This Superhetrodyne Should Please by Ease of Assembly

Giant Eight-Tube Receiver May be Constructed With Little Difficulty by Unskilled Fan.-Wiring is Simplified.—Operates Cheaply

played with radio was up against many problems. Very little definite information parts necessary to build a set were not, as a general rule, to be had when you wanted them, and even in some of the larger cities there was not one electrical store that had an agency for selling "wireless" parts.

To-day the radio public does not have before it passes several stores that handle for comfortable listening-in. a reliable stock of radio material. Parts may be had in quantity and are generally much superior to the average makes of

In the writer's opinion, an important step in the right direction is the policy of the various manufacturers, in standardizing and matching their products. The chances are that if it is necessary to replace a damaged transformer, another one the same make may be installed with the assurance that it will work correctly.

The receiver described embodies quite a few features that should be of interest to any one who would like to own a "super." but is scared away by a long list of parts and accessories.

But comparatively few parts are necessary to build this receiver, and they are designed to work well together. The thoughtless substitution of parts not designed to work with the rest of a set, particularly in a super-heterodyne, is reonsible in many cases for mediocre re-

tenna coupler and a double-circuit jack. The antenna coupler consists of a secondary, tuned with the first condenser, and an untuned primary. The double-circuit jack connects the receiver to the antenna and ground in its normal posi-tion and disconnects them when the loop jack is inserted.

A suitable antenna for this set is a single wire about 40 feet long. The usual precautions of making careful insulations

precautions of making careful insulations and installations should be taken. This wire may be used either in or out-of-doors, preferably the latter.

The intermediate frequency transformers, oscillator and antenna coupler are all similar in appearance and may be breathful to the form of a complete kit. The bought in the form of a complete kit. The oscillator is used with a separate tube to heterodyne the incoming wave and tunes to the desired frequencies with a .0005

The intermediate transformers are of the intermediate transformers are of the air-core variety and are wound on rather a large core. This cuts down the amount of wire needed to produce the proper inductance. The field of these colls s not extensive and permits close mounting without "interstage coupling." This

condenser across the secondaries. This small capacity cuts down the amount of inductance necessary to tune to the desired intermediate frequency and consequently lowers the radio-frequency resist-These condensers are inclosed in the case of the transformer and are shown in dotted lines in the circuit dia-

A rather clever mechanical arrange-

Not so many years ago the man who clayed with radio was up against many problems. Very little definite information.

Take all the precautions possible when was available, especially about the construction of parts and receivers. The narts necessary to build a set were not. greater than that given by the detector in other circuits. This means that, as a gen-eral rule, not as much audio amplification is necessary with a "super" as with the average, set.

The writer has found that in his own personal sets, one stage of good transformer or two of resistance-coupled amto go many blocks from its home or office plification will deliver sufficient volume

> Two stages of resistance-coupled amplification are incorporated in the set de-scribed. The couplins condensers and re-sistances are inclosed in a small bakelite case and all the connections are made internally. The cases of these coupling units are about the same size as the base of the average audio transformer and the terminals are marked in the same fashion. This means that the wiring is greatly simplified, something which will be appreciated by those who have ever hooked up the various condensers and leaks in-volved in the usual resistance-coupled amplifler Sircuit

> These coupling units are designed for use with from 90 to 135 volts plate voltage and from 1½ to 4½ volts grid bias.
> If it is possible, use the higher voltage as the results will more than repay you for the outlay for the extra "B" battery. When the set is in operation the "C" battery voltage should be adjusted to the best operating point which is indicated by the best quality and the lower "B" battery current consumption.

As you can see from the circuit diagram, this set is an eight-tube "super." It can be used either with a loop or an antenna and ground. The loop jack may be pulled out and the set will automatically be connected to the antenna and ground. You can readily see that making the set adaptable to either system, without complicated connecting and switching arrangements, is a decided advantage. No interstage jacks are used with this

If the builder has a preference for the transformer-coupled type of audio amplifiation, the transformers may be substiuted for the resistance coupling units. The circuit diagram will be the same whichever you use, due to the fact that the terminals of both types are marked If transformers are substituted, be sure

to use the best possible, preferably of a low ratio. It is suggested that one of the new semi-power tubes like the UX112 be used in the last socket if transformers are used. The sockets are built so that of the filament circuit with the exception of the switch, and all of the grid and of the switch, and all of the grid and of the switch, and all of the grid and of the switch, and all of the grid and of the switch, and all of the grid and of the switch, and all of the grid and of the switch, and all of the grid and of the switch. are used. The sockets are built so that either the old standard or the new "UX" tubes will fit.

The GA' battery current is turned on and off of all eight tubes by means of a flament switch, located in the lower right-hand part of the panel. This position shortens the length of the flament leads and is convenient from an operating view-

Filament control jacks are not necessary in this set due to the fact that the entire eight tubes are used all of the

time. This countries crably.

The filament circuit of the tubes is split up into two divisions of four tubes each. Both of these four tube sections

The parts needed to build this set are as follows:

One Victoreen superheterodyne kit. Two General Instrument Company ,6005 S. L. F. condensers.
Two Mar-Co vernier dials.

bus-wire. The operation is very simple, as the controls are cut down to a minhnum. The two condenser dials control the wavetime. This simplifies the wiring consid-

length variations, the potentiometer governs the sensitiveness and the modulator regulates the output of the audio end. The transformers are very closely matched, the manufacturers claiming one-third of 1 per cent. accuracy. This matching of the frequency peaks is accomplished by means of a small shunt complished by means of a small shunt condenser across the secondaries. This condenser across the secondaries. This transfer and the filament controls are cut down to condenser across the secondaries. This transfer are the filament controls are cut down to condenser across the secondaries. This transfer are the filament controls are cut down to condense across the secondaries. This transfer are the filament controls are cut down to condense across the secondaries. This transfer are the filament controls are cut down to two and is a further aid to the simplification of the wiring.

The change was evident from the very of the change was evident from the ver modulator in preference to the potentiometer, as the nearer toward the positive be the "B" battery drain.

This set can be operated economically, as the entire eight tubes consume but two ampores from the "A" battery and 18 milliamperes from the "B" battery, One Centralab 500,000-ohm modulator. One Parker-Aeolus 400-ohm potentiome with the potentiometer at full negative.

the filament end of the sockets.

Short Circuits

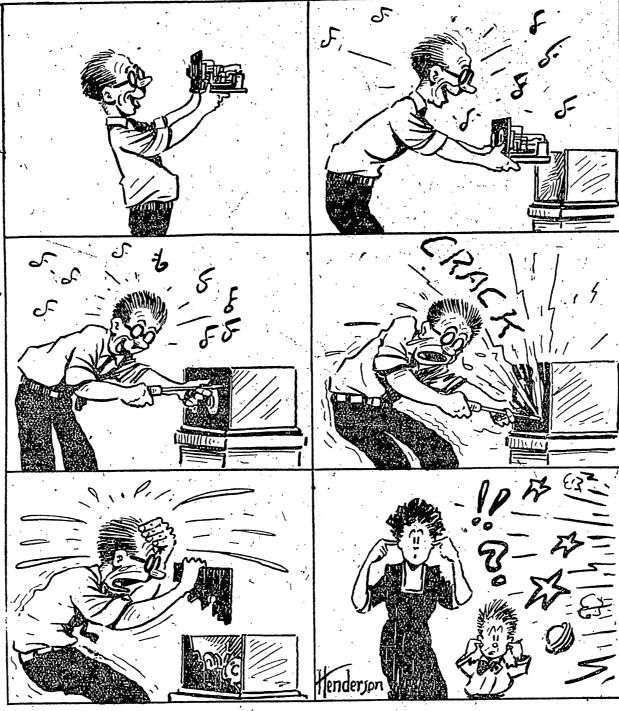


plate leads can be put in before the panel s mounted. After the panel is mounted, the condenser, switch and jack leads will complete the wiring.
The writer used No. 14 Okonite cov-

NEW MODELS IN FANS,

ered wire for the battery circuits and bunched then all together alongside of Smith had been reading the announce ments of new models in receiving sets. "There's a tip," he mused. "Wonder if it wouldn't be a good plan for radio fans to present themselves in new models occasionally?" Whereupon Smith resolved that henceforward he would appear as an improved type of the species.

quite different after Smith announced himself as a new model radio fan. The set side the arm is moved the greater will was switched off until such time as we were ready to listen in. It saved some battery current and the tubes. I began to feel that the radio was something more important and vital, not just a hurdygurdy that ran on endlessly. Then came

wasting time on a mediocre orchests

when we might be enjoying the bast. A slight movement of the dials brought

to our ears one of the finest orchestras.

The undestrable feature of the single number. A point will be found, however, in the country, proving that ideas are circuit is that the tuned inductance serve where too many turns will give broad as essential to the operation of radio sets as the input of the first tube also is a part of the aerial system. Whether the as to the building of them. as to the building of them.
"I think radio fans should support the

stations offering the best programmes," said Smith. "Broadcasting is a high type of advertising. Stations giving the best The change was evident from the very programmes gain the greatest good-will proment I entered his home the other eveing our money on cheap vaudeville and letting a famous singer sing to an empty

house."
"So you've started sending in applause

"Yes, and it's not because I'm radio struck," he explained. "I used to think the people who wrote to the broadcast-ers were a lot of hero worshippers who had nothing better to do. Well, I gues I was the rube. How is a radio broad-caster to decide whether his programme was appreciated him know?

"Thinking the matter over I suddenly recalled that the people who applaud most at any entertainment, show or concert are the most intelligent members of the audience. Only intelligent people can appreciate what skill is required to do an educated, experienced people can appreciate what struggles performers go through in order to take their place among the world's leading artists. Haven't you often been annoyed at some dullard who sat beside you at the theatre and who never even laughed at a witty line?

"Radio broadcasters and performer: need some form of applause, and notes from fans seem to be the answer. When appearing before an audience in a hall it is not so difficult for them to tell whether they are getting over. Even their appearance before phonograph recording apparatus has its applause in the form of the actual sales of records. But just imagine spending a lot of money on a high class radio entertainment and never knowing whether anybody heard it

I fully expected to see Smith rush to his typewriter to shoot off a few lines of appliause, but he had adopted still another improvement. "Fans can overdo this applause busi-

ness, too," he said. "There is such a thing as swamping a station with unnecessary mail, just as there is such a thing as applauding at the wrong time. There's no need of stopping the show.

(Copyright, by the Ullman Feature Sery-

"Ifs" in the Set.

dust inside If the set will not oscillate, reverse are another source of noise and weak sigthe plate and phone leads of the tickler.

If there is a cracking sound when the cuits. coupling is increased, decrease filament

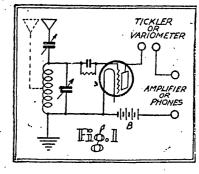
If there is a steady sound like a motor running, look around for a loose or broken If a constant clicking noise is heard,

vary the grid leak and watch the grid condenser. If a set nowls when tuning, or the signals fade when the hand is taken from ing manufacturers of tubes has now

"Squealing" Nuisance Can Be Stopped if Operators Desire

Type of Hook-Up Used is Main Factor in Difficulty. Single Circuit Still Regarded as Worst Offender. How to Remedy Fault

BY EDWARD B. PATTERSON.
In a letter which appeared last week the attention of radio fans was called to be to BY EDWARD B. PATTERSON. the attention of radio fans was called to the menace of radiating receivers. These receivers have become so obnoxious that Secretary Hoover has gone on record as approving legislative action against them. And yet in spite of this, many operators prefer to tune in approving legislative action against them. It is hoped that the evil will be overome by fans themselves. How it can be is outlined in the following descriptions:



Fundamental Design of Single Circuit Regenerative Receiver

another by use of blinding headlights was finally decided in some States, to pre-hibit certain types of offending lights. To stop cars along the road and adjust the lights was one way in which to remedy the situation, and yet it really amounted to trying to bale out a lake with a bucker. To stop the manufacture of blinding headlights, on the other hand, cures the evil at the source. To prohibit the manufacture of radiating sets might make the seme distant future, but it would not make your neighbor cease interfering with However, laws will have their share a

gradually eliminating the nuisance..

The so-called single-circuit regenerative receivers have been heartily condemned for several years by many, and no doubt these efforts have borne fruit. This type of circuit tends to become a particularly vicious instrument even in the hands of the experienced operator who finds it easy to tune by the squeal method. Inasmuch as the Government refuse

to allow transmitting sets to be used when connected in the single-circuit hook-up it at least indicates the circuit should not be incorporated in regenerative receivers which by their very nature become transmitting sets when not care fully operated.

In Fig. 1 is shown the fundamental dia gram of the single-circuit regenerative

an satisfy himself as o the truth of this statement by merely istening in. Even is outlined in the following descriptions.

We do not have to search far before we find a precedent upon which to base our action against the radiating receiver.

When automobilists interfered with one

The sequence of the radiating receivers.

It is the sequence of the radiating receivers.

It is the radiating the distance that can be received by a sequence of the radiating receivers. hough your receiving set is located far

overed by a squealing utifit.

In Figure 2 the primary of an aerial dreuit is shown as indictively coupled to the secondary circuit. This arrangenent with the untuned rimary is employed in the three-circut tuners, and

it is superior to the single circuit.

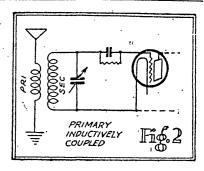
Just because the prinary is inductively coupled does not necessarily mean that the set will no radiate. In fact, squeals can be traced directly to tuners with this type of rimary. Although this circuit may have its shortcomings, nevertheless, it is a step in the right direction.

To remodel a single circuit tuner into the one shown in Fig. 2 is a relatively simple matter. Ordinary bell wire, No. 18 DCC, or wire of a smaller size will be satisfactory for the primary which in most cases can consist of about 10 to 20 turns on the end of the secondary winding.

If there is not enough space on the secondary tube to permit winding at the filament end of the secondary it may be necessary to wind directly over the secondary. Keep the primary as near the filament end as possible and use No.

24 DCC to conserve space.

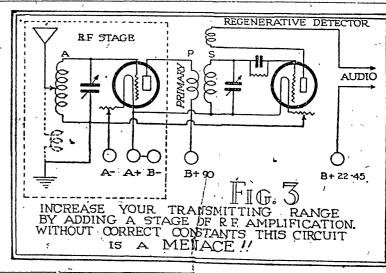
The size of the wire used is relatively unimportant, and sizes given above are merely for the guidance of fans who have had no experience in making the



Primary of Aerial Circuit Inductively Coupled to Secondary Circuit

receiver. It must be remembered there are change. Before the tuner is installed many forms of this circuit and the circuit it is advisable to try it out with differin Fig. 1 is shown because it happens to ent numbers of turns. If 10 turns does be in greater use than the other types. Inot give enough volume increase the

When the tube breaks into a state of case the station comes in "all over the self-oscillation or generation the aerial dal." The remedy for this condition is system is also excited and radiation is to insert a .00025 mfd. fixed condenser or



POOR PARTS SPELL TROUBLE

Lack of Maker's Name on Parts Fro quently Indicates Worthlessness.

sets, the greatest amount of lost energy actually is tuned to some low wave-is in the use of cheap and inferior parts, ength. It is for this reason that the Parts that are cheap do not necessarily number of turns on the primary may vary mean inferior, because at times nationally omewhat for best results with very long linown parts are sold at low prices. In it short aerials. Fans changing from some stores this is done as "leaders" to the single circuit to this system will not get you there in the hope of buying ally benefit their neighbors, but also something else and in other cases it is the stock of some bankrupt house.

one you never heard of before. The appearance of most cheap parts is enough when compared to high-grade parts. Cheap variable condensers may have losses in them that would prevent an otherwise good signal from coming, through. Variometers and vario-couplers which

may be purchased at 5-10-25 and 50c stores are most always noisy and will work good one night and not the next Cheap paper insulated fixed condensers in the radio frequency part of your cir-

Sockets cause more losses and noise than is generally suspected. If the prongs you either have a noisy set or signals case of having to keep prying up the socket springs in order to make a good

some other suitable capacity which can be found by experiment that will serve to reduce that natural period of the aerial system to a lower wave-length.

Of course, the untuned primary is un-

For a considerable length of time we ive heard of the blocking tube which those on which the manufacturer does build solve the problem of the radiating not put his name and if it is there, it is reiver, and also increase the range of regenerative receiver. Time and time hin the circuit shown in Fig. 3 has n offered as the cure hether this circuit is suitable for the

phoose will be discussed later and in dition R. F. circuits of good design will explained.

Improves Set.

regenerative set may often be imorold by connecting the phone by-pass nser from the plate terminal on the to the positive "A" battery terinstead of across the phone posts. entare offered a shorter path and do not like to pass through the "B" battery. which fiers a high resistance.

