

Vol. V

July 6-12

No. 1

RADIO DOINGS

THE BROADCAST PROGRAM OF THE LEADING
BROADCAST STATIONS — LATEST RADIO NEWS



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ANNIVERSARY NUMBER

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Radio Doings

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Five Cents a Copy

Two Dollars a Year

Vol. V

Los Angeles, July 5, 1924

No. 1

Our Anniversary

RADIO Doings is two years old with this number.

At this time it is very gratifying to us to look back and note the marvelous growth of radio and Radio Doings.

If you have any of the first numbers, you will be interested to look over the stations which were then broadcasting. You will find that there are but very few now in existence and these, while retaining their same call letters, have been entirely reconstructed and have much greater power. The tendency has been towards the elimination of the small station and the great improvement of the larger. Then, "canned music" was the rule, now, it is never heard. The radio set was almost a novelty, now you will find it in most homes.

When Radio Doings printed its first numbers we offered it to the public with fear and trembling, it never contained more than thirty-two pages, its circulation was limited to Los Angeles. When the writer came as editor we had just eighteen paid subscriptions for six months.

Today Radio Doings reaches all over the Pacific states and also into the surrounding territory. Our circulation is twenty-five thousand weekly and our paid subscriptions are over seven thousand. We have more than doubled in size also.

We are very naturally proud of this wonderful growth and we wish on this occasion, our second birthday, to thank our many readers, dealers and advertisers for the support they have given us and trust that we shall continue to show the same increase during the coming year.

All the Year for Two Dollars

Do not miss a copy of RADIO DOINGS. Have it mailed every week to your home. Simply sign the blank below. Mail it to us or pay your dealer and let him forward it to us.

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One of many, from those who know.



Sixty Cents

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Office of Signal Supply Officer
1819 West Pershing Road
CHICAGO, ILLINOIS

Mineral Products Co., 303 East 4th St.,
Los Angeles, Calif.

May 7th, 1924.

Dear Sirs: This is to advise that one of your ARGENTITE crystals was handed me by a friend a few days ago to test, and to my surprise same was found to be far superior to any crystal on the market.

During my service as Inspector for Signal Corps, I have tested thousands of crystals, including practically every known make, but I do not hesitate to say that this is the best I have had the opportunity to try.

Using a four-tube reflex circuit, I have picked up all West Coast stations with loop and loudspeaker, using your crystal as detector; this is far better than can be done with others. Your crystal, according to laboratory tests, is 97½ per cent sensitive.

Thanking you for your attention, and wishing you much success, I am,

Only One Original Argentite

Accept No Substitute

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The Best Radio Crystal In the World

Seventy-five Cents



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Guarantee

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

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Range of Receiving Sets

By W. A. DICKSON

Among the numerous questions today asked by the prospective purchaser of a radio receiving outfit are, "How far will it receive? What is its range?" Etc. Not only in this instance, but in the case of the editor of the question column of the different radio publications, whose duty is to solve problems relating to radio reception. People who are supposed to have a high degree of intelligence and common sense often write in to ask why they cannot pick up a certain distant station, giving the construction of their equipment to the smallest detail. Others say, "I have a honey-comb coil set and galena detector, how far can I receive?" It is quite evident that inquirers of this nature have not stopped to analyze the situation or else have no conception of the number of factors which govern the propagation of electro-magnetic waves.

Before we proceed any further let it be understood that no receiving set has any definite range. This is mostly due to the numerous variable factors upon which the receiving range depends, and these being very rarely the same for any two outfits regardless of their similarity in design and construction.

Some of the most important of these variable factors will be made clear by the following simple analogy: Suppose a steam whistle of given intensity is used to represent the transmitting station and the ear on a human being the receiving set. If the person moves away from the whistle it is obvious that the intensity of the sound will decrease directly with the distance, until he reaches a point where it will be just audible. This distance will designate the maximum range of reception for the given intensity or power of the transmitter.

Now, suppose the intensity of the whistle is increased. It will be clear that it would be possible for the person to hear it at a greater distance. Hence we are able to say that the power of the transmitting station is one of the variable factors which govern the range of reception.

Assuming that the intensity of the whistle remains constant but that certain obstacles are placed in the path of the sound waves. Now, the person would have to move closer to the transmitter in order to hear it. Here we have another variable factor governing the distance at which a transmitter can be heard—obstacles in the path of the propagated waves.

Again, take an instance where there are several whistles blowing. It is evident that these will tend to drown out the one which the person is endeavoring to hear and so decrease the maximum distance at which he would ordinarily be able to hear it. This cause for decreasing the range of reception is termed "interference." These facts when explained in this way are familiar to most people and can be applied directly to radio.

It is evident that the factor which is a measure of distance range of a receiver is the current in the receiving antenna—the greater this current the greater the range. The amount of current in the antenna receiver is dependent upon a number of different variable factors. In addition to the ones explained in the analogy above, we have height of transmitting and receiving antennas, amount of current in each, length of transmitted wave, distance and decrease of energy due to absorption.

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Your Super-Heterodyne won't do it on a loop.

Your Neutrodyne squeals.

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Your Neutrodyne has lost its pep.

Your set does not perform, regardless of type or make

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Let us determine whether it is the set or the location.

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The received current depends upon the height of the receiving and transmitting antennas, and the higher these are, the greater will be the range of reception. This is true theoretically only and there are several other factors influencing this, among which is "static" interference, which will be discussed later.

As the distance between transmitter and receiver increases it is obvious that there will be a decrease of received current. Furthermore, there will be a decrease owing to the imperfect state of the medium in which the transmitted waves travel. Steel buildings, vegetation, mountains, etc., all have considerable effect upon the signal strength. Another point which comes in here is the relative conductivity of the ground. It is a known fact that reception over salt water is better than over land. This is due to two reasons; first, there are no obstacles to interfere with the propagated waves, and second, salt water has a higher relative conductivity than the earth.

Let us consider interference. If there are a number of other stations operating in close proximity of the receiver, they will tend to drown out the distant one, in spite of the fact that the desired signal is quite clear when the interference is gone. In addition to this kind of interference we have "static."

The range of a receiving outfit is determined, not so much by the actual value of received current, but more by the ratio of signal strength to the interference. Hence, at certain times when static is strong, a receiver may have a very small range, while at other times when static is comparatively small, it may have a very great range.

Referring again to the height of the receiving antenna; it will now be understood that although increasing the height would increase the value of received current, that it would also increase the static interference. As a result the ratio of static-to-signal strength is not really increased, thus the range is not increased. This is one of the chief oppositions to large antennas. Static has a small effect on small antennas and by using a proper amplifier, the signal strength may be increased without increasing the amount of static.

Then again, there are the daily and seasonal variations in the strength of received current to be considered. At night the range of reception on any set is decidedly improved. This is due to the ionizing effect of sunlight on the atmosphere. Atmospheric conditions also tend to make the fall and winter months better for reception than the spring and summer. This is not so much true in warm climates as it is where cold winters prevail.

In addition to these principal factors which govern and influence the signal strength and consequently range, there are other conditions such as changes in cloud stratas, variations in atmospheric pressure and sun spots. These all tend to have some effect on the efficiency of the receiving set.

Those who live in the vicinity of a large broadcasting station should consider themselves indeed fortunate. Instead of weeping at their inability to listen to stations hundreds or thousands of miles distant, it would be well for them to arrange their equipment so as to obtain maximum results on reception from their local station.



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Dept. B, No. 222 Eighth Street, San Francisco, Cal.

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"The Radio Industry Needs Trained Men of Ambition"

More Work for Hoover

The work of the Bureau of Navigation of the Department of Commerce is increasing with leaps and bounds, not due so much to increased water transportation, tonnage work and motor boat inspection, as it is to the development of radio and consequent increase in the necessary supervision of radio stations and operators both afloat and ashore.

A recent appropriation provides for the transfer of International Radio Accounting, formerly handled by the Navy Department, to the Bureau of Navigation on July 1. In 1912, the Navy handled so much of the world's radio communication that it seemed advisable to leave the collection of international accounts to a section of the Communication Service, but in recent years so many commercial stations and ships of all nations are handling radio traffic that the work has increased beyond the ability of the Navy. Several Navy clerks will shortly be transferred to the Bureau of Navigation under Commissioner Carson, and combined with the personnel of the present Radio Section of the Commerce Department. Additional office space is now being sought.

Practically every fan and amateur knows that the administration of radio is under the direction of Secretary of Commerce Hoover, but few of them know how radio supervision came to be placed in the Bureau of Navigation.

When the first radio act was passed in June, 1910, it provided that radio be carried on certain passenger carrying ships, and, on July 1, 1911, the then Secretary of Commerce and Labor organized the radio service of the Bureau of Navigation, which handled government matters pertaining to shipping.

In July, 1912, the second act was passed. It required radio sets on all vessels navigating the oceans or Great Lakes and licensed to carry 50 or more passengers, including the crew. Vessels plying between ports less than two hundred miles apart were expected. The Bureau of Navigation was called upon to enforce this act also.

The act to regulate all radio communication was approved in August, 1912, and incidentally the radio supervisors of the Department of Commerce are still operating under this act, although two recent efforts to amend it have been made in Congress without success. Under this act the Secretary of Commerce was authorized to license all transmitting stations and radio operators, inspect stations and examine operators. It was natural that these additional duties fell to the Radio Section already established, and to this date all radio matters are handled by the Bureau under the direction of Commissioner D. B. Carson and Deputy Commissioner A. J. Tyrer.

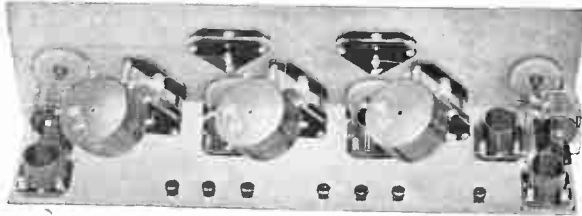
The Radio Section is headed by Chief Radio Supervisor William D. Terrell, who was the first field officer of the section, being appointed in 1911. At that time Mr. Terrell was in charge of the whole Atlantic Coast, with offices in New York, and R. Y. Cadmus, now Supervisor of the Third District, was placed in charge of the Pacific Coast work. A little later a third official was appointed as the Gulf Coast inspector.

The work of the Radio Section has been growing ever since, with increasing numbers of transmission stations, including commercial, amateur and broadcasting stations, but it was not until early in 1922 that broadcasting began to interest

AFTER JULY 1ST
Western Radio, Inc.
AT
1224 WALL ST.
Phone ATLantic 9257

BREMER TULLY'S Nameless Prize Circuit

This new method of construction puts oscillations in R. F. Circuit under foot.



Bremer-Tully nameless three-circuit receiver which has demonstrated remarkable selectivity and range. Photograph of one of two sets assembled for test, showing arrangement of instruments and wiring. Part of the wiring is concealed beneath the baseboard. Another view will be printed later showing wiring beneath baseboard.

Briefly, the nameless circuit employs negative feedback through auxiliary coils to stop oscillations in the radio frequency tubes. The negative feedback, through these coils, is controlled by a small variable condenser which gives positive and accurate control. In all tests this was demonstrated readily by tuning a strong signal and turning off one radio frequency tube rheostat.

List of parts used in set tested were as follows:

- 3 Bremer-Tully 3-circuit Transformers.
- 3 Bremer-Tully .0005 Vernier Condensers.
- 2 Bremer-Tully 3-plate plain Condensers.
- 1 7x24x3/16 Panel (7x26 may be used, nicely, if desired).
- 1 200 Detector Tube.
- 4 201A Tubes.
- 1 5 to 1 All-American Transformer for first stage audio, and
- 1 3 to 1 for second stage.
- 1 101 Carter Jack.
- 2 104 Carter Jacks.
- 22 gauge Copper Wire for R. F. Transformer Wiring.
- 16 gauge Copper Wire for A Battery Circuits.
- 1 6 ohm Carter Rheostat.
- 3 20 ohm Carter Rheostats.
- 1 Meg ohm Grid Leak.

(A two meg ohm leak may be tried, but if tube shows tendency to choke, use smaller size.)

NOTE: The B-T R. F. Circuit tunes very sharp, and B-T Vernier Condensers are essential on account of low losses and sensitivity of the single plate vernier. The 3-plate type of vernier is too coarse.

Prices are as follows:

- 1 Set of 3-circuit Transformers, Nos. 1, 2 and 3.....\$10.50
- 3 .0005 B-T Vernier Condensers... 15.00
- 2 B-T 3-plate Condensers..... 3.00

1 Set of diagrams, instructions, etc., is included with each set of Transformers, or sold separately for... .50
We are making reasonably prompt shipments of all of the above items at this time. In wiring up this set be sure to follow diagrams included with Transformers.

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the whole country and then interference complaints came pouring in. The work of the field inspectors was greatly increased. Today there are nine radio districts controlled by as many supervisors of radio, aided by twelve radio inspectors and eight assistant inspectors. New appropriations for 1924-25 provide funds for six more assistant inspectors and a few clerks.

The reallocation of wave lengths, which became effective on May 15, 1923, based upon the recommendation of the Second Radio Conference, makes use of a closer subdivision of wave lengths. Individual wave lengths are assigned to Class A and Class B broadcasting stations. Some of these wave lengths are very close to the ship ways and the waves used by other services. The successful operation of all of these stations requires frequent inspections, proper adjustment and constant observation.

As nearly every city of any consequence has a broadcasting station, and there are millions of persons benefited by this service, it is necessary for government inspectors to cover their districts frequently to investigate complaints of interference.

Practically all the inspection force have receiving sets in their homes, where they listen-in nightly to observe infractions of the law and to keep informed of radio operating conditions in their districts. As limited appropriations do not permit the furnishing of receiving equipment needed for this purpose, except to a very limited extent, supervisors and inspectors have purchased them with their own funds.

At the Washington headquarters of the Radio Section, Mr. Terrell is assisted by Supervisor of Radio W. E. Downey. The nine field divisions are distributed and headed as follows:

1. Headquarters at Boston, Mass. Supervisor, C. C. Kolster.
2. Headquarters at New York, N. Y. Supervisor, Arthur Batchellor.
3. Headquarters at Baltimore, Md. Supervisor, R. Y. Cadmus.
4. Headquarters at Atlanta, Ga. Supervisor, Walter Van Nostrand, Jr.
5. Headquarters at New Orleans, La. Supervisor, T. G. Deiler.
6. Headquarters at San Francisco, Cal. Supervisor, J. E. Dillon.
7. Headquarters at Seattle, Wash. Supervisor, O. R. Redfern.
8. Headquarters at Detroit, Mich. Supervisor, S. W. Edwards.
9. Headquarters at Chicago, Ill. Supervisor, E. A. Beane.

The field of activity of the radio service embraces all the United States, Alaska, Hawaii and Porto Rico. It extends to the inspection, licensing and orderly operation of 12 stations engaged in international communication, 45 coast stations working with ships, 2,723 American ship stations, exclusive of the stations on all foreign vessels entering our ports carrying 50 or more persons, 177 point-to-point commercial stations, 589 broadcasting stations, 364 experimental stations, 83 technical and training school stations, 282 special amateur stations, 17,000 general and restricted amateur stations, and examining and licensing the operators for all of these stations; the investigation of complaints of interference, solving technical problems, co-ordinating radio activities, preventing violations of the law, and assisting anyone requiring advice or information relating to the use of radio for commercial or private purposes.

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HERE IS
A TIME PAYMENT PLAN FOR
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100%
CASH FOR EVERY SALE

*A Company Engaged in the
Most Necessary Branch of the Radio
Industry*

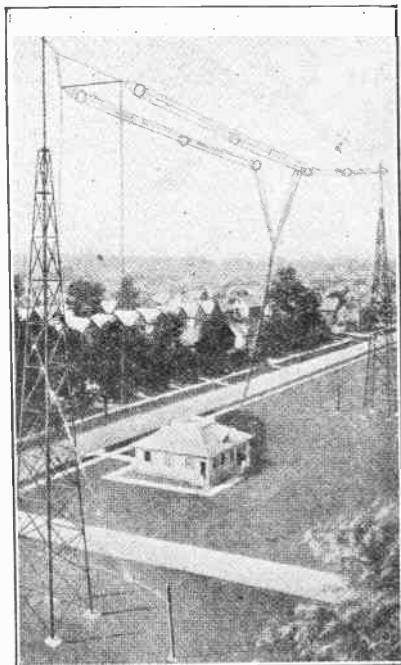
We will finance Radio Sets of all makes sold on Lease Contract or Time Payment Plan at reasonable rates, and will also insure Radio Sets sold under Lease Contract for fire and embezzlement by the vendee.

NORMAN M. JACK

311 Security Building
Los Angeles, California

Twenty-five Broadcasting Stations Using Battery Power Exclusively

The constant voltage delivered by storage batteries is becoming more and more to be desired and utilized by broadcasting stations throughout the country.



The first experimental work in this direction was done by station WCAK, Alfred P. Daniel, of Huston, Texas. In this pioneering work, Willard batteries were used throughout.

One and a half years ago Station WHK, the Warren R. Cox Radiovox Company of Cleveland, Ohio, equipped their broadcasting stations with a bank of Willard batteries. This station was soon followed by Station WDAH, the Dayton Company of Minneapolis.

By September, 1923, the big 1000-Watt station, WTAM, Willard Storage Battery Company, was completed and it was equipped with storage batteries to the entire exclusion of a motor generator set. These equipments proved so satisfactory that since that time, 23 other broadcasting stations from WNAC in Massachusetts to CFDC in British Columbia, have equipped their stations with Willard storage batteries for a safe current supply. In addition, 104 other broadcasting stations are using Willard equipment for speech amplification, and this number is being augmented weekly.

The generator hum is eliminated, and "listeners-in" from Alaska to Cuba have expressed their appreciation by letter, telephone and telegraph.

Improved Process

3c - ENGRAVING - 3c *When You Want It*

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Complete Stock of Standard Equipment

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Portability**

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A demonstration will convince you!!

“Ask Your Dealer”

The Wholesale Radio Electric Co.

FAber 3672

Eleven-Eleven Wall St.

Los Angeles, Calif.

The following broadcasting stations, with one exception, are equipped with Willard Radio "B" batteries exclusively, for plate supply:

- CFDC Sparks Company, Nanimo, B. C.
- KFCF Frank A. Moore, Walla Walla, Wash.
- KFIQ Yakima Valley Broadcasting Assn., Yakima, Wash.
- KFLD Paul E. Greenlaw, Franklinton, La.
- KFNF Henry Field Seed Co., Shenandoah, Ia.
- KFNG Wooten's Radio Shop, Coldwater, Miss.
- KFOP Wilson Construction Co., Dallas, Texas.
- WBAH Dayton Co., Minneapolis, Minn.
- WBBG Irving Vermilya, Mattapoisett, Mass.
- WCAK Alfred P. Daniel, Houston, Texas.
- WDAU A. H. Smith, New Bedford, Mass.
- WEAR News Pub. Co., Baltimore, Md.
- WEAU Davidson Bros. Co., Sioux City, Ia.
- WGAZ South Bend Tribune, South Bend, Ind.
- WHK Warren R. Cox. Radiovox Co., Cleveland, Ohio.
- WJAX Union Trust Co., Cleveland, Ohio.
- WSAI U. S. Playing Card Co., Cincinnati, Ohio.
- WSAR Doty & Welch Electric Co., Fall River, Mass.
- WRAY Radio Sales Corp., Scranton, Pa.
- WTAM Willard Storage Battery Co., Cleveland, Ohio.
- WTAR Reliance Elec. Co., Norfolk, Va.
- WLW Crossley Mfg. Co., Cincinnati, Ohio.
- WFBU Ainsworth Gates Co., Cincinnati, Ohio.
- WNAC Shepard Stores, Boston, Mass.
- WDAR Lit Bros., Philadelphia, Pa.

New Broadcasters

List of Nine Class A Broadcasting Stations Licensed by Dept. of Commerce

Call	Station	Frequency Keys	Wave Length Meters	Power Watts
KFAJ	University of Colorado, Boulder, Colo....	1150	261	100
KFQM	Texas Highway Bulletin, Austin, Texas...	1120	268	100
KFQN	Third Baptist Church, Portland, Ore.....	1060	283	5
KFQO	Mefer Radio Shop, Russell, Kans.....	1150	261	10
KFQP	George S. Carson, Jr., Iowa City, Iowa....	1340	224	10
WDBX	Otto Baur, New York, N. Y.....	1290	233	5
WDBZ	Boy Scouts of America, Kingston, N. Y....	1290	233	5
WEBA	The Electric Shop, Highland Park, N. J....	1290	233	15
W T X	H. G. Saal Co., Chicago, Ill.....	1120	268	10
TRANSFERRED FROM CLASS C TO CLASS A				
KFBS	The Trinidad Gas and Electric Supply Co., and Chronicle News Publishing Co., Trinidad, Colo.	1070	280	10
WEV	Hurlburt-Still Elec. Co., Houston, Tex....	1140	263	100

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THAT WILL GUARANTEE TO MAKE YOUR NEUTRODYNE or SUPER-HETERODYNE or any other make of set HAVE QUALITY, VOLUME, SELECTIVITY, and to BRING IN DISTANCE STATIONS.

IF WE CAN'T DO THAT, THERE WILL BE NO CHARGES.

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SATISFIED CUSTOMERS IS OUR RECOMMENDATION

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Open 9 a. m. to 7:30 p. m.

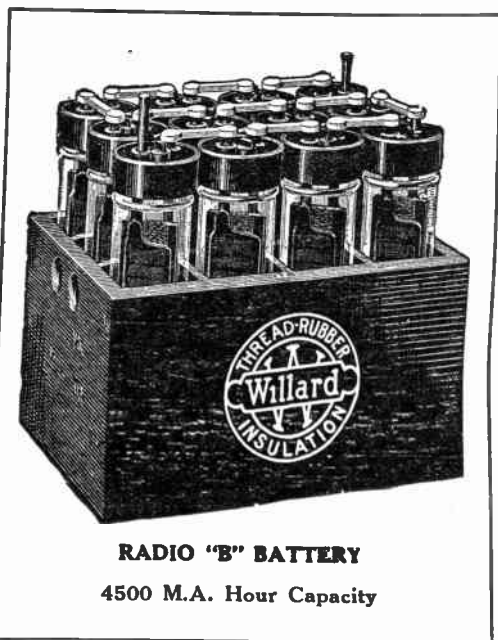
Los Angeles

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Willard "B" batteries are built up in a series of glass cells—each of 2-volt capacity. The plates in these cells are unusually heavy, and Willard's famous threaded rubber insulation is used. Their capacity is exceptional. They eliminate unnecessary noises. They are rechargeable, so that voltage can be maintained, and they last for years. Why not use them and overcome your battery troubles?

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RADIO "B" BATTERY
 4500 M.A. Hour Capacity

Seeing by Radio

By LEROY J. LEISHMAN

(Inventor of the Commercial Systems for Telegraphing Pictures)

Seeing by radio is already an accomplished fact; it is now merely a matter of attaining commercial perfection. It is even possible by radio to see objects in their natural colors.

Ever since I began telegraphing still pictures across the continent for newspapers, I have been interested in speeding up and modifying the systems so that movies could be wired or broadcast. In transmitting photographs, it is perfectly all right to spend several minutes in reproducing one picture; but for moving pictures, or seeing by radio, several pictures must be received every second, sixteen or seventeen perfect pictures per second being the ideal.

