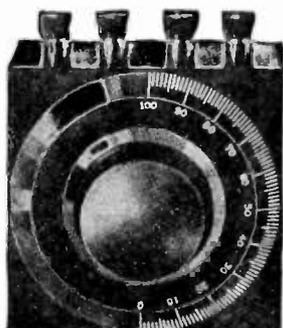
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Los Angeles, California

*Our New and Complete Price List Now Ready*



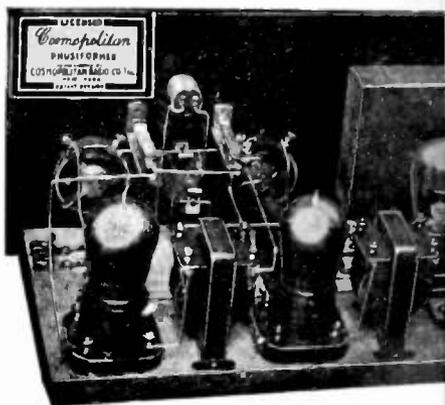
## The Missing Link in Radio



**Phusiformer**  
**\$9.50**

**RADIO SUPPLY COMPANY**  
920 South Broadway  
LOS ANGELES, CALIF.

# Cosmo



## Recei

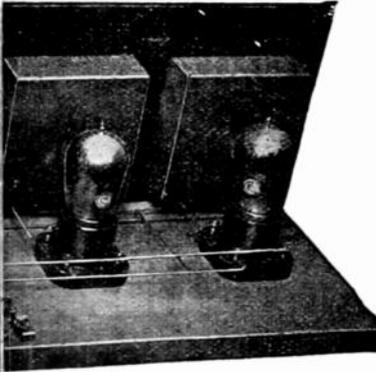
These three Radio Achievements are revolutionizing Radio Reception, because they incorporate within their construction features which are filling a long felt demand for the following:

1. *No oscillation (squeals and howls)*
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3. *Sensitive to distant stations*
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6. *Selectivity*
7. *Simple construction and operation*
8. *Inexpensive conversion of Regenerative*

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**COSMOPOLITAN PH**  
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**SURE SALES CO. - 123**

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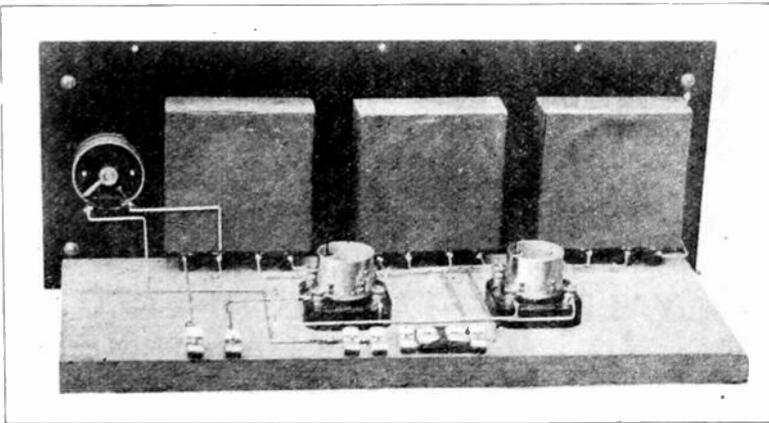


*Natural  
Reproduction  
Selectivity  
Volume*

Rear view of the Cosmopolitan Conversion Plusiform 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.

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## Converter

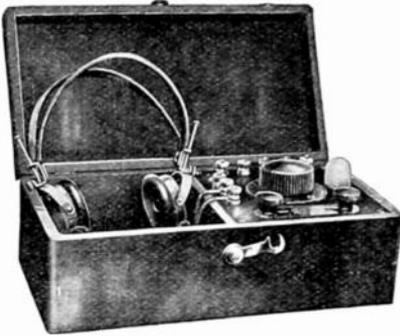
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*For Your Summer Trips*



**Connecticut Portable**  
With Sodian Tube and  
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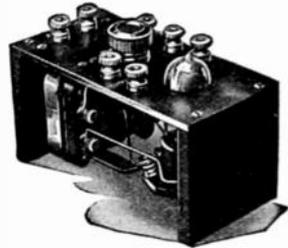
**Connecticut Portable**  
3-Tube Set

Operates loud speaker. Complete with one Sodian detector tube, two 199 tubes, batteries, phones, etc.

**\$73.50**

**Connecticut Portable**  
**Amplifier Unit**

Adaptable to any set—\$10.00



## THE NEW YALE CRYSTAL RECTIFIER

For reflex or crystal sets. The one semi-fixed detector that is sensitive, good for distance, and will give volume. Gold contact is adjustable, and crystal may be replaced. Moulded bakelite with polished aluminum cap, for panel or base mounting.

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Times Building, First and Broadway, Los Angeles. Owned and Operated by Los Angeles Times  
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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 to 7:00 p. m., Music Memory Contest conducted by the Fitzgerald Music Company.

2:30 to 3:30 p. m. Daily except Sunday and Monday. Matinee musicale.

WEEK COMMENCING SUNDAY, MAY 25, 1924

**SUNDAY, MAY 25—**

10:00 a. m.

Sermon from KHJ studio by Rev. Hoyt, pastor of the Santa Susana Congregational Church.

10:30 to 12:30 p. m.

Organ recital and entire religious service from the First Methodist Episcopal Church; Arthur Blakeley organist, and Rev. Elmer E. Helms pastor.

6:00 to 6:30 p. m.

Music Memory Contest conducted by Fitzgerald Music Co., arranged by Raymond Harmon.

6:30 to 7:00 p. m.

Art Hickman's Concert Orchestra from the Biltmore Hotel.

7:00 to 7:30 p. m.

Organ recital from the First Methodist Episcopal Church; Arthur Blakeley organist.

8:00 to 10:00 p. m.

Program arranged through the courtesy of Harry C. Knox, flutist.

**MONDAY, MAY 26—**

12:30 to 1:15 p. m.

Program presenting E. M. Bonnell, "Uncle Remus," through courtesy of Barnes Music Co. Carl Allen and his Rendezvous Orchestra from Ocean Park.

**TUESDAY, MAY 27—**

12:30 to 1:15 p. m.

Program presenting White's Californians, through the courtesy of the La Raza Palm Grove.

6:30 to 7:00 p. m.

Music Memory Contest conducted by Fitzgerald Music Co., arranged by Raymond Harmon.

7:00 to 7:30 p. m.

Children's program presenting Prof. Walter Sylvester Hertzog. The weekly visit of the Sandman and Queen Titania. Melba Dutcher, singer, 13 years old, pupil of Janie Bolen. Elizabeth Biggs, p.a.n.st, 11 years old, pupil of Lillian Norman Duncan.

8:00 to 10:00 a. m.

Program arranged through the courtesy of Floryane Thompson, soprano.

**WEDNESDAY, MAY 28—**

12:30 to 1:15 p. m.

Program presenting Stuart Watson, baritone. Joseph E. Smith, pianist. Fred C. McNabb of Aggler and Musser Seed Co.

6:45 to 7:30 p. m.

Children's program presenting Prof. Walter Sylvester Hertzog. Pupils of Mabel M. Hamer, piano, songs and readings.

8:00 to 9:00 p. m.

Program arranged through the courtesy of Bruce A. Findlay.

9:00 to 10:00 p. m.

Program presenting Dr. Mars Baumgardt, lecturer. The Studebaker Radio Orchestra of Long Beach, through the courtesy of the Glenn Thomas Co.

10:00 to 11:00 p. m.

Art Hickman's Dance Orchestra from the Biltmore Hotel.

**THURSDAY, MAY 29—**

12:30 to 1:15 p. m.

Program arranged through the courtesy of Clyde Sheldon Sheppar. Children's program presenting Prof. Walter Sylvester Hertzog.

6:45 to 7:30 p. m.

Weekly visit of Dickie Brandon, screen juvenile. Victoria Louise Kerner, screen juvenile. Doris Snowdon, pianist, 14 years old, pupil of Lillian Norman Duncan. Bedtime story by Uncle John.

8:00 to 9:00 p. m.

Program presented through the courtesy of the Fitzgerald Music Co.

9:00 to 10:00 p. m.

Program presenting Ruth Ryan Pederson, mezzo-soprano.

**FRIDAY, MAY 30—**

12:30 to 1:15 p. m.

Special program for Decoration Day.

6:45 to 7:30 p. m.

Children's program presenting Prof. Walter Sylvester Hertzog. Weekly visit of Richard Headrick, screen juvenile.

8:00 to 9:00 p. m.

Special program for Decoration Day.

9:00 to 10:00 p. m.

All-American program arranged through the courtesy of Tilda Rohr, contralto.

**SATURDAY, MAY 31—**

12:30 to 1:15 p. m.

Program presenting Albert Broad, tenor; Reginald Martin, pianist-composer.

6:45 to 7:30 p. m.

Children's program presenting Prof. Walter Sylvester Hertzog. Marjorie Thornton, pianist, 14 years old, pupil of Ethel Sanborn. Moreau Clark, reader, pupil of Inez Norris Moore. Onolee Jones, 11 years old, cellist and reader. Bedtime story by Uncle John.

8:00 to 10:00 p. m.

Program arranged through the courtesy of J. Howard Johnson.

**RADIOLAS****GREBES****"Note Our New Address"****COAST RADIO**

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Phone El Monte 110

**ECHOPHONES****PARTS**

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and

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(Including the Super-Heterodyne)

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| Los Angeles Evening Herald: | 5:00 to 5:30 p. m.   | Daily except Sunday         |
|                             | 8:00 to 9:00 p. m.   | Monday, Wednesday, Friday   |
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|                             | 10:00 to 11:00 p. m. | Monday                      |
|                             | 11:00 to 12:00 p. m. | Wednesday, Friday, Saturday |

### SUNDAY, MAY 25—

|                      |                                      |
|----------------------|--------------------------------------|
| 10:00 to 10:45 a. m. | L. A. Church Federation service.     |
| 4:00 to 5:00 p. m.   | Matinee Musicale.                    |
| 6:45 to 7:30 p. m.   | Sylvia Marotta, pianist, and pupils. |
| 8:00 to 9:00 p. m.   | Ambassador Hotel concert.            |
| 9:00 to 10:00 p. m.  | Examiner concert.                    |
| 10:00 to 1:00 p. m.  | Packard Six Orchestra.               |

### MONDAY, MAY 26—

|                      |                                                    |
|----------------------|----------------------------------------------------|
| 5:30 to 6:00 p. m.   | Examiner News Bulletins.                           |
| 9:00 to 10:00 p. m.  | Examiner concert.                                  |
| 10:00 to 11:00 p. m. | Ambassador-Max Fisher's Cocomanut Grove Orchestra. |

