

RADIO DOINGS

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

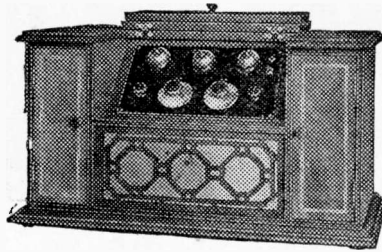


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Complete



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Kennedy Model X

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Radio Doings

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Five Cents a Copy

Two Dollars a Year

Vol. IV

Los Angeles, January 5, 1924

No. 1

The Announcer

NOTHING adds so much to a station as the announcer. No matter how good a program the station puts on, the man at the microphone who tells you all about what you are going to hear and all about the happenings, both local and international, is the one who can make the program a success or otherwise.

The announcer who has his heart in his work and has proved the greatest success is the one who is able to deliver his personality to his listeners, and enter into the spirit of the entertainment being sent out.

Do not think for a moment that Mr. Announcer has an easy job. A visit to any of our broadcasting stations will demonstrate this to any who may doubt it.

He has to be a man of great resources, even temper and pleasing personality.

It is not always the case that things go according to schedule. An artist may be late or unable to come at the last moment. A tube may be blown. These are only a few of the many things that may happen.

You who listen in seldom know of these troubles; the program seems to go along with the same precision that you are so used to. Yet it is only by the resourcefulness of the announcer that this result is obtained. He may have to "stall" a bit at times, but you will never know it.

We believe we do not have to back down to any country when it comes to the gentlemen who announce from our stations. Some have a national reputation and we have come to feel that we know them even though we never met them.

Mr. Announcer, we take our hats off to you and wish you a very happy and prosperous New Year.

All the Year for Two Dollars

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RADIO DOINGS, 308 Van Nuys Building, Los Angeles, California.

Inclosed find two dollars for subscription to RADIO DOINGS for one year.

Name _____

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Announcement

It is with no little satisfaction that we announce to our many friends an important and distinguished addition to our staff of Radio Experts, in the person of

MR. M. CHAS. GOODMAN

Mr. Goodman ranked highly during the war as Commissioned Radio Officer for the American Naval forces in the English Channel, and has been doing radio research work since 1906.

He will be pleased to meet old and new friends at our Washington Street Store and advise concerning any and all problems in radio.

Incidentally, Mr. Goodman will soon be ready to display and demonstrate a WAVE LENGTH SELECTOR of his own exclusive design, which can be installed on any tube or crystal set with astonishing results. The perfection of this device will mark a long step forward in the science of radio.

The Greyhound of the Air, Junior

Is now ready for demonstration. This is the very latest in radio, and consists of a single tube assembly of extraordinary range and selectivity. Tones are reproduced with truly amazing fidelity. It has no dangerous acid battery to bother with.

This new set is entirely self-contained—including batteries and loud speaker—in a beautiful two-tone walnut cabinet of most pleasing lines. It is easily portable, and can be moved about freely, taken on trips, etc. Tuned radio frequency and audio frequency are incorporated with simplified control, so that any one, without previous experience, can achieve perfect results. The price of the new Junior Greyhound of the Air is only

\$75 to \$125.00

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Two Stores

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Radio and the United Fruit Co.

HALL BERRINGER

The company at this time ordered for each of its ships the Fessenden 2 K. W. 500-cycle rotary synchronous spark transmitters, which were the last word in radio transmitters. The company was the first to put them into commercial operation on shipboard and they soon became known the world over, not only for the high-pitched tone of their sparks, but for the distances at which they were heard.

Signals from the company ships, while in the Caribbean Sea, were heard both in Port Said, Egypt, and by ships in the vicinity of Honolulu—a remarkable achievement in those days. The performance of these ship sets had a marked influence on ship installations in general, and other companies were soon installing ship sets having similar characteristics.

It is worthy of note and an index of the progress of the radio art that the company paid from \$6,000 to \$8,000 each for these ship transmitting sets now costing \$4,000 and \$50 each for crystal detectors, selling today for \$2.50. The crystal detector receiving sets for which the company paid \$500, each sell today for \$100.

The tube, as a detector and amplifier, had not yet come into use, and Dr. Lee De Forest was still experimenting at his New York laboratories in Park Avenue, with the "third element" of the present-day tube. About this time, also, Dr. De Forest was working in co-operation with Professor Thaddeus Cahill, who had established "Telharmonium Hall," at Thirty-second street and Broadway, New York City, from which they were broadcasting music generated by Professor Cahill's telharmonium machine. This was probably the first time in history that music was broadcasted by radio for entertainment purposes, and it naturally attracted a great deal of attention.

While the construction of a radio station in such an isolated place as Swan Island was very difficult, it was infinitely more so at Cape San Antonio, located at the extreme western end of Cuba. The only site available for the radio station was fifteen miles from the nearest native habitation and fifty miles from the nearest railroad. The Cape was infested with mosquitoes, sand flies, chiggers and almost all other known pests, and constructing facilities were wholly lacking. Even the rock for concrete had to be hauled and then broken by hand, and sea sand had to be dug from the beach and the salt washed out of it before it could be used.

The Cape San Antonio station was planned for only one tower, 250 feet high, with an umbrella type antenna, an operating house and residence and a power and store house. All of the radio apparatus, tower steel, kerosene oil, engines and building materials (except sand and rock) were located on a steamship at Baltimore and shipped to Havana, where they were transferred to a chartered schooner and transported to their destination. Cape San Antonio resembles Swan Island in only one respect, it has no harbor or wharf facilities and everything must be unloaded on the beach from rowboats and small lighters in the open sea. The apparatus and materials were shipped the latter part of 1908 and the station erected during the summer of 1909. The new Fessenden apparatus had in the meantime been installed at New Orleans, and communication between Cape San Antonio and New Orleans was established during this same summer.

Even with a 25 K. W. 500-cycle spark set, communication between New Orleans and Cape San Antonio, a distance of only 600 miles, suffered at times from delays due to the severe static, although, during perhaps six months, good service could be maintained at night or in the early morning hours.

(Continued on page 15)

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No Conference Necessary—Radio Bill Ready Jan. 3

There will be no general radio conference in Washington in the near future, Secretary Hoover announced today. The Commerce Department is rapidly completing the details of a tentative regulatory radio bill, based on the old White Bill, he explained. He believes that this can best be done by government officials without further conference. Practically all the suggestions offered by representatives in the several lines of radio work presented at last year's conference will be incorporated, the Secretary indicated, pointing out that conditions have not changed materially since last year, except that the number of transmitting stations have increased.

When it is attempted to draw up legislative recommendations or bills with a large body of diversified interests, it usually takes several months. Early action on the new radio bill is necessary, and it is hoped that a tentative bill can be delivered to Representative White of Maine for introduction soon after January 3, the Secretary stated.

A few days ago, a delegation of radio interests representing the press, clubs, engineers, broadcasters and amateurs called upon President Coolidge and the Secretary of Commerce, urging that a general conference be called, in an effort to reduce interference from ships effecting commercial, amateur and general broadcasting. The Secretary explained that interference was decreasing, due to the voluntary adoption of regulations laid down last year and that the Department was striving to remedy present difficulties through revising the White Bill, which was passed by the House last session. Any recommendations which the committee desired to make in writing, the Secretary said, would be considered by the department officials now working out the revisions to the existing radio laws established in 1912.

Officials of the government point out that many difficult questions arise when regulatory legislation is attempted. Such questions as monopolistic control, it is believed, should be handled by courts under existing laws, and not incorporated in radio legislation. The prohibition of operation by aliens, if injected into radio legislation would tend to handicap American radio development commercially in foreign countries, and could be regulated without being covered in a radio bill. The question of whether or not radio is a public utility is not essentially necessary in a law which should be regulatory, it is believed. Some definite standards of operation and equipment, especially in the commercial fields, must be included, however, it is asserted, so that secretaries of Commerce will have some basis for their decisions, as to whether an existing station may continue operation in the event a new company desires to enter the field or whether it must cease operating to permit the opening of another station. The amount of traffic might or might not demand more than one station, and efficiency would be questioned. Many phases of development indicate that broad latitude must be granted to the Commerce Department, but standards of requirements and service in the public interest should be made clear for the future expansion, it is believed.

Recently new interference problems have arisen, over which the department has no control under existing laws. Complaints received report interference from regenerative or re-radiating receiving sets, violet ray machines, electrical precipitating plants, bell-ringing magnetos on telephone lines, and leaking insulation on power transmission lines. Government regulations, should, it is believed, give the department power to prevent such interference.

After the presentation of the tentative bill in the House, and its assignment to the Merchant Marine and Fisheries Committee, it is understood that public hearings will be held, at which time all interests may appear to present their suggestions and recommendations.

**Keeler White Co., 211 So. San Pedro Street, Los Angeles.
Pacific Coast Agent of Wm. J. Murdock Co.**



THE NEWEST PARAGON is the latest contribution to radio art from the laboratories of Adams Morgan Co., pioneer manufacturers of radio sets and parts—Paragon Radio Products since 1915.

Increased sensitivity and selectivity maintain the prestige of the famous Paragon R. A. 10, which includes in its distance records the reception of the first transcontinental amateur message; the first trans-Atlantic message and the unbroken communication which it has maintained with the Mc-Millan Expedition frozen in above the Arctic Circle. (Read about Jack Barnsley and his Paragon R. A. 10, page 707, December Radio News.)

All connection at the back; wiring 98% invisible; all makes of tubes may be used; compartment for dry cells—these are included in the new features.

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RADIO PRODUCTS

Wire Broadcasting a Reality

By **CARL H. BUTMAN**

A new era in radio broadcasting, eliminating such apparatus, aerials and interference, is imminent, according to Secretary of Commerce Hoover and General George O. Squier, chief signal officer of the Army. Following an announcement by Secretary Hoover that electric lighting companies would soon be broadcasting news and entertainment over their wires for their subscribers, General Squier announced in an exclusive interview, that this was already being done on Staten Island, N. Y.

The new system, which is the practical application of General Squier's wired-wireless, broadcasting, first demonstrated 18 months ago in his office in the Munitions Building, Washington, consists of broadcasting by a carrier current of matter from a studio in a lighting plant. The wires of the company reaching to practically every home in the community, make it possible for each subscriber to plug in a simple radio receiving set and receive dependable news and entertainment in any room in the house without any interference. A very nominal charge for the service, about half the charge for a telephone, will be made by the companies, it is understood. It is held that legally the companies can sue "wire tappers" for cutting in on the circuits.

Secretary Hoover sees in the innovation considerable relief in the radio interference now markedly present in the ether, while subscribers would be relieved from all interference erecting aerials, establishing grounds, purchasing expensive sets, batteries and vacuum tubes. He further stated that this method would establish radio as a public service.

General Squier, who has just returned to Washington from inspecting the first system to be established, on Staten Island by Wired Radio, Inc., says the operation was perfect and makes for reliability and cheapness, serving 365 days and nights in the year. The need for radio operators, tuning, and much apparatus is eliminated, and as there is no radiation, there is no interference. "Literally," he explained, "it is a one-way telephone service." But it does not do away with regular radio broadcasting in the ether, nor preclude those who desire from purchasing receiving sets and tuning in on distant stations," he added, pointing out that around large cities, the air will be all the clearer for DX fans.

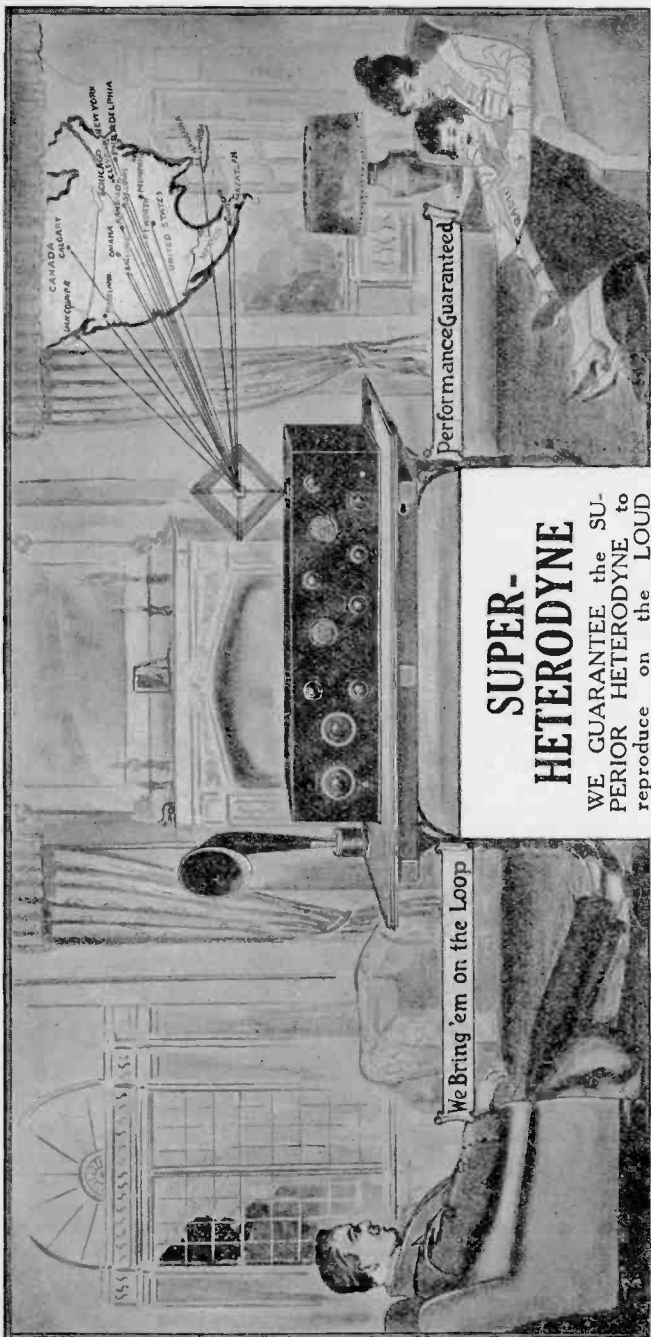
The model system in Staten Island has three phases to its programs, he explained: First, through the use of a regular radio receiving set located in the plant, important broadcasts by pure radio can be picked up from the ether, automatically amplified and re-transmitted over the lighting circuits; second, through arrangements made with a large news service (U.P.) news bulletins are received over a leased wire from a central office in New York, and broadcast by voice between other numbers; and, third, a local program of music or other entertainment is sent out from a studio in the plant, with any special features desired by the community. The news feature, he believes, creates the first "radio newspaper" direct to subscribers.

Radio advertising, voluntarily banned in the ether, is made possible and practical in wired-radio broadcasting, he asserts. The operating company can assign waves for special use, general radio regulations not affecting wired-wireless systems; and one wave length could carry news, another advertising, a third information for the women, and a fourth entertainment, the subscriber selecting the desired wave by turning a selector switch.

The simplest crystal detector and phone will serve for plugging in on the light circuit, he says, but a loud speaker could also be easily employed for the whole family.

Several other electric companies are expected to start broadcasting in the near future under franchises from the North American Company, which, through Wired Radio, Inc., controls the patents of what the general terms "the biggest thing in future radio broadcasting."

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WE GUARANTEE the SUPERIOR HETERODYNE to reproduce on the LOUD SPEAKER stations 2000 miles

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Condensers

By FRANK D. ANDREWS

The condenser obtains capacity, and capacity is the second important electrical effect necessary to set up an oscillating circuit. A condenser consists essentially of two sets of metal plates, separated by an insulator known as the dielectric. The plates of each set are electrically connected, but the two sets are thoroughly insulated from each other. The function of a condenser is to store up electricity in the form of an electric field between the metal plates.