Each individual picture is not reproduced all at once, as many people assume. The minute parts are transmitted rapidly until the entire picture has been built up. In radio movies, this complete process is repeated many times every second.

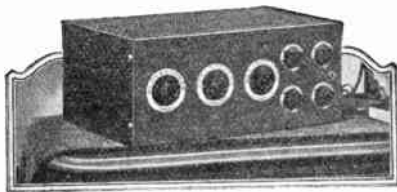
In order to appreciate the infinite speed required in transmitting movies, it is necessary to understand how many tiny patches of shade there are in a single picture. In newspaper pictures, there are sixty dots of varying size in a linear inch, or 60 times 60—3600—shadow dots in a square inch. Yet a newspaper picture one inch square, containing 3600 dots representing shade, is a very poor picture. To produce a good likeness of a face, a newspaper cut should be at least two inches square, and such a cut would contain 14,400 shadow divisions or dots. A really good picture requires many more than this number, and if the view contains several faces or full length figures, over 100,000 possible changes of tone must be provided for in a single picture. To transmit movies like those we are accustomed to see in the theatres would require this many parts for each of the sixteen pictures shown on the screen each second, or about 1,600,000 in all. It is preferable to have several alternations of the carrier current for each shadow point, necessitating the use of very short wave lengths.

Radio television of such perfection as this is, of course, out of the question at

TELEDYNE

TELE—means distance. DYNE—means power.

4 Tubes



**Dry Cells
Contained**

Hear it operate in your home

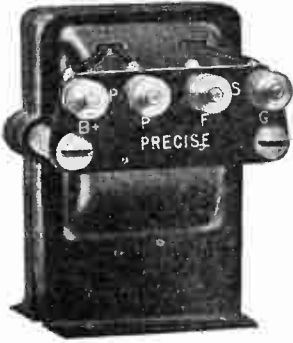
Demonstrations of Neutrodyne and Radio Super-Heterodyne
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Southern California Radio Co.

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Precise Model 285-A
Price \$5.00

HOW DOES IT COMPARE WITH *PRECISE*? is a question that has brought only one answer.

One Transformer may *approach* it in this point, another in that, noise, no volume and other points, but none is better looking, few are as compact, and no other can show you such an array of performance records under every conceivable condition.

Precise has never been equalled in any point of Transformer Judgment.

Perfection of reproduction of every note in the entire orchestral range, with beautiful clarity of tone, astonishing volume and entire freedom from distortion — these points we guarantee that you cannot find in any other as you do in *PRECISE*.

Whether in Reflex, Neutrodyne or Super-Heterodyne, *PRECISE* inevitably renders the same envied verdict, *UNSURPASSED!* It is really

"A Laboratory Instrument at a Commercial Price."

Demand them, whatever circuit you use, or write for circular.

Precise Manufacturing Corp.

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DEALERS: You owe it to yourself and your trade to carry this Transformer. We cannot overstate the great satisfaction you will gain. You will use them in all your assemblies, and will recommend them as your *one best Transformer*, regardless of price, once you try them. Unusually liberal discounts. Write us, or to Frederick H. Thompson Co., 411 Newport Ave., Long Beach, Calif.

PRECISE
Transformers
for Best Results

present, and it may be some time before we can go beyond the detail that it is possible to produce in a newspaper picture two inches square. Even this requires the transmission and reception of over 200,000 shadow units per second, and a consequent short wave length.

The apparatus and the method required are very simple and easy for anyone to understand. Speed and precision are the only practical difficulties.

This problem of making something visible at a distance resolves itself into three main elements: Converting the little units of shade of the original scene into current variations; changing these current variations back again into the proper intensities of shade; and some means for putting the received tones in the proper place on the screen.

Everyone knows that a camera produces images in the back of the dark-box where the film or photographic plate is located. In radio tele-vision, this light-sensitive film must be replaced by a photo-electric cell. This is a device through which a current passes, and the intensity of the light thrown upon it causes the current to vary in direct proportion. If something could gradually pass over the surface of a photographic film and cause only a small pin point to be exposed at a time, it would be somewhat similar to what must be employed to focus only a small part of the picture or scene upon the photo-electric cell at a time. For this purpose a large disc is used, about 120 holes being equally spaced around it and so arranged that each one is a little nearer the center than the hole preceding it. As the disc revolves, these holes pass directly in front of the photo-electric cell; and as each one passes, a strip of the picture is focused upon the cell. As each consecutive hole passes by, another strip, slightly lower than the last, exposes to the cell its variations of light and shade. After the entire 120 holes have passed, the complete picture has, a little at a time, exposed its lights and shadows to the cell. It will readily be seen that two adjoining points, each one on a strip adjacent to the other, might be of an entirely different shade. This means that the degree of shadow can vary greatly in one one hundred and twentieth of the distance across the picture. It is evident that the tone might change just as abruptly in crossing the picture the other way—that is, at right angles to the strips. So in transmitting pictures with the detail visible in a newspaper cut two inches square, there are 120 times 120, or 14,400 possible variations of light and shade for each picture; and to reproduce the scene in motion, sixteen views must be covered, necessitating a sufficiently sensitive instrument to respond to a different intensity of light in less than one two-hundred-thousandth of a second.

The photo-electric cell used to vary the intensity of the current according to the light thrown upon it contains two electrodes—one usually of postassium and the other of some metal similar to the plate in an audion tube. This plate has an opening in it through which the light passes to the potassium. The tube is of a proper gas content, and functions very much like the vacuum tubes in every day radio use. As light falls upon the potassium electrode, it gives off electrons much the same as does the filament in an audion, only the electrons are in direct pro-

Murdock Radio Head Phones "Standard Since 1914"

Station J. O. Y.

A Complete Radio and Electrical Service

**Burgess Batteries, Columbia Dry Cells
Plenty of Tubes**

GUARANTY RADIO EQUIPMENT CO.

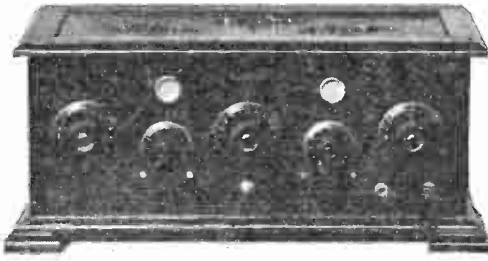
**518 South Western
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HOLLY 0364**

NEUTROFLEX

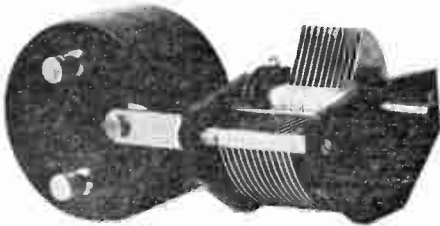
TANNER PRODUCTS



Neutroflex III. Price \$100.00 (Less Equipment.)

The factory-built set designed for the man who prefers music and voice sweet and clean, despite static and grumbles. Operate in summer with an irreducible minimum of interference; and in the more favorable months the bulk of the United States at your call.

Economy, simplicity, volume and distance; but—first of all—



Neutroflex Transformer mounted on Kilbourne & Clark Condenser

TONE TRUTH

The Neutroflex Transformer, the heart of the Neutroflex circuit, is specially engineered for short wave reflexed radio-frequency amplification. Turn-ratios, couplings, even transformer capacity coupling have been carefully engineered for successful multi-stage reflexing.

The general efficiency of design renders them especially effective also as coupled wave traps or as a super selective antenna coupler.

Price—Set of three for Neutroflex... \$12.50

Single unit... 4.50

Set of three, complete, with Kilbourne & Clark Condensers... 23.00



The detector without a fault. Back-panel mounting, with two small projecting knobs which give every possible adjustment. One knob presents the entire surface of the crystal for contact; the other gives a micrometer two-way control on contact pressure. Solid gold catswhisker, phosphor-bronze spring arm. All metal parts brass, heavily nickel-plated. Shipped with full instructions for panel mounting.

Price... \$1.50

Jobbers and Dealers in open territory—

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528 West Washington

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portion to the intensity of the light. This causes a current to flow to the plate, the intensity of which is at all times proportioned to the degree of light or shade. This current is of course very feeble, being less than one micro-ampere. It is, therefore, necessary to use several amplifiers before obtaining a current of sufficient strength to modulate the output of a radio transmitting station.

At the receiving end, these variations in the carrier wave must vary the intensity of a strong light, and the method used must be capable of changing the intensity of the light in less than one two-hundred-thousandth of a second. The received current must be greatly amplified before it can be put to such strenuous use. Space will not permit an explanation of just how this light is varied, but it might be said that there is still room for improvement in getting a feeble current to keep the intensity of a very powerful light in constant control.

This modulated light must be moved in a beam across some sort of screen of ground glass, an da fitting device to do this is another disc with 120 perforations arranged in a spiral. Each time the beam crosses the screen, it will be in a line slightly lower than before. If the light is strong enough, it will register upon the retina of the eye in each consecutive position, giving the effect of a continuous picture. A slightly phosphorescent screen helps the image to be retained. If the transmitting and receiving discs revolve sixteen times per second, sixteen complete views of the moving objects will be thrown upon the screen per second, giving moving pictures, or television. It might be said in passing that it takes a very powerful light to make any impression upon the retina in one two-hundred-thousandth of a second, and that is about the length of time the beam remains in a given position.

The transmitting and receiving discs must be perfectly synchronized—that is, in perfect step. The synchronizing device is operated by an impulse of variation in the wave that is transmitted after each picture. If the disc on the receiving machine is slightly ahead of the disc on the transmitter when this impulse arrives, its speed is retarded until the two discs are again in perfect alignment. If these discs were not perfectly synchronized, the modulated beam of light at the receiving machine would not be thrown on the proper part of the screen at the right time, and the picture would be hopelessly distorted.

A NEW AND EXCLUSIVE RADIO STORE!

Now! A Complete Stock
of Daven Resistance
Coupled Amplifiers
Kits and Parts

Daven Resistance Coupled Amplifiers are free from distortion; give ample volume; low plate curve consumption; and are no more expensive than transformer couplings!

Our stock includes 3 and 4 tube amplifiers, assembled; also 3-tube amplifier kits and individual parts.

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OF SOUTHERN CALIFORNIA**

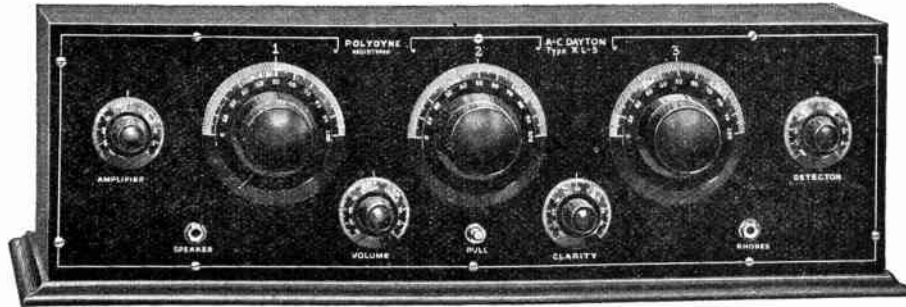
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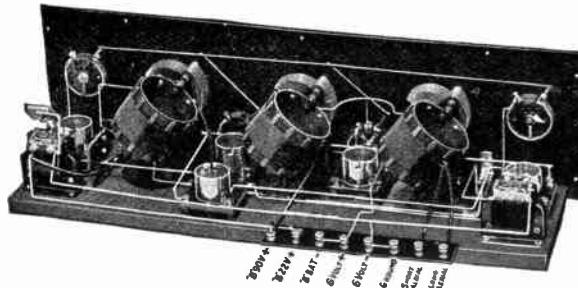
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Always Offering the Best in Radio!

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Polydyne Type XL5—Price \$120.00



Non-Reradiating; no bothersome squeak when tuning; no roar, but the clearest voice and music reproduction you have ever heard.

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Los Angeles, Calif.

C. & G. Radio Co.
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Los Angeles, Calif.

Bridwell Radio
3514 S. Main St.,
Los Angeles, Calif.

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1302 S. Hoover St.,
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Universal Radio Co.
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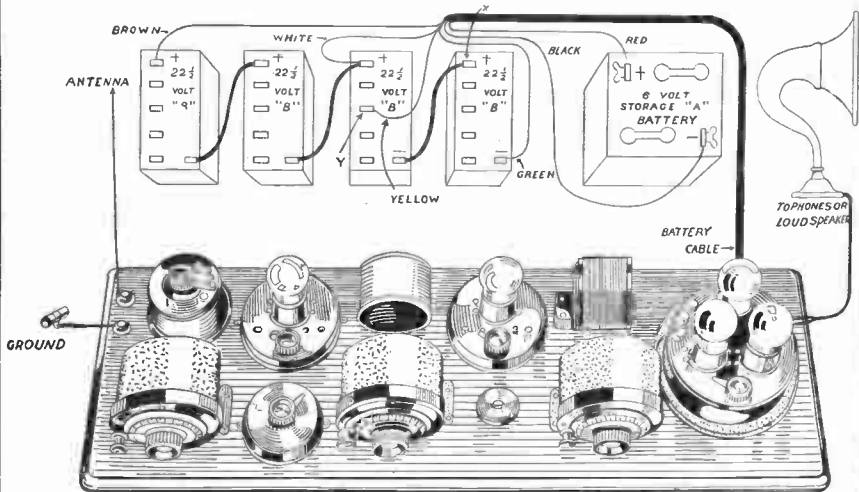
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LOS ANGELES

Announcing the New

ATWATER-KENT

Model 10-B
Radio Receiving Set



*Still Greater Selectivity
Finer Tone Quality
Better Distant Reception*

Try this latest advance in the science of radio yourself. We'll arrange a demonstration for you

ELECTRIC EQUIPMENT CO.

Atwater-Kent Distributors

1240 S. Hope St.
Los Angeles

A Farewell Message

Hall Berringer

It grieves me, and yet it pleases me, to take my pen in hand to tell my friends, and the friends of "Radio Doings," the story I am about to relate.

A year and a half ago I accepted a position with "Radio Doings" as technical editor. At this time our little magazine had a circulation of 3,500 copies per week. The circulation today is 25,000, so you see our famous little book has gone over the top in a big way. There are many people today on this Coast of ours that do not realize just what "Radio Doings" means to them, and of course there are others who appreciate all. I want our readers to know that a book of programs, current radio events, news, etc., is the most valuable thing one can possibly have if they have a radio in their home, because it saves tuning and searching for stations that perhaps are not on the air and tells them what they are to expect from each station they tune in. Not only this, but the letters that are printed each week make "Radio Doings" a greater and better book, because it brings the listeners, or owners of radio sets, into closer touch with each other, giving a feeling of co-operation that really is a wonderful thing.

Now, my part in this wonderful book has been to give our friends clean-cut information regarding the technical side of radio. I have tried, and believe I have succeeded in giving an unbiased opinion on all questions asked me. I wish to apologize to all those who have asked questions of a nature that were not technical or questions relating to some nationally advertised radio product. These questions could not be answered, due to the fact that we have tried to make our magazine a magazine of unbiased opinion.

Now, this is the part that grieves me:
"Radio Doings,"

Van Nuys Building, Los Angeles, California.

Gentlemen: Due to the fact that Kierulff & Ravenscroft of 1630-32 South Los Angeles Street, Los Angeles, exclusive distributors for Kennedy Radio Equipment in the State of California, are opening a branch in San Francisco, and as I have had a wonderful opportunity to accept a position as manager of this branch, to be located at 654 Howard Street, San Francisco, and as it would be impossible for me to continue my work for "Radio Doings," I hereby resign my position as technical editor of your wonderful little magazine. I want to assure you that I have taken great pleasure in being associated with your magazine, and I want to congratulate Mr. Perdun and Mr. Charles on their wonderful work in putting over for the first time in the United States a real sheet of this kind.

I want to assure you that if at any time I can serve you in the North I will be glad to do so.

Thanking you again, I am.

Yours very truly,

HALL BERRINGER.

It would have been a wonderful thing if I could have continued with this magazine, and I desire to assure the readers of "Radio Doings" that if at any time I can help them in any of their problems I will be glad to do so.

HALL BERRINGER.

RADIO EXCHANGE

Bring in your parts and change for parts you now need.

Realizing the need of the Radio public when constructing a new circuit, we offer to you this service—a centrally located Radio firm with a complete stock, offered to you at wholesale prices. Practical advice and a work bench ready for you at all times, with our parts exchange department always ready to assist you. Doesn't that put the pep in Radio?

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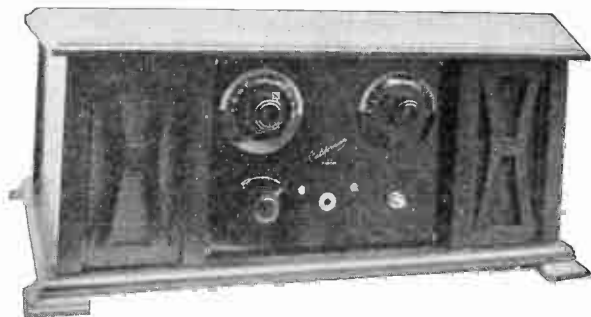
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"Radio's Best from the Golden West"



"Consolette" Type C-1

Complete with Tubes, Batteries, and Loud Speakers, self-contained in beautiful mahogany cabinet.

Price \$100

The Californian's beautiful mahogany cabinet which will grace any living room stamps it as desirable in addition to The Californian's Pure Tone Quality, Extreme Selectivity and Simplicity of Operation.

The Californian

Has a built-in Loud Speaker of special design and reproduces both music and voice clearly and without distortion.

The Californian

Is extremely selective and is easy to operate. With one dial the desired station is brought in while amplification is accomplished with a second dial. After different stations have been logged it is always possible to bring them in on the same combination in the future.

The Californian

Is self-contained; loud speaker and batteries are within the cabinet and the whole is light enough to allow of its being taken with you on auto trips to the mountains, lakes or sea-shore.

The Californian

Is GUARANTEED by the manufacturers to give satisfaction and you are assured of a set that will do what is claimed for it.

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.

K F I, Radio Central Station

Those persons interested in mechanical research who remember approximately ten years ago, when voice communication without wires began to be discussed, can gauge the tremendous strides which have been made since then. It was about three years ago when the small broadcasting station became known outside of scientific circles. The first concerts broadcast were put on the air as experiments only, and it was public clamor for their continuance that caused the installation of sets to meet this demand. The only apparatus available for radio transmission was equipment that had been designed for carrying the human voice at conversational pitch.



Studio at KFI

Radio sets were not sold commercially, and the listener-in had to rely on home-made equipment that was not designed to detect quality transmission. Improvements in receiving sets began at once, but corresponding developments in broadcasting apparatus were much slower.

For this reason, the 5 kilowatt (5000 watt) Western Electric set to be installed for the Earle C. Anthony, Inc. Station of KFI, is of especial interest to the land of radio, as this is the first time the public will have the opportunity to receive concerts from a transmitter designed with the musical angle of radio particularly considered. This powerful equipment is designed to transmit the deepest tone of an organ or the highest soprano note, the intermediate range having better quality than is now possible.

An idea of the difference of the size of KFI's new set and the present one of 500 watts, can be judged by comparison of the transmission panel alone. The 5000 watt transmission panel is 16 feet long, and covers a floor space of 144 square feet, whereas the existing panel covers but 4 square feet. Many persons think that to double the power, the size must also be doubled, but as quality is the important point in this Western Electric equipment, the power panel is but ten times its present size, whereas the transmission covers thirty-eight times the space.

To accommodate the new equipment the entire roof space of the Packard Building is to be remodeled, special construction work commencing almost immediately. A reception room for visiting artists, friends of persons on the programs, and interested sightseers will be 750 square feet, and in appearance will simulate the lounge of a large hotel, for its comfortable furnishings, shaded lamps, and at-

Transmitters, Receivers and Radio Instruments Built on Honor

Tuning and Calibration of Radio Equipment and all Electrical Instruments.
I am equipped to test all Radio Equipment and Tubes.

N. E. BROWN

President Southern California Radio Association

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LOS ANGELES

Thor Radio Storage B Battery



50 VOLTS, 4800 MILIAMPERE HOURS

Length 11 in. Width 7½ in. Weight 22 lbs.

Price \$22.00

ADVANTAGES

Individual glass cells insure against surface discharge and enable the user to see the water height and condition of each cell at all times.

Extra thick plates insure a steady flow of current and prevent needless noise and crackling.

Heavy separators eliminate internal discharge, deterioration and sulphation.

The soft rubber cover forms a tight seal, prevents creeping of acid and subsequent losses.

Jars are of extra heavy glass and have a sediment chamber in the bottom. This means long life without cleaning.

Heavy cell connectors make a positive connection and prevent high resistance, which is a source of trouble when made otherwise.

Case is dovetailed and has heavy spacers separating the cells.

THOR batteries are shipped dry. The necessary electrolyte is furnished in a separate container, together with a bulb for filling. This guarantees you a fresh battery when you purchase it.

THOR RADIO BATTERIES will give greater volume to your set, clear reception and elimination of undesirable noises.

For Sale at Your Radio Dealer

DISTRIBUTORS

Wholesale Radio Electric Corporation

The Electric Corporation

The Braun Corporation

Walter Biddick Inc.

MANUFACTURED BY

THORNTON & EVEREST, Inc.

Los Angeles, Calif.

tractive hangings. The radio offices will also be elaborately fitted to take care of broadcasting records, files, etc. The remainder of the space will be transformed into a roof garden of unusual charm.

A census of KFI listeners-in is being made to ascertain the type of program most universally popular. When the consensus of opinion is obtained, the schedule of recitals, talks, orchestra engagements and other radio entertainment will be made up, based on the vote of the actual public. In this fashion, the Earle C. Anthony Corporation can more surely judge "what the public wants," and give it to them.

Chile to Have New Broadcast System

Arrangements are being carried out in Chile for radio broadcasting system to embrace every town and city in the country as well as those in contingent territories, according to advices from Santiago, received by the Department of Commerce. A syndicate, known as Radio Chileno, plans to erect two new stations, one in the south of the country at Temuco and the other at Antofogasta, in the nitrate zone. Their principal station at Santiago has been in operation for some eight months, but in view of the unsatisfactory results obtained with the present equipment the station will be dismantled and re-equipped with modern American apparatus of the same type and power as that purchased for the new plants. During the change over a small 10-watt American transmitting set will be used to convey the nightly radio program to the enthusiasts in and around the capital.

One of the subjects to be taken up by this summer's radio conference will be emergency work. Secretary Hoover's radio executives are working out other details and planning for the organization of several research and development committees.

RADIO INSTRUCTION

*The Science of Radio
Taught by Experts*

We Save You Money and Teach You How

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for Bay District

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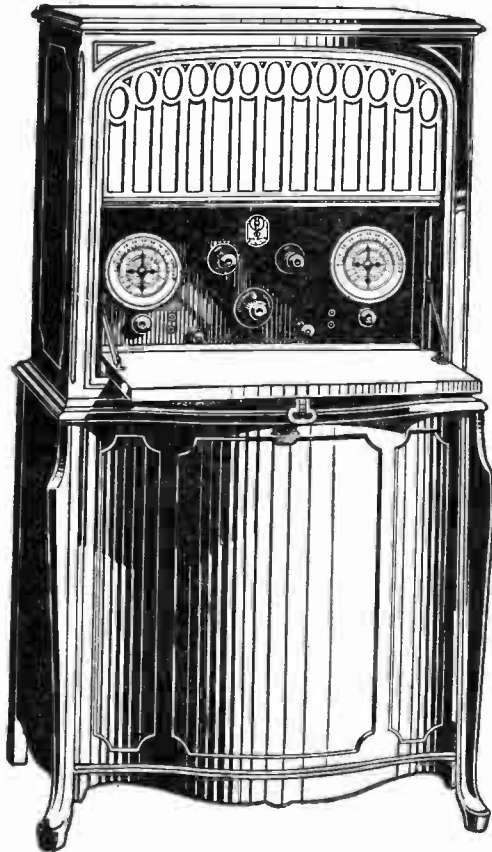
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Radiotrons



"Triumphs of Radio Research"

Leo J. Meyberg Co.