### TUESDAY, MAY 27—

|                      |                                                    |
|----------------------|----------------------------------------------------|
| 5:30 to 6:00 p. m.   | Examiner News Bulletins.                           |
| 6:45 to 7:30 p. m.   | Vocal concert by Gage Christopher.                 |
| 8:00 to 9:00 p. m.   | Ambassador-Max Fisher's Cocomanut Grove Orchestra. |
| 9:00 to 10:00 p. m.  | Examiner concert.                                  |
| 10:00 to 11:00 p. m. | Fullerton Radio Broadcasters.                      |

### WEDNESDAY, MAY 28—

|                      |                                                    |
|----------------------|----------------------------------------------------|
| 5:30 to 6:00 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 Fisher's Cocomanut Grove Orchestra. |

### THURSDAY, MAY 29—

|                      |                                  |
|----------------------|----------------------------------|
| 5:30 to 6:00 p. m.   | Examiner News Bulletins.         |
| 6:45 to 7:30 p. m.   | Y. M. C. A. concert and 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 p. m. | Harry Girard and pupils.         |

### FRIDAY, MAY 30—

|                      |                                                    |
|----------------------|----------------------------------------------------|
| 5:30 to 6:00 p. m.   | Examiner News Bulletins.                           |
| 6:45 to 7:30 p. m.   | Vocal concert.                                     |
| 9:00 to 10:00 p. m.  | Examiner concert.                                  |
| 10:00 to 11:00 p. m. | Oscar Seiling and Louise Gunning.                  |
| 11:00 to 12:00 p. m. | Ambassador-Max Fisher's Cocomanut Grove Orchestra. |

### SATURDAY, MAY 31—

|                      |                                                    |
|----------------------|----------------------------------------------------|
| 5:30 to 6:00 p. m.   | Examiner News Bulletins.                           |
| 6:45 to 7:30 p. m.   | Vocal concert.                                     |
| 8:00 to 9:00 p. m.   | Altheda Oliver in all-American concert.            |
| 9:00 to 10:00 p. m.  | Examiner concert.                                  |
| 10:00 to 11:00 p. m. | Popular song concert.                              |
| 11:00 to 12:00 p. m. | Ambassador-Max Fisher's Cocomanut Grove Orchestra. |

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MONDAY, MAY 26—

8:00 to 9:00 p. m. Evening Herald Radiolians. Popular dance music and other entertainers.

WEDNESDAY, MAY 28—

8:00 to 9:00 p. m. Program courtesy of Radio Concert Equipment Company.

FRIDAY, MAY 30—

8:00 to 9:00 p. m. Radio Sketch. Milly Milstein and Bob Horwitz singing and playing their own compositions.

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SUNDAY, MAY 25—

10:45 to 12:30 noon. Regular services of the Church of the Open Door, including sermon by Rev. John A. Hubbard. Mr. C. M. Books, baritone; Mr. Paul S. McConnell, organist.

6:00 to 6:45 p. m. Radio Vesper Service with sermon by Rev. John A. Hubbard. Miss Paulene Plummer, organist. Vocal duets by Rev. and Mrs. John A. Hubbard.

8:00 p. m. Sermon by Dr. Ralph Atkinson. Mrs. Irvin S. Fallis, soprano. Mr. Paul S. McConnell, organist.

TUESDAY, MAY 27—

8:00 to 9:00 p. m. Organ selections. Selections by Girls' Glee Club of the California Bible College. Herbert C. Richert, director and bass soloist. Miss Florence Wise, soprano soloist. Mr. Luther Hoobyar, tenor soloist. Vocal duets, Messrs. Robert and Luther Hoobyar. Piano solos.

THURSDAY, MAY 29—

8:00 to 9:00 p. m. Organ selections. Miss Mildred Colville, contralto. Miss Lucille McArthur, violinist. Dr. J. L. Leavel, tenor, accompanied by Mrs. J. L. Leavel

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Gladwyn N. Nichols, Announcer; Essie Binkley Locy, Hostess; K. G. Ormiston, Operator

### SUNDAY, MAY 25—

- 10:30 to 12:30 p. m. Great organ and chimes by Esther Fricke Green. John H. Kennedy, baritone; Blanche Scott, soprano. Revival sermon, Aimee Semple McPherson.
- 2:30 to 4:30 p. m. Temple Silver Band; choir; Frank E. Brown, baritone; Archie S. Hood, tenor. Evangelistic address, Aimee Semple McPherson.
- 7:00 to 7:30 p. m. Jennie M. Durkee, world's greatest ukulele soloist; male quartet; Thomas Johnson, California's golden-voiced negro baritone, singing "Abide With Me"; Temple Silver Band; choir.
- 8:00 to 10:00 p. m. Illustrated redemption message, Aimee Semple McPherson.

### TUESDAY, MAY 27—

- 3:30 to 4:00 p. m. Organ recital, Esther Fricke Green.
- 4:00 to 5:30 p. m. Selma Johanson, Swedish singer and accordion soloist; John Walker, tenor; Marion McGlashan Muller, Salvation Army soloist; Eva Jenkinson, evangelistic singer; Dorothy Sauter, 'cello soloist; Blanche Scott, soprano.
- 6:30 to 7:30 p. m. Kozy Hour. Mr. and Mrs. A. T. Heard, cornet and trombone duets; Alice Ross Treadwell, whistler; Inez Lasley, soprano; Eva G. Hathaway, violinist; Frank E. Brown, baritone; "Mother's Story"; R. R. Brignall, accompanist and soloist.
- 8:00 to 9:00 p. m. Great Auditorium service; evangelistic message, Aimee Semple McPherson.
- 9:00 to 10:00 p. m. Gray Studio program furnished by the Sierra Trio of Pasadena—M. Daisy Thomson, soprano and 'cello soloist—Louis H. Nott, violinist; Frances E. Woods, accompanist and soloist. The Swanee Jubilee Singers, under direction of Mr. Hall, singing those old Southern plantation melodies. "Taps."
- 10:00 to 10:30 p. m. Organ recital, Roy Reid Brignall.

### WEDNESDAY, MAY 28—

- 2:30 to 4:30 p. m. Divine Healing service. Sermon, Aimee Semple McPherson.
- 6:30 to 7:30 p. m. Kozy Hour. Children's program, presenting Anna Lacey, child soprano; Francis Floto, bird whistler; A. J. W. Galbraith, basso; "Mother's Good Night Story"; Ruth Thomas, accompanist

### THURSDAY, MAY 29—

- 3:30 to 4:30 p. m. Organ recital and program, courtesy of B. Earnest Ballard and assisted by Margaret Kennedy, lyric soprano, and Harold Lloyd, tenor.
- 4:30 to 5:30 p. m. Amando Fernandez, master artist, dramatic tenor, singing in five different languages; Sarah Karcher, violinist; Mrs. W. C. Corning, soprano; Grace Springsted, contralto; R. R. Brignall, accompanist.
- 6:30 to 7:30 p. m. Kozy Hour. Children's program, courtesy Harry James Beardsley (Cousin Jim) and his associates. "Mother's Fireside Story."
- 8:00 to 9:00 p. m. "Splashing Waters," baptismal service. Sermon, Aimee Semple McPherson.
- 9:00 to 10:00 p. m. Gray Studio program; Jennie M. Durke, ukulele soloist; Angelus Temple Choir; Temple Male Quartet; "Meditation."

### FRIDAY, MAY 30—

- 3:30 to 4:00 p. m. Organ recital, Roy Reid Brignall.
- 4:00 to 5:30 p. m. Hazel Lankogel, violinist; Madeline Gilliland, "Happy Song Girl"; Ruth Russell, soprano; Thomas Johnson, baritone; Anna McMillan, reading.
- 6:30 to 7:30 p. m. Kozy Hour. Blanche Clay, soprano; S. T. Lashbrook, tenor; Clella Pough, saxophone, and Essie Binkley Locy, cornet, in solos and duets; "Boys and Girls of Long Ago," a bedtime story by "Mother"; Crusaders' meeting. National address by Judge Carlos S. Hardy, Justice Superior Court; Madeline Gilliland, "Happy Song Girl"; the Pacific Electric Choral Society of fifty voices, under the leadership of Prof. H. Womersley, will render the beautiful cantata, "The Man Without a Country." Soloists: Mrs. Myrtle Huber, soprano; Mrs. H. Womersley, alto; Mrs. Theo. F. Shafer, alto; Mrs. Maude Dickens Womersley, narrator, assisted by the Ulmer Orchestra.
- 9:00 to 10:00 p. m. Gray Studio program, courtesy J. B. Poulin, teacher of voice, director of Ellis Club and Woman's Lyric Club; Temple Silver Band.

### SATURDAY, MAY 31—

- 3:30 to 4:00 p. m. Program courtesy of Mrs. Elizabeth Hughes, assisted by little children, in reading, vocal and instrumental numbers.
- 4:00 to 5:00 p. m. John H. Kennedy, baritone; Grace Waldron, soprano; E. E. Colebaugh, lyric tenor; J. Harold Forshaw, accompanist and soloist; Baby Jeanne DeBard, age 5, singing and playing own accompaniment.
- 5:00 to 5:30 p. m. Organ recital, Roy Reid Brignall.
- 6:30 to 7:30 p. m. Kozy Hour. Children's program presenting Gertrude Wilding, child soprano; May West and Onita Brown, duets; Maude Gile, age 13, child pianist; "Mother's Story"; James R. Hood, baritone; Ada Lantz, soprano; Archie S. Hood, tenor; Alma Lowe Creighton, contralto; Jessie McDonald Patterson, pianist; R. R. Brignall, accompanist and soloist.

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WEDNESDAY, MAY 28—7:00 p. m.

THURSDAY, MAY 29—2:50 to 3:30 p. m.

FRIDAY, MAY 30, 9:10 p. m.

California Theatre Concert Orchestra of fifty musicians; Carli D. Elinor, director. Concert program given in conjunction with the photoplay "Maytime," the current attraction at the California Theatre.



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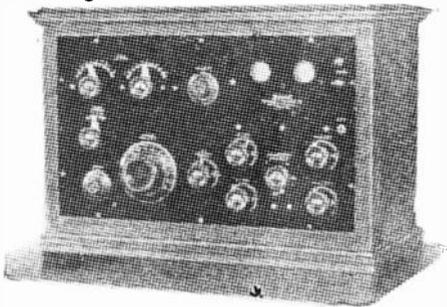
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3:00 to 5:00 Daily (except Sunday and Monday) Baseball scores, all leagues.

### SUNDAY, MAY 25—

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

### MONDAY, MAY 26—

8:00 to 9:00 p. m. Educational program, consisting of talks and lectures by professors of the University of California, broadcast direct from the University over private leased wires through KLX.

9:00 to 10:00 p. m. Orchestra music broadcast from the studio.