Concrete Telephone Poles.

eets and highways will be littered with feer telegraph and telephone poles companies get to using the new nerete poles which have been vented. The cement after being mixed is poured into a long mould and then subjected to a spinning ocess which drives the material to the ass and packs it hard in place. do not have the unsightly the wooden poles and their capacity much greater, so that in the carrying othe lines overhead fewer poles will be nessary.

500,000 A VARIABLE RESISTANCE 4 TUBE FILAMENT "B."⊕ 90-/35y

Wiring Diagram of Simplified Superhetrodyne Receiver

ment is incorporated in each transformer to add sufficient eddy current loss to the circuit to keep it from oscillating. In this way the amplification factor is adjusted to be the same in each transformer. This adjustment and the variation of the shunt condenser is made in the factory and then the case is scaled.

The incorporation of these shunt con densers across the secondaries of the transformers also makes it virtually unnecessary to match tubes. The variation in the different tube capacities is so small in relation to the capacity of the shunt condenser that it is negligible.

The condensers specified are of the straight-line-frequency variety and vary from minimum to maximum capacity by turning from right to left (clockwise). The straight-line-frequency variation is obtained by cutting away part of the stator plates. This method permits the use of the usual semi-circular rotor plates and con-

A great number of stations now on the air make the use of a straight-line-frequency condenser, a great help when working over the lower part of the broad-

Eight Eby sockets. Two Brach audio couplers. Two Brach-stats No. 4B.

Two Sangamo condensers with clips One Sangamo condenser .006 mfd. Two Boetter by-pass condensers,

Two Durham grid leaks 2.5 megoams One Yaxley filament switch No. 10. One Yaxley double-circuit jack No. One Yaxley single-circuit jack No. 1

Ten Eby engraved binding posts marked as follows: Ant./Gnd, A.—, A.+, B.—
B+45, B+135, C+, and two C.—,
One Eby binding post strip. One Westinghouse Micarta panel 7x30. One baseboard 7x20.

When buying the dials, he sure that they are marked with the zero to the right; in other words, "clockwise." Another thing is that the sockets specified may be used with either the old type standard or the new "UX" base tubes.

Sources of Noises.

To determine if the noise in the radio receive is due to a fault in the set or is actually interference coming in on the air, disconnect the aerial and ground intensity of the noise while the broadcast nusic is stopped by the disconnection, the probability is that the source of the noise s in the receiving set, in the form of a loose connection, faulty batteries, or defective tube. Also shake the ground wire near the connection, to make sure that the noise is not caused by a bad connec-

Battery Lore.

Before overhauling the set for the winer months, first disconnect the storage battery and take it to the nearest service station and have an expert put in new may be used with either the old type station and nave an expert put in new standard or the new "UX" base tubes.

The set is designed to be used with give it a full charge. Possibly there are a few plates which should be replaced or a cell dead. Only a battery man can ear until I was certain I would climb the six-volt storage "A" battery. These or a cell dead. Only a battery man can tubes give a great deal more volume in determine this. It is advisable, even if this set than the other variety, and the the battery is charged at home, to have Later we storage battery will be cheaper to main-tain with a multi-tube set of this char-tain with a multi-tube set of this char-

a second shock. Smith actually asked me whether there was anything on the air might be particularly interested in. "I discovered the other day that I've been somewhat selfish as a radio fan,"

he explained. "I've always tuned in for what I wanted to hear irrespective of the wishes of my guests."

1 complimented Smith on the new feature of his radio ownership. Since it happened that I had come over to learn whether his set would get DX, naturally announced my preference. Imagine my surprise when, instead of treating me to a series of squaks and

casting about for the distant stations, he plugged in the car phones and spent a few minutes surveying the situation.
"You see," the explained, "there is no reason why I should try to get this station on the loud speaker until I am sure

tube noises in the preliminary work of

Later we were listening to a conven-

the controls, shield the panel and ground working over the lower part of the broadcast band. The station separation with
this style of condenser is equal over the
entire dial.

The tuning of this receiver is so sharp

The tuning of this receiver is so sharp

The string of the broadautomobile owner cares for the battery of this charautomobile owner cares for the battery
vealed another new improvement. It was
the simple matter after all, but just one
tubes.

It is advisable to mount all of the

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rubber

Continuing our talks on losses in some

By cheap and inferior parts is meant

If signals are weak, look for dirt and regardless of radio conditions in general. If a tube vibrates when the set is op- to be noisy, but they do not have to be erated, mount the socket on felt or soft of low loss material such as parts used

do not make good contact against the are weak and in some cases no signals like the dripping of water on a hot stove, are heard. With cheap sockets it is a started making a base and socket in to the s which the tube is pushed straight down These p

RADIO PROGRAMMES

WJAR opens the new week with the regular concert this evening at 7:20 and the Atwater Kent artists at 9:15. To-morrow evening at 8 o'clock it will broadcas the Christmas cantata given by the Phillips Memorial Choral Association of Eden Park, and at 8:50 Dr. Lucius A. Bigelov of Brown University will be heard in talk on a chemistry essay contest. Tuesday night Frederick W. Bliss will give a safety talk. Wednesday night Roxy and his Gang go on at 10 o'clock. Thursday (Christmas Eve) the civic celebration at the Mall, Exchange place, will be broad-cast in full, beginning at 8:15. Christmas Day the station will be silent. Saturday a Christmas story for the children will be broadcast at 7:30 p. m. and J. Herbert Taylor, baritone, will be heard at 8

WEAN broadcasts three Christmas WEAN broadcasts three Christmas services to-day: Grace Church at 11 a. m., Plymouth Congregational at 5 p. m. and the Mathewson Street Methodist Church at 7:30 p. m. Its usual popular specialties will be heard to-morrow and throughout the week. Tuesday and Thursday afternoons at 4 o'clock, John Fitzpatrick will be heard in organ recitals. The Kalua Hawalian Troupe will be featured Wednesday night, The Christmas eve concert on Boston Common will be broadcast at 10 p. m. Specjal Christmas concerts will also be broadcast Friday and Saturday nights at 8 o'clock. day and Saturday nights at 8 o'clock.

WDWF will broadcast a chime concert and Bible reading this morning at 9:45 and an organ recital by Aurele Forest at

and an organ recitar by Aurele Porest at 4:45 p. m. WLSI is silent to-day, but has programmes arranged for Tuesday at 9 p. m. and Wednesday at 8:30 p. m. Thursday at 12 p. m. it will broadcast the Exchange Club's Christmas party for crippled children and Christmas afternoom at 2 o'clock dren and Christmas afternoon at 2 o'clock it will repeat the musical part of that af-

it will repeat the musical part of that affair.

WJAR—THE OUTLET CO.—305
To-day.

7:20 p. m.—Musical programme by Maj. Edward Bowes and the "Capitol Family."

9:15 p. m.—"Atwater Kent Radio Hour."

Jeanette Vrecland, soprano; Elsie Baker, contraito; Lambert Murphy, tenor; and William Simmons, baritone. "Sinct O Heavens" (Tours). "Silont Night" (Franz Gruber), Misses Vreeland and Baker and Messrs, Murphy and Simmons. "Jesus of Nazareth" (Charles Gounod). "The Angel's Song" (William Stickles), William Simmons. "Rejote Greatly." "Mossiah" (Handel). "Ave Maria" (Charles Gounod). by Jeanette Vreeland. "No Caudle Was There and No Pire" Alza Lennann). "The Birthday of a King" (Neidlinger), by Elsic Baker. "The Star of Bethlehem" (Stephen Adams). "The Infant Jesus" (Pietro Yon), by Lambert Murphy "Holy Night" (Adam), "O Little Town of Bethlehem" (Adam), by Misses Vreeland and Raker and Messrs, Murphy and Simmons.

Monday.

Monday. a. m.—Housewives Radio Exchange. A department conducted by Mrs. Wood on all matters of household interest All questions submitted will be answered by radio.

on all matters of household interest.
All questions submitted will be answered by radio.

1:05 p. in.—Studio programme.

1:20 p. in.—Studio programme.

5:00 p. in.—Christmas cantata, "The Star of Bethlehem" (Carrie B. Adams) presented by a chorus of 40 voices representing the Phillips Memorial Chapel Association of Eden Park, Raymond R. Maine, director; Cora B. Remington, planist. Soloists, Miss Allee M. Potter, soprano; Mrs. Evelyn C. Maine, contraito; Victor D. Baldwin, tenor; Horatio T. Walker, baritone, Programme: "Oh, Come, All Ye Faithful," chorus; "Good Will to Men," chorus; "The Shepherds Vision," tenor solo; "Bios Nich," quartet; "Sleep, My Savior, Sleep," soprano solo; "Star of the East," duet, triobaritone solo and quartet; "From Mountains Afar," chorus; "A Mother's Carol," contraito; "Room for the Christ Child," men's chorus; "The Glorious Star," soprano solo; "Alleluia," chorus; "O Sing Unto the Lord," by chorus.

by chorus,
p. m.—Dr. Lucius A. Bigelow, assistant
professor of organic chemistry, Brown
University, will talk in behalf of the
American Chemical Society prize essay

9:00 p. m.—"Musio bý the A. & P. Gypsies." 10:00 p. m.—Grand Opera. Tuesday.

Tuesday,
p. m.—Providence Biltmore Concert Orchestra from the hotel, under the direction of Erwin White.
p. m.—Weather report.
p. m.—Frederick W. Bliss will give one of the scries of safety talks under the auspices of the Providence Safety Council. Subject, "Superstitions."
p. m.—Gold Dust Twins.
p. m.—Teverendy Hour.

Wednesday.

Wednesday.

10:00 a. m.—Housewives' Radio Exchange. A department conducted by Mrs. Wood on all matters of household interest. All questions submitted will be answered by radio.

11:00 a. m.—Miss Ann Warfield, graduate nurse of Roosevelt Hospital, will give a talk on "Care of the Babies."

1:05 p. m.—Programme under the direction of Mile. Relna Farlardeau.

1:30 p. m.—U. S. Weather Bureau report.

1:30 p. m.—U. S. Weather Bureau report.

1:30 p. m.—Concert by the U. S. Army Band, under the direction of Capt. William J. Stannard, direct from the Army Barracks, Washington, D. C.

1:00 p. m.—"Gorman's Jolly Bakers."

1:50 p. m.—Film Grinnell, manager Providence Better Business Retivities." Subject, "The Old Call System of Stock Selling."

on "Better Business feet, "The Old Call System of Steel. Selling."

10:00 p. m.—"Roxy (S. L. Rothafel) and his Gang."

Thursday.

Gang."

Thursday.

1:05 p. m.—Studio programme.

1:7) p. m.—Weather report.

8:15 p. m.—Christmas Eve civic celebration relayed from the Mail, Exchange place. Music by the Providence Fostival Chorus under the direction of John B. Archer, and the Palestine Shrine Eand, Andrew J. Intlehouse, director. Programme: "O Come, All Ye Faithful," with band; "Break Forth, O Glorious Heavenly Light" (Bach), unaccompanied; "It Came Tyon the Midnight Clear" (Wills), unaccompanied; "Hark, the Heruld Angels Sing" (Mendelssohn) with band; "Lo, How a Rose E'er Blooming" (Practorius), unaccompanied; "Silent Night" (Gruber) unaccompanied; "Joy to the World" (Handel), with band; "O, Little Town of Bethlohem" (Redner), unaccompanied; "The First Noel" (traditional), unaccompanied; "Christians, Awake, Salute the Happy Morn" (Wainwright), with band.

8:00 p. m.—Robert W. Powers' Hudson-Essex Orchestra.

Orchestra. 10:00 p. m.—"Goodrich Zippers." Friday.

Saturday,

1:05 p. m.—Woodstock Enfertainers,

1:09 p. m.—Weather report,

7:30 p. m.—Weather report,

7:30 p. m.—"Sir Hobgoblin's Christmas Secret," by Blanche Elizabeth Wade, storyteller for G. R. Kinney Company,

7:45 p. m.—Galpeau and Beaudry,

8:09 p. m.—J. Herbert Taylor, baritone,

8:15 p. m.—Musical programme, Eugene S.

McKenna, tenor.

9:00 p. m.—"Clicquot Cub Eskimos." Saturday.

WEAN-THE SHEPARD STORES-270

11:00 a. m.—Service of Grace Church.

11:00 a. m.—Service of Grace Church.

1:30 p. m.—Concert.

5:00 p. m.—Musical service, broadcast from Plymouth Congregational Church.

6:09 p. m.—Service broadcast from Mathewson Street M. E. Church.

Monday.

11:55 a. m.—Time signals.

12:00 p. m.—Shepard Colonial Concert Orchestra, Harold Sheffers, director.

12:10 p. m.—Weather report.

12:15 p. m.—Musical programme.

4:00 p. m.—Nightingale's Four Jazz Kings.

4:20 p. m.—Weather report.

6:30 p. m.—Weather report.

6:30 p. m.—Weather report.

7:15 p. m.—Christmas. carols by boys and girls of the Roger Williams Baptist Church.

8:00 p. m.—Busical programme.

9:00 p. m.—Broadcast from now Metropolitan Theatre, overture by the Metropolitan Grand Orchestra.

10:00 a. m.—Home service talks by Miss Kathleen Atkinson.

11:55 a. m.—Time signals.

12:00 p. m.—Shepard Colonial Concert Orchestra.

11:50 p. m.—Shepard Colonial Concert Orchestra.

12:00 p. m.—Shepard Colonial Colored

12:10 p. m.—Weather report.

12:15 p. m.—Musical programme.

4:00 p. m.—Organ recital by John Fitzpatrick, broadcast from Mathewson Street
M. E. Church.

4:30 p. m.—Weather report.

Wednesday.

Wednesday.

11:55 a. m.—Time signals.
12:00 p. m.—Shepard Colonial Concert Orchestra.
12:10 p. m.—Weather report.
12:15 p. m.—Musical programme.
4:30 p. m.—Weather report.
4:33 p. m.—Weather report.
4:35 p. m.—Talk by Grange Angell.
6:30 p. m.—Orchestra.
8:00 p. m.—Orchestra.
8:00 p. m.—Kalua Hawalian Troupe, Ep
Westcott, Ev Alelebaugh, Red Phillips,
Andy Anderson.
9:39 p. m.—Dance music, Rhodes Orchestra,
Charles E. Culverwell, director, broadcast from Rhodes-on-the-Pawtuxet.

12:10 p. m.—Weather report.

12:10 p. m.—Weather report.

12:15 p. m.—Musical programme.

4:00 p. m.—Organ recital by John Flizpatrick, broadcast from the Mathewson Street M. E. Church.

4:30 p. m.—Weather report.

6:30 p. m.—Weather report.

7:00 p. m.—Irving Crocker and His Ukelelo.

8:00 p.m.—Special Christmas programme.

10:00 p. m.—Concert broadcast from Parkman band stand, Boston.

Friday.

Friday. 6:30 p. m.—Orchestra. 8:00 p. m.—Special Christmas programme.

11:00 a. m.—Home Service Radio Club, under the direction of Miss Kathleen Atkinson.
11:55 a. m.—Time signals.
12:00 p. m.—Shepard Colonial Concert Orchestra.
12:10 p. m.—Weather report.
12:15 p. m.—Musical programme.

12:10 p. m.—Weather report.
12:15 p. m.—Musical programme.
4:00 p. m.—Shepard Colonial Danco Orchestra, Ilarold Sheffers, director.
4:30 p. m.—Weather report.
6:30 p. m.—WEAN dinner dance, Shepard Colonial Orchestra.
7:35 p. m.—'Maine and its Advantages and Possibilities."
8:00 p. m.—Christmas celebration.
9:00 p. m.—Varied musical programme.
10:00—Dance music.

WDWF—DUTEE WILCOX FLINT—441

9:45 a. m.—Chimes and Bible reading.
4:45 p. m.—Organ recital by Aurele Forest;
bass solos by Ray A. Gardner; tenor
solos by Charles Cozzetti.

WLSI—THE LINCOLN STUDIOIS—441

Tuesday.
9:00 p. m.—Dutee W. Flint Oil Company Radio Hour.

Wednesday.
8:30 p. m.—Biltmore Market Radio Hour.
Thursday.

8:30 p. m.—Bilimore Market Radio Hour.

Thursday.
2:00 p. m.—"Exchange Club's" Christmas party for crippled and shut-in "kiddles" at the Arcadla Ballroom.
12:00 p. m.—Carols, chimes, trumpet trio and orchestra. Ellen Tate Spink, Betty Rustiann, Julia Gould, Margaret Eastwood, Willard Amison, Stanley Rogers, Cherter H. Miller, Ray A. Gardner, Robert Gray, musical director, and Charles Andrew Vespia's Orchestra.

2:00 p. m.—Repeat Christmas Eve programme.

OUT OF TOWN STATIONS To-Day

WNAC-BOSTON-280

10:50 a. m.—Services of the Cathedral Church of St. Paul.

1:30 p. m.—Concert.