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Resistance Coupled Amplifiers

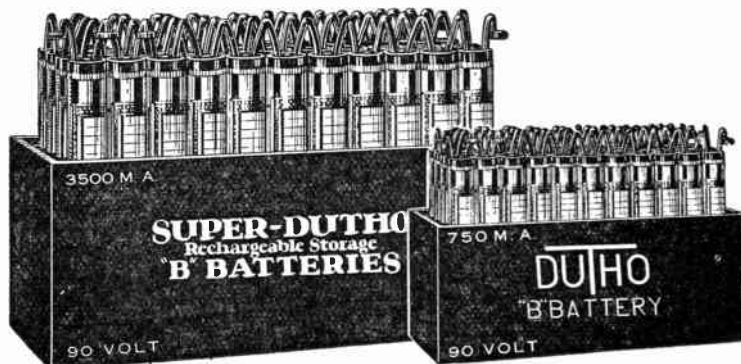
For quality reproduction of broadcast music or speech, with absolute freedom from distortion, nothing can equal resistance coupled Audio Frequency Amplifiers. The outstanding features are: Freedom from distortion, equal amplification of all tone frequencies, low "B" battery consumption, simplicity of assembly and compactness, low cost per stage, absence of tube noises, and the possibility of operating any number of stages without howling or interaction between stages.

For volume, three stages of resistance coupling is fully equal to two stages of transformer coupling. While in order to get this volume practically twice the plate voltage is required over transformer coupling, yet the lower amperage consumption compensates for this—less than two milliamperes per stage. Four stages of resistance coupling consumes less plate battery than one stage of transformer coupling.

For local broadcasting, a crystal set, assuming that it is properly constructed and is sufficiently selective, with a three stage resistance coupled amplifier, is the ideal receiver. Of course, distance cannot be expected except when you have a good location, a long high aerial and sufficient skill in the handling of the set to attain maximum results, although a stage of radio frequency ahead of the crystal would no doubt enable distance to be brought in fully, as well as with the majority of three or four tube sets. With this equipment, the only distortion will be in the transmitting station and your loud speaker. The modern transmitter is practically free from this fault, and the distortion of any of the standard loud speakers on the market today is so slight that only a trained ear can detect it.

A few grid leaks and small fixed condensers, as in the Daven circuit, is all that is required to make this perfect amplifier. The writer regrets that time does not permit a diagram of the circuit with this issue, but it will appear in the next week's issue.

Dutho "B" Batteries



PRICE LIST

TYPE "L"		TYPE "S"	
3500 M. A. Hours Capacity		750 M. A. Hours Capacity	
Volts	Price	Volts	Price
24.....	\$ 9.00	24.....	\$ 5.00
45.....	17.00	45.....	9.00
90.....	32.00	90.....	17.00

Sales and Serviced By

New York Pacific Battery Company

646 W. Washington St.

Atlantic 8642

Los Angeles

THE DYMAC LINE

Quality Merchandise at Attractive Prices



Type E Audio Frequency Amplifying Transformer

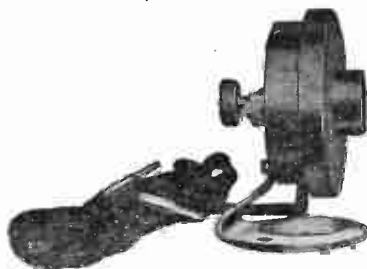
Enclosed core type. 42 pure iron laminations, moisture proof coil. Ratio 3 to 1. Leads four-ply, silk covered and varnished, to provide adequate insulation.

List Price \$2.50

Type A Loud Speaker Unit

An exceptional loud speaker unit. Finished in black enamel with polished nickel trimmings. Ample volume for home or small hall. Standard for Victor, Columbia, Sonora and Jewett.

List Price \$5.00



Type A Audio Frequency Amplifying Transformer

Shell core type. Ratio 4 to 1. Flux leakage very low. Amplifiers may be placed adjacent to each other without howling or other ill effects. Gives full, soft, well rounded tones.

List Price \$3.50

ELECTRICAL PRODUCTS MFG. CO.
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447 Pacific Bldg.

LOS ANGELES
1113 Wall St.

SEATTLE
116 13th Ave., No.

Radio Among the Stars of Hollywood

By DR. RALPH L. POWER

Radio has not only proved a boon to the tired business man. It has entered the world as "make-believe" and movieland has literally gone radio mad from the film star and producer to the stage carpenter and the prop man.

Before the popularization of radio, screen stars found a few hours leisure at the close of day after returning from location. The "gay white way" of Hollywood usually claimed them but "them days is past."

Nowadays the movie folk rush home and tune in on local and long distance stations immediately at the close of the day's work. The average actor goes to work as early as a street car conductor or a bricklayer. They arrive at the set between 8 and 9 o'clock and they must be ready for work.

Reliable figures, quoted from various studios, place the estimate that 62 per cent of the movie colony possess receiving sets of some kind.

Let's begin with the youngsters—little Baby Peggy, the starlet. Peggy retires early. In fact it is doubtful if Peggy has seen the hands of the clock reach 8 in the evening many times. Early each night little Peggy listens in on the big radio set her daddy, Jack Montgomery, bought for her. She has developed into a really enthusiastic radio fan and has spoken from broadcasting stations in Los Angeles and New York on several occasions. The entire Montgomery family are fans, as a matter of fact, and every evening finds them grouped about the loud speaker.

At the huge Principal Pictures Corporation plant in Hollywood, the mechanics have installed a receiving set in the work shop. While they are planning giant sets for Principal Pictures, they do so to the tune of jazz music. Its great entertainment and tends to establish a better and stronger feeling of comradeship among the studio workmen.

Stars of the silent drama often turn to the opposite side of entertainment—to the invisible singers, instrumentalists and speakers of the radio. There is a certain fascination for they themselves are seen but not heard and they go to the radio to hear from those who cannot be seen.

The word "radio" is generally the gathering call for radio bugs at the Lasky Studio in Hollywood. Picture stars, directors, cameramen and electricians tell of the distance their home sets reach out into space to capture the different points of the compass.

Of course the electricians are the experts but other technicians often offer authoritative advice, for many members of the technical staff are college graduates in electrical, civil and mechanical engineering.

Betty Compson was one of the first stars in the Paramount studios to get the radio fever. When Sam Wood directed "The Female," Miss Compson, hearing a violin solo on the radio, took a violin from one of the studio musicians on the stage set and played a duet.

If you have the opportunity of watching a film actor or actress listening-in with a set of ear phones it is possible to guess the nature of the stories or music that is being broadcast. One moment they wear a whimsical expression, then it changes to the dramatic and later to a look of surprise.

(To Be Continued Next Week)

!! SPECIAL !!

RADIOLA GRAND—used.....	\$225.00
RADIOLA IV—used.....	175.00
RADIOLA V—used.....	40.00
GREBE C. R. 9—used.....	75.00
ONE-TUBE HONEYCOMB TUNER—new.....	30.00

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None but Erla transformers are encased in costly, one-piece, drawn steel housing, completely eliminating magnetic interaction. List, \$5.00.



The Erla
Fixed Crystal
Price \$1.00



Superior accuracy of Erla tested capacity condensers is invaluable for securing utmost efficiency from any receiving unit. 30c to 75c.

Also

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Globe Commercial Co.

Southern California Office:

1113 Wall Street, Los Angeles

Room 205, Radio Bldg.

Signals From Arlington Set Standard Clock

Arlington time signals transmitted by radio every noon and 10 p. m. may soon be adopted to set your clocks automatically. It is somewhat of a bore to listen for five minutes preceeding the receipt of the long dash from NAA, which indicates standard Eastern time twice daily, and then set your clocks or watch as accurately as possible. It is necessary to have the exact time at sea, where it is used in navigation, and all the preliminary dots from NAA are followed and counted carefully by radio operators and navigators so the ship's chronometer may be checked accurately. But many shore radio fans would prefer a stand-by signal followed by a quick announcement "Ten o'clock."

A recent experiment in radio clock setting performed at the Bureau of Standards will be beneficial and pleasing to all listeners-in, radio operators, amateurs and experimenters. With special apparatus your clock, properly connected, may be set for you twice daily by radio. Arlington has been transmitting time signals received by wire from the Naval Observatory standard clocks since 1912, and has been regulating Western Union and Postal Telegraph master clocks by wire since 1916. There is nothing new in transmitting time signals or in setting clocks, as thousands of clocks throughout the country are so set daily by wire.

But Dr. J. H. Dellinger of the Bureau of Standards has just reported the setting of a Lighthouse Service electric program clock installed in the laboratory at the Bureau by radio signals from Arlington. This is different and new. What is more, properly installed clocks may soon be set by radio for railroad stations, ships at sea, and in outlying sections where no other communications exist. This method may be applied to ringing alarms at noon and 10 p. m., if desired, and could be employed at other hours of the day if Arlington sent more frequent signals.

The essential elements, Dr. Dellinger says, are: a good radio receiving set, with an efficient antenna; a radio relay; a retardation relay and a suitable clock. The Bureau was experimenting with a clock of the Lighthouse Service used for carrying out daily programs, and capable of setting or control by an electrical relay. The Bureau also had a radio relay which would operate the clock relay when a certain signal was received by radio. These pieces of apparatus were hooked up and a special series of radio relays interposed and so adjusted as not to operate during the receipt of the preliminary dot signals from NAA. They functioned when the dash came, however, and operated the main relay setting the clock at the hour—that is, noon or 10 p. m. The radio relay was connected up to the receiving set in place of the usual phones. Dr. Dellinger also pointed out that further adjustments could be effected so as to turn on the tubes of the receiving set by radio impulses, and such as the series of dots five minutes prior to the receipt of the hour dash, thus automatically operating the set when the owner was absent, provided it was properly tuned and insuring the time correction of the clock.

Murdock Radio Head Phones "Standard Since 1914"

AFTER JULY 1ST
Western Radio, Inc.
AT
1224 WALL ST.
Phone ATLantic 9257

6-8 A. M.
PACIFIC TIME

RADIO TIME TABLE

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

STATION	WATTS	CITY	METERS	CALL	SUN.		MON.		TUES.		WED.		THUR.		FRI.		SAT.	
					6.00-6.30	6.30-7.00	6.30-7.00	7.00-7.30	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
Reynolds Radio	500	Denver	300	KLZ														
Free Press	500	Detroit	617	WCX														
Detroit News	800	Detroit	617	WWJ														
Woodmen of W.	500	Omaha	028	WOAW	X	X			X	X			X	X			X	X

8-10 A. M. PACIFIC TIME

9-11 Mountain Time

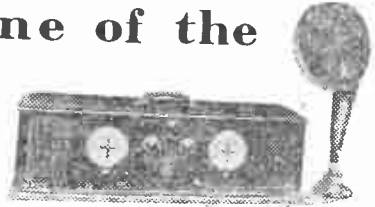
10-12 Central Time

11- 1 Eastern Time

STATION	WATTS	CITY	METERS	CALL	SUN.		MON.		TUES.		WED.		THUR.		FRI.		SAT.	
					8.00-8.30	8.30-9.00	9.00-9.30	9.30-10.00	8.00-8.30	8.30-9.00	9.00-9.30	9.30-10.00	8.00-8.30	8.30-9.00	9.00-9.30	9.30-10.00	8.00-8.30	8.30-9.00
Echophone Radio	100	Long Beach	234	KFON														
S. F. Examiner	150	San Francisco	360	KUO														
Reynolds Radio	500	Denver	360	KLZ	X	X												
Star-Telegram	500	Fort Worth	476	WBAP	X	X												
News and Journal	500	Dallas	478	WFAA	X	X												
Palmer School	500	Davenport	484	WOC			X	X					X	X			X	X
John Wanamaker	500	Philadelphia	509	WOO			X	X					X	X			X	X
Federal Tel.	500	Buffalo	319	WGR					X				X	X			X	X
Calumet B. Pdr.	500	Chicago	448	WQJ			X	X					X	X			X	X

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dyne | 299.60 | Radiola IIIa | 111.20 |
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"Everything Gas and Electric"

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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	10.00-10.30	10.30-11.00	10.00-10.30	10.30-11.00	10.00-10.30	10.30-11.00	10.00-10.30	10.30-11.00	10.00-10.30	10.30-11.00	10.00-10.30	10.30-11.00
L. A. Times	500	Los Angeles	385	KH J	X	X												
Earl C. Anthony	500	Los Angeles	468	K F I	X	X												
Bible Institute	750	Los Angeles	360	K J S	X	X												
Angelus Temple	500	Los Angeles	278	K F S G	X	X												
So. Electric Co.	50	San Diego	244	K D P T	X	X												
Hale Brothers	500	San Francisco	423	K P O		X	X											
Tribune	508	Oakland	509	K L X	X	X												
Warner Bros.	280	Oakland	360	K L S				X										
Gould	5	Stockton	360	K J Q	X	X					X							X
Fallon & Co.	100	Santa Barbara	360	K F H J	X	X												
Guy Greason	10	Tacoma	360	K F E J			X	X			X	X						
Rhodes Co.	100	Seattle	455	K D Z E			X	X					X					
First Pres. Church	750	Seattle	360	K T W		X	X				X	X						
Meler & Frank	50	Portland	360	K F E C					X					X				X
Oregonian	500	Portland	492	K G W					X				X					X
Reynolds Radio	500	Denver	283	K L Z				X		X				X				X
News and Journal	500	Dallas	476	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	X				X
Federal Tel. Co.	500	Buffalo	319	W G R					X	X		X		X				X
Sears-Roebuck	500	Chicago	345	W L S			X	X		X		X		X				X

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Radiola Super Heterodyne

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2-Tube Regenerative Receiver

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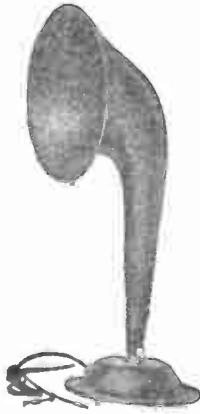
12-2 P. M.
PACIFIC TIME

RADIO TIME TABLE

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

STATION	WATTS	CITY	METERS	CALL	SUN.		MON.		TUES.		WED.		THUR.		FRI.		SAT.		
					12.00-12.30	12.30-1.00	1.00-1.30	1.30-2.00	12.00-12.30	12.30-1.00	1.00-1.30	1.30-2.00	12.00-12.30	12.30-1.00	1.00-1.30	1.30-2.00	12.00-12.30	12.30-1.00	1.00-1.30
L. A. Times.....	500	Los Angeles...	395	KH J	X														
Bible Institute.....	750	Los Angeles...	360	K J S	X														
Angelus Templo.....	500	Los Angeles...	278	K F S G	X														
So. Electric Co.....	50	San Diego.....	244	KDPT				X											
Warner Bros.....	250	San Francisco..	360	KL S	X	X													
Hale Bros.....	500	San Francisco..	423	K P O			X	X	X	X									
General Elec.....	1000	Oakland.....	312	K Q W				X	X										
Herrold Lab'y.....	50	San Jose.....	360	K Q W				X	X										
Guy Greason.....	10	Tacoma.....	360	K F E J			X	X	X	X									
Rhodes Co.....	100	Seattle.....	270	K D Z E			X	X	X	X									
Honolulu Star Bul	100	Honolulu.....	360	K D Y X	X	X													
Honolulu Adver.....	500	Honolulu.....	360	K G U			X	X	X										
Reynolds Radio.....	500	Denver.....	283	KL Z				X	X										
Pyles Nichols.....	10	Denver.....	360	K D Z Q			X	X											
News and Journal	500	Dallas.....	476	W F A A	X	X													
Palmer School.....	500	Davenport.....	484	W O C				X	X										
Star.....	500	Kansas City...	411	W D A F				X	X										
News.....	500	Detroit.....	517	W W J			X	X	X	X									
Radio Corp. of Am.	500	New York.....	455	W W J			X	X	X	X									
Herald.....	1000	Calgary.....	420	C F A C			X	X	X	X									
Federal Tel. Co.....	500	Buffalo.....	319	W G R	X	X	X	X	X	X									
Woodmen of W.....	500	Omaha.....	526	W O A W	X	X	X	X	X	X									
Sears-Roebuck.....	500	Chicago.....	345	W L S	X	X	X	X	X	X									
Calumet B. Pdr.....	500	Chicago.....	448	W Q J	X	X	X	X	X	X									

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THREE BARS
AUDIOPHONE
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It is substantial in construction and good looking in appearance. The metal base is finished in dull gold bronze with fiber horn of same color to match.

This Loud Speaker has back of it a manufacturer's of 35 years' good reputation.

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BRISTOL ONE STAGE POWER AMPLIFIER

No "C" Battery Required

A unit that can be used as a third stage without howling. Install one and give that distant station a chance to come in like locals.

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WHOLESALE ONLY

4-6 P. M.
PACIFIC TIME

RADIO TIME TABLE

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

STATION	WATTS	CITY	METERS	CALL	SUN.		MON.		TUES.		WED.		THUR.		FRI.		SAT.		
					4.00-4.30	4.30-5.00	5.00-5.30	5.30-6.00	4.00-4.30	4.30-5.00	5.00-5.30	5.30-6.00	4.00-4.30	4.30-5.00	5.00-5.30	5.30-6.00	4.00-4.30	4.30-5.00	5.00-5.30
E. C. Anthony	500	Los Angeles	469	K F I	X	X													
L. A. Herald	500	Los Angeles	469	Herald					X										
L. A. Examiner	500	Los Angeles	469	Exam'n'r					X										
Angelus Temple	500	Los Angeles	278	K F S G	X	X			X	X	X	X	X	X	X	X	X	X	
Echophone Radio	100	Long Beach	234	K F O N					X										
General Electric		Oakland	312	K G O			X	X	X	X	X	X	X	X	X	X	X	X	
Hale Bros	500	San Francisco	423	K P O			X	X	X	X	X	X	X	X	X	X	X	X	
Oakland Tribune	500	Oakland	509	K L X			X												
S. F. Examiner	150	San Francisco	360	K U O				X	X										
Maxwell Elec.	50	Berkeley	278	K R E															
Portable Wireless	100	Stockton	360	K W G			X	X											
Gould	5	Stockton	360	K J O			X	X											
Radio Den.	10	Santa Ana	268	K F A W			X			X									
Nielson Radio Co.	10	Phoenix	238	K F C B				X	X										
Post Intelligencer	100	Seattle	270	K F J C			X			X									
Star Electric	50	Seattle	283	K F H R			X	X		X									
First Pres. Church	750	Seattle	360	K T W	X	X													
Northwest Radio	50	Seattle	288	K J R			X	X	X	X	X	X	X	X	X	X	X	X	
Meier & Frank	50	Portland	248	K F E C			X	X	X	X	X	X	X	X	X	X	X	X	
Hallock & Watson	50	Portland	390	K G G			X	X	X	X	X	X	X	X	X	X	X	X	
Pyle & Nichols	10	Denver	360	K D Z Q		X	X	X	X	X	X	X	X	X	X	X	X	X	
Star-Telegram	500	Fort Worth	476	W B A P					X										
News and Journal	500	Dallas	476	W F A A			X	X		X									
Southern Egr. Exp.	500	San Antonio	385	W O A I							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	
Post Dispatch	500	St. Louis	546	K S D							X	X	X	X	X	X	X	X	
Daily News	500	Chicago	448	W M A Q						X	X	X	X	X	X	X	X	X	
Drake Hotel	500	Chicago	380	W D A P				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	X	X	X	
News	500	Detroit	517	W W J	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Star	500	Kansas City	411	W D A F	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Crosley Mfg. Co.	500	Cincinnati	423	W L W			X	X	X	X	X	X	X	X	X	X	X	X	
Radio Cor. of Am.	500	New York	485	W J Z		X	X	X	X	X	X	X	X	X	X	X	X	X	
John Wanamaker	500	Philadelphia	509	W O O			X	X	X	X	X	X	X	X	X	X	X	X	
Federal Tel. Co.	500	Buffalo	319	W B R			X	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	X	X	X	
Westinghouse	1000	Springfield	337	W B Z			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	X	
Woodmen of W.	500	Omaha	526	W O A W	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Willard Battery	1000	Oleveland	390	W T A M							X	X	X	X	X	X	X	X	
Canadian Nat. Ry.		Ottawa	436	CK C H					X	X	X	X	X	X	X	X	X	X	
Sears-Roebuck	500	Chicago	345	W L S		X	X		X	X	X	X	X	X	X	X	X	X	
Calumet B. Pdr.	500	Chicago	448	W Q J					X	X	X	X	X	X	X	X	X	X	

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

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Room 205, Radio Bldg.

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Los Angeles, Calif.

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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 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 7:30-8:00
Bible Institute	750	Los Angeles	360	K J S	X	X					
L. A. Times	500	Los Angeles	395	KH J	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	360	K N X							
Echaphone Radio	100	Long Beach	234	K F O N		X	X				
Hale Brothers	500	San Francisco	423	K P O		X	X	X	X		
S. F. Examiner	150	San Francisco	360	K U O		X	X	X	X		
Maxwell Electric	50	Berkeley	278	K R E							
Tribune	500	Oakland	509	K L X		X					
General Electric	1000	Oakland	312	K G O			X				
Kimball & Upson	100	Sacramento	283	K F B K		X	X	X	X		
Fallon & Co.	100	Santa Barbara	360	K F H J		X	X	X	X		
Radio Den	10	Santa Ana	268	K F A W		X		X	X		
Southern Elect.	50	San Diego	244	K D P T		X	X	X	X		
Nelson Radio Sup.	10	Phoenix	238	K F C B		X					
McArthur Bros.	100	Phoenix	360	K F A D		X	X				
Love Elect. Co.	10	Tacoma	360	K M O		X	X	X	X		
Mullens Elect. Co.	50	Tacoma	252	K G B			X	X	X		
N. W. Radio Ser.	50	Seattle	283	K J R		X	X	X	X		
Excel. Motor Cy.	100	Seattle	380	K H Q			X	X	X		
First Pres. Church	750	Seattle	360	K T W		X	X	X	X		
Star Electric	50	Seattle	233	K F H R		X	X	X	X		
Oregonian	500	Portland	492	K G W	X	X	X	X	X		
Hallock & Watson	50	Portland	360	K G G	X	X					
Meier & Frank	50	Portland	248	K F E C	X	X					
Apple Cy. Rad. Clb.	10	Hood River	360	K O P		X					
Adler's Music Store	5	Baker, Ore.	360	K F D A	X	X					
Boise High School	150	Boise, Ida.	270	K F A U			X	X	X		
Bunkerhill-Sul. Co.	10	Kellogg, Ida.	360	K F E Y		X					
Telegram	100	Salt Lake	360	K D Y L		X	X	X	X		
Reynold's Radio	500	Denver	283	K L Z		X					
Western Radio	50	Denver	360	K F A F		X	X				
Pyle & Nichols	10	Denver	360	K Z D Q	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 El	1000	Hastings, Neb.	341	K F K X							X
Star-Telegram	500	Fort Worth	476	W B A P		X	X	X	X		
News and Journal	500	Dallas	476	W F A A		X	X	X	X		
Palmer School	500	Davenport	476	W O A W	X	X	X	X	X		
W. O. W.	500	Omaha	528	W O A W	X	X	X	X	X		
Daily News	500	Chicago	448	W M A Q		X	X	X	X		
Post Dispatch	500	St. Louis	546	K S D	X	X	X	X	X		
Westinghouse	1000	Chicago	536	K Y W		X	X	X	X		
Sweeney School	500	Kansas City	411	W H B		X	X	X	X		
Star	500	Kansas City	411	W D A F	X	X	X	X	X		
Drake Hotel	1000	Chicago	390	W D A P	X	X	X	X	X		
Crosley Mfg. Co.	500	Cincinnati	421	W L W	X	X	X	X	X		
Albertan Pub. Co.	250	Calgary, Can.	410	C H B C							
Detroit Free Press	500	Detroit	517	W C X		X	X	X	X		
Radio Cor. of Am.	500	New York	455	W J Z	X	X	X	X	X		
John Wanamaker	500	Philadelphia	509	W O O	X	X	X	X	X		
Federal Tel. Co.	500	Buffalo	319	W G R		X	X	X	X		
El Buen Tono	500	Mexico City	425	C Y B							
El Universal	500	Mexico City	500	C Y L							
Willard Battery	1000	Cleveland	380	W T A M							
Westinghouse	1000	Pittsburg	328	K D K A							
Canadian Nat. Ry.		Ottawa	435	C K C H							
Chamber of Com.	50	El Paso	268	W D A H							
Calumet B. Pdr.	500	Ghicago	449	W Q J	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.

