

# Radio in the Home

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Radio in the home of Henry G. Schwarz, 2462 Bryn Mawr Ave., Bala, Pa.

Photo by Harry S. Hood



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**GENERAL RADIO CORPORATION**  
*Makers and Distributors of High-Grade Radio Apparatus*  
CHICAGO      PHILADELPHIA      PITTSBURGH  
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# RADIO IN THE HOME

September, 1923.



Radio in the home of Gifford Pinchot, Governor of Pennsylvania, in the Executive Mansion at Harrisburg  
 Mrs. Pinchot is the radio fan of the executive family. She had a standard six-tube set, but has just had this novel tea-wagon set installed. Everything is included in the wagon—set, loop aerial, batteries and loud speaker. Photo by the courtesy of Durham & Co., Philadelphia.

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*Radio in the home of J. Smylie Herkness, of Meadowbrook, Pennsylvania.  
Photo by Harry S. Hood, courtesy of S. and C. Co., of Jenkintown, Pa.*



*—KSD,  
Miss. Jones  
Announcing*

By MARGUERITE MARTYN  
Feature Writer for the St. Louis Post-Dispatch

“THIS is Station KSD, the St. Louis Post Dispatch—”

A legion of you listeners-in are familiar with the voice that utters these words. You recognize it among the voices of other radio announcers for its clearness of enunciation, for the purity of diction it employs, possibly for a slightly Southern accent, for the conciseness of its announcements and introductions and for another quality, of friendliness without familiarity.

You have come to recognize the conduct of the evening programs from this station for the freedom from irrelevancies, by-play and side remarks which some other program conductors, contrary to the Government regulations, indulge in or inject into their programs.

Many of you, no doubt, have endeavored to visualize the personality behind this voice, and there is the evidence in most of the letters received at KSD that the voice does project the personality accurately. Many thousands of these letters are cherished by the recipient as mementoes of congenial, though distant contacts.

Especially do the letters from nice old ladies and from children bespeak a correct estimate of the personality. But radio-phans who send in boxes of cigars as thank offerings and others who address the announcer as “Girlie” and seek to strike up a flirtation must needs be told that they are wrong, all wrong, in their conception.

Probably the first false conclusion is due to the fact that there are relatively few women announcers or because it is hard to associate a voice of just such timber with feminine ownership.

For that reason, some time ago, the custom of signing off with “Miss Jones announcing” was adopted. Even since, there are those who refuse to be convinced, possibly because the name “Jones” sounds like a thin disguise.

How the flirtatious ones make their mistake is not so easily explained unless they are just of the incorrigibly irrepressible type, for certainly the announcer does nothing to encourage such presumption.

To correct a few misapprehensions and amplify many mental pictures the voice has conjured up, the editor of *Radio in the Home* has asked a co-worker on the staff of the Post-Dispatch to introduce in person Miss Virginia Adele Laurence Jones.

She is better known in St. Louis as Miss Val Jones.

First, what does she look like?

Well, she has red hair. I do not know

pleasant, but most necessary, of her duties. Once a week she holds hearings of from fifty to sixty aspirants at which the well-known and the unknown performers alike must go through their paces. At these hearings Miss Jones is sole auditor, judge and court of last resort.

Some of our best offerings are lacking in the essential qualities for radio transmission. But this fact proves a convenient refuge for the severe critic who would at the same time be kind and tactful.

I am sure, too, you must have been impressed with the broad knowledge of affairs indicated in the intelligent introductions of speakers on a wide range of subjects and the technical knowledge evidenced in her selection and introduction of musical numbers.

The first faculty may be due in some measure to the fact that before becoming our announcer Miss Jones had been one of the most capable newspaper workers and editors in this city. For several years she was feature writer and society editor of the now defunct St. Louis Republic, gaining wide popularity under the nom de plume “Serena Lamb.”

The second is due to the fact that she is a trained musician herself, and to experience and prestige gained through long association with the St. Louis Symphony Orchestra Association as publicity director.

And those of you who have listened to her announcements night after night since the inauguration of this broadcasting station a year ago and observed how her hours of duty extend at times from evening to morning and, as upon Christmas Day, from one midnight to the next, must have marveled at her devotion, efficiency and capacity for work.

The first quality is due to you listeners-in. She never fails you, because she has grown to know, from your many letters of response, of your appreciation and expectancy.

Of the second quality, her capacity for work, you do not know the half unless you know that besides the hours of duty at KSD, regular hours are devoted to a business of her own, a publicity office in which she undertakes such large contracts as the Veiled Prophets Ball, St. Louis’ great annual social and civic celebration; the tuberculosis ball game, the largest local charity event, and other important yearly contracts.

The thing her co-workers marvel at is

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that a certain temperament invariably accompanies red hair. If so, let me explain, it is a rare shade. Not light, nor yet dark, but a certain suffused copper, a great mass of it, spun very fine, always immaculately dressed in precisely the same manner, fluffy around the smooth brow and flatly coiled at the crown of the head.

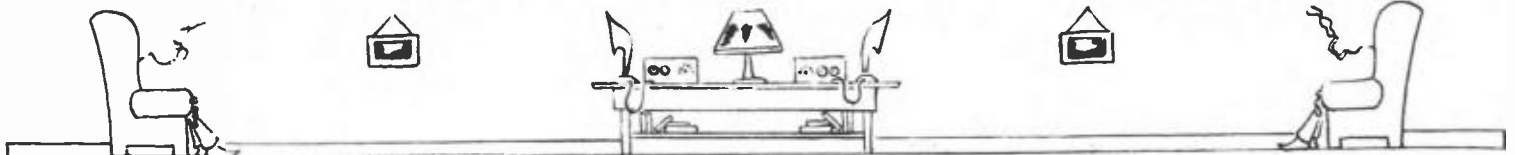
Fair skin, the usual complement of auburn tresses, and blue eyes complete the color scheme.

Nose glasses worn constantly add a touch to the dignity already conveyed by erect carriage and meticulously careful dress.

Let a ready laugh, warm, though never impulsive, responsiveness, firmness without stiffness complete your picture of a young woman of poise and reserve, graciousness and warmth. Virginian nativity accounts for the Southern accent.

Many of you who have listened to KSD programs, in their infinite variety, when told they are procured and arranged entirely by Miss Jones, cannot but be impressed with the resourcefulness, knowledge, tact embodied in one person. It requires tact you must acknowledge to maneuver a Clemenceau, a President of the United States, a prima donna, into just the right position before a broadcasting microphone. It requires still more tact sometimes, you may well imagine, to keep ambitious but inadequate performers off the program.

This Miss Jones regards as the least



# WGY

The  
Nation's  
Theatre

WHEN the WGY players recently completed a season of forty-three plays at the radio broadcasting station of the General Electric Company, at Schenectady, N. Y., each of the little group stepped to the microphone and delivered a short curtain speech to an audience which sat over a territory of hundreds of miles before a curtain that is never raised.

If the popularity of the productions had been in doubt at that time, the heavy mail of the following week convincingly attested that the radio drama is appreciated as well as the screen play or the stage production. The listening ear was so well satisfied that the unseeing eye was forgotten.

In their speeches the players gave their names and brief biographies; they addressed their audience not collectively, but as though they were speaking to a single person and each of the thousands listening felt that he was that one.

During the forty-three weeks devoted to a play one night a week, a feeling of friendliness has arisen between player and audience such as naturally grows between resident stock players and their admirers. This friendliness is conveyed on the one side by the voice and on the part of listeners by their encouraging letters.

The regular players will be back on the WGY programs this month, and in the meantime Edward H. Smith, director of the company, has been producing a series of plays with the assistance of the "Student Players," amateurs recruited from promising material.

The first of these was a comedy, "A Marriage Proposal," by Anton Tchekoff, with three characters. The second was a modern domestic tragedy, "The Holdup," with four in the cast. The last of the group was a comedy, "The Best Man," by Eleanor M. Crane, in which four took part.

Practically the same cast was maintained during last season's long run and these



The WGY Players, whose weekly Radio Drama performances have made their station the nation's theatre.

same voices coming into a home week after week have won recognition for the players and a place in the hearts of the listeners. Each radio fan, sitting at his set, feels that a production is something put on just for him and the final curtain speeches of the actors helped to cement that feeling of friendliness which exists between performer and listener, no matter how many miles might stretch between them.

A York, Pa., correspondent remonstrated at the discontinuance of the drama as follows: "I would like to know why they (the players) quit now. In a theatre,

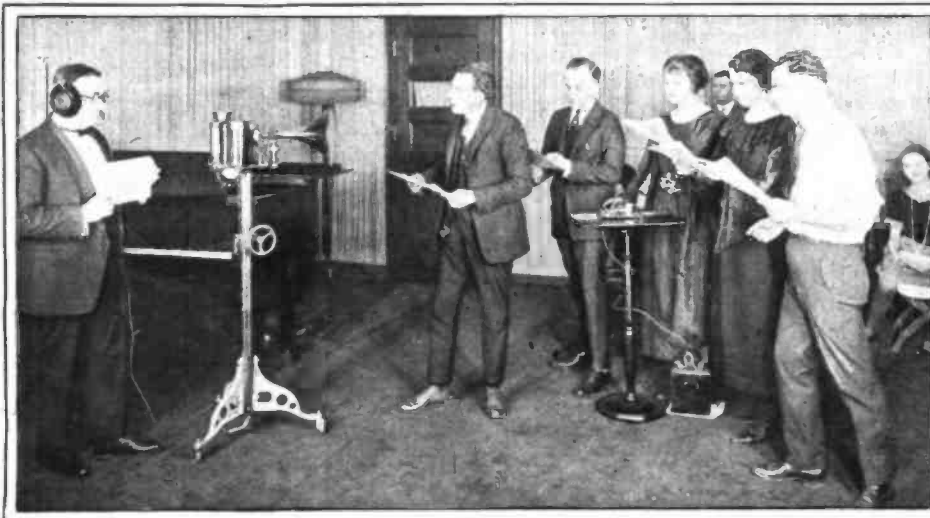
of course, it is too hot at this time of the year, but not where I go—my radio set. I take a seat way up front and nobody interrupts me changing seats, no women's hats get in the way, no music or candy hawkers interfere with my enjoyment; there are no long intermissions and you don't even have to dress."

"It seemed like parting with intimate friends and we shall miss you," wrote a radio fan living at East Greenbush, N. Y. "We are glad it will not be long and we shall be anxiously waiting to hear your pleasant voices again in the fall."

Since the initial performance of the WGY Players, "The Wolf," the organization has remained practically the same. Six players who have appeared during the entire season have been: Viola Karowska, Ida Myrick, Ruth Schilling, Edward E. Schilling, Frank Oliver and Edward H. Smith, director.

These pioneers in the radio drama suffered at first, felt handicapped in their efforts to find inspiration from a microphone in a quiet studio. The audience was unseen and it is rather difficult to find inspiration in something silent and unseen.

Then the letters began to come in and these letters established contact between



WGY players presenting "The Traveling Salesman." Telegraph key at the right center was used to create atmosphere for a railway scene. Censor at the left hears by radio the words spoken by the performers. The heavy ear muffs keep the room sounds from reaching his ears



The WGY Players in action. A busy moment during the broadcasting of "The Great Divide"

Steven Ghent and two ruffians have battered their way into the Jordan cabin and attack Ruth Jordan. The stifled cries of Ruth were produced by holding a hand over her mouth while she emits gurgling shrieks. The smashing effects were produced by wrecking an ordinary packing case, accompanied by the sound of the conventional wood crash machine and sand board. Mr. St. Louis at the extreme left stands with the manuscript awaiting the cue

to fire the pistol shots, depicting the duel between the three ruffians to decide who is to possess the girl. The Players reading from left to right are Edward E. St. Louis, "Shorty"; Frank Oliver, "Dutch"; Edward H. Smith, "Steven Ghent"; and Ruth Shilling, "Ruth Jordan." Each player is his own stage manager and awaits signals from Edward H. Smith, director, to produce the required effects.

performer and listener. The actor began to feel that he was addressing old friends who were tolerant of weaknesses in a production and enthusiastic when a situation in a plot was put over successfully.

Unquestionably the WGY Players have had the largest audience ever before accorded dramatic offerings. Just how large that audience is is difficult to estimate. There are at least 2,000,000 radio sets in the country and of that number 1,500,000 are almost nightly within range of WGY. Many of these sets have loud speakers or extra phones, enabling groups to listen in. The number of people who have heard the WGY players in the continuous run of forty-three weeks is anybody's guess.

When Mr. Smith and a half dozen actors were engaged about a year ago to produce Eugene Walter's play, "The Wolf," it was something entirely new; it was contended by many that the radio

audience would be unable to follow the play with any degree of interest because of the absence of scenery and because they could not see the players. Voice alone, it was contended, would not be sufficient to put over dramatic climaxes.

From the very first the radio drama was a success. Letters veritably poured into the station, asking for more. Mr. Smith, formerly an actor and director on the professional stage, was engaged to produce one show a week.

This work was undertaken in a serious and thorough manner and for months many of the greatest successes of the stage have been going into the air, reaching untold thousands who, but for radio, would never have had an opportunity of hearing the plays. During the last winter, when farmers in many parts of the country were snowed in, cut off from the mails, the village and in many cases their nearest neighbors, radio programs went out to relieve their loneliness. The farmer, the woods-

man, the keeper of the lighthouse along the Atlantic coast, were enthusiastic in expressing their appreciation of the dramas.

Mr. Smith and his players have pioneered in the art of the radio drama; they have had to develop a new technique.

It was found necessary to make occasional changes in play manuscripts, especially where a climax depended upon sight for its appre-

### Last Season's Plays From the Nation's Theatre

The following plays were presented by the WGY Players under the direction of Edward H. Smith during the season of 1922-23 at the studio of the General Electric Co., Schenectady, N. Y.:

The Wolf  
The Garden of Allah  
Get Rich Quick Wallingford  
The Man From Home  
Paid in Full  
Way Down East  
Are You a Mason?  
Officer 666  
A Fool There Was  
The Sign of the Four  
Seven Keys to Baldpate  
Madame X  
Miss Lulu Bett  
The Witching Hour

The Wrong Mr. Wright  
Nothing But the Truth  
The Sign of the Cross  
Under Cover  
Within the Law  
My Friend From India  
Bought and Paid For  
The Prince Chap  
The Traveling Salesman  
The Third Degree  
Secret Service  
Why Smith Left Home  
The Green Goddess  
Mrs. Temple's Telegram  
John Ferguson

Ready Money  
Three Musketeers  
On Trial  
Merely Mary Ann  
Strong-Heart  
The Fortune Hunter  
The Storm  
The Lion and the Mouse  
What Happened to Jones  
The Copperhead  
Happiness  
Clarence  
The Great Divide  
It Pays to Advertise



Above we have the studio staff of WGY. Left to right are: Carl Jester (C. J.), announcer; Mrs. W. J. Cram (Mrs. W. J.), announcer of afternoon programs for women; Kolin Hager (K. H.), in charge of the studio and chief announcer; Robert Weidaw (R. W.), announcer and assistant to Mr. Hager;

ciation. The entrance to or departure from a room by one of the characters had to be indicated by sound, as a closing door. A bell helps somewhat in announcing a newcomer to the invisible stage. Various sound devices were created to produce atmosphere. A telegraph key and an imitation of an engine whistle helped in a railway station scene; storms were simulated by devices similar to those used on the stage.

The performer was greatly handicapped at first because he had depended a great deal upon the presence of his audience. Facial expressions were no help in interpretation; strong emo-



Below we have the gentleman who is responsible for the fine dramas broadcast from station WGY. He is Edward H. Smith, director and leading man of the WGY Players

tion could be conveyed only by vocal tone. To help the performer to a realization that his work was heard and appreciated, WGY requested the radio audience to write their "applause," and this they have done by the thousands. The actor now sees his audience, but an audience made up of all conditions of men, and finds inspiration for his work in applause not of hands clapping but words written.