The general principles of construction of a condenser are illustrated by the plates being odd in number and so arranged that one set fits in between those of the other set. Variable condensers have one set of plates fixed and the other set capable of being rotated in and out between the others. Such condensers are used very extensively in radio work.

The capacity of a condenser is measured by the amount of electricity that can be stored up in it. The capacity of a condenser depends upon the area of the metal plates, upon the nature of the dielectric, and upon the distance between the metal plates, and the number of plates. The "dielectric constant" or specific inductive capacity of an insulator is the number of times the capacity of a condenser is greater when this material is used than when air is used as the dielectric. Air is thus used as the basis for comparison and is said to have a dielectric constant of one. The dielectric constant K for other materials is given in the following table:

Air	1
Mica	4— 8
Glass	5—10
Hard rubber.....	2— 4
Paraffin paper.....	2— 4
Shellac	3— 4

From this table it can be seen that a condenser with glass as a dielectric will have a capacity of from 5 to 10 times as great as it would have if air were used.

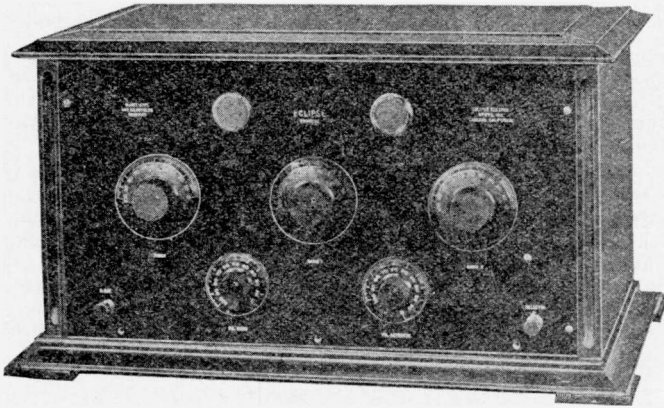
A variable condenser has maximum capacity when the movable plates are completely enclosed within the fixed plates, and can have its capacity decreased to any desired amount by rotating the movable plates partially out from between the fixed plates. The two sets of plates must not touch each other at any point while in any position or the condenser will be rendered inoperative. The variable condensers in common use have the plates made of hard aluminum about 1/32 of an inch thick, with an air space of 3/32 of an inch between the plates. The following are the sizes and capacities of the variable condensers in general use in receiving apparatus:

3 plate.....	.00004
11 plate.....	.00025
23 plate.....	.0005
34 plate—	
Small plates.....	.00075
Large plates.....	.001
43 plate.....	.001
63 plate.....	.0015

Up to this time there has been but limited development in condenser design. The present type of rotating plate condensers is seldom very accurate. Though spacing may be fairly uniform when manufactured, handling soon changes positions of the plates. Many of the plates are stamped out with rough edges. Unless the metal is carefully treated, temperature changes will produce warping of the plates. The plates may not be shorted, but there is no uniform capacity change. Gradually development and improvements in design will help eliminate these uncertain factors. Dust in the condenser will cause it not to function uniformly.

(Continued on page 57)

“Equatone”



The moderately priced De Luxe Receiver every music loving home should have, because—

- 1st. Perfect tone quality.
- 2nd. Simplicity of operation.
- 3rd. Construction mechanically and electrically correct.
- 4th. Absence of oscillating noises due to outstanding principal of equalizing the dynamatic forces within the transformer which prevents inter-stage coupling and oscillation without the aid of neutralization.
- 5th. Constructed with very best parts and material obtainable for permanency of operation.
- 6th. Double hand rubbed finish on solid $\frac{7}{8}$ inch stock mahogany cabinet of neat design and finished dark to match present day furniture.
- 7th. An ideal Christmas present for any home.

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Sarnoff Says Public Will Not Pay for Radio Programs

With the general trend of thought among radio enthusiasts leaning toward the question, "Who will pay for broadcasting?" the remarks of David Sarnoff, vice-president and general manager of the Radio Corporation of America, in a recent address, are especially timely.

"It has been said by a great many people and a great many corporations, some very large and able," said Sarnoff, "that broadcasting depends upon a solution of the problem whereby the consumer will pay for the entertainment which he receives. In other words, it has been said that unless some method is provided whereby a means is created for collecting revenue from the user of a broadcast instrument, that the whole industry is founded on sand, and that it is bound to collapse in time, because there will be no means of supporting it."

"It is my firm conviction," continued Mr. Sarnoff, "that that sort of solution to the problem is not necessary, that broadcasting can be made commercially practicable without any means being found for collecting from the consumer, that the greatest advantage of broadcasting lies in its universality, free entertainment, culture, instruction and all the items which constitute a program, in doing that which no other agency has yet been able to do. It is up to us, with intelligence and technique and broadness of spirit and vision as to the future, to preserve that most delightful element in the whole situation—the freedom of radio."

"Just so soon as we destroy that freedom and universality of radio and confine it to only those who pay for it—those who pay for the service, in other words—just so soon as we make of broadcasting "narrowcasting," we destroy the fundamental of the whole situation. And, therefore, I believe very definitely that broadcasting as constituted today is commercially sound, and that it will remain so in the future, although there may be selective methods and narrow-cast methods which will do no harm. These may supplement the situation. There may be wired-wireless and the like. All of these will make their contributions. But fundamentally there will remain, and there must remain and be preserved that element of the broadcast situation which makes it possible for grand opera to go to the slums and to the districts of the poor as well as the rich, everywhere in the world, without any charge. The real picture of a \$15 or a \$25 set in the home of the slums, if you please, receiving the magnificent things in the air, is the picture we must preserve."

Bright Radio Year in Prospect

A good radio year is in prospect, according to Chief Radio Supervisor W. D. Terrell, of the Department of Commerce, who has just returned to his office in Washington after a tour of all nine radio districts of the country.

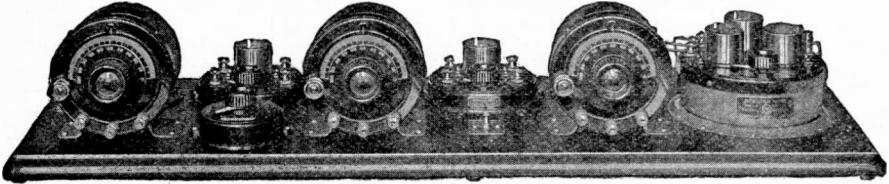
Today very little radio interference is reported from amateurs during the silent evening periods. Radio sales are now much better than was anticipated by forecasters of this business a few months ago. Dealers with whom he talked during his trip find it difficult to keep enough stock to meet the sales and demands. Every one connected with the industry with whom he came into contact is "tickled to death" with the prospects of continued good business, it is understood.

Reports from radio sales agents state that in many districts farmers are coming to town from near and far to buy themselves receiving sets. In some sections of the country reports state that practically all farmers living at considerable distances from news and market centers already have or are buying radio sets. Besides the practical value of weather, market and stock reports, it is pointed out that the farmers and suburban residents take great delight in the excellent evening entertainments broadcast daily by over 500 stations.

The growing general interest in broadcasting is reported healthy, both among the broadcasting stations owners and the listeners-in, due to the fact that the industry and art is getting on a stable basis. In general, Mr. Terrell believes that people have gotten to the point where they feel they cannot get along without radio.

ATWATER KENT

RADIO EQUIPMENT

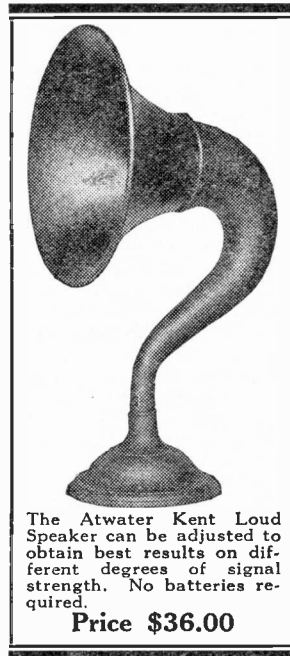


The Atwater Kent Model 10 Receiving Set
Price \$100.00

A Truly Remarkable Receiving Set

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

*Satisfaction Absolutely
Guaranteed*



The Atwater Kent Loud Speaker can be adjusted to obtain best results on different degrees of signal strength. No batteries required.

Price \$36.00

Electric Equipment Co.

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Los Angeles, Cal.

Radio and the United Fruit Company

(Continued from Page 5)

The company had not yet, even with the new Cape San Antonio and New Orleans stations in operation, attained uninterrupted hourly communication between the United States and Central America. It was during this period that the company conceived the idea of a part cable and part radio connection between the United States and Central America to tide over the time until new and better radio apparatus could be developed and installed at its stations. The schedules of their steamships, equipped with 2 K.W. Fessenden radio sets, were so arranged that one of these vessels was in Colon harbor six days out of each week. These ships, while lying at the dock in Colon, could communicate with Port Limon, and thus came into being the telegraphic route to Central America known as "via Colon Radio." Messages over this route were sent by direct cable from New York to Colon, where they were delivered to the United Fruit Company offices and then to their ships in port for transmission to points in Costa Rica, Nicaragua, and to Bocas del Toro via Port Limon radio. Service over this route was first established in 1909, and it materially decreased the time required for telegraph service between the United States and Costa Rica and Nicaragua, as well as materially increasing the efficiency of telegraph communication between these countries. This Colon radio service via the United Fruit Company ships continued without interruption until the passage of the law prohibiting the use of radio transmitters on ships in Colon harbor. Since that time messages over this route have been handled through the United States Government Radio Station at Cristobal and thence via Port Limon.

It is interesting to note in connection with the "via Colon Radio" route that during the Nicaraguan revolution against President Zelaya in 1909, when cable communication between the United States and Europe with Nicaragua and Costa Rica was interrupted at San Juan del Sur, Nicaragua, it was only by means of the company's radio service, through its ships at Colon, that telegraphic communication was possible with those countries. This service, during the Nicaraguan revolution, was so important both to the Government and to the commercial interests of the United States, that the company exerted every effort to keep it going and secured for its ships the best land wire and cable operators in New York. This was prior to the passage of the law prohibiting the use of the American Morse code and requiring operators to be licensed, so that it was possible in those days to procure operators from a wire or cable office and place them on board ship without previous radio training. Operating, while at the dock in Colon, was no sinecure; the noise from deck winches and the static made the work of these operators exceedingly difficult. However, during the period of the Nicaraguan revolution and for a considerable time thereafter, the Colon-Port Limon radio route was one of the fastest and most accurate telegraphic routes in the world.

It was during this period that the company made it a standard requirement of its service for all receiving operators to transcribe radio messages directly on the typewriter. Although used in wire telegraph offices for a long time previous, typewriters had not up to this time been considered essential as a time-saving factor in the receipt and delivery of radio messages. So far as is known, this is the earliest adoption of typewriters as standard equipment for a ship or shore station, and the United Fruit Company was the first to make compulsory the use of the typewriter by radio operators.

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RADIO SPECIALISTS

Los Angeles, California

We Build, Repair Neutrodyne, Hetrodyne, Reflex, Regenerative and
Crystal Sets

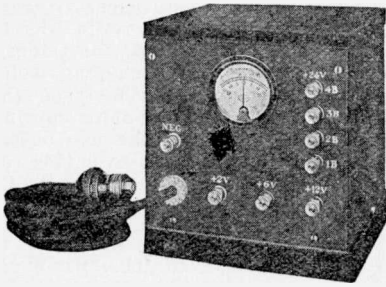
ASK YOUR DEALER OR JOBBER ABOUT US

WALT HUBER

LES. JONES

The HANDY CHARGER

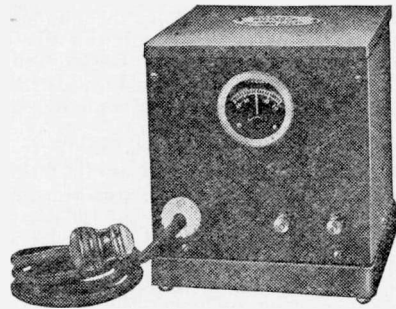
*A Battery Charger That Is
Dependable - Efficient - Attractive*



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The Simplex Charges for 6 volt battery only.



Simplex, \$18.00

We also have the new "Ultra" Handy Charger—it charges 2 volt, 4 volt, 6 volt and 12 volt "A" batteries, and from 24 to 96 volt storage "B" batteries.

Each \$20.00

Send for descriptive circular

The Braun Corporation

Wholesale Distributors Only

363 New High Street

Los Angeles, Calif.

Seven Class A Broadcasters Open

List of limited commercial broadcasting stations licensed week ending December 21st, under Class A.

Call	Station	Frequency Kcys	Wave Lgth. Meters	Power Watts
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KFMS	Freimuth Dept. Store, Duluth, Minn.....	1090	275	100
WFAT	The New Columbus College, Sioux Falls, South Dakota.....	1160	258	50
KFMU	Stevens Brothers, San Marcos, Texas....	1250	240	20
KFMT	Young, Dr. Geo. W., Minneapolis, Minn..	1300	231	5
KFMR	Morningside College, Sioux City, Iowa....	1150	261	10
WBR	Pennsylvania State Police, Butler, Pa....	1050	286	250
TRANSFERRED FROM CLASS C TO CLASS A				
WJAG	The Norfolk Daily News, The Huse Publishing Company, Norfolk, Neb....	1060	283	250
Dec. 21, 1923.				
WHAH	Hafner Supply Co., Joplin, Mo.....	1060	283	250

MORE STANDARD BROADCASTERS

Besides broadcasters WGY and KDKA, announced some time ago as standard frequency stations, WWJ, The Detroit News; WCAP, Chesapeake and Potomac Telephone Co., Washington; WOS, Marketing Bureau, Jefferson City, Mo., and WSB, Atlantic Journal, have been designated by the Department of Commerce as reliable stations for deliberating radio sets and apparatus.

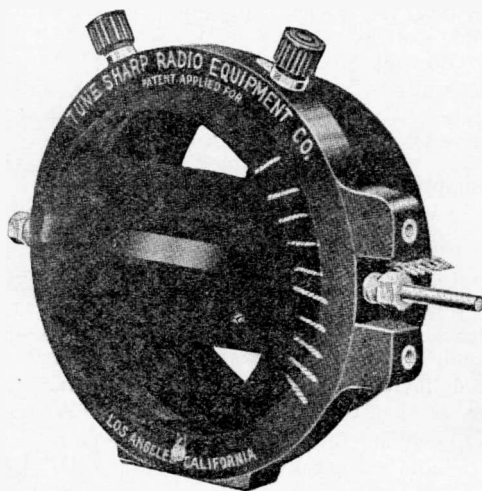
These stations have been tested as to accuracy of assigned frequencies transmitted, and found to be sufficiently constant to serve as standards for the setting of receiving apparatus and wave meters:

Station	Owner	Location	Frequency kc.	Av. deviation from frequency
WWJ	Detroit News.....	Detroit, Mich.....	580	.1
WCAP	Chesapeake & Potomac Telephone Co.....	Washington, D. C.....	640	.1
WOS	Marketing Bureau.....	Jefferson City, Mo.....	680	.0
WSB	The Atlantic Journal.....	Atlanta, Ga.....	700	.2
WGY	G. E. Co.....	Schenectady, N. Y.....	790	.1
KDKA	Westinghouse	Pittsburgh, Pa.....	920	.1

There are two principal types of radio compasses or direction finders in successful use on ships, the rotatable loop type, and the fixed antenna type. The former, in more general use in this country, employs a large rotatable loop aerial, and the latter, in use abroad, uses two fixed loop aerials, one transverse and one parallel to the ship's axis, and a small rotatable coil in the receiver, the bearing in either case being taken by rotating the loop or coil until a minimum signal is obtained. With the former type the radio coil has in some cases been mounted directly over a magnetic compass, permitting direct magnetic readings to be taken. Recently on the steamer President McKinley the coil has been placed over a gyroscope compass repeater, thus giving true bearings directly. Companies both in the United States and abroad are now regularly supplying direction finders for installation on ships.