Notice to the Trade

Our Pacific Coast Factory is now open at 239 South Los Angeles St., under the direction of EMMETT R. PATTERSON, formerly of the Patterson Electric Company, who has been retailing WORKRITE Neutrodyne sets.

Mr. Patterson has closed out his entire retail business and will devote his entire organization to the manufacture of WorkRite sets and parts for the trade.

WATCH FOR DISPLAY OF NEW MODELS

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

8-11 Mountain Time
10-12 Central Time
11-1 Eastern Time

STATION	WATTS	CITY	METERS	CALL	SUN.		MON.		TUES.		WED.		THUR.		FRI.		SAT.	
					8:00-8:30	8:30-9:00	8:00-8:30	8:30-9:00	8:00-8:30	8:30-9:00	8:00-8:30	8:30-9:00	8:00-8:30	8:30-9:00	8:00-8:30	8:30-9:00	8:00-8:30	8:30-9:00
L. A. Herald	500	Los Angeles	468	Heald			X	X										
Bible Institute	750	Los Angeles	360	K J S	X	X												
L. A. Times	500	Los Angeles	395	KH J	X	X												
L. A. Examiner	500	Los Angeles	469	Exam'n'r					X	X								
E. C. Anthony	500	Los Angeles	469	K F I	X	X												
Angelus Temple	500	Los Angeles	278	K F S G	X	X												
Echophone Radio	100	Long Beach	234	K F O N	X	X												
Hale Bros.	500	San Francisco	423	K P O	X	X	X	X	X	X	X	X	X	X	X	X	X	X
S. F. Examiner	150	San Francisco	360	K U O														
Warner Bros.	250	San Francisco	360	K L S														
Oakland Tribune	500	Oakland	509	K L X		X	X	X	X	X	X	X	X	X	X	X	X	X
Maxwell Electric	50	Berkeley	275	K R E														
General Elec. Co.	1000	Oakland	312	K G O														
T. Seifert	103	Bakersfield	360	K D Z B					X	X								
Portable Wireless	100	Stockton	360	K W G			X	X										
Herold Lab'y.	50	San Jose	360	K W O							X	X						
Kimball-Upson	100	Sacramento	283	K F B K							X	X						
Gould	500	Stockton	360	K J O				X	X									
Fallon & Co.	100	Santa Barbara	360	K F H J							X	X						
Southern Elec. Co.	50	San Diego	244	K D P T			X	X	X									
R. H. Horn	50	San Luis Obispo	242	K F B E							X	X						
Drake Radio	5	Santa Rosa	234	K F N V											X	X	X	X
Univ. of Ariz.	150	Tucson	260	K F D B					X				X					
Nelson Rad. Sup.	10	Phoenix	238	K F C H											X	X	X	
Post-Intelligencer	100	Seattle	270	K F J C				X	X	X			X	X	X	X	X	X
Excelsion Motor	100	Seattle	360	K H O			X	X	X									
Rhodes Co.	500	Seattle	455	K F O A				X	X	X								
First Pres. Church	750	Seattle	380	K T W	X	X	X											
Star Electric	50	Seattle	283	K F H R					X	X								
Mullens Elec.	50	Tacoma	252	K G B				X	X									
Oregonian	500	Portland	492	K G W			X	X			X	X			X	X		
Hallock & Watson	50	Portland	360	K G G							X	X						
Stubbs Elect.	100	Portland	360	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 O P							X	X						
Boise High School	150	Boise, Ida.	270	K F A U			X	X										
Bunkerhill-Sul. Co.	10	Kellogg, Ida.	360	K F E Y					X					X				
Reynolds Radio	500	Denver	283	K L Z	X	X												
Pyle & Nichols	10	Denver	330	K D Z O					X	X				X	X			
Westinghouse Et.	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							
Palmer School	500	Davenport	484	W O C	X	X								X	X			
Post Dispatch	500	St. Louis	546	K S D					X	X								
Star	500	Kansas City	411	W D A F		X	X		X									
Woodmen of W.	500	Omaha	526	W O A W			X											
Westinghouse	1000	Chicago	536	K Y W						X	X	X	X	X	X	X	X	X
Drake Hotel	1000	Chicago	360	W D A P					X	X	X	X	X	X	X	X	X	X
Crosley Mfg. Co.	500	Cincinnati	423	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
Radio Cor. of Am.	500	New York	455	W J Z			X											
Herald	1000	Calgary	420	C F A C	X	X		X	X					X	X			
W. W. Grant	500	Calgary	440	C K C 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	425	C Y B									X	X				
Sweeney School	500	Kansas City	411	W H B		X	X											
Edgewater Beach	1000	Chicago	370	W G N			X	X	X	X	X	X	X	X	X	X	X	X
Westinghouse	1000	Springfield	337	W B Z														
Westinghouse	1000	Pittsburg	320	K D K A					X	X	X							
Sears-Roebuck	500	Chicago	345	W L S			X	X	X								X	X
Calumet B. Pdr.	500	Chicago	448	W Q J									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.....	5.00
Homecharger Gold Seal.....	18.50
No. 4500 Cotocoil Transformer.....	2.50
Harkness Coil, Silk Wound.....	pair 3.00
Sodium Tubes, 1/4 amps, Detector Tubes, 1 1/2, 3, 4, 6.....	4.50
Sodium Tubes, 1/4 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. Superheterodyne Transformer.....	Each 4.00
Tungar Charges, 50 cyc., 2 amp.....	22.50

Sleeper Motrol

The Long Distance Set

Complete with Tubes, Batteries, Loud Speaker and Loop Ariel, \$145.00

No. 65 Federal Transformer.....	7.00
Mercury Table Talker.....	8.50
Parts for Workrite 5-Tube Set.....	70.00

SPECIAL SALE OF RADIO BOOKS

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

We have for Immediate Delivery

Erla Parts—Gilfillan, Sleeper and Remler Parts
Aome Transformers Amstran Transformers

Bradleystad and Bradley Leak, \$1.85

Full Line Transmitting Parts

Citizens Call Books, 50c

Radio News Handbooks, \$1.00

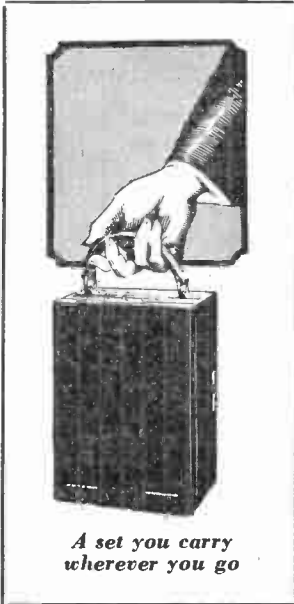
Cabinets, built to order, \$3.50 up

RADIO SUPPLY CO.

Open Evenings Till 9 P. M.
920 South Broadway

Telephone VAndike 6063
Los Angeles, California

Our New and Complete Price List Now Ready



Compact
as
a Camera

KOD
The Camera

"Make a Pal o

KODEL—A complete long distance R
remarkable receiving power and rang
on the floor brings in local stations.
aerial or on the ground wire alone.
operate.

Popularly Priced

Your Dealer will install Batter
at an approximate c

Your Radio Dealer Will Be

AT HOME
AT CAMP

ON THE FARM
ON THE TRAIN

Kodel Can

ANY I

ANYWHERE

*It is the ideal set for home use because it
out of sight when not in use. Occupies o
other accessories to carry.*

WHOLESALE DISTRIBUTORS

YALE RADIO ELECTRIC CO.

4816-4818 S. Vermont Ave., Los Angeles

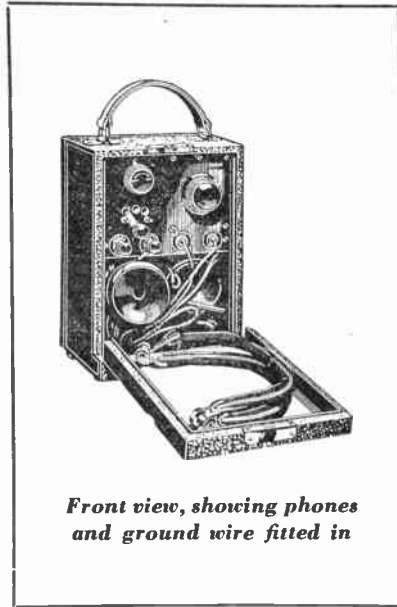
KODEL
of Radio
of Kodel?"

**A Real
Portable
Set**

Radio Set in a camera case. Has
A few feet of wire thrown
Will operate on any kind of an
It is highly selective and easy to

Without
Accessories **\$18.50**

ents, Tube and Phones
ost of \$10.00



*Front view, showing phones
and ground wire fitted in*

Glad To Demonstrate Kodel

Be Operated

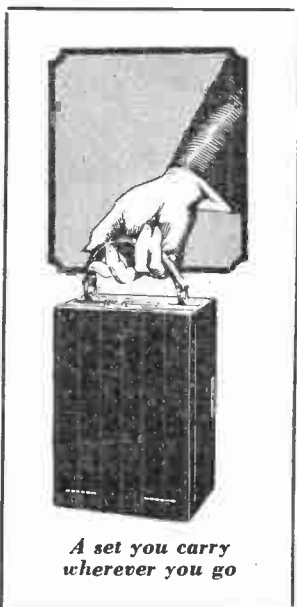
AT YOUR OFFICE IN THE PARK
AT THE SEASHORE ON BOARD SHIP

PLACE

ANY TIME

*is so compact, and can be folded and placed
in a small corner in your traveling bag—no*

MANUFACTURED BY
KODEL MFG. CO.
WESTERN BRANCH
400 San Fernando Bldg., Los Angeles



*A set you carry
wherever you go*

*Compact
as
a Camera*

KOD
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"Make a Pal o

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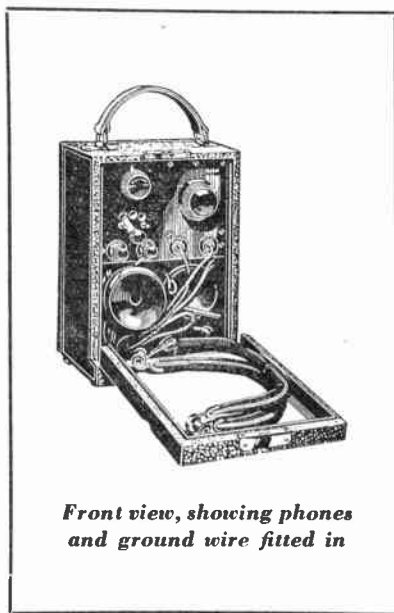
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*so compact, and can be folded and placed
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MANUFACTURED BY
KODEL MFG. CO.
WESTERN BRANCH
400 San Fernando Bldg., Los Angeles

QUALITY MAINTAINED

TRUTONE
TRADE MARK

PRICES REDUCED

The Popularity of TRUTONE has reduced manufacturing cost. The manufacturer believes in the policy, "Quality Merchandise at Fair Profit"—that's why TRUTONE prices are reduced.

LITTLE SENIOR has large mica diaphragm; wooden tone chamber in base; beautiful horn of non-metallic composition—complete with 6-foot cord, \$16.00. TRUTONE SENIOR maintain the high standard of Truetone Quality and is designed for those who want the best long-distance reception. Complete, with 6-foot cord, \$22.00.

TRUTONE, Types A and B (\$8.00 each), are amplifying horns for any make of single or double phone receivers. Horn only \$6.00. Base only \$2.00.

AWARDED THE RADIO
N E W S LABORATORIES
CERTIFICATE OF MERIT
NO. 309.

*Every dealer can
supply you.*



J. D. COLFORD & CO.

400 San Fernando Bldg., Los Angeles

Phone 823-269



"After the Receiving Set has brought in the stations, then your pleasure depends on the quality of the "speaker." Don't experiment; get the best "speaker"; get a TRUTONE—Quality at the right price."

—Radio Jim.

KHJ—Los Angeles Times—395 Meters

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

Daily, except Sunday and Monday, from 10 to 11 p. m., we will broadcast Art Hickman's Orchestra from the Biltmore Hotel. Sunday from 6:30 to 7:30 p. m. and daily except Monday, from 6 to 6:30, we will broadcast Art Hickman's Concert Orchestra from the Biltmore Hotel. 2:30 to 3:30 p. m. Daily except Sunday and Monday. Matinee musicale.

WEEK COMMENCING SUNDAY, JULY 6, 1924

- SUNDAY, JULY 6—**
 10:00 a. m. Sermon from KHJ Studio by Dr. H. C. Culbertson, pastor of the Plymouth Congregational Church.
 10:00 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.
 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 presented through the courtesy of the Paul G. Hoffman Co., Inc. The Wind Quintet—Andre Maquarre, flute; Henri De Busscher, oboe; Pierre Perrier, clarinet; Alfred Brain, French horn; Frederick Mauritz, bassoon; Blanche Rogers Lott, pianist.
- MONDAY, JULY 7—**
 12:30 to 1:15 p. m. Program presenting Carl Allen and his Rendezvous Ballroom Orchestra from the Crystal Pier.
 8:00 to 10:00 p. m. Special program through the courtesy of Barker Bros., presenting the Philharmonic Orchestra.
- TUESDAY, JULY 8—**
 12:30 to 1:15 p. m. Program of news items and music.
 2:30 to 3:30 p. m. Matinee musicale.
 6:45 to 7:30 p. m. Children's program, presenting Prof. Walter Sylvester Hertzog. The weekly visit of the Sandman and Queen Titania. Dorothy Nichols, pianist, 13 years old, pupil of Mrs. Walter M. Reckord.
 8:00 to 10:00 p. m. Program presented through the courtesy of the Stebbins, Roberts Bucor Co., arranged by J. Howard Johnson.
- WEDNESDAY, JULY 9—**
 12:30 to 1:15 p. m. Program presenting the Junior Novelty Three, through the courtesy of "Radio Red."
 2:30 to 3:30 p. m. Matinee musicale.
 6:45 to 7:30 p. m. Children's program, presenting Prof. Walter Sylvester Hertzog. Geneva Smith, 12 years old, pianist, pupil of Mrs. Shepard. Marjorie Kertchbaum, violinist, pupil of Louise Moody. Victori Kaerner, screen juvenile. Dick Winslow, juvenile reporter.
 8:00 to 9:00 p. m. Program presented through the courtesy of the Ben Hur Co.
 9:00 to 10:00 p. m. Program presenting Dr. Mars Baumgardt, lecturer, Hoffman's Hawaiian Trio, through the courtesy of the Hoffman Candy Co.
- THURSDAY, JULY 10—**
 12:30 to 1:15 p. m. Program arranged through the courtesy of Ethel Sanborn, pianist.
 2:30 to 3:30 p. m. Matinee musicale.
 6:45 to 7:30 p. m. Children's program, presenting Prof. Walter Sylvester Hertzog. The weekly visit of Dickie Brandon, screen juvenile. Elinore Hammon, 12 years old, pianist, pupil of Winifred Pennell. H. G. Noble, harmonica. Frances Barto, 9 years old, reader.
 8:00 to 10:00 p. m. Program presented through the courtesy of the Platt Music Co.
- FRIDAY, JULY 11—**
 12:30 to 1:15 p. m. Program of news items and music.
 2:30 to 3:30 p. m. Matinee musicale.
 6:45 to 7:30 p. m. Children's program, presenting Prof. Walter Sylvester Hertzog. The weekly visit of Richard Headrick, screen juvenile. Jack Downs, singer, 10 years old. Bedtime story by Uncle John.
 8:00 to 10:00 p. m. Program presented by the Community Broadcasters of Pasadena. Edward Murphey, director. Hatch Graham, singer and banjoist.
- SATURDAY, JULY 12—**
 12:30 to 1:15 p. m. Program presenting the Long Beach Californians, through the courtesy of Piggly-Wiggly.
 2:30 to 3:30 p. m. Matinee musicale.
 6:45 to 7:30 p. m. Children's program, presenting Prof. Walter Sylvester Hertzog. Hector Dyer, pianist, 14 years old, pupil of Mrs. Walter M. Record. Helene Pirie, screen juvenile.

THIS IS STATION K. U. Y.

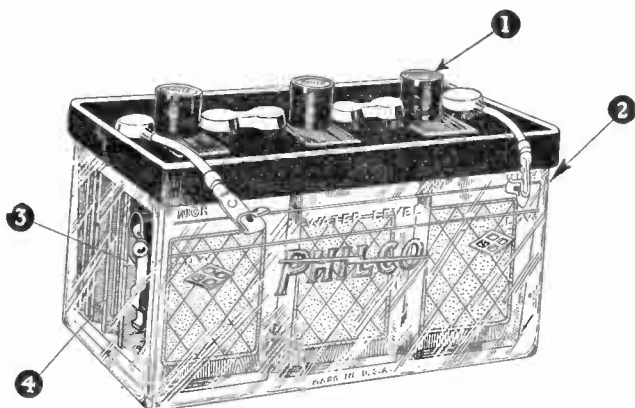
El Monte, California

We carry nothing but the best—Free Demonstrations

RADIOLAS
Coast Radio
El Monte

GREBE

ECHOPHONE
Phone El Monte 110
306 W. Main St.



Nick Harris, the famous detective, says to Tobey, Says he:

"What kind of a battery is this that doesn't spill acid all over creation and never gets you in dutch with your wife? She even thinks it's good looking."

AND TOBEY ANSWERED:

"It's a PHILCO. (1) Tightly sealed covers made with new vent construction permit only dry gasses to pass out. (2) Cells are assembled in attractive, strong monobloc containers of clear pressed glass. (3) Visible indicator shows at a glance the exact state of charge. (4) Plates, separators and insulation have been constructed extra heavy—that's why they're guaranteed for 2 years."

"Furthermore, Friend Nick, a radio battery without a charger is just as impractical as a car without a generator. Sure as fate when you've got company and want to show off, you'll find the juice is all gone and you can't get anything. That's why Philco Dynamic Radio Glass Jar Storage Batteries are only sold with a recharger."

There's a Philco Radio Battery for every Radio set. Be sure and ask your radio dealer for Philco. They are more economical, attractive, safer and better in every respect. Write for descriptive booklet and mention your type of radio.

A. J. Tobey Co.
INC.
BATTERY SERVICE

Hope Street at Fifteenth, Los Angeles

Tel. Atlantic 1641

Also for Sale at All Philco Battery Stations

KFI, Radio Central Station of Earle C. Anthony, Inc.

Packard Building, 1000 South Hope St., Los Angeles, California
 Class "A" 500 Watt Western Electric Station, Operating on 469 Meters
 PAUL REESE, Program Announcer

Remote Control Stations:

Los Angeles Evening Herald:	5:00 to 5:30 p. m.	Daily except Sunday
	8:00 to 9:00 p. m.	Monday, Wednesday, Friday
Los Angeles Examiner:	5:30 to 6:00 p. m.	Daily except Sunday
	9:00 to 10:00 p. m.	Daily
Hotel Ambassadors:	8:00 to 9:00 p. m.	Sunday, Tuesday, Thursday
	10:00 to 11:00 p. m.	Monday
	11:00 to 12:00 p. m.	Wednesday, Friday, Saturday

SUNDAY, JULY 6—

10:00 to 10:45 a. m.	L. A. Church Federation service.
4:00 to 5:00 p. m.	Secular concert.
6:45 to 7:30 p. m.	San Diego Concert Co.
8:00 to 9:00 p. m.	Ambassador Hotel Concert Orchestra.
9:00 to 10:00 p. m.	Examiner concert.
10:00 to 11:00 p. m.	Theron Bennett's Orchestra.

MONDAY, JULY 7—

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 Coconut Grove Orchestra.

TUESDAY, JULY 8—

5:30 to 6:00 p. m.	Examiner News Bulletins.
6:45 to 7:30 p. m.	Dorice Gordon—vocal and instrumental concert.
8:00 to 9:00 p. m.	Ambassador Coconut Grove Orchestra.
9:00 to 10:00 p. m.	Examiner Concert.
10:00 to 11:00 p. m.	Don Meany arranging concert.

WEDNESDAY, JULY 9—

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 Orchestra.
11:00 to 12:00 p. m.	Ambassador Coconut Grove Orchestra.

THURSDAY, JULY 10—

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 Orchestra.
9:00 to 10:00 p. m.	Examiner Concert.
10:00 to 11:00 p. m.	John Smallman arranging program.

FRIDAY, JULY 11—

5:30 to 6:00 p. m.	Examiner News Bulletins.
6:45 to 7:30 p. m.	Program by Myra Belle Vickers.
9:00 to 10:00 p. m.	Examiner Concert.
10:00 to 11:00 p. m.	Varied program.
11:00 to 12:00 p. m.	Ambassador Coconut Grove Orchestra.

SATURDAY, JULY 12—

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.	Mixed program.
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 Coconut Grove Orchestra.

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5:00 to 5:30—Daily except Sunday—Evening Herald News Items

MONDAY, JULY 7—

8:00 to 9:00 p. m. Evening Herald's Radiolians popular dance music. Oscar, Teel, baritone.

WEDNESDAY, JULY 9—

8:00 to 9:00 p. m. Kennedy Broadcasters of Long Beach. Charlie Wellman, tenor.

FRIDAY, JULY 11—

8:00 to 9:00 p. m. Lippincott Orchestra of Santa Ana. Oscar Teel, baritone.

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SUNDAY, JULY 6—

10:45 to 12:30 noon Regular services of the Church of the Open Door, including sermon by Dr. French E. Oliver. Mr. Henry J. Schlagel, bass soloist; Mr. Paul S. McConnell, organist.

6:00 to 6:45 p. m. Radio Vesper Service with sermon by Rev. John Hunter, Secretary of the Faculty, Bible Institute of Los Angeles. Mr. A. H. Ramseier, bass soloist; Mrs. A. H. Ramseier, accompanist; Mrs. Fern Barton, organist.