### WEDNESDAY, MAY 28—

8:00 to 10:00 p. m. Studio program. 1. Instrumental selections, Group 1, the KLX Concert Trio. 2. Vocal solos: (a) The Awakening (Mason); (b) A Gift for You (D'Hardelot), Minna C. Carter. 3. Violin solo, selected, Harriet French. 4. Vocal solos with violin obligato: (a) The Deathless Army (Trottere); (b) The Dawn (D'Hardelot), Charles A. Steele; piano accompaniment by Mrs. James Hays, with violin obligato by Mr. James Hays. 5. Vocal solos: (a) Fallen Leaf (Logan); (b) The Spring Has Come (White), Alice M. Rice; Miss Hollis, accompanist. 6. Instrumental selections, Group 2, The KLX Concert Trio. 7. Vocal solos by Minna C. Carter: (a) I Love Thee (Wildenberg); (b) As We Part (Ilgenfrtzt). 8. Overture by the American Theater Orchestra, Owen Sweeten, director, broadcast direct from the theater through KLX over private leased wires. 9. Cello solo, selected, Joziena Vander Ende. 10. Vocal solos: (a) The Lilac Tree (Sartlan); (b) The Little Damozel (Novello), Alice M. Rice; Miss Martharayne Hollis, accompanist. 11. Piano solos: (a) Andante Finale de Lucia di Lammermoor (Leschetizky).

### FRIDAY, MAY 30—

8:00 to 10:00 p. m. Studio program, "Shenandoah," by Bronson Howard; famous four-act play of Civil War Time, presented by the newly formed KLX Players, under the direction of Etta Wilson Coleman. Cast: "Kerchival West," L. Spencer Riley; "Jenny Buckthorn," Etta Wilson Coleman; "Gertrude Ellingham," Marie Louise Meyers; "Robert Ellingham," John Barrier; "Madel'ne West," Ethel Johns; "General Buckthorn," John Fahey; "General Haverill," Roger Burnham; "Constance Haverill," Mrs. Roger Burnham; "Captain Heartsease," Carvl Coleman; "Edward Thornton," John Collier; "Frاند Bedloe," Irving Hazeltine; "Edith Bedloe," Eugenie Houck; "Sergeant Barket," E. Ferguson Spelker; "Major Hartwick" and "Captain Lockwood," Robert Southgate; "Corporal Dunn," Charles Spaan; "Marbery," Mary Prescott. Music by Senor Marras' orchestra. This play, upon the occasion of its first presentation by radio, is dedicated to the men of the Blue and Gray, who yesterday faced each other in deadly conflict, but who today meet on common ground as comrades and veterans, to share the love of a united country. Act 1—Scene laid in the old Ellingham homestead in Charlestown harbor, just overlooking the Charleston fort. Time, about 1861, just before the shot was fired on Fort Sumter. Act 2—Scene, still the Ellingham homestead. Action takes place in the Ellingham garden, with Three Top Mountain rising in the distance. Time, at twilight, about three years later than first act. Troops are in camp. Act 3—Scene, same as second act, next day. Battle in progress. General Sheridan's ride terminates. Act 4—In the home of General Buckthorn in Washington, D. C., after the war is over and the troops are returning home.



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(Pacific Time)

WEEK OF MAY 25, 1924

## SUNDAY, MAY 25—

3:30 p. m.

## MONDAY, MAY 26—

1:30 p. m.

3:00 p. m.

4:00 to 5:30 p. m.

6:45 p. m.

8:00 p. m.

## TUESDAY, MAY 27—

1:30 p. m.

4:00 to 5:30 p. m.

6:45 p. m.

8:00 p. m.

10:00 p. m. to 1:00 a. m.

## WEDNESDAY, MAY 28—

1:30 p. m.

3:00 p. m.

4:00 to 5:30 p. m.

6:45 p. m.

## THURSDAY, MAY 29—

1:30 p. m.

4:00 to 5:30 p. m.

6:45 p. m.

8:00 p. m.

## FRIDAY, MAY 30—

1:30 p. m.

3:00 p. m.

4:00 to 5:30 p. m.

6:45 p. m.

## SATURDAY, MAY 31—

12:30 noon.

4:00 to 5:30 p. m.

6:00 p. m.

10:00 p. m. to 1:00 a. m.

Concert by KGO Little Symphony Orchestra and soloists.

New York Stock Exchange and U. S. Weather Bureau reports. Short musical program. Address in connection with series of talks on "The Health of the Child," given by the Parent-Teacher Association.

Hotel St. Francis Dance Orchestra, San Francisco, Henry Halstead, leader.

Final reading, stock exchange and weather reports, and news items. Educational program, with musical numbers. Courses in Agriculture, Spanish, Music, Economics and Literature.

New York Stock Exchange and U. S. Weather Bureau reports.

Concert Orchestra of the Hotel St. Francis, San Francisco, Fermin Cardona conducting.

Final reading, stock exchange and weather reports, and news items. Musical program. Address by Guy B. Kibbee, "Something More."

Hotel St. Francis Dance Orchestra, San Francisco, Henry Halstead leader.

New York Stock Exchange and U. S. Weather Bureau reports.

Short musical program. Address by Leila A. Wilson on the subject "The Establishing of Habits of Health in Children."

Concert Orchestra of the Hotel St. Francis, San Francisco, Fermin Cardona conducting.

Final reading, stock exchange and weather reports, and news items.

New York Stock Exchange and U. S. Weather Bureau reports.

Concert Orchestra of the Hotel St. Francis, San Francisco, Fermin Cardona conducting.

Final reading, stock exchange and weather reports, and news items. Radio drama, "Peg o' My Heart." Music by Neapolitaine Trio.

New York Stock Exchange and U. S. Weather Bureau reports.

Short musical program. Poems by Lillian Craner Caen, read by Wilda Wilson Church.

Concert Orchestra of the Hotel St. Francis, San Francisco, Fermin Cardona conducting.

Final reading, stock exchange and weather reports, and news items.

New York Stock Exchange and U. S. Weather Bureau reports.

Concert Orchestra of the Hotel St. Francis, San Francisco, Fermin Cardona conducting.

Musical program. Feature numbers furnished by A. Capella Choir, San Jose, California.

Hotel St. Francis Dance Orchestra, San Francisco, Henry Halstead leader.

TUESDAY, MAY 27, 8:00 P. M.

Instrumental Selections—(a) Selections from Faust (Gounod); (b) Slavonic Dance (Dvorak) . . . . . Arion Trio

Vocal Selections—(a) Ave Maria (Schubert), three-part song for women's voices and soprano solo, with piano, organ and violin; (b) Serenade, Sing, Smile, Slumber (Gounod) . . . . . California Ladies' Quartet  
Claire Upshur, first soprano; Laura Broderick, second soprano; Eva Gruinger Atkinson, first alto; Ruth Waterman, second alto.

Baritone Solo—Toreador Song, from "Carmen" (Bizet) . . . . . Marion Vecki

Soprano Solos—(a) Come, Dance the Romaika (Liza Lehmann); (b) Such a Li'l Feller (Dichmont) . . . . . Claire Harsha Upshur

Piano Solo—Mazurka (Mlynarsky) . . . . . Joyce Holloway Batbelson

Reading—"Something More" (Woodbridge), Smith-Digby Co., Tacoma, Wash. . . . . Guy B. Kibbee

Bass Solos—(a) Rolling Down to Rio (German); (b) in the Harbor of Home, Sweet Home

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- (Carey) ..... E. Scott Beebe  
 Contralto Solos—(a) The Danza, Chadwick (Schmidt); (b) Ever of Thee (Foley)  
 Ruth Waterman  
 Instrumental Selections—(a) Medley of Old Favorites; (b) March of the Wooden Soldiers  
 Arion Trio  
 (Jessel)  
 Baritone Solo—Serenade, from "Don Juan" (Mozart) ..... Marion Vecchi  
 Vocal Selections—(a) Who Is Sylvia? (Schubert); (b) Bonnie, Sweet Bessie (Gilbert)  
 California Ladies' Quartet  
 Soprano Solos—(a) Parla (Arditti); (b) Kathleen Mavourneen (Crouch) ..... Laura Broderick  
 Lecture—The Science of Properly Raising Children ..... Max Horwinski  
 Duets for Soprano and Contralto—(a) Whispering Hope (Hawthorne); (b) Nearest and  
 Dearest, Tuscan Folk Song (Caracciolo) ..... Claire Harsha Upshar and Ruth Waterman  
 Mezzo-Soprano Solo—In an Old-Fashioned Town—Squires (Boosey) ..... Eva Gruningier Atkinson  
 Bass Solos—(a) In Cellar Deep (Fischer); (b) Sierra Sue (Carey) ..... E. Scott Beebe  
 Vocal Selections—(a) Lost Chord (Sullivan); (b) Oloha Oe (Hawaiian Melody)  
 California Ladies' Quartet  
 Instrumental Selection—Sizilietta (von Blon) ..... Arion Trio

**THURSDAY, MAY 29, 8:00 P: M:**  
 "PEG O' MY HEART"

- CAST: Mrs. Chichester, Florence Palmer; Aleric, David Barnwell; Ethel, Evelyn Avery; Montgomery Hawkes, Conrad Kahn; Christian Brent, Davir Barnwell; Jarvis, Conrad Kahn; Bennett, Kate Brown; Jerry, Howard Irwin; Peg, Mary Harper.  
 A drama in three acts played by the KGO Players, under the direction of Wilda Wilson Church.  
 Scene—The Library in Mrs. Chichester's home, England. Time—The present.  
 Instrumenta Selections—(a) Sweetheart March (Corri-Bennet); (b) Aubade (Lacombe)  
 Neapolitaine Trio  
 ACT I—Instrumental Selection: Souvenir (Drdla) ..... Neapolitaine Trio  
 ACT II—Instrumental Selection: Glow Worm (Lincke) ..... Neapolitaine Trio  
 ACT III—Instrumental Selections: (a) Hungarian Dance (Brahms); (b) Rendezvous  
 (Aletter) ..... Neapolitaine Trio

**SATURDAY, MAY 31, 8:00 P. M.**

Program furnished by the A. Capella Choir of the College of the Pacific, San Jose, California, C. M. Dennis, director

- Instrumental Selection—Kamennoi-Ostrow (Rubenstein) ..... Arion Trio  
 Vocal Selections—(a) Blessing and Glory (Rachmaninoff); (b) Glory to the Trinity (Rachmaninoff) ..... The A. Capella Choir  
 Soprano Solos—(a) By the Fountain (Ware); (b) Snow Fairies (Forsyth); (c) I've Been  
 Roaming (Horn) ..... Esther Hornaday  
 Vocal Selections—(a) An Eriskay Love Lilt (Robertson); (b) The De'is Awa' (DeLamarter) ..... The A. Capella Choir  
 Instrumental Selection—Largo (Handel) ..... Arion Trio  
 Tenor Solos—(a) Rest at Eventide (Baynton-Power); (b) At Eve I Heard a Flute (Strickland) ..... Kenneth MacKenzie  
 Vocal Selections—(a) The Death Croon (Bantock); (b) Merry Yuletide (Rimsky-Korsakoff) ..... The A. Capella Choir  
 Vocal Duet—Come Mallika, from "Lakme" (Delibes) ..... Olive Bryson and Dorothy Dennis  
 Instrumental Selection—Meditation, from "Thais" (Massenet) ..... Arion Trio  
 Baritone Solos—(a) Hear Me, Ye Winds and Waves (Handel); (b) Dun (McGill); (c) Song of the Clock (Burchell) ..... Walline Knoles  
 Soprano Solos—(a) Waltz Song, from "Romeo and Juliet" (Gounod); (b) Little Lad o' Dreams (Lemont); (c) Villanelle (Dell'Acqua) ..... Olive Bryson  
 Violin Solo—Obertass (Wieniawski) ..... Josephine Holub  
 Vocal Selections—(a) Night Whispers (von Moellendorff); (b) A Spring Ditty (Gaul) ..... The A. Cappella Choir  
 Piano Solos—(a) Fantasie (Chopin); (b) Elfin Dance (MacDowell) ..... Bernice Rose  
 Soprano Solos—(a) We Go This Way But Once (Nevin); (b) June Is in My Heart (Vaughan); (c) I Am the Night Wind (Gaul) ..... Dorothy Dennis

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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.