3:15 p. m.—Old South Meeting House Forum. Speaker, Lothrop Stoddard, world traveller and author, "Are Classes Disappearing in Europe?"

7:00 p. m.—Broadcast from United States Veterans' Hospital, No. 44. West Roxbury, Disabled Veterans' Christmas party under the auspices of Grosseuplishon Post.

KDKA-EAST PITTSBURGH-309 11:00 a. m.—Church service.

4:00 p. m.—Organ recital.

4:00 p. m.—Vesper service of the Shadyside Presbyterian Church, Pittsburgh.

6:30 p. m.—Dinner concert.

7:45 p. m.—Church service.

KFI-LOS ANGELES—167

1:00 p. m.—Services under the direction of the Los. Angeles Church Federation.

2:00 p. m.—Morning services Temple Baptist Church.

2:00 p. m.—Morning services Temple Baptist Church.
7:00 p. m.—Vesper services, arranged by Federated Church Musicians.
9:00 p. m.—Special.
10:00 p. m.—Organ recital.
41:00 p. m.—Chastic hour.
12:00 p.m.—Musical programme.
1:00 a. m.—Orchestra.

KFKN-HASTINGS, NEB,-288 by the choir from First Methodist Church of Hastings.

K60-OAKLAND, CAL.—361
2:00 p. m.—Service of First Congregational
Church, San Francisco.
6:30 p. m.—Concert.
10:45 p. m.—Service of First Congregational
Church, San Francisco.

KGW-PORTLAND; OR,-191 m.-Services of First Presbyterian Church.

10:25 p. m.—Services of First Presbyterian
Church.

1:00 p. m.—Service of Trinity Methodist Episcopal Church, 5:00 p. m.—Afternoon music hour; organ re-cital from Denver municipal audi-torium. torium. 9:45 p. m.—Service of Trinity Methodist Epis-copal Church.

KSD-ST. LOUIS-515

KYW—CHICAGO—536

12:00 p. m.—Central Church service from Orchestra Hall.

3:30 p. m.—Studio chapel service under the direction of the Chicago Church Federation.

5:30 p. m.—Studio concert.

8:00 p. m.—Chicago Sunday Evening Cluberovice from Orchestra Hall.

10:30 p. m.—Classical concert.

KNX-LOS ANGELES-337

1:00 p. m.-First Presbyterlan Church of

1:00 p. m.-City Park Board musical programme. gramme. p. m.—First Presbyterian Church of Hollywood. 11:00 p. m.—Concett orchestra. 12:00 a. m.—Beverly Hills Nurseries pro-

WBAL_BALTIMORE_375
6:30 p. m.—Twilight programme,
8:00 p. m.—Musical programme. Old English
Christmas carols by the choir of Emmanuel P. E. Church.

wBZ_SPRINGFIELD, MASS.—333

10:50 a. m.—Church services from the South
Congregational Church.
7:00 p. m.—Sunday evening dinner concert.
8:00 p. m.—"Some Phases of the Prison
Problem," by Rev. M. J. Murphy, chaplatin of the Charlestown State Prison.
8:30 p. m.—"The Other Wise Man," presented by Gladys Ruth Bridgham with
organ accompaniant.

organ accompaniment. 9:00 p. m.—Organ recital. WCAP-WASHINGTON-469

11:00 a. m.—Service at First Congregational Church.

4:00 p. m.—Service from Bethlehem Chapel, Washington Cathedral.

7:20 p. m.—Musical programme by Maj. Edward Bowes and the "Capitol Family."

9:15 p. m.—"Atwater Kent Radio Hour."

WCAU-PHILADELPHIA-277

WCAU-PHILADELPHIA-217
5:20 p. m.—Robert Fraser, the blind gospel singer.
6:05 p. m.—The Best Christmas Anyone Can Have, "Rev. John W. Stockwell.
6:45 p. m.—Orchestra.
7:45 p. m.—Orchestra.
8:30 p. m.—Light opera company.
9:00 p. m.—Potash and Perlmutter.

WCAE-PITTSBURGH-461
3:45 p. m.—Dr. S. P. Cadman,
6:30 p. m.—Dinner concert,
7:20 p. m.—Capitol Theatre Gang, New York,
9:15 p. m.—Atwater Kent Hour.

WCCO, MINNEAPOLIS-116 11:50 a. m.—Plymouth Congregational Church, Minneapolds. 2:45 p. m.—Christian Endeavor programme. 5:10 p. m.—House of Hope Presbyterian Church, St. Paul.

Continued on Page Ten.

6:30 p. m.—WEAN dinner dance, Shapard Colonial Orchestra.
7:35 p. m.—'Maine' and its advantages and possibilities.
8:15 p. m.—Orchestra.
10:00 p. m.—Radio auction bridge as played by Frank II. Bachman and Winfield Liggett vs. Wilbur C. Whitehead and Milton C. Work.



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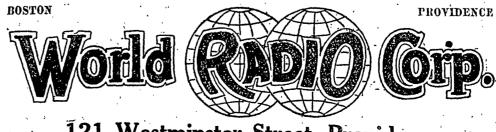
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To-day's Programmes in Brief

For the convenience or radio fans, the following hourly schedule of broadcasting to-day is given a brief form, the complete programme being given under the regular listing of announcements. Figures following stations denote wave length. The hours are based on Eastern Standard Time.

LOCAL STATIONS 9:45-Chimes, WDWF, 441. 11:00-Church, WEAN, 270. 1:30-Concert, WEAN, 270. 4:45-Concert, WDWF, 441. 5:00-Musical service, WEAN, 270, 6:00-Orchestra, WEAN, 270. 7:20-Concert, WJAR, 306, 7:30-Church, WEAN, 270, 9:15-Concert, WJAR, 506.

OUT-OF-TOWN STATIONS

OUT-OF-TOWN STATIONS

S:45—Catholic service, WJJD, 302, 930—Children's Hour, WJZ, 455, 10:00—Church, WOAW, 526, 10:30—Church, WOAW, 505, 10:30—Church, WOJ, 417, 10:40—Church, WJJD, 302, 10:45—Church, WJJD, 302, 10:45—Church, WHAR, 275, Church, WOO, 508, 10:50—Church, WBZ, 333, 10:50—Church, WBZ, 333, 10:50—Church, WEEI, 348, 11:00—Church, KDKA, 300, Church, WEEI, 348, 11:00—Church, WAJ, 455, Church, WJZ, 455, Church, WJZ, 455, Church, WJZ, 455, Church, WJZ, 455, 11:45—Church, KYW, 536, 12:30—Church, KYW, 536, 12:30—Church, KYW, 536, 12:30—Church, KYW, 337, Church, KNX, 337, Church, KOA, 322, 2:00—Orehestra, WJJ, 352, Church, KPI, 467, 50, Church, KPI, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611, 467, 611

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2:00—Orchestra, WLIT, 395.
Orchestra, WVIT, 395.
Orchestra, WVIT, 395.
Orchestra, WVIT, 395.
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2:152-Sacred resttal, WHAR, 275.
2:152-Organ resttal, WHAR, 275.
2:152-Sermon, WHAR, 275.
2:152-Sermon, WHAR, 275.
2:152-Sermon, WHAR, 275.
C. E. Fregramme, WCCO, 416.
3:00-Sacred concert, WEXIR, 268.
Vespers, WGR, 319.
Christmas cantata, WOAW, 526.
3:15-Organ resttal, WPG, 299.
Forum, WNAC, 289.
3:20-Chape, Service, KYW, 530.
Concert, WEAR, 389.
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Address, WJZ, 455.
3:45-Dr, S. Parks Cadman, WCAE, 461. WEAF, 492. WEEI, 348;
WSM, 326; WTAG, 268.
3:57-Vespers, WJZ, 455.
4:99-Organ resttal, KDKA, 309.
Church, WCAP, 469.
Address, WIP, 508.
Concert, WJJD, 392.
4:154-Community Concert, WPG, 299.
4:454-Vespers, KDKA, 390.
5:10-Church, WCAP, 493.
Nusicaic, KOA, 322.
Organ Recttal, WGY, 370.
Vespers, WHAS, 490.
5:10-Church, WCCO, 416.
5:29-Quartet and Church, WCAU, 277.
5:30-Farmers, Hour, WPAA, 476.
Evenson, WHAS, 399.
Studio Concert, KYW, 530.
5:45-Flaterary vespers, WJZ, 455.
6:60-Orchestra, WMAC, 341.
Address, WCAU, 277.
Special, WJJI, 392.
6:30-Concert, KGO, 361.
Concert, WGAE, 461.

6:45—Orchestra, WCAU, 277.
Organ recital, WOO, 508.
Concert, KDKA, 309.
7:00—Vespers, KPI, 467.
Concert, WHZ, 333.
Orchestra, WEAR, 389.
Carillons, WGY, 379.
Carillons, WJZ, 455.
Orchestra, WLIT, 305.
Orchestra, WLIT, 305.
Orchestra, WMCA, 341.
Bible study, WOAW, 526.
Christmas party, WNAC, 280.
7:15—Concert, KSD, 645.
Concert, WOK, 217.
Church, WH, 508.
7:20—Concert, WCAE, 461; WCAP, 469; WEAF, 482; WELI, 348; WTAG, 288; WWJ, 352.
Church, WGR, 319.
Church, WGR, 319.
Song service, WKRC, 422.
Special, WEAR, 309.
Church, WGR, 319.
Song service, WKRC, 422.
Special, WEAR, 309.
Church, WHAR, 255.
8:00—Church, KYW, 536.
Prison talk, WBZ, 333.
Paulist Choir, WLWL, 288'.
Special, WMCA, 341.
Christmas carols, WPAL, 375.
Concert, WJZ, 405.
S:30—Light Opera, WCAU, 277.
Concert, WJZ, 405.
S:30—Light Opera, WCAU, 277.
Concert, WNAC, 280.
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Organ recital, 390.
Concert, WJZ, 333.
8:45—Chimes, WSAI, 326.
9:00—Comis special, WCAU, 277.
Studio programme, WGY, 379.
Classical concert, WHAR, 275.
Special, KFI, 467.
Organ recital, WPG, 299.
Orchestra, WGJ, 447.
9:15—Atwater Kent Arrilsts, WCCO, 416; WCAF, 467;
WCAF, 467; WCAF, 469.
9:20—Concert, WGB, 319; WTAG, 208.
9:243—Church, KOA, 322.
Bible study, WFAA, 476.
Concert, WGB, 319; WTAG, 208.
9:243—Church, KOA, 322.
10:10—Organ recital, KFI, 467.
Church, KNN, 337.
Violinist, WJZ, 455.
Church, WGB, 319; WTAG, 208.
01:15—Church KGW, 491.
11:10—Concert, KFI, 467.
Church, WFAA, 476.
Church, WAA, 476.
Church, WGB, 310.
01:15—Orchestra, WSAI, 326.
01:15—Church KGW, 491.
11:10—Concert, KFI, 467.
Orchestra, WHAA, 476.
11:10—Orchestra, WFAA, 476.
12:00—Orchestra, WFAA, 476.
12:00—Orchestra, WFAA, 476.
12:00—Orchestra, WFAA, 476.
12:00—Orchestra, KFI, 467.
01:15—Orchestra, WFAA, 476.
12:00—Orchestra, WFAA, 47

contralto: Lambert Murphy, tenor, and William Simmons, baritone. WGY-SCHENECTADY-379

10:45 a. m.—Service of First Baptist Church, Poughkeepsie, N. Y. 5:00 p. m.—Organ recital by Dr. Frank Sill Rogers; broadcast from St. Peter's Epis-copal Church, Albany, N., Y. 7:00 p. m.-Carillon programme, 7:30 p. m.—Service of First Baptist Church Poughkeepsie, N. Y.

9:00 p. m.-Studio programme. 10:00 p. m.-Godfrey Ludlow, violinist. WHAR-ATLANTIC CITY-275

WHAR—ATLANTIC CITY—275

10:45 a. m.—Service of Cheisea Eaptist
Church.
2:15 p. m.—Short sacred recital.
2:45 p. m.—Sermon, Rev. Louis E. Wein, pastor of St. Andrew's by the Sea.
7:50 p. m.—Service of Cheisea Baptist Church,
9:00 p. m.—Quartet—"An Hour with the Classics."

11:15 p. m.—Organ recital.

WHAS-LOUISVILLE-399 11:00 a. m.—Church service under the auspice of the Broadway Christian Church. 5:00 p. m.—Organ recital.

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5:30 p. m.—Evensong choral service, from Christ Church Cathedral.

WIP-PHILADELPHIA-508 4::00 p. m.—"Is Prohibition Worth Enforcing?" A task by Gifford Gordon, under the auspices of the Germantown Y. M. C. A., direct from the Germantown Theatre.

tre.
7:15 p. m.—Service from Holy Trinity Church.
10:00 p. m.—The opera "The Barber of Seville," direct from the stage of the Germantown Theatre, by distinguished cast of New York artists.

WJJD-MOOSEHEART, HL. 302 8:45 a. m.—Catholic services at Mooseheart. 10:40 a. m.—Profestant services at Mooseheart.
4:00 p. m.—Mooseheart Sunday concert.
6:00 p. m.—Auction bridge talk by Charles
T. Adams.

WJY-NEW YORK-405 8:15 p. m.—Dinner orchestra, 10:00 p. m.—"Reminiscences of a Reporter. WJZ-NEW YORK-455.

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9:00 a. m.—Children's Hour.

11:00 a. m.—West End Presbyterian Church services.

12:30 p. m.—Sunday Symphonic Society;

Josiah Zuro, conductor.

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2:30 p. m.—Sunday Radio Forum; Dr. John Logan Davis, Dixio Jubilee Singers.

3:30 p. m.—"Religion and Money," Dr. H. II. Tweedy, Yale Divinity School.

7:00 p. m.—Carillon of Park Avenue Bap-tist Church.

Continued on Page Eleven.

7:30 p. m.—Concert Orchestra. 8:15 p. m.—Orchestral Concert. 10:00 p. m.—Godfrey Ludlow, violinist.

3:57 p. m.—Vesper services, E Church, Stuyvesant square,

5:45 p. m.—Literary Vespers.

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RADIO PROGRAMMES

Continued from Page Nine, 7:20 p. ru.-S-cond Church of Christ, Scienlist. Minneapolis 9:15 p. m.-Atwater-Kent programme.

WEAR-CLEVELAND, 0,-390 HEART LEVELAND, 0,-100 p. m.—Concert orchestra, 100 p. m.—Orchestra, 114 p. m.—Fireside Hour, 850 p. m.—Organ rectal, 1915 p. m.—Atwater Kent Hour,

WEEL-BOSTON, MASS,—348

10/150 a. m.--Service from Old South Church,
Gop's Square,
2/350 p. m.--Chamber of Commerce organ recital,
3/45 p. m.--Dr. S. Parkes Cadman,
7/29 p. m.--Major Bowes and His Capitol
Theatre Family,
9/15 p. m.--Atwater Kent Hour,

WENR-CHICAGO-266 3:0) p. m.—Lyric Trlo, poprano soles, sacred selections.
10:30 p. m.—Popular programme.

WTAA-DALLAS-476 5:30 p. m.—Sunday Hour for Farmers, 9:39 p. m.—Radio Bible class, 19:50 p. m.—Radio Bible class, 19:50 p. m.—Services of First Methodist Epis-copal Church, South, 11:50 p. m.—Male quartet and cherus from Cliff Temple Rapitet Church, 12:39 a. m.--Orches

20 p. m .- Vespec services, under the aus-WGBS-NEW YORK-316

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9:39 p. m.--Russian programme artists. WGR-BUFFALO-319

3:30 p. m.-Vesper services, under the ausplees of the Buffalo Council of Churches. 7:45 p. m.-Service from the Central Presbyterian Chupch; 9:15 p. m.-Atwater Kent Hour.

WEAF-NEW YORK-192 2:45 p. m.—Sunday radio service under the auspices of the Greater New York Federation of Churches

eration of Churches,

3:45 p. m.—Men's conference in the Bedford branch, Y. M. C. A., Brooklyn,
N. Y. p. m.-Musical programme by Major Edward Bowes and the "Capitol Fam-

p. m,--"Atwater Kent Radio Hour."--Jeanette Vrecland, soprano; Elsie Baker,

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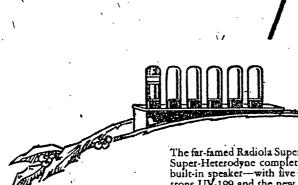
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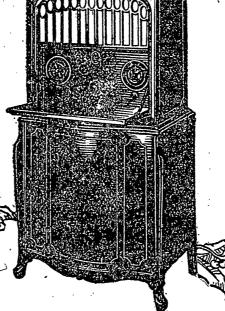
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Built into the rich cabinet of the Super-VIII is a six-tube Super-Heterodyne, with its delicate parts sealed forever against wear. A loop inside the cabinet does away with the need of an antenna. And the remarkable "doublette" built-in loudspeaker gives it clear, true tone-with two horns, for the highest and the lowest notes.