Fancy a theatre 2000 miles and more across, with some of the theatregoers miles from the occupants of the next chair! Visualize an audience

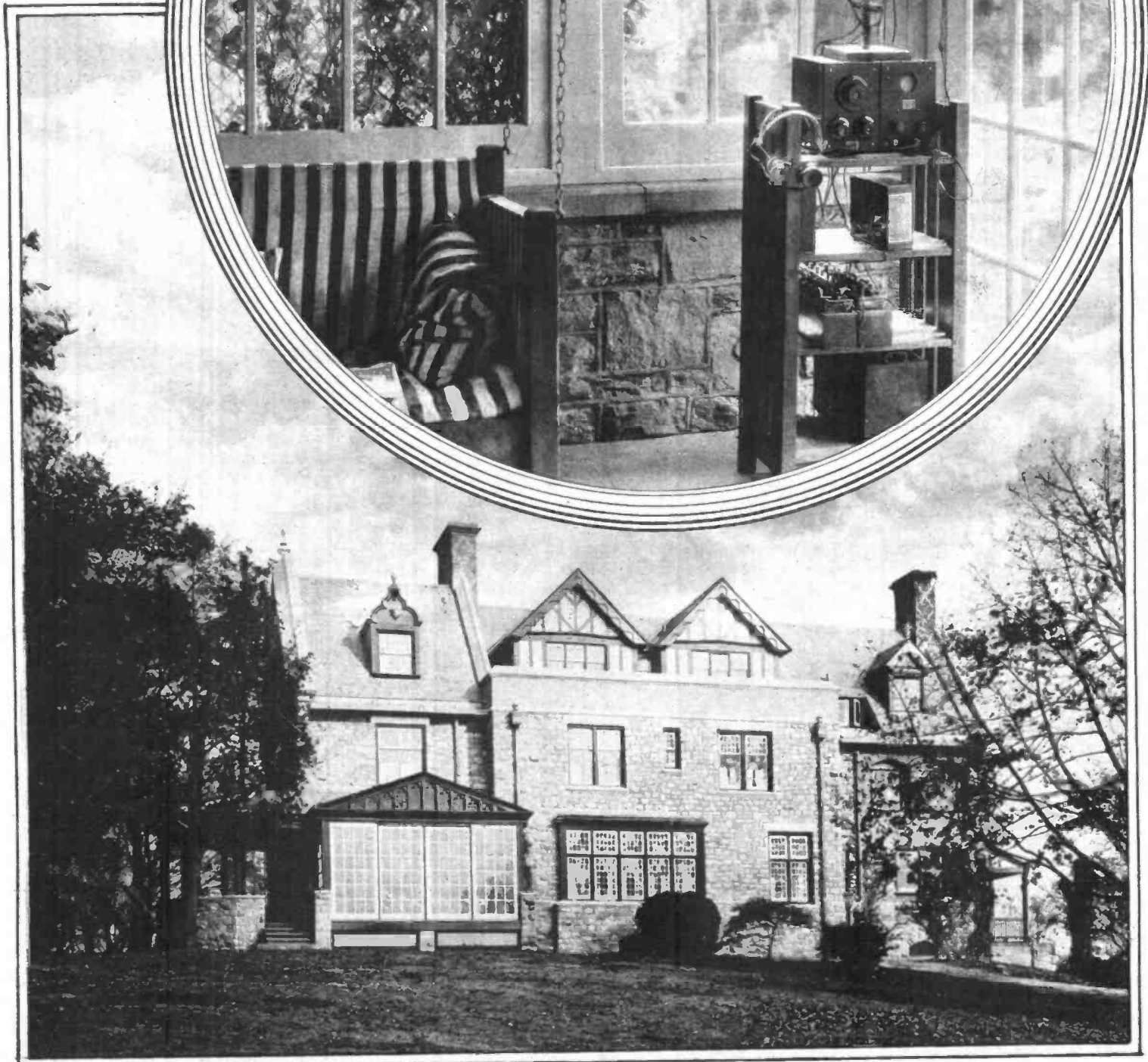
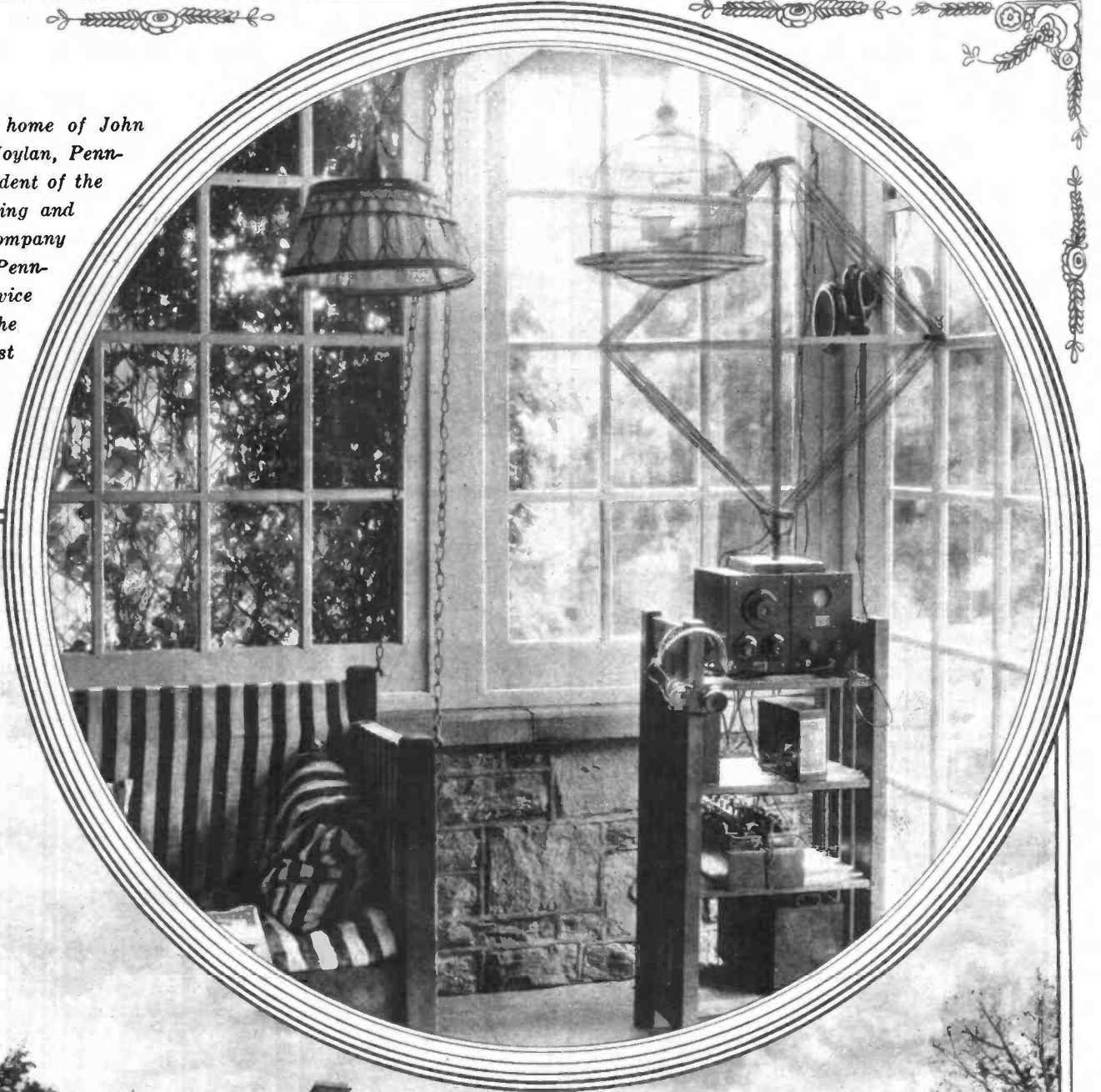
(Continued on Page 26)





Above we have the WGY Players in a moment of merriment. Frank Oliver, comedy character man with the WGY Players, is so funny that he even draws laughs from the blase actors and actresses in the cast. Below are shown the WGY Players with some of the assisting artists of the Van Curler Players, who are called on when the cast requires extra people

*Radio in the home of John G. Pew, of Moylan, Pennsylvania, president of the Sun Shipbuilding and Dry Dock Company of Chester, Pennsylvania, and vice president of the Oakland Trust Company, of Pittsburg, Pennsylvania*



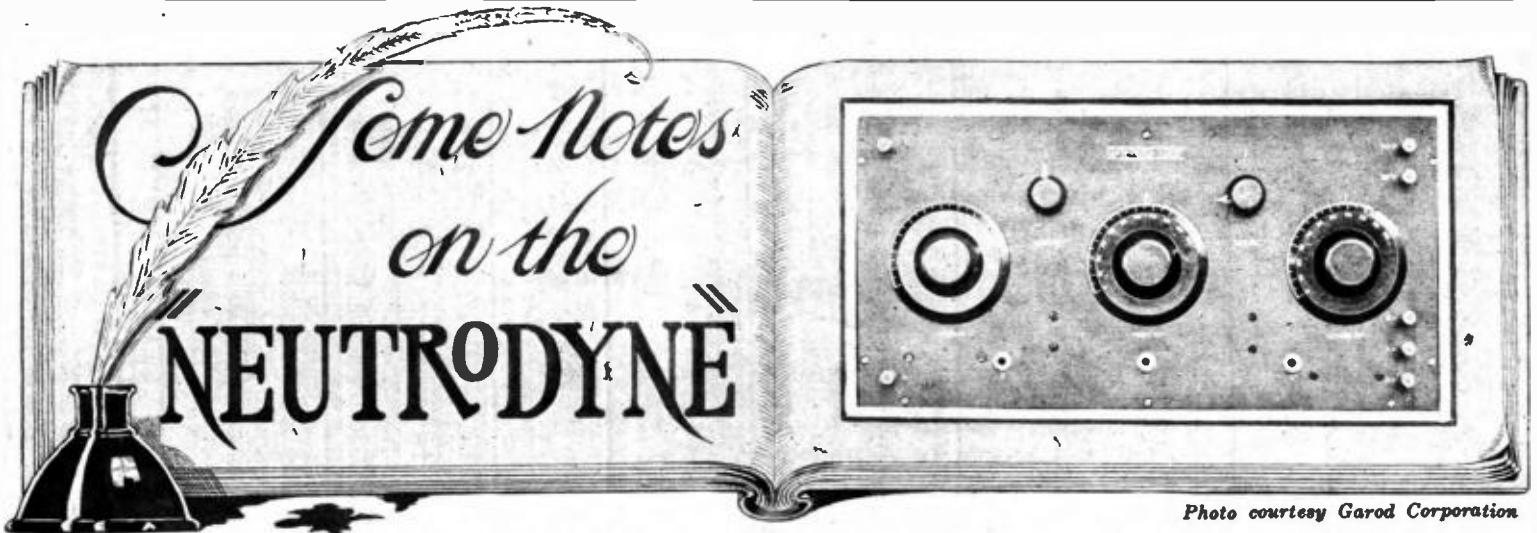


Photo courtesy Garod Corporation

VERY many letters have come in to me during the past two months asking me why I have not given the hook-up and building instructions for the Hazeltine neutrodyne circuit. These letters want to know if my silence on this subject indicates that I do not consider it a good circuit.

I can answer this question very briefly. I consider it one of the best circuits that I have ever handled—providing you buy it already built in a factory-made set.

On the other hand, it is not by any means an easy set to assemble and it is one which I would regard as out of the question for the average amateur builder.

There are three adjustments necessary in this circuit, any one of which is too much for the man who is not quite expert in putting radio sets together, and even the expert man will very probably fail during his first two or three attempts to make a neutrodyne circuit work. After he gets used to it he can do it all right, but this takes time and the average amateur expects his set to work the first time he hooks it up.

The first of these difficult tasks is the adjusting of the neutralizing condensers, which are the secret of the operation of Professor Hazeltine's circuit. With very full explanations and complete drawings I might be able to make this part clear enough for the average amateur to handle it after two or three attempts.

There are two other still more difficult features, however, in putting a neutrodyne circuit together, and these concern the double coils which act as radio frequency transformers.

These coils of wire are wound on two tube forms and one of them slips inside of the other one.

Aside from getting exactly the right size of coils and correct number of turns of the right kind of wire, it is necessary to have the inside coil fixed in a definite relation to the outside coil.

Still more difficult than this is the angle at which these coils are mounted upon the panel, and this angle is so critical that a degree or two out of the way will spell the difference between success and failure with this set.

It is perfectly hopeless to attempt to explain these two features of the transforming coils to the novice in such a way that he will be able to master the difficulties, and so I have not given the neutrodyne hook-up and I do not think that I shall give it.

When, however, it comes to buying a

factory-built neutrodyne circuit, my attitude is quite the reverse of this.

I have been playing for the past month or more with one of these factory sets, and I almost feel tempted to say that I have never handled a radio set which gave me quite the amount of satisfaction that this one has given me from every standpoint.

These sets are now usually made with four tubes, and one of these tubes is used in a "reflex" circuit, which means that it is employed both as a radio frequency amplifier and an audio frequency amplifier. This makes the four tubes theoretically do the work of five—two stages of radio frequency amplification, detector and two stages of audio frequency amplification. As a matter of straight facts, the reflex circuit never does quite equal the number of tubes which it is theoretically supposed to represent, but there is no question that it does give better results than the same number of tubes employed without reflex.

One would think that the necessity of

to each other; that is to say, that if you tune one station in with the first and second dials three degrees apart and the second and third dials four degrees apart, all other stations will come in with the same number of degrees between these dials, although, of course, the settings will be different with different wave lengths.

I have not found this to be definitely the fact. I have, however, established that with my own set the principal tuning is done with the central dial; that is, this central dial acts almost as a wave meter and is used to find the wave length. Then I find slight movement of the first and third dials will bring the signals in at maximum strength, and these two dials are never on any wave length more than four degrees away from the center dial.

With my own particular aerial the first dial is always below the middle dial and never more than four degrees below it, and the third dial is always above the setting of the middle dial and never more than four degrees above. I am showing a list of stations I have tuned in with this set during the months of July and August, and these dial settings will give you a very good idea of how simple the tuning is.

To go exploring for stations, I simply start my middle dial at a setting of about twenty degrees and then move my left-hand dial between sixteen and twenty and my right-hand dial between twenty and twenty-four. If I hear no signals during this slight movement I know that there is no station within hearing on that particular wave length.

Then I move the center dial up a degree and play with the two outside dials, the left hand one within four degrees below and the right hand one within four degrees above.

So I go exploring with the center dial, moving it up one or two degrees each time and in the degrees of the scale between 20 and 70 I am always sure to find a number of stations.

The thing that has surprised me most about this circuit is the remarkable sharpness of tuning. This, with ease of adjustment and the surprisingly large volume of sound which the four tubes give, has made it an extremely interesting set for me.

At our station 3XP at Delanco, N. J., I can put the Philadelphia stations on four loud-speaking horns in parallel and they can be heard half a mile away.

The signals are loud enough to work four horns for dancing from stations in

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### Some Neutrodyne Dial Settings

The following list of stations, tuned in ON THE LOUD SPEAKER at Station 3XP, Delanco, N. J., with a neutrodyne set, shows how closely the three dials follow each other and how easy the tuning is:

Station	Location	Dial 1	Dial 2	Dial 3
WEAF	New York	58	60	64
WDAR	Philadelphia	37	38	42
WJAX	Cleveland	32	33.5	35
WJZ	New York	46	48	51
WJY	New York	33	35	37
WOO	Philadelphia	63	65	70
WIP	Philadelphia	64	65	69
WFI	Philadelphia	36	37	39
WDAF	Chicago	28	29	30
WOR	Newark	35	38	40
PWX	Havana, Cuba	34	36.5	38.5
WGY	Schenectady, N. Y.	30	31	33
WCAU	Philadelphia	14	14.5	15
KOP	Detroit	13.5	13.5	13.5
WJAZ	Chicago	47.5	49.5	53.5
WOC	Davenport, Iowa	57	58.5	62
WDAJ	College Park, Ga.	26	26	27.5
WGM	Atlanta, Ga.	43	46	49
WMAF	Dartmouth, Mass.	24.5	25	26.5
WSAI	Cincinnati	17.5	17.5	17.5
WHK	Cleveland	26.5	27.5	31
WHAZ	Troy, N. Y.	31	32.5	34
WNAT	Philadelphia	26	27	27

tuning three different coils by means of variable condensers would make an extremely critical set of adjustments and would probably mean very difficult tuning.

This is not the case, however. Manufacturers of these sets claim that the three dials are always in a definite fixed relation

# Little Miss Radio

By  
Sidney Lear

THE cleverest radio fan at the seashore this summer has a bulb set mounted on a child's express wagon. This is merely a makeshift tea-wagon set, but it has the same possibilities as the expensive tea-wagon set, and brings radio into the most unexpected places and situations.

And my, how popular it has made the owner, too! The owner is the father of a family, and his daughter of seventeen has been having the most glorious summer of her existence. They call her "Little Miss Radio."

His son of eleven has led "the gang" ever since the first of July, when the arrival of the family and the presence of the radio set were discovered. And he and his wife have had the most enjoyable vacation in years, meeting all the most interesting and worth-while people at the resort. All because of a radio set mounted on Jimmy's express wagon.

The wagon was dressed up in a mahogany finish before the mounting was done, so it really doesn't look so much like a discarded toy as you'd think. Its aerial, of the loop variety, sits proudly on the bow. It has a seagoing appearance, this express wagon set, and it's a seagoing wagon, too. High above the surface of the sand, it is in no danger from dampness or an ambitious wave. It is taken to the beach at the bathing hour to edify those who take sun baths before they try the salt kind, and affords the greatest kind of entertainment for older persons who don't take kindly to sea bathing, or visitors who prefer to watch.

In the afternoon there are various duties for the set. Mother and father want to sit on the beach in their legless chairs reading and knitting and wearing their ear-phones. Their faithful little wagon sits between them on the sand, its tongue hanging patiently out. This happens when they sneak off while nobody's looking.

Usually Betty's friends descend upon her in a body for a dance on the porch, or an afternoon's entertainment at the tennis club, via the wagon set, while they watch the players on the courts.

Sometimes Jimmy's friends make up a party and go sailing. The wagon trails along with them, down to the edge of the dock, where it is

picked up by capable sailor hands and deposited in the cabin, safe from spray. And a-sailing it does go, catching the music out of the air as it sails. The unsteadiness of its position makes no difference to the excellence of its performance, as this does with a talking ma-

chine, and it does not warp with the dampness. It works right along merrily, and the happy crowd of youngsters clustered on the roof of the cabin, or sitting around the captain begging for a turn at the wheel, have music wherever they go, just like the Lady from Banbury Cross. They can sing or be sung to, and if they get tired of hearing what comes through the air they can disconnect it.

But, of course, mother has to have her turn, even if she is an "old lady"—and anybody over thirty-eight is old nowadays. There are afternoons when she decides to ask some of the ladies at the hotel to play bridge with her. And incidentally, if most of them don't realize that they owe her a vote of thanks for those afternoons of sitting out on the porch getting the sea air, they are pretty ungrateful. They should pay their compliments to radio, too, for it used to take the inducement of a concert with the bridge to lure them away from their beloved hotel parlor.