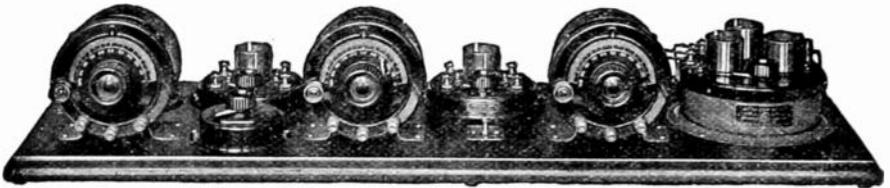
#### SATURDAY—

8:00 to 12:00 p. m. Art Weldmer's Fairmont Hotel Dance Orchestra.

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### KFAE—State College of Washington—330 Meters

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

MONDAY, MAY 26—

Violin solos, Raymond Howell, Pullman. Chemistry Applied to Agriculture, Prof. J. L. St. John. Flute solos, Percy Severance, Pullman. Value of Cow Testing Tours, Don G. Magruder. Soprano solos, Miss Vay Kerns, Palouse. Piano numbers, Ivor Melander, Pullman.

WEDNESDAY, MAY 28—

State College of Washington Military Band. Curtains and Draperies, Dean Florence Harrison. Violin solos, William Just, Ritzville. The Climate of Washington, Prof. F. J. Sievers. Soprano solos, Miss Mary Keeth, Spokane. Know Your Enemies (insect pest talk), Lincoln Lounsbury. "Down at the Station," one-act play by students of Mrs. Miller.

FRIDAY, MAY 30—

Orchestra numbers. The Science of Geology, Arthur Kralowec, Auburn. Soprano solos, Miss Ruth Wilkins, Greenacres. Seed Potatoes, George L. Zundel. Instrumental solos. Books you should read, Miss Alice L. Webb.

### KFOA—Pacific Northwest Station—455 Meters

RHODES DEPARTMENT STORE, ARCADE SQUARE, SEATTLE, WASH.  
Pacific Time

CARL E. HAYMOND, Program Announcer

MONDAY, MAY 26—

8:30 p. m. A Radio Recital given by James Hamilton Howe, dean of the American College of Music, assisted by faculty, students and guest artists. The feature of the program will be several groups of octet pianoforte selections. Those who will participate in the octet numbers are as follows: James H. Howe, M. E. Pederson, E. Jernberg, C. Turner, Jean Black, Lillian Cease, Mrs. R. H. Marsten, Lois Catton, Alice Herzman, Mrs. Roten, Naomi Kelly, E. M. Parenteau. Vocal selections by Chester Roberts, Frank Burns, Leo McCoy, Mrs. D. C. Reid, Dr. Lewis Maxson and Corine Munson. Clarinet solos by Roy O. Dever. The concluding selection being "Our Washington" (Washington State song), sung by the entire chorus.

WEDNESDAY, MAY 28—

8:30 p. m. Seattle Chamber of Commerce program, consisting of vocal and instrumental selections, and featuring some interesting talks by members of the Chamber.

FRIDAY, MAY 30—Decoration Day. No program.

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# KGW—The Morning Oregonian—492 Meters

PORTLAND, OREGON  
(PACIFIC TIME)

PROGRAM FOR WEEK OF MAY 25 TO MAY 31, 1924

## SUNDAY, MAY 25—

- 6:00 p. m. Church services conducted by Rev. A. B. Snider, Executive Secretary, Portland Council of Churches.  
7:00 p. m. George Olsen's concert orchestra in dinner program; baseball scores.

## MONDAY, MAY 26—

- 3:30 p. m. Literary program by Portland Library Association.  
8:00 p. m. Official Rose Festival Invitational program.  
9:30 p. m. Program by Gul Reazee Grotto.

## TUESDAY, MAY 27—

- 11:15 a. m. Market Basket.  
12:30 p. m. Concert by Civic Music Club of Portland.  
3:30 p. m. Talk by Jeanette P. Cramer, home economics editor of The Oregonian.  
7:45 p. m. Talk for farmers, Oregon Agricultural College extension service.

## WEDNESDAY, MAY 28—

- 11:15 a. m. Window Shopping.  
12:30 p. m. Concert by Darby's Orchestra of Cotillion Hall.  
3:30 p. m. Children's program.  
8:00 p. m. Concert by Columbia Theater All-Artist Orchestra, Harry Linden, director.  
9:00 p. m. Alexander Hamilton Institute Business talk by James Albert.  
10:00 p. m. Dance music by George Olsen's Metropolitan Orchestra of the Hotel Portland. Intermission numbers by Maybelle McNutt, pianist.

## THURSDAY, MAY 29—

- 11:15 a. m. Window Shopping.  
12:30 p. m. Concert provided by Seiberling Lucas Music Co.  
3:30 p. m. Woman's story program. Installment of "The Midlander," by Booth Tarkington.  
8:15 p. m. Studio program of dance music by George Olsen's Metropolitan Orchestra of Hotel Portland, Herman Kenin, director.  
10:00 p. m. Dance music by George Olsen's Metropolitan Orchestra of the Hotel Portland.

## FRIDAY, MAY 30—

- 11:15 a. m. Market Basket.  
12:30 p. m. Program by Peck Holton's Orchestra of The Wintergarten.  
3:30 p. m. Lecture by Jessie D. McComb, head of Home Economics Extension Service, Oregon Agricultural College.  
8:00 p. m. Special Memorial Day program.  
10:30 p. m. Hoot Owls.

## SATURDAY, MAY 31—

- 3:00 p. m. Children's program. Story by Aunt Nell.  
10:00 p. m. Baseball scores, weather forecast and dance music by George Olsen's Metropolitan Orchestra of Hotel Portland. (2 hours.)

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## DAILY—FEATURES—

### SUNDAY, MAY 25—

- 9:00 to 10:00 a. m. Complete services of the First Presbyterian Church. Rev. J. K. Thompson, pastor.
- 2:00 to 3:00 p. m. Organ concert from the Rialto Theater, Miss Marguerite Agnew White, organist.
- 3:00 to 4:00 p. m. Concert by Sallie Belle Matthews' Orchestra.
- 5:00 p. m. Sport Review.
- 9:00 to 10:00 p. m. Popular program by Crockett's Texans Orchestra.

### MONDAY, MAY 26—

- 5:30 to 6:30 p. m. Concert by the Carl Venth Club of Texas Woman's College.
- 7:30 to 8:45 p. m. Concert by the Roanoke Fiddle Band, B. F. Hambright, director.

### TUESDAY, MAY 27—

- 5:30 to 6:30 p. m. Concert by the band of Josephine, Texas, D. G. Coffman, director.
- 7:30 to 8:45 p. m. Concert arranged by Carl Venth and E. T. Croft.

### WEDNESDAY, MAY 28—

- 5:30 to 6:30 p. m. Concert by the R. E. Lee Society of Denton, Texas.
- 7:30 to 8:45 p. m. Concert by Dick Gaines' Dance Orchestra.

### THURSDAY, MAY 29—

- 5:30 to 6:30 p. m. Concert by John Dyers' old time fiddlers of Cleburne.
- 7:30 to 8:45 p. m. Monthly organ concert by Will Foster, organist of the First Methodist Church.

### FRIDAY, MAY 30—

- 5:30 to 6:30 p. m. Concert by Westminster College of Tehuacana, Texas; directed by M. L. Martin.
- 7:30 to 8:45 p. m. Concert by talent from Henrietta, Texas.

### SATURDAY, MAY 31—

- 5:00 to 6:40 p. m. Review of the International Sunday School lesson and Radio Bible class by Mrs. W. F. Barnum.

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**W F A A—Dallas News-Journal—476 Meters**(PACIFIC TIME) DALLAS, TEXAS  
SPECIAL DAILY FEATURES

- MONDAY, MAY 26—**  
 10:30 to 11:00 a. m. Address, Dr. Ellis W. Shuler, department of geology, Southern Methodist University, on "Rocks and Fertility."  
 6:30 to 7:30 p. m. Musical program presenting W. B. Chenoweth and his Cornfield Symphony Orchestra.
- TUESDAY, MAY 27—**  
 10:30 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. Musical recital by the Mozart Choral Club, Earle D. Behrends directing.  
 9:00 to 10:00 p. m. The Texans, an orchestra, R. L. Keith directing, in popular music recital.
- WEDNESDAY, MAY, 28—**  
 10:30 to 11:00 a. m. Musical program presenting the Red-Head Girl of the Dallas Journal.
- THURSDAY, MAY 29—**  
 10:30 to 11:00 a. m. Address, R. A. Gilliam, president Texas Forestry Association. Musical program under auspices of City Federation of Women's Clubs, Mrs. Stone J. Robinson, committee chairman.  
 6:30 to 7:30 p. m. Kidd Spring Orchestra in popular music program, directed by Russell Blair.
- FRIDAY, MAY 30 (MEMORIAL DAY)—**  
 10:30 to 11:00 a. m. Address, Dr. Robert Stewart Hyer, Southern Methodist University, on the Sunday School lesson.  
 6:30 to 7:30 p. m. Varied program by talent from Van Alstyne, Texas, Mrs. Will Echols in charge.
- SATURDAY, MAY 31—**  
 10:30 to 11:00 a. m. Address, William M. Reilly, editor The Craftsman, a labor journal. Musical recital presenting the W. A. Green Company Choral Club, Earle D. Behrends, director.  
 9:00 to 10:00 p. m. Adolphus Hotel Orchestra, Lawrence Morrell director, playing in junior ballroom of the Adolphus for dance program; a courtesy to radio audience by R. B. Ellifritz, managing director of the hotel. Lopez Orchestra, playing at the Palace Theater.
- SUNDAY, JUNE 1—**  
 4:00 to 5:00 p. m. Radio Bible Class, Dr. William M. Anderson, pastor First Presbyterian Church, teacher; Bible study and Gospel song.  
 5:30 to 7:30 p. m. Austin College commencement exercises, Sherman, Texas.