Now—with the new dry battery power tube in the last socket, it has greater volume than storage battery setsand finer tone than ever. A Super-VIII with the new tube is a permanent investment-an enduring instrument, with the quality and the power you want-added to beauty of appear-

Radio Corporation of America > New York . Chicago . San Francisco

RCA-Radiola

MADE BY THE MAKERS OF RADIOTRONS

NEW ENGLAND DISTRIBUTORS TO THE TRADE ELECTRIC SUPPLY UNION 60 PINE ST. PROVIDENCE, R. I.

TELEPHONES-GASPEE 6523-6527 Radiolas Radiotrons

Accessories

Slewarb-Warner Matched-Unit Radio The Ideal Gift

A Stewart-Warner Matched-Unit Radio brings years of Christmas joy to your entire family.

What present could possibly be more practical or more appreciated?

Why not combine the "family pocket books" this year, if necessary, for this wonder radio that will bring lifetime satisfaction to all?

MATCHING our Instrument plus Tubes plus Reproducer plus Accessories, all to function in perfect unison, is a Stewart-Warner triumph that guarantees complete radio satisfaction.

If your friend has a radio, give him a Stewart-Warner Reproducer for Christmas. This important member of the Matched-Unit Family will greatly improve his or ANY set. His wife will particularly delight in its beautiful appearance.

Our Blue Ribbon Representative in your locality will gladly demonstrate any of our Matched-Units to you. If his name is not listed below, write us at once and we'll send it. You will never know what complete radio satisfaction means until you own a Stewart-Warner.

PROVIDENCE Quality Radio Store, 92 Mathewson St.

Wm. H. Sawyer, 1911 WESTMINSTER STREET Providence, R. I. **PAWTUCKET**

The Meiklejohn Company, 45-61 Park Place RHODE ISLAND

WOONSOCKET
The Meiklejohn Co., Battery
& Electric Service Co. WAKEFIELD W. E. Stelman WASHINGTON Service Auto Supply

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Joseph Cohen, 154 Main
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L. W. Farwell, 54 Bruns-

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CAMBRIDGE Cambridge Motor Co., 277 Mass. Avc. S. S. Brown, 896 Main St. NEW BEDFORD Home Radio Co. WEBSTER
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Wholesale Distributors for Rhode Island and Southeastern Massachusetts STEWART WARNER PRODUCTS SERVICE STATION 110 Broadway, Providence, R. I.



Model 300 [above] Cabinet Models, - \$65 to \$95 Console Models, \$175 to \$450



Reproducers \$19.50 and \$25

STEWART-WARNER SPEEDOMETER COR'N 1826 Diversey Parkway, Chicago, U. S. A.

TWELVE MILLION PEOPLE ARE TODAY USING STEWART-WARNER PRODUCTS

RADIO BUSINESS

Outlook Indicates Half-Billion Soon, Says Corporation Official

David Sarnoff Declares Industry is Still in Infancy. Sees Unlimited Developments of Broadcast Programmes. -- America as World

That the radio industry will show a \$330,000,000 business for 1925 and that in its infancy, with unlimited and undreamed of developments in the near future, were high points made by David Sarnoff. Vice President and general manager of the Radio Corporation of America, in an ad-dress last Thursday before the Boston Chamber of Commerce

Chamber of Commerce.

According to Mr. Sarnoff, the business difficulties of last summer effected a complete and highly favorable reorganization of the industry. The business will soon of the industry. The business will soon reach half a billion and there is no indication that it will stop there. And, in his opinion, the broadcasting of educational features, entertainment and general information will soon attain unheard of proportions in its scope and in the fields

served.

He said, in part:
"The social revolution created by radio breadcasting will become more apparent.

Five years are the man as tine goes on. Five years ago the man who once during his lifetime heard the living voice of the President of the United States was among the privileged few of his fellow citizens. To-day President Coolidge can speak, and has spoken, simultaneously to an audience of approximately 25 000 000 and audience of approximately mately 25,000,000 people. Five years ago it was a mark of cultural distinction, conft was a merk of cultural distinction, con-fined to residents of metropolitan areas, to attend an operatio performance or listen to a great symphony orchestra. To-day millions in this land are able to tune in by radio and listen to concerts broadcast by leading operatic stars and symphony

"The element of entertainment thus far has been the predominant appeal of the broadcasting programme. So much so that it is turning the broadcasting director into an impresario. In his new role many problems have arisen that call for solution. Not the least is the relation of broadcasting to established fields of en-

Thus far radio has sought its leading "Thus far radio has sought its leading programme features from the opera, the concert hall, the orchestra and the stage. The day may come when the relationship will be reversed—when the broadcasting station will comb the field of original talent; when broadcasting will create new reputations, instead of capitalizing old ones; when the opera, the stage or the concert hall will draw from radio in reconcert hall will draw from radio in response to the demand of the public to see as well as to hear its favorite artists; when broadcasters will compete with music publishers for original compositions, and not only buy but sell music publishing rights. This may seem a far cry, but radio broadcasting has advanced farther from the days of mechanical music to the present stage of star programmes.
"And yet the fact remains that enter-

tainment is but one field of public appeal from which broadcasting may draw. Radio, as the latest and greatest means of mass communication known to man, must be essentially popular in appeal, but its true mission, I desire to emphasize, is the mission of service, of which enter-tainment is but a part. Motoring began as a sport, but the automobile industry reached its greatest stability when the motor car became an essential element of transportation. The telephone was a toy at the beginning and a novelty later on. but to-day it is a point-to-point communi-cation service, of incalculable utility to business and the home. But it required more than 15 years to develop the automobile to the transportation stage, and over a quarter of a century to make the

telephone a general service in the home.

Radio broadcasting. ,Mr. Sarnoff said, has not only a mission to perform fields of music and entertainment, but it has a distinct service to render in the lelds of political and general education. Popular interest in government, he as sorted, would be enormously increased if great national issues were fixed for debate in Congress for special night sessions and broadcast by radio. He predicted that the day would come when the Board of Edu-cation of every metropolitan community in the United States would include in its activities a special extension course to be broadcast by radio from local stations. breadcast by radio from local stations.
Commenting upon the growth of transatlantic wireless services, Mr. Sarnoff declared: "The year 1925 closes with the United States in undisputed position of leadership in world-wide wireless. From our powerful transmitting stations we have drawn the leading nations of the world toward us by invisible strands of communication. Radio circuits are now in operation between the United States and operation between the United States and England, France, Germany, Italy, Poland Sweden, Norway and the Argentine. Across the Pacific we are connected by radio with Japan, Hawaii, and the Dutch East Indies."

Of the progress being made in the transmission of pictures by radio, Mr. Sarnoff

"The perfection of this system to stage of commercial practicability would be an extraordinary accomplishment in the field of communication. The day when a facsimile message can be flashed when a facsimile message can be flashed across the seas instead of woven letter by letter and word for word into completed sentences and paragraphs, will open a new era in international communications. Letters, drafts, notes, contracts and other legal documents could then be almost instantaneously reproduced thousands of miles from the sending point and thus greatly add to the momentum of thus greatly add to the momentum of

"Already we are operating photo-radiogram circuits from Honolulu to San Francisco and from San Francisco to New York daily for test purposes and very soon service by this method to and from Europe will be opened upon a commercial reale."

Causes of Swinging Signals: Swinging signals are caused, in most cases, by the aerial at either the transmitting or receiving station being loose and sawing, sometimes grounding or coming near enough to affect the capacity of the aerial. Induction and capacity make wave length and when either is affected. it is bound to change, and when the aerial circuit is not in resonance with the oscillating circuit at the transmitter or with the input to the detector at the receiving set, the transfer of energy will be less with fading the result.

The Faulty Set. Open circuits constitute one of the defects most commonly found in radio receivers. This defect is denoted by a deadness in the phones, which persists, although all parts of the equipment have been examined and appear to be and right. Opens may occur in the bat-tery circuits, the primary or secondary inductances, the tickler circuit, or in the variable condensers. These circuits may

be tested for continuity by connecting one side of the circuit tester to one terminal of the circuit to be tested, and touching the second terminal with the second terminal with the second terminal with the other side. The absence of a "click" in the phones as the circuit is made and broken will denote an open in that circuit. When opens occur in variable condenser circuits, they are usually due to a nigh-resistance contact which develops on the surface of the condenser plates, due to oxidization, and making what is equivalent to an open circuit.

Abuse Ruins Set.

Although a receiving set is constructed with the greatest care and strongest materials obtainable, it will not withstand hard usage and continue to give efficient results. Many operators will twirl dials, poke into the works, and jab in the phone or loud-speaker pluggs with unthinking ylolence—and then wonder why their set loes not remain perfect forever. A radio set will stand up under a great deal of abuse, but eventually, if continuously subjected to harsh treatment, something will give way or loosen, and effectiveness will be reduced. The delicate wiring, adjustments and connections must be regarded with the same care that a person would exercise toward the timing gears, carburetor adjustment or valves of an automobile.

RADIO PROGRAMMES

Continued from Page Ten. WKRC—CINCINNATI—122,
p. m.—Songs and service under the auspices of Walnut Hills Christian Church,
p. m.—Classical programme including instrumental and vocal solos.

WLWI-NEW YORK-288. m.-Paulist Choristers, WLIT-PHILADELPHIA-384

WMAK-LOCKPORT-265. p.m.—Service from Churchill Tabernac Buffalo.

WMCA—NEW YORK—341.

11:00 a. m.—Services from the Fourth Church of Christ, Scientist,
6:00 p. m.—Roemers Homers,
8:00 p. m.—Hogo Zeller—Talk on Lacquer,
10:30 p. m.—Bernays Johnson, radio engineer,
10:50 p. m.—Orchestra.

WNYC-NEW YORK-526.

p. m.—"Prophecy and Fulfillment," oratorio composed and conducted by Henry
Haddey, orchestra from New York Philharmonic Society, and Incz Barbour, soprano, from Church of St. John the
Evangelist.

WOAW-OMAHA-526.

Marshall & Co. R-A-D-I-O Exclusively DORRANCE STREET
Opp. Narraganzett Hotel and the same of the

RADIO DOCTOR

CALL DAY AND NIGHT FOR APPOINTMENT

W00—PHILADELPHIA—508,
10:45 a. m.—Services from Bethany Presbyterian Church.
2:30 p. m.—Bethany Sunday school.
0:00 p. m.—Sacred recital.

WOK-CIHCAGO-217. m.—Studio programme, m.—Orchestra.

WPG-ATTANTIC CITY-200. 3:16 p. m.—Organ recital.
4:15 p. m.—Oommunity vocal and instrumental recital, St. James Episcopal Church m.-Organ recital.

10:30 a. m.—The services of the People's Church.
4:00 p. m.—Sunday afternoon concert, 9:00 p. m.—Orchestra. WSAI-CINCINNATI-326.

m .- Address by Dr. S. Parkes Cad-13:45 p. m—Online concert.

3:45 p. m—Online concert.

9:15 p. m.—'Atwater Kent Radio Hour,' featuring Jeancate Vreeland, soprano and William Simmon, barktone, 10:15 p. ni.—Orchestra.

WSM-NASHVILLE, TENN.-288. p. m.—Services will be pro First Presbyterian Church.

WSUI-IOWA CITY, IA.—483. p. m.—Familiar hymns, William mondson, Jr., tenor. WTAG-WORCESTER-268.

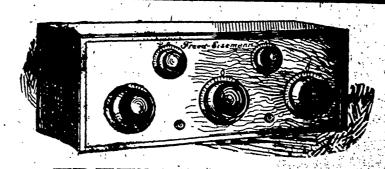
3:45 p. m.—Menys conference in the Bedford Branch Y. M. C. A.

7:20 p. m.—Musical programme by Maj. Edward Bowes and the "Capitol Family."

9:15 p. m.—Atwater-Kent radio hour.

WWJ-DETROIT-352.
m.-Services at St. Paul's Episcopal Cathedrai. 7:20 p. m.-"Capitol Theatre Gang." .

Santa Claus Says-BRACH SHOCK Radio Plug



FREED-EISEMANN

5-TUBE BALANCED **RADIO FREQUENCY** RECEIVER

EQUIPMENT

Crosley Super-Tridyne

3 Tubes (less equipment)

\$60.00

5-Tube Pollyroyal:

complete ready for use

\$89.50

of the Above Sets

Crosley 2-Tube De Luxe (less equipment)

\$23.50

Crosley 3-Tube De Luxe (less equipment)

\$32.50

\$1.00 a Week

Are the Terms on Any

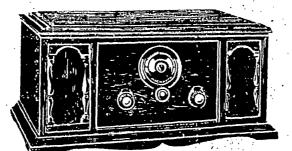
John M. Dean Co.

785-795 Westminster Street

CHRISTMAS SUGGESTIONS

THE IDEAL XMAS GIFT

MAGNAVOX 5-Tube **Tuned Radio** Frequency Set



PRICED \$85.00

\$200.00 ·

THE SINGLE CONTROL SET

TELETONE Built Like a Violin **CABINET SPEAKER**

BROWNING DRAKE KITS BREMER TULLY KITS MARCO KITS

BALKITE Chargers Trickle Chargers and B Eliminators



TUBES PHONES **BATTERIES TRANSFORMERS** SOLDERING IRONS **BATTERY CABLES CONDENSERS** DIALS **EVERYTHING IN PARTS**

Trickle Charger Keeps Your Battery Always Charged

\$10.00

LOUD SPEAKER UNITS For Your PHONOGRAPH



LITTLE SPITFIRE The Wonder Speaker

\$4.95

LEAVE YOUR ORDER WITH

BROWNING

Priced

\$4.95

To \$10.00

CORPORATION 311 WOOLWORTH BUILDING DRAKE Set .

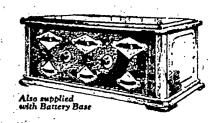
TO BE INSTALLED FOR THE NEW YEAR MERCHER BEREICHER BER

Last Call for Christmas

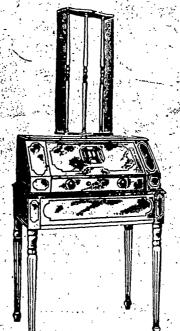
Careful installation will be made of any standard set. BUT please order early. Sets and tubes should be balanced for every location to give best operating

WE SELL NOTHING BUT STANDARD PROVEN MERCHANDISE

W REBE



The finest example of Radio Art now on the market-Both in appearance and performance-With acknowledgement to the famous truck manufacturers-We can truthfully say "THERE ARE NO ORPHAN GREBES," we have a waiting list for all trade-in "Synchrophase" Sets, and when you buy the price is guaranteed for one year-in the event of a change full refund will be given each purchaser....



RADIOLA 28

tivity are obtained by this beautiful eight-tube Super-Heterodyne Radiola 28. Although it has five tuning circuits, for selectivity and power, it may be operated entirely by a single control.

Price, including eight Radio-

\$260.00 Pathe Motion Picture Camera

Take and exhibit perfect motion pictures in your OWN HOME.
Use your own films or select from a list of over 500 of world, famous



ALL FRESHMAN MODELS

\$39.50 to \$115.00 TYPE SHOWN IS MODEL 5-F-8

With built-in speaker and cabinet for batteries, etc.

\$97.50

Tubes and Batteries Extra

NEW 4-FT. WESTERN ELECTRIC **SPEAKER**

\$87.00

New R. C. A. No. 100 **Speakers**

\$35.00

Bremmer-Tully Counterphase **\$38.00** This circuit is worthwhile and gives excellent results.

> Parts for Broadcast Universal Circuit in Stock.

Customer's Convenience

Pooley Cabinet With

Atwater Kent Radio

Any Set Demonstrated in Your Home Upon Request

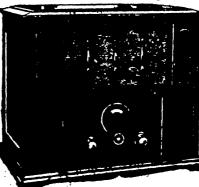
Most Complete Line of LOUD SPEAKERS in Providence

TABLES and CABINETS to Fit Most Sets Carried in Stock From

*18 .. *190

TERMS Arranged to Suit

Magnavox 10



All Models in Stock

Magnavox Jr.\$85.00 Magnavox 10\$110.00 Magnavox 25 (with built-in speaker)\$145.00

Magnavox 75 Console Model. Builtin speaker and batteries all self contained\$200.00 All tubes and batteries extra

KOLSTER MODELS Ready for Delivery

Model 6-A \$175.00

Model 6-B \$225.00 Model 8-B

\$265.00 Tubes and Batteries Extra



Equipped with the Model 20 Compact, Atwater Kent 5-Tube Panel Type Receiving Set and Radio Speaker Reproducing Unit Complete, less Tubes and

\$200.00

"IF IT'S NEW AND WORTHWHILE IN RADIO WE HAVE IT"

B. & H. SUPPLY CO., Inc.

116 MATHEWSON STREET

Phones: Gaspee 5550-1-2-3

Open Tuesday and Wednesday Evenings

EXPERTS SOLVING KNOTTY PROBLEMS

Frequency Band Above 10 Meters May Not Be Used for DX Sending

Others at Greater Distance Hear By THOMAS STEVENSON.