8:00 p. m. Sermon by Dr. French E. Oliver. Mr. Ernest P. Burley, tenor soloist; Mr. Paul S. McConnell, organist.

TUESDAY, JULY 8—

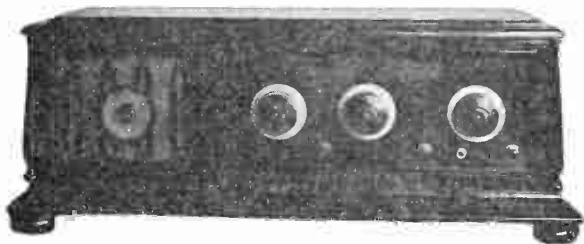
8:00 to 9:00 p. m. Miss Mary Adeline Bishop, organist. Vocal and instrumental selections.

THURSDAY, JULY 10—

8:00 to 9:00 p. m. Organ selections. Mrs. W. J. Schomberg, soprano.

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SUNDAY, JULY 6—

- 10:30 to 12:30 noon Complete morning service. Sermon by Aimee Semple McPherson. Organ and Chimes, Esther Fricke Green. Triple Male Quartet, John Walker, tenor. Blanche Scott.
- 2:30 to 4:30 p. m. Frank E. Brown, evangelistic singer. Choir. Silver Band, Gladwyn Nichols, director. Roy Reid Brignall, Organist. Evangelistic address by Aimee Semple McPherson.
- 7:00 to 9:30 p. m. Silver Band, Choir, Male Quartet. Isabelle Wilson Corning, Soprano; Esther Fricke Green, Organist. Great Salvation Sermon and Altar Call. Aimee Semple McPherson.

TUESDAY, JULY 8—

- 3:30 to 4:00 p. m. Organ recital, Esther Fricke Green.
- 4:00 to 5:30 p. m. Ruth Boesch Woods, soprano; A. L. Stark, tenor; Blanche Scott, soprano; Sarah Karcher, violinist; Dorothy Sauter, 'cellist; Betty Zwick, soprano; Esther Green, accompanist and soloist.
- 6:30 to 7:30 p. m. Kozy Hour program. Mr. and Mrs. A. T. Heard, cornet and trombone; Mrs. V. D. Clair, soprano; Frank E. Brown, baritone; Roy Reid Brignall, accompanist and soloist.
- 8:00 to 9:00 p. m. Auditorium Service. Sermon by Aimee Semple McPherson.
- 9:00 to 10:00 p. m. Grey Studio program, presented by John Hall's Swanee Jubilee Singers, and the Sierra Trio of Pasadena.
- 10:00 to 10:30 p. m. Organ recital, Roy Reid Brignall.

WEDNESDAY, JULY 9—

- 2:30 to 4:30 p. m. Auditorium Service. A message of comfort and hope for the sick, afflicted and shut-in from Aimee Semple McPherson.
- 6:30 to 7:30 p. m. Kozy Hour program. Annie Lacey, child soprano; Marjorie Warwick, soprano; Marian Wyant, contralto; Ruth Frances Thomas, accompanist and soloist.

THURSDAY, JULY 10—

- 3:30 to 4:30 p. m. Program presented through the courtesy of B. Ernest Ballard, organist, assisted by Margaret Kennedy, lyric soprano; Harold Lloyd, tenor.
- 4:30 to 5:30 p. m. Hazel Linkogel, violinist; Cornelia Pollard, soprano; Isabelle Wilson Corning, soprano. . .
- 6:30 to 7:30 p. m. Kozy Hour program given by Cousin Jim (Harry James Beardsley) and associates.
- 8:00 to 9:00 p. m. Pasadena Elks' Band, No. 672, assisted by W. W. McCann, baritone, and the Elks' Quartet. Baptismal Service, Aimee Semple McPherson.
- 9:00 to 10:00 p. m. Grey Studio program, Pasadena Elks' Band No. 672. Temple Choir, Gladwyn Nichols, director. Jennie M. Durkee, ukulele, guitar and banjo teacher.
- 10:00 to 10:30 p. m. Organ recital, Esther Green.

FRIDAY, JULY 11—

- 3:30 to 4:00 p. m. Organ recital, Roy Reid Brignall.
- 4:00 to 5:30 p. m. Dobbins' Student Orchestra of Fullerton High School. Thomas Johnson, baritone; Ruth Russell, soprano. Mr. and Mrs. E. C. Mills in solos, duets and readings. Roy Reid Brigall, accompanist and soloist.
- 6:30 to 7:30 p. m. Kozy Hour program. Ada Lantz, soprano; Floyd Marvin, tenor; S. T. Lashbrook, tenor; Ruth Frances Thomas, accompanist and soloist. Blanche Clay.
- 9:00 to 10:00 p. m. Edendale Concert Company, Mary Watts, manager, assisted by Madame Eleanor Doty, prima donna; J. Donald Thrail, baritone; Louis Low, flutist; Mildred Anderson, mezzo soprano; Emma Wendt String Trio; Mary Watts, contralto.
- 10:00 to 10:30 p. m. Organ recital, B. Ernest Ballard.

SATURDAY, JULY 12—

- 3:30 to 5:00 p. m. John Kennedy, baritone. Members of the children's church in readings and vocal and instrumental music.
- 5:00 to 5:30 p. m. Organ recital, Roy Reid Brignall.
- 6:30 to 7:00 p. m. Goldie Blasman, violinist, age 12; Master Jerome Bleeker, accompanist and soloist, age 12.
- 7:00 to 7:30 p. m. Auditorium, Congregational singing and special music. Programs sacred, classic and educational.

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TUESDAY, July 8—Between 2:30 and 3:30 p. m.

WEDNESDAY, July 9—About 7:00 p. m.
THURSDAY, July 10—Between 2:30 and 3:30 p. m.

SATURDAY, JULY 12—About 7:00 p. m.

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



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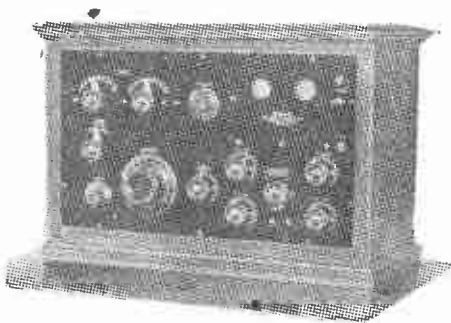
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FOR WEEK BEGINNING SUNDAY, JULY 6

SUNDAY, JULY 6—

9:30 to 10:00 p. m.

Talk by Rev. John Snape, pastor First Baptist Church of Oakland, with sacred songs before and after the talk by members of the choir of the First Baptist Church.

DAILY—

3:00 to 5:00 p. m.

News items, baseball scores, all leagues, local game play by play. (Except Sunday and Monday.)

7:00 to 7:30 p. m.

News items, United States Weather Bureau report, market and financial news. (Except Sunday.)

MONDAY, JULY 7—

8:00 to 10:00 p. m.

Educational and musical program broadcast from Stephens Union Hall, University of California, over private leased wires through KLX.

WEDNESDAY, JULY 9—

8:00 to 10:20 p. m.

Studio program and music from the American Theater. Studio program: 1, Vocal selections—(a) Ernani (opera Ernani) (Verdi); (b) Silver Threads Among the Gold (Dank); (c) April Morn (Batten)—Mme. Dorothy Raegen Talbot, coloratura soprano; Claire Darrimon, accompanist. 2, Cornet solo—The Bride of the Waves (Clarke)—George H. E. Green. 3, Review of Andrew W. Mellon's book, "Taxation, the Peoples Business," arranged by Lawrence Drake of the book department of the White House, San Francisco—J. S. Curran, assistant vice-president of the Anglo and London Paris National Bank, San Francisco, reviewer; (this will be the first of a series of book reviews arranged by the White House). 4, Vocal selections—(a) Old Folks at Home; (b) Vale (Russel); (c) Caro Nome (opera Rigoletto) (Verdi)—Mme. Dorothy Raegen Talbot, coloratura soprano; Claire Darrimon, accompanist; 5, English Concertina solos—National songs—J. W. Green. 6, Vocal solo—The Wood Pigeon (Lehman)—Mrs. G. H. E. Green. 7, Cornet and trombone duet—Excelsior (Balfe)—George H. E. Green and J. W. Green (Green & Son). 8, Overture by American Theater Orchestra, Owen Sweeten, director, broadcast over private leased wires through KLX. 9, Pianoforte solos—(a) Sonata Pathetique (Beethoven); (b) Andante Finale (Lammermoor) (for left hand only)—Mrs. G. H. E. Green. 10, Cornet solo—The Lost Chord (Sullivan)—George H. E. Green. 11, Vocal solo—The Little Brown Owl (Sanderson)—Mrs. G. H. E. Green. 12, Trombone solo—The Death of Nelson (Braham)—J. W. Green. 13, Concertina solo—Simple Aveu (Thome)—J. W. Green. 14, Cornet solos—(a) Inflammatus (from Stabat Mater) (Rossini); (b) Music written to Tennyson's "Dirge" by soloist and harmonized by J. W. Green—George H. E. Green. 15, Organ recital by Clement Barker, broadcast from the American Theater over private leased wires through KLX.

FRIDAY, JULY 11—

8:00 to 10:20 p. m.

Studio program and music by the American Theater orchestra. Studio program: 1, Vocal solos—(a) Musettas Waltz (La Boheme) (Puccini); (b) Down in the Forest (Ronald)—Dorothy Buechner, soprano soloist, Plymouth Congregational Church of Oakland. 2, Instrumental selections—"Hono Hono Hawaii" and "Amama"—Hawaiian Harmony Kings. 3, Vocal selections—(a) Lindy Lou (Strickland); (b) Pierrot (Watts)—Dorothy Buechner, soprano. 4, Instrumental selections—(a) Wawaliko; (b) Matsonia; (b) Honolulu Blues—Hawaiian Harmony Kings. 5, Vocal selections—Group 1—Hazel Carlson Wood. 6, Instrumental selections—(a) Milahai; (b) A Smile Will Go a Long Long Way; (c) Lonesome Mama Blues—Hawaiian Harmony Kings. 7, Vocal selections—Group 2—Hazel Carlson Wood. 8, Instrumental selections—(a) Leihua; (b) March;

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 (Pacific Time)

KGO Program in Brief

- SUNDAY, JULY 6—**
 3:00 p. m. Concert by KGO Little Symphony Orchestra and soloists, Carl Rheohamel, conducting.
- MONDAY, JULY 7—**
 1:30 p. m. New York Stock Exchange and U. S. Weather Bureau reports.
 3:00 p. m. Short musical program. Speaker furnished through the courtesy of the Parent-Teacher Associations of the San Francisco Bay District.
 4:00 to 5:30 p. m. Hotel St. Francis Dance Orchestra, San Francisco.
 6:45 p. m. Final reading, Stock Exchange and weather reports, and news items.
 8:00 p. m. Educational program, with musical numbers. Courses in Agriculture, Spanish, Music, Economics and Literature.
- TUESDAY, JULY 8—**
 1:30 p. m. New York Stock Exchange and U. S. Weather Bureau reports.
 4:00 to 5:30 p. m. Concert Orchestra of the Hotel St. Francis, San Francisco.
 6:45 p. m. Final reading, Stock Exchange and weather reports, and news items.
 8:00 p. m. Neapolitaine Four; Isabella Engle, soprano; Edward Leslie, violinist; Georgette Schiller, coloratura soprano; Luther E. Stein, baritone; one-act comedy, "The Florist Shop"; Merle Floyd, dramatic soprano; Edwin Heinsohn, haritone.
 Part Two of the program furnished by Etude Musical Club of Portland. Etude Club Chorus; Harry Pierson, tenor; soprano and contralto duet, Sadie Phipps and Carrie Taylor; Owen A. Troy, violinist; Women's Chorus; Ladies' Quartet; Louaida Johnston, contralto; Vocal Trio.
 10 p. m. to 1 a. m. Hotel St. Francis Dance Orchestra, San Francisco.
- WEDNESDAY, JULY 9—**
 1:30 p. m. New York Stock Exchange and U. S. Weather Bureau reports.
 3:00 p. m. Short musical program. Address, "Responsibilities of the Press," by James E. Wales.
 4:00 to 5:30 p. m. Concert Orchestra of the Hotel St. Francis, San Francisco.
 6:45 p. m. Final reading, Stock Exchange and weather reports, and news items.
- THURSDAY, JULY 10—**
 1:30 p. m. New York Stock Exchange and U. S. Weather Bureau Reports.
 4:00 to 5:30 p. m. Concert Orchestra of the Hotel St. Francis, San Francisco.
 6:45 p. m. Final reading, Stock Exchange and weather reports, and news items.
 8:00 p. m. Three-act drama, "Passing of the Third Floor Back," under the direction of Wilda Wilson Church. Music between the acts by Neapolitaine Four.
- FRIDAY, JULY 11—**
 1:30 p. m. New York Stock Exchange and U. S. Weather Bureau reports.
 3:00 p. m. Short musical program and one-act play.
 4:00 to 5:30 p. m. Concert Orchestra of the Hotel St. Francis, San Francisco.
 6:45 p. m. Final reading, Stock Exchange and weather reports, and news items.
- SATURDAY, JULY 12—**
 12:30 noon. New York Stock Exchange and U. S. Weather Bureau reports.
 4:00 to 5:30 p. m. Concert Orchestra of the Hotel St. Francis, San Francisco.
 8:00 p. m. Program given by San Jose Sciots' Band, San Jose, California, Edward Towner, director. Mrs. George W. MacMillan, soprano; Saxophone Quartet; C. Franklin Roberts, baritone; saxophone solos, Paul King; Joseph McIntyre, pianist; Ed Moore, cornetist; D. E. Neal, basso; Edna Kindall, pianist.
 10 p. m. to 1 a. m. Hotel St. Francis Dance Orchestra, San Francisco.

TUESDAY, JULY 8—8:00 P. M.

Part One

- Instrumental Selection—Dance of the Hours.....Ponchielli
 Neapolitaine Four
- Soprano Solos—
 (a) Una voce poco fa.....Rossini
 (b) Zemire and Azor.....Espohr
- Isabella Engle
 Mabel Saunders, Accompanist

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One-Act Comedy—"The Florist Shop" Hawkridge
Cast

Maud, the Florist's bookkeeper Vera Frances Morse
Henry, the office boy C. Al. Anderson
Slovsky, proprietor of the shop W. J. De Gloria
Miss Wells, a timid, talkative spinster Mary Harper
Mr. Jackson, the spinster's fiance Henry Finke

Under the direction of Wilda Wilson Church
Dramatic Soprano Solo—Pace mio dio (from "La Forza del Destino") Verdi
Merle Floyd

Ruth Burlingame, Accompanist
THURSDAY, JULY 10—8:00 P. M.

"PASSING OF THE THIRD FLOOR BACK"

A Drama in Three Acts. By Jerome K. Jerome. Played by the KGO Players. Under the Direction of Wilda Wilson Church.
Cast

Mrs. Sharp Mary Harper
Stacia Lallie
Miss Kite Vera Frances Morse
Mrs. de Hooley Florence Palmer
Mrs. Thompson Evelyn Avery
Major Thompson Burt Horton
Vivian Thompson Edna Jones
Christopher Penny Charles Field
Jape Samuels Barry Hopkins
Harry Larchom Fred Thomas
Joey Wright Guy Kibbee
The Stranger in the Third Floor Back Richard Hotaling
Instrumental Selection—Je-T'aimie E. Waldteufel

Neapolitaine Four
Act I

Instrumental Selection—Polish National Dance Wieniawski
Neapolitaine Four
Act II

Instrumental Selection—Hungarian Dance No. 1 Brahms
Neapolitaine Four
Act III

Instrumental Selection—The Jolly Coppersmith Peter
Neapolitaine Four

SATURDAY, JULY 12—8:00 P. M.

This program given by the San Jose Sciots' Band, San Jose, California. Edward Towner, director.
March—Invincible Fidelity Fradeneck
San Jose Sciots' Band

Soprano Solos—
(a) Stars of Normandy Stephen Adam
(b) The Dustman Molloy

Mrs. George W. MacMillan
George W. MacMillan, Accompanist

Instrumental Selection—Selection from "Faust" Gounod
Saxophone Quartette

Medley of Patriotic and War Song Melodies Hayes
San Jose Sciots' Band

Baritone Solos—
(a) For All Eternity Mascheroni
(b) O Heart of Mine Clough-Leighter
G. Franklin Roberts

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4:30 to 5:30 p. m. Daily except Saturday and Sunday, Fairmont Hotel.

2:30 to 3:30 p. m. Studio program daily, except Sunday.

FRIDAY—

12:45 to 1:30 p. m. Speakers of Commonwealth Club from the Palace Hotel.

SATURDAY—

1:00 to 2:00 p. m.

3:30 to 5:30 p. m. Fairmont and Palace Hotel Tea Dansants.

SUNDAY—

11:00 a. m. to 12:15 p. m. Church services by Church Federation of San Francisco.

EVENING PROGRAMS

SUNDAY—

8:30 to 10:00 p. m. Rudy Seiger's Fairmont Hotel Concert Orchestra.

MONDAY—

8:00 to 9:00 p. m. Organ.

9:00 to 10:00 p. m. Studio program.

10:00 to 11:00 p. m. Max Bradfield's Versatile Band of Rose Room Bowl, Palace Hotel.

TUESDAY—

8:00 to 10:00 p. m. Studio program.

10:00 to 11:00 p. m. Palace Hotel Dance Orchestra.

WEDNESDAY—

8:00 to 11:00 p. m. Palace Hotel Dance Orchestra.

THURSDAY—

8:00 to 9:00 p. m. Organ.

9:00 to 10:00 p. m. Studio program.

10:00 to 11:00 p. m. Palace Hotel Dance Orchestra.

FRIDAY—

Silent.

SATURDAY—

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

MONDAY, TUESDAY, WEDNESDAY AND THURSDAY—

7:00 to 7:30 p. m. Dinner concerts by Rudy Seiger's Fairmont Hotel Concert Orchestra.

5:30 p. m. Children's Hour; stories for children.

10:00 p. m. Time Signals daily except Friday, P. S. T.

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MONDAY, JULY 7—

8:30 p. m. Carnation Milk Products Company presenting their monthly program of dance music, furnished by Babb's B. B. Ladies' Orchestra.

WEDNESDAY, JULY 9—

8:30 p. m. The Metropolitan Building Company of Seattle presenting their regular monthly program of vocal and instrumental music, under the direction of Freda Tilden, Publicity Manager.

FRIDAY, JULY 11—

8:30 p. m. The Kiwanis Club of Seattle, giving the first of a series of civic club programs, will furnish an instructive and entertaining program featuring the Camp Fire Girls, an organization which is strongly supported and sponsored by the Kiwanis Club. An instructive talk will be given on Kiwanis activities. The Camp Fire Girls' 20-piece orchestra will render several selections. Tenor, soprano and violin solos will make up the balance of this wonderful program.

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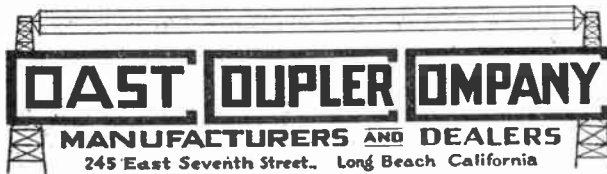
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PROGRAM FOR WEEK JULY 6 TO JULY 12, 1924

- 11:30 a. m. Daily except Sunday—Government weather forecast.
7:30 p. m. Daily except Sunday—Government weather forecast and market reports.
- SUNDAY, JULY 6—**
6:00 p. m. Church services conducted by Rt. Rev. Walter Taylor Sumner, Bishop Episcopal Diocese of Oregon.
- MONDAY, JULY 7—**
3:30 p. m. Literary program by Portland Library Association.
7:15 p. m. Police reports.
8:00 to 10:00 p. m. Concert featuring Harriet Leach, soprano; Florence Leach, contralto; Loise Jacobson, pianist, and others.
- TUESDAY, JULY 8—**
3:30 p. m. Children's program.
7:15 p. m. Police reports.
8:00 p. m. Concert provided by Seiberling-Lucas Music Co.
- WEDNESDAY, JULY 9—**
3:30 p. m. Talk by Jeanette P. Cramer, home economics editor of The Oregonian.
7:15 p. m. Police reports.
8:00 p. m. Concert.
10:00 p. m. Dance music by George Olsen's Metropolitan Orchestra of the Hotel Portland. Intermission, solos by Rayberta and Margory Reed, juvenile artists of Salisbury, Mo.
- THURSDAY, JULY 10—**
3:30 p. m. Children's program.
7:15 p. m. Police reports.
8:00 p. m. Concert.
10:00 p. m. Dance music by George Olsen's Metropolitan Orchestra of the Hotel Portland. Intermission, solos by Gracia Stewart, mezzo-soprano.
- FRIDAY, JULY 11—**
3:30 p. m. Woman's program.
7:15 p. m. Police reports.
10:30 p. m. Hoot Owls.
- SATURDAY, JULY 12—**
11:30 a. m. Weather forecast.
3:30 p. m. Children's musical program by pupils of Marie C. Dooley. Story hour.
10:00 p. m. Police reports, baseball scores, weather forecast, and dance music by George Olsen's Metropolitan Orchestra of Hotel Portland. (Two hours.)
- Station KGW is not observing daylight saving time.



Actual Size

SOMETHING NEW
POCKET SIZE REFLEX SET
P - R - L
Midget Reflex Coils

Enable you to construct a two-tube set, using this wonderful Reflex Circuit, that can be put in a small box 7 in. x 8 in. x 2 1/4 in. deep.

A one-tube set can be built smaller than this magazine and only 2 1/4 in. deep.

A list of other necessary parts furnished on request.

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Murdock Radio Head Phones "Standard Since 1914"

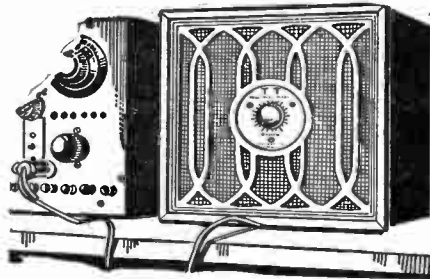
WFAA—Dallas News-Journal—476 Meters

(PACIFIC TIME) DALLAS, TEXAS

- MONDAY, JULY 7—**
6:30 to 7:30 p. m. L. J. Cook and his String Band from Farmers Branch, Texas.
- TUESDAY, JULY 8—**
10:30 to 11:30 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. Miss Lucile Lechner and assisting entertainers from Terrell, Texas.
9:00 to 10:00 p. m. Musicians from the Melba Theater.
- WEDNESDAY, JULY 9—**
10:30 to 11:00 a. m. Musical program by the Jackrabbits Orchestra.
Station WFAA will be silent for remainder of the day.
- THURSDAY, JULY 10—**
10:30 to 11:00 a. m. Dr. A. D. Laugenour of the Dallas Astronomical Society telling of "Why Days and Nights Vary in Length," and the economic effect.
6:30 to 7:30 p. m. Varied program of voice, piano, reading, violin and guitar, arranged by entertainers directed by W. W. Murphy of the Dallas Journal.
9:00 to 10:00 p. m. Mustang Serenaders' Orchestra.
- FRIDAY, JULY 11—**
10:30 to 11:00 a. m. Address, Dr. Robert Stewart Hyer, president emeritus of Southern Methodist University, on the Sunday School Lesson.
6:30 to 7:30 p. m. Musical recital. George A. Nicoud, simulating old-time music-box program; W. W. Macbeth and his Harmonica Harmonists.
- SATURDAY, JULY 12—**
1:30 to 2:00 p. m. Old-time music, Capt. Charles H. McKinney and old fiddlers.
6:30 to 7:30 p. m. Musical recital. Dr. Richard Mandell and assisting entertainers from Denton, Texas.
9:00 to 10:00 p. m. Dance music program of the Adolphus Hotel Orchestra, Lawrence Morrell directing, playing in Bambooland, the roof garden dancing floor. The broadcast is a courtesy from R. B. Ellifritz, managing director of the Adolphus.
- SUNDAY, JULY 13—**
4:00 to 5:00 p. m. Radio Bible Class. William M. Anderson, pastor First Presbyterian Church, teacher; Bible study and Gospel song.
5:45 to 7:15 p. m. City Temple Presbyterian Church, Dr. L. D. Young, pastor; opening period by City Temple Orchestra, Prof. A. A. Cruze, director; Harry M. Gibney, director of singing; J. Wesley Hubbell, director of choir and of children's chorus; Miss Katherine Hammons, organist.
7:30 to 9:00 p. m. Footwarmers Orchestra, Edward Russell, managing.