One wonders why some women go to

the seashore at all, or the mountains, or any place where the air is the important feature. They get the air in the morning after breakfast when they sit on the porch for a little while. But all the rest of the day and evening they are indoors, sitting up in a stuffy little room playing bridge with the same group every day!

Some persons go away for a change, others for the sake of meeting new people, making new friends, the majority for the fresh air, the outdoor life and the rest. What these women go away for no one knows. The only change they get is on the train going to their destination, where it is not so convenient to play cards; the only people they meet are the three others in the group about the card table; they get nothing of the fresh air except that which creeps into the room whether they want it or not, and they don't even see any outdoor life.

It is a wonder they don't go home broken down in health rather than built up.

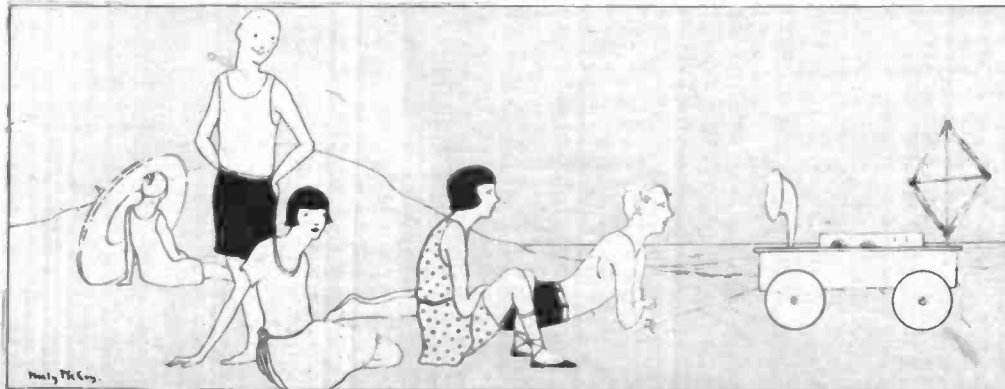
They have to sit out on the porch when they go to the home of the radio set to play. In the first place, there wouldn't be room inside the cottage for them all to get into one room, and in the second place, mother goes to the seashore for the outdoor air. So the bridge fiends have at least that much to thank radio for, if they didn't also have a number of delightful afternoons of listening in.

But the evening is the prize time for the wagon radio set. There have been beach parties about every other night this summer, at this particular resort at least, and "Little Miss Radio" has been the guest of honor at each one.

"Let's get 'Little Miss Radio' and have a beach party," has been the universal suggestion.

But she isn't fooled; she knows it's father's radio set, which he is awfully good about lending, and not her own charms alone which make her so popular.

On the other hand, she has had the chance which keeps so many girls from proving that they have charms of their own; she has been invited to every party and every stunt that the crowd of her age has undertaken. The radio



set started her popularity, it's true, but it also gave her the opportunity of showing that she doesn't need a radio set in order to be popular from now on.

(Note—Fathers of homely or unattractive or shy or unknown girls would do well to include a portable radio set among their baggage when they go away next summer. If the daughters don't make a hit, the radio set will, and the result of being surrounded by apparently admiring young people all the time will be a changed and happy girl.)

It is pretty late in the season for most families to heed this for 1923, but at the end of the summer one wisely sums up the disadvantages of the season and plans against them for the coming one. The most important of these maxims for a successful summer vacation in 1924 is, "Don't fail to take along or build a radio set that can be moved easily from the hotel or cottage to the beach." And some families taking late vacations will still have time to make use of this popularity campaign.

Incidentally, even if they know everybody in the place, or don't want to be bothered knowing anybody in the place, they can get a lot of enjoyment out of their set themselves.

Still, it would be hard to beat "Little Miss Radio's beach parties," as the family have begun to call them. The crowd gets together at the corner of the postoffice street. Some go up to the store to get marshmallows, and hatpins to spear them with, for those are invariably lost at every party; others go around to Betty's "to kid the old man and get him to let us have the radio set," the old man having long since made up his mind to part with his set that evening, and the rest wait, singing songs the while.

Then everybody comes together again, and the procession starts, four boys escorting the express wagon down off the boardwalk and across the deep sand to a hollow among the dunes where a fire can be made and allowed to burn without danger.

One of the high lights in the memories of the guests at this resort this summer will be the view of one of these parties from the boardwalk. The fire casts a glow that lights up the cup formed by the position of the dunes and is reflected in patches on the metal of the radio set placed high on a mound of sand to catch the best concert. The youthful voices rise gay and high, drowning out the soloist who leads them from many miles away. Chatter rises just as high at the end of the song, when friendly arguments start as to whose marshmallow is who's and why, when more or less gentle roughhouse ensues, or when fifteen or a dozen girls and boys begin talking and laughing over nothing at all at the same moment.

Later on, when the moon comes up huge and yellow, casting those long lanes of beauty across the waves, when the breeze is cool and full of delicious salt tang, when even the waves seem to fall under the serene spell cast by the Lady in the Moon, when the late dance music comes on, the fire is left alone in the cup among the dunes. It is left to die out slowly, its glow creeping lower and lower on the banks of sand, while the crowd of youngsters that sat around it so gayly pair off and dance down there on the hard-packed sand close to the ocean.

What if somebody's white shoes do get

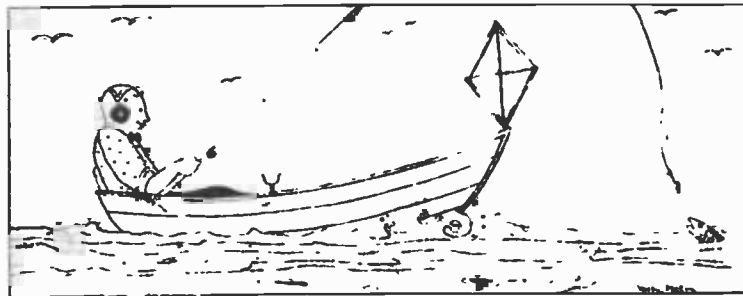
darkened with wet sand? Suppose somebody's orchid organdie does wilt and grow limp, or some one else's white georgette gets splashed because some one's partner dances her too far up the moonbeam to the land of castles in air? What does anybody care? There's nothing more glorious than dancing under the moon by the sea to music



with something in it that almost makes flying possible! Is it any wonder a girl with a radio set that is the direct cause for a party like this is popular?

Right up to the very last minute they can dance until the loud speaker says pompously: "Station W H E E signing off, good-morning, everybody."

Then it's good morning, everybody, to



the moon, smaller now, closer, further away from the ocean, nearer land; to the ocean, beginning to roar a bit with the incoming tide; to the last embers of the fire, carefully stamped out before they leave; to the blessed little radio set; and at the corner of the postoffice street, quietly, to

one another as they scatter to their homes.

Glorious parties these are, and they are still going on, will go on as long as seashore weather permits and the crowd stays. Isn't it sad to think of all the years gone by, all the beach parties gone to waste without radio to lift them to such heights of enjoyment!

But that same old moon looks down on other places beside the seashore, and this year, from the very first wee sliver of the crescent, it has seen and heard new things everywhere. Most of this has been either on or across the water, for when a radio fan is also a water bug he just naturally has to combine the two in some way or other because he cannot give up either of them. And then it is such a pleasure to have music as you row—or paddle or swim or sail or roll along in a motorboat—as this has been almost impossible on account of the tendency of phonograph records to warp.

The camping house party that occupies a cabin along the side of a river or creek really needs a radio set equipped with loud speaker, to serve as dinner gong and bedtime call as well as entertainer to those members who have no sense about coming in when they once get out in boats.

There is nothing much darker than a wide river after 9 o'clock at night. You can get lost more quickly and more completely out there in a small boat with only a lantern for light than anywhere else. You can scarcely see from stern to bow, the horizon shows only a slight lightening of the shadow, and unless there is a bright moon you can turn due south when you mean to go due north and never even feel wrong.

But with a powerful radio set working back there on the porch of the cabin, aided by the remarkable acoustic properties of the water, the high tenor note of some singer may easily be wafted to the bewildered occupants of such a lost craft and turn them in the right direction.

But put a small set in the canoe and fit it with two pairs of earphones. Mother will feel so at ease as Marie and her latest beau glide off for an evening's paddle—each wearing a headpiece. Radio makes such a splendid chaperon!

Of course, Marie may decide after a little while that the headpiece is mussing her hair dreadfully and that she would rather listen to sweet nothings from the latest beau than songs and stories from a member of Keith's Circuit—but Mother will have that sense of relieved responsibility all evening just the same, and Marie will have no trouble going canoeing again.

A great deal of Mother's usual anxiety has been relieved this summer, or could have been if her family had gone in for radio to any extent. She always worries so about father when he goes fishing alone. He hates to take anybody along, but he gets so sleepy just sitting there hanging to his line that he cannot keep his eyes open. And all the time he is out Mother doesn't know what in the world has come up and run into him or turned him over, or bitten a hole through the bottom of the boat and drowned him slowly in his sleep. Her imaginings are always morbid and rabid, and it is almost disappointing after all her visions and ideas to see father rowing up the cove in leisurely fashion, triumphantly displaying either one small fish

or a sunburned nose. Now if she knows that he is sitting there with a concert in his ears or learning how to take care of goldfish while he tries to catch bass, she won't be worried. And if he has a radio set to take fishing with him he can do that, and there will be no danger of his falling asleep.

Apropos of fishing, young Jack Brown, the inveterate fisherman, whose only disappointment in his married life has been that his wife did not enjoy fishing, came back from his three weeks in Maine this year a happy radio enthusiast. He had never cared anything about it, got rather bored when anybody mentioned it—in fact, Jack gets bored when anybody mentions anything that has nothing to do with fishing.

But in June, just before the Browns

It took some time, but she won. Every day she would connect up the set as soon as Jack started out. And then, like all real enthusiasts, she had an idea.

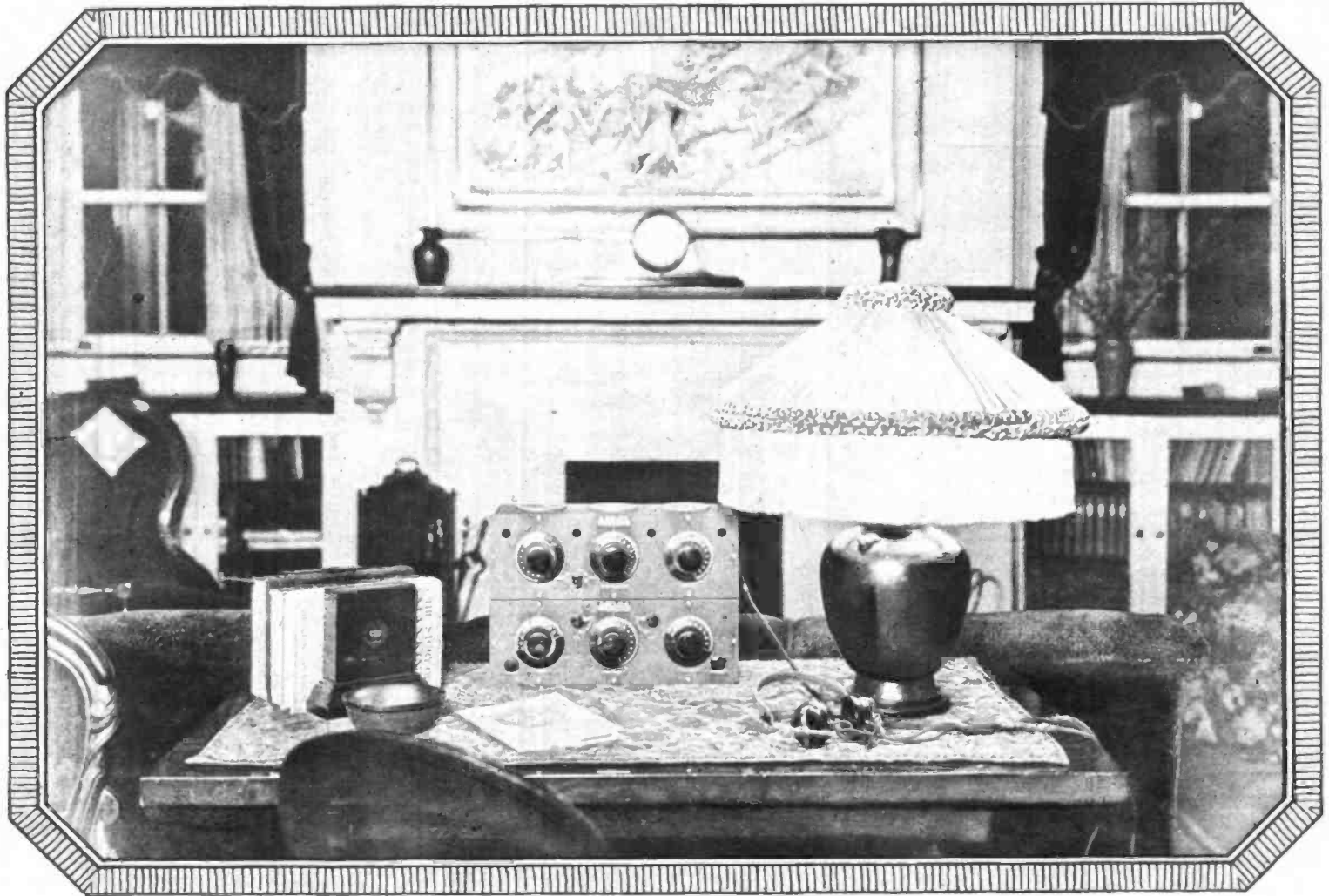
"I think I'll go out with you today," she announced one morning. "I want to see whether I can get anything on the radio out there on the water."

After that she went out with him every day, and sitting high and dry in the bow, with her radio set beside her and her headpiece under her hat, she smiled unspoken encouragement to the ardent fisherman in his runs of bad luck and clapped silent applause of a good catch.

So Jack came home so fond of that radio set that he listens in every night himself now. After all these four years of married life, in which he has been fishing alone or uncomfortably because a bored, rather

These parties have always been delightful, carefree, joyous things. But until this summer there has always been the one drawback, that driving, beating, burning, midday sun, which makes anything but complete relaxation and idleness an impossibility for any one who is not accustomed to it. Activities used to cease entirely from lunch time until after 3 o'clock. Of course, there was the phonograph to play, and bridge games on the porch were possible, but a steady diet of these grew tiresome, and everybody would be thankful when the heat grew a little less intense and the time for the afternoon swim drew near.

"I had a glorious time," ex-guests would always say. "It's a marvelous place and we had wonderful times, and the Smiths are delightful hosts—but oh, that midday heat! It's terrible, I don't see how



Radio in the home of T. W. Findley, of Milwaukee, Wis.

Photo courtesy of Amrad Corporation

went on what Mrs. Brown called their camping trip and Jack called their fishing trip, a friend who eats, sleeps and breathes radio presented them with a small set and portable aerial. And Mrs. Brown was immediately charmed with it, as so many women are. She learned to connect it and operate it as well as any fan, and when they were packing to go away she insisted upon taking it.

"Yes, Jack," she said, "you know I hate to fish, and I get awfully lonely there in camp all the time while you're out. I've never mentioned it before because I didn't want you to worry, but if we take this along I can have something to entertain me; I'll carry it myself!"

squeamish, though striving-valoriously-to-conceal-the-fact, wife was with him wondering why he wanted her to keep so quiet.

The Browns' friend, the one who gave them their set, has a large one with loud speaker attachment, which he took with him to his Eastern Shore home in Maryland this year. He and his wife motor down there in June every year, and he spends a week helping her get the house and boats in working order for the summer. Then he goes back to town on the train and she begins a series of house parties which overlap one another until the end of the summer. He spends week-ends when he can and finishes up with two weeks alone with her at the end of September.

they stand it all summer!"

Last fall after his return Mr. Smith began delving into the mysteries and intricacies of radio. He made a crystal set and invited all his friends to come see it. Then Mrs. Smith began to hanker after longer distances, so he tried a bulb set. And then when spring arrived and plans for the summer were started Mrs. Smith demanded a regular store set and a loud speaker for the Maryland house. So that was managed for her, and upon their arrival in June the set was installed in the big motorboat, the one used for all-day cruises and long trips. The lawn slopes gently down to the river and the porch is along the river side of the house. When the boat is moored

to the dock directly at the end of the lawn and the loud speaker is aimed toward the house, the transmission is plainly audible to any one on the porch or in any of the rooms on that side of the house. The result of all this maneuvering is that the zero or no-account hours of heat which formerly went to waste as far as any real joy or entertainment was concerned are now quite as full of pleasure as any others during the day, which is saying a great deal, as any one who knows the charm of the Eastern Shore will understand.

And that's only the half of it, too.

Those cruises sometimes used to draw themselves out at astonishing length when the usual trouble of the record that waved like a Marcel was experienced and voices grew weary of singing with no accompaniment but a plucked ukelele. Also, if the crowd happened to be scattered, some on the deck, some on the cabin top, still others far up in the bow, the chorus singing was very likely to disintegrate into a number of separate and distinct quartets, duets, trios and solos that didn't match at all. This summer they've had some gorgeous harmonies contributed to from all parts of the boat. And the dances they've had! They deserve a whole paragraph to themselves.