Aside from its direct navigational use, in locating the vessel, in approaching a leading mark, and in avoiding collisions, its great value in rescue work at sea is shown by numerous instances.

New Tunesharp Couplers



Brown
Moulded
Bakelite
Rim

Green
Silk
Winding

Will give best results in the Erla Circuits

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California, Oregon, Washington, Nevada, Idaho, Montana, Wyoming,
Utah, Colorado, Arizona and New Mexico.

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and
A Good Proposition for the Jobber*

COOK-NICHOLS CO.

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Los Angeles, Calif.

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*Bring in Those Distant Stations
And They Keep At It
Longer, Too!*

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WDAF
KYW
KGW
CYL
KPO



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ACE
For Quality**

*You'll Get Better Results
If You Equip Your Set With
ACE RADIO BATTERIES*

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Wholesale Only

Long Beach Jobber
H. A. McKITTRICK
643 Pine Ave., Long Beach, Cal.

6-8 A. M.
PACIFIC TIME

RADIO TIME TABLE

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

STATION	METERS	CITY	CALL	SUN.		MON.		TUES.		WED.		THUR.		FRI.		SAT.	
				6.00-6.30	6.30-7.00	6.00-6.30	6.30-7.00	6.00-6.30	6.30-7.00	6.00-6.30	6.30-7.00	6.00-6.30	6.30-7.00	6.00-6.30	6.30-7.00	6.00-6.30	6.30-7.00
Reynolds Radio Co.	380	Denver	K L Z														
Free Press	517	Detroit	W C X			X											
Detroit News	517	Detroit	W W J														

8-10 A. M. PACIFIC TIME 9-11 Mountain Time 10-12 Central Time 11-1 Eastern Time

STATION	METERS	CITY	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
S. F. Examiner	360	San Francisco	K U O														
Reynolds Radio Co.	360	Denver	K L Z		X												
Winner Radio	360	"	K F E L	X	X												
Star-Telegram	478	Fort Worth	W B A P		X												
News and Journal	478	Dallas	W F A A		X												
Palmer School	484	Davenport	W O C														
John Wanamaker	609	Philadelphia	W O O														
Federal Tel.	319	Buffalo	W G R														

Presenting the Famous Model V

The Kennedy Radio Set that exceeded all expectations of popularity during the month of December.



The reasons—

Simple Operation - Attractive Appearance
Dependable Performance

All these for—

\$150

(including loud speaker installed)

Barker Bros.

Complete Furnishers of Successful Homes
BROADWAY, BETWEEN SEVENTH AND EIGHTH

Member Radio Trade Association of Southern California.

Concerts Daily—12:30 and 2:30 P. M.

10-12 A. M.
PACIFIC TIME

RADIO TIME TABLE

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

STATION	METERS	CITY	CALL	SUN.		MON.		TUES.		WED.		THUR.		FRI.		SAT.	
				10:00-10:30	10:30-11:00	11:00-11:30	11:30-12:00	10:00-10:30	10:30-11:00	11:00-11:30	11:30-12:00	10:00-10:30	10:30-11:00	11:00-11:30	11:30-12:00	10:00-10:30	10:30-11:00
L. A. Times.....	395	Los Angeles	K H J	X	X												
Earl C. Anthony.....	469	"	K F I	X	X												
Hale Brothers.....	423	San Francisco	K P O		X	X											
Tribune.....	509	Oakland	K L X	X	X												
Warner Brothers.....	280	"	K L S					X		X							X
Gould.....	360	Stockton	K J Q	X	X												
Fallon & Co.....	360	Santa Barbara	K F H J	X	X												
Guy Greason.....	360	Tacoma	K F Z E			X	X								X	X	
Rhodes Co.....	455	Seattle	K D W E			X	X					X					X
First Presby. Church.....	300	"	K T W E			X	X										X
Meier & Frank.....	360	Portland	K F E C														X
Reynolds Radio Co.....	310	Denver	K L Z A				X	X		X	X						X
Mews and Journal.....	476	Dallas	W F A A				X	X		X	X		X				X
Palmer School.....	484	Davenport	W O C L			X		X		X	X		X				X
Winner Radio.....	360	Denver	K F E L				X	X		X	X		X				X
Oregonian.....	492	Portland	K G W						X	X	X		X				X
Federal Tel. Co.....	319	Buffalo	W G R									X					X



SENIOR
\$25.00

ANOTHER
TRUTONE
TRADE MARK
WINNER

Little Senior. A Marvel at the Price. with this new model LITTLE SENIOR at the popular price of \$19.50 the line of TRUTONE LOUD SPEAKERS is complete. LITTLE SENIOR is a loud speaker complete with large mica diaphragm and wooden tone chamber in the base. Horn is made of beautiful non-metallic composition with crystalline finish and stands 24 inches high. Price includes 6 ft. of cord. TRUTONE SENIOR is supreme for all long-distance work, stands 32 inches high, and price includes 6 ft. of cord. Types A and B are amplifying horns for use with any make of two and single phone receivers respectively. Price for either A or B, \$8.00. Horn only \$6.00. Base only \$2.00.

Send for Illustrated Folder

They Speak for Themselves



LITTLE SENIOR
\$19.50

J. D. COLFORD & CO.

Phone 823-269

400 San Fernando Bldg., Los Angeles

12-2 P. M.
PACIFIC TIME

RADIO TIME TABLE

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

NAME OF STATION	CITY	Met.	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
L. A. Times.....	Los Angeles.....	395	KH J					X	X								
Warner Bros.....	San Francisco	360	K L S	X	X			X	X								
Hale Bros.....	"	423	K P D					X	X								
Herold Lab'y.....	San Jose	360	K Q W					X	X								
Modesto Herald	Modesto.....	252	K X D		X	X											
Guy Gresson.....	Tacoma	360	K F E J				X	X									
Rhodes Co.....	Seattle	455	K D Z E				X	X									
Honolulu Star Bulltin.....	Honolulu.....	360	K D Y X	X	X		X	X				X	X		X	X	
Honolulu Advertiser.....	Honolulu	3 0	K G U				X	X									
Reynolds Radio.....	Denver	360	K L Z						X								
Pyles Nichols.....	Denver	360	K D Z Q				X										
News and Journal.....	Dallas	476	W F A A	X	X												
Palmer School.....	Davenport	484	W O C				X										
Star.....	Kansas City	411	W D A F				X	X									
News.....	Detroit	580	W W J				X	X									
Radio Corp. of America.....	New York	455	W J Z				X	X									
Herald.....	Calgar y	430	C F A C				X										
Federal Tel. Co.....	Buffalo	319	W G R	X	X	X		X	X			X	X		X	X	



Bristol One Stage Power Amplifier

NO C BATTERY REQUIRED

A unit that can be used as a third stage without howling. The usual objections against a third stage of audio frequency amplification are entirely eliminated by the use of the new "impact" circuit.

The Bristol One Stage Power Amplifier does not require separate "A" or "B" battery. It uses common tubes such as U. V. 201A, 216A and U. T. 2.

A remarkable achievement—a third stage audio that works RIGHT—install one today and give that distant station a chance to come in like the locals.

Ask your Dealer or send
for Bulletin 3011-X
Give your loud speaker a
treat

THE BRISTOL COMPANY

WATERBURY, CONN.

Pacific Coast Branch Office: 332 Rialto Building, San Francisco, California

2-4 P. M.
PACIFIC TIME

RADIO TIME TABLE

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

NAME OF STATION	CITY	Met.	CALL	SUN.			MON.			TUES.			WED.			THUR.			FRI.			SAT.						
				2:00-2:30	2:30-3:00	3:00-3:30	3:30-4:00	2:00-2:30	2:30-3:00	3:00-3:30	3:30-4:00	2:00-2:30	2:30-3:00	3:00-3:30	3:30-4:00	2:00-2:30	2:30-3:00	3:00-3:30	3:30-4:00	2:00-2:30	2:30-3:00	3:00-3:30	3:30-4:00	2:00-2:30	2:30-3:00	3:00-3:30	3:30-4:00	
L. A. Times.....	Los Angeles.....	395	K H J	X	X					X	X			X	X			X	X			X	X			X	X	
Elec. Lighting & Sup. Co.	"	380	K N X											X	X													
Hale Bros.....	San Francisco.....	433	K P O					X	X																		X	
S. F. Examiner.....	San Francisco.....	360	K U O							X	X			X	X													X
Tribune.....	Oakland.....	509	K L X																									X
Portable Wireless.....	Stockton.....	360	K W G	X	X																							X
Kimball-Upton.....	Sacramento.....	283	K F B K							X	X			X	X													X
First Presby. Church.....	Seattle.....	300	K T W		X	X																						X
Guy Gresson.....	Tacoma.....	360	K F E J					X	X					X	X													X
Post-Intelligencer.....	Seattle.....	270	K F J C							X	X			X	X													X
Oregonian.....	Portland.....	492	K G W																									X
Deseret News.....	Salt Lake City.....	360	K Z N					X	X					X	X													X
Reynolds Radio.....	Denver.....	360	K L Z							X	X			X	X													X
Winner Radio.....	Denver.....	360	K F E L					X	X					X	X													X
Honolulu Advertiser.....	Honolulu.....	360	K G U					X	X																			X
Star-Telegram.....	Fort Worth.....	476	W B A P		X	X																						X
Palmer School.....	Davenport.....	484	W O C																									X
Daily News-Fair.....	Chicago.....	448	W M A O					X	X																			X
Star.....	Kansas City.....	411	W D A F					X	X																			X
Free Press.....	Detroit.....	517	W C X	X	X			X	X					X	X													X
News.....	"	517	W W J					X	X					X	X													X
Frank Hotel.....	Chicago.....	396	W D A P					X	X					X	X													X
Radio Corp. of America.....	New York.....	455	W J Z					X	X					X	X													X
Herald.....	Calgary.....	430	C F A C					X	X					X	X													X
Federal Tel Co.....	Buffalo.....	319	W G R					X	X					X	X													X

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Every Receiver made to fill a different need.

Demonstrations in the home by appointment

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Howland & Jewey Co.

FRAMES

EASTMAN KODAK COMPANY

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LOS ANGELES

*In an easy chair
at home MAGNAVOX
gives you the melody
of concert and opera*

MAGNAVOX
Radio
Reproducers and Amplifiers



MAGNAVOX instruments are never subject to those interferences which, at critical moments, are so apt to mar the performance of ordinary radio reproducers.

To measure the success which Magnavox engineers have accomplished in the design and manufacture of Magnavox products, remember that they have been sold in far larger quantities than any other radio units in the world.

Magnavox Reproducer

- R2 with 18-inch curvex horn . . . \$60.00
- R3 with 14-inch curvex horn . . . \$35.00
- M1 with 14-inch curvex horn. Requires no battery for the field. \$35.00

Magnavox Combination Sets

- A1-R consisting of electro-dynamic Reproducer with 14-in. curvex horn and 1 stage of amplification \$59.00
- A2-R same as A1-R but with 2 stages of amplification \$85.00

Magnavox Power Amplifiers

- A1-1-stage \$27.50
- AC-2-C-2-stage \$55.00
- AC-3-C-3-stage \$75.00

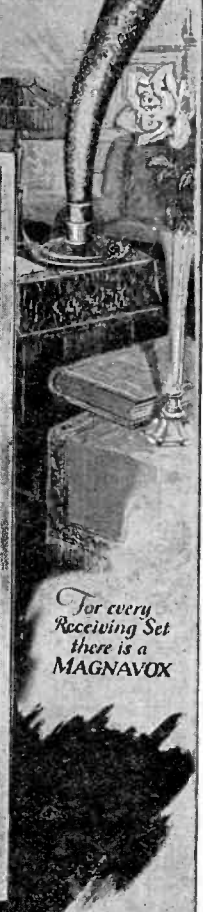
THE MAGNAVOX CO.,
OAKLAND, CALIFORNIA

New York Office: 370 SEVENTH AVE.

Perkins Electric Limited, Toronto, Montreal, Winnipeg
Canadian Distributors

2R

*For every
Receiving Set
there is a
MAGNAVOX*



4-6 P. M.
PACIFIC TIME

RADIO TIME TABLE

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

NAME OF STATION	CITY	Met.	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 5:00-5:30 5:30-6:00	4:30-5:00 5:00-5:30 5:30-6:00	4:00-4:30 5:00-5:30 5:30-6:00	4:30-5:00 5:00-5:30 5:30-6:00	4:00-4:30 5:00-5:30 5:30-6:00	4:30-5:00 5:00-5:30 5:30-6:00
E. C. Anthony	Los Angeles	469	K F I	X						
L. A. Herald	"	469	Herald	X						
L. A. Examiner	"	469	Examiner							
Hale Bros.	San Francisco	423	K P O		X	X				
Oakland Tribune	Oakland	599	K L X		X	X				
S. F. Examiner	San Francisco	960	K U O				X	X		
Maxwell Elec.	Berkeley	278	K R E				X	X		
Portable Wireless	Stockton	360	K W G		X	X				
Gould	"	360	K J Q		X	X				
Radio Den.	Santa Ana	268	K F A W			X	X			
Nelson Radio Co.	Phoenix	238	K F B C		X	X		X	X	
Post-Intelligencer	Seattle	270	K F J G		X		X		X	
Rhodes Co.	"	455	K D Z E						X	X
First Presby. Church	"	300	K T W	X	X					
Northwest Radio	"	283	K J R		X	X		X	X	
Mullens Elec.	Tacoma	252	K G B		X	X		X	X	
Guy Greason	"	360	K F E J				X	X		X
Meier & Frank	Portland	360	K F E C		X	X	X	X	X	X
Hallock & Watson	"	360	K G G		X	X	X	X	X	X
Pyle & Nichols	Denver	360	K D Z Q	X	X	X	X	X	X	X
Star-Telegram	Fort Worth	476	W B A P			X		X		X
News and Journal	Dallas	476	W F A A		X	X	X	X	X	X
Southern Egr. Exp.	San Antonio	581	W O A I				X	X	X	X
Palmer School	Davenport	484	W O C	X	X	X		X	X	X
Daily News-Fair	Chicago	438	W M A Q			X		X		X
Free Press	Detroit	517	W C X	X	X	X	X	X	X	X
News	"	580	W W J	X	X	X	X	X	X	X
Star	Kansas City	416	W D A F	X	X	X	X	X	X	X
Tribune	Great Falls	360	K D Y S	X	X					
Drake Hotel	Chicago	390	W D A P		X	X		X	X	X
Crosley Mfg Co	Cincinnati	309	W L W		X	X		X	X	X
Radio Corp. of America	New York	455	W J Z	X	X	X	X	X	X	X
John Wanamaker	Philadelphia	509	W O O		X	X	X	X	X	X
Federal Tel. Co.	Buffalo	319	W G R		X	X		X	X	X

CRYSTAL SETS

A HIGHLY SELECTIVE SET

(Including one pair of Murdock Phones) \$14.75

Guaranteed to Tune to Any Local
Station Without Interference

Large Stock of Bellogg Parts

STONE ELECTRIC SUPPLY CO.