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**WOC—Palmer School of Chiropractic—484 Meters**

Davenport, Iowa—Pacific Time

- SUNDAY, MAY 25—**  
7:30 p. m. Musical program (1½ hours). The Palmer School Radio Orchestra, Erwin Swindell, conductor; assisted by Chas. Hall, tenor, and Emil Hass, reader.
- MONDAY, MAY 26—**  
6:00 p. m. Musical program. Semi-monthly Muscatine (Iowa) program, arranged by Elsa Fack. Piano quartet, Mrs. Geo. Chase, Mrs. Wilvert, Miss Schweitzer and Edna Critz. "Midsummer Night's Dream," "Rondo in D. Major," "Rondo in C." Vocal, Edna Critz. "My Prayer," "Tommy, Lad," "The Slumber Boat," "The Radiance in Your Eyes." Violin duet, Geo. Chase and Bruce Chase.  
8:00 p. m. Musical program. The Tobler Trio (violin, flute, piano), Louis Crowder, pianist; Howard Snyder, pianist; Nat Ozmon, entertainer.
- TUESDAY, MAY 27—**  
3:45 p. m. Chimes concert.  
4:00 p. m. Sport news and weather forecast. (No broadcasting after 6:00 p. m. Tuesday—silent night for WOC.)
- WEDNESDAY, MAY 28—**  
5:00 p. m. Educational talk. "Transportation History," by E. L. Goff,  
6:00 p. m. Organ recital from the B. J. Palmer residence. Erwin Swindell, organist. Helga Westling Carlson, soprano.
- THURSDAY, MAY 29—**  
7:00 p. m. Orchestra program (1 hour). The Palmer School Radio Orchestra, Erwin Swindell conducting. Featuring "You're the First One to Open the Doors of My Heart," "Station Y-O-U," "Spain," "Brown Eyes," "In the Land of Make Believe," "Blue Evening Blues." (popular selections released through the National Association of Broadcasters, of which WOC is a member). Ralph W. Fuller, baritone soloist.
- FRIDAY, MAY 30—**  
6:00 p. m. Musical program (1 hour). Zoe Fullerton, reader; Arvid Enstrom, tenor; Katherine Rankin, pianist; Roy Work and Wesley Gosline, guitars.  
7:00 p. m. Weekly Tourists' Road Bulletin.
- SATURDAY, MAY 31—**  
7:00 p. m. Orchestra program (1 hour). The Palmer School Radio Orchestra, Erwin Swindell, conductor. Featuring: "Happy," "I Miss You Most at Gleaming," "Ha! Ha! Hawaiian Blues," "Dreams I Dream of You," "Rose," "Tell Me, Egyptian Moon" (popular selections released through the National Association of Broadcasters, of which WOC is a member). Ralph W. Fuller, baritone soloist.

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DAYLIGHT SAVING TIME  
FOR WEEK OF MAY 18 TO MAY 25, 1924

KYW, "The World Crier," will broadcast the latest news of the world every half hour—on the hour and half hour—during the twenty four. This service is broadcast under the auspices of the Chicago Evening American, International News Service, Cosmopolitan News Service, from 5 a. m. to 5 p. m. KYW bulletins are provided from 5 p. m. to 5 a. m. by the Universal News Service in co-operation with the Chicago Herald and Examiner.

## SUNDAY, MAY 25—

12:30 p. m.

4:00 p. m.

5:00 p. m.

Studio chapel service under the direction of the Chicago Church Federation. The speaker will be announced by radiophone. Preliminary Service of the Chicago Sunday Evening Club. Regular meeting of the Chicago Sunday Evening Club. The speaker of the evening will be announced by radiophone. Musical program under the direction of Edgar Nelson.

## TUESDAY, MAY 27—

5:00 to 6:30 p. m.

Musical program courtesy of the Chicago Musical College—direction of D. Paul Breitwiser. Speeches by the American Farm Bureau Federation. The speakers of the evening will be G. E. Wentworth, Supt. of Union Stock Yards; O. F. Jensen, Soil Improvement Committee. Remainder of the musical program by the Chicago Musical College. Detailed program of artists will be announced by radiophone.

## WEDNESDAY, MAY 28—

5:00 to 6:05 p. m.

Musical program: Mrs. Percy Cook, soprano; Winifred Tompkins, accompanist; Robert Tait, tenor; Sandy Meek, baritone. Patek, Harris and Blim, concertina trio. Program will be announced by radiophone. "Good Roads" report furnished by the Chicago Motor Club.

7:00 to 11:30 p. m.

Midnight Revue—this is a Chicago Evening American-Westinghouse feature—broadcast from KYW's studio in Hearst Square. Among the artists will be W. Remington Welch, organist at McVicker's theatre. "Our Herbie" Mintz, pianist. Other artists will be announced by radiophone.

## THURSDAY, MAY 29—

5:00 to 6:30 p. m.

"Twenty Minutes of Good Reading," by Rev. C. J. Pernin, SS.J., Head of Dept. of English, Loyola University, Chicago. Musical program under the auspices of the Hinshaw Conservatory of Music. Artists and program will be announced by radiophone.

## FRIDAY, MAY 30—

5:20 to 5:45 p. m.

Talks given under the auspices of the American Farm Bureau Federation. The speakers of the evening will be W. W. Woods, vice-president in charge, Institute of American Meat Packers. Tom L. Wheeler, Editor of Indiana Farmers' Guide.

7:00 to 11:30 p. m.

Midnight Revue. This is a Chicago Evening American-Westinghouse feature—broadcast from KYW's studio in Hearst Square. Program will be announced by radio.

## SATURDAY, MAY 31—

5:00 to 6:15 p. m.

Musical program: Birdie Gordon, soprano; Sallie Menkes, accompanist; George B. Simons, tenor; Ada Hitt, accompanist; Bartley Hurst, banjo; Banjo James, Banjo; Ruth Buhl, reader. Program will be announced by radiophone. Talk by Vivette Gorman of Home Economics Dept., Peoples Gas Company. Youth's Companion—including stories, articles, and humorous sketches.

7:15 to 10:30 p. m.

Late show. This is broadcast from KYW's studio in the Congress Hotel.

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**KSD—St. Louis Post-Dispatch—546 Meters**

Pacific Standard Time

WEEKLY PROGRAM WEEK OF MAY 26

**MONDAY, MAY 26—**

6:30 p. m. Music program broadcast direct from the Grand Central Theater.

**TUESDAY, MAY 27—**

6:00 p. m. Donald H. Stinson, composer-pianist; Edwin Snider, tenor. Address by Ralph R. Matthews on "Safeguarding Oil by Chemistry."

**WEDNESDAY, MAY, 28—**

4:30 p. m. Program by Abergh's Concert Ensemble broadcast direct from the Hotel Statler.

7:00 p. m. James H. Johnstone, mandolin and tenor banjo soloist; Clarence Crow, whistler; Geraldine Bess and company.

9:00 p. m. Broadcasting direct from Hotel Statler. Dance music played by Rodemich's Orchestra.

**THURSDAY, MAY 29—**

6:00 p. m. Program by Schubert Club of East St. Louis, Ill., broadcast direct from the high school of East St. Louis.

**FRIDAY, MAY 30—Silent..****SATURDAY, MAY 31—**

6:00 p. m. Missouri Theater Orchestra concert specialties broadcast direct from the theater.

**W W J—The Detroit News**

(Pacific Time) DETROIT, MICH.) 580 Kilocycles)

**MONDAY, MAY 26—**

4:00 p. m. The Detroit News Orchestra; Square Dance Trio; Miss Verna Pattison, coloratura-soprano; F. W. Durkee, tenor.

**TUESDAY, MAY 27—**

2:00 p. m. Baseball scores.

4:00 p. m. The Detroit News Orchestra; Polar Bear Night; Hubert Haecussler, bass; Mrs. Daisy F. Fagg, contralto; Mme. Homer DuBard, soprano.

**WEDNESDAY, MAY 28—**

2:00 p. m. Baseball scores.

4:00 p. m. The Detroit News Orchestra; Byron Thomas, baritone; Miss Margaret Bruce, pianist; Arthur Reed, tenor.

**THURSDAY, MAY 29—**

2:00 p. m. Baseball scores.

4:00 p. m. The Detroit News Orchestra; Miss Eileen Whitley, soprano; Earl Upton, pianist.

7:00 p. m. Dance music by Jean Golkitter Orchestra, broadcast from the Graystone ballroom.

**FRIDAY, MAY 30—Silent all day.****SATURDAY, MAY 31—**

2:00 p. m. Baseball scores.

4:00 p. m. The Detroit News Orchestra.

**SUNDAY, JUNE 1—**

4:30 p. m. Services at St. Paul's Episcopal Cathedral, broadcast from the cathedral.

5:00 p. m. The Detroit News Orchestra.

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 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 25—**

- 2:15 p. m. Dinner Concert by the Pittsburgh Athletic Association Orchestra, Gregorio Scalzo, director.  
 3:30 p. m. Services of the First Baptist Church, Pittsburgh, Pa., Rev. Carl Wallace Petty, Minister.

**MONDAY, MAY 26—**

- 5:00 p. m. Concert by the KDKA Little Symphony Orchestra, Victor Sandek, conductor, assisted by Leora Sage McKennan, soprano; presenting a program of Spanish Music.

**TUESDAY, MAY 27—**

- 5:00 p. m. Concert by the Lloyd Singers. An exclusive English entertainment.  
 7:00 p. m. Concert by Mitchell's Serenaders, from the Pittsburgh Post Studio.

**WEDNESDAY, MAY 28—**

- 5:00 p. m. Concert given by Esther Rose James, soprano; Clarence S. Moort, tenor; Mixed Quartette, Ernest Letcher, accompanist, and Miss Helen Starkle, violinist.

**THURSDAY, MAY 29—**

- 5:00 p. m. Concert by the KDKA Little Symphony Orchestra, assisted by the Brackenridge Glee Club.  
 7:00 p. m. Concert.

**FRIDAY, MAY 30—**

- 5:00 p. m. Concert by the KDKA Serenaders and assisting artists.

**SATURDAY, MAY 31—**

- 3:45 p. m. Last Minute Helps to Teachers of Adult and Secondary Classes—Carman Cover Johnson, teacher of the Men's Bible Class, United Brethren Church, Wilksburg, Pa.  
 4:00 p. m. Baseball scores. "Sport Review" by James J. Long, sport writer of the Pittsburgh Sun.  
 5:00 p. m. Concert by the Westinghouse Band, T. J. Vastine, conductor, assisted by Mr. and Mrs. Oliver Heck.

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## Letters to the Editor

May 13, 1924.