Recent developments in high-frequency experiments at the United States Naval Research Laboratory at Bellevue have inmunication over great distances on waves shorter than 10 meters, that is of frequencies than 30,000 kilocycles.

as far as half-way around the world,

can receive them clearly.

The other is that it may never be possible to utilize the frequency band above 10 metres for distance transmission. Dr. A. H. Taylor, physicist, in charge

of the Bellevue Laboratory, is the author of these conclusions. Dr. Taylor bases them on the results of experiments over a long period as well as on the reports of observers scattered throughout the world. Dr. Taylor would not discuss the possibility of the utilization of high frequencies for broadcast transmission and According to Dr. Taylor, it is pretty

well established that the magnetic field of the earth influences the motion of electrons in the atmosphere and that it has on important bearing on high frequency waves, whereas the low frequency waves are not appreciably affected.

"An appeal to this influence and to the well-known laws of the reflection and refraction of waves," says Dr. Tayic, "has resulted in a theory that appears to fit the facts fairly well and which, although by no means complete, will at least, we hops, encourage theoretical and experi-mental work which will throw light on

the subject.
"Perhaps the most striking fact which has come out of the studies of high frequency transmission is the obvious existence of a skipped distance combined with the fact that in many cases the signals at relatively great distances are much stronger than they are at relatively

"It appears that the change from normal radio conditions, which has led to extraordinary range of communication with low power occurs at about 130 metres or 2300 kilocycles."

According to Dr. Taylor's theory, there is a gradually increasing state of ioniza-tion in the high level of the earth's atmosphere. It is believed this is due to the sun's rays and other causes. The velocity of radio waves is higher when travelling through ionized regions than

when through unionized space. When the wave is sent out by the antenna it travels at an angle toward the Heaviside-Kennelly layer. As ionization increases in the high levels, the velocity of the wave increases so that it is gradually bent over because the top of the wave travels more rapidly than the bot-Thus, it is bent back toward the From the reaction of the induced currents in the earth's surface at the base of the wave, the earth itself has an ac-

tion tending to straighten the wave out.
This means that the wave cannot be received at any point between the place sent out and the place where it again returns to the earth. Of course, there is also a ground wave which makes the signal audible for a short distance from the transmitting station, but fading on the

ground wave is very pronounced.

If the wave happens to come down around 600 miles away, a station in that locality can get a very good signal, while a station 200 miles closer to the transmitting station could not pick it up

at All.

"The skipped distance in the summer night time is much greater than it is in the daytime," says Dr. Taylor, "and the skipped distance gradually increases toward midnight. This is what we expect. Although the winter night skipped distance is not accurately known, it is very definitely known that the skipped distance is decidedly greater than it is during summer nights, and this again seems reasonable because the ionization should be less in the winter time and. seems reasonable because the ionization should be less in the winter time and,

a level because the periods of sunlight manded a few inice sentimental are shorter and the intensity of sunlight

The length of the skipped distance, Dr. Taylor says, depends entirely on how close the Heaviside layer is to the earth. The closer the layer, the less the skip, and vice versa. Quite often there is a first, second, third and fourth skipped distance as the wave travels up and down. listance as the wave travels up and down

at an angle from the earth to the layer.

Dr. Taylor says the angle at which the wave leaves the antenna depends upon the frequency at which transmission occurs. The higher the frequency, the flatter the angle; that is, the nearer the carth's surface the wave will go out.
"This means, for instance," says Dr.
Taylor, "that at about 20,700 kilocycles
the wave, in order to be properly reflected, will have to leave so nearly herizontal that it will be very heavily absorbed by the earth. In addition, the curvature of the earth will actually get into the way of it so that it cannot reach the layer with such an angle as to be reflected. According to this, we are

regarding this phenomena.

One of these theories attempts to explain why stations located within a few hundred miles of a high-frequency transmitter cannot pick up its signals while receivers thousands of mile away, even as far as half-way around the world they would come to the reflecting area at low angle without being absorbed by the earth. This point, no doubt, will be earth. This point, no doubt, will be proved or disproved in the not very far distant future."

GOOD MUSIC PREFERRED

Music Critic Says Classical Programmes Are Winning Popularity.

musical taste and appreciation being uplifted and are radio listeners swinging over to the classics?

"Yes!" is the emphatic answer of Percy A. Scholes, British music critic, who is on a tour of America.

"For example," he observed, in musical history that Beethoven was born in 1770, but for thousands he was only born in 1900 or 1910 when phonographs or reproducing planes came into our homes. And for millions more Beehoven was only born in 1921, 1923 or erhaps as late as 1925, when many of us first acquired radio receiving sets."

"Introduction of breaklessting was the greatest event in the history of the ar! of music," he continued. "That America should have developed such manifold broadcasting activities is matter for congratulations. Our British experience is sure to be the American experience—give disteners plenty of fine music and they

will learn to like it." Less than 18 months ago he recalled English radio enthusiasts by the hundreds, charged that Bach, Beethoven and Wagner were acceptable to "highbrows who like to swank about their superior workers.

"Likewise, it appeared that the average listener had little or no time for music by composers with unpronounceable names ending in "sky" as one listener expressed it. A great many persons de



We Are Now Building the New

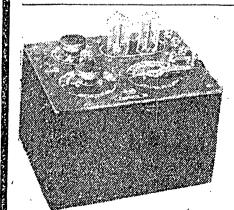
Browning & Drake Set with impedance coupled am-

plification. Come in and ask us concerning this.





GREATEST RADIO VALUES!



Reg. \$15.00 Radiola III.

Two-tube Set, without accessories-

Monday . .

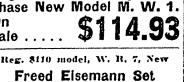
This Set Will Operate a Loud Speaker

REG. \$2.00 CRYSTAL SETS69c



Reg. \$80 Model 20 Atwater-Kent Radio **\$59.47**

Reg. \$155 Grebe Synchrophase New Model M. W. 1. Sale





Radio Tubes

Type 201-A. All guaranteed to test up to stand-

On Sale at 69c each

Bell-Tone Adjustable LOUD SPEAKERS



or some 'honest American jazz.'

"These attacks have virtually ceased," he continued. "At last, British listeners are learning to admire works of classical pulse. On the other hand they are not adverse to what we call 'amusement muste,' the sort that enjoye a 'l'entre of the control of the contro music, the sort that enjoys a life of about two years and then falls into ob-

As music critic for a British broadcast ing organization Mr. Scholes's duties consist principally of a fortnightly review of the leading musical events of London This is broadcast from the London sta tion, linked with all other stations of the country, and requires approximately 15 minutes. In addition critics of books, dramas and films are heard at regular intervals.

FARMERS LIKE MARKET REPORT

tainment furnished by the various broad-casting stations. However, as much as this feature would appeal to the city dweller, it came as a surprise to me to

in your home

Moulded from gen-

uine Bakelite,—to

avoid losses experi-

enced with metal

Christmas Specials!

The above set complete with tubes, 100 hour storage battery (Rubbet Case), 2 large "B" Batterles, Musette Lond Speaker and \$75 We also have the new SONORA in stock, Complete, set up \$150

We have just received another shipment of Polyroyal Receiving Sets. These sets have proven very satisfactory, owners having heard stations from Canada to Texas and Colorado. This Providence made set is guaranteed by the manufacturers and ourselves. Price of set, minus

ment because he does not have the time to sit in, his rule being early to bed and early to risc.

What appeals to the farmer is the broadcasting of weather, stock and market reports. The stock and marget reports enable him to dispose of his products at the best time, thus insuring a maximum price. Getting this information from day to day stops him from shipping his prod-uce in to a glutted market.

During the long winter months armer has more time for a radio as enertainment because work on most farms a light and confined mostly to chores. friend of mine who owns and lives on a farm, when asked why he did not have a good radio set, said: "I did have one but I couldn't keep the women folks at work, so got rid of it." Which was a new angle of looking at it.

I dare say that any farmer who owned a radio set could pick up these stock and Long Day Tollers Have Little Time for market reports every day they are sent out, no matter what part of the country he lives in. In addition to these quotannow enjoy most of the pleasures of this city brothers in the nature of enter-

Tubes, Batteries and Speakers in stock.

Hear the new Brandes Type "H".

designation and the second section of

construction dials.

A MAR-CO pre-

cision instrument

thruout.

For 39 years the leading Credit Furniture House in Providence

210 WEYBOSSET ST.

The 1926 model

tuning control

By splitting a single degree the least suggestion of back-

selective tuning controls \$3.00. Provided with scales

The ideal gift

into hair's breadth divis-

ions, MAR-CO dials bring

in stations you now pass

over. Only these supremely

cope with 1926 broadcast

congestion. -

Handsome,

responsive,

and without

A STATE OF THE PARTY OF THE PAR

\$159發

R-A-D-I-O Exclusively

DORRANCE STREET

ODD. Narragansett Hotel

DROP IN AND LET US EX-PLAIN WHY. PLAIN WHY,
WHEN YOUR BATTERY NEEDS
RECHARGING, OUR SERVICE
CAR WILL CALL FOR AND
DELIVER IT OUR RESTAL,
SERVICE ENARLES YOU TO
ENJOY YOUR RADIO WHILE
YOUR MATTERY IS BEING RECHARGED.

Battery Service Company

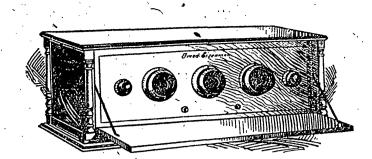
learn that the average farmer does not look upon radio as a means of entertain- entertain the entire family at one time. entertain the entire family at one time. An invertment of \$25 would give him a good set for the use of teleph

YOUR BATTERY is the life OF YOUR RADIO

WE WANT YOU TO GET THE BEST RESULTS POSSIBLE, OUR SERVICE WILL DO IT.

DISTRIBUTORS OF WESTINGHOUSE BATTERIES

FRED-EISEWANN



Model N. R. 45 6 Tubes less equipment

A 6-tube Neutrodyne Receiver with superior quality of tone reproduction! Encased in beautiful mahogany cabinet with drop front. Priced without equipment \$160.

Our Easy Terms—\$2.25 a Week

Household Furniture Co. 231-237 WEYBOSSET STREET

THE BEST GIFT OF

A RADIO/GIVES ENJOYMENT EVERY DAY FOR YEARS

You expect satisfaction and pleasure from your radio. By purchasing a set of proven value from this **DEPENDABLE** store you avoid disappointments.

WE CARRY THE FOLLOWING SETS:

RADIOLAS

	-
2-Tube Radiola III	\$9.90
4-Tube Radiola III-A	\$23.50
2-Tube Radiola Amplifier	\$18.00
1-Tube Regeno Flex (complete)	\$100.00
6-Tube Radiola, No. 25	\$165.00
8-Tube Radiola, No. 28	
Radiola Loud Speaker	

FREED-EISEMANN

5-Tübe Model FE-15	\$75.0
6-Tube Model NR-7	\$110.00
6-Tube Model NR-45	\$160.00
• • • • • • • • • • • • • • • • • • • •	

ATEN KENT

TEL. UNION 1052

	YIVY PARENTAL
.\$80.00	5-Tube Model 20
\$80.00	5-Tube Model 20, Compact

FRESHMAN

5-Tube Model 5-F-2	\$39.50
5-Tube Concert Model	\$75.00
5-Tube Model 5-F-5	\$60.00
5-Tube Console Model	.\$89.50
The sets listed in this advertisem	ent are
on display in our showroom.	

All Sets Sold on Easy Payment Plan

A small down payment required and the balance payable in small weekly payments. Maximum time allowed, 50

Free Demonstration in Your Home

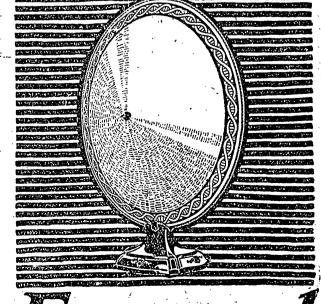
R. I. ELECTRICAL EQUIPMENT CO.

45 WASHINGTON ST.

(FIRST RADIO STORE IN PROVIDENCE) OPEN EVENINGS UNTIL CHRISTMAS

INC. 1892

HEAR the mellow stringing of a cello through a Farrand Speaker—then listen to it through other speakers. Hear the beau-tiful lower chords of an organ, the lowest notes of the basso, the highest "C" of the soprano, the jazz of Lopez, the overture of a Symphony orchestra—hear them all through a Farrand Speaker—then listen to them through other speakers. Don't buy your speaker on hearsay, buy it on earsay. COMPARE.



JUNIOR MODEL

> The Farrand Speaker cone, and proportionately larger bronze base, is priced

VHOLESALE DISTRIBUTORS: / Narragansett Radio Corp'n.

Providence

133 Dyer Street

The Post & Lester Co. 89 Broadway

Martin Copeland Co. Providence, R. I.

reading o to

100, or 100 to 0,

as preferred.

for your radio FRIENDS MAR CO Dials

lash. Specified by designers

of this season's foremost cir-

cuits. Fit any set. Nickel

finish \$2.50. Gold Plated

Organization Reveals Brilliant and in the fulfillment of this mission it Men Deeply Interested in Radio

New Body May Be Unit of Regular cated Throughout Country .- Phil-

By JAMES A. EYSTER

Radio as a science is the chosen profes sion of many very brilliant men, and as an art it collists thousands of young men in its various ramifications. As a "hobby" it is second to none in its gripping

in this fascinating pursuit comes a time when he wishes he could put it to some practical use. He dreams of hearing an 50S. call, of playing some heroic part in saving a ship or aiding in an emergency on land.

It is particularly to those who have

tnown. It is not, however, fully realized that the Army Signal Corps, which uses radio, also must use to their fullest posmunication. The Signal Corps branch of the service is charged with the development, procurement, use and maintenance of all types of communication apparatus. maintains laboratories, manufactures and buys equipment, and builds telegraph and cable lines and operates them.

tically all of the communication systems of Alaska, including wire, cable and radio, so it is seen that its peacetime services are by no means inconsiderable.

An association has been formed re-

cently, called the American Signal Corps Association, comprised of civilians who are interested in Signal Corps activities. The purpose of this organization is the furtherance of our national defence by the development of a bond of helpful personal interest and understanding between the members of the Signal Service of the Army of the United States (Regular Army, National Guard and Organized Reserves) and persons interested in allied civilian a national emergency, the Signal Corps and civilians will have a mutual and sympathetic conception and understanding of our national needs in the matter of sig nal supplies, signal operation and the procurement of trained specialties for the

Signal Corps service. The Signal Corps Association plan was formulated in April, 1924, in Chicago. At that time the chief signal officer of the army was entertained in that city by the Chicago post of that organization which

tional in character, and the matter was discussed at that time. discussed at that time.
Subsequently, this was done, so that,
at present 15 posts have been formed
throughout the United States. The country is divided into army corps areas.
Philadelphia is in the Third Corps Area,

which comprises Pennsylvania, Maryland, Virginia and the District of Columbia. The Philadelphia post was the second to be organized in the Third Corps Area, Baltimore being the first; the Pittsburgh is just now in process of/organization.

The Philadelphia post was organized Jan. 12, 1925, through the suggestion of the signal officer of the Third Corps

The question of admissibility of amateur radio operators was early discussed with the result that it was made very plain that they were definitely wanted in the organization. In fact, several members of the Lansdowne Radio Club take an able and prominent part in the activ-ities of the association.

These activities have as their object the bringing of the members into closer personal association, their instruction in communication methods as used in the Signal Corps, and the perfecting of an organization in which their previously ganization in which their previously gained skill in communication may be of

practical benefit to the country.

The meetings last season covered the entire scope of technical activities of the Signal Corps. This year the services of Capt. John A. Ballard, signal officer of the Twenty-eighth Division (the Pennsylvania National Guard) have been secured through the good offices of the War De-partment and the Seventy-ninth Division headquarters.

covering the organization of the army and a vision of usefulness for their hobby, in which skill will count, that this article is addressed.

Is addressed.

Was the only post of the various services. The is an experimental of in character. General Saltzman, chief signal officer, was very favorably distributed by the various services. The is an experimental of enced lecturer and will give material of great value to civilian radiomen as well as to the communication expert.