TIMMONS TALKERS

Before you buy any loud speaker, why not have several sent home for comparison — on your own set?



Among the speakers that you compare we would like you to include the Adjustable and Non-adjustable types of Timmons Talkers.

Both employ the principle of reflected tone.

We or our representatives will be glad to send you a large illustration showing the operation of Timmons Talkers. All details are fully explained.

We will also see that you receive a copy of our folder, "Volume Without Noise."

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Germantown, Philadelphia, Pa.

WBAP—Fort Worth Star-Telegram—476 Meters

(PACIFIC TIME) FORT WORTH, TEXAS

(Class B Station)—750 Watts—476 Meters

SUNDAY—

- 9:00 to 10:15 p. m. Complete services of the First Methodist Church, Rev. J. W. Bergin, pastor.
- 5:00 p. m. Sport review.
- 9:00 to 10:00 p. m. Popular program.

MONDAY—

- 7:30 to 8:45 p. m. Concert by Mrs. Herman Church and her mandolin orchestra. (G. C. A.)

TUESDAY—

- 7:30 to 8:45 p. m. Concert by Jack Davis, pianist, of Dallas. (G. C. A.)

WEDNESDAY—

- 7:30 to 8:45 p. m. Concert by the old-time fiddle band of Krum, Texas. (G. C. A.)

THURSDAY—

- 7:30 to 8:45 p. m. Organ concert by Will Foster, organist of the First Methodist Church. (G. C. A.)

FRIDAY—

- 7:30 to 8:45 p. m. Concert by Fred Wagner and his Hawaiian Trio. (G. C. A.)

SATURDAY—

- 5:00 to 5:40 p. m. Review of the Interdenominational Sunday School Lesson and Radio Bible Class by Mrs. W. F. Barnum.

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Make Yours a RADIO HOME

**Complete
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Outfit**

\$147⁷⁰

Endless enjoyable entertainment for old and young—A wonderful instructor for the children—Let us give you a home demonstration.

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California Nightingale Super Stentor, complete \$22.50
 California Nightingale Unitype, which is a Unit only 10.00
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THE STENTORPHONE COMPANY

784 Ceres Avenue

Los Angeles, Calif.

WOC—Palmer School of Chiropractic—484 Meters

Davenport, Iowa—Pacific Time

- SUNDAY, JULY 6—**
 6:00 p. m. Church Service—Rev. Edwin W. Lanham, D. D., Pastor First Congregational Church, Galva, Ill. Subject of sermon, "Christ's Secret of Happiness." Music under direction of Mildred Hanlon.
 7:30 p. m. Musical Program (1½ hours). The Palmer School Radio Orchestra. Erwin Swindel, conductor, assisted by Chas. Kerns, tenor, and Harry Yeazelle Mercer, tenor.
- MONDAY, JULY 7—**
 6:00 p. m. Musical Program—Etta B. Stilles, reader; Maggie Marsh, violinist; Louis Crowder, pianist.
 8:00 p. m. Musical Program—Program furnished by the "Pasadena" Orchestra, of Sterling, Illinois.
- TUESDAY, JULY 8—**
 4:00 p. m. Sport news and weather forecast. (No broadcasting after 4:00 p. m. Tuesday—silent night for WOC.)
- WEDNESDAY, JULY 9—**
 6:00 p. m. Organ recital from the B. J. Palmer residence. Erwin Swindell, organist. Mrs. John Malloy, soprano, presenting popular numbers of a few years ago.
- THURSDAY, JULY 10—**
 7:00 p. m. Orchestra Program (1 hour)—The Palmer School Radio Orchestra. Erwin Swindell, conductor. Featuring: "Marcheta" (fantasy), "Sweetest Little Rose in Tennessee," "Gloomy Moon," "Dream Girl," "China Eyes," "Golden Dreams," "Drifting to You." (Popular selections released through the National Association of Broadcasters, of which WOC is a member.) Ralph W. Fuller, baritone soloist.
- FRIDAY, JULY 11—**
 6:00 p. m. Musical Program (1 hour)—Bernice Vaz, contralto; Richard Everett, pianist; Billie Buren, boy soprano; Phil Lioen, tenor; Dewitt Depue, violinist.
 7:00 p. m. Weekly Tourists' Road Bulletin, as compiled by Touring Bureau, Davenport Chamber of Commerce.
- SATURDAY, JULY 12—**
 7:00 p. m. Orchestra Program (1 hour)—The Palmer School Radio Orchestra. Erwin Swindell, conductor. Featuring: "Believe Me," "I've Got a Feelin' for Ophelia," "In a Rendezvous with You," "Dream Maker of Japan," "Girl of My Heart," "Sorry for You," "In Old Monterey." (Popular selections released through the National Association of Broadcasters, of which WOC is a member.) Ralph W. Fuller, baritone soloist.

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WE REPAIR AND SERVICE SETS AT YOUR HOME OR IN OUR SHOP

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

Weekly Program Week of July 6—Central Standard Time
(No Daylight Saving in St. Louis)

SUNDAY, JULY 6—

7:00 p. m. Music program broadcast direct from Grand Central Theater.

MONDAY, JULY 7—

5:00 p. m. Concert by Abergh's Concert Ensemble; Arne Arnesen, violinist; broadcast direct from Hotel Statler Roof Garden.

7:00 p. m. Evarista Cotter, reader; Grace Cantwell, pianist.

9:00 p. m. Broadcasting direct from Hotel Statler Roof Garden, dance music played by Rodemich's Orchestra.

TUESDAY, JULY 8—

SILENT.

WEDNESDAY, JULY 9—

6:00 p. m. Music and specialties at Del Monte Theater broadcast direct from that theater.

THURSDAY, JULY 10—

SILENT.

FRIDAY, JULY 11—

6:00 p. m. Silverman's Orchestra concert broadcast direct from Lyric Skydome.

SATURDAY, JULY 12—

6:00 p. m. Missouri Theater Orchestra and specialties broadcast direct from Missouri Theater.

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Letters to the Editor

DEAR EDITOR which broadcasts much intelligence, if any:

Would like to ask two or six questions which you don't have to answer unless you know. My cousin has made me nice radio sit with rejector tube and two stages of simplification at which it is nice to look, but not to listen. Is all many noises but are not unanimous. All I have picked up so far is ear ache.

My uncle on mother's side he say maybe so would be better if I put in neutral informer, but I think not so, because is too many all kinds informers now which make loud noise which don't mean anything.

Night before Wednesday I put on earmugs and turn all many dials to various points of compass and thought I heard something like soprano singer in distance or maybe in distress. But, no, it was not such. It was family cat which crowled in radio sit and received very bad shock between B battery and very able condenser. I write in my little book to show I have received station CAT. It is very nice music which is made by family cat, but is best kind I have got up to twenty minutes after Friday, which is present time.

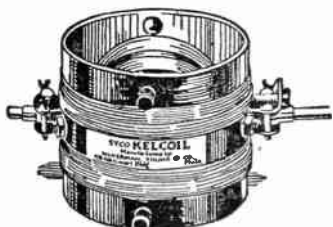
After much reflection my cousin he say maybe it would be better if I had reflex sit. Have tried same also and it has not made ear harness any more comfortable. As far as I have got a radio sit is nice place for spending quiet evening. Ear blinkers keep out all noises, so it is possible to meditate on Confucius, Magnum Johnson and inkum tacks.

My partner for business, which gets most of it, he say maybe I am not well grounded, which I cannot see how it is because I have been completely through Canton Business College. Anyway he tie wire to family wash boiler and bury it in back yard. Has not sprouted yet, so is impossible to tell how it will come out, if at all. Then, maybe so, say wise neighbor, is something the matter with my Aunt Anna. I tell him I have no such aunt, but he say she is on roof, at which I am much surprised. So he go up on roof.

When he come down is many all kind laughs. I ask him why so much merry hee hee and he say maybe would be better if my Aunt Anna should be made out of copper wire instead of string. Maybe so would, maybe so not. I will try this and let you know by post card or letter.

In the mean time my radio sit is fit for nothing only to make foolish noise. Hoping you are the same, CHINA BOY.

KELCOIL THE WONDER TUNER



\$6

The Hook-up that all Radio experts are marveling over—FREE—to purchasers of KELCOILS. With the straight KELCOIL hook-up and two steps of amplification, P. J. Kelly, inventor of the KELCOIL, 1612 Orthodox Street, tuned in 2 L O, London, England. Loud speaker reception on 1 tube with KELCOIL. Try KELCOIL and hang up a few records.

DEALERS: Write for our price list Now!

B. KRUGER & COMPANY

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Los Angeles

Phone TRinity 2308

Asides From Cleveland Amuse Fans

The Microphone Hears All and Transmits It
(By Washington Radio News Service)

Did you hear the funny impromptu which came via radio from the Cleveland Convention? Evidently there was no skilled announcer or operator standing by, as is always the case in broadcasting studios, to pull the switch, or cut out the microphone when something unforeseen occurs and side remarks and soto voce phrases are uttered in the neighborhood of the transmitter.

On one occasion a voluntary spokesman suggested to Chairman Mondell that he better put on the quartette or start something, as many of the delegates were "walking out" on him.

Another excited voice cried out in anguish to the chairman that there was a fight going on in one corner, and asked him if there was no authority to stop it. This was followed by the pertinent suggestion that the band be requested to play "The Star Spangled Banner" so as to quell the approaching riot. Although the National Anthem was not played, just then, the band did strike up with a selection and the fight subsided.

Just before he took the platform, one noted delegate was heard arguing with the chairman as to whether he could have five or ten minutes in which to speak his piece.

On the whole it sounded a bit like being behind the scenes during a none-too-good dress rehearsal, for not only asides were carried out to radioland via broadcasters in many cities, but coaching and prompting from the wings were noticeable. When the party platform was read, the reader was obviously handicapped because some one was holding copy on him and correcting his utterances.

Dail to Decide on Irish Broadcasting

Unanimous recommendations that broadcasting be strictly a State service under the control of the Irish Postal Ministry has been made by a committee of the Dail Eirean, consular advices state. Considerable opposition to state control has, however, arisen in the Dail and among the business men. The opponents to the report of the committee say that the maintenance of a wireless station of this kind would be a financial burden to the country. The committee is revising its report, and the whole question is expected to be brought before the Dail for final decision within the next few weeks. In the meantime there is a large sale of receiving sets.

Twin babies, a boy and a girl, were born to Mr. and Mrs. J. Newton Bagley, Hastings, Nebraska, one day last week. Mr. Bagley is the radio expert for W. M. Dutton & Sons Co., and his friends have been busy trying to think of a suitable name for the twins. Newt hasn't O. K.'d any of the names yet, but is giving the matter serious consideration, as they appeal to him rather forcibly on account of their connection with matters in which he is so deeply interested. He is rather partial at this time to "Neut" and "Het"—for neutrodyne and heterodyne. The first one matches "Dad" Bagley's name, and of course that is partially the reason it gets the first chance. Another suggestion has been "Kayeff" and "Kayex," but while these are quite popular of late their is doubt of their adoption. Dad Bagley says if the "crystal" is not their official birthstone he is going to present a petition to the chief birthstone "announcer" to have the matter fixed up at once. Among other things with which this precious pair of kids are endowed, so says their proud papa, is a "loud speaker," and also that they seem to be exceptionally fond of broadcasting.

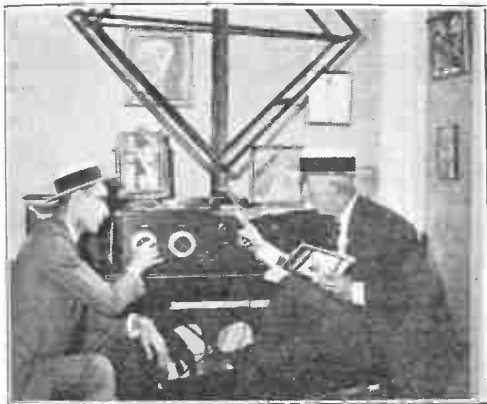
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Price only \$60

MYERS RADIO & ELECTRICAL SHOP

Phone ANgelus 3370—3910 Brooklyn Ave.—Los Angeles
"Open Evenings"

Letters to the Editor



Left to right: T. J. Crizer, Production Manager, and Jay A. Howe, Director, Hal Roach Studios, Culver City.

June 18, 1924.

Editor Radio Doings,
308 Van Nuys Bldg.,
Los Angeles, Cal.

Dear Sir—Several weeks ago I asked you to send me your magazine for a year, and I want to say that without it a radio set is incomplete.

Personally, I think that you have the most authentic radio magazine on the market. I, for one, would not be without it if it cost twice as much.

Enclosed find check for my subscription. Also sending you a picture of my Super-Hetrodyne which brings them in. Now you can see why I like "Radio Doings" so well.

Wishing you continued success, I am, respectfully,

JAY A. HOWE,

Director for Hal E. Roach,
Culver City, Cal.
June 21, 1924.

Editor "Radio Doings":

Dear Sir: I wonder if any of your readers could kindly tell me what station was on the air at about 9:45 o'clock, June 20. Its wave length was about 450 meters. I heard music and baritone solos well, but the announcer was not plain. I heard him say, "I hope the Canadian National Railway will enjoy this number." There was short chimes after every number.

What station, on the same night, at about 300 meters. said, "Good Night"? After a few seconds I heard quite plainly: "WEAF, New York City." Then there was music, very faintly.

What is the power of KFQN? What is its broadcasting schedule?

Yours truly,

"ROSE CITY PARK,"
Portland, Oregon.

Yale Crystal Rectifier

(Semi-Fixed)

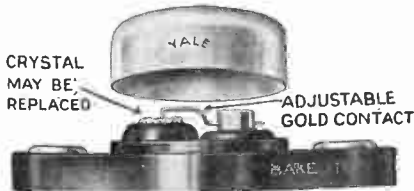
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Extremely Sensitive
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At All Dealers—\$1.25

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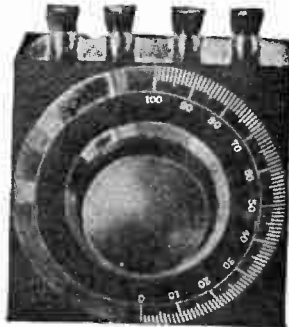
DEALERS:

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

*The
Missing Link
in Radio*



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 MASSACHUSETTS STATIONS WITH GREAT VOLUME ON LOUD SPEAKER. BUILDING PHUSIFORMER SET FOR USE IN OUR OPERATING ROOM".....
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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.

?? ??

June 25, 1924.

Being a novice at radio, I have some questions I would like to ask you, and trust that you can "clear" them up for me.

I have a three tube "Moto Radio" set, which was manufactured by the "Radio Shop," Sunnyvale, California, and as I understand it, they are not in business any more.

Now, as this set was a present to me some few weeks ago, I am of course at a loss to understand some points of operating it to get the best results.

A.—I am located very close to KFSE and KJS. When trying to get other stations I cannot cut them out. Why?

B.—I get Oakland only when the air around Los Angeles is silent, and then only very faintly. What would my trouble be?

C.—I am using a "Willard" auto storage battery. Is this all right?

D.—How far should I be able to hear with this set?

Any information you can give me will be greatly appreciated, as I am a patient at the "Barlow T. B. Sanatorium" and cannot get out to get any information about my set.

Thanking you in advance for any information you can give me, I remain,

Yours very truly,

A. J. GREGORY,

Barlow Sanatorium, Los Angeles.

Answer: Use antenna not over thirty feet long for local reception, and about 100 feet long for distant reception. Your set is very broad tuning and it is impossible to make a change for selectivity without tearing into set.

Pasadena, Calif., June 16, 1924.

A friend of mine has built a one-tube Harkness set. This set works fine for volume. Long Beach is coming in great, but KFI comes in on nearly the same wave.

The coils are wound on paper tubes, but with No. 24 D. C. C. wire; - New York and 1 no name. (Both 23-plate plain condensers.) Using 2 good spark intensifiers to hold coils. Cuttler-Hammer 6 ohm rheostat 501A-tube. General Radio audio frequency. 3 to 1 transformer. Detector cup is part of a tire gauge and standard for cat whisker is part of tube valve. Jack is made of parts of automobile ignition switch. Plug is standard telephone, switchboard is 3 lead. "A" battery is O. K. "B" battery is about 65 volts. Antenna is one wire, about 70, including lead-in, and 25 feet high, running east and west, lead on east end, with Federal 2200 ohms and Brandes Superior phones.

Question.—Could you give me any reason why KFI comes in nearly on KFON's wave? Answer through Radio Doings.

Yours sincerely,

M. W. CARR, 574 N. Los Robles Ave., Pasadena, Calif.

Answer.—You are listening to KFI harmonic, which is approximately KFON wave.

Form a Habit of Dealing With Reliable Radio Dealers — It Pays!

Buy your Tube and Battery renewals where you have the assurance that the Stock is Fresh and the Service is 100%

STONE ELECTRIC SUPPLY CO.

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Masonic Temple Bldg., Los Angeles

"Always a Place to Park Your Car Nearby—No Parking Limits"

ATlantic 7043

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ANNOUNCING

The Finest, Smallest,
Lightest Variable
Condenser in RADIO

PREMIER

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VARIABLE
CONDENSER

"The Condenser with the
Red Strips"

In making this important announcement, we do not hesitate in saying and without reservation, that the NEW PREMIER CROFOOT VARIABLE CONDENSER is the finest Condenser yet devised—a real achievement of scientific engineering.

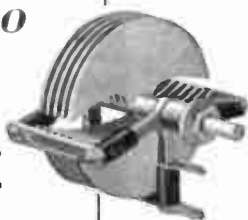
We make this statement advisedly. We stand ready and willing to substantiate every claim which we make for this wonderful new condenser.

The new CROFOOT has the greatest tuning range, and the greatest tuning range for given capacity. In operating efficiency it is unequalled. It is the smallest and lightest standard type condenser made. Read the data in column at the right. It should convince you of CROFOOT'S superiority—"The Condenser with the red strips."

If more proof of the superiority of the NEW CROFOOT Variable Condenser is desired, ask us for it.

BUYERS: Deliveries on this new Condenser will begin August 1934. Only responsible orders will get their schedules. Be on it good time can be assured of delivery when deliveries begin come to you.

DEALERS: Get busy orders in to your letter stock. The CROFOOT will be in big demand—our publicity will make it so.



Min. Capacity	Max. Capacity
.000010 M. F.	.00100 M. F.
.000005 M. F.	.00050 M. F.
.000002 M. F.	.00025 M. F.
Tuning Ratio	List Price
1 to 19	\$2.75
1 to 42	3.25
1 to 74	3.75

Proof of Superiority and Efficiency

1. Highest unattained low value of inductance (full coil capacity), which gives maximum volume and sharpest tuning range 75% obtained. See data above.
2. Highest low phase angle (reactive current) loss being only 1.1% of one layer or 5 microhm. This means discharge efficiency of over 99.5%.
3. Absolute minimum of insulation leakage (inter to metal) as rotor laminae are of the smallest hard vulcanized rubber, are spaced great distances from rotor and outer laminae and are situated in weakest section of the electrostatic field.
4. Semi-straight line (wave meter) plate design which secures low wave length error for space on dial, and permits sharp tuning on all wave lengths.
5. Condenser body is nickel braze and electroplated a part of the rotor, this reflecting band effect in critical circuits in a minor degree.
6. All plates securely fastened in assembly with efficient electrostatic contacting and in steel and stainless steels.
7. Lubricated rotor and stator laminae, this eliminating dust particles in critical circuits which lead to poor rotor contact.
8. Excellent treatment of lead brass which gives condenser great insulation and mechanical strength to very weak signals at their maximum strength.
9. Double spring rotor contacts which are supported in parallel by two thin bakelite fiber contact holder arms and immediately swing away with load for signal receiving.
10. Rotor and stator terminals at each end of condenser to facilitate rotor wiring.
11. Condenser insulated with fibrous covering which makes possible anti-static drilling and mounting.
12. Long mounting lugs which both serve as plates and further away from rotor and stator terminals to facilitate rotor wiring.
13. Special (zinc) bearings on each end of rotor shaft, which eliminate inherent side or end play and prevent wear being produced when condenser is not allowed.
14. Compact design, nevertheless large capacity per volume per manufacturer.

Premier Electric Company

3814 Ravenwood Ave., Chicago
Western Sales Office—1612 Maple Ave., Los Angeles, Cal.
Watch Premier This Year

????

Dear Sir:

Question.—As I have been reading the letters in your magazine for some time, I have a little question that I think you could most likely answer for me.

I have a one-tube Harkness reflex, that I built myself. I like it very much, with the exception of one fault, and here it is:

When I have my dials at zero I get KFON, KFSG and KFAW. When KFON comes in it drowns the others out. Is there any way I could fix this set to make it more selective. KFON comes in very broad. I use no fixed condensers or grid leaks. My aerial is about 50 feet long, with a 20-foot lead-in. I use two New York variables.

Yours in Radio,

ARCHIE V. FRASER, 1071 Linden Ave., Long Beach, Calif.

Answer.—Decrease length of antenna.

Mr. Editor:

Question.—I have had quite a lot of trouble with my set, as it don't work right. I burnt out the filament of one of my tubes, but it don't work right on the plate or grid. Is that a fault of the tube? I got a new tube and it worked O. K. Also have been using a cat's whiskers crystal. Would I get more oscillation by using a permanent one? I get your magazine every week, and it is sure fine. The best there is.

Hoping for an early answer, and yours for a greater radio.

L. A. SCOTT, S. S. W. S. Miller, Standard Oil Co., San Pedro, Calif.

Answer.—You cannot use a crystal detector to any advantage. Mail us your circuit.

Murdock Radio Head Phones "Standard Since 1914"

Cannon-Ball Phones \$3.50

It Weighs But Ten Ounces Complete with Headband and Cord

Why do you prefer the light, attractive straw hat for Summer wear? Because it is so cool and comfortable. The lighter the better and usually the more expensive because light weight accompanies good quality.

It seems to us that if this is true of a hat, it is equally true of a headset. They are often worn for hours, and you surely want to be comfortable when you are being entertained by Radio. If your headset is uncomfortable, then you are not being entertained, indeed you are being punished.