Gentlemen: Wouldn't it be nice if the broadcast stations would refrain from announcing "a telegram from John Smith," saying the program is coming in fine? I approve heartily of thanking the stations and artists for their endeavors, but have missed lots of good music because I have refused to listen to them announce the receipt of telegrams from various peple. I am sure that a great many people do not wire in to hear their names broadcast. On the other hand, there are innumerable people that do, and I would suggest that the broadcasters refrain from this—permitting a majority of their audience to enjoy the program, and not become disgusted listening to names and the contents of telegrams. Thanks to the Los Angeles stations they do it very little, if any at all. Let's hear from some of the other radiophans on this subject.

Very sincerely,

ARTHUR S. CHADBURN,  
Albuquerque, N. M.

May 17, 1924.

Radio Doings.

Dear Sir: In answer to Mr. H. J. Allen of 2204 Third street, Ocean Park, Cal. This station was KFI broadcasting from Ambassador Hotel from 11 p. m. to midnight, playing in the Cocoanut Grove. Cocoanut Grove was a piece they were playing. It is on 469 meters and 500 watts.

Hoping this will reach him.

Your respective subscriber, I remain,

HARRY UOZUMI,  
Simi, Cal.

May 17, 1924.

Gentlemen: I think it is outrageous the way the authors, composers and publishers are acting about the broadcasting of their pieces. It certainly seems like they are very un-American in their demands.

I wonder if some reader could tell me what station was broadcasting Thursday night about 11:30 on 370 meters?

Yours truly,

M. W. CARR,  
Pasadena, Cal.

# STAR ENGRAVING COMPANY

223 EAST FOURTH ST.

LOS ANGELES

872-969 TELEPHONE 872-969

"Your Story in Picture Leaves Nothing Untold"



### "Death Valley" Permatect 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.

# “ULTRERFLEX”

## THE WINNER

Giving to the Public This Two-Tube Circuit  
Developed by Nash Company in Los Angeles for Long Distance  
Reception in California Atmosphere

*In Los Angeles this Circuit brought in KGO  
using ground as aerial*

First Consider its quality of tone with unexcelled volume.  
The price is so reasonable for Radiona Ultrereflex L1-L2-L3 Radio  
Frequency Transformers that you cannot afford to be without.

**Price Per Set \$3.00**

Money Orders Accepted

### Complete Parts for Circuit

- 1 Set Ultrereflex Coils
- 1 7x14 Panel
- 3 23 Plate Condensers
- 3 Dials
- 2 Rheostats
- 1 Jack
- 1 Shelf
- 2 Sockets
- 2 5 to 1 Audio Transformers
- 1 Crystal Detector
- 8 Binding Posts
- Bus Bar

Hook up with each set of  
Nash Coils  
**\$31.00**

### This Circuit

brings in KGO close to high  
tension wire, street car wires  
and telephone wires, while KJS  
and KFSG, KFI, KHJ are  
broadcasting. On the Loud  
Speaker. Sets complete

**\$110.00**

# BRIDEWELL RADIOS

Repairs

3514 So. Main St.  
Los Angeles, Cal.

Open Evenings

Distributors

**GLOBE ACCESSORIES CORP.**  
2309 W. Jefferson St.

Distributors

**ELECTRIC CORPORATION**  
Los Angeles - Seattle - Portland

## Letters to the Editor

May 11, 1924.

Dear Radio Doings:

Sacre Bleu and Hell's broke loose! Read this and then weep. Some of my good, charitable-hearted friends, knowing I was a victim of arthritis and confined to a wheel chair, sent a man to see me who is selling "high frequency violet ray machines."

This "bird" called on me last week and after unwinding his little tale and telling me it would cure anything from corns to chronic diseases, I asked him to plug his machine in and start it to going. He did, and KHJ was giving their matinee program. I tuned in my radio and put on loud speaker with two-steps. My gawd man, I wish you could have heard it! I had heard how a certain violet ray machine used to put the Catalina radio service out of commission at Long Beach, and now I can see that it was no lie. Well, here's where you weep. This man told me he was placing the machines with a month's trial for \$10 deposit, and at the end of the month, if it was doing you good and you wanted to keep it, you could pay the balance, \$35, or forfeit the \$10. He informed me that he had placed nine machines within a radius of two blocks on each side of me, and that he had only begun to canvass Pasadena and had placed sixty machines. His company has just started to canvass Los Angeles and have already placed 280 machines.

I have found that he has told the truth as far as my neighborhood is concerned. Every night from 7:30 to 11 they start up, and it is the worst interference I ever heard. It sounds about like throwing water into hot grease.

Distant reception is absolutely ruined, and the locals are not fit to listen to. Talk about amateur spark stations, static and leaky insulations on high power lines—they're not in it.

What will it be in the future when both Los Angeles and all the surrounding towns are canvassed?

There is nothing to be done that I can see, but I thought it would be of interest to you and the radio fans to inform you of these facts, so they might know of the new interference in case they were unfortunate enough to come in contact with it.

Take it from "Radio Doc" of Pasadena, you will never mistake it when one gets in your neighborhood. You can twist your dials till you are black in the face, but it will stick to you over the whole band of wave lengths, and if you've never learned to cuss before, look out! Tell Hall Berringer he will probably have a new bunch of questions to answer on a new kind of interference pretty soon. "Ain't-it-ell?"

Yours for the good of radio,

("RADIO DOC") DR. D. I. WADSWORTH.

Pasadena, Cal.

---

## Murdock Radio Head Phones "Standard Since 1914"

---

### 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

## LINCOLN DETECTOR

*Only \$2 Detector—*

*Still going strong!—*

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# DEALERS—

Nothing new—except that—

We are still looking after your interests by carrying large, well assorted stocks at proper discounts.

---

Good Service

DO YOU GET OUR PRICE LISTS



## LINCOLN RADIO COMPANY

115 East 11th Street

Phone TRinity 2350

Los Angeles, Cal.

*After June 1st, Lincoln Building 1151 Santee St.*

## Letters to the Editor

Editor, Radio Doings:

May 13, 1924.

I want to say "amen" to Sanford B. Kellogg's letter to the Doings and Uncle John on the subject of "Un" American Society of Composers, etc. I have spent hundreds of dollars for music and musical instruments for home use. But not another dollar will go for music controlled by that corporation if I know it. What would the country think of Ford if he should sell his car and stipulate it must not be run on the main highways? Can you see any difference in the two propositions?

Say, why don't someone write something about vacuum tubes, or does anyone know anything about them? They are the most expensive and most easily destructible part of a radio outfit, and you cannot get any data explaining the difference in tubes, their uses, their life, or efficiency, or care. All most fans seem to worry about is, Who was that I got the other night that didn't sign his call letters? Such bosh!

L. WOOLEY, Eugene, Ore.

Note: If you will refer to back numbers you will find several articles on "Tubes."

May 13, 1924.

Dear Sir: In answer to V. Peterson's question about a ship that gave its longitude and latitude, barometer report, etc. I also heard the same ship and found afterwards in the next day's paper that it was a disabled ship about seventy miles off San Diego, Calif. The ship was calling the station at San Diego, giving its latitude and longitude, etc. Am sorry that I did not keep the name of the ship, so I have not that information.

Hoping this answers your question, I remain,

FRANKLIN HEINS.

723 Toma Ave., Long Beach Calif.



"Dependable" \$5.00

## TRIMM HEADSETS

Selected by MacMillan for service on his trip to the North Pole. His selection is your assurance.

TRIMM HOME TALKER, \$12.50

A Real Loud Talker at a Popular Price. Insist on it when purchasing. At all good dealers.

**CARL A. STONE CO.**

PACIFIC COAST DISTRIBUTORS

208 Radio Bldg., 1113 Wall St., Los Angeles, Calif.

644 New Call Bldg., San Francisco  
1116 Minor Ave., Seattle

## ROFFY CIRCUIT NUMBER 3



Roffy No. 3  
Transformer

These Transformers Are Manufactured for  
This Circuit

**J. T. ROFFY**

725 State St.

Box 94, Huntington Park, Cal.

# *How About It Mr. Radio Dealer?*

You admit that you could do several times the amount of business that you are doing—if you could sell on time, and be sure of capital to finance these time contracts—and if you are wide awake you know that this corporation is rapidly preparing to furnish this much-needed capital at a discount rate that is so low that you can't afford to do without it.

**A number of the best dealers in Southern California have already made connections and live ones are coming in daily.**

*What are YOU going to do?*



For information address:

**California Radio Finance Corporation**

708 Farmers and Merchants Bank Bldg.

Phone 630-234

Long Beach, Calif.

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May 5, 1924.

Editor of Radio Doings.

Dear Sir: I am a reader of your magazine, and I am having trouble with my home-made one-tube hookup, so I thought that you might oblige me by answering a few questions for me. I caught Chicago once and Omaha once, and I get Hastings and Fort Worth every night they are on, but I have a hard time tuning out KFI. I have a (22) plate condenser with a Vernier, and I get KFI all over the dial from one end to the other, and I never get the same station on the same dial settings. On some nights I have to press on the condenser dial before I can get the stations, also every once in a while the music will stop all of a sudden and I have to tune for quiet a while before I can get them again. Then I have a lot of fading to contend with, but when I do get the stations they are usually loud, but I never can hold them long enough. I would appreciate it very much if you would help me by telling me what to do in your Radio magazine.

J. C., Globe, Arizona.

P. S.—Tonight my tube (a Wd11) burned brightly when I turned the rheostat up full, then while I was listening the music decreased in volume. I looked at my tube and I could not see any light. I turned the rheostat down, then back up, with the same results. I tried this five or six times, with always the same result.

Answer: Mail a copy of the circuit you are using to Radio Doings.

Radio Doings:

May 4, 1924.

Please tell me how I may get below 250 meters with the circuit I have on the back of this letter. I am using at present a seven-plate variable condenser. Would a step of R. F. help any? If so, what would I use?

Mr. B. S. Head heard CFCN, The Bronco Busters, as I heard them, too. Mr. Swanson heard CKCX, P. Burns, Ltd., Calgary, Canada.

Thanking you in advance,

WILLIAM F. ROSE,

2017 Thirteenth Street, Sacramento, California.

P. S.—Sending card for reply.

Answer: Decrease length of antenna.

May 10, 1924.

Dear Sir: I have watched your "letters to the editor" section with a good deal of interest lately, but no one seems to ask about my particular set.

I have a three-tube Westinghouse set, two stages and a detector, using a 6 volt, 100 amp. "A" battery, and a 45 volt "B" battery, and all my tubes are U. V. 201. I do not use my set very much, but I run my "A" battery down every week.

Probably some of you readers have the same kind of set, and could advise me for best results.

Sincerely,

EDWIN T. VAUGHN,

7 North Raymond Ave.

Answer: There is no reason why your A battery should run down in a

EXCLUSIVE IN VENICE

K E N N E D Y

Complete  
Service  
Dept.