710 West Pico, Masonic Temple Bldg.
(Pico and Figueroa) Los Angeles

"Always a place to park your car nearby—No parking limits"

287043

—Telephone—

281155

Armstrong Suggests Radio Muffler

The other day we had the pleasure of meeting Major Edwin H. Armstrong in the office of the Chief Supervisor of Radio in Washington. The Major has cut loose from radio for a while and, with his wife, is en route south in his machine, where he plans a month's vacation and honeymoon in Florida.

Future activities of the Major, it is understood, will be devoted to a large extent in remedying interference troubles said to be caused by his famous regenerative circuit. A large amount of the difficulty encountered, it is believed, is due to poor manipulation, but he suggests the use of an additional tube of radio frequency, as a "muffler," in the operation of the regenerative sets, a radio muffler can be incorporated. One exception is noted; in the automobile the muffler is placed after the engine, behind it, so to speak, while in a radio set the "muffler" should be put in front or before the regeneration.

Issuance of its first private wireless transmitting and receiving license has been made by the government of India to the Pacific Club of Bengal. Under the terms of the license, weather reports, concerts and student programs and non-political lectures, but not news items, can be transmitted to members of the Radio Club only. The broadcasting of programs is expected to commence within a short time under an arrangement with the Indian States and Eastern Agency. The Radio Club of Bengal is located at Calcutta and wants American radio literature.

Keeler White Co., 211 So. San Pedro Street, Los Angeles.
Pacific Coast Agent of Wm. J. Murdock Co.

Make It a Happy 1924

With a Radio
Set Bought
at Newbery's!

NEWBERY
ELECTRIC CORPORATION
724-726 - S. OLIVE ST. LOS ANGELES CALIF.

New

872-914

Phone

6-8 P. M.
PACIFIC TIME

RADIO TIME TABLE

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

NAME OF STATION	CITY	Met.	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					
Bible Institute	Los Angeles	360	K J S	X	X															
L. A. Times	"	395	KH J																	
E. C. Anthony	"	469	K F I	X	X															
Hale Bros.	San Francisco	423	K P O																	
S. F. Examiner	"	278	K U O																	
Maxwell Electric	Berkeley	360	K R E																	
Tribune	Oakland	508	K L X																	
Kimball & Upson	Sacramento	253	K F B K																	
Modesto Herald	Modesto	282	K X D																	
Fallon & Co.	Santa Barbara	360	K F H J																	
Radio Den.	Santa Ana	268	K F A W																	
Southern Elect.	San Diego	244	K D P T																	
Dr. W. K. Azbill	"	278	K F B C																	
Nielson Radio Supply	Phoenix	238	K F C B																	
McArthur Bros.	"	360	K F A D																	
Univ. of Ariz.	Tucson	3.0	K F D H																	
Love Elect. Co.	Tacoma	360	K M O																	
Mullens Elect. Co.	"	282	K G B																	
Northwest Radio Service	Seattle	283	K J R																	
Excelsior Motor Cycle	"	280	K H O																	
First Presby. Church	"	300	K T W																	
State Coll. of Wash.	Pullman	330	K F A E																	
Oregonian	Portland	492	K G W	X	X	X	X													
Hallock & Watson	"	360	K G G	X	X	X	X													
Meier & Frank	"	360	K F E C	X	X	X	X													
Apple City Radio Club	Hood River	360	K O P																	
Adler's Music Store	Baker, Ore.	360	K F D A																	
Boise High School	Boise, Ida	270	K F A U																	
Bunkerhill & Sullivan Co.	Wallace, Ida.	360	K F E Y																	
Telegram	Salt Lake	360	K D Y L																	
Deseret News	"	360	K Z N																	
Reynold's Radio	Denver	360	K L Z																	
Western Radio	"	360	K F A F																	
Pyle & Nichols	"	360	K Z D Q																	
Sparks High School	Sparks, Nev.	226	K F F R																	
Westinghouse Elec. Mfg Co	Hastings, Neb.	286	K F K X																	
Star-Telegram	Fort Worth	476	W B A P																	
News and Journal	Dallas	476	W F A A																	
Palmer School	Davenport	484	W O C																	
Daily News-Fair	Chicago	448	W M A Q																	
Post Dispatch	St. Louis	548	K S D	X	X	X	X													
Westinghouse	Chicago	536	K Y W																	
Sweeney School	Kansas City	411	W H B																	
Star	"	411	W D A F																	
Tribune	Great Falls	380	K D Y S																	
Drake Hotel	Chicago	390	W D A P																	
Croley Mfg Co	Cincinnati	508	W L W																	
Albertan Pub. Co.	Calgary, Can.	410	C H B C																	
Detroit Free Press	Detroit	517	W G X																	
Radio Corp. of America	New York	455	W J Z	X	X	X	X													
John Wanamaker	Philadelphia	509	W O O																	
Federal Tel. Co.	Buffalo	319	W G R																	
El Buen Tono	Mexico City		C Y B																	
El Universal	"		C Y L																	

MURDOCK "SOLID" NO. 56 HEAD PHONES

Best at Any Price

BEGIN 1924 RIGHT

Equip Your Home with a Real Radio Set



CHESTER D. TANNER

We have pleasure in announcing that Mr. Tanner, late manager for Haydn's Electric Service, is now associated with our firm; his wide experience as a Radio Engineer is now at the command of our patrons. If you are having trouble with your Receiver or want any advice on building a Set, drop in and see him at our store.

Announcement

We are building the Harkness Reflex Receivers—viz.

- | | |
|---|----------|
| 1 Tube Set with Batteries and Loud Speaker, self contained
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7 *“Open Evenings Until 10 P. M.”*

8-10 P. M.
PACIFIC TIME

RADIO TIME TABLE

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

NAME OF STATION	CITY	Met.	CALL	SUN.		MON.		TUES.		WED.		THUR.		FRI.		SAT.	
				8:00-9:30	9:30-10:00	8:00-9:30	9:30-10:00	8:00-9:30	9:30-10:00	8:00-9:30	9:30-10:00	8:00-9:30	9:30-10:00	8:00-9:30	9:30-10:00	8:00-9:30	9:30-10:00
L. A. Herald	Los Angeles	469	Herald	X	X	X	X										
Bible Institute	"	380	K J S	X	X												
L. A. Times	"	395	K H J	X	X												
L. A. Examiner	"	469	Examiner	X	X												
E. C. Anthony	"	468	K F I	X	X												
Hale Bros.	San Francisco	423	K P O	X	X	X	X	X	X	X	X	X	X	X	X	X	X
S. F. Examiner	"	360	K U O														
Warner Bros.	"	360	K L S														
Oakland Tribune	Oakland	509	K L X					X	X	X	X	X	X	X	X	X	X
Maxwell Electric	Oakland	278	K R E			X	X	X	X								
Modesto Herald	Modesto	262	K X D			X	X										
Portable Wireless	Stockton	360	K W G			X	X										
San Joaquin L. & P.	Fresno	273	K M J	X	X			X	X								
Herrald Lat'y.	San Jose	360	K Q W							X	X	X	X				
Kimball-Upton	Sacramento	283	K F B K														
Abbott-Kinney Co.	Venice	258	K F A V			X	X							X	X		
Gould	Stockton	360	K J O			X	X										
Fallon & Co.	Sancton	366	K F H J							X	X	X	X				
Dr. W. K. Azbill	Santa Barbara	278	K F B C	X	X	X	X										
Savoy Theatre	San Diego	252	K D Y M			X	X	X	X					X	X	X	X
Southern Elect Co	"	244	K D P T			X	X	X	X							X	X
Univ of Ariz	Tucson	360	K F D H					X					X				
Nelson Radio Sup Co	Phoenix	238	K F B C											X	X	X	
Post-Intelligencer	Seattle	270	K F J C			X	X	X	X	X	X	X	X	X	X	X	X
Northwest Radio Service	"	283	K J R			X	X	X	X								
Excelsior Motor Co	"	280	K H O					X									
Rhodes Co	"	455	K O Z E			X	X	X		X	X	X	X	X	X	X	X
First Presby Church	"	300	K T W	X	X												
Oregonian	Portland	492	K G W			X	X			X	X	X	X				
Hallock & Watson	"	360	K G G														
Stubbs Elect	"	360	K G N														
Meier & Frank	"	360	K F E C										X	X			
Apple City Radio Club	Hood River	360	K O P														
Pacific Radio Co	Eugene, Ore	275	K F A T			X	X	X		X	X	X					X
Boise High School	Boise, Ida	270	K F A U			X	X			X	X	X					X
Virgin Radio Service	Medford, Ore	263	K F A Y			X	X			X	X	X					X
Bunkerhill & Sullivan Co.	Wallace, Ida.	360	K F E Y			X				X							X
Deseret News	Salt Lake City	360	K Z N					X		X			X				
Reynolds Radio Co.	Denver	360	K L Z	X	X												
Pyle & Nichols	Denver	369	K D Z Q					X	X			X	X				X
Winner Radio	Denver	360	K F E L			X	X							X	X		X
Westing'ase Elec. Mfg. Co.	Hastings, Neb.	288	K F K X			X	X	X				X	X	X			
Star Telegram	Fort Worth	476	W B A P			X	X			X	X	X	X	X	X		X
Dallas News	Dallas, Tex.	475	W F A A	X	X			X	X	X	X	X	X	X	X		X
Palmer School	Davenport	484	W O C							X	X	X	X				X
Post Dispatch	St. Louis	546	K S D					X	X	X	X	X	X				X
Star	Kansas City	411	W D A F			X	X			X	X	X	X				X
Woodmen of World	Omaha	528	W O A W			X				X							X
Westinghouse	Chicago	536	K Y W			X				X	X	X	X	X	X		X
Drake Hotel	Chicago	36	W D A P			X	X			X	X	X	X	X	X		X
Quincy Mfg. Co	Cincinnati	308	W L W			X	X										X
Radio Corp. of America	New York	455	W J Z			X				X				X			X
Herald	Calgary	430	C F A C	X	X												X
Federal Tel. Co.	Buffalo	319	W G R					X	X								X
El Universal	Mexico City		C Y L					X	X								X
El Buen Tone	"		C Y B														X

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Atlas Loud Speaker.....	25.00
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PACIFIC TIME

RADIO TIME TABLE

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

STATION	METERS	CITY	CALL	SUN.		MON.		TUES.		WED.		THUR.		FRI.		SAT.	
				10.00-10.30	10.30-11.00	11.00-11.30	11.30-12.00	10.00-10.30	10.30-11.00	11.00-11.30	11.30-12.00	10.00-10.30	10.30-11.00	11.00-11.30	11.30-12.00	10.00-10.30	10.30-11.00
L. A. Times	395	Los Angeles	K H J					X	X	X	X	X	X	X	X	X	X
Post-Intelligencer	270	Seattle	K L J C					X	X	X	X	X	X	X	X	X	X
Earle C. Anthony	469	Los Angel	K F I	X	X			X	X	X	X	X	X	X	X	X	X
Northwest Radio	350	Portland	K G N			X	X										
Oregonian	492	Portland	K G W					X	X								
W. W. Grant	440	Calgary	C F C N					X	X								
*Hale Bros.	423	San Francisco	K P O					X	X								
Herald	430	Calgary	C F A C					X	X								
Pyle & Nichols	360	Denver	K D Z Q	X	X												

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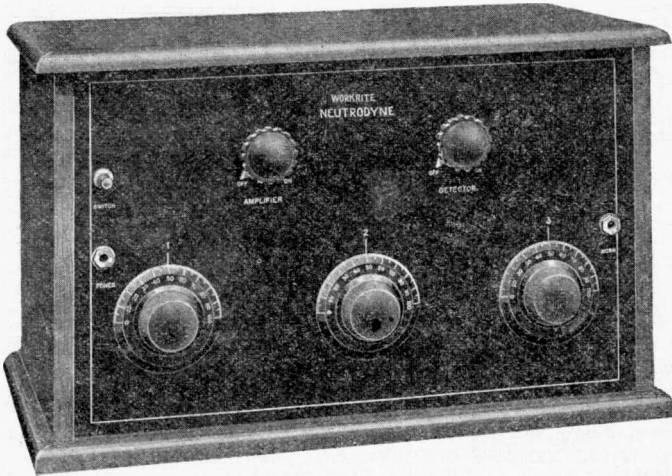
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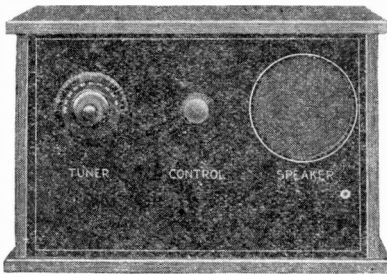
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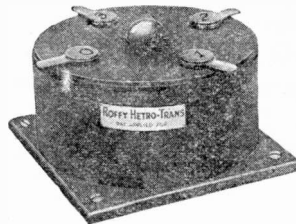
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JOHN S. DAGGETT, Manager and Announcer
Week commencing January 6th, 1923

Subject to Change

- TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY—**
10:00 to 12:00 p. m. Broadcasting Art Hickman's Orchestra, by line telephony from the Los Angeles Biltmore Hotel.
- SUNDAY, JANUARY 6—**
10:00 a. m. Sermon by Dr. H. C. Culbertson, pastor of Plymouth Congregational Church.
10:30 to 12:30 p. m. Organ recital and entire religious service from First Methodist Episcopal Church. Rev. Elmer E. Helms, pastor. Arthur Blakeley, organist.
7:00 to 7:30 p. m. Organ recital from First Methodist Episcopal Church. Arthur Blakeley, organist.
8:00 to 10:00 p. m. Program through the courtesy of Fitzgerald Music Company and Merle T. Armitage, presenting pianist of international fame and other artists.
- MONDAY, JANUARY 7—**
12:30 to 1:15 p. m. Music. News items.
2:30 to 3:30 p. m. Silent.
6:45 to 7:30 p. m. Silent.
8:00 to 10:00 p. m. Silent.
- TUESDAY, JANUARY 8—**
12:30 to 1:15 p. m. Program presented by Major and his orchestra, playing at "The Rendezvous," Ocean Park.
2:30 to 3:30 p. m. Matinee musicale.
6:45 to 7:30 p. m. Children's program presenting Dorothy Bartosch, reader, 10 years of age. Helen Rockell, pianist, and Doris Greene, pianist.
8:00 to 10:00 p. m. Program through the courtesy of Southern California Music Co.
10:00 to 12:00 p. m. Broadcasting Art Hickman's Orchestra by line telephony from the Los Angeles Biltmore Hotel.
- WEDNESDAY, JANUARY 9—**
12:30 to 1:15 p. m. Music. News items.
2:30 to 3:30 p. m. Matinee musicale.
6:45 to 7:30 p. m. Children's program presenting Hazel Hoffman, soprano, and Lucille Corbett, story teller.
8:00 to 10:00 p. m. Program presented by Pasadena Elks.
10:00 to 12:00 p. m. Broadcasting Art Hickman's Orchestra by line telephony from the Los Angeles Biltmore Hotel.
- THURSDAY, JANUARY 10—**
12:30 to 1:15 p. m. Music. News items.
2:30 to 3:30 p. m. Matinee musicale.
6:45 to 7:30 p. m. Program presenting Doras Caulkins, pianist, and Lilla Bone, pianist.
8:00 to 10:00 p. m. Program through the courtesy of Barker Bros.
10:00 to 12:00 p. m. Broadcasting Art Hickman's Orchestra by line telephony from the Los Angeles Biltmore Hotel.
- FRIDAY, JANUARY 11—**
12:30 to 1:15 p. m. Music. News items.
2:30 to 3:30 p. m. Matinee musicale.
6:30 to 7:00 p. m. Children's program presenting Richard Headrick, screen juvenile.
7:00 to 7:30 p. m. Organ recital from First Methodist Episcopal Church. Arthur Blakeley, organist.
8:00 to 10:00 p. m. Program presenting Broadway Department Store Chorus, Ruth Annette Sabel, director. Florence Colver, violinist; Fred M. Mitchell, monologist.
10:00 to 12:00 p. m. Broadcasting Art Hickman's Orchestra by line telephony from the Los Angeles Biltmore Hotel.
- SATURDAY, January 12—**
12:30 to 1:15 p. m. Program arranged by Maud Fenlon Bollman, soprano.
2:30 to 3:30 p. m. Matinee musicale presented by Maud Fenlon Bollman, soprano.
6:45 to 7:30 p. m. Children's program presenting Helene Pirie, screen juvenile, 7 years of age.
8:00 to 10:00 p. m. Program presenting 160th Infantry Band of C. N. G. H. C. Bradley, reader. Hatch Graham, banjo and songs.
10:00 to 12:00 p. m. Broadcasting Art Hickman's Orchestra by line telephony from the Los Angeles Biltmore Hotel.