Inability to Work Dials to Get Clear DX Signals is Indication

tance Attempts.—Verniers Only grade type as your main tuning condenser gives you a very fine adjustment and al-Required on Variable Condense of Average Set.-Style Incor porated in Dial Good

Have you ever tried to bring in a distant station that you could hear, but not quite understand clear enough, but when you would turn the dials you would either go too far one way or the other? If so, verniers.

able condensers of the average set, alare numerous verniers, some of part of the gear arrangement, or a small gear work ing against the large one. Others have to them, while others use a small rubbe dial rubbing against the regular dial. Then there is another type that has the vernier incorporated in the dial itself, and

Verniers

Not all dial verniers are better than the others, however, because some of them have a back lash and there is a small amount of lost motion that is detrimental to good tuning. A dial vernier does not

necessarily have to be one having a ver-nier covering the whole dial, because most anyone can tune to within a degree or so of the exact point on the dial, and one having a vernier with a radius of a few degrees will answer the purpose.

The verniers which do not move the

nain condenser plates are not liked by the writer because they have a tendency to either introduce losses or become noisy Fault Shows Up Positively in Dis- As a rule, the vermer is not of the high

and, where it is not, it is bound to introwoided where possible.

In the external friction type, in which a small rubber comes in contact with the main dial, while they do not intrdouce any losses into the condenser, they usually do losses into the condenser, they usually do not have any direct reading not hold their adjustment, and when the of where it is set, and it is for this reason hand is removed the first adjustment is spoiled. This has the same effect on

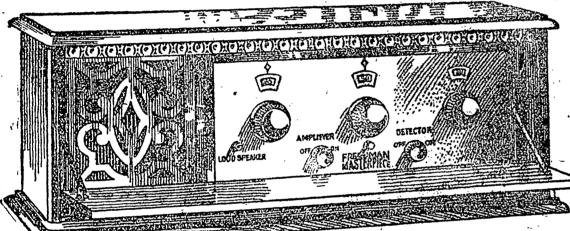
spoiled. This has the same effect on tuning as those having lost motion.

The geared type of vernier is good when properly designed so as to eliminate, any lost motion or end play in the gears. Some of them have very high ratios, having to turn the small gear 100 revolution to move the large dial one revolution. This

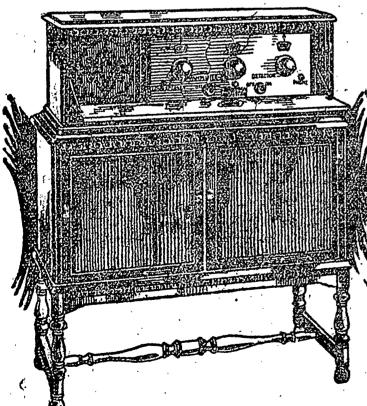
lows you to tune into the exact wave length, and this means maximum volume ecause it is only when the circuits are in ergy takes place.

A bad feature of the extra plate vernies you do not see it on tuned radio frequency sets such as the neutrodyne type If they were used they would throw the log sheets of your station records out, because one time you would get a certain station on 63 and the next time with the wernier set at a different angle it might come in on 62 or 65; and where your set tunes sharp this would make the station

The World's Greatest Radio Receiving New and Improved



The Franklin Receiver With built in Loud Speaker of Great Volume and Superb Tone



Console Cabinet to Match

Ruggedly built, heavy, five-ply genuine makeg-any, the design of the cabinet is identical to the pattern of the receiving set. The doors to the compartments open from the front, affording ample room for all batteries, battery chargers, climinators and every accessory that could pos-sibly be used in connection with a radio set. This useful and attractive consele cabinet is priced at only Forty Dollars.

The Freshman Masterpiece five tube radio receiver is known all over the world as the "WONDER SET." It's ease of operation, it's distance getting ability and mellow tone have spread happiness and education in hundreds of thousands of homes in every part of the globe.

People who could easily afford to spend three and four times the cost of a Masterpiece for a radio receiver, have signified, in no uncertain terms, their decided preference for one of these "WONDER SETS." To satisfy this insistent demand we were induced to encase them in cabinets of rare beauty—fine enough for the most exquisite home.

The Franklin Model, illustrated above, is the pride of the Freshman line. This receiving set, with built in loud speaker, is encased in a heavy five-ply genuine mahogany cabinet. The front cover opens in desk-like fashion, a most convenient and attractive arrangement. As a result you have the WORLD'S GREATEST RADIO RECEIVER, with built-in loud speaker, in a charming piece of furniture all for only Seventy-Five Dollars.

> CONVENIENT TERMS ARRANGED

PIRE RADIO CO.

23 EMPIRE STREET

The Super-Trirdyn Special 3 tubes are enough SUPER-TRIRDYNS Thousands of owners of these Crosley's Trirdyn circuits, in which 3 tubes do the work of five, report equal, if not better results side by side with radios costing twice to ten times the price. All radio engineers know that simplicity of apparatus is one of the secrets of clear, undistorted radio reception. Crosley accomplishes all that can be expected in radio with 3 tubes and adds no more to justify a price or a theory. Utmost economy in tube and battery consumption is a feature of these sets. The Super-Trirdyn Regular Prices Quoted without Accessories At Authorized Crosley Dealers

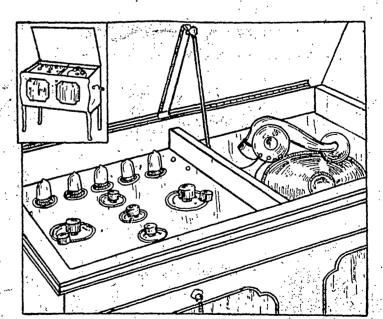


Victor Records Christmas trees.

75c to 3.50 Third Floor

Talking Machine Store-Third Floor

For A Musical Christmas



A 5-Tube Radiola And a Console Phonograph

The latest phonograph-radio combination, with built-in loud speaker and radio cabinet.

Price includes batteries, and battery box.

INMARKANINA MARKANINA MARK

We install this outfit in your home and instruct you in the operation.

\$10 IS ALL YOU NEED PAY DOWN Balance 3.00 a week, payable monthly.

NEW TUBES USED BY COAST GUARD

Cutters Tampa and Modoc Have **Highest Powered Transmitters**

Newly Invented Thoristed Tungsten

Tubes Recently Installed .- Invention Does Much in Safeguard-Maritime Life. — Iceberg

Not many months ago, two coast guard cutters, the Tampa and the Modoc, employed in the ice patrol, were equipped with the highest power telephone and telegraph transmitters carried by any ship under the American flag. These transmitters contained recently invented thoriated tungsten tubes.

Thorium was one of the substances found to be radio-active, soon after Becquerel's discovery of radio activity and defining of radio by the Curies. The present invention combines these two metals for now usefulness. Tungsten is now a household friend and electric lights and thorium in one of its forms illuminates

many a watch face.
Success for the ice patrol consists not only in finding the bergs, but also in conveying quickly to ships at sea exact information of the whereabouts of these menacing "floaters." Most ships tra-versing the Atlantic are now equipped with radio apparatus; hence the fitting of these control boats with the best radio transmitters which could be produced.

For the purpose of providing dependable long-range, high-powered transmitters, the coast guard commissioned the General Electric Company to develop a transmitter especially for the ice patrol. The equipment had to be so compact that it would fit into a small radio room. Due to its compactness, the voltages generated were required to be minima and the panel to be entirely of the "dead front" typo so that the operator would not be exposed to dangerous voltages if thrown against the panel in heavy seas.

Strength, reliability and simplicity of

turing also were demanded. The emitted wave length, or frequency, must be absolutely independent of variations due to rolling and pitching of the ship. All these requirements were met.

Greatest among the problems was the development of a high-power, low-voltage vacuum tube. Available were low-voltage tubes, using up to 2000 volts direct current obtained from a motor-generator, and high-voltage operating on 10,000 volts or

more of direct current.

To have provided this latter high voltage on shipboard would have required a motor-generator set, a step-up transformer, a rectifier with two or more kenesmooth out the ripple in the rectified

Research specialists produced a new tube rated at only 2000 volts on the plate, but four times as powerful as previous low-voltage tubes. Its output is 1000

By means of this tube, power is supplied from the direct-current, motor-gen-erator set, eliminating the transformer, kenetron, rectifier and filter, heretofore

ice patrol warnings from this equipment. while reaching much farther than ever be-fore, will no longer be a source of interference with commercial traffic and broadcast entertainment.

Discovery and development of thoriste Discovery and development of thoristic tungsten for this purpose resulted from the combination of a scientific investigation and a happy accident. Investigation and a happy accident. Investigation of the so-called "Edison off set" in incandescent lamps by Dr. Irving Langmuir ded to a more searching study of factors governing emission of electrons.

from hot filaments.
In one series of experiments with tugr sten filaments, us the vacuum was mad higher and higher, electron emission un expectedly became steadily greater untifinally, when the bulb was immersed in liquid air, the emission was 10.070 times its original value.

This was an astonishing result; but when the experiments were repeated with another lot of wire, no such increase in emission developed. An investigation of the two lots of wire revealed the fact that the second was pure tungsten, but the first contained theria, often used in lamp filaments to prevent excessive grain growth on burning, which induces fragil-

enormous increase in emission would not have been observed under other than the very special conditions of the experiment.

Further study disclosed the fact that when a tungsten filament containing thoria is operated under the right conditions, the thoria is reduced to thorium. which disfuses to the surface and there forms a continuous layer one atom deep The electron emission is then that of thorium, which is much higher than that of tungsten, while the high affinity of thorium for tungsten prevents the surface thorium from evaporating as it would if the whole filament were thorium.

If, by accident, the filament is overheated and the surface layer of thorium is evaporated, the filament can be "reformed" by operating it at a high temperature for a short time, so as to cause more thorium to diffuse to the surface and then bring the temperature back to

Because of the high electron emission of thorium a thoriated tungsten-filament is very efficient, so that in the small sizes used in receiving tubes a number of filaments may be run from a set of dry batteries without unduly shortening the life of the battery. In power tubes, with large filaments, this life is very with large filaments, this life is very great because of the low operating temperature of the filament, which the emission characteristics of thorium make

SPEAKERS ARE IMPROVING.

Tin Horn and Gooseneck Now Being Replaced by Cone and Box Types, Like the old phonograph, the first type of loud speakers—used with radio sets were the long horn type and these gave way to a small type with goose neck. Most of them were made of tin, thin sheet iron or other metals having a definite rate of vibration, which gave harsh sounds but plenty of volume, but to-day the construction of loud speakers is

vastly different. We now have the cone and box type of loud speakers which do not contain any metal such as was in the horn of the first types. The newer type give out the true notes similar to the sound producer of a high grade phonograph. The cone type reproduces faithfully the sounds put into it. By that is meant, that if the signals are the least bit ruffled they will come out the same way, whereas in most types of other loud speakers the rough edges are smoothed off. The cone type is rapidly being recognized as one of the most perfect types of loud speakers, but it does not amplify the signals as great as some other types.

The latest trend in loud speaker design patterned after the phenograph types in that they are box shape to harmonize with the radio set, the sound box being enclosed and the front of the loud speaker resembling the front of the sound chamber of a high grade phonograph. Now that the phonograph people are in the radio game, we can look forward to more improvements in the line of cabinets and loud speaker design which will tend to roduce a better looking radio cabinet and get away from the objectionable horshaped loud speaker which is now in the majority of homes.

Bear in mind you cannot get a cheap loud speaker that will faithfully re-produce all the notes of musical instra-

RESISTANCE MAY MEAN LOSS

Connections or Coils Cause Leaks. Other Resistances Necessary.

You probably have read that resistance in your set means losses. It does when it refers to colls or poor connections, but such as the rheostats, grid leaks and potentiometers.

The filament of your tubes requires a certain amount of current to pass through them to operate them efficiently. More or less than the stated amount either means the tube is not operating at its highest point or is being forced with a consequent loss in its useful life. To operate the tube properly, a variable low resistance known as a rheostat is placed in series with the A battery and the filament of the tubes. In the case of a WD tube using an A battery of 1½ volts the filament rheostat is about six ohms. When the dry cells are new the rheostat is turned part way on and as they get older and the voltage drops off, the rheo-stat arm is turned farther around and less resistance is used until the arm is all the way over, when the battery is run

With the 199 and 201-A types a 25-ohm rheostat is used. With the 199 tube a 4½-volt filament battery is used and a

ix-volt one for the 201-A type.

The grid of a tube is normally positive, thereby allowing the flow of electrons be-tween the filament and plate. The incoming signal changes the voltage of the grid with the strength of the signal changes and this changes the flow of current portion. During this process the grid attracts many negative electrons and ac-cumulates a negative charge which shuts off the flow of electrons to the plate, blocking the tube. The grid leak being across the condenser allows this negative charge to leak off and the tube operates

SETS CHANGE SLIGHTLY

rospective Buyers Should Not Want for Supposedly Better Models.

Prospective owners of radio sets are ometimes kept from buying a set because they think the radio set of next season will be vastly different from the sets of to-day, but that is a mistaken-idea, and is no more true than that the automo bile of 1926 will make the car of .1925

out of date.

There are certain fundamentals of radio that cannot be changed at the whim of the engineer or manufacturer. Circuits are the same to-day as they were last year or other years. What the manufacturers are doing is to make better ap paratus so that the radio sets give better

The improvements in a radio set are electivity, that is, the ability of the operstations. Several years ago, the main dea in a broadcast receiving set was to near the stations. That was all right near the stations. That was all right when there were so few stations on the air, but to-day the air is crowded and lozens or more clamoring to go on the to nake matters werse.

If your set is unable to tune out the verage interfering station, then your set in be improved by a different tuner. Your udio frequency part of the set need not be changed if the reproduction is good Where the amplification is poor or noisy it may be due to a poor design of trans-formers and a higher grade transformer yould more than likely improve the tone juality and-volume.

Where your set is of the earlier type that will not tune out interfering stations, the use of a wave trap in the aerial circuit will often tune out or reduce the strength of the interfering station.

CHANGING STYLES

Choice of Clothes Expresses Individual
Taste More Than Some Realize.
We may say, offinand-like, that we 'don't care a thing about style." But is that true? Test the next man who s that true? Test the next man who says so by suggesting that he get out the old wedding suit of 30 years ago, burnish it up a bit and wear it for a nonth. He won't, declares the Milwauteo Journal. Or test the next woman by suggesting that she go into the attic and get the old hat of 20 years ago—that hat which was set atop the hair and was

the antithesis of the smart turban of to-day. Wil she do it? No; she cares. And we all should care. For dress expresses our taste, our moral philosowe realize. It is about all that others ee of us as we go among them. To be neatly dressed, within a measure of correctness, shows our desire to be held in proper osteem by those around us. It shows, also, a desire not to offend their sensibilities by doing the outlandish

Styles have wandered a good deal. There has, perhaps, been too much of the peacock about them. But on the whole there has been progress-better art, more pleasing blend of colors, a keener sense of the appropriate—and we have saved the best thoughts from year to

Style, after all, while not one of the deeper motives of life, is one of those things that have made life a little more pleasing and a little more worth while.

とうとなっているとうなっていると Marshall & R-A-D-I-O Exclusively DORRANCE STREET
Opp. Narragnusett Hotel www.commons

MO COAL NEEDED



NU-FIRE OIL GAS BURNER beats coal in range or henters. Agent's Burner Free NU-FIRE CO., Boston, Mass.



Vagrant Waves of Interest to Fans

About 2,000,0000 words in Governmen messages are broadcast monthly from Washington through the army and navy adio and wireless stations.

President Doumergue of France has his own receiving set and makes it a point, whenever possible, to set aside half an

hour every night for listening in One hundred and forty-four broadcast ing stations located in 90 towns and cities throughout the United States are now

broadcasting weather forecasts daily. There are 10 broadcasting studios along Broadway, in New York city.

India has three broadcasting stations.

wo in Calcutta and another in Bombay.
Women radio listeners in Great Britain outnumber the men by almost two to The United States has 566 broadcasting

stations, as compared with 293 stations What is believed to be the world's record in underground reception was made by Milo F. ce, 200 feet in a mine at

Cowdrey, Col. The programme was sent from a station in Hastings, Neb. Because of the popularity of radio in England, it is almost impossible to induce cooks to accept jobs in the suburbs or the country unless they are sure that kitchens are provided with an extension for the wireless installation.

A radio receiving set has been substi-tuted for a nunister in the Leisenring Community Centre, in Uniontown, Pa. It is planned to pick up all the religious programme possible and present, them to the audiences that assembled in the build-

Symphony concerts by radio with the first violin in New York, the bassoon in New Orleans, the bass Los Angeles and piccolo in Piccadilly and the saxophone in Saxony, is predicted by ex-hibitors at the National Radio Exposition, Chicago, as the result of a demonstration in long distance co-ordination. A violinist was accompanied by the planist three

Do not wait until your tubes won't work to the positive.

before charging your battery, give the pattery a regular charge. How often you charge your battery de-

pends on how much you use your set and the capacity of the battery.

A vacuum tube is fragile, so do not handle it as you would an ordinary incandescent lamp.
Some crystal sets get out of town sta-

tions but any audion will, if it is regen-Radio is here to stay so get your set now and enjoy radio.