Sunset across the water reflected and made all broken and shimmering by the wake of a motorboat is just about the most beautiful thing anybody ever saw, especially when it is accompanied by the soft, genial air of late afternoon on the Eastern Shore. Now the remains of a picnic lunch re-served for supper are not always delicious, but you can imagine how good they would taste to people who had just been swimming in the sunset and then, refreshed and dressed, were speeding toward home, sitting in comfortable wicker chairs on the deck, gazing at that brilliant sky and water and listening to somebody's dinner music, and getting up every time the orchestra played any dance music to step carefully about the little room left on deck.

But the dances in the evening, when with the searchlight from the boat and the lights on the porch to show where the land ends and the water begins, the dancers move in time to the latest dance music played by one of the best orchestras—those are the dances! Around the porch,

on the sloping lawn, on the dock, on the boat! The ones that had forgotten how to waltz when that dance went out of style some years ago and then had neglected to learn it all over again when it came back, sit up in the bow and hang their feet over the water and dream off down the dark river where chugging motorboats can be heard in the distance and wondering voices from invisible canoes and rowboats make comment and conjecture upon the where and why of the music.

On moonlight nights, when the tide is high, they dance on the dock, or on the

summer life and radio. There's merely an end to the space available for telling about it. There has been talk of using the visible waves of water to carry sound or rather of pulling the sound out of them, as it has been pulled out of the invisible waves of the air. This will be a wonderful new step forward, but it will have to go some if it wants to show us any more ways than we have now of enjoying radio by the water, on the water, or in the water.

The marvelous part of all this is that the express wagon set is only a makeshift forerunner of the kind of sets that this coming winter has in store for us.

For the last two years we have been talking longingly of the really portable receiving set, and now the manufacturers are here with the ideal piece of apparatus.

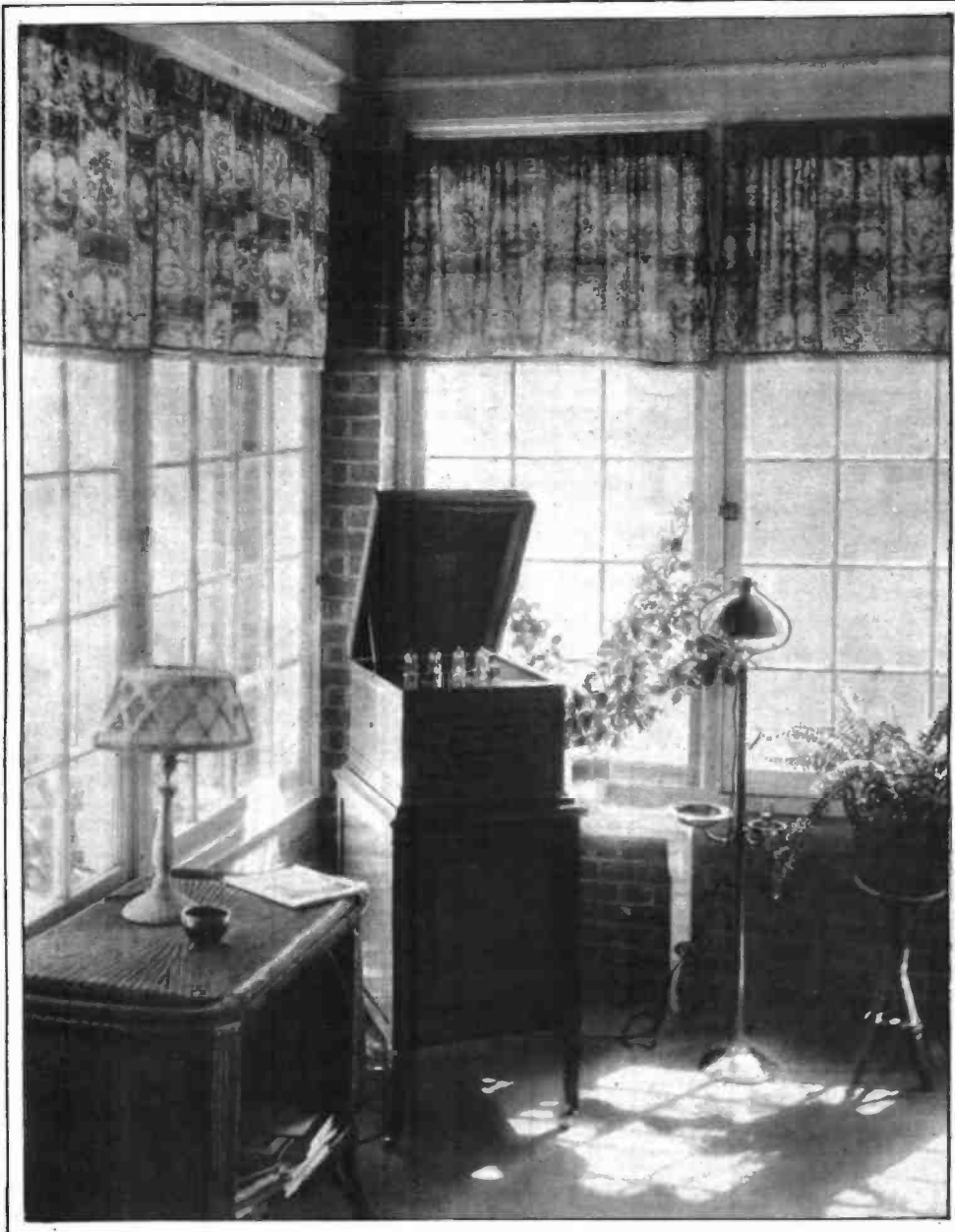
To be sure, it costs money. What really worth-while thing doesn't? Time was when we used to figure on buying a \$15 Victrola and thought that was a considerable amount of money to spend. Then we became educated to the real value of the Victrola in the home and the price didn't seem to matter so much. What we wanted was the performance of the Victrola—and the price didn't matter.

That is the one marvelous thing about the genuine American home—that price doesn't matter so much so long as results are guaranteed.

And so we have forgotten about the \$15 Victrola and any one who is interested need only look at the recent Victor advertising to see that the Victrolas now advertised are not \$15 ones, but the outfits ranging in price from \$350 to \$1500.

A few years ago you would have thought me crazy to talk about a \$1500 Victrola. Yet today you will see in all of the so-called "popular" magazines the advertisements of the Victor Company

calling attention to their \$1500 outfits. "Little Miss Radio's" express wagon outfit of this last summer is only a precursor of the radio receiving sets of this coming winter. To be sure, they won't cost \$1500. That is the great thing about radio. It doesn't really cost as much for equal value in home entertainment as other things which haven't the wonderful lure of radio—that marvelous thrill that comes after having danced to several numbers that have been actually played in a cafe a thousand miles away from you.



Radio in the home of Joseph R. Ashmore, 200 Parkside avenue, Trenton, N. J.

Photo courtesy Radio Chain Stores Company, Trenton

float where the canoes are tied. But first, as a necessary measure of caution, they put on old clothes or bathing suits. And then if any couple dance too near the edge and fall in, as every couple manage to do at some time or other during the evening, nobody's fine, light dress or clean white trousers are ruined. The stand-by for the Arlington time signal usually finds everybody in the river—except those who are afraid of the jelly-fish. Then a fine moonlight swim and up to bed for everybody.

There's no end to the fun to be had with

# This Set Packs a Whale of a Wallop!

**I**F YOU are one of the very large number of fans who want loud signals in spite of everything and do not care a great deal about sharpness of tuning, this Reinartz circuit is just the thing for you.

I have never used a three-bulb set which packed such a whale of a wallop as this one does with the addition of the honeycomb coil shown in the diagram.

This stunt of putting a honeycomb coil between the plate of the detector and the plate connection of the first audio frequency transformer is an idea which was first shown me by a friend of mine named Warren H. Keates, a radio engineer of long standing, and I have used it several times with astonishing results in increased volume.

I should say that the inclusion of this honeycomb coil almost doubles the volume produced by the first audio frequency transformer. Different makes of transformers require different size honeycomb coils, but in this hook-up we used the new Federal type 65 transformers, and we found that a fifty-turn honeycomb coil was just right for them.

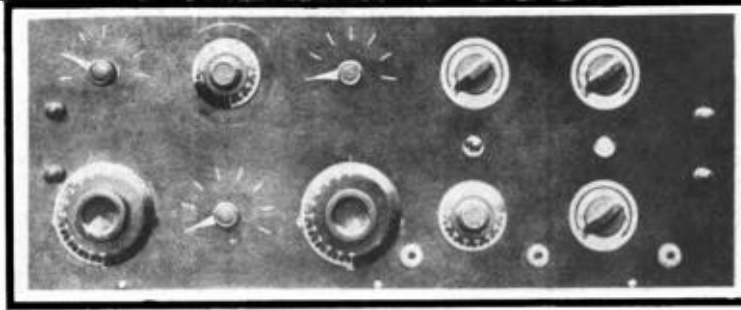
On this hook-up the signals from the Philadelphia stations fourteen miles away can be heard half a mile from our shop at station 3XP at Delanco, N. J. The dance music from the Drake Hotel, Chicago, station WDAP, comes in loudly enough to be put on four loud-speaking horns and the signals almost choke these four horns. They are almost too loud for comfort in our shop.

It is an axiom in the radio game that you cannot get one feature of radio in superlative degree without sacrificing some other feature, and this hook-up is no exception to the rule.

With it we get marvelous volume of sound, but we do not get sharp tuning. We cannot, for instance, tune out the 509-meter local stations and get the 482-meter New York station WEAJ, nor can we tune out the 395-meter local stations and get the 380-meter station WGY, at Schenectady, N. Y.

This set will also howl a great deal while you are tuning in, but, with the tuning once correctly adjusted, the howling stops entirely and the signals are perfectly clear.

For the man who wants his radio music for dancing or for the man who wants to run an extension loud-speaking horn with, let us say, his radio set in the top room of his house and the loud-speaking horn down on the ground floor or on the



**THE REINARTZ CIRCUIT IS A BEAR FOR VOLUME FOR THOSE WHO WANT THEIR MUSIC HEARD ALL OVER THE LOT**

front porch, this is about the best three-tube hook-up that I have ever come across.

It is not worth while to attempt to wind one of the spiderweb coils that are used in the Reinartz circuit because, in the first place, it is rather a tedious job and somewhat beyond the abilities of the beginner, and, second, because the Pfanstiehl coil, especially wound for this circuit, is so much better than the amateur can make that it is a waste of time to attempt to imitate it.

There are several other so-called Reinartz coils on the market, but we had rather an unfortunate experience with two of them.

We found that we could not make our detector tube oscillate with them, and so, being somewhat suspicious of the insulation which was on them, we took them one by one out of the circuit and placed them under various tests.

These coils were covered with a coating of some white substance that we naturally supposed was collodion. Collodion makes a very good insulator, and so we had no suspicion of the coils until we tried to make them work in the set.

You must understand that the spiderweb coils used for the Reinartz circuit are really two coils in one, and these two coils have no electrical connection with each other. One coil is for the circuit which goes from the B battery to the plate and the other coil is for the circuit which includes the aerial and the grid. These coils

must not be connected, and there should be no electricity leaking from one to the other.

We put one of these coils across a 45-volt B battery with a volt meter in series with it and were astonished to find that the volt meter registered the fact that eight volts of current were passing from one coil to the other through the insulation.

To make a further test, we put an ammeter in series with one end of the coil and battery and then just touched a wire from the other end of the battery to the surface of

the coil. If the insulation had been any good at all the ammeter would not have shown any reading because there would have been no current passing through. But this insulation was so very faulty that at the first touch the needle of the ammeter swung over so fast that we had to take the wire away for fear of burning out the instrument.

Naturally coils like this are utterly useless in any circuit in which they are inserted. I do not know what this insulating material is, but I do know that it is not collodion because we tried to burn a piece of it and it would not ignite.

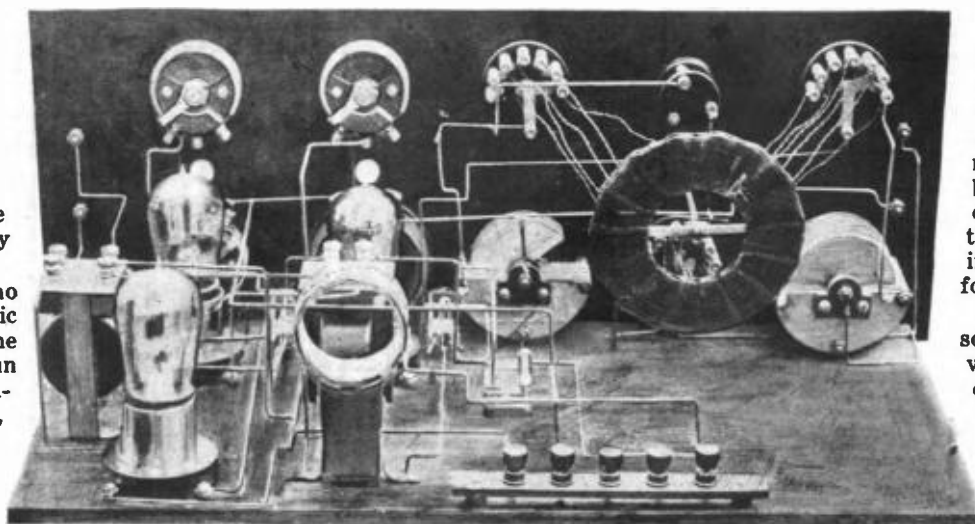
The Pfanstiehl coil comes with little loops brought out from the surface where the various taps are to go.

One of the great disadvantages of the Reinartz circuit has always been the necessity for boring a great many holes for contact points to which these taps are to be wired. This, however, is no longer necessary. There are on the market several makes of very clever "back-mounted" tap switches. These tap switches have the taps on a rear mounting, much as the rheostat is mounted, and it is necessary to bore only one hole, that for the shaft, and insert the instrument just as you would insert a rheostat.

Then the taps from the coil are led to the screws that are on the back of the switches, and wiring up is thus made a very simple matter.

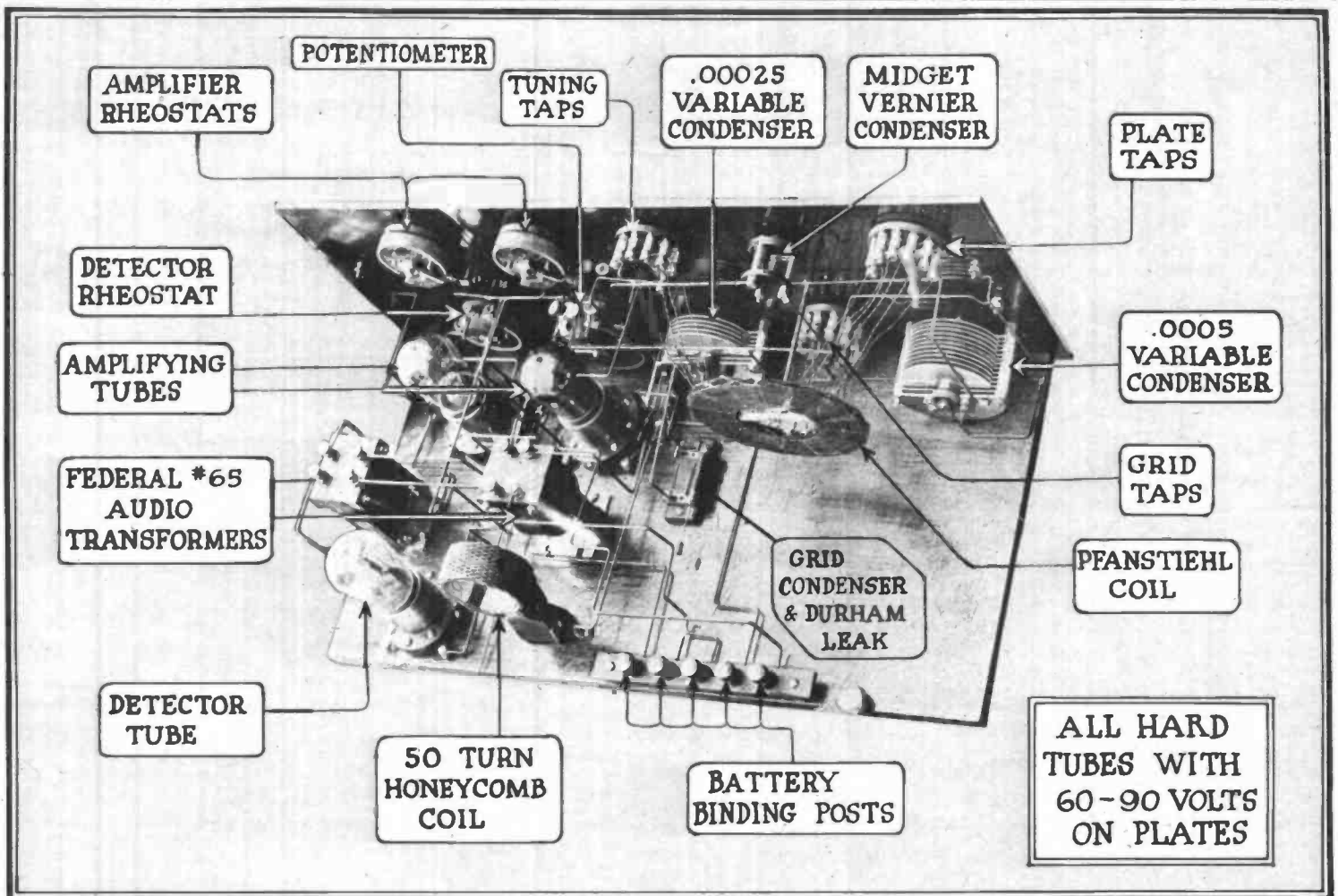
You will see by the diagram with this article that it is necessary to have one of these tap switches with at least eleven taps to it. The others need not have so many taps, but as these back-mounted switches come in all sorts of sizes there will be no difficulty in getting three especially for this circuit.