THE RADIO SEASON

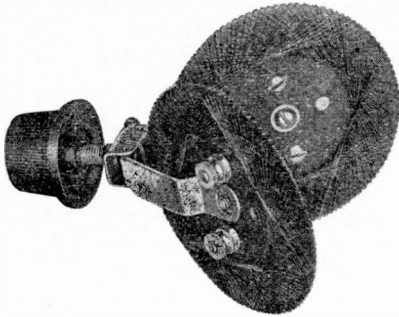
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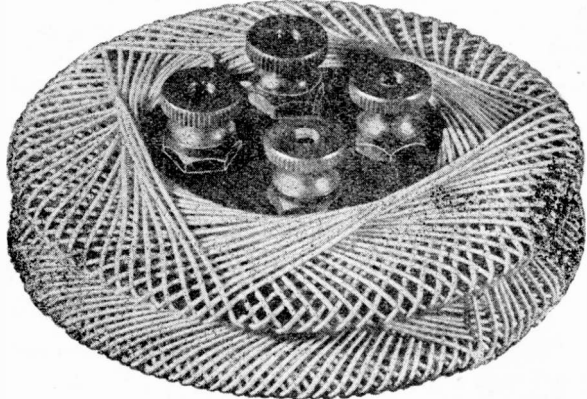
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Remote Control Stations:

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

Program Detail Anthony Studio (Pacific Time), Jan. 6th to Jan. 12th, Inclusive.

(Does not include detail of remote control stations.)
 (Subject to change.)

SUNDAY, JAN. 6—

10:00 to 10:45 a. m.	L. A. Church Federation Service.
4:00 to 5:00 p. m.	Vesper Service by Federated Church Musicians.
6:45 to 7:30 p. m.	Opera Story and Concert.
10:00 to 11:00 p. m.	Theron Bennett's Packard Six Orchestra.

TUESDAY, JAN. 8—

6:45 to 7:30 p. m.	California Federation of Music Clubs, Concert.
10:00 to 11:00 p. m.	Special Moving Picture talent program.

WEDNESDAY, JAN. 9—

6:45 to 7:30 p. m.	Nick Harris' detective stories and concert.
10:00 to 11:00 p. m.	Hollywoodland Community Orchestra, dance music.

THURSDAY, JAN. 10—

6:45 to 7:30 p. m.	Opera Story and Y. M. C. A. program.
10:00 to 11:00 p. m.	Vocal and Instrumental program.

FRIDAY, JAN. 11—

6:45 to 7:30 p. m.	Wa-Wan Juniors, concert.
10:00 to 11:00 p. m.	Vocal and Instrumental concert.

SATURDAY, JAN. 12—

6:45 to 7:30 p. m.	Vocal and Instrumental program.
8:00 to 9:00 p. m.	Special Dance program.
10:00 to 11:00 p. m.	Vocal and Instrumental concert.



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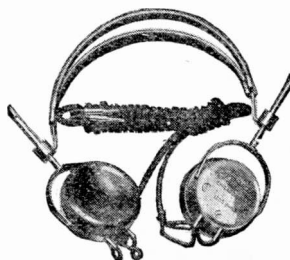
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SUNDAY, JANUARY 6—

9:00 to 10:00 p. m. Brandstatter's Crillion Orchestra.

MONDAY, JANUARY 7—

9:00 to 10:00 p. m. Special concert.

TUESDAY, JANUARY 8—

9:00 to 10:00 p. m. Concert presented through the courtesy of Sid Grauman.

WEDNESDAY, JANUARY 9—

9:00 to 10:00 p. m. Peach Edition Club. Norman McNeil, accordionist; Frank Braidwood, baritone; Harry Coe, of Leo Feist, Inc.; Harry McCoy, Charlie Melson, Irving Berlin, Inc.; Madelyn Hardy, the "Radio Girl."

THURSDAY, JANUARY 10—

9:00 to 10:00 p. m. Art Jell's famous trio from Studioland, a special concert featuring original compositions of the trio.

FRIDAY, JANUARY 11—

9:00 to 10:00 p. m. Program through the courtesy of the Norse Studio Club, Hollywood.

SATURDAY, JANUARY 12—

9:00 to 10:00 p. m. Palos Verdes Concert under the direction of Mr. and Mrs. Jean de Chauvenet.

SUNDAY, JANUARY 13—

9:00 to 10:00 p. m. Vincent Rose and Jackie Taylor's Montmartre Orchestra.

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Inventory Bargains

We are going to see how much you need in Radio Sets and Parts, so call and look over the unheard of bargains. It costs too much money to tell you here, but we will list a few below for Saturday and Monday. You must mention **Radio Doings**.

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7.00	43 Plate Vernier Condenser.....	3.25
6.00	1 ½ Volt Dry Cell Tube (Guaranteed).....	2.50
5.00	45 Volt B Battery (Guaranteed).....	3.50
3.00	22 ½ Volt B Battery (Guaranteed).....	2.50
22.00	Loud Speaker.....	17.00
8.00	3000 Ohm Phones.....	3.95
7.00	Phones.....	3.50
10c	Binding Post, each.....	2 ½ c
75c	3-inch Dials.....	30c
7.00	600 Meter Tuska Silk Couplers.....	3.50

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4:45 to 5:15 p. m. Evening Herald News Bulletin covering the World's News Events up to 5:00 p. m. Closing market quotations by leased wire.

MONDAY, JANUARY 7—

8:00 to 9:00 p. m. Carrie J. Bond night.

WEDNESDAY, JANUARY 9—

8:00 to 9:00 p. m. Mattie Romberg, Walter Cates and Mercedes Groover, soloists. Davis Sisters, trumpeters.

FRIDAY, JANUARY 11—

8:00 to 9:00 p. m. Marion Warde's program.

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WEDNESDAY—

6:00 to 6:45 p. m. News Bulletin's Bed Time Story. Vocal and Instrumental Concert.

9:00 to 10:00 p. m. Special Concert.

Midnight. Initiation—The B. O. O. Sundodgers.

THURSDAY—

6:00 to 6:45 p. m. News Bulletin's Bed Time Story. Vocal and Instrumental Concert.

FRIDAY—

6:00 to 6:45 p. m. News Bulletin's Bed Time Story. Vocal and Instrumental Concert.

9:00 to 10:00 p. m. Special Concert.

SATURDAY—

6:00 to 6:45 p. m. News Bulletin's Bed Time Story. Vocal and Instrumental Concert.

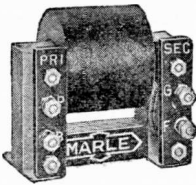
SUNDAY—

10:00 a. m.

Radio Church Service.

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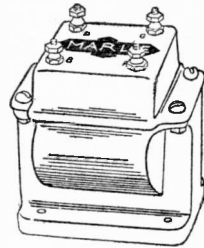
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SUNDAY, JANUARY 6—

- 11:00 a. m. Dr. Cortland Myers, Sermon. The Harmony Male Quartet. Mrs. Irvin S. Fallis, Soprano Solo.
6:00 to 6:45 p. m. Radio Vesper Service. Rev. Wm. H. Pike, Scripture and Sermon. Miss Paulene Plummer, Organist. Miss Kathleen Irvine, Contralto.
8:00 p. m. Dr. Cortland Myers, Sermon. Mr. C. M. Books, Baritone. The Harmony Male Quartet.

TUESDAY, JANUARY 8—

- 8:00 to 9:00 p. m. Miss Leona Davis, Organ; Miss Hilma Sample, Soprano; Miss Magdalene Berthold, Contralto; Mr. Paul Frenger, Human Cornetist.

THURSDAY, JANUARY 10—

- 8:00 to 9:00 p. m. Organ Recital. Miriam Shelley Hansen, Soprano and Pianist; Mrs. Frances Chatem, Pianist. Vocal selections.

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MONDAY, JANUARY 7—

- 7:30 to 8:30. Soprano Solos, Mrs. Glade Burnette, Portland, Oregon.
"Something for Nothing," Dr. C. C. Todd, head Chemistry Department.
Piano Solos, Miss Beryl Squires.

WEDNESDAY, JAN. 9—

- 7:30 to 8:30 p. m. How to Prepare for One's Vocation, Dr. D. W. Hamilton, Education Department.
Guitar solos, Ray Kromer, Spokane.
Piano solos, Frederica Kershaw, Waitsburg.
Dangers of Untested Seeds, Dr. Hanna Aase, Botany Department.
Marketing, E. F. Dummer, Social Economics Department.

FRIDAY, JAN. 11—

- 7:30 to 8:30 p. m. Piano solos, Mrs. Ruth Bradley-Keiser, Music Faculty.
Taxation, Dr. H. W. Cordell, Economics Department.
Tenor solos, Verle Keiser, Waitsburg.
New Novels, Alice Lindsey Webb.

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 Saturday, 1 to 2 p. m., Fairmont; 3:30 to 5:30 p. m., Palace Hotel, Tea Dansants.
 Sunday church services by Church Federation of San Francisco, 11 a. m. to noon.

EVENING PROGRAMS**SUNDAY—**

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

MONDAY—

8:00 to 9:00 p. m. Organ Concert.
 9:00 to 11:00 p. m. Palace Hotel Dance Orchestra.

TUESDAY—

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

WEDNESDAY—

8:00 to 9:00 p. m. Studio Program.
 9:00 to 10:00 p. m. Palace Hotel Orchestra.

THURSDAY—

8:00 to 9:00 p. m. Studio Program.
 9:00 to 11:00 p. m. Palace Hotel Dance Orchestra.

FRIDAY—

Silent.

SATURDAY—

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

KLX—Oakland Tribune Radiophone—509 Meters**SUNDAY—**

Silent.

MONDAY—

7:00 p. m. News bulletins.
 7:30 p. m. Official United States weather report.

TUESDAY—

7:00 p. m. News bulletins.
 7:30 p. m. Official United States weather report.
 8:00 p. m. Studio program (2 hours).

WEDNESDAY—

7:00 p. m. News bulletins.
 7:30 p. m. Official United States weather report.
 8:00 p. m. Short talks on educational subjects by members of faculty of the University of California, direct from Stephens Union Hall, University Campus, over private leased wires through K L X.

THURSDAY—

7:00 p. m. News bulletins.
 7:30 p. m. Official United States weather report.
 8:00 p. m. Entertainment program broadcast through K L X direct from Stephens Union Hall, University of California Campus, over private leased wires, programs arranged by Radio Club, University of California.

FRIDAY—

7:00 p. m. News bulletins.
 7:30 p. m. Official United States weather report.
 8:00 p. m. Studio program (2 hours).

SATURDAY—

7:00 p. m. News bulletins.
 7:30 p. m. Official United States weather report.
 Other special programs will be broadcast through Radio K L X over private leased wires from the University of California Campus, to be announced two weeks in advance. K L X also broadcasts football, baseball and boxing results that are of sufficient importance.

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K G W—The Morning Oregonian—492 Meters

PORTLAND, OREGON

PROGRAM FOR WEEK JANUARY 6 TO JANUARY 12, 1924

SUNDAY—

- 6:00 p. m. Church Services.
7:00 p. m. George Olsen's Metropolitan Orchestra in dinner program of concert music from Portland Hotel.

MONDAY—

- 11:30 a. m. Weather Forecast.
3:30 p. m. Literary program by Portland Library Association.
7:30 p. m. Weather Forecast and Market Reports.
8:00 p. m. Concert.

TUESDAY—

- 11:30 a. m. Weather Forecast.
3:30 p. m. Talk by Jeannette P. Cramer, home economics editor of The Oregonian.
7:30 p. m. Weather Forecast and Market Reports.
8:00 p. m. Talk for farmers, from Extension Service, Oregon Agricultural College.
10:00 p. m. Dance music by George Olsen's Metropolitan Orchestra of the Portland Hotel.

WEDNESDAY—

- 11:30 a. m. Weather Forecast.
3:30 p. m. Children's program. Music and story.
7:30 p. m. Weather Forecast and Market Reports.
8:00 p. m. Orchestra concert.
9:00 p. m. Income tax talk.
10:00 p. m. Dance music by George Olsen's Metropolitan Orchestra of the Portland Hotel; solos by Isabella Needham Kidd, mezzo-soprano.

THURSDAY—

- 11:30 a. m. Weather Forecast.
3:30 p. m. Woman's program. Story reading.
7:30 p. m. Weather Forecast and Market Reports.
8:00 p. m. Dramatic program.
10:00 p. m. Dance music by George Olsen's Metropolitan Orchestra under direction of Herman Kenin; solos.

FRIDAY—

- 11:30 a. m. Weather Forecast.
3:30 p. m. Lecture by Margery Smith of Oregon Agricultural College Extension Service.
7:30 p. m. Weather Forecast and Market Reports.
8:15 p. m. George Olsen's Metropolitan Orchestra of the Portland Hotel in studio program.
9:00 p. m. Lecture on "Development of Oregon Resources," by E. E. Faville, Chairman of the Agricultural Committee of the Portland Chamber of Commerce; subject, "Marketing Agricultural Product."
10:30 p. m. Hoot Owls with Pantages Frolic.

SATURDAY—

- 11:30 a. m. Weather Forecast.
3:30 p. m. Children's program; story by Aunt Nell.
7:30 p. m. Weather Forecast and Market Reports.
10:00 p. m. Dance music by George Olsen's Metropolitan Orchestra of the Portland Hotel.

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MONDAY, JANUARY 7—

10:30 to 11:00 a. m. Address, Capt. S. C. Kile, United States Veterans' Bureau.

6:30 to 7:30 p. m. Musical recital presenting C. M. Saner, tenor; Miss Alice Knox Ferguson, accompanist.

TUESDAY, JANUARY 8—

10:30 to 11:00 a. m. Address, DeWitt McMurray, editor The Semi-Weekly Farm News, in a medley of humor, pathos and wisdom.

6:30 to 7:30 p. m. Musical recital presenting the Mozart Choral Club, Earle D. Behrends, directing.

9:00 to 10:00 p. m. Reuben Davies Club in piano recital.