Distant stations are coming in good now, so you can start experiments. To find the positive and negative posts on a storage battery, dip the wires in a dilute solution of salt in water. Bubbles will form most coplously on the wire attached to the negative terminal of the battery.

To experiment with all freak hookups is an expensive hobby. Solder flows more readily if the iron is wined frequently on a woolen rag. In winding loose couplers the two coils should be wound in the same direction.

When using two loud speakers, connect them in series, using a "B" battery of 90 to 130 volts and a "C" battery.

As an experiment, try to clear up signals and cut static interference by in-serting a variable grid leak in the ground

Taxicabs are now dispatched by radio in Birmingham, Ala.

By the end of 1925 it is expected that

,000,000 radio sets will be in use in the United States. Station WJZ receives more mail from nvalid persons and those afflicted with olindness than from any other class.

It is estimated that 2,000,000 radio sets and parts, having a retail value of \$500,-000,000, will be produced in the United States this year. Jamaica, N. Y., has "curfew" for loud-speakers. A city ordinance is violated

if noise is loud enough to disturb neigh-bors after 9 o'clock at night. One of the smallest radio receiving sets in the world is mounted in a shirt but-ton, five-sixteenths of an inch in llameter. It is audible on a loud speaker nine feet distant.

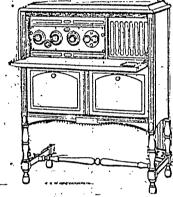
"B" Battery Wiring.

When connecting up more than one B" battery, be sure they are wired correctly. The current in the batteries will buck each other if the negative is connected to the negative and positive

FOR CHRISTMAS A Pooley Atwater Kent Radio

Model 1600-R-2

Equipped with Pooley built-in floating a n d horn Atwater 5-tube 20 Com-Kent Model Receiver.



American hut or English brown mahog-any. Height 3 feet 5½ in.; length 2 feet brown . any. feet length 2 10½ in.; 16¾ in. in.; depth Com-without tubes and bat-teries.

Model

1600-R-2

SEISTER SEISTE

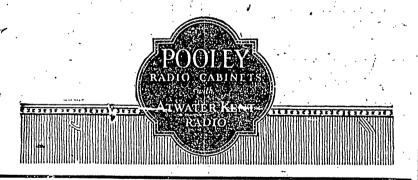
Delight Your Family—

every member of it—with a Pooley Radio Cabinet for Christmas. Exquisite beauty it will bring-and endless enterfainment.

See and hear the several models we have ready to demonstrate to you. Priced from \$75 to \$295.

M. STEINERT & SONS

Steinert Bldg. 495 WESTMINSTER ST. Oak Hall Bldg., **PAWTUCKET**



World Special!

Again the World Repeats! As a special offer to radio fans, many of whom were unable to take advantage of this remarkable value when we featured it during our Opening Dayswe are featuring for

MONDAY, TUESDAY AND WEDNESDAY A Special Sale of

W.R.C. "B" Batteries



Battery; long-life; s u-per - insulated cells; uniform, steady, even current. No "crackling." Highest possi-

you a second

ble quality. Do not confuse with ordinary "B" Batteries \$1.60 for 1—\$1.61 for 2



121 WESTMINSTER STREET Prov., R. I., Butler Exchange, Opp. Arcade

Juan Lycry Evening Till 9 P. M.

ORGANIZE ASS'N.

Society Aims at Enforcement of National Rules and Regulations

provement of Field .-- All Radio Writers of United States and Foreign Countries Invited to Become Members

One of the events growing out of the Fourth National Radio Conference, held ecently at Washington; was the formaon of a national organization of radio editors and writers, to be known as the National Association of Radio Writers. This organization was effected by the 'radio scribes' in the Chamber of Commerce building. Washington, immediately following the adjournment of the conference. It has for its aims the promotion of the welfare of its members, the furthering of the efforts of the Department of Commerce in enforcing the radio regu-lations of the country and the improving

adopt resolutions commending Secretary of Commerce Herbert Hoover for his administration of the radio affairs of the nation and for the manner in which he and his assistants conducted the radio conference, and pledging him the support recommendations of the conference, which The following officers were elected

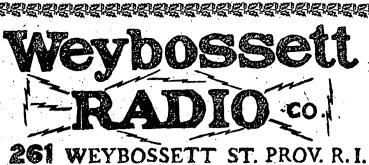
Its first official act was to draw up and

Louis Globe Democrat, President; Stephen L. Coles, radio editor, the Herald-Tribune, New York, Vice President; homas Stevenson, Stevenson Radio Syn-

R-A-D-I-O Excinsively DORRANCE STREET
Opp. Narragansett Hotel

dicate. Washington, Secretary: Stuart C. Mahaney, radio editor, the Country Gen-tleman, Philadelphia, Treasurer; Sergeant-at-Arms-Paul Croghan, of Department of Commerce Press. Washington; Assistant Sergeant-at-Arms. — A. J. D'Leary, of the same department.

The Shorter, the Better. Both the ground and lead-in wires from the antenna should be as short as pos-sible. They cannot be run all over the house and near other wires and metal objects without affecting the operation of the receiver.

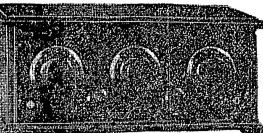


NEXT TO GLENWOOD FURNITURE CO.

Open All This Week Until 10:00 P. M.—Thursday Until 11:00 P. M

BUY THEM A RADIO SET FOR XMAS

This five tube tuned R. F. set as pictured will be sold by us exclusively for a limited time only absolutely complete including a 100 Amp. Storage Battery, Speaker, Tubes, Aerial, etc. Nothing more



Easy

Terms Arranged Desired

Browning-Drake

Complete parts to build the well-known 4-Tube Browning-Drake Set at a price within the reach of all, including a very simple Picture Diagram anybody can follow. Complete for

Sale on Speakers All This Week Certified 23 Plate Low Loss 7 Condensers . .

79c

69c | \$3.50. Very \$1.19

The Shepard Radio Store-Known For Its Service-Street Floor

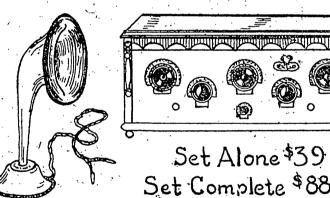
Now! You Can Have the Joys of Radio for Christmas!

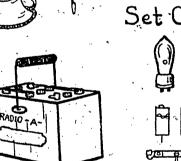


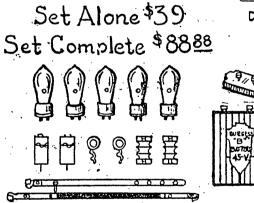
The Much-Talked-About NEW RAMWAY

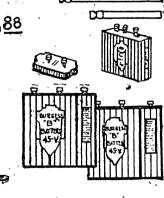
> in a smaller cabinet at the amazingly low price of

and No Initial Payment Required!









Remember—not a discontinued model—but

a new creation of wonderful capability. No flimsy, unreliable parts—but the modern, scientifically accurate parts that are the

very heart of a set, and must obviously be right. Constructed entirely of Erla

THE price is so low that even if the name Ramway meant I far less than it does in the radio field, the event would still be outstanding and remarkable.

Think then how earnestly we can express our belief that there is nothing like this set at the price—for it is nothing less than the same wonderful Ramway Receiver that in the Console Model at a much higher price won instant and widespréad interest.

The beautifully designed ma-hogany cabinet with plane finish does credit to the finest home. Its panel, matching the cabinet, is adorned with handsome su-ver-plate/: oxidized dials, making it indeed an attrac-tive set.

The possession of this fine set for Christmas will mean a real thrill for the family— a gift that will keep on giving and giving.

You would not expect special terms when the cost of the set is scaled down to this small sale price—yet they are the most liberal and easiest terms that The Shepard Hadle Store has thus far announced on any set.

This New Ramway, fully equipped, for 88.88

In selecting the equipment the greatest care has been exercised to assure complete satisfaction—and the guarantee of The Shepard Radio Store is squarely behind each set.

We recommend for use with this receiver the following equipment:

5 U X 201 A Radiotron Tubes
1 Harvard, 80 Amp. Hour Rubber Case
Storage Battery (with 18 months guarantee)
2 Burgess Large 45 Volt B Batteries
1 Burgess C Battery
1 Bristol Baby Grand Loud Speaker
1 Fleron Antenna Outfit
Making the complete outfit 88.88.

NO INITIAL PAYMENT REQUIRED

from those who have charge accounts with The Shepard Stores or from ANYONE furnishing satisfactory ref-

A WEEK

All You Need Pay If you purchase the set alone at only \$39 (plus the usual 5% carrying charge on the unpaid balance).

\$5 a Week on the Set

There is no time to lose. Resolve now to have the radio you have wanted—and have it for Christmas.

The Shepard Radio Store

Home of WEAN-Rhode Island's Oldest Broadcasting Station

Buy on Our Gradual Payment Service

and pay as little as \$2 weekly after small down payment.-BROADCASTING STATION W J A R

The Outlet Company

Our Guarantee

Each set fully guaranteed, with free service for six months if we install it. We maintain a large and thoroughly trained service force to care for every set we sell and install. A modest charge for installation.

An Overwhelming Response To This Great Radio Sale Still Time To Buy For Delivery Before Christmas

A NOTHER Radio Event that equals in value our last tremendous radio offer when we sold over 800 sets and could have sold a great many more if we could have secured them.

REALIZING that many radio fans were disappointed, we immediately set out to secure another great value—here is the result—

The combined efforts and huge purchasing power of 15 famous department stores bring to all music lovers this most remarkable Radio Value

Store Open Thursday Night Until 9 O'Clock

THE NEW David Grimes 5-TUBE RADIO SETS

Complete
With All
Necessary
Equipment

(nothing else to buy)

Set Without

LIST PRICE

1250

Set Without Equipment \$39

The Set
and
Equipment
Sells
Regularly
For \$113

Sale Price

You Can Buy This Set on Our

Gradual Payment Service

as low sas

Weekly

Radio Store—5th Floor
Remember—we have only 500 of
these sets as our allotment!
Be here early

We Have Just a Few Hundred of These Sets and We Feel Confident They'll Sell Quickly

Of course we could not get this manufacturer to give us an unlimited supply, as he is sacrificing his profit for this eventful selling and charging it to advertising—for advertising—it will be—every person that buys one will be its best salesperson and ardent enthusiast—so come early if you want one. This set has a record of receiving distant stations, those far away come in very distinct and clear as a bell.

Just How We Are Able To Do It

The Radio Departments of Fifteen Great Department stores, located in as many different cities, combined to make this purchase totalling 12,000 sets, one of the largest single purchases ever made in the history of the Radio business.

This is a New Five-Tube Storage Battery Set. It is Up to Date in Every Respect

One of the very finest 5-tube sets that has appeared on the market this year. You can tell the moment you look at it that this is no ordinary radio set—the beautiful hardwood cabinet with overlay panels of mahogany finish and the shielded black metal panel front handsomely engraved and emblazoned in copper—is unusual in itself. The moment you feel the velvety fine precision tuning of the dials you know that here is as fine a 5-tube set as money can buy.

YOU HAVE SEEN THE DAVID GRIMES SET AD-VERTISED ON POSTERS AND BILL BOARDS ALL OVER THE COUNTRY

Remember—Every Set is New In The Original Factory Box

Just as the set left the factory it comes to you—and besides this famous set you get accessories of the highest grade. The famous "Musette" bakelite bell loud speaker is a marvel of clearness and mellow tone. The other equipment as listed at right is nationally known and guaranteed.

Here Are The High Grade Accessories You Receive With The Set for \$69.97

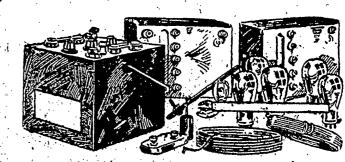
5 Genuine Cunningham Tubes, 1 Westinghouse or U. S. L. Rubber Case Storage Battery, 2 Large 45 Volt "B" Batteries, 1 22½ Volt "B" Battery, 1 "C" Battery, 1 Complete Aerial Equipment, 1 \$12.50 Musette Bakelite Bell

Loud Speaker.



is known as "the Stradavarius of Radio." It lists regularly for \$12.50. It was awarded the trophy at the Radio World's Fair, September, 1924. Just think!

You get this horn as part of the outfit.



The Outlet Company

Government and Private Fliers Receive Forecasts Twice Daily

Washington Collects Leports from All Sections of Western Hemisphere and Adjoining Oceans Life and Property Reaps Benefit in Unstinted Measure

The public generally would be surprised to learn of the nature and extent of the meteorological service of the Weather Bureau in aid of aviation, and that special accommodations are provided in the forecast room for representatives of the air service of the army and navy.

Telegraphic and radio weather reports come in twice a day to the forecaster from about 275 observing stations in all parts of the country and from Canada. As fast as they are received, these representatives of flying services copy of their charts any information importan to aviators, and telephone the route fore easts directly to certain flying fields. A times, special service is asked for and re-ceived by fields undertaking some unusua

Furtnermore, the full system of morn ing and afternoon telegraphic weather re ports received at Washington and the regular and special forecasts are sent by messenger to the Navy Department and are promptly sent by telegraph or wireless to Lakehurst for use by the pavy meteorological officer of that place.

Conditions which are unusual or dangerous for fliers receive prompt attention at the Washington forecasting station and at each of the other four district fore-cast centres, located at Chicago, New Orleans, Denver and San Francisco. Weather information, forecasts and warnings for the group of States comprised within the best operation of a set, it is impordistricts are issued from these centres, ant to use the condenser of the proper always with aviation interests in mind.

Direct service is given as conditions and is in. facilities warrant. Local service is also rendered by officials at about 135 field stations of the Weather Bureau. It must be borne in mind in connection with the hazards of flying that the most any meteorological service can do is to give information and warnings; aviators frequently disregard warnings of approaching storms or other poor flying conditions, believing themselves competent to fly in spite of unfavorable weather, just as armed with knowledge of bad conditions ahead, but sure of his ability to manag-his vessel nevertheless, or hoping for beter conditions than those predicted. > -Radio service is supplied twice daily

for the benefit of marines and aviation interests on the Atlantic and Pacific coasts. Weather bulletins and forecasts are broadcast from the Arlington, naval radio station at 10:30 a. m. and at 10:30 p. m. They consist of reports on surface conditions and upper air data based on the regular 8 a. m. and 8 p. m. observations of the Weather Bureau.

These bulletins include any reports re-ceived too late for the regular morning or evenng forecast and as a second feature summarizing general amospheric conditions, barometric readings at high and low centres, wind and weather fore-casts for offshore areas, storm warnings and Mying weather forecasts, for each of six aviation zones.

During the hurricane sesson additional

ship reports are received by radio from the Gulf of Mexico and the Caribbean seas and distributed in connection with

Aviators flying in any of the three zones served by the special Pacific bul-letins issued from the San Francisco radio station receive information about b a. m. based on 5 a. m. observations of the same day, and at 7:30 p. m. based on 5 p. m. observations, except for those tales. taken at Alaska, Honolulu, Guam, Manila, China and Japan, at slightly different hours. These bulletins are in all es-sential respects like those for the Atlan-

USING LOOP AERIALS

Set Manufactured to Operate from Loop Too Sensitive for Regular Aerial.

Can I use a loop aerial with my set is a question which comes to the minds of most of our radio fans. With nine out of 10 radio sets, the answer is no. First of all, a set should be built to operate from a loop and if this is done, it is really too rensitive to be used with a regular aerial because it is so sensitive it picks up too much energy and the energy may not all be radio. When this is the case, the set is noisy and may be compared to two people listening to a conversation carried on in a loud voice where one of the lis-teners was partially deaf and the other had good hearing. The man with good hearing received too much energy for his

The popular type of neutrodyne sets do not give satisfactory results when used with a loop aerial even though they do have two stages of radio frequency amplification. The objection to them being that the coils in the set (neutroformers) pick up energy themselves, whereas in a loop set the loop is all that should col-lect any radio energy.

To be successful on out-of-town sta tions, a set designed for loop aerial reception should have from five to six tubes incorporating two or three stages of radio frequency amplification. It is radio frequency amplification which makes the op-cration of a loop aerial possible due to the fact that energy picked up by the small loop is very low and it requires two or three stages of radio frequency amplification to build this feeble energy up so as to actuate the detector. If the energy delivered to the detector is below what is known as the threshold value, the detector will not function.

MANY STATIONS ANNOYING.

Tans May Eliminate Interferences by

Using Wave Trap.

As better radio weather continues, you are no doubt confronted with having too

R-A-D-I-O Exclisively DORRANCE STREET
Opp. Narragnusett Hotel

LABORATORY SUPPLIES Glassware-Porcelain-Chemicals

Geo. L. Classin Company 72-78 NORTH MAIN STREET

many stations coming through at the same time. This will happen to any set at some time or another because there are so many stations broadcasting to-day Very often two or more use the same wave-length and when this happens it is impossible to tune them out with a set

using a regular aerial.