This circuit has for some time been a great favorite with the amateur operators of the country, who use it for receiving the dot and dash code in what is called "continuous-wave" telegraphy. It is an extremely sharp tuner for this particular form of telegraphy



*This is a view looking down from the back of the Reinartz set*





and is probably about the best circuit for this purpose that has yet been devised.

Broadcasting, however, is usually guilty of considerable "over-modulation," and this, in radio parlance, amounts to a very high degree of "damping," and any signals that are very highly damped are very broad in their effect upon the receiver and are difficult to tune out.

It is for this reason that the Reinartz tuner does not give very sharp results with broadcast voice and music, but it certainly does give volume if that is what you are after.

There are many different forms for this Reinartz circuit and many different specifications given by different experimenters.

The first thing to be remembered is that the coil should be mounted at least three inches behind the panel so as to give you room to bring the lead wires from the coil to the tap switches. Be very careful to bring these wires as straight and direct as possible and do not have the wires to one tap switch cross the wires to another.

Many different methods will suggest themselves to the amateur for mounting these coils, but the one we show in the photograph is, I think, about as easy as

any. We simply mounted a strip of wood on the back of the panel and mounted the coil on the rear of that.

We tried this hook-up with one stage of radio frequency in front of it, but we took it out because we found that it broadened the tuning very much and did not give us quite as satisfactory operation as the hook-up without the stage of radio frequency.

We also tried using an ordinary detector tube and got very fair results with it, but the substitution of the hard tube for a detector, putting the full plate voltage on this tube as well as the amplifying tubes, gave us the remarkable result which I have spoken of in volume of sound.

Do not use a condenser across the telephones in this hook-up. The variable grid leak which we show is not particularly necessary with the hard tubes, but, if you are going to use this hook-up with dry-cell tubes, you will find a good variable grid leak to be very helpful, particularly in the tuning in of distant signals.

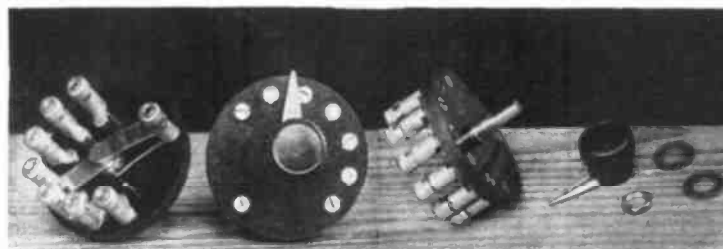
When you first look at the layout of this panel you might think that it requires a great deal of technical knowledge to operate. But it is not so. When you get to

know each individual part of this layout on the panel you will find that this circuit has the ease and simplicity of operation of any other regenerative circuit.

Looking at the panel, from the left-hand side upper corner and reading from left to right, the different parts are as follows: In the upper left-hand corner there is a tap switch. This switch controls the plate coil. Next to that is a small vernier condenser which is for fine adjustment. Next comes another tap switch which controls the grid taps on the coil. Next to that is the detector tube rheostat and next is the one-stage amplifying tube rheostat.

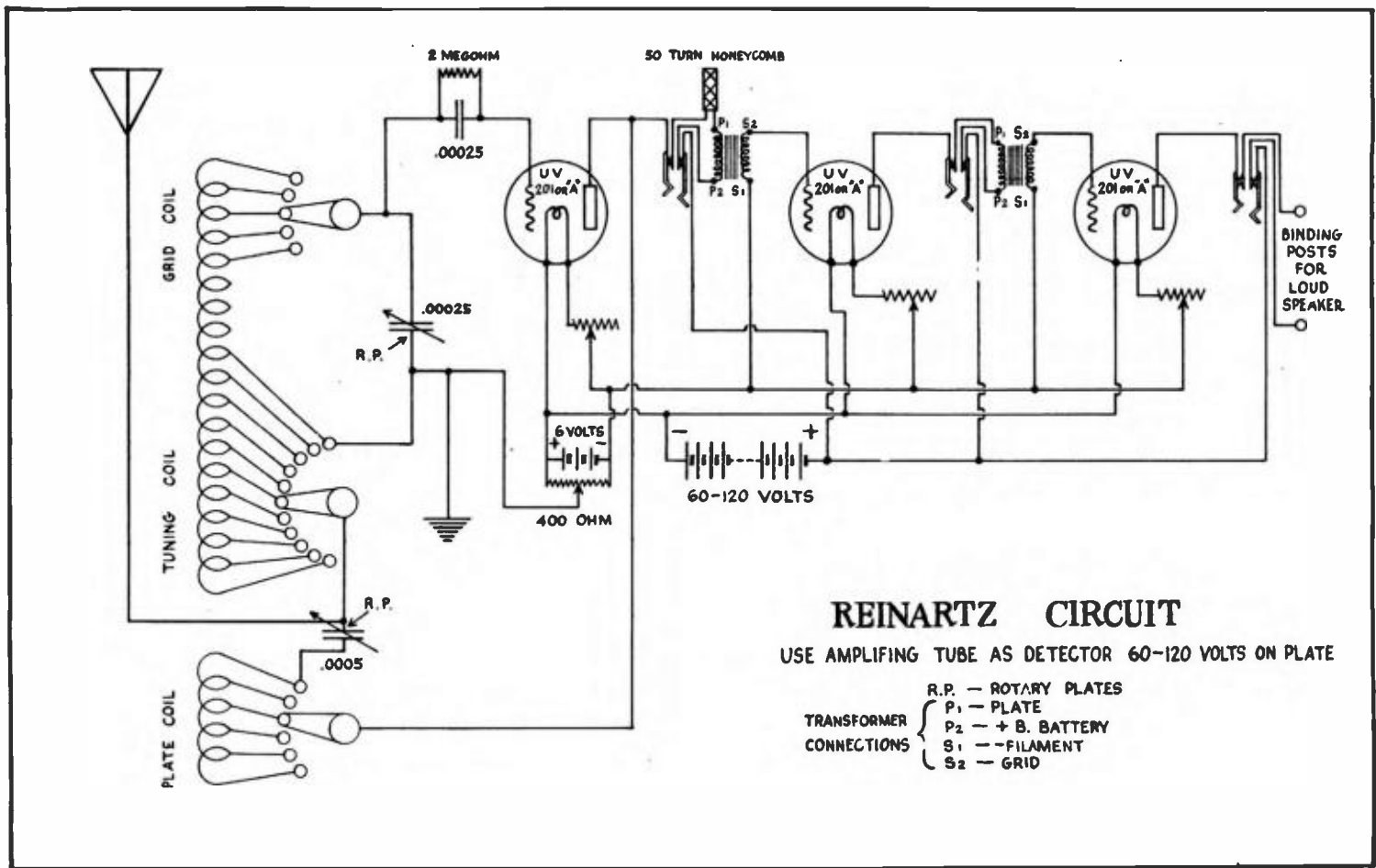
Now on the lower left-hand corner of this panel we have a variable condenser which is used to control the regeneration or volume from the circuit. Next to it we have another tap switch and this switch controls the tuning part of the coil and next to that we have another variable condenser. This variable condenser is the rough adjustment for the tuning, and the small vernier condenser that is second from the left on the upper part of the panel is directly "across" this lower variable condenser and they control the wave length from the different stations. Next to this condenser

The back mounted tap switch looks like this. First we have the rear view of it showing the screw heads on the taps



Next there is the front view of it, showing the dial and pointer, and next a side view of it with the dial and pointer removed, showing the washer and nut all ready to place it on a panel





Here is the Reinartz circuit in the usual form of electrical symbols for those of our readers who say they prefer their circuits given this way

we have a 400-ohm potentiometer. And the last dial, on the lower right-hand corner of the panel, is the second-stage amplifying rheostat.

On the left of the panel there are two binding posts. The upper binding post is for the antenna and the lower binding post is for the ground connection. On the right-hand end of this panel we also have two binding posts. These binding posts are used for a permanent connection to the loud speaker and the wires run from these two binding posts to the last jack.

Now suppose that we have the whole circuit finished and we want to give it a try-out and see just exactly what it is going to do. First we connect our antenna and our ground and then we insert tubes in the sockets and then make proper connections to the binding posts for the batteries. Then we insert the telephone plug in the first-stage amplifier and then, after we have lighted the tubes, place the plate tap switch which is in the upper left-hand corner on No. 2 tap. No. 2 tap should give you very strong oscillations on the detector tube and it is not necessary for you to use any greater amount of taps on the plate than No. 2 for reception of broadcasting,

Then the lower taps or the tuning taps should be so placed as

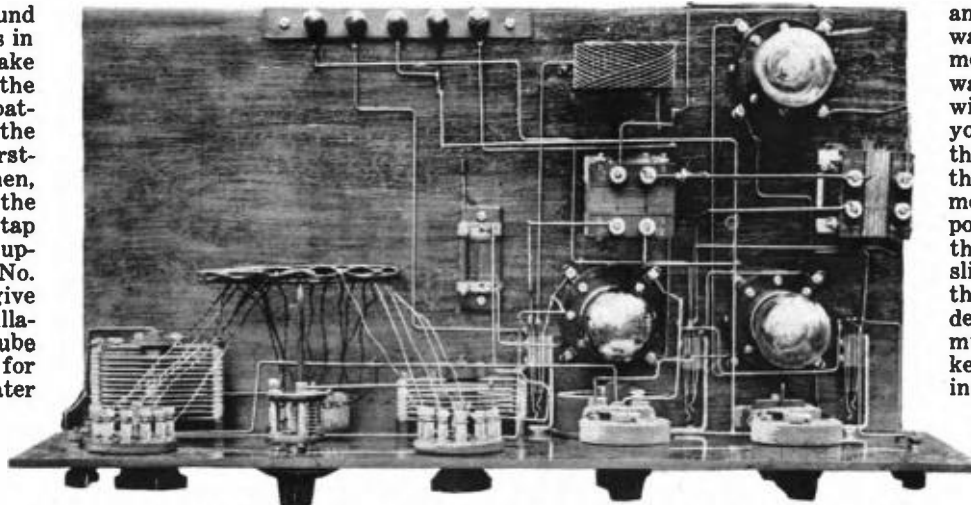
to have all of the turns of wire on the coil in the circuit and the grid taps, which are the second upper switch taps, should also be placed so as to have all the turns in the circuit. With these three switch taps in this position, you should be in tune with the broadcasting wave lengths—that is, say, from 325 meters to about 600 meters.

Now turn to the variable condenser which is in the lower left-hand corner and place it so that the movable plates are all the way in or, in other words, have the dial read 100. Then the second variable condenser in the lower half of the panel, which is the tuning condenser, should be slowly rotated from zero to 100.

As you rotate this condenser you will find that when you are in tune with a station you will hear a very high-pitched whistle or carrier wave. Move this condenser very slowly until you get in the center of this carrier wave. After this condenser is near to the center of the carrier wave take the vernier condenser on the upper hand of the panel and use it for fine adjustment to bring the tuning to its maximum.

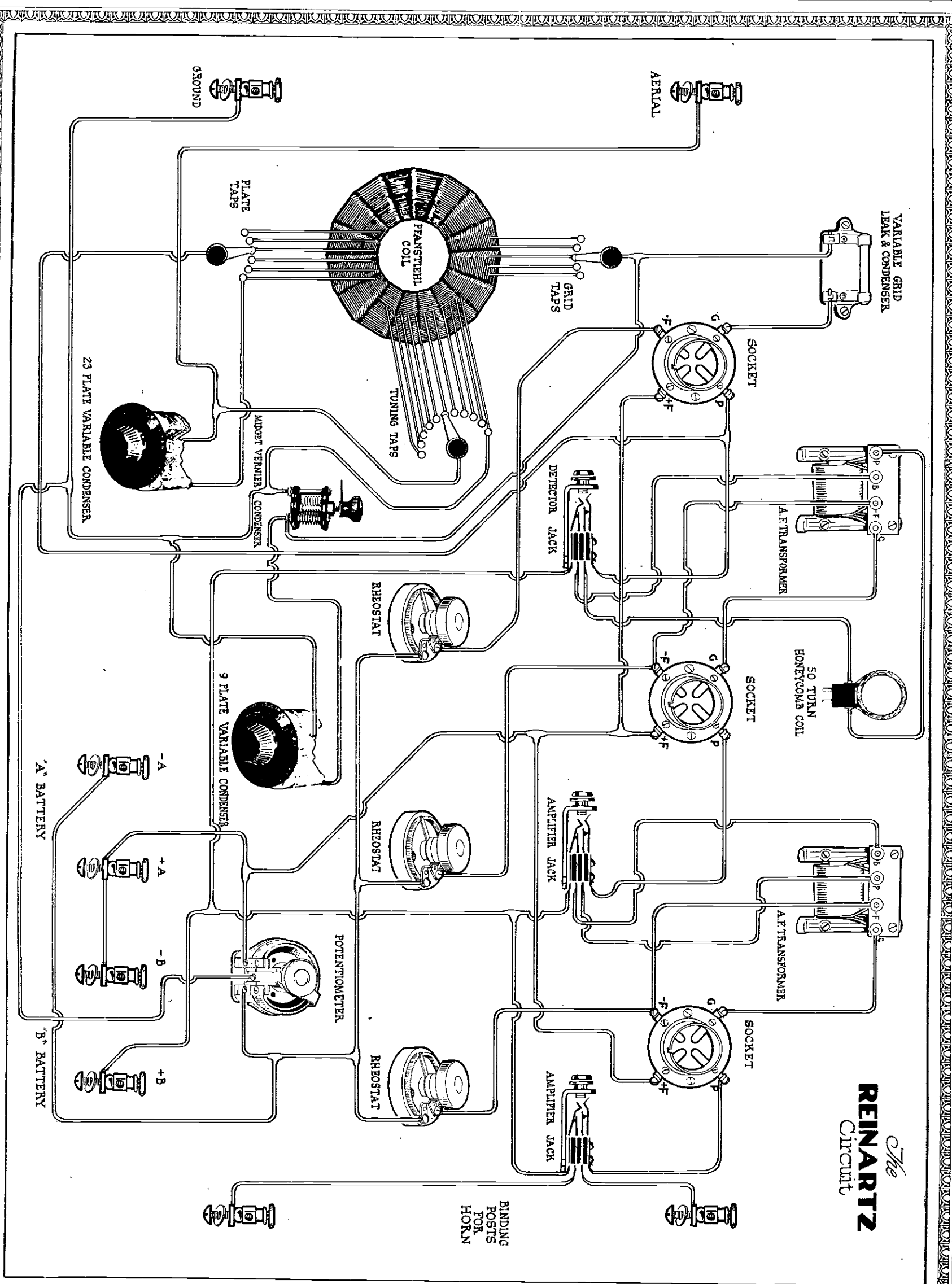
Of course, all the time the set is oscillating very strongly and you will not have very clear reception on it. To clear this mushiness or distortion in the circuit, turn to the variable condenser in the lower left-

hand corner of the panel and slowly rotate it toward zero, and as you move this condenser toward the zero mark you will probably find that you will have to change the settings slightly on the tuning condenser, as moving the regeneration condenser point down is going to throw the circuit off tune slightly and as you move the regeneration condenser toward zero you must at the same time keep the tuning condenser in the center of the carrier wave. This carrier wave whistle will start at a very low pitch, and as you continue to rotate the condenser it will



This view looking straight down shows how the instruments are mounted on the base board

(Continued on Page 27)



*The*  
**REINARTZ**  
Circuit

# Editorially Speaking and

By HENRY M. NEELY

MAY I be pardoned for saying just a few words about this magazine? The June issue of *Radio in the Home*, which was the first one in the new form for this magazine, has made such a gratifying record of sales that I cannot help being just a little proud of it.

The news company's figures are now in hand and are more surprising to me than they are to any one else.

The percentage of unsold copies returned to the news company was less than half what either the company or I had expected. The percentage of our unsold copies was far less than the percentage of the best-selling radio magazines which the company handles.

In the Philadelphia district, which includes a radius of about fifty miles of this city, *Radio in the Home* sold more copies of its June issue than all the other radio magazines combined. This includes the news company sale and our own system of dealer distribution.

In the New York area the unsold copies have been so scattered as to be negligible. Virtually the entire allotment for the metropolitan district was sold.

All through the South and West and Middle West the same thing happened, the unsold copies being only about 10% of the allotment.

The news company's distributor in the Buffalo district reports to our investigator that the June issue of *Radio in the Home* had a smaller percentage of unsold copies than the first issue of any magazine of any kind that they had ever handled.

In addition to that, and even more pleasing to me, is the growing number of letters which come in to this office every day beginning "Inclosed find \$2 for a year's subscription."

I am not saying this in a boastful spirit; on the contrary, I am merely relating the facts in order to show that there is some reason for the gratitude which I feel to our readers for so splendidly supporting us in our effort to try to present radio, not as a toy or a nine days' wonder but as a thing of dignity and beauty which should be added to the home with all of the taste and forethought and intelligent discrimination that mark the purchase of a



Dr. Lyman Abbott

Editor of 'The Outlook,' broadcasting his regular literary feature from WJZ

piano or a Victrola or any other of the important elements of home life today.