WEDNESDAY, JANUARY 9—

10:30 to 11:00 a. m. Address, J. O. Mahoney, on "Self Help in Education." Station WFAA will be silent for remainder of the day.

THURSDAY, JANUARY 10—

10:30 to 11:00 a. m. Music by The Red Head Girl and talk on Lincoln by Judge J. C. Muse.

6:30 to 7:30 p. m. Gibson Mandolin and Guitar Club, Tom D. Collins, manager.

FRIDAY, JANUARY 11—

10:30 to 11:00 a. m. Address, Dr. Robert Stuart Hyer, Southern Methodist University, on the Sunday school lesson.

6:30 to 7:30 p. m. Faculty recital by representatives of North Texas State Teachers' College, Denton, Texas.

SATURDAY, JANUARY 12—

10:30 to 11:00 a. m. Address, George S. Thomas, Southern Methodist University, on "Modern History Comment."

6:30 to 7:30 p. m. McFall's Merry-Makers in popular music of orchestra.

9:00 to 10:00 p. m. MacDowell Sisters in Hawaiian song and instrumental recital.

SUNDAY, JANUARY 13—

4:00 to 5:00 p. m. Radio Bible Class, Dr. William M. Anderson, Jr., pastor First Presbyterian Church, teacher; half hour of Bible study and half hour of gospel song.

7:30 p. m. Five-minute talk on Safety, the beginning of Safety Week.

7:35 to 8:05 p. m. Choristers from East Dallas Christian Church, Mrs. Mary V. Culp, directing.

8:00 to 9:00 p. m. Jack Gardner's Orchestra in dance music recital.

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(PACIFIC TIME) FORT WORTH, TEXAS (Class B Station)—750 Watts—476 Meters

SUNDAY

- 9 a. m. to 12:15 p. m. Complete services of the First Methodist Church, Rev. J. W. Bergin, pastor.
 2:00 to 3:00 p. m. Concert from the Rialto Theater.
 3:00 to 4:00 p. m. Sabbath Day vesper concert.

MONDAY

- 5:30 to 6:30 p. m. Concert by the Union Epworth League Orchestra. (E. L. O. announcing.)
 7:30 to 9:00 p. m. Concert by the Knights of the Ku Klux Klan, Realm 101. (The Hired Hand announcing.)

TUESDAY

- 5:30 to 6:30 p. m. Concert by the Twentieth Century Harmony Club of Weatherford, Texas. (E. L. O. announcing.)
 7:30 to 8:45 p. m. Concert by the 50-piece Fort Worth Police Band. (G. C. A. announcing.)

WEDNESDAY

- 5:30 to 6:30 p. m. Concert arranged by Eddie Kebort. (E. L. O. announcing.)
 7:30 to 8:45 p. m. Concert by George Freeman's Sooner Serenaders Texas Hotel Orchestra. (The Hired Hand announcing.)

THURSDAY

- 5:30 to 6:30 p. m. Concert by Swayne's Southern Serenaders Orchestra. (E. L. O. announcing.)
 7:30 to 8:45 p. m. Concert by the Gold Medal Band of Weatherford, Texas, Conway E. King, director. (G. C. A. announcing.)

FRIDAY

- 5:30 to 6:30 p. m. Concert by the Texas Christian University. (E. L. O. announcing.)
 7:30 to 8:45 p. m. Concert by the First Presbyterian Church Orchestra, Mrs. Thomas Holt Hubbard, director. (G. C. A. announcing.)

SATURDAY

- 5:00 to 5:30 p. m. Review of the Interdenominational Sunday School Lesson and Radio Bible Class by Mrs. W. F. Barnum.

Saturday and Sunday nights no concerts are broadcast by WBAP.

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WOC—Palmer School of Chiropractic—484 Meters

Davenport, Iowa—Pacific Time

SUNDAY—

- 11:30 p. m. Orchestra Concert (1 hour). Patriotic and sacred numbers by the P. S. C. Orchestra.
- 5:00 p. m. Organ Recital (½ hour)—Erwin Swindell, Organist.
- 6:00 p. m. Church Service—Very Rev. Marmaduke Hare, D.D., Dean of Trinity Episcopal Cathedral, Davenport, Iowa. Musical numbers by Cathedral Choir.
- 7:00 p. m. Musical Program (2 hours)—Erwin Swindell, Musical Director. P. S. C. Orchestra—Gerald M. Barrow, Director. L. M. Henry, Tenor, and Catherine O'Brien, Reader.

MONDAY—

- 5:00 p. m. Educational Lecture—"American vs. European Labor in the Home," by Sam T. White, president of the White Lily Mfg. Co. and Chairman of Executive Board, American Washing Machine Manufacturers Association.
- 6:00 p. m. Musical Program (1 hour)—Erwin Swindell, Musical Director. Nellie E. Robertson, of Muscatine, Iowa, presenting four pupils; Helen Hahn, Soprano; Rita Day, Soprano; Melvin Diercks, Bass; Raymond Pilgrim, Baritone. Assisted by Henrietta Daut, whistler, and Edward H. Barry, flutist.

TUESDAY—

- 1:30 p. m. Educational Program (musical numbers to be announced). Lecture by A. G. Hinrichs. Subject: "Chickenpox."
- 3:45 p. m. Chimes Concert.
- 4:00 p. m. Sport News and Weather Forecast. (No broadcasting after 6 p. m. Tuesday; Silent night for W O C.)

WEDNESDAY—

- 5:00 p. m. Educational Lecture—Under the auspices of the Scott County Farm Bureau. Subject: "The Value of the Pure Bred Sire," by Adolph P. Arp, one of the country's foremost breeders of Red Polled Cattle.
- 6:00 p. m. Pipe Organ Recital—Erwin Swindell, Organist. Marguerite Maybach Kraemer, Contralto, of Buffalo, N. Y.
- 8:00 p. m. Musical Program (1 hour)—Erwin Swindell, Musical Director. Program by the Howlette Sisters, of Moline, Illinois. Violin, piano selections and readings.

THURSDAY—

- 6:00 p. m. Musical Program (1 hour)—P. S. C. Orchestra. Gerald M. Barrow, Director. (Popular selections released through the National Association of Broadcasters, of which W O C is a member.) V. B. Rochte, baritone soloist.

FRIDAY—

- 5:20 p. m. Sunday School Lesson—International lesson for next Sunday, discussed by Dr. Frank Willard Court, pastor St. John's Methodist Episcopal Church, Davenport, Iowa.
- 6:00 p. m. Musical Program (1 hour)—Erwin Swindell, Musical Director. E. H. Hass, reader; Mrs. John Malloy, soprano; Howard Snyder, pianist; Mrs. Frank W. Elliott, pianist; Erwin Swindell, organist.

SATURDAY—

- 5:00 p. m. Educational Lecture, "Just Dad," by Mrs. E. Mildred Light, Chaplain of the St. John's Circle of King's Daughters, Davenport, Iowa.
- 7:00 p. m. Orchestra Program (1 hour), P. S. C. Orchestra—Gerald M. Barrow, Director. (Popular selections released through the National Association of Broadcasters, of which W O C is a member.) V. B. Rochte, baritone soloist.

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Pacific Time

Week of January 7th

MONDAY—

7:00 p. m. Vocal and instrumental specialties, orchestra and organ music broadcast direct from the Grand Central Theatre.

TUESDAY—

6:00 p. m. Studio recital by Marion Niedringhaus, baritone; Mrs. Alden Kimball, pianist. Address by H. G. Bristol.
9:30 p. m. Program to be announced.

WEDNESDAY—

5:00 p. m. Program by Abergh's Concert Ensemble, Arne Arnesen, violinist, broadcast direct from Hotel Statler.
9:00 p. m. Broadcasting direct from Hotel Statler dance music played by Rodemich's Orchestra.

THURSDAY—

6:00 p. m. Broadcasting the concert of the St. Louis Symphony Orchestra, Rudolph Ganz, Conductor, Michel Guszkoff, violinist, soloist, as given at the Odeon.

FRIDAY—

Silent.

SATURDAY—

1:00 p. m. Program given by a group of children under 14 years of age.
5:15 p. m. Orchestra concert, organ recital, vocal and instrumental specialties broadcast direct from the Missouri Theatre.

MURDOCK "SOLID" NO. 56 HEAD PHONES

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By means of propaganda, German radio manufacturers are endeavoring to encourage the public to protest against government restrictions on broadcasting. Official restrictions have impeded the popularizing of radio telephony in Germany, it is reported by Attache Herring at Berlin, although, he says, the commercial development of radio communication in Germany is approaching a competitive character. At the Leipzig Fall Fair a program was broadcasted from Berlin on a 2,500 meter wave length and was successfully picked up in Leipzig, a distance of 93 miles. Receiving sets shown at the exposition were mostly of the four-tube type, using two stages of radio frequency and one of audio, or three stages of audio, when a loud speaker was employed. The one and two-tube sets exhibited would not pick up the program sent out satisfactorily, he states.

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W M A Q—The Chicago Daily News Radio Program

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MONDAY—

Pacific Time

2:30 p. m. To be announced. Monday night is silent night in Chicago.

TUESDAY—

2:30 p. m. New Year's Day. Opera.

WEDNESDAY—

11:00 a. m. Speeches broadcast from Chicago Association of Commerce luncheon.
 2:30 p. m. Pupils of Cosmopolitan School of Mus'c.
 5:00 p. m. Miss Georgene Faulkner, the Story Lady, tells stories for children.
 5:30 p. m. Weekly lecture from Northwestern University.
 6:30 p. m. W M A Q's Orchestra, popular music.
 7:15 p. m. Opera.

THURSDAY—

2:30 p. m. To be announced.
 5:00 p. m. Babson report. Talk by Rockwell R. Stephens, Automobile Editor of the Daily News. Mrs. Pauline Gartin Funk, soprano. Weekly talk to Boy Scouts.
 5:30 p. m. Axel Christensen, entertainer.
 6:30 p. m. W M A Q's Orchestra.
 7:15 p. m. Program arranged by Polish Consulate, one of a series of programs by foreign consuls in Chicago.

FRIDAY—

2:30 p. m. Pupils of Bush Conservatory.
 5:00 p. m. Wide Awake Club program arranged by Mrs. Frances Ford of the Daily News.
 5:30 p. m. Weekly musical lecture by Mrs. Marx E. Oberndorfer.
 6:30 p. m. W M A Q's Orchestra.
 7:15 p. m. Program through the courtesy of Cosmopolitan School of Music.

SATURDAY—

6:30 p. m. Salvation Army Band.
 7:00 p. m. Balaban & Katz, Chicago Theatre.

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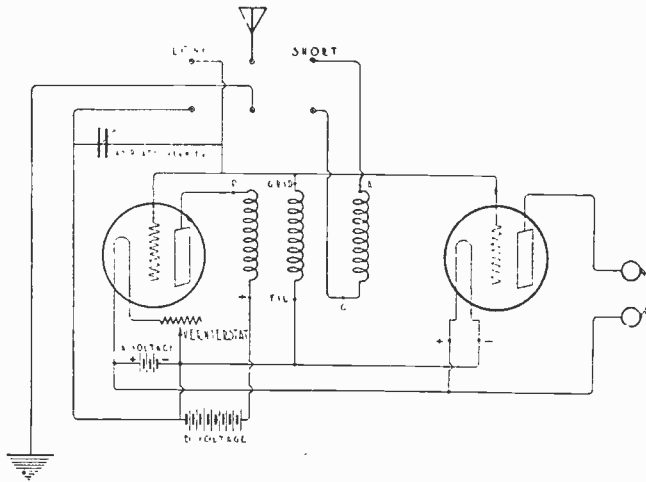
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Letters to the Editor

Los Angeles, Calif., Dec. 26, 1923.

Editor, Radio Doings:

I thoroughly agree with R. H. Mc. of Hollywood, and indorse his ideas regarding the association of "listeners-in." However, there is one point more I would recommend, that the officers of such an association be paid a salary, even if it should be small, to compensate them for the time they give to the interests of the association. I have been a member of several clubs, etc., where the officers' positions were supposed to be an "honor," but in the actual experience I have found that the "honor" did not hold the officers on the job like a small salary would have. Furthermore, every member of a club, association, etc., benefits directly from the efforts of the officers, who give considerable time to their duties, working solely for the benefit of the club. And I hardly think it fair to ask these men to give up their time, without offering compensation. It seems like taking advantage of good-natured whole-heartedness.

My DX experience has been the same as Howard H. Isard. I have picked up KGW (Portland), regularly every night for weeks, only to lose them intermittently through local interference. KPO and KLX, the same. WBAP (Fort Worth), I picked up twice, but lost after a few minutes. But my chief interference is the local spark set. I have heard as high as five going all at once, and what is more exasperating than to spend weeks and weeks of study and good hard-earned dollars, to get distances, only to be balked by a few small spark sets? On the other hand, I approve of the spark set and the use of them. I believe they will develop the radio operator of tomorrow. They are essential, if we want our youths to learn while they are growing up. The spark set is highly educational, and I think the operator should have plenty of opportunity to develop his talent. But I also think the "DX Hound" should be given plenty of opportunity, for he is developing the set of the future, the set that will pick up WJZ (New York), as easy as we pick up KHJ and KFI today. I've heard that old, worn-out cry, "Why not be satisfied with what we have?—our local stations are as good as any." Why not be satisfied with the horse and buggy, or the pony express, or mail across the Atlantic? Would we have ANY radio if the experimenters of ten years ago "had been satisfied with what they had?" The radio field is full of promise, a field to be developed, and the experimenter is the man that will develop it. Why not give him plenty of opportunity?

It strikes me as absurd to have KFI and KHJ be silent Monday nights, from 6 to 8, and allow a half-dozen or so spark sets to jazz up the air TILL 8 O'CLOCK. Then the spark set is silent, while the local stations broadcast! The local stations have their allotted time to broadcast each day,—the spark set operator has 2½ hours out of every 24, while the DX experimenter has no time at all! I have known of numbers of "fans" who tried for months to work up DX sets, only to give up in despair, because of local interference,—mostly spark sets! Can't the DX experimenter have one night a week, clear from broadcast and spark set, at the same time? I would suggest that the hours of 8 to 12 p. m., one night a week, be given to the "DX Hound"—with the air clear! The hours when other stations are on the air! The reason there is a small percent of DX fans is very plain—long distance reception is too difficult and too unsatisfactory. Then why not give the small percentage of persistent ones a chance to develop a set that will be satisfactory? When this is accomplished, the dealers will sell more radio parts and complete sets than they ever dreamed of!

R. A. LAMBERT,
390 W. 40th Place, City.

(Continued on page 51)

POATES RADIO MAP

United States Map locates all calls from Broadcasting Stations, right up to the minute. Shows Radius Finder—Kilocycles—latest Broadcasting Stations—Relay League Divisions—call Letters—Wave Lengths. If not at your dealer, send thirty-five cents and we will mail to you direct.

L. L. POATES PUBLISHING COMPANY, Inc.
622 San Fernando Building

Los Angeles, Calif.

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

that



Have 175 Distributors

(Service Stations)



GILMORE OIL COMPANY

700 Van Nuys Building

Los Angeles, Cal.

Letters to the Editor

Editor Radio Doings.

Dear Sir: I note in Radio Doings of December 23-29th that I have gotten Mr. Howard H. Isard "All Het Up." If that is the case, I would suggest that he try using an ice box to get cooled off.

I would like to hear of some one who thinks as does Mr. Isard that there is interference from transformers, that could give some proof that the source of the trouble lies in a transformer.