The Royalty



of Radio

Complete  
Stock of  
Parts

VENICE ELECTRIC CO.

40 Market Street

VENICE, CALIF.

Phone 62261

# **Special This Week**

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## **TWO-TUBE HARKNESS SET Complete**

A Battery

Two Tubes

B Batteries

Cabinet

Loud Speaker

Aerial Wire and Insulator

**All for \$65<sup>00</sup>**

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**TWO STORES**

## **Arcade Radio Co.**

*(Incorporated)*

41-42 Mercantile Arcade Bldg.

836 So. Figueroa

LOS ANGELES

Phone TUcker 1752

Phone VAndike 5940

?? ??

week with this type of set, unless your storage battery is in very poor condition. However, if you will replace your tubes with C-301-A or U-V-201-A your battery will hold up longer.

May 12, 1924.

Radio Doings,

308 Van Nuys Building.

Dear Sir: I am enclosing two radio hookups. I am not very much acquainted with radio, so please answer my question in your question column:

1. Which one will get distance station?  
2. Is a set using honeycomb coil better than a set using a variocoupler and a variometer?

3. Does a fixed crystal work better on a crystal set?

Thanking you in advance, I remain,

Your respective subscriber,

HARRY UOZUMI,

Simi, Cal.

P. S.—I cannot get along without your wonderful Radio Doings.

Answer: Both these circuits are very good. Both will bring in distance. The three coil circuit is more selective than the other circuit drawn by you. However, you will be highly pleased with either of these circuits. A fixed crystal is very good for certain purposes (reflex circuits), but for the straight crystal receiver we advise the cat whisker type of galena detector.

May 9, 1924.

Radio Doings,

Van Nuys Building.

Dear Sir: We have a two tube Harkness set and would like to make it three tube, but have been unable to get any information on how to hook up for the third tube.

Could you send us a drawing of a three tube Harkness receiving set?

Advise us of any expense. Thanking you in advance.

Yours truly,

MRS. E. V. HAMPTON,

Seal Beach, Cal.

Answer: We cannot mail you a drawing, but suggest you go to Long Beach to a reliable radio dealer, telling him that you wish to add another step of radio amplification to your receiver. Take note of Long Beach dealers advertising in Radio Doings.

## Murdock Radio Head Phones, "Standard Since 1914"

Exclusive in  
SANTA  
MONICA

K E N N E D Y



Beverly Hills  
Ocean Park  
Sawtelle

WEST COAST RADIO CO.

1124 Santa Monica Blvd.

Phone 24929 for Demonstration

(Mezzanine Floor White House Furniture Co.)

# NOTICE!



***IF IT'S RADIO, WE HAVE IT!***

From a Cat's Whisker to an Ether Wave  
Quality Merchandise at Quantity Prices

Three Weeks Old. Now Have Four Stores  
There's a Reason. Watch Us Step.

## Parker's Radio Stores

820 South Broadway      Mailing Dept.      Los Angeles  
                                         VAndike 4158

613 South Spring      STORE NUMBER 2      Los Angeles  
                                         TUCKer 4884

STORE NUMBER 3  
Oceanside, Calif., C. M. Patton, Manager

846 South Broadway      STORE NUMBER 4      Los Angeles  
                                         W. VAN DYKE, Manager

MAIL THIS COUPON  
For Price List or Parts and Free Advice

Name.....

Address.....



May 10, 1924.

Editor, Radio Doings,

Dear Sir: I am enclosing a diagram of a hook up a friend of mine made. I don't know much about radio, but my friend claims to have had good success with it. Please give me your opinion on it as I would like to make one if it is any good.

Yours respectfully,

W. C. SCOTT,  
647 San Pedro Street,  
Los Angeles, Cal.

Answer: This circuit will give very good results as far as volume and distance is concerned but will tune very broad. It will also give your neighbors a good deal of trouble, as it is a very good transmitting circuit. It is known as a single circuit tuner.

Dear Sir: I have a one tube set that I made myself. It has a 23 plate condenser, a home wound coil and tube. I am going to put a variometer in and take out the coil. I wondered if you could send me a good hook up. If you can I would be very much pleased.

Yours Truly,  
ARCHIE CLARK,

Box 73, Garden Grove, Cal.

P. S.—I have had very good results, only the station does not come in loud enough. I have heard as far east as Hastings, Neb., KFKX.

Answer: We suggest you use the standard tube such as used by R. C. A. in the Radiola Four. This is a cardboard tube with two rotors in it. It can be purchased in any radio store. This will give you the best results with this circuit.

Dear Sir: I have a Harkness two tube reflex. I can get local broadcasting fine, but I cannot get distance. I had Oakland KLX three times, but I cannot get them all the time. I have an aerial about 35 feet high. Am using a 6 volt storage battery, 90 volts of B battery. I am using one 199 tube and one 201 A tube. Would this make a difference? I also have another Harkness reflex two tube which will work fine using one tube, but when I put in the second it is not half as good as one tube, and it brings the first tube and sometimes blows my second tube. My hook up is O. K. Please tell me my trouble, and if not maybe some of your readers can. Please examine hook up enclosed and tell me if it is O. K.

JACK A. MAROVICH,  
1236 West Ninety-third Street,  
Los Angeles, Cal.

Answer: Your trouble sounds to us like you have a poor crystal, and we believe that if you replace the 201 A tube with a C-299 or a U-V-199 you will get better results. Your circuit should work if it is hooked up exactly as per diagram.

**When Your Set Is "Out of Fix"  
and You Need Help**

Call VERmont 3311

**WINCH RADIO SHOP**

4301 South Western Avenue

OPEN EVENINGS

SETS

REPAIRS THAT ARE REPAIRS

PARTS

## DEALERS:

The demand for Cosmopolitan Phusiformers is exceeding our fondest anticipation. Deliveries are being pro-rated. Get your orders in now for the—

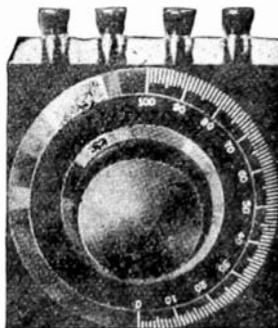
# The Cosmopolitan Phusiformer

\$9.50

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*The  
Missing Link  
in Radio*

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

**A FIVE TUBE SET USING PHUSIFORMERS IS ON  
DISPLAY AT OUR STORE**

### *Opinion of Experts;*

"YEAR'S GREATEST INVENTION".....New York Mail  
 "BEST YET".....Chicago Tribune  
 "SUPERIOR TO NEUTRODYNE".....Literary Digest  
 "NEW RADIO ACHIEVEMENT"....St. Louis Post-Dispatch  
 "SELECTIVE & FREE FROM NOISE".Chicago Daily News  
 "TRULY REMARKABLE—CALIFORNIA AND MASSA-  
 CHUSETTS STATIONS WITH GREAT VOLUME ON  
 LOUD SPEAKER. BUILDING PHUSIFORMER SET  
 FOR USE IN OUR OPERATING ROOM".....  
 .....Kansas City Star

*Phusiformers in Stock for Immediate Delivery*

## RADIO SUPPLY COMPANY

Successor to MOTOR CAR SUPPLY CO.

Open Evenings till 9 p. m. Telephone VAndike 6063

920 South Broadway

Los Angeles, Calif.

## The Heart of the Radio

By ERNEST WALKER SAWYER, Chief Engineer Electrad, Inc.

### PART II

In a previous article, I showed you the importance of the proper size Grid Leak. I hope you had the opportunity of testing my advice by trying a different size leak in your set.

Now I want to explain to you why it is so important for you to have Grid Leaks which are manufactured by responsible people who will certify they are correctly made and guaranteed.

The Grid Leaks of four or five years ago were usually of the lead pencil type. A few marks on a piece of fibre or bakelite would suffice to satisfy the experimenter. If the tube stopped, they added more or erased some. Moisture in the air might vary that resistance 50% and likewise the results, but why worry about such trifles.

Here is the heart of the Radio. The source of success or failure of the set and yet a careless pencil mark has, until recently, been permitted even in expensive sets of well known manufacturers.

In the Grid Leak, you are dealing with minute electrons of electricity passing over a path of extreme high resistance, 500,000 to 30,000,000 Ohms. Here is the essence for a great deal of research work. The problem of handling such minute portions of electricity at such extraordinarily high resistances resembles somewhat the problems of dealing with lightning. Two storm clouds are filled with energy. The electricity generated is enormous; the path between the clouds or from the cloud to the earth is possibly a mile of thin air. Its resistance is beyond comprehension. Finally the pressure becomes so great, the electricity jumps. If there was a copper wire or other easy conducting path, there would be no zigzag and no thunder. It is exactly the same in the receiving set. The accumulated charges jump along the Grid Leak. If the path is a perfect conductor, there is no noise. If the Grid Leak element is uneven or only partially a conductor, then the Grid Leak actually creates noises in your set. You will realize from this the importance of a proper element in the Grid Leak. Just as a copper conductor carries low frequency currents in a smooth, proper manner because each molecule of copper has its functions to perform harmoniously with its neighbor, so likewise or even more so should the substance of your Grid Leak element be so composed that the molecular displacement of the carbonaceous conducting material should be equal throughout the entire cross sectional area. In plain English, the Grid Leak ele-

## PANELS ENGRAVED WHILE YOU WAIT

Quality and Satisfaction or No Charge

RADIO REPAIRING AND SPECIAL WORK

RADIO LAB. & MFG. CO.

Tel. VA ndike 7247

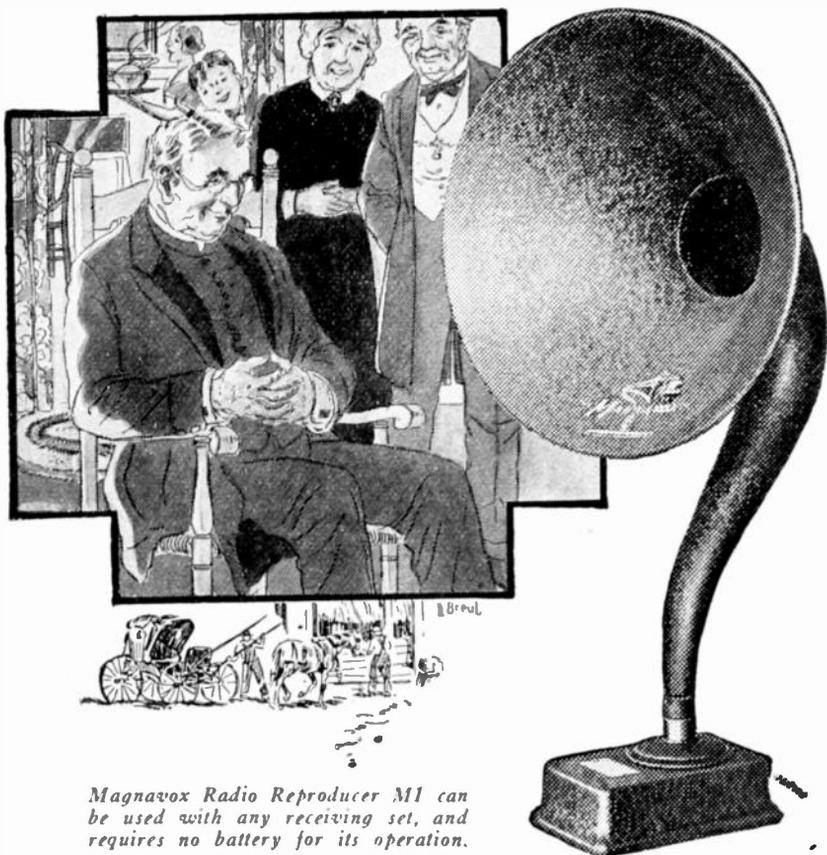
215 Court St. (near Hall of Records), Los Angeles

## SUPER-HETERODYNE SPECIALISTS

Come In and Listen to the 3-Tube "Caraflex"



Open Evenings and Sunday A. M.