\* \* \*

ONE of the best-known radio merchants in the city came to see me the other day to unburden himself of a lot of complaints that have been bothering him for a long time. This man has been in the radio business for fifteen years or more, and I remember him when he first started the wireless school in which I myself took a course to get my first commercial license. From this you can judge that his complaints were not the complaints of a novice in the game, but were based upon a knowledge of wireless ever since it was first put upon the market.

"Why is it," he asked, "that people who buy radio sets are more unreasonable in their demands than people who buy any other kind of merchandise?"

"I'll just give you one instance, but it is typical of a hundred that I have had during the past year.

"Some time ago I sold to a very wealthy customer a fine receiving set and installed it in his home for him. He bought a storage

battery with it, but, in spite of the fact that I told him all about the advantages of a battery charger, he declared that he would not be bothered with it, but that he would always send his battery to be charged the moment it began to get a little low.

"The battery when I delivered it to him was a brand-new one and was freshly charged. I told him that a new battery would not hold a charge long and that he should have it re-charged within a few days:

"A week later he phoned me that there was something wrong with his set. I asked him if he had had his battery re-charged, but he said he had not because it did not need it. I asked him all sorts of questions about the symptoms, but he could not tell what the trouble was, but something had happened to the apparatus, and nothing would satisfy him but that I come out personally and look at it.

"I was pretty busy at the time, but as he was a very influential man and I felt that pleasing him might bring me a lot more trade among his friends, I jumped in my car and drove the fifteen miles out to his suburban place. Naturally, I took a hydrometer with me and the first thing I did was to test his storage battery.

"It was exactly as I thought. The battery was almost dead and could not possibly operate the six tubes in his set.

"I phoned him about it at his office and he at once began to reproach me for selling him a bad battery. Try as I would to explain to him that a new battery will not hold a charge very long, I could not convince him, and so in order to please him as much as possible, I took the new battery back and put on charge a well-ripened battery that I had in the store, and as soon as it was charged took it out and hooked it up to his set. Meanwhile I put his new battery into service in our store, so as to get it in proper condition to return to him.

"Only a few days later he phoned me again that the set was out of commission and seemed to be thoroughly disgusted with me and with radio in general. He declared that the set had not been touched, but had absolutely gone dead itself.

"Once more I took an afternoon off and rushed out to his house, and when I got there I found two wires had been changed and the connections so altered that the set would not operate.

"I got his chauffeur in a corner and discussed the matter with him and managed to get from him the fact that his employer had had a friend around to the house one night and that this friend had offered to show how to make the set operate better.

"I fixed the set and put it in working order again and phoned the man, telling him just what the trouble was and advising

# still Editorially Speaking

him not to touch it again. This one experience seemed to develop in him the fever for tampering with radio and almost every few days he called me on the phone and insisted that I go out and go over his set again.

"Altogether I have made seven calls on that man and it has taken so much of my time that it has entirely wiped out any profit I might have made from the original sale. In addition to that, he has held me responsible for all of the things that he has done to the set himself and I have got no business from his friends.

"Now, what I want to know is this:

"Why cannot that man regard radio as he regards his automobile? If he buys an automobile, the minute he drives away from the place where he has bought it he feels that place is relieved of all responsibility except defective workmanship.

"If he does something that causes a breakdown in the automobile or if, after a short time, some sort of engine trouble develops in the car, he never thinks of insisting on a visit by the man who sold him the car. He takes it at once to a garage and willingly, or at least without making very much of a fuss, pays the kind of bills that garagemen charge.

"It seems to me that the public ought to realize that if a radio set works satisfactorily for a week or so after it is installed in the home, it has thereby proved that it was in first-class condition when it was put into operation. Anything that happens to it then is not legitimately chargeable to the man who sold the set.

"There are men in almost every community today who are making a business of looking after and repairing radio sets just as garages do with automobiles.

"What I cannot understand is why the man who buys a radio set gets very mad at you if you even suggest that he call one of these men in and pay him for the time it takes to put the set back in commission, when the trouble that has put it out of condition is, in ninety-nine cases out of a hundred, directly traceable to the man himself and his carelessness in operating the set.

"I firmly believe in a legitimate and loyal service after I have sold a set to a man. But I do not think that this service



*William Jennings Bryan*

*Broadcasting through KDKA from Point Breeze Church, Pittsburgh, Pa.*

should include repairs made when the necessity for them is caused by the man's own carelessness or by refusal to heed the instructions given him.

"If you only had the nerve to come out and say that people ought to pay for repairs of this kind I think it would do a lot of good, but I don't suppose you would dare to do it, would you?"

I told my visitor that I thoroughly agreed with him in everything he said, but that I would not dare say so in print, and so, of course, I will not.

\* \* \*

ONCE more the better reception weather is with us, and the DX fans are beginning to be happy again. It is not to be expected that the transcontinental stations will be heard so early in the fall as this, but there is no question about it that during the last thirty days all of us have once more become acquainted with stations which were old friends last winter, but which we were not able to get during June and July.

There has undoubtedly been much better work during this summer than there was a year ago. The effect of this on the

marketing of apparatus has been felt in a very favorable way, and while nobody can claim that even this summer has shown any remarkable profit in the retail trade, there is at the same time a very general report that the depression was only about 50 per cent of what it was twelve months ago.

With the return of better radio atmospheric conditions, there has come also a quickening of the retail trade, not so much in actual sales as in preliminary inquiries

which promise sales in the very near future.

One of the best signs in all of this is that these preliminary inquiries differ from those of a year ago. In those days, the inquiries were for almost any kind of apparatus to be used in hook-ups, but now they are mostly for the manufactured set of high grade, and even the men who are interested in hook-ups are today asking for standard goods by the names of the makers, whereas a year ago very few people knew the names of the makers or whose goods were standard and simply asked for a variometer or a variable condenser or a variocoupler and took the first one that was handed out to them.

The campaign of education which has been carried on by various radio magazines, and in which I have endeavored to do my own modest bit, is thus beginning to make itself very decidedly felt.

It now remains to prove to all of the hook-up fan that, while their own hook-ups have served a very excellent purpose and have given them a fine insight into the workings of a radio set, they cannot with their own hands build a set to compare with the very fine ones that are put out by the more reputable manufacturers.

It is also becoming increasingly apparent that the average man now accepts radio as an already demonstrated fact. Mere performance is taken for granted, and the signs of the times are that the woman of the house is beginning to have her say, because customers are paying more attention to the beauty of the cabinet and the general good appearance of the manufactured article in the inquiries which they are now making.

This is exactly what *Radio in the Home* has been predicting, and it is exactly the movement that this magazine was founded to foster.

We are showing radio as it should be and are endeavoring to instill into the minds of the women in American homes the idea that when they go in for radio they should make their selections show the good taste and judgment that they demonstrate in their selection of all other things that go to make up the home in which they live.

The woman in the home is the greatest buying power in America and it is to the woman that radio must be made to appeal.

# No Howl in the 3XP Third Step

WE HAVE been working for some time out at Station 3XP to give as satisfactory an answer as we could to the many letters which keep coming in asking why fans cannot seem to get success with more than two stages of audio frequency amplification. Everybody seems to be demanding louder and louder signals, and the natural tendency is simply to buy another transformer and the rest of the apparatus and add a third step to the two already in the set.

And then come the howls and groans and squeals when the loud speaker is plugged in.

Adding a third step is by no means the simple job that these good folks would like to have it. Tubes and transformers will stand just about so much amplification, and when that limit is reached they begin to complain just as any human being will when pushed with too much work.

A third step can be added, but it is expensive, because it requires a double set of apparatus. With this the overloading of tubes and transformers is avoided, because the load is divided between the two parts of the circuit. It becomes what is technically known as a "push-pull" circuit, and this one that is shown here is a modification of the one made famous in the power boxes of the best types of loud speakers. I do not mean to claim for a moment that this one of ours is even half as efficient as these regular power boxes. It isn't to be expected that you and I can throw together a piece of apparatus that will function as well as outfits upon which experts have worked for years.

As a matter of fact, the third step given here is only slightly less expensive than the regular power box which you can buy, and I would by all means recommend the manufactured article if you can possibly afford it.

The voice or music which we hear in our telephones or loud speaker is made audible by a current of electricity which vibrates backward and forward on either side of an imaginary stationary line, much as the pendulum on a clock vibrates. Now, when this frequency or swing of the current that we hear is on one side of this imaginary line, we assume that the current is going in one direction, and when it goes on the other side of this imaginary line it is in an opposite direction.

This frequency or oscillation vibrates backward and forward and energizes either one tube or the other. That is to say, when it is on one side of the imaginary line it energizes one tube and then as it swings in the other direction over the other side of this imaginary line it energizes the other tube.

The plates of both tubes are connected together.

Then, when one tube is energized, the output of that tube goes to the telephone by way of the plate, and, as the current oscillates towards the other tube, the plate of that tube is energized and also in turn energizes the telephones. This method of utilizing both sides of the cycle or periods of vibration of the waves is called a "push-pull" amplifier.

Looking at the rear of our panel, we see that the two audio frequency transformers are separated, one on one side of the panel and one on the other side. These two transformers we have also set at right angles to each other, so that the magnetic lines of force or the magnetism from one will not have any effect on the other.

In the center of the panel we show the two rheostats for controlling the filaments, one for each tube.

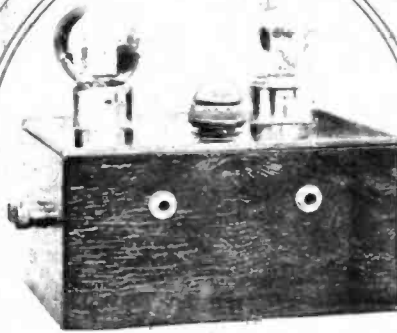
The center winding of the secondary of the two audio frequency transformers does not turn to the minus filament as in ordinary audio frequency amplification. The "return" on this amplifier is through the use of a C battery or an external battery having anywhere from  $4\frac{1}{2}$  to 20 volts.

Each of the secondaries of the two audio frequency transformers has across it a Dubilier fixed condenser having a value of .00025 in conjunction with a one-megohm grid leak.

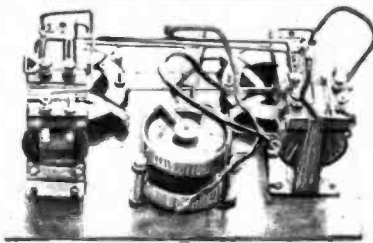
The necessity for having two rheostats was very clearly brought out in the tests at Station 3XP. We had inserted two power tubes and were receiving concerts from New York City, and we found that one side of this power amplifier did not seem to give us the extreme volume which we had expected. So we lowered the filament of one of the tubes considerably and were surprised to find the volume was half again as great. Then we inserted two different tubes in the sockets and found that we had entirely different settings. Although there is nothing very critical about the adjustment of these rheostats, it is essential that you have two of them and that you try and set these rheostats at the best values for the individual tube that you are using.

In operation this push-pull power amplifier circuit uses first one-half of the cycle or swing of the current on one tube and then on the other tube the other side of the cycle, as I have said.

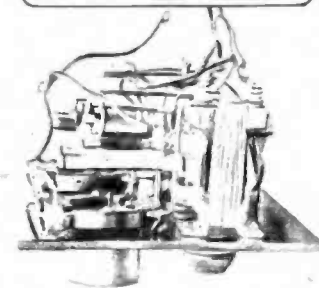
We know that the grid of a vacuum tube is used as a valve to control the flow of electricity from the plate. This grid or valve is either open or closed like the gate or valve in a water pipe. When the voltage or potential is in the negative or minus direction, the grid or valve is closed, and then when the voltage or potential is in the



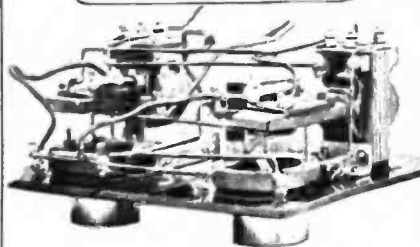
*The complete outfit*



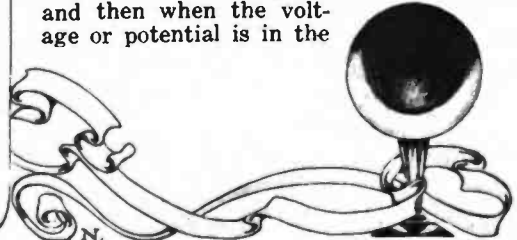
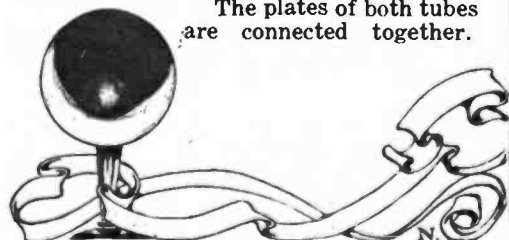
*The inside works*

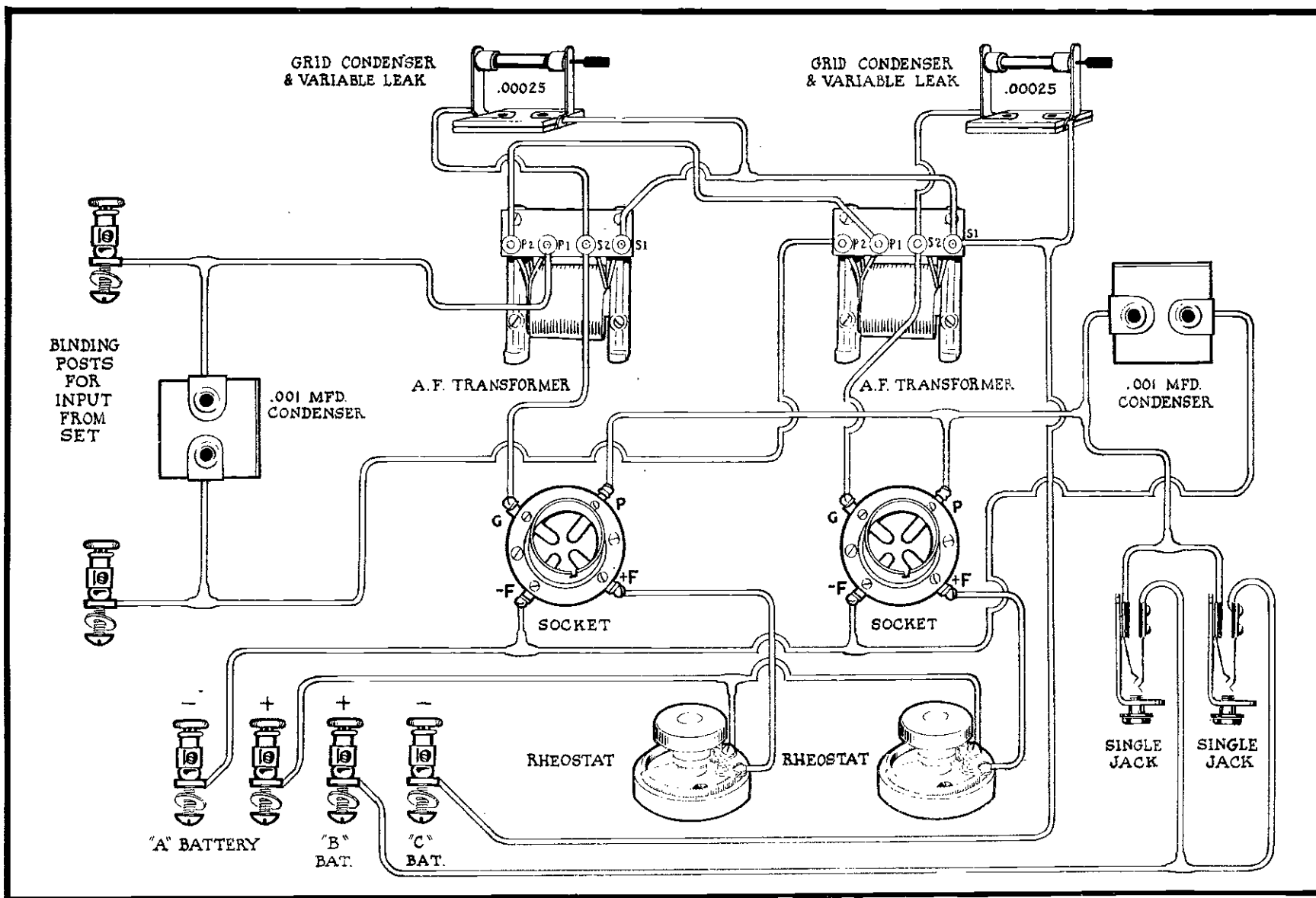


*A side view*



*Another view*





positive or plus direction, the valve or grid is open. When this valve is closed it shuts off all the flow of electricity through that tube, and when the valve or grid is open it assists and allows the electricity to flow through the tube.

Now, as this electricity flows or oscillates from one side of the imaginary line to the other, this grid valve of the tube is open on one tube and closed on the other.

Now to assist the action of this valve or grid in the tube we use what they call a C battery or a battery connected to the grid of the tube. This battery furnishes a negative or minus voltage for the grid of the tube. The standard 4½-volt battery is best for ordinary amplifier tubes, but power tubes may require as much as 18 or 20 volts of a C battery.

It may be that if you are using other transformers than the ones we show here, you will have to use a grid leak value different from what we have used. We find that with the Federal transformers a grid leak of about one megohm is the right value for this circuit. If you use other transformers, it is advisable to use Durham variable grid leaks.