As we said before, a light straw hat is usually the most expensive, but fortunately this is not the case with headsets. The CANNON-BALL phone is extremely low in price. It is not, however, of inferior quality. The materials and workmanship are the best. It could not be otherwise and be so light. We do not believe that you can buy a better headset at any price.

CANNON & MILLER have been making headsets for years. We make nothing else. Our force is trained to make this class of apparatus ONLY and the result is perfection in manufacture possible only under such conditions.

THE CANNON-BALL will add greatly to your Radio pastime.

They bear the Usual money-back guarantee.

Southern California Distributor

W. J. PLATT

420 East Cypress Street

Glendale, California

Carried by First Class Dealers and Jobbers.

CANNON & MILLER CO., INC. Factory SPRINGWATER, N. Y.

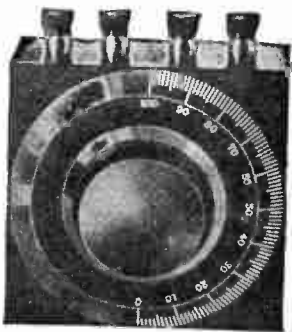
DEALERS:

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

*The
Missing Link
in Radio*



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.

????

June 25, 1924.

Being a novice at radio, I have some questions I would like to ask you, and trust that you can "clear" them up for me.

I have a three tube "Moto Radio" set, which was manufactured by the "Radio Shop," Sunnyvale, California, and as I understand it, they are not in business any more.

Now, as this set was a present to me some few weeks ago, I am of course at a loss to understand some points of operating it to get the best results.

A.—I am located very close to KFSE and KJS. When trying to get other stations I cannot cut them out. Why?

B.—I get Oakland only when the air around Los Angeles is silent, and then only very faintly. What would my trouble be?

C.—I am using a "Willard" auto storage battery. Is this all right?

D.—How far should I be able to hear with this set?

Any in formation you can give me will be greatly appreciated, as I am a patient at the "Barlow T. B. Sanatorium" and cannot get out to get any information about my set.

Thanking you in advance for any information you can give me, I remain,

Yours very truly,

A. J. GREGORY,

Barlow Sanatorium, Los Angeles.

Answer: Use antenna not over thirty feet long for local reception, and about 100 feet long for distant reception. Your set is very broad tuning and it is impossible to make a change for selectivity without tearing into set.

Pasadena, Calif., June 16, 1924.

A friend of mine has built a one-tube Harkness set. This set works fine for volume. Long Beach is coming in great, but KFI comes in on nearly the same wave.

The coils are wound on paper tubes, but with No. 24 D. C. C. wire; - New York and 1 no name. (Both 23-plate plain condensers.) Using 2 good spark intensifiers to hold coils. Cuttler-Hammer 6 ohm rheostat 501A-tube. General Radio audio frequency, 3 to 1 transformer. Detector cup is part of a tire guage and standard for cat whisker is part of tube valve. Jack is made of parts of automobile ignition switch. Plug is standard telephone, switchboard is 3 lead. "A" battery is O. K. "B" battery is about 65 volts. Antenna is one wire, about 70, including lead-in, and 25 feet high, running east and west, lead on east end, with Federal 2200 ohms and Brandes Superior phones.

Question.—Could you give me any reason why KFI comes in nearly on KFON's wave? Answer through Radio Doings.

Yours sincerely,

M. W. CARR, 574 N. Los Robles Ave., Pasadena, Calif.

Answer.—You are listening to KFI harmonic, which is approximately KFON wave.

Form a Habit of Dealing With Reliable Radio Dealers — It Pays!

Buy your Tube and Battery renewals where you have the assurance that the Stock is Fresh and the Service is 100%

STONE ELECTRIC SUPPLY CO.

710 West Pico, at Figueroa

Masonic Temple Bldg., Los Angeles

"Always a Place to Park Your Car Nearby—No Parking Limits"

ATlantic 7043

—Telephones—

ATlantic 1155

ANNOUNCING

*The Finest, Smallest,
Lightest Variable
Condenser in RADIO*

PREMIER

Crofoot

Trademark

**VARIABLE
CONDENSER**

*"The Condenser with the
Red Stripe"*

In making this important announcement, we do not hesitate in saying, and without reservation, that the NEW PREMIER CROFOOT VARIABLE CONDENSER is the finest Condenser yet devised—a real achievement of scientific engineering.

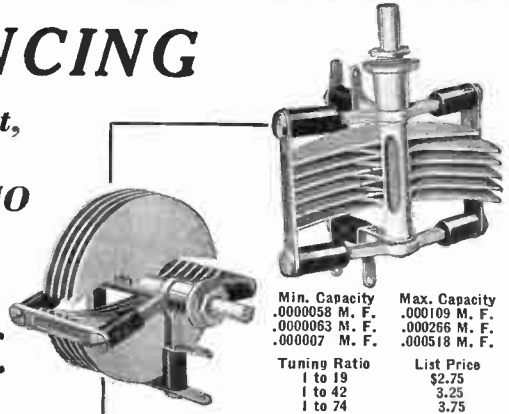
We make this statement advisedly. We stand ready and willing to substantiate every claim which we make for this wonderful new condenser.

The new CROFOOT has the greatest tuning ratio, and the greatest tuning range for given capacity. In operating efficiency it is unexcelled. It is the smallest and lightest standard type condenser made. Read the data in column at the right. It should convince you of CROFOOT'S superiority—"the Condenser with the red stripe."

If more proof of the superiority of the New CROFOOT Variable Condenser is desired, ask us for it.

JOBBERS: Deliveries on this new Condenser will begin August 15th. Only responsible jobbers who get their schedules to us in good time can be assured of deliveries when deliveris mean money to you.

DEALERS: Get your orders in to your jobber early. The CROFOOT will be in big demand—our publicity will make it so.



Min. Capacity	Max. Capacity
.000058 M. F.	.000109 M. F.
.000063 M. F.	.000266 M. F.
.00007 M. F.	.000518 M. F.

Tuning Ratio	List Price
1 to 19	\$2.75
1 to 42	3.25
1 to 74	3.75

Proof of Superiority and Efficiency

- Hitherto unattained low value of minimum (full out) capacity, which gives condenser widest and sharpest tuning range yet attained. See data above.
- Extremely low phase angle (wattless current) loss being only 1/12 of one degree or 5 minutes. This means discharge efficiency of over 99.5%.
- Absolute minimum of insulation leakage (rotor to stator) as rotor insulators are of best quality hard vulcanized rubber, are spaced great distance from rotor and stator plates, and are situated in weakest section of stator electrostatic field.
- Semi-straight line (wave meter) plate design which separates low wave length signals far apart on dial, and permits sharp tuning on all wave lengths.
- Condenser heads are nicked brass and electrostatically a part of the rotor, thus reducing hand effect on critical circuits to a minimum.
- All plates securely soldered in assembly which obviates spasmodic contacting and its attendant crashing noises.
- Lacquered rotor and stator assemblies, thus eliminating dust snutters (a scratching trouble often laid to poor rotor contact).
- Entire condenser of hard brass which gives condenser zero resistance and consequently conserves very weak signals at their maximum strength.
- Double spring rotor contacts which may be strapped in parallel by user, thus making rotor contact doubly sure and consequently doing away with need for pigtail connections.
- Rotor and stator terminals at each end of condenser to facilitate neat wiring.
- Condenser equipped with thimble mounting, which makes possible one-hole drilling and mounting.
- Long mounting bushing which holds stator plates still farther away from panel, and consequently again reduces hand effect in critical circuits.
- Revel (cone) bearings on each end of rotor shaft, which eliminate inherent side or end play and prevent same being produced when condenser is mal-adjusted.
- Compact design (smallest large capacity plate condenser yet manufactured).

Premier Electric Company

Est.
1905

3814 Ravenswood Ave., Chicago
Western Sales Office—1612 Maple Ave., Los Angeles, Cal.
Watch Premier This Year

????

Dear Sir:

Question.—As I have been reading the letters in your magazine for some time, I have a little question that I think you could most likely answer for me.

I have a one-tube Harkness reflex, that I built myself. I like it very much, with the exception of one fault, and here it is:

When I have my dials at zero I get KFON, KFSG and KFAW. When KFON comes in it drowns the others out. Is there any way I could fix this set to make it more selective. KFON comes in very broad. I use no fixed condensers or grid leaks. My aerial is about 50 feet long, with a 20-foot lead-in. I use two New York variables.

Yours in Radio,

ARCHIE V. FRASER, 1071 Linden Ave., Long Beach, Calif.

Answer.—Decrease length of antenna.

Mr. Editor:

Question.—I have had quite a lot of trouble with my set, as it don't work right. I burnt out the filament of one of my tubes, but it don't work right on the plate or grid. Is that a fault of the tube? I got a new tube and it worked O. K. Also have been using a cat's whiskers crystal. Would I get more oscillation by using a permanent one? I get your magazine every week, and it is sure fine. The best there is.

Hoping for an early answer, and yours for a greater radio.

L. A. SCOTT, S. S. W. S. Miller, Standard Oil Co., San Pedro, Calif.

Answer.—You cannot use a crystal detector to any advantage. Mail us your circuit.

Murdock Radio Head Phones "Standard Since 1914"

Cannon-Ball Phones \$3.50

It Weighs But Ten Ounces Complete with Headband and Cord

Why do you prefer the light, attractive straw hat for Summer wear? Because it is so cool and comfortable. The lighter the better and usually the more expensive because light weight accompanies good quality.

It seems to us that if this is true of a hat, it is equally true of a headset. They are often worn for hours, and you surely want to be comfortable when you are being entertained by Radio. If your headset is uncomfortable, then you are not being entertained, indeed you are being punished.

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Southern California Distributor

W. J. PLATT

420 East Cypress Street

Glendale, California

Carried by First Class Dealers and Jobbers.

CANNON & MILLER CO., INC. Factory SPRINGWATER, N. Y.

Of each Kennedy radio set, Kennedy asks, not "Is it good?" but "Is it excellent?" Not merely "Will it satisfy?" but "Will it win unreserved praise?"

K E N N E D Y



WHOLESALE ONLY

Dealers, our policy is EXCLUSIVE

KIERULFF & RAVENSCROFT

1630-1632 South Los Angeles Street, Los Angeles, Calif.

Phones: ATlantic 3125—ATlantic 3303

?? ??

June 17, 1924.

Dear Sir:

I would like you to answer the following questions:

Question 1.—I have a "Harkness reflex set," using two Cunningham C-301A tubes, and a six-volt 110-amp. storage battery. My aerial is 100 feet long and 30 feet high, and using water pipe for a ground. Is this O. K.?

2.—I receive KGO, KFI, KJS and KHJ fine, but KFSG, KFON and KFAW are all a jumble. How can I make my set more selective?

3.—What would I have to do to change my crystal to a vacuum tube?

4.—Would a 10 to 1 transformer increase my range?

Please answer in enclosed envelope.

Yours truly,

STEPHEN MAXWELL, Box 157 Olive, California.

P. S.—Couldn't get along without "Radio Doings."

Answer 1.—Do not change crystal to tube.

2.—Your antenna is too large.

3.—A 10-1 transformer would increase volume but not distance.

"Radio Doings,"

308 Van Nuys Building, Los Angeles, California.

Dear Sir: Would you recommend this circuit? I think it is a good one. If so, will you publish it somewhere in "Radio Doings"?

Find the circuit enclosed.

Yours truly,

JACOB STOLL,

6222 and 612 R. K, Fillmore, California.

Answer: This is not a good receiving circuit, due to the fact that it will radiate badly, bothering your surrounding neighborhood.

The Caraflex Portable

The set you want for your summer trips. Made to order and to suit your own particular requirement.

Super-Heterodyne Specialists

Come in and listen to the 3-tube "CARAFLEX"



A Statement by

Gordon C. Sleeper

The SLEEPER RADIO CORPORATION will shortly announce the new TYPE 54 MONOTROL.

In my opinion no set ever made so nearly meets the ideas of 28,000 radio dealers in the United States as to what they want to sell and what the public wants to buy.

The TYPE 54 MONOTROL establishes new standards of engineering and mechanical design. It is the supreme development of the GRIMES Inverse Duplex Circuit.

A Cabinet of Inlaid African Mahogany with the finish of a Steinway. A panel of etched bronze to please the most discriminating eye.

The new Sleeper DUAL Condenser used in this set allows tuned radio frequency on one dial, and by its sharp-tuned efficiency, points the way to obsolescence of sets with two, three or more tuning dials.

The New Monotrol will operate on loop only, on ground only, or on aerial and ground. It uses either storage battery or dry cell tubes.

The set is the result of an entire year's research by DAVID GRIMES, Chief Engineer of the SLEEPER RADIO CORPORATION, in collaboration with H. C. DOYLE.

It incorporates features that are an absolute challenge to the Radio Industry.

The TYPE 54 MONOTROL is worth waiting for.

(Signed) GORDON C. SLEEPER, President.

Sleeper Radio Corporation

88 Park Place

New York

?? ??

Editor, "Radio Doings."

Dear Sir:

Question 1.—Would you kindly tell me how far a WD-11 type receiver, as illustrated, will receive? I have an 80-foot aerial sloping from 15 to 45 feet from ground and 20 feet lead in.

2. Should it receive Los Angeles stations regularly?

3. How much extra distance should a crystal set receive with the addition of a dry cell and a potentiometer?

Yours respectfully,

N. S. Truitt, Alameda, Calif.

Answer 1.—It is impossible for anyone to answer this question.

2.—Yes, in winter.

3. No advantage.

June 21, 1924.

"Radio Doings,"

Los Angeles, California.

Gentlemen: I have a Tuska Superdyne. I live in the hills, a long way from a charging station, so that a storage battery is almost out of the question. I want to know if this set will operate on WD-12 tubes, using dry batteries, and if so, how many 1½ volt cells will be required? Also, how many dry cells for four UV201A tubes? Would you advise the use of the UV201A tubes? Am using one UV200 and three UV201A tubes.

Very truly yours,

D. S. MARKS, Forest Ranger,
Blue, Arizona.

Answer: Advise using C299 or UV199 tubes.

The Voice From the Plane

While testing out an airplane radio-phone transmitter at McCook Field, Dayton, recently, the embryo announcer, Mr. Studebaker, caused a commotion in that section of radioland. Tiring of repeating numbers and phrases for the ear of the receiving operator at the Flying Field, he started singing. Suddenly there burst upon the air: "London Bridge is falling down, falling down, falling down, etc."

The phone in the radio laboratory of McCook Field began to ring loud and continuously. To the operator's answer, a feminine voice announced that she had just gotten in touch with an airplane on her radio set. "There's a man up there, who seems to be in distress," she continued, "he keeps calling that he is 'falling down,' and I thought you might want to send up another plane to help him."

It was a joke on Mr. Studebaker, who now sticks to meaningless numbers and words when testing out the airplane transmitter.

AFTER JULY 1ST
Western Radio, Inc.
 AT
 1224 WALL ST.
 Phone ATLantic 9257

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Los Angeles, California.

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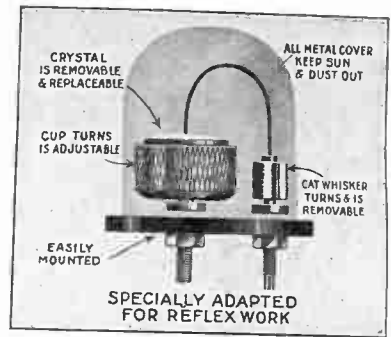
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AFTER JULY 1ST
Western Radio, Inc.
 AT
 1224 WALL ST.
 Phone ATLantic 9257

THE LINCOLN DETECTOR



The Lincoln Enclosed Fixed Adjustable Detector is the **ONLY** Detector of its kind on the market today. We guarantee every Detector and Crystal we sell. Your money back any time within 12 months.

If any other manufacturer can offer you more than this, he certainly must have a wonderful product.

We will be pleased to have you call and inspect our new premises.



LINCOLN RADIO COMPANY

1151 Santee Street
FAber 0665

—Phones—

Los Angeles, Cal.
FAber 0666

?? ??

June 12, 1924.

Gentlemen:

Again I am going to take advantage of your "Question" column of "Radio Doings." My friend and I have recently purchased new radio sets, Kennedy type 281, and one person tells us to hook up our B batteries one way, and another person claims it will be better done another way. I am enclosing two sketches, Nos. 1 and 2, and would appreciate your advice as to which is the better. I would also like to know if you think a "C" battery of 4.5 v. would improve my reception any.

An enclosing stamped envelope in case it should take too much space in "Radio Doings."

Thanking you for past favors and for the above information, I am,
Yours very truly,

IVOR C. BROOKER,
Glendale, California.

Answer: Hook-up number one is best and only correct way.

June 21, 1924.

Editor of "Radio Doings":

Dear Sir: I have a three-tube Cockaday receiver, and it consists of these things: Aerial is fifty feet in length, and is ten feet in height. The hook-up has three wires, two transformers—All America, three tube amplifying (Type UV501A) two .0005 mf. variable condenser (23 plate), B battery 90 volts, A storage battery. I cannot get any other stations out of Los Angeles. I can get only KHJ, KFI and KFGS. I will appreciate it if you will tell me what is the matter. Yours truly,

JOE RONZONI,

721 N. Grand Ave., Los Angeles.

Answer: Your antenna is too low—
for distant reception.

June 21, 1924.

"Radio Doings,"

Los Angeles, California.

Gentlemen: I have a Tuska Super-dyne. I live in the hills, a long way from a charging station, so that a storage battery is almost out of the question. I want to know if this set will operate on WD-12 tubes, using dry batteries, and if so, how many 1½ volt cells will be required? Also, how many dry cells for four UV201A tubes? Would you advise the use of the UV201A tubes? Am using one UV200 and three UV201A tubes.

Very truly yours,

D. S. MARKS, Forest Ranger,
Blue, Arizona.

Answer: Advise using C209 or UV199 tubes.



DUTHO RECHARGEABLE STORAGE "B" BATTERIES

Provide Clear Reception

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

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

Here's what they cost you delivered

Super-Dutho
3500 m a hours

24 v \$9
45 v \$17
90 v \$32

S Type Dutho
750 m a hours

24 v \$5
45 v \$9
90 v \$17

Write for booklet on Storage "B" Batteries

DURKEE-THOMAS Products Co.

1228 Folsom Street, San Francisco

DEALERS:—Write for Special Dealer Proposition

(703)

AT LAST!

A two-tube receiver in knock-down form of Harkness reflex type with the most essential equipment designed especially for it

THE KILBOURNE & CLARK REFLEX KIT

It includes especially wound coils of diamond wound "pancake" type, designed for lowest losses, extreme selectivity and good volume;

A K & C Reflex-audio Transformer designed particularly for reflex work with a matched primary winding;

A 3 to 1 ratio highest quality K C audio transformer designed for full volume combined with mellowness and roundness of tone;

Two 23-plate K & C condensers, pigtailed connections, moulded bakelite end plates, "straight curve" rotor plates, mechanically perfect;

SELECTIVITY

IS THE QUALITY GREATLY TO BE DESIRED BY RADIO FANS IN THE CALIFORNIA CITIES. With this in view the Kilbourne & Clark Mfg. Co. has designed in its laboratories a special low loss diamond wound "pancake" coil suitable for reflex sets of the Harkness type. Takes minimum of room, adds selectivity to any Harkness set, retains volume, and improves quality. Price \$2.50. Attractive proposition to dealers. Address branch office nearest you, giving name of your jobber.

A K & C double standard VT or UV 199 socket;

A bakelite panel, engraved and drilled for mounting all of the equipment, and

All necessary jacks, dials, binding posts, terminal board, brackets, screws, nuts, buss wire; in fact, everything to make the set complete excepting tubes, phones and batteries.

\$34

DEALERS

Address one of the K & C branches listed below for discounts. Give jobber's name.

LOS ANGELES
1103 West 10th St.
Phone 55-263

SAN FRANCISCO
591 Mission St.
Phone Sutter 40

PORTLAND, ORE.
305 Larrabee St.
Phone 6156

SEATTLE, WASH.
101 Spokane St.

Every item in this kit is manufactured by the Kilbourne & Clark Mfg. Co. and carries their unqualified guarantee of satisfaction.

THE KILBOURNE & CLARK MFG. CO.

Radio and Aviation Aid Mail Delivery

The development of speed in the delivery of the United States Mail is one of the most romantic subjects to be found in history, for it has accepted the accommodations afforded by every means of rapid transportation, from the Pony Express to the airplane and now has taken to radio as an expedient.

For some time the experts of the Postoffice Department have been experimenting with radio as an aid to air-mail transportation, both for communication between stations along the routes and between these stations and planes. Much has been accomplished, but only the intercommunication ground system has been completed.

When the transcontinental air-mail service is officially opened on July 1, however, thirteen of the flying field relay stations along the route, with headquarters at Washington, already equipped with radio telegraph transmission stations, will co-operate. These stations, situated about 250 miles apart on the 3400-mile route, are located as follows: Hempstead, L. I.; Bellefonte, Pa.; Cleveland and Bryan, Ohio; Maywood, near Chicago, Ill.; Iowa City, Iowa; Omaha and North Platte, Neb.; Cheyenne and Rock Spring, Wyo.; Salt Lake City, Utah, and Elko and Reno, Nev. The field at Rawlins, Wyo., is not yet equipped. A leased wire is used from Reno to San Francisco to complete the chain and avoid interference with Pacific Coast radio stations. Operating on a working wave between 3500 and 3800 meters, these stations call each other on the 3998-meter wave, but shut down to listen every fifteen minutes for emergency calls. This chain of radio stations acts as an aerial train dispatching system. It furnishes quick service for planes, transmitting advance weather reports and orders to stations where planes and pilots relieve each other on their cross-country flight. Air mail will be carried across the country in approximately thirty-three hours each way. All plane arrivals and departures are now reported to WWX at Washington, which station can itself communicate directly as far west as Cheyenne under good conditions.

All the air mail radio stations are equipped with six KW arc sets, most of which were supplied by the Shipping Board. On July 1, a twenty-four-hour service at stations between San Francisco and Cheyenne, and Maywood and New York will be maintained, but between Maywood and Cheyenne, where the night flying is done, only a sixteen-hour schedule will be necessary.

The Department has twenty-seven special mail planes ready for service and forty-two pilots, all familiar with the sections of the trans-continental routes over which they will fly. Ten planes a trip will be employed, one to each "jump," the pilots also relieving each other.

RADIO SALESMAN WANTED

Good opening in live territory for outside man to sell "KENNEDY" equipment.

Apply to RADIO DOINGS, 308 Van Nuys Bldg.
Phone TRinity 6062

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

Why let SUMMER conditions bother you?

You can enjoy your RADIO now the same as in winter season.
Let us show you.

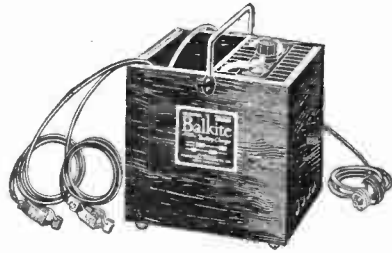
We have Superheterodynes, Neutrodyne, One-Two-Three Tube Reflexes.
Complete Sets and Parts.

Remember our easy payment plan. No use to wait. DO IT NOW.

MANUAL ARTS RADIO & ELECTRIC SHOP

4154 S. Vermont Avenue, Los Angeles, California. Phone VERmont 7836.

Tested and Listed as Standard by Underwriter's Laboratories



A new battery charger, noiseless and indestructible

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

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

FANSTEEL
Balkite
PATENTS
APPLIED FOR
Battery Charger

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

Price, \$20

Distributor

CARL A. STONE CO.