I do not in the least doubt that he gets his share of the noise, but there are a thousand and one things that cause noise besides transformers that belong to the power companies. So why pick on the helpless transformer?

I believe that I can take a little electric appliance that sells for about \$10 and go to a place within one-quarter mile from Mr. Isard and use it, and my friend Mr. Isard will not hear any music.

This little Violet Ray machine is the source of more trouble than all of the "Leaky Transformers and Insulators" in the country.

And if, Mr. Isard, you do not believe this, try it for yourself and let the editor of "Radio Doings" know what you learned.

Respectfully,
C. H. TRUMPY.

Box 207, Balboa, Calif.

Radio Doings.

Dear Sir:

In your issue of the Radio Doings for December 23-29 you published a letter that requested reports from long distance fans using CR-5 receivers. You might be interested in a report of my results because I am using only a detector set alone without any amplification.

I have owned this set since January 1, 1923, and since that time I have heard ninety-eight stations. My furthest distant station was CFCF at Montreal, Canada. I have heard PWX, Havana; WLAG, Minneapolis; WOS, Jefferson City; WOC, WCX, WBAP, WFAA, CFCN, and many others. For two straight weeks, every night, I heard WJAZ at Chicago.

This record may seem impossible to some, but you can take my word for all I have said. I find that it takes patience and determination to get long distance reception. I spent two hours and a half on the station in Montreal. I have never put a station's call on my list until I was absolutely sure I had them.

This set consists of one Gilfillan variocoupler, one Chelsea variable-condenser, 37 plates, Baldwin phones.

Hoping to hear from other long distance fans using CR-5 circuits, I remain,
Yours sincerely,

ALAN S. TURNER.

1108 Klison Drive, Santa Ana, Calif.

(Continued on page 53)

RADIO THE NEW YEAR IN



Act now and install one of our Artistic Radio Receivers! A small deposit will hold any set.



Call and see us, orphone 430-195 and arrange for a demonstration in your home.



709 N. Western Ave. (cor. Melrose & Western), Hollywood, Cal. Open Evenings

Why Newspapers Broadcast

By WM. S. HEDGES, Chicago Daily News

If you were to scan the list of broadcasting stations you would find that fifty newspapers in various parts of America are operating their own broadcasting stations. In addition to this number there are 100 newspapers which have some sort of affiliation with broadcasting stations.

But why should newspapers become broadcasters? That is a question that undoubtedly reiterates itself in the minds of every one of the newspapers engaged in the operation of their own stations. It is natural for manufacturers of radio equipment to broadcast. They are sustaining the reason for the purchase of their product. For the same reason retailers find broadcasting worth while, even though these two classes of broadcasters are paying the freight for the manufacturer who won't participate in the expense of entertaining the public.

Schools and colleges broadcast because they wish to extend their influence, to increase their enrollment through the advertisement of their name and their wares, or they may operate stations as mere demonstrations of their physics departments.

But why should newspapers broadcast? There are several practical reasons. I will mention them first. But there is also an idealistic reason. Among the practical reasons is the creation of good-will, an intangible, yet nevertheless invaluable, asset for quasi-public institutions, such as newspapers. Dollars may not directly follow from the pleasures experienced by listeners to programs broadcasted by newspapers, but the feeling of friendliness is there and the friendship of the masses makes strength for the newspaper.

It has been said that a newspaper has a harder time advertising itself than any other institution. The others can run their advertising in the newspaper in order that they may reach their clientele and attract new patrons through its own medium. It can advertise in other newspapers in the same city, but that is too often a confession of its own weakness. So we find the newspapers advertising in billboards, placed in conspicuous places. The power of billboard advertising is a debatable matter. With the advent of radio, the newspapers have a new medium of advertising, though, of course, it is indirect. Through radio the name of the newspaper engaged in broadcasting is poured into the ears of the thousands of listeners, and without offense. Through radio the various departments of the newspaper become known.

Some of these reasons for a newspaper entering into broadcasting may not seem as cold-bloodedly commercial as the word practical suggests, but newspapers do not gain their strength from being cold-blooded in contacts with the public. There must be the willingness to serve as the inspiring motive behind the ceaseless labor of presenting the facts as they are found.

When a newspaper goes onto the air the spoken word of the radio station is as representative of the newspaper as its pages and columns. For that reason the same policies should prevail in broadcasting as pertain in the editorial content of the paper.

With this ideal as an actuating impulse a newspaper operating its broadcasting station may be casting bread upon waters in the shape of the initial expense and maintenance charges, but the return of the bread in the form of good-will and increased circulation is almost a certainty.

I am not recommending that all newspapers get into broadcasting. But those which can afford an outlay of \$40,000 to \$50,000 a year in extra advertising could properly spend that advertising appropriation through a broadcasting station.

Letters to the Editor

Editor Radio Doings,

I have noticed lately that there are a great many howling for a silent night. Now, we have a Kennedy 5 and are able to pick up a great many distant stations, but I think, out of justice to all those with crystal sets, and there are so many young boys that have them, that one Los Angeles station at least should be on the air. Let's don't have them both silent for a whole evening. If they are silent till eight o'clock, that ought to be long enough to enable folks to hear most of an evening's program from an eastern station and will also give the crystal set people a chance to listen-in for a while.

How do you feel about this matter?

Yours sincerely,

A. P. McCOLLUM, 1601 W. Third St., Santa Ana, Calif.

Editor's Note:—Now, we have a silent night in Los Angeles on Mondays till 8:00 p. m. We feel that most listeners-in will be satisfied.

The Editor:

I am a reader of the Radio Doings and have had it since March, and I think a lot of it, and can't miss it, so I am going to help you out a little if you can give me a lift.

I see where Gorden Jones is inquiring who KFKX is?

I get this station right along lately, it's a powerful station. And remember, I get this through local KFI, KHJ, KJS, and I get KPO the same way, and any time I want to. I got KFKX last night, Dec. 6th, 8:00 to 8:30, and held them 30 minutes and hear every word they say come in as loud as KPO. I am writing them a line today. Would you be so kind and publish the time-table of KFKX, Hastings, Neb. I have a 3-tube set of WD 12, and the set is sensitive. I have no trouble with interference whatever. Yours truly,

J. H. MOOR, 609 Alexander, Glendale, Cal.

Los Angeles, Cal.

Editor Radio Doings:

In reply to request regarding stations picked up, on account of silent Monday, till 8 p. m. Monday, Dec. 3rd, found WOO at Philadelphia and WJS at New York, then on Monday, Dec. 10th, WBAP, WFAA, WMAJ, KND, WDAF, WLW. Can get Ft. Worth, Dallas, or Davenport, most any time, using 3 W.D. 11s, CR9 circuit, loose coupler, home made. Thank everyone for the silent night.

E. C. WITHROW, 1734 W. 36th St.

Editor Radio Doings:

Dear Sir: In December 16-22, No. 24, on page 51, I made a statement that I had a small apparatus that I hooked up and tuned out KHJ and KFI and got long distance. This is true, but it is in an experimental stage, and is in no shape to be given out at the present time, and those who have written to me will hear from me when I get it completely finished. I cannot answer all the letters at present, as there are too many of them, but when I get this little apparatus perfected you will hear from me. Hope you will be content with this explanation.

Yours truly,

WILLIAM REED,

P. O. Box 574, Anaheim, Calif.

(Continued on page 55)

"SAPERAL" PRODUCTS Hetrodyne Transformer, \$5.00

Guaranteed to equal any on the market. Satisfaction or money back. Circuit and full instructions with each transformer. Mail orders filled promptly. Dealers, write for attractive proposition.

SAN PEDRO RADIO LABORATORY

1139 Santa Cruz St.

San Pedro, Calif.

RADIO ESSENTIAL IN LIGHTHOUSE SERVICE—RADIO ENGINEER NOW TO HANDLE PROBLEMS

Radio has come to form so vital a part in the work of the U. S. Lighthouse Service that the aid of a radio engineer has just been secured to apply the best means of radio communication and position finding in this coastwise service. John L. Preston, a radio engineer, who has been active in the Radio Laboratory of the Bureau of Standards for the past five years, has been transferred to the Lighthouse Service, where he will shortly take up his new duties.

Radio has been employed in the Lighthouse Service for several years, handled through the efforts of the engineers on duty there with the co-operation of the Bureau of Standards, but, with the extension of the work in radio direction finding as well as communication, a specialist has been found necessary.

Of the vessels used in the coastwise safety service, 57 are now equipped for communication by radio; of this number, 30 are steamers, and 27 lightships anchored off the Atlantic and Pacific coasts. Ten radio beacons, or fog signal stations, are now in operation afloat and ashore. These stations, situated at dangerous or important points on the sea or lakes, transmit by automatic apparatus radio signals during fog or thick weather by which vessels provided with radio compasses may take definite bearings to guide them en route or toward harbors. Although invisible, and perhaps 100 or more miles distant, these beacons become "visible" by virtue of distinctive radio signals, and their bearings may be readily reckoned. Five other beacons are now under construction, and 32 more are proposed as soon as funds are available for their equipment.

The Lighthouse Service advocates the use of a radio compass aboard ships, and not on the shore as in the Navy Department system. Most of the vessels employed by the service are now equipped with radio compasses, by virtue of which they can not only locate stations and beacons, but find the bearings of other vessels transmitting or in need of aid.

Part of Mr. Preston's work will be to determine what type of apparatus now on the market is suitable for the service. He will investigate the four or five types of radio compasses, for example, and may recommend a standard type for the ships in the service, to which the Lighthouse officials are as yet not committed. All radio phenomena will be investigated as well as all forms of transmitting and receiving apparatus, suitable for off shore signalling. In a word, the duties of the new engineer will be to correlate pure and applied science of radio.

Besides the purely official use of radio throughout the service, its application has been found very beneficial as a means of emergency communication and for entertainment. So much interest has developed among lighthouse personnel, that a radio club with a periodic publication has been in existence some time. Transmitting and receiving sets, built by the keepers of lights themselves, where no standard equipment was installed, in many instances have brought them into touch with the world, saved lives in emergencies, and enabled the keepers to send or receive important information. All of this has added to the efficiency of the service.

A case in point took place at Tree Point Light Station, off Alaska, where no regular transmitting station exists; the enterprise of the Second Assistant Keeper, however, in having built a home-made transmitting set, probably saved the life of his wife. When she was suddenly taken ill, he was able to radio to a neighboring radio station for aid. The Tender Fern, coming from Ketchikan, Alaska, took his wife back to a hospital for treatment.

An emergency radio-telephone transmitter constructed from spare parts aboard the Tender Mandrono by Operator George Owens, enabled the engineers to test out a radio-telephone set at the light station they were installing at St. George Reef, California, as soon as it was finished, saving time and expense. This set proved good up to within 12 miles from the new station.

Means of radio communication have enabled the service to replace lights extinguished in record time, warn vessels of dangerous positions, call for aid, in some cases to render aid to ships, and generally expedite the life saving work as well as to furnish entertainment through receiving sets alone at many smaller outlying ships and stations not supplied with radio operators, and where mail is irregular and no other means of communication exists.

Letters to the Editor

Yucaipa, California, Dec. 21, 1923.

Radio Doings,
Los Angeles, Calif.

Gentlemen: Your fine little "Radio Doings" is as necessary up our way as the phone directory is to our phone. I read it from cover to cover—ads and all.

I am very much interested in the "listeners-in" association. A fine idea, but while it is being organized, which might be some time, something ought to be done to keep the standard of the radio programs on the level with those of the past week—Dec. 15-22. The programs offered have been superlative, there is no other word that can do them justice. There hasn't been a day that some widely famous opera singer, violinist, orchestra or speaker have not entertained the thousands of listeners-in through KHJ or KFI.

The reason for the more than ordinary amount of talent offered fans has no doubt been the friendly rivalry on the part of the music stores offering the programs. But—these music stores, now that Xmas shopping is no more, will probably not be in a position to put on the programs often.

Why not have the competition continued—only by the artists themselves? I would suggest the following method of spurring on the interest of those who take part:

Have KHJ (through the Times), and KFI (through the Examiner), print questionnaires in a corner of their Sunday weekly radio page requesting the listeners-in to vote which orchestra, speaker, singer (tenor, baritone, soprano, alto), musician (violinist, pianist, etc.), organization, etc., they liked best during the week preceding. The result of this check could be printed in the following Sunday paper. It certainly would be a wonderful publicity to an orchestra or a soprano or a violinist to be voted by radio fans as the most popular in Southern California, and no doubt would do wonders to keep up the high standard recently set.

The stations might argue that it would require too large a clerical force to handle the incoming questionnaires, and yet only a small portion of listeners would take the trouble to bother with it, and the questionnaires would be of great assistance to the stations to find out what the people liked, as well as a powerful incentive to the artists themselves.

Hoping that this suggestion may prove of help, I am,

Yours for the Betterment of Radio,

PAUL W. FORD.

Radio Doings,
Los Angeles, Calif.

Dear Sirs: You asked the DX fans to send in their long-distance records, so I am co-operating with your magazine and giving my report. I am using an Armstrong regenerative (single circuit) set, using detector and two stages of audio frequency amplification. This set is made by the Westinghouse Company. I have heard WOC, Davenport; CFCN, Calgary; KFCS, Hastings; KFAE, Pullman; KFCF, Walla Walla, and all of the following stations: KPO, KZN, KGW, KGN, KDPT, KDYM, KMJ, KLX, KFAW, KRE, KUO, KFJH. (Fair report, I think.) You can put me down on the list for a silent night.

HARRY J. CREIGHTON,

4111 So. Harvard Blvd., Los Angeles, Calif.

(Continued on page 57)

Prest and Dean Radio Electric Co.

Complete Line of Radio Sets and Supplies

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

742 East Fourth Street, Long Beach

Phone 635-213

Naval Radio

The battleship "Colorado" has just accomplished what radio engineers have said was impossible a few years ago—her radio personnel has succeeded in receiving messages on five different wave lengths while her transmitter was sending dispatches across the continent on another wave length.

This was accomplished by means of a special high-power tube transmitter designed and built by the Western Electric Co. for the Navy, and the use of special aerials for the receiving sets. Naturally the transmitter is an exceptional one, which emits a pure wave, free from harmonics and mush, and the receivers were most carefully designed as to selectivity. The difficulty of receiving several messages at a time on a ship, especially if a single aerial is used, is to keep from interfering with the other receiving sets tuned to various waves. This is difficult with an ordinary apparatus, if possible at all, due to the fact that in tuning up and down the scale the waves to which other sets are tuned are interfered with and the messages interrupted.

This system of sending and receiving was effectively tried out by the Colorado while lying off the Virginia Capes recently. She transmitted messages to San Diego and San Francisco on a wave of 1430 meters and at the same time copied five stations on 600, 1300, 2300, 4300 and 4600 meters during both day and night watches. The transmitting antennae, with about a 45-ampere input, was only a few feet away from the receiving antenna, a vertical affair of three or four strands suspended from the yard arm, which picked up the messages for the five receiving sets—itsself a surprising feat. Two 10-kilowatt capacity water-cooled tubes were used for transmitting the trans-continental messages over a distance of about 3000 miles on the wave of 1430—incidentally a low wave for this work, compared with the 17,120-meter wave ordinarily employed by Annapolis for long-distance work on the 500-kilowatt arc set.

Standard Naval receiving sets with amplifiers developed by the U. S. Naval Research Laboratory, Bellevue, D. C., were used in the tests.

The attention of broadcasters and listeners-in, who say some of the waves assigned to stations by the radio conference are too close, is called by Naval experts to the fact that this vessel transmitted on 1430 meters and received on 1300 meters on almost adjacent antenna. Regular radio telegraph messages were used in the tests.