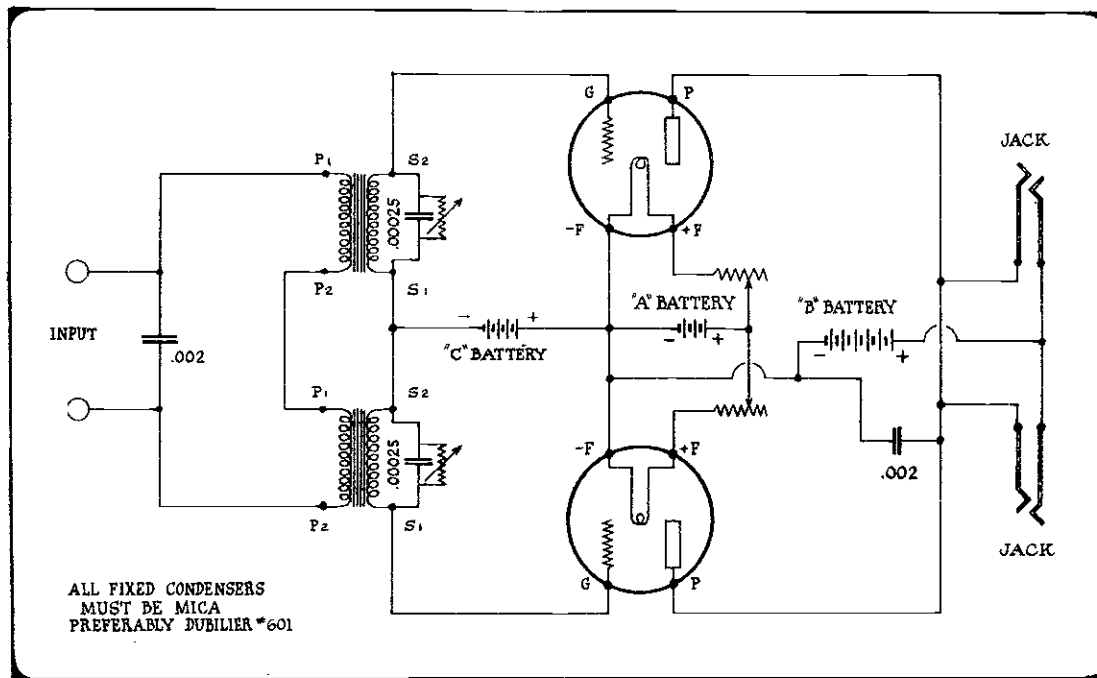
In our circuit we show two jacks. These jacks are in parallel with each other—that is, that the same connections from the amplifier go to each one of the jacks so you can use two pair of telephones or two loud speakers. Across the two in-put terminals of this power amplifier we have inserted a .002 Dubilier fixed condenser. This condenser is a bridging condenser for the primaries of the transformers and it by-passes any stray radio frequency currents that may come through. Then across the jack and to the minus B battery we also have a .002 fixed Dubilier condenser. This is the telephone condenser for the circuit.

For best amplification from this power box it is advisable to use two five-watt-power tubes. These tubes may either be the UV 202 or the Western Electric 216 A's or the Western Electric Navy type E tube, which can now be purchased on the market with a standard base. Of course, the UV 201 or 201-A tubes will work very satisfactorily in this circuit, but if you want extreme volume I would advise power tubes.

The positive or plus terminal of the C battery is connected to the minus or negative terminal of the storage battery or filament lighting battery terminal.

If you are using power tubes it is advisable that you have a B battery of at least 120 volts.

There is only one word of caution that I must add and that is this: once, you have a maximum amount of amplification for your particular make of horn, don't expect to add any more with satisfactory quality of signals. The horn which does not operate on a storage battery will stand just so much and no more. If you want more volume than that you will get no satisfaction from the non-battery horn.



ALL FIXED CONDENSERS MUST BE MICA PREFERABLY DUBILIER #601

# Dry Cells and How To Use Them

THERE are several vacuum tubes now on the market which operate from dry cells. These include the WD-11, WD-12, UV-199, UV-201-A and Cunningham C-301-A.

The electrical characteristics of WD-11 and WD-12 Vacuum Tubes are identical. The only difference in these tubes is in the construction of the base, the WD-12 being provided with the standard Navy base. Therefore, the battery equipment recommended below for the WD-11 tube is also correct for the WD-12.

The WD-11 tube requires approximately one-quarter of an ampere for normal operation. In order to force this one-quarter of an ampere through the filament, a voltage of 1.1 volts is required. The voltage of an unused dry cell is approximately 1.5 volts. This difference in voltage is absorbed in a rheostat which is placed between the battery and the tube. As more and more cur-

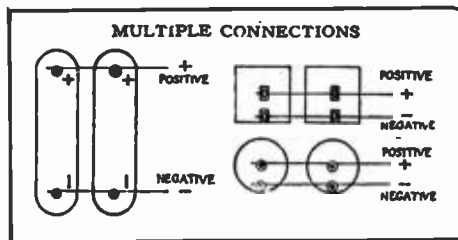


Figure 1

rent is removed from the cell, its voltage gradually approaches 1.1 volts, so that less and less of the rheostat resistance is required.

For radio sets employing one WD-11 tube use one No. 7111 battery (1 cell), two WD-11 tubes use one No. 7211 battery (two cells), three WD-11 tubes use one No. 7211 and one No. 7111 batteries (three cells), for WD-11 tubes use one No. 7411 battery (four cells).

For maximum economy it is desirable to use two cells connected in multiple for each WD-11 or WD-12 radiotron. This practice has the further advantage of requiring less frequent battery renewal. The correct number of cells may be made up of any combination of batteries. Thus, in connection with a three-tube set, maximum economy will be obtained by using six cells. This six-cell battery may be made by connecting together three No. 7211 batteries or one No. 7411 and one No. 7211 batteries or six No. 7111 batteries.

In making up multiple cell batteries for WD-11 or WD-12 tubes, the cells should always be connected in multiple, as shown in Figure 1.

The filament of the UV-199 tube draws only .06 ampere (sixty milli-amperes), but in order to force this current through the filament a voltage of 3.0 volts is required. Although the voltage of two unused dry cells connected in series is approximately three volts, the instant current is drawn

*SO MUCH misunderstanding seems to exist regarding dry cell connections for various tubes that I have long wanted to write an article explaining the problems. I recently received a pamphlet printed by the National Carbon Company for use with their Eveready Radio A batteries and this explains the whole matter so much better than I could do it that I am printing much of the material here. The pamphlet was written by E. E. Horine, Radio Engineer, and G. C. Furness, manager of the Radio Division of the National Carbon Company*

from them the voltage drops slightly, so that less than normal operating voltage is available for the UV-199 tube. In order to insure having 3.0 volts at the terminals of the tube, it is therefore necessary to employ three dry cells connected in series.

The voltage of three unused dry cells connected in series is approximately 4.5 volts. The difference between this voltage and that of the tube must be absorbed by a rheostat placed between the battery and the tube. Due to the small current taken by the UV-199 tube, a rheostat having much higher resistance than common must be employed. Where a separate rheostat is used to control the current to each tube, one having a resistance of at least thirty ohms must be employed.

For sets employing one to three UV-199 tubes, use three No. 7111 batteries connected in series, as shown in Fig. 2.

For sets employing four or more UV-199 tubes it is advisable to use an additional group of three cells connected in multiple with the first group as in Fig. 3. UV-201-A and Cunningham C-301-A tubes require approximately one-quarter of an ampere at five volts, which is well within the range of usefulness of the dry cell.

Most satisfactory operation will result from using four No. 7111 batteries connected in series for each UV-201-A or Cunningham C-301-A tube. The voltage of four unused dry cells connected in series is approximately 6 volts. The excess voltage is absorbed in the usual four to six-ohm rheostat. When employing these tubes as detectors it may be found advantageous to use a rheostat of higher resistance. The cells should always be connected in series, as in Fig. 4.

To the average layman the manner in which a dry cell functions seems complicated, mysterious and beyond his ability to understand. In reality, it is simplicity itself, anything but complicated and easily understood.

A dry cell is simply a package of electrical energy done up in convenient form. When purchasing a dry cell, all the buyer wants is some energy that can be used to perform a task that can only be done electrically. He may wish to operate an elec-

tric toy, or ring his door bell, or heat the filaments of the vacuum tubes in his radio set. Regardless of what the task is, electrical energy is what he wants, and the dry cell that gives him the most energy for a given price is the most economical to buy.

But there are limits to the ability of the dry cell to furnish electrical energy economically. While it is perfectly possible to light a house from power furnished by an immense battery of dry cells, the tremendous cost of such a proceeding renders it impractical.

Dry cells, therefore, are to be used only when comparatively small amounts of power are required. When so used, they form the cheapest source of energy at present available. When larger amounts of power than can be economically furnished by dry cells are required, the storage battery may be used. When still larger powers are to be consumed it becomes necessary to resort to engine-driven generators.

Just where is the dividing line between dry cells and storage batteries? In radio, tubes requiring more than one-half an am-

pere at five volts or more are properly storage battery tubes, while those requiring less current or less voltage operate satisfactorily from the dry cell.

There is a great difference in dry cells, just as there is in other products offered to the public. But

unlike most other commodities, the value of a dry cell cannot be determined by a superficial examination, nor is there any rapid electrical test which can be applied that will reveal how much electrical energy there is inside of the cell.

The only way of determining the amount of energy in a cell is by draining it out and measuring it as it is withdrawn. But great care must be exercised to see that the energy is drained from the cell in exactly the same manner as in actual service, because the capacity of the dry cell is greatly affected by different current drains.

In general, the smaller the current taken from a dry cell the greater its capacity. But if the current is too small, the service life will be reduced, due to the natural de-

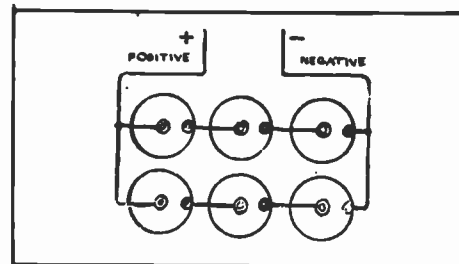


Figure 3

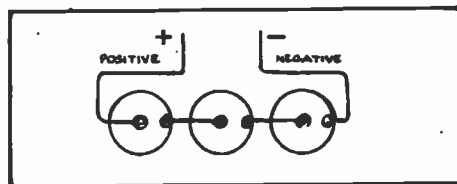


Figure 2

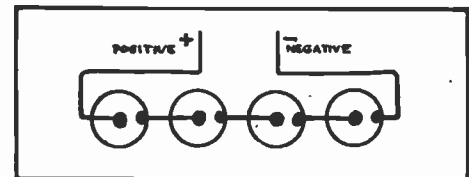


Figure 4

preciation which takes place in all dry cells. Herein lies one of the differences between dry cells.

On radio loads, where current is drained from the cells for two or three hours continuously, the current drawn from each cell should not exceed one-quarter of an ampere. Although dry cells will deliver

(Continued on Page 29)



# A PLAINT FROM PALMYRA, N.J.

Palmire, N. J., Aug. 20, 1923.

Editor of Radio in the Home

Dear Mr. Neely

I have been a constant reader of your magazine for a good many years and I feel that somebody should ought to write you as one of our foremost Radioers to complain of the harm Radio is doin' to the country at large.

Never since our Missrepresentatives in Congress voted the Country dry in 1918 hez anything done the country more harm than Radio.

*"Half the folks moved to Bound Brook"*

Look what the Radio Hounds hez done to the town I live in. before the advent of the Ear Trumpeters

you could meet somebody and get a little game of pinochle or quoits. Now, you could shoot a cannon up Main Street at any time of night and not hit anybody.

The big City's are the same, streets at night that used to have thousands of people on them are populated by Bandids only. If you should go to a Cafe they would have to wake up the night-watchman to cook you anything.

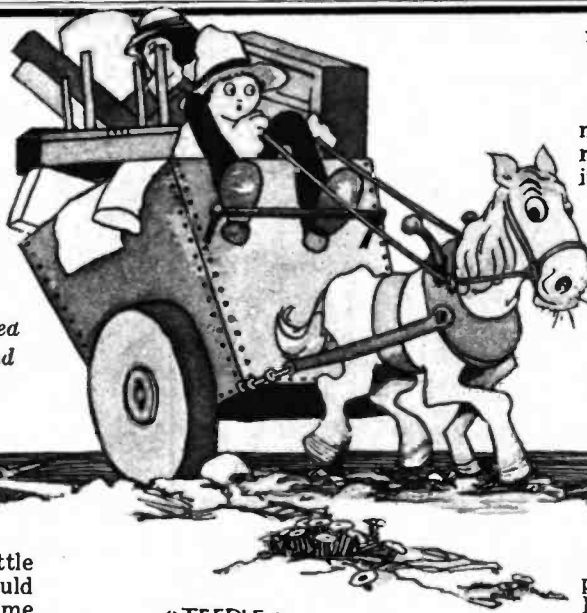
If all the time spent listenin-in was devoted to legitimate work it would shorten our worken days to 18 hours per week. Matusalah struggled along for 969 years without one. Show me a Radio Golfer that hez lived as long.

Go to a Department Store and you will find that the "Notions are two Isles east of Radio department" on the First Floor, "Dress Goods is opposite the Radio Foundry" on Second Floor, Furniture on the Fourth Floor three Isles west of Radio works, etc., etc.

Bed springs, thimbels and carpet beaters are Radio assets. Everybody sells them. To get to the Butcher shop you must pass through Radio compartment. Manacurist and Chiropidest have Radio annex. Openwork Buttonhole Co. is back of Radio Stamping Grounds. Army and Navy Stores are all Radio Sanitoriums. Look at the space the Papers give to Radio that could be devoted to good old-fashioned crime.

F'r instance:—

The Programme



• TEEPLE •

rounded by 12 rooms and Bath. Phone IXL Weed Haven Road Special for Summer Months

Person desiring good Crystal set with 2 magnetic ear muffs, accompanied by 3 rooms and closet may have same by writing to 112 Broadcast Lane, Wrong Island.

I met Abe Armstrong the other day. I asked Abe how was things in Hightstown, Abe sez things hez been purty quiet there for the past year or so,

*and the other half moved to Jobstown"*

most of the peasants there has Crystal sets and was too far away from anywheres to tune in, so half of the Folks moved to Bound Brook and the other half to Jobstown.

"Well," I sez, "from what I've seen of people in Hightstown that's one good thing Radio's done Hightstown.

Abe said, "Radio's done a lota good. Many a married man and wife has been brung to-gether by a little two-phone Crystal set." "Well," I sez, "what we married men want is more excuses for getting away from home." Abe sez, "Look at the number of people listenin-in on Sunday Sermons.

"Sure no man," I sez, "would get dressed up in a stiff busom shirt and be critisized fer sleepin the sermon out when he can do the same thing in the privacy of his own home in a comfortable morris chair, with a cigar, and his stockin feet up on the table." Staticism has taken the place of the Catachism. I know a perfectly good Meth-

for tonight is (all schedules are Radio time):

- 7:15 (FOB) Detroit  
"Parade of the Little Tin Chariots,"  
Henry's Brazilian Nut Band  
"Hook-ups I have Saw,"  
De Long Hook and Eye Company
- 8:20 (COD) Nova Scotia  
"Discussion on Wild Animal Crackers I Have 8" ..... By Wise Cracker Co.  
Recitation—Charge of Electric Light Brigade.. By Fidelity Storage Battery Co.
- 9:35 (RFD) Davenport  
Ava Hart Maria,

By Mexican Stringless Band  
Other Songs by the same.  
12:40 (PITT)

Pittsburgh  
Lecture on Daylight Saving before the Amalgamated Order of Downtrodden Coal Miners

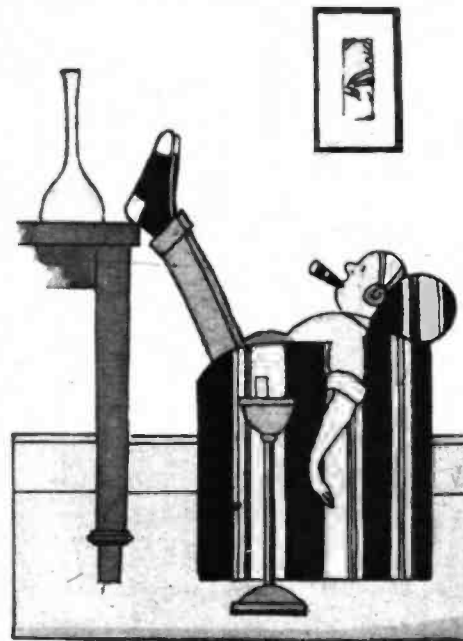
Bedtime Stories for Telephone Operators in all night exchanges  
It's invaded real estate columns; look at the ads.

Colonder Roof Realty Co.

\$12,000 Radio Set for limited time only at Weed Haven. Get one of our 400 Micro-microfared Magnavox Sets, lots of Amplifyers, complete with Variocouper, 4 Dahlia bulbs, one set of Pierce arrow collar ear-phones to each member of family, Sur-



Look what they've done to the town I live in



odist that tuned in fer an hour and a half to find out he'd been listenin to a sermon from the House of David."

"Well," Abe sez, "they must be good, most everybody hez one."

"Not necessarily," sez I, "most everybody hez corns."

Yours for a Short Circuit,  
C. D. Teeple.



## Radio from any Lamp Socket

**S**IMPLY screw the Dubilier Ducon into any lamp socket or base socket, connect it with any standard receiving set, and you hear radio music and lectures perfectly. It is all wonderfully simple.