Radio Building : 1113 Wall St.

Los Angeles

"Trouble Shooting" by Radio Inspectors

Supervisor of Radio Dillon of the Sixth District, whose headquarters are in San Francisco, received so many complaints of interference on waves from 300 to 500 meters, in the neighborhood of Globe and Miami, Ariz., that he made a special trip to unearth the noise which prevented radio reception.

The trouble came from the Cottrell electric precipitating plant operated by a smelter. After considerable investigation he found that by moving the resistance outside the middle wall of the building and inserting an iron core impedance in the line, the radiation was reduced. He then bridged the spark gap with an L C circuit to absorb the energy of the oscillatory current developed. When the changes were made he called Globe and Miami and asked fans to listen-in; both cities reported the interference had disappeared. The supervisor then arranged to have the precipitators operated on the non-interference circuit until additional devices could be secured for all circuits of the smelter. In the evening the inspector was able to pick up Los Angeles and Oakland on a loud speaker, without interference from this source.

En route to San Francisco, a visit to investigate interference reported in Superior, Ariz., was made. The method of absorbing radiated energy at a local smelting plant was changed so as to absorb all radiation by screening the discharger with fine copper mesh and grounding it.

Supervisor Van Nostrand of the Fourth District found that interference from a power line system in Augusta, Ga., was causing considerable trouble among the radio fans there, and after continued scouting and work with a loop receiver, he eliminated the trouble, which was in the form of a particularly loud intermittent buzz. After two days and a night's work it was found that when a certain arc light was swung by the wind its guy wire came into contact with a 2,300-volt circuit, which caused the disturbing hum or buzz. This difficulty was also reported as the cause of similar interference in Hartford, Conn. In both cases inspection of the lighting and power circuits failed to find the difficulty.

ANNOUNCEMENT!

Our New Location Is

5512 Franklin Ave.

(at Western)

C & G RADIO CO.

J. W. CLENEY

H. L. GREENE

SUMMER IS HERE

ULTRIFLEX Gives You What You Want.

For Volume and Quality of Tone.

Set of 3 Radiona ULTRIFLEX TRANSFORMERS—\$3.00

COMPLETE SETS IN STOCK

BRIDEWELL RADIOS

3512 SO. MAIN ST.

OPEN EVENINGS

LOS ANGELES, CAL.

Clarity and Tone Range *with* Kellogg Transformer.



THE reproduction of the highest tones, as well as those of the lower extreme of the scale, with faithful, pure quality, is essentially the spirit of Kellogg transformer design.

The lover of better music searches for a rendition simulating the original orchestra. The ringing tones of brass, the mellowness of wood, the shrill of wind and the fanfare of reed, all in their individual expression.

The Kellogg transformer accomplishes this to a wonderful degree because of its perfect magnetic properties accomplished with the silicon steel laminations without punched holes.

This feature, distinctly Kellogg, eliminates losses to a greater degree than could be otherwise obtained. A transformer is as good as its absence of losses.

Plainly marked terminals, brass shielding, moulded Bakelite tops, perfect finish, are further quality and design expressions.

Amplify your pleasure with perfect amplifiers.

No. 501—4½ to 1 } Equally efficient. Price \$4.50.
No. 501—3 to 1 }

USE—Is the Test



KELLOGG SWITCHBOARD & SUPPLY COMPANY

1066 West Adams Street, Chicago

623 San Fernando Bldg.,
Los Angeles

1054 Mission St.,
San Francisco, Calif.

Daily Papers Using Radio to Feel Convention Pulse

The first broadcasting of a national political convention brought radio into some newspaper offices where it had never before penetrated. It is said to have been of value to the managing editors in two ways: First, that it actually beat the press wire reports by about two minutes; and second, it enabled the managing editors and make-up men on duty at home offices to anticipate stories and keep in touch with the actual spirit of the convention, probably better than reporters on the scene busy writing stories.

In Washington, the editor of a leading daily had a radio receiving set on his desk and directed the make-up of his paper while he listened in to the convention, from the actual platform as it were. He could feel the pulse of the sessions. He was able to get the "feel" of the convention. During the balloting, he added up the votes for each candidate as they were announced and kept tab on the votes necessary to win the nomination. He secured a definite line on the spirit of the applause at each nomination speech, as well as outbursts following the casting of the votes by delegations, and judged himself whether or not the cheering and applause were manufactured, inspired or spontaneous. This was a side light, editors who remained at their desks never could secure before and it was valuable, making possible better editing and follow-up stories. Radio brought in an additional story, one correspondent could not write.

It is understood that many newspapers used radio during the Democratic Convention in various ways. In general it is believed the broadcasting of the Cleveland Convention sold radio reporting to numbers of the dailies which heretofore have passed up an opportunity to listen-in during the broadcasting of national events. It not only supplements the wire service, but insures another direct channel for news, especially when bulletins and flashes are due, and aids in anticipating the need for extra editions; speeding up their issuance.

Some radio fans feel that radio has eliminated the need for extra papers, but on the other hand, the radio announcements carry bare facts without interpretation. Radio broadcasts are gone in a moment, whereas the papers are longer lived and carry news and features, follow stories and views of authorities which do not come over the radio. All of which, others argue, make the extra or the next issue of a newspaper all the more interesting and necessary to the radio fan.

STAR ENGRAVING COMPANY

223 EAST FOURTH ST. LOS ANGELES

872-969 TELEPHONE 872-969

"Your Story in Picture Leaves Nothing Untold"

PACIFIC TUBE EXCHANGE

6645 LELAND WAY HOLLYWOOD, CALIF.

Only Western Tube Service Station

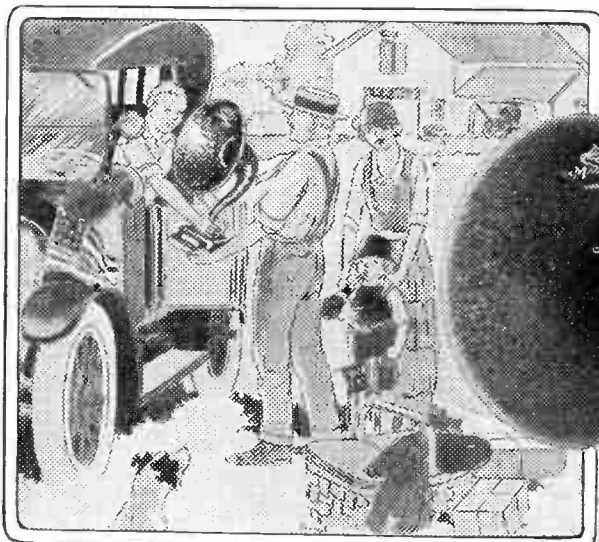
8-HOUR SERVICE. NO EXTRA CHARGE FOR BROKEN GLASS

WD-11, WD-12, C-11, C-12.....	\$3.00 Each
UV-201, C-301	\$3.00 Each
UV-201-A, C-301-A, UV-199, C-299	\$3.00 Each
DV-1, DV-2	\$3.00 Each
UV-200, C-300	\$2.75 Each

WE BUY BURNT-OUT TUBES

ALL TUBES GUARANTEED AND RETURNED, PARCEL POST, C. O. D.

Agents for Dey's Radio Service, Chicago, Illinois



M4
\$25.00

This new Magnavox Reproducer perfectly meets the insistant demand for an instrument of small, convenient size, handsome finish, economical operation, yet producing clear tone throughout the entire musical range.

The low price of Magnavox M4 brings flawless radio reproduction within reach of all.

THE MAGNAVOX COMPANY, Oakland, Calif.

New York Office: 350 West 31st Street

Canadian Distributors: Perkins Electric Ltd., Toronto, Montreal, Winnipeg

MAGNAVOX
Radio



The "Kelcoil" Circuit

B. KRUGER, M. T. I., M. S. E. (Eng.)

Radio development travels so fast that before one has properly grasped the intricacies of one circuit and got it into something like satisfactory operation, another development takes place that very often puts months of previous work on the scrap heap. However, I philosophically accept this fact as one of the necessary woes of a radio engineer or anything else he chooses to describe himself.

While wrestling with Supers., Neuts., Hark this and that, I kept hearing rumors of the development of a new coil winding with which new records were being made. A most peculiar thing, however, was the fact that none of my informants had any definite information about it.

In the course of my general business correspondence with certain Eastern concerns, I recently received a description of a new coil that by a Sherlock Holmes system of deduction led me to believe that I was tracking the main rumor to its lair. I immediately wrote to the manufacturers, ordering a few of the coils—I already had the circuit—and had a set constructed "toot sweet." It was just thrown together with a lot of junk parts and looked like nothing in particular beside the aristocratic Supers. and Neuts. Two tubes, a peculiarly wound coil in the shape of a vario-coupler, a 23-plate variable condenser, an A. F. transformer, two rheostats, a fixed condenser and grid leak was all there was to it.

We tuned it in first in the office at 2:30 p. m. on KHJ, and it nearly rattled the diaphragm off the loud speaker. We took off the antenna and I could hear the music on the floor below. Without antenna and ground, the volume became comfortable and I let it go at that. The next two evenings we had the set out at two different locations in Hollywood and tried some distance. Without the least difficulty we tuned in through locals on the loud speaker KLX, KPO, KGW, and several amateur stations in Arizona and Nebraska. KGO came in as loud as locals on the ground wire alone. We then hooked up our pet "Super-Harkadyne" for purposes of comparison and by golly! that two-tube bundle of junk had it skinned. After the amount of time and money I invested in the S. H. D. I did not know whether I felt pleased or sorry.

I am now going to build a three-tube set, maybe adding P.P. Amplification, with which I feel sure I can do some considerable traveling even at this time of the year.

FILAMENT (Trade **R C** Mark) **TRANSFORMER**

(Registered)

Replace your "A" Battery with a **FILAMENT TRANSFORMER** in your One, Two and Three Tube Set, using crystal detector. Price \$5.00 post paid.

R C Two and Three Tube Reflex Sets, price dependent on quality desired.

Repairing and Wiring.

RAY CAMPBELL

1217 Dwiggins Street, near N. Huntington Drive, Two Blocks from Sierra Vista Station
LOS ANGELES, CALIF.

AFTER JULY 1ST

Western Radio, Inc.

AT

1224 WALL ST.

Phone ATlantic 9257

You are courteously
reminded by the
Sign of the Lion's
Head

that



Have 235 Distributors

(Service Stations)



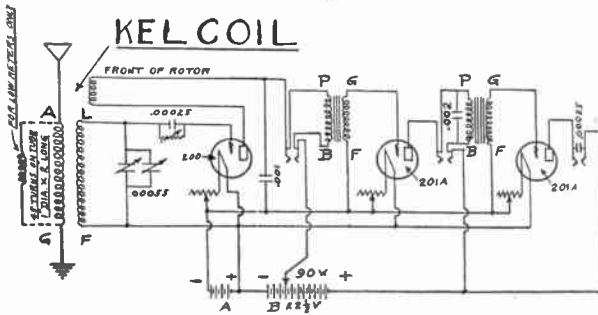
An increase of fifty since the first of the year.
This indicates an increasing approval of our product.

GILMORE OIL COMPANY

2333 East 28th Street

Los Angeles, Cal.

Here is the circuit for a three-tube set:



I will be glad to have reports from anyone constructing this set and any further advice that I may be able to give is entirely at his disposal.

Protection to ships in Pacific waters is afforded by the radio broadcasting equipment at KGO, the General Electric Pacific Coast station.

Listening intently every second of the time a program is being broadcast for possible distress signals from some vessel, an expert radio operator in the control room at KGO keeps an accurate log of what he hears. This is proof that listening was actually being done on the 600 meter wave length used by shipping. Should an S O S call be heard, the great voice of KGO would very quickly be silenced. Half a mile away from the studio building, in the powerhouse, a 600-meter transmitter is always ready for an attempt to communicate with the stricken ship.

Federal regulations provide that listening-in must be done by every broadcaster three minutes out of each fifteen. But that no opportunity to give aid might be lost listening is done continuously at KGO.

Only one distress signal has been heard at KGO since the station went on the air in the early part of January. This came from the Frank H. Buck, a tanker belonging to the Associated Oil Company, which crashed into the rocks off the coast of Monterey, Calif., on May 3. On this evening KGO listeners received a new thrill. They were told by the announcer to "stand by" that a ship was sinking and calling for help. Several minutes elapsed before the radio operator on the stricken vessel sent out his last message that he was leaving his ship.

The program was then resumed.

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

214 So. Western Ave., Los Angeles

567-073

VAndike 7382



Independent Press Room

Press Work and Binding
— FOR THE TRADE —

BURT HARWICK
Manager



540 So. San Pedro Street

LOS ANGELES

New Zealand Fights Foreign Radio Expansion

An effort to block the sale of American made radio apparatus and to assume popular American radio trade names for local makes of apparatus is reported from New Zealand. Actually the block is against all radio goods not manufactured by the Amalgamated Wireless Company, Ltd., of Australasia. This company is said to be a branch of the Marconi Company of England; it operates as a branch by virtue of the annual payment to the Marconi Company of a £60,000 annual fee. The Amalgamated was formed in Australia with a million shares of stock, of which 500,001 shares are controlled by the Australian Commonwealth, the government paying half the royalty to the Marconi Company of England.

An agreement is understood to exist between the Marconi Company of England and to Radio Corporation of America, by virtue of which the Amalgamated, upon payment of the above mentioned royalties to the Marconi Company, is permitted to use circuits, designs and patents held by the R. C. A.

It is now reported, however, that the Amalgamated is showing a tendency to assume trade names which have been made popular by the advertising and quality of production of American firms. The term "Radiophone," for example, is being used. In some cases local distributors have discovered this use of the trade names in time to avoid sales under the misapprehension that the goods were genuine American products.

If the Amalgamated Company registered the names of popular American goods not registered in New Zealand as their own, they could demand a royalty on every instrument sold there under the name. Such an attempt has been made by the Amalgamated people, reports from authentic and reliable sources state, in connection with the use of the trade name "Radiophone," understood to be the property of the DeForest Company in the United States.

A group of New Zealanders is said to have undertaken the formation of a broadcasting company with four large stations, using mostly American apparatus. But at a meeting held in connection with the organization of the company, it is stated that local representatives of the Amalgamated Company informed the prospective incorporators that they would not be permitted to operate unless a license were secured from the Amalgamated Company and the New Zealand Government. Communications with the head office of the Amalgamated Company in Australia, however, indicated that the local branch in New Zealand had no authority to make such a statement. Rights of the Amalgamated Company in connection with transmission apparatus are questioned by the proposed broadcasters. It has been the practice of the Amalgamated to demand subscription fees from every broadcaster in New Zealand, although most of them have been refused, it is understood, and no action by the Amalgamated has followed.

The projectors of the broadcasting service intend to force the issue as a test case, it is understood, providing they obtain assistance from the American manufacturers covering the patents they desire to operate under, since the Amalgamated Company has not proven its rights. Representatives of both the Amalgamated Company and the local government are hoping to bring about a block against makes of apparatus other than their own, although they have not yet succeeded, advices said.



**DEATH
VALLEY
CRYSTAL**

"Death Valley" Permactect Price \$1.00

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

"Death Valley" Crystal Price 30 Cents

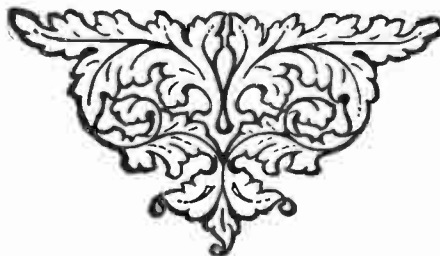
The "Death Valley" Crystal is a natural mineral with every point sensitive. The Volume and Clarity has not been equaled. Will stand up under any conditions, as it cannot be damaged. Sold only in sealed packages.

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

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

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

Printing



Modern Methods

Service to meet all requirements—large or small

PHONE FOR REPRESENTATIVE

BRoadway
3913



BRoadway
3914

CITIZEN PRINT SHOP

—INCORPORATED—

540 South San Pedro Street

Trade Notes

The vexed and complicated question of allowances on old, used and "try-out" radio sets to customers when the latter request credit or an allowance for the set that they already have towards the purchase of a new one has been occupying the time of the Radio retail trade, and a special committee was appointed by the Association to investigate, report, and submit recommendations. Many managers of retail radio stores declare that they cannot see their way to make any allowance whatever, claiming that the expense of doing business and giving service prohibits them from doing so. However, it is considered probable that the practice will become customary in the future, as it already is in the automobile, piano and phonograph business, and that a schedule of allowances for the guidance of dealers must be drawn up. The most difficult problem for the retailer is to know how to explain to a customer that in spite of the fact that he may have bought a—say \$100—set but three months ago, he cannot expect the dealer—even if he purchased the set from him—to allow him the full value as an allowance towards the purchase of a more expensive set which may run to four or five hundred dollars. The customer has to be shown that his returned set will have to be sold as second-hand and at a reduction, and that on this resale of a second-hand reduced price radio set the dealer is entitled to a fair margin of profit.

The committee on "trade-ins" appointed by the Association consisted of Messrs. Westphal, Aylesworth and Schifferman. Their recommendations were embraced under the following schedule:

Allowance on radio set	1 month old—less 15%	today's list price.
Allowance on radio set	2 months old—less 30%	today's list price.
Allowance on radio set	3 months old—less 45%	today's list price.
Allowance on radio set	4 months old—less 50%	today's list price.
Allowance on radio set	5 months old—less 55%	today's list price.
Allowance on radio set	6 months old—less 60%	today's list price.
Allowance on radio set	7 months old—less 65%	today's list price.
Allowance on radio set	8 months old—less 70%	today's list price.
Allowance on radio set	9 months old—less 75%	today's list price.
Allowance on radio set	10 months old—less 80%	today's list price.

After ten months the committee states that it believes that the allowance—if given at all—should be 80% or more off today's list price.

Burglars broke into Richardson's, Inc., 727 West Seventh Street, Los Angeles, and not content with pilfering the safe and stealing a large sum of money, carried off a Super Heterodyne Radiola set No. 109243, which had been supplied in a special tan leather case. If anyone offers to sell a Super Heterodyne Radiola Set at a bargain price, the prospective purchaser should investigate the number closely. A substantial reward will doubtless be given to anyone who can furnish information which will lead to the arrest and conviction of the thieves.

E. F. Margolis of the Lincoln Radio Company left on Sunday for a six weeks' trip across the continent. Mr. Margolis will stop off at all the principal cities en route, with three objects in view, namely: First, in the interests of the radio jobbers of Southern California, with a view to giving them a full and comprehensive report of conditions throughout the country. Secondly, to introduce the Lincoln Protector to Middle West and Eastern radio jobbers and dealers. Thirdly, to meet jobbers and dealers as a special representative of the Lincoln Radio Manufacturing Company.

The Workrite Manufacturing Co., of Cleveland, Ohio, now have in operation their Pacific coast factory located at 239 So. Los Angeles St., Los Angeles, where they will manufacture for the Pacific coast dealers five tube Workrite Neutrodyne Receiving sets, they say "Western made for Western trade" and will put out nothing but the highest quality. Through their national advertising campaign they are announcing three new models: Workrite Aristocrat Console; Workrite Radio King (with loud speaker built in); Workrite Air-Master (with-out built-in loud speaker). The Patterson Radio Corporation, 239 So. Los Angeles St., Los Angeles, have been appointed exclusive distributors for the Pacific Coast.

Out of the Air

Don't take a reading of your B batteries with an ammeter. Use a voltmeter. One test with an ammeter will draw as much current from the battery as you would in a month of regular service.

We extend our congratulations to Mr. N. E. Brown, President of the Southern California Radio Association, on the birth of a son. Mr. Brown tells us that the first thing his young hopeful did upon arrival was to grab for the head phones and listen in for long distance.

The National Radio Exposition will be held at the Biltmore, Los Angeles, the week of January 25, 1925. Only two expositions are put on each year by the American Radio Exposition Company, one in New York, which is held in October next, and the other on the Pacific Coast.

"Uncle John" of KHJ is taking a well-earned vacation. He is keeping a secret of the place where he is going, but we understand it will be "way off," where he can be "far away" from the microphone, but will have his portable set with him.

Claire Forbes Crane, who all listeners-in know from the excellent programs she has put on over KHJ, has opened a studio with Melba French Barr, the well-known soprano, at 431 Music Arts Building, Los Angeles.

The shortage of power which prevails, owing to the failure of sufficient rains, and which is receiving the closest attention of all the trade associations and owners of factories. If economy is used—and every individual can set an example in his own home and in his business—all will be well. But if care is not shown, a serious shortage will develop, involving the closing down of factories and plants, and that will mean loss and unemployment and a slump in business.

The Retail Dry Goods Association of Los Angeles, which includes all the department stores, has put the following rules into effect:

All electric display signs—out.

All outside signs—out.

All roof signs—out.

Window lights—cut down 50 per cent.

Showcase lights—cut down 50 per cent.

Interior lights—cut down 25-50 per cent.

Department managers and supervisors instructed to enforce economy in light and power on every possible occasion.

DO YOUR SHARE—ECONOMIZE.

Mr. Leslie Logan, of the Lee Electric and Manufacturing Company of San Francisco, is on a visit to Southern California, expanding their business in this territory.

Hall Berringer, sales manager of Kierulff & Ravenscroft of Los Angeles, has accepted the position of manager of the Northern California branch of Kierulff & Ravenscroft. He assures his friends of Southern California that he is sorry to leave them, and assures his friends of Northern California that he is glad to be back with them again. Kierulff & Ravenscroft's northern branch will be located at 654 Howard Street, San Francisco, California.

A message from President Coolidge to the Governor of New York was handed in an unusual manner last week on the occasion of the 300th anniversary of Albany. The message from the President was sent to the Naval Communications Service by messenger from the White House at 9:35 a. m. last Tuesday, relayed by radio to the airship Shenandoah over New York City, and held by Commander Lansdowne until the airship was over Albany, at 10:30 a. m., when it was repeated through a loud speaker, and reached the ears of the Governor in person.

MR. DEALER:



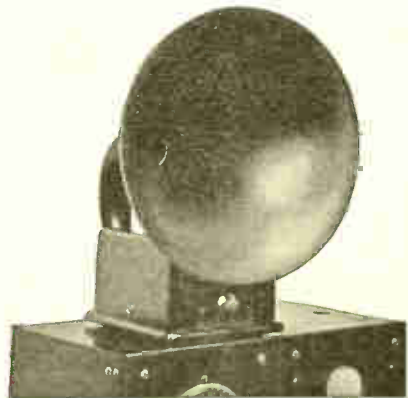
Model R-6, \$28.50

The following jobbers can supply you with "Dictogrand Loud Speaker," Dictograph "Phono Units" and Dictograph "Aristocrat" Headsets:

- Kierulff & Ravenscroft
- Radio Supply Co.
- Wholesale Radio Electric Co.
- H. Earle Wright Co.
- Fitzgerald Music Co.
- Electric Corporation
- Cook-Nichols Co.
- Yale Radio Electric Co.
- Globe Accessories Corporation
- Lincoln Radio Co.



"Dictograph" on a Loud Speaker is like "Sterling" on "Silver."



Model R-4, \$24.50

Leroy C. Bishop

Sales Agent

Dictograph Products

1240 Pacific Mutual Bldg.

Los Angeles, Calif.

BRoadway 4573