STAR ENGRAVING COMPANY

223 EAST FOURTH ST.

LOS ANGELES

872-969 TELEPHONE 872-969

"Your Story in Picture Leaves Nothing Untold"

Keeler White Co., 211 So. San Pedro Street, Los Angeles.
Pacific Coast Agent of Wm. J. Murdock Co.

TUBES REPAIRED

Detectors \$2.75—Amps. \$3.00. All Work Guaranteed Good as New.
No Charge for Broken Glass. Discount to Dealers. 15-Day Service Now.

WD 12 and 11, \$3.25 201A, \$3.25

LESTER RADIO SHOPPE

140 So. Spring St.

Metropolitan 4832

Open Evenings

Letters to the Editor

Los Angeles.

The Editor:

I think I have received \$1.00 worth of joy on the different occasions I have listened in, when Miss Brannen was playing for us radio fans. Check enclosed for one dollar.

I am for one silent night. I have a crystal set and have been intending getting a good set but not until we get one silent night. I realize the shut-ins and the majority that have small sets, but on the other hand, when we think of the many people that have spent two or three hundred dollars for sets and then about the time you get interested in some long distance broadcast and bang, bang, goes some local station, it is not very pleasant, and on behalf of the dealers in town I know many people that would buy good sets or parts to make good sets if there were not so much local interference.

Also I think it would be best for our local stations K H J and K F I if they would take different nights for broadcasting. Every other night, as it is now, we listeners-in miss many good programs as we can only listen in on one at a time.

Yours truly,

S. S. MORGAN,
R. F. D. 10, Box 133, Los Angeles.

We wish to acknowledge the following amounts for the
MARGARET BRANNEN SAXOPHONE FUND

Previously acknowledged.....	\$24.00
Mr. and Mrs. L. C. Torey, Forest Home.....	1.00
C. L. Gardner, Grand Canyon.....	.50
C. H. Ingels, Grand Canyon.....	.50
M. F. Madden, Grand Canyon.....	.50
E. L. M., Grand Canyon.....	.50
L. E. White, Grand Canyon.....	.50
H. C. Scudder, Grand Canyon.....	.50
E. Nelson, Grand Canyon.....	.50
Dick Gilliland, Grand Canyon.....	.50
Wm. Clowe, Cornish, Utah.....	1.00
Mrs. C. W. Camp, Long Beach.....	2.00
J. A. Mathis, Los Angeles.....	5.00
C. Renschel, Los Angeles.....	1.00
Total.....	\$38.00

Note.—This fund is now closed, a sufficient amount having been received by "Radio Doings" and the "Los Angeles Examiner" to buy Margaret a very fine instrument. We wish to again thank all who have helped.

Condensers

(Continued from page 11)

Little has been said of the fixed condenser, because the experimenter cannot construct efficient fixed condensers of true capacity unless he is in possession of expensive measuring apparatus and great care is to be used. When fixed condensers are specified in a circuit, select one made by a reliable firm and of a standard design, using mica as a dielectric. All fixed condensers, even of a standard make, do not come uniform to precision, and are only good where a general fixed capacity is necessary. Where a precision capacity is required, a variable condenser is recommended. Fixed condensers save room and money and are indispensable for capacities above .001.



In order that questions be answered promptly and accurately, write plainly, number your questions and make them as brief as possible.

TECHNICAL EDITOR.

HALL BERRINGER

- Question 1.—With the hook-up enclosed, please give the range I might expect.
 2.—Is this the best hook-up for these instruments?
 3.—Would the CR-5 hook-up be better?

A. BOYSEN,
 Los Angeles, California.

Answer 1.—It is impossible to give the range of any receiver. Weather and many other conditions change the range of a receiver so often it cannot be given accurately.

- 2.—Yes.
 3.—Your circuit is more selective than a single circuit.

Question 1.—What is the term used (single circuit, double circuit, regenerative, etc.) for the set whose diagram is enclosed?

2. How far should a set like that using W. D. 11 tubes receive?
 3.—Would using 6-volt tubes make any difference, and if so, what?
 4.—What is a Neutrodyne set, and what does the name mean?
 5.—How do you pronounce the name "Neutrodyne"?
 6.—How far should a 5-tube Neutrodyne set receive?
 7.—Would a set like that be able to tune out KHJ, KFI, etc.?
 8.—Could W. D. 11 tubes be used with as good results as the 6-volt tubes on the Neutrodyne set?
 9. Could a loud speaker be used on the set illustrated?

A. C. NYDEGGER,
 1515 Ridgeway Drive, R. F. D. 2, Box 7, Glendale, California.

Answer 1.—The diagram is a single circuit.

- 2.—We cannot tell the range of any receiver.
 3.—6-volt tubes usually give a little more volume.
 4.—A Neutrodyne circuit is a late circuit invented by a man named Hazeltine. It employs tuned radio frequency amplification with neutralization of capacity.
 5.—Neu-tro-dine.
 6.—Refer to No. 2.
 7.—If installed properly.
 8.—No.
 9.—Yes, for local reception.

(Continued on page 59)

“Radiona Beauty”

The One Tube Wonder
 Radiophone

One tube does triple duty.
 Remarkable volume and
 tone clarity. Only \$50.00

“Radiona Grand”

Radiophone

A two tube revelation of
 surprising quality in every
 requirement. Only \$75.00

Guaranteed to Satisfy You

A demonstration in your own home, any time, at your convenience.

NASH CO.

1357 East 58th St., Los Angeles

?????

(Continued from page 58)



The World's Most Popular Battery Charger

**GOLD SEAL
HOMCHARGER**

**Charges Radio and Auto Batteries
at Home Over Night for a Nickel**

No stopping—no sticking—no muss—no fuss—no trouble. Self-polarizing—high-charging rate—finished in mahogany and gold—approved by Underwriters. Price \$18.50 complete with ammeter (\$25.00 in Canada)—no extras to buy—at all good dealers.

FREE Ask your dealer or send direct for free HOMCHARGER list of broadcasting stations and GOLD SEAL bulletin.

Insist on the GOLD SEAL

It's your guarantee against substitution and appears on name-plate and package. No other charger is just as good.

*The Automatic Electrical Devices Co. 172 West Third St. Cincinnati, O.
Largest Manufacturers of Vibrating Rectifiers in the World*

BERTRAM SMITH

Western Manager

400 San Fernando Bldg., Los Angeles, Cal.

Distributors

RICE & HITT
623 Larkin St.
San Francisco

ROBINSON SALES CO.
Hinckley Bldg.
Seattle

ALEXANDER S. SIMS
100 Bransford Bldg.
Salt Lake City

JOHN W. TEE
311 Kittridge Bldg.
Denver

Shipments to all points west of Rockies from
Los Angeles stock.

I see it must have been a mistake, as I received several "dozen" letters telling me about KEKX. Mr. Vincent Parsons, of 30 South Sierra Bonita Avenue, Pasadena, California, sent me a copy of the Pittsburgh Post, and requests that I send it to you, and after you have looked it over to please send it to him.

Also asking you how much of the aerial is in use when you are receiving broadcast signals. I have heard just one-half was used, the other half picking up interference.

GORDON H. JONES,
Buena Park, California.

Answer.—All your aerial is in use all the time. You were misinformed.

Question 1.—What is the highest plate voltage that can be put on a U. V. 199 tube as an amplifier without doing any damage?

2.—I hear a loud humming sound in my set, but I hear it only after dark. Could you suggest what might be its cause?

3.—How may radio and audio frequency transformers be tested for grounds, breaks, etc.?

OGLE McLELLAN,
1927 East Second Street,
Los Angeles, California.

Answer 1.—The 99 series give excellent results as amplifiers when plate voltage is between 90 and 120.

2.—There is an insulator in the vicinity of your home that leaks. Try to locate the insulator and report it to the power company.

3.—With a dry cell and a pair of head phones.

Question 1.—Is a charger using a solution of borax, lead and aluminum practical to charge B batteries?

2.—We have a Rectagon, 50-cycle 7.5—15 D. C. volts. Is there any globe that can be put in our charger to increase the voltage enough to charge a 22½-volt B battery?

If not, please advise if there is a mechanical charger to charge B battery only.

CHAS. S. GOODRICH,
1960 East Fifteenth Street,
Long Beach, California.

(Continued on Page 60)

RADIO DEALERS

HERE'S A RADIO
CRYSTAL THAT
SELLS ITSELF



Because it is superior to all others on the market.

RADIO-ARGENTITE MINERAL DETECTORS are made of the highest grade materials, and they give CLEARER, LOUDER, and MORE NATURAL RECEPTION at all times under all conditions. You run no risk in handling RADIO-ARGENTITE DETECTORS. Each one is carefully tested by our special process before it leaves our laboratories, and they are full guaranteed. A Radio-Argentite Detector will put new life in any set because it is 100% perfect.

DEALERS TAKE NOTICE!

A Complete Stock and Prompt Delivery Assure Good Service

For full particulars write

**Curry & Coutellier
Laboratories**

2845 W. 9th St.

LOS ANGELES, CAL.

Satisfactory Discounts to Dealers

?? ?? ?

(Continued from page 59)

Answer 1.—Yes.

2.—No, the globe makes no difference.

3.—Yes. Certain mechanical chargers are equipped to handle B batteries.

I have had a radio for over a year. It is a home-made, single-circuit set with one stage of audio amplification. Am using a one-wire aerial, 135 feet long, 40 feet high on one end and 30 feet on the other. I use a water pipe for a ground. My aerial crosses over about 15 feet above telegraph and telephone wires. A 66,000-volt power line runs about 150 feet away, directly parallel with it. I experience such a terrible buzz that it is impossible to hear even the local stations while it is going, which is most of the time. The only time it stops is when it rains or is very hot and dry. Sometimes during the afternoon the buzz stops. Then I have excellent results. But as soon as evening comes, the buzz starts again. The reason my aerial runs parallel to the electric line is because it is the only position I can leave it in permanently. But the trouble is not remedied even if I do run the aerial at right angles from the electric line, because I have tried it. I have also tried loops and counterpoises, but it seems impossible to get rid of the bothersome intruder that persists in coming in loudest on about 250 meters, but is loud enough on up to 600 meters to prevent listening. Could you offer any suggestions that would help? If so, it will be greatly appreciated.

ROY HIGGINSON,
Box 4, Del Mar, California.

Answer.—Your only hope is in the power company. Get in touch with them and request they inspect insulation on their line in your vicinity. They can clear it by replacing certain insulators.

Radio on ZR-1 Perfect

The chief purpose of the American-built ZR-1 as an aerial naval scout was demonstrated to the edification of all during the recent test flights when practically every move of the giant Zeppelin was sent to Admiral Moffett by radio. This great helium airship is to be used for scouting and reporting to her base what she sees, one naval expert explained recently, adding that her radio worked perfectly for both short and long distances.

On the day of the initial flight over her home at Lakehurst, Commander McCrary sent the first radio message to Admiral Moffett, Chief of Naval Aeronautics, who was on the ground far below the great airship. The message was picked up in the field radio shack and delivered to the Admiral within a few moments. On the recent trip to New York and return, Admiral Moffett, then at his desk in the Navy Building in Washington, was advised periodically by radio of her progress. "It is of special interest," Secretary Denby said in an interview, "that the Navy Department was in constant communication with the ZR-1 by radio." Her position was accurately reported at frequent intervals and full information was given of operating conditions aboard.

In this connection it is of further interest to realize what this will mean when she journeys farther afield on exploration work. Admiral Moffett has reiterated the program planned after her trials are completed, including a flight to the North Pole, if practical. This, it is hoped, can be undertaken by next spring. Such flights to hitherto inaccessible parts of the world for exploration and discovery, Admiral Moffett has no doubt can be made with success, if she is handled carefully. Continued communication with the Navy Department would insure quick aid from airplane in the event of accidents. Further flights are planned in the immediate future to cities of the East, and it is expected that the Capital will be among the cities soon to be visited. Radio will again serve in these flights to keep the ZR-1 in touch with headquarters either at Lakehurst or Washington.

Postal officials may also find use for radio beacons in aiding their air mail planes on long transcontinental flights.

One useful adaptation for this radio beacon signal is its use by Naval airplane carriers or battleships carrying airplanes for calling and "guiding home" their seaplanes after long reconnaissances or when lost in fog or darkness. Planes often operate far out of sight of their mother ships, and their compasses sometimes get out of order, in which event a guiding radio call on the rotating principle from their ship would be of great aid, specially when a plane was low in gas and not in a position to conduct a long search for its floating base.

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"Out of the Air"

By LISTENER-IN

Mr. Denny, the operator at KMJ, San Joaquin Light & Power Co., Fresno, California, paid us a visit last week. He tells us that this station is contemplating big improvements. A double cage T type antenna, 240 feet high and 250 watts are to be used. Remote control from local theatres, hotels and churches, besides their regular programs, is anticipated. At the present time this station is operating on 50 watts, but comes in very clearly.

At a meeting of the Radio Division of the Music Trades Association, held December 27th, Mr. J. C. Johnson, manager of the American Radio Exposition Co., reported that over 85 per cent of the space had been contracted for at the Radio Exposition to be held at the Biltmore Hotel, Los Angeles, February 5th to 10th next.

Mr. William K. Gibbs, announcer at KFI, has been confined to his home with a severe attack of pleurisy. We are glad to hear that he is now better and that by the time this reaches our readers he will be at his old post. During the absence of Mr. Gibbs our good friend Mr. S. Hastings, beloved of all radioland, has been announcing from his station.

6XG, the new General Electric station, Oakland, California, was testing Sunday evening, December 30th. In Los Angeles and vicinity it came in very well, the modulation being exceptionally good.

Leslie B. Jackson is announcing for KFHJ, Fallon & Co., Santa Barbara. This station has changed its schedule in a few instances. Details of these changes can be found by referring to their program printed in this issue.

Radio will be featured at the electrical exposition in the Australian Capital next September.

The electrical exhibition, under the auspices of the Victoria Electrical Federation, will be held in Melbourne. It is planned to cover every phase of the electrical industry, showing actual working models of the various types of apparatus from toys to machinery. Both wireless telegraphy and telephony will have prominent places in the exhibition.

Operating in the Federal District of Rio de Janeiro, Brazil, there are about 8800 radio telephone receiving sets, according to Trade Commissioner Remer.

Broadcasting of music and entertainment is taking place regularly from the Government station at Praia Vermelha and the Radio Sociedade de Rio de Janeiro. A line is being put up to connect the former station with the Instituto de Musica to permit the broadcasting of concerts.

Few licenses have been issued outside the Federal District. The first radio receiving set to be installed in the interior of Brazil was set up recently by employees of the Araraquara railway. It is located at Araraquara, in the state of Sao Paulo, but picks up broadcasting from Rio de Janeiro and Buenos Aires.

Interest in radio is active and is increasing in Argentina, according to cable advices from Trades Commissioner Brady at Buenos Aires. The "estancias" in the country districts are asking for the larger types of receiving sets to enable them to listen in on the broadcasting from Buenos Aires and Montevideo. A steady growth in the demand for radio apparatus is expected to follow the enlargement of present broadcasting facilities now in progress.

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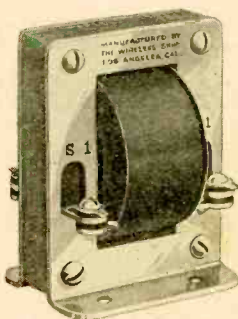


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