The Dubilier Ducon thus does away with the antenna and the bother of erecting it.

### A Perfect Safety Device

The Dubilier Ducon has been tested and approved by the Laboratories of the National Board of Fire Underwriters. It is a perfect protective device as well as a substitute for the antenna.

### Look for the Red Spot

The Dubilier Ducon has a little red spot on one side. This little red spot and the name Dubilier Ducon are your assurance that the device asked for is safe and that it will enable you to hear the broadcasting station with the electric light wire.

*If the Dubilier Ducon proves unsatisfactory after five days trial, the dealer will refund the purchase price.*



Price  
\$1.50

## DUBILIER PRODUCTS

**DUBILIER CONDENSER & RADIO CORP.**  
48-50 WEST 4TH ST., NEW YORK

DISTRIBUTED IN CANADA BY CANADIAN GENERAL ELECTRIC CO.  
TORONTO, CANADA

## WGY—The Nation's Theatre and Players

(Continued From Page 8)

of business men, of factory workers, of professional men and of farmers; of grandmothers and granddaughters, of society leaders and of maids; some in vigorous health, some confined to their beds by illness; some dressed for the cold of a Northern winter, some in front of windows opened to admit the breezes of a semi-tropical night.

Picture them not as assembled in any one room, but in thousands of rooms scattered through the immense domain that lies between the two oceans and extends from the Great Lakes to the Gulf of Mexico.

This is the picture of the great theatre that broadcasting the drama has brought into existence. Radio has reversed Shakespeare's observation that "all the world's a stage." It has made not all the world, but that very considerable part of it comprising the United States, a theatre of which the broadcasting station is the stage.

Doubtless many of the thousands who have listened to the broadcasting of these dramatic productions from WGY have often tried to visualize the actual "staging" of the plays. Do the players, they wonder, appear in costume? Do they commit their parts to memory? Are the scenes acted as on a real stage.

The questions are easily answered. They do none of these things, and there are excellent reasons why. For instance, were the play to be acted, scene by scene, there would be many times when the faces of the actors necessarily being turned away from the direction of the transmitting apparatus, it would be difficult for the audience to hear them.

The "stage" in this "theatre invisible" is an apartment thickly carpeted, so that there is no noise of moving feet and with its walls so covered that there is no echo.

The actors who are taking part in the scene are grouped in front of a microphone, the women being closer to it than the men because their voices are lighter.

The parts are not committed to memory, but are read from manuscript; hence there is no forgetting of parts, no delay in responding to cues.

It is not to be assumed from this, however, that there has not been very careful preparation. There has been. Long in advance of the presentation each of the principal actors has had a copy of the entire play and those taking lesser roles have had their individual parts.

These parts have been studied with the greatest care. It is to be remembered that in broadcasting a drama the actors have to rely on the voice alone to convey the impression they wish to create. The aid which acting gives on the actual stage is lacking. Exceptional skill in declamation is called for, therefore, as well as clear enunciation and careful modulation, to say nothing of that quality of voice which lends itself to transmission by radio.

The plays are carefully rehearsed before the actual presentation takes place. Here it may be said that the practice of reading the parts is not followed merely because it is easier than to commit them. It is because it makes for smoothness and promptness, and these features have been remarked by those who compose the WGY audience.

There are no breaks in the continuity of the dialogue, no slowness in responding to cues, no forgetting of parts which not even the best-managed productions on the actual stage are proof against. These things are obviated by reading.

It is interesting to note, as showing what care is taken to avoid the

transmission of any sound except the voices of the players, that the paper on which the parts are written is of such a quality that rustling is for the most part eliminated.

One might naturally think that the "stage manager" must have a peculiarly difficult task in presenting a play in this way. In some respects he does. How can he tell, for instance, how the voices of the actors sound a thousand miles or so away? how can he coach them, since their heads are often bent over the manuscript from which they are reading?

The solution is not so difficult after all. He uses a head set the phones of which are so carefully covered externally that he cannot hear a sound from the room itself. This set is attached to the transmitter apparatus, and he actually hears the play as though he were miles distant. He is in a position to know how it sounds—approximately, at least—in Chicago or Minneapolis or Atlanta. The phones are attached by a long lead, which permits him to move around a considerable area. If an actor's voice sounds weak to him, he walks over to the speaker and gently pushes him nearer the microphone; if it is too strong, he moves him back. Occasionally, when an actor not accustomed to drama broadcasting is included among the players, the director uses signs reading "Louder" or whatever the occasion may require.

Then there is the question of "properties." Since only sound enters into play-broadcasting, these "props" are necessarily limited to those which make a noise.

For example, one scene in a play given recently was supposed to be laid in a railroad station, and a touch of realism was given by the clicking of a telegraph instrument installed in the broadcasting room for the occasion. The sound of a train was simulated by the use of the familiar metal device employed on the stage for that purpose. The supposed entrance of an actor on the "stage" is signaled by the closing of a door—and the closing must be plainly audible, little as such a procedure is to be recommended to the small boy. Telephone conversations are heralded by the ringing of a telephone bell, and a door bell announces the coming of a caller, as on the real stage. Since the picture has to be created by sound alone and without the aid of sight, some ingenuity is required in this matter on various occasions.

Clearness in transmission is being aided now—as in the case of all WGY programs—by the employment of a "pick-up" or microphone using the principle of the Pallophotophone reproducer. This new pick-up is more sensitive than the ordinary microphone and responds more readily and accurately to sound waves, capturing harmonics which ordinarily would be lost. Another advantage is that it eliminates the hissing sound which is liable to accompany the use of the ordinary microphone.

In this new pick-up, a tiny mirror only three-sixty-fourths of an inch square is made to vibrate by the action of a diaphragm which is very sensitive to sound waves. A beam of light thrown on this mirror and reflecting on a sensitive light cell moves with the movement of the mirror and varies the effect on the light cell, thus producing a corresponding variation in the electric circuit. Amplification is then obtained in the ordinary way by the use of pliotrons.

Following the program of January 30, when the play "Bought and Paid For" was presented, and when this new device was used, WGY received a number of letters complimenting it on the tone quality of the transmission.

WGY is now experimenting with the use of two microphones instead of one, placing one at each end of the row of players, so that the voices will seem to come from the opposite ends

of a stage in accordance with the position of the actor.

Those taking the principal parts in the plays given have had actual stage experience, a fact which aids greatly in the presentation. They constitute a company, known as the WGY Players, of which the personnel remains practically the same, others for minor parts being obtained as required.

Station WGY was the pioneer in broadcasting plays. Its initial effort met such an enthusiastic response from the radio public that what was an experiment last fall, when it presented "The Wolf," has become a regular feature of its program. A play is given each week, dramas and comedies alternating.

Since this feature was instituted WGY has given such plays as "The Wolf," "The Garden of Allah," "The Sign of the Cross," "Way Down East," "Are You a Mason?" "Within the Law," "Under Cover," "Bought and Paid For," "The Witching Hour," "The Man From Home" and "Miss Lulu Bett." Zona Gale, writer of the last named, was a listener-in when the play was presented. The light operas "Pinafore," "The Mikado" and others have also been given.

WGY was the first broadcasting station to present this form of entertainment by radio, just as it was first in giving plays by wireless.

Actors see in the popularity of play-broadcasting by radio a promise of the restoration of the spoken drama to the prestige and popularity it had before the "silent drama" of the motion-picture theatre became a contender in the field. This seems reasonable, and if it proves true one of the noblest of the arts will receive a needed and timely encouragement.

In at least one respect the field for broadcasting is vastly greater than that of either the legitimate stage or the motion picture. The opportunities of the two latter must always be limited by the necessity of providing elaborate and expensive accommodations for an audience. In broadcasting the audience provides its own, and a man in Portland, Me.; another in San Francisco, and still another in New Orleans, may hear a play simultaneously. The audience of the largest playhouse may be increased many hundredfold.

Furthermore, thanks to the pallophotophone, the presentation of a play may be preserved, if desired, and repeated from the same film any number of times. Had this device been in existence in the traditionally glorious days of the stage we might now in our own homes hear Classic drama as interpreted by Garrick, Booth, Mrs. Siddons, Ellen Terry and others who have made Thespian history.

Does some one say that "it must take a deal of imagination to get any sense of realism from a dramatic presentation which appeals merely to the ear and not to sight also?"

It takes no more than it does to make a motion picture film a living story, and the popularity of the "movies" is sufficient proof of how possible that is.

Realism? When "The Wolf" was broadcast by WGY a policeman in Pittsfield, Mass., heard shrieks from a house on his beat. He immediately investigated and found that the cries came all the way from Schenectady by wireless. They were so lifelike, as reproduced by a loud speaker, that he thought it an actual call for help from the house from whence the sound came.

It is no uncommon sight to see tears trickling down the cheeks of listeners-in as some pathetic drama grips their heart and an appeal for sympathy comes from out the void.

Of course, broadcasting relies on imagination; so does the motion picture, and so, likewise, does the staged drama. What, indeed, is all dramatic art, however expressed, but an appeal to the imagination?

### This Set Packs a Whale of a Wallop

(Continued From Page 18)

increase in pitch to a very high note and then gradually disappear.

You might liken this carrier wave to mountains and a valley. As you come to the mountain and go up, the whistle gets higher and shriller and then as you go down and get nearer the bottom the whistle decreases in frequency or is on a lower pitch. Then at the center of the valley you have no whistle and that is the spot where you get the maximum amount of signal without distortion. If you happen to go too far across this spot you come to the other side of the hill and the whistle starts again and goes up to a very high note.

Now to get the maximum amount of signal from a regenerative circuit you must stay right in the center of the valley.

If you happen to be a "bug" on radio as I am and you love to hear the little "dicky birds" or carrier waves of amateur code stations, place the plate switch on about the third or fourth tap and move the other two switch arms down so as not to have all of the turns of wire in the circuit. Move the tuning tap about three points lower than where you were getting the broadcasting reception and the grid taps about two points lower than where you were getting this reception.

Then move the variable condenser slowly until you hear these carrier waves. As you approach the center of this carrier wave you do not have to lower these regeneration control condensers, as the code from the amateur stations will come in just the same.

The amplification from this circuit is enormous. In fact, the amplification is so great that the most powerful loud speaker that we have will not begin to handle the amount of energy that comes from the output on local stations. The diaphragm of our loud speaker will actually rattle and will not give forth clear tones when we have this circuit at maximum amplification. We have to de-tune the set a little bit; that is, we turn the vernier condenser one or two points from where the maximum amount of signal comes in. This gives us plenty of volume, yet we are cutting down to such an extent as not to have the diaphragm rattle in the horn.

Of course, on such enormous amplification as you will get from this circuit when you have it absolutely in tune, you cannot expect to get real good, clear, sweet music, and this enormous amplification will be only good for a large room.

When the regeneration condenser is lowered to such a point that the set is no longer oscillating, you will get the maximum amount of signal strength from your circuit. When this point is reached it is advisable to move the vernier condenser very slightly either one way or the other to bring in the greatest amount of signals. After this has been accomplished, you can take the telephone plug and insert it in the second stage amplifier. Then with all three tubes lighted and the circuit in tune you have the maximum amount of signal strength that it is possible to get with this receiver. Sometimes you may find that even then you can increase your signal

strength by moving the potentiometer slightly.

There is one thing that I must call to your attention in using this receiver with two stages of amplification. Do not try to use a pair of telephones, because if you do you will do the same thing that I have done. You will probably ruin a perfectly good pair of receivers.

I was listening one evening to the broadcasting from Chicago on a loud speaker and I thought that I wanted to see how loud it would be with a pair of telephones instead of the loud speaker, so I inserted the telephones in the last jack, and to my dismay I heard nothing at all but an enormous click.

It seems that the amplification from this circuit is so great that it holds the diaphragm of the receivers directly down upon the pole pieces, and I found afterward that my receivers were practically ruined because it had taken away a great deal of the magnetism from one of them.

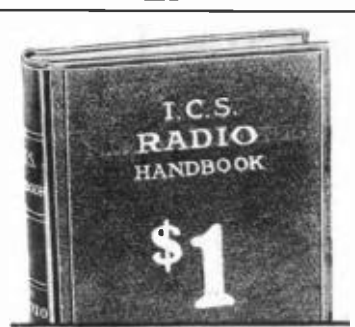
So if you value your telephone receivers I would not advise you to try to use them in the Reinartz circuit. I would only use a loud speaker—that is, on the second stage. Of course, you may use telephones on the detector tube without harming them in any way.

Now if you are tired of listening to the station which you have in tune and you want to bring in another station probably a greater distance away, you turn the regeneration control condenser, which is in the lower left-hand corner, and increase it slightly, just enough to make the set oscillate. Then move the tuning condenser either higher or lower until you hear another carrier wave and this other carrier wave will be another station. Follow the same proceedings as you have done before, keeping the tuning condenser always in the center of the carrier wave.

The honeycomb coil which is in series with the first audio frequency transformer will have to be changed to suit the value of the transformers that you are using. With the type 65 Federal transformers which we are using in our circuit we find that the fifty-turn honeycomb coil is just the right value to give us this wonderful amplification. I have also tried De-Forest audio frequency transformers, and I find that the best coils to use with them is a thirty-five turn. The General Radio Company, of Cambridge, Mass., has a fine transformer that works best with a honeycomb coil having seventy-five turns. So if you are using any transformer other than what I have specified here you will find that the honeycomb coil will vary anywhere between thirty-five and 100 turns.

In case you do not know exactly how many turns to use I would advise you to purchase a hundred-turn honeycomb coil. Try this and if it does not give you great amplification start tearing off, say, ten turns at a time and try it again. If you have taken off ten turns and made the coil ninety and you find that it has not made it any better or just slightly better, take off ten more turns and try it again.

The number of turns on this honeycomb coil is not critical to one or two turns or even five turns, but if I were you I would rip them down in batches of ten at a time and try them and if you find that you are using seventy-five turns and are getting toward this maximum amplification, start tearing off say two or three turns at a time until you get it.



## This RADIO BOOK will save you money!

Compiled by HARRY F. DART, B.S.E.E. Formerly with the Western Electric Co., and U. S. Army Instructor of Radio Technically edited by F. H. DOANE

JUST off the press! The greatest book on Radio ever written. Price only \$1. Filled with sound, practical, tested information for every radio fan, from beginner to hard-boiled owl. Written, compiled and edited by radio experts of national reputation.

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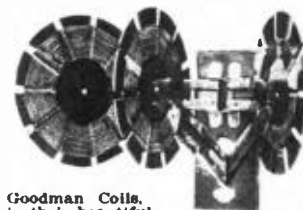
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I enclose One Dollar. Please send me—postpaid—the 562-page I. C. S. Radio Handbook. It is understood that if I am not entirely satisfied I may return this book within five days and you will refund my money.

Name..... Address.....

## TUNE HIM OUT!

Doesn't matter how near he is—or how strong. If you don't want him, but DO want that faint, fainter station—TUNE HIM OUT. Just a touch—and it's done.



Goodman Coils, in their beautiful mount, are an ornament to any panel. Their sharp tuning is a joy to any radio fan. They can be used in any of the standard hook-ups, and improve them all. Diagrams given in our pamphlet. Send for one.

\$6.00 and P. P. on one pound

L. W. GOODMAN Manufacturer Drexel Hill, Pa.



## Radio Boosts Bank's Business With Women Depositors



The New Grebe

### Broadcast Receiver

Just the thing for your home.

A silk-covered wire but 20 feet long, supplied with this Receiver, does the work of the unsightly outdoor antenna, or loop. This wire may be concealed behind the picture molding or run along the baseboard.

Send for Illustrated Booklet "Q"

This set can be seen at your dealer's.

**Philadelphia  
Wireless Sales  
Corporation**

1533 Pine Street  
Philadelphia



A novel utility for radio was demonstrated at Whitehouse, N. J., when the First National Bank in that quaintly named town used the "modern magic" to popularize its women's banking department.

Many a wife whose spouse calls her his "treasure" is really his treasurer. She is the custodian of the family funds, and is, therefore, a desirable depositor.

Knowing this, the bank officials in the progressive hamlet in the Hills O' Hunterdon sought a means to induce

the fair sex to visit the Whitehouse First National Bank.

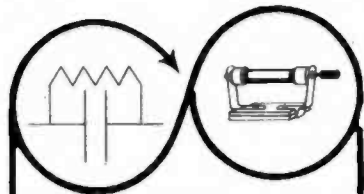
As an experiment they prepared a place specially for the feminine financiers. This space, set aside as a reception room, was furnished with comfortable chairs, a radio receiver and a Western Electric loud speaker. Then the ladies were invited to listen in.

The invitation was not ignored. The lure of the loud speaker was irresistible. Matrons and maids rallied around the radio. Their prefer-

ences differed, of course, but none failed to find some broadcast numbers that were particularly pleasing.

The listeners' appreciation of the bank's special service took tangible form; on "radio day" the First National's receiving teller was busy opening new accounts.

M. R. Cook, the cashier, states that the experiment produced such good results that in all probability "radio days" will be regularly scheduled at the Whitehouse First National Bank.



## Plop!

That's what your tubes shouldn't do when they start or stop oscillating. And they won't if controlled by the accurately made push-pull plunger of

**DURHAM**  
With Variables  
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Good, clear concerts can come only from the careful use of well-made parts. Rely on DURHAM-DUBILIER.

Resistance values in 3 sizes, variable from 1000 ohms to 10 megohms. Condensers in 2 sizes, .00025 mfd. and .00050 mfd. A combination for every tube, \$1.