Where one has a loop set, the loop may oc rotated and if the offending stations are in different directions you may be Household Electrical Apparatus spark discharge over an able to tune one or the other out, or a least so reduce their volume that one comes through much better than the

an indoor one, but not a loop as used by super-heterodyne sets. A wave trap in series with the aerial is a great help in weeding out an interfering station, but it will not tune out several at the same time, but we are very seldom bothered with more than one interfering station

The type of tuner you use has a grea deal to do with the selectivity of your set A single circuit set cannot hope to tune out interfering stations as would a loosely coupled set due to the grid of the detector tube being connected direct to the aerial, which is picking up stations on ill wave-lengths.

The easiest change to make in a single circuit set is to use a separate cell for the aerial ground circuit and couple it to your present tuner.

An Efficient Aerial.

A living tree can be made an effective thirds of its height. Connect the nail to relieve the difficulties. to the set by a piece of insulated wire nd the radio fan has a first-class an cal devices is virtually. not the radio fan has a instreass and call devices is virtually inevitable and common system. This will bring increased must be regarded, like atmospheric distance and fading. No "ground" is needed. A peculiar advantage of the tree "In other words, the limitation of radio reception. as an aerial is that one tree may be used by three or four different receiving

Condensers.'

The fixed condensers in a .ecciving et should have mica dielectrics for best esults. Do not use condensers in which the dielectric is paraffined paper. capacity for the part of the circuit it

Solder merely Holds.

The proper way to use solder is to first make the joint as tight as possible and then use a minimum of solder to hold the joint together. The function of solder in a receiving set is not to make It is then desirable to report the situa-electrical contact, but to preserve a good tion to the electric power company. Many contact which has already been made.

No. 602 Art Console

furniture which has as yet em-

bodied a radio receiver, con-

\$340 without accessories

as the No. 601 table type.

One of the finest pieces of

FOREIGN DEVICES INFLUENCE RADIO

Often Causes Trouble with Set

in Apparatus May Also Mitigato observed

Co-operative effort on the part of radio fans and the owners of electrical sources of disturbance is the most effective remy for man-made interference, according to the Radio Laboratory of the United States Bureau of Standards.

"Much of the work of mitigation

electrical interference results in an improvement in the operation of the electrical devices or supply lines, and is thus a double gain," the Standards Radio Laboratory asserts. "There are, however, some electrical devices which, even when in perfect working order, cause disturbancs which result in interference with radio reception. In many cases it is possible to provide filters, shields, chokes, intenna by driving a nail in the tree etc., either at the source of disturbance to a depth of three inches about two-

> "Part of the disturbance from electrical devices is virtually inevitable and

> "In other words, the limitation of radio reception is not only the distance and the power of the transmitting stations and the sensitiveness of the receiving set, but also the omnipresent background of slight electrical disturbances which drown out signals below a certain intensity. This ackground of electrical disturbance is the underlying reason why reception from local stations is inherently superior to re-ception from distant stations."

Here are a few suggestions offered by the Standards Radio Laboratory toward lecreasing interference:
"The first thing to de in tracing the

source of trouble is to make sure that it is not in the receiving set itself. "The next thing is to open the elecrical switch at the house meter; if the interfering noise is still heard, the source is then known to be outside the house.

"Usually a sensitive receiving set with a coil antenna is used to determine the direction from which the interfering noise mes, and this outfit is taken from place to place until the source is found. location of such sources is often a very difficult and baffling undertaking.

"The trouble sometimes comes from a insulator to ground, or between a pair of wires, or it may be that the wire is touching some the fect, such as a tree, pole, guy wire, etc. Buch a spark discharge is a loss of power must use a regular aerial. By regular meant, the usual outdoor type, or even an indeed one but not a local series of serious trouble, and for these is a local trouble, and for the local trouble, and trouble trouble, and trouble tro reasons the company is probably more interested in finding and eliminating this Chokes Ald.—Regulation of Spark type of trouble than the radio listener.
"Large leaks and sparks may often be observed at night, especially in hot weather. However, sparks which are too

small to be readily noticed may cause serious interference to radio reception. "A frequent cause of interference is power line inducted, which is due to the presence of power wires near the antenna or receiving set. A humming sound in the telephone receivers will usually identify of this source of interference. A method of climinating, or at least reducing, the magnitude of this interference is to place the antenna as far as possible from the wire lines and at right angles to them.

"Sparks are produced in the normal operation of many types of electrical apparatus (such as motors, doorbells, buzzers, gasoline engines, X-ray apparatus, vollet-ray machines, some forms of battery chargers, rural telephone ringers, neating pad thermostats).

"Sparks are also sometimes produced at defective insulators, transformers, etc., of electric wire lines. Sparks usually give rise to electric waves which travel along the electric power wires and by then are radiated out and then picked up by the radio receiving sets. "The noise thus produced in a radio set

may come from a disturbance which has travelled several miles along the electricpower lines. "One remedy for such types of interference is to eliminate the spark. This is possible if the spark is an electrical leak and not necessary to the operation of the machine in which it occurs.

"Many very useful electrical machines, however, require for their operation the making and breaking of electrical circuits while they are carrying current, and whenever this happens a spark is produced. It is impossible to eliminate these machines, so it is necessary to make the speaker of such nature or so arrange the circuits that the radio-frequency current

is reduced or prevented from radiating.
"To prevent the radio-frequency current produced by a spark from getting on to the lines connecting the sparking apparatus, some form of filter circuit is necessary. sary. A condenser (1 microfarad, more or of the companies have apparatus for the less) connected across the sparking point

purpose of following up complaints of this will reduce or short circuit a considerable mount of the interference, or a condens er connected from each side of the line to

ground will cerve the same purpose. "A choke coll in each side of the line in addition to the condensers connected to ground forms a simple filter circuit, which should prevent frequencies in the broadcast range from getting on the

"A ligh influctance (choke cell) or high resistance connected in each side of the line changes the characteristics of the cir-cuit so as to reduce the amount of power radiated. If such a filter circuit is not effective or is impractical, the apparatus may in some cases be suirounded by solid metal sheet or wire screen which is thoroughly grounded. The screen should com pletely surround the apparatus. This may be difficult.

For example, in shielding the ignition system of a gasoline engine the spark colls and all wires and other parts of the system must be inclosed in meta shields and these must be well grounded."

> Tom Trainor's Christmas

Cider is the logical, law-abiding beverage for your Christmas dinner. Tom Trainor's Cider is made from russet apples from a sterling orchard.

Deliveries throughout Elm-wood and Edgewood, or call around in your car. No park-ing restrictions.

Elmwood Fish Market Greenwich St., at Public

_a stone's throw from Elmwood Ave. Two phones-Broad 0761-Broad 0762

The Soldering Iron. It is virtually impossible to make a

ing iron. The tool must be hot, but if t turns cherry colored while being heated, it should be allowed to cool a little, soldered connection with a red-hot holderbefore any work is attempted with it.



RADIO STORE 26 W. Exchange St. . **AUTO SUPPLY STORE** 30 W. Exchange St.

COMPETITION XMAS GIFTS TO SUIT ONE AND HOLIDAY BIGGEST

WE DEFY

NOW ON AND CONTINUED DURING CHRISTMAS WEEK

EVERY BARGAIN AND MANY MORE OFFERED BY US FOR THE PAST TWO WEEKS REMAIN IN EFFECT PROVIDING WE STILL HAVE IT IN STOCK

OPEN EVERY EVENING TILL 10 P. M. DURING CHRISTMAS WEEK

We Undersell Because We Underbuy

WORLD RADIO CORP

"The Largest Exclusive Radio Store in New England"

Reproduc-

Value!

Super Sensitive Unit controlled by PATENTED TONE ADJUSTER that regulates from low pitch to THUNDEROUS VOLUME! Wide mouth (14 inches in diameter) handsomely decorated and superbly finished.

Silver Plated Base that adds to the benuty of this WONDERFUL Speaker.

Acoustically correct. The violin reproduces as a violin-the 'cello as a 'cello, and the base as a hase. NO DISTORTION NO HOWLING NO MUFFLED TONES! Exactly as the performance goes into the microphone—that's exactly how this Speaker reproduces it. See it!

MAIL-ORDER COUPON



121 Westminster St., Providence

Butler Exchange Building (Opposite Arcade) Gentlemen—I think your offer is very fair. I'm willing to 'try your "WORLDMASTER-OPEROLA" Speaker for 10 days. If I am satisfied I'll keep it; if I'm not you'll return my money. I am enclosing \$1.00 as my first payment.

Address

Jity State State Hease tell us something about yourself.

PJOSD 2025

DEALERS WANTED TRADE INto handle "WORLD" products throughout New England! An excellent proposition! For full information write to: Wholesale Dept. Loud Speaker World Radio Corp. 349 Washington St., Choice New 1 agland Perritories A Most LIBERAL ALLOWANC on your LOUD SPEAKER or Head low Open Live Cone Speakers—Horn Type Speaker—Cabinet Speakers or any that you might own—even Head Phones—and allow you a most LIBERAL AV.
LOWANCE on the price of this
WONDERFUL SPEAKER! We
want EVERY RADIO OWNER IN NEW ENGLAND to fully realize what IDEAL RECEPTION IS—The "WORLDMASTER-OPEROLA" will bring it to you! Try it for 10 DAYS—at our expens—If at the end of that time you don't agree that it's the Finest don't agree that it's the Fines' Speaker you ever listened to we'! refund your money—that's how much faith we have in this Speaker! **SPECIFICATIONS** Beauty — Quality – Beauty -Worldmaster. Value! Operola'' as an exclusive PATENTED TONE ADJUSTER that makes Reception PERFECT

First Payment

·**>>>>>** No Set is Better

Weekly

Your Old

Head Phones

10 DAY FREE TRIAL!

Than the Speaker

Many a radio purchaser has spent days in selecting a radio set, and dismissed the speaker purchase with only a glance—and then regretted it. The most scientifically designed radio set on the market to-day cannot do itself justice if it is forced to function through the limitations of a poorly designed speaker. And by the same token, many a low priced radio set of limited ability is giving permanent satisfaction because the speaker has been selected with care.

The "WORLDMASTER-OPEROLA" will prove this!

Open Every Evening Till 9 P.M.



Listening in"

the greatest form of

entertainmen

Also-its almost perfect ability to reject unwanted broadcasting and other interference, no matter how near or how powerful—the famous Stromberg-Carl-

This absence of extraneous noise, due to totally shielding all four radio frequency circuits, gives an unalloyed sweetness of tone, distance without effort, and sound volume without confusion.

at Christmastide,

A STROMBERG-CARLSON Receiver does not con-

fine its pleasures merely to the person to whom it is

The entire family may enjoy its simple two-dial

operation; its unmatched ease of selecting the finest

radio entertainment; its rare power to re-create all

Stromberg-Carlson Telephone Mfg. Company Rochester, N.Y.

Stromberg-Carlson Makers of voice transmission and voice reception apparatus for more than 30 years.

sound faultlessly.

son quality of "Rejectivity."

We Are Authorized Dealers in Providence for

The Famous New Stromberg-Carlson Sets



Broadcasting Station WJAR

SKINGEREN SKEKEN KERKEREN KEREN KERKEREN KERKEREN KERKEREN KERKEREN KERKEREN KERKEREN KERKEREN KERKEREN KERKER

M. STEINERT & SONS

AUTHORIZED RETAILERS IN PROVIDENCE, PAWTUCKET AND FALL RIVER OF

ATWATER-KENT RADIO SETS and POOLEY-ATWATER RADIO CABINETS

Oak Hall Bldg .- 312 Main St. **Pawtucket**

Steinert Bldg.—495 Westminster St., Providence

52 North Main St. Fall River

Christmas Morning

but above all, be sure it is an

with perfect tone.

thorized dealer only

Our Terms

Will - -

Interest -

You - -

. Be sure there is a Radio among the presents

Atwater-Kent Radio

Atwater-Kent Radio Speaker

¿You will be amazed to know how far radio has advanced-to know how easily you can get your fa-

vorite station and how much volume you can get

To obtain factory guarantee and service, set must

bear ATWATER KENT name plate and serial num-

ber on inside cover and be purchased from an au-

Radio Is the Gift of Happiness

is the Genuine price of a Genuine

ATWATER KENT RADIO

ATWATER-KENT RADIO

If You Get Money for Christmas

Give yourself the finest present of Il-not just "a radio", but THE radio, in ATWATER KENT Receiving Set and Radio Staker.

IF YOU GET MONEY FOR CHISTMAS

there is nothing you can buy that ill give you so much pleasure the whole year aund.

Buy an ATWATER-KINT **BECAUSE:**

It is the product of a quarter-century experience in building fine electrical instruments.

It is accurate, precise, beautifully builtby careful,

It is simple in design and simple is operation, worthy of the finest room of the finest lome. It is built for all-round performance-in tone and

volume, distance and selectivity.

And When You "Think" Radio-"Say" ATWATER-KENT

Then you will know how much you may expect of the perfected radio of to-day.

Radio Brings Companionship



Radio ... Provides -New --**Interests**

A Five Tube Set No Larger Than a Row of Books

On an end table, a low book case or any other piece of furniture the Model 20 Compact takes its place in perfect harmony with

But whatever size you like, if you want a really fine instrument designed for all-round satisfying performance, come in to-day and hear an ATWATER-KENT Receiving Set

Exclusive Distributors in Rhode Island of Atwater Kent Receiving Sets and Radio Speakers 35 ARCH STREET BOSTON, MASS.



OLD CUSTOMERS PAY NO MONEY DOWN



ARE FULLY AUTHORIZED LOCAL REPRESENTATIVES FOR

ATWATER-KENT RADIO

COMPLETE SHOWING OF ALL MODELS

BUY YOUR ATWATER-KENT AT RHODE ISLAND'S OLDEST RADIO STORE

ELECTRICAL

(FIRST RADIO STORE IN PROVIDENCE

INC. 1892

TEL. UNION 1052

45 WASHINGTON STREET

Your Atwater-Kent Set at The Shepard Radio Store

Owners of WEAN-Rhode Island's Oldest Broadcasting Station-a Store Known For Its Service and Conveniently Located On The Street Floor

& H. SUPPLY CO

116 MATHEWSON STREET

REGISTERED ATWATER KENT DEALERS



Music Dept-Pianos-Radios-Phonographs Open Evenings Until Christmas.!!

New Player Piano Outfit!

Take Three Years To Pay

YOUR OLD PIANO TAKEN IN EXCHANGE AND
A LIBERAL ALLOWANCE MADE
12 MUSIC ROLLS, 1 PLAYER BENCH, FLOOR LAMP
NO INTEREST FOR CREDIT

This New Player Piano outfit consists of a handsome and stately Player Piano in beautiful combination mahogany—a very easy action—a sweet, melodious tone—a piano that a child can play with great ease. Outfit

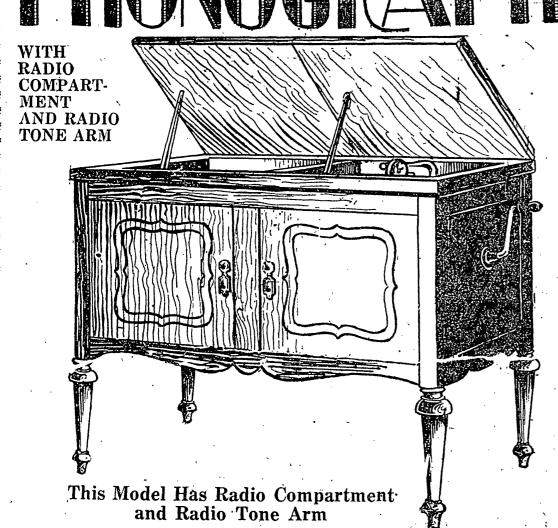
also includes 12 popular Player rolls, a mahogany finish Bench to match and Floor Lamp and Shade.



Other Pianos Nationally Known, Including Player Pianos and Baby Grands, up to and Including \$2200.



Radio Dept



\$

DOWN DELIVERS ANY PHONOGRAPH TO YOUR HOME

We are featuring for to-morrow a very wonderful Console Phonograph in William and Mary period in Mahogany finish; produces a clear, beautiful tone. Has a noiseless guaranteed motor.

ALL TOYS AT
HALF-PRICE
DON'T DELAY





ALL
COMPLETE
NOTHING
ELSE
TO
BUY

DOUBLE GUARANTEE

Your Radio Outfit is no better than its guarantee. At Summerfield's you get the Summerfield guarantee plus the manufacturer's. Guaranteed Tubes, Guaranteed Batteries and Guaranteed Service. The Entire Outfit Complete with All Parts as Shown on Sale Now.

SUMMERTIELS
274 to 280 Weybosset Street Providence

ALL TOYS AT HALF-PRICE DON'T DELAY