*Magnavox Radio Reproducer M1 can be used with any receiving set, and requires no battery for its operation.*

## MAGNAVOX *Reproducer M1*

RESULTS secured by thousands of satisfied users prove that M1 is the *universal* Radio Reproducer, operating equally well under practically every condition, and may be connected as simply as a head set.

Without requiring a battery for its operation, Magnavox M1 reproduces with perfect fidelity the entire register of music and speech.

*Magnavox M1 can be had of good dealers everywhere, \$35.00*

**THE MAGNAVOX CO., OAKLAND, CALIF.**

New York Office: 350 West 31st Street

Canadian Distributors: Perkins Electric Limited, Toronto, Montreal, Winnipeg

ment should be made of a material which is exactly the same in the interior as on the surface you will get the zigzag jumps together with the noises as in lightning.

The elements of Electrad Grid Leaks are made of a paper in which carbon in the form of Montana lamp black has been defoculated through the pulp during the process of the paper manufacturing. This is one method of obtaining the desired result. I will, at a later date, explain other methods.

After the paper is cut to the desired size for the special Grid Leak required, copper or brass tongues or clamps are fastened to each end or some special method is used to make contact between the element and the ferrules or ends of the Grid Leak. These contacts likewise are extremely important, as a loose contact means a noisy Grid Leak or one of very high resistance.

An electric current is now passed through the element to season it. An analogy to this might be shown as the passing of a current through a piece of iron to form a permanent magnet. The atoms of Montana lamp black apparently align themselves in perfect regular order, end for end, so as to offer the smoothest possible path to the passage of the small current for which it is intended.

Next the elements are treated with waterproofing compounds, usually of secret formulae, as the waterproofing matter must not affect the element adversely.

The leaks are now seasoned a few days just as you bake steel to anneal it.

Next the element is carefully inserted in the glass tube or other insulating case, and the ferrules are soldered on each end to further protect the element from contact with fingers and atmosphere.

Glass cases are most common, but there are other insulating materials now in use, where the dielectric losses and insulating qualities are considered better.

The finished Grid Leak is again tested and labeled or stamped and certified correct. It is now ready for use.

I will guarantee to you that whatever size leak you now have, you will get 50 per cent better results on most of your stations if you use another size.

There has, in the past, been considerable propaganda on Grid Leaks to the effect that if your Grid Leak is the incorrect resistance, you can compensate by adjustment of your variable condenser. This is an absolutely incorrect method of procedure. As you can readily see, one cannot adjust resistance by altering capacity. If your Grid Leak is the wrong size, you must get another. If they are certified correct, then you know what you are getting and can try out several sizes until you find the one best suited for your particular requirement.



"It tunes 'em out"

## ANNOUNCEMENT

We are now located in our new building at

1623 So. Vermont Ave.

### X-L RADIO COMPANY

1623 South Vermont Ave.

Wholesale  
and  
Retail

Phone BEacon 5158

Los Angeles, Cal.

**Y**ou are courteously  
reminded by the  
Sign of the Lion's  
Head

*that*



*Have 235 Distributors*

*(Service Stations)*



An increase of fifty since the first of the year.  
This indicates an increasing approval of our product.

**GILMORE OIL COMPANY**

**2333 East 28th Street**

**Los Angeles, Cal.**

## Trade Notes

The committee from the Radio Manufacturers Agents Association returned from San Francisco this week and report that plans for the Pacific Radio Show have been completed and that the show is an assured success. All the spaces for the show have been engaged, and from a profit-sharing standpoint there is sure to be a dividend for the exhibitors. The Southern California Radio Trades are back of this show and we hope that everyone possible will attend the holding of two shows per year, one in San Francisco in the summer and one in Los Angeles in the winter. This appears to be the ideal method of handling the radio show proposition on this coast.

It is reported that the radio trade in San Francisco is holding firm, as well as Los Angeles. No perceptible let-down is noticeable, according to reports of visitors to San Francisco the last week.

Bertram Smith, probably one of the most popular men in the radio business, has just returned from Cincinnati, after attending the convention of salesmen representing The Automatic Electrical Devices Co., manufacturers of "Home-charger." Mr. Smith also visited Denver, Salt Lake City, Kansas City, Chicago, St. Louis, Buffalo and Cleveland, and returned by way of San Francisco. He reports radio business at all points visited as ahead of that for last year and a very optimistic outlook for fall business.

N. F. Lewis of the Globe Commercial Co. and J. D. Colford of J. D. Colford Co. have lately returned to Los Angeles after a business trip to San Francisco, where they went as a committee from the Radio Manufacturers Agents Association of Southern California to carry the following resolution to the officials of the Pacific Coast Radio Exposition:

"Whereas, the National Radio Show held in Los Angeles, February 5-10, 1924, owed its success in no small measure to the co-operation and friendliness shown by the San Francisco members of the Radio trades; and,

"Whereas, plans have been perfected for the holding of a Pacific Coast Radio Exposition in San Francisco during August of this year; therefore, be it

"Resolved, that this Association does hereby heartily endorse the Pacific Coast Radio Exposition which is to be held in the above named month and the members pledge their unanimous support towards its success."

We regret to announce the death of Geo. S. Marygold, President of the Music Trades Association of Southern California, with which the Radio Trades Association is affiliated. He died very suddenly from heart failure on May 11 at his ranch in Antelope Valley. Mr. Marygold had been listening in with a receiving set and had been much impressed by the remarkable reception from many long-distance stations. He was one of the best known, highest respected and beloved members of the music trade throughout the entire country and had been engaged in the business for the past thirty years and with the Southern California Music Company for twenty years, of which he was Vice-President and General Manager.

The regular bi-monthly meeting of the Radio Jobbers and Distributors Association of Southern California took place at the City Club on Wednesday, May 14, under the chairmanship of J. A. Hartley of the Braun Corporation.

B. Kruger & Co. have been appointed distributors for the Myers Tubes. The Kruger Company's laboratory is fully equipped for the testing of tubes and all radio equipment and should be of great assistance to both the trade and the radio public who want tests made.

Due to increase in business the X-L Radio Company have moved to larger quarters at 1623 South Vermont Avenue, Los Angeles.

## "Out of the Air"

By LISTENER-IN

KZN, lately transferred from The Deseret News of Salt Lake City to Cope & Johnson Company of the same city, has been entirely reconstructed and will be on the air shortly. This station will broadcast on 268 meters in place of 360 and has 500 watts power. It should be received well on the Pacific Coast. We hope to be able to give their program on schedule shortly.

The coming Radio Exposition which will be held in the Auditorium, San Francisco, in August, is already an assured success. Every booth has been sold and radio manufacturers all over the country will be represented. A special train is being run from the East for the accommodation of eastern exhibitors.

The new General Electric station to be erected in Denver, Colorado, should be "on the air" within a comparatively short time. All material is on the ground and construction will be started shortly. This station will be a duplicate of KGO, Oakland, and will be another important link in the large stations maintained by the General Electric Company.

The Ray-Dee-Aircraft Instrument Company, Redlands, California, has issued a catalogue describing their new equipment, which will be mailed to anyone upon request.

## Six More Broadcasters Open

List of Class A broadcasting stations licensed during week ending May 10:

| Call                                | Stations                                                          | Frequency | Wave Lgth. | Power |
|-------------------------------------|-------------------------------------------------------------------|-----------|------------|-------|
|                                     |                                                                   | Keys.     | Meters     | Watts |
| WDBE                                | Gilham-Schoen Electric Co., Atlanta, Ga.                          | 1190      | 252        | 10    |
| WDBH                                | C. T. Sherer Co., Worcester Mass.                                 | 1120      | 268        | 100   |
| WDBJ                                | Richardson-Wayland Electric Corporation,<br>Roanoke, Va.          | 1310      | 229        | 20    |
| WDBL                                | Wisconsin Dept. of Markets, Stevens Point,<br>Wisconsin           | 1080      | 278        | 500   |
| WDBN                                | Electric Light and Power Co., Bangor,<br>Maine                    | 1190      | 252        | 5     |
| WRBC                                | Immanuel Luthern Church, Valparaiso, Ind.                         | 1080      | 278        | 500   |
| Transferred from Class C to Class A |                                                                   |           |            |       |
| Call                                | Stations                                                          | Frequency | Wave Lgth. | Power |
| KFGH                                | Leland Stanford Junior University, Stanford<br>University, Calif. | 1100      | 273        | 500   |
| WTG                                 | Kansas State Agri. College, Manhattan,<br>Kansas                  | 1100      | 273        | 50    |

The price of the Radiola Superhetrodyne quoted in the advertisement of the Standard Radio Equipment Co. in the issue of May 10 should have read \$220.00 in place of \$250.00.

Grounding the cores of the amplifying transformers will sometimes eliminate squealing.

In wiring your set do not crowd the wires. Compromise between too close and too far apart.

Sam—Mama, do cats go to Heaven?

His Mother—Of course not.

Sam—Well, where do angels get their harp strings?

It takes .054 of a second for a radio impulse to travel the 8,500 miles from New Brunswick, N. J., to Warsaw, Poland.

# MR. RADIO FAN!



Model R-6, \$28.50

We are very happy to announce the latest addition to our line of Loud Speakers, the type R-6 "DICTOGRAPH" UPRIGHT LOUD SPEAKER, designed with rubber composition horn, size 26 in. high with 12 in. bell; price \$28.50.

Especially designed for halls and large rooms, or where volume is required.

It has a rich, low tone with volume, positively no blasting. Dial adjustment of air gap the same as the type R-4 so popular with the public.

"Dictograph Products Corpn." on a Loud Speaker is like "sterling" on silver.



Model R-4, \$24.50

## Leroy C. Bishop

Sales Agent

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**DEALERS:** *This item means dollars in your cash register. INVESTIGATE NOW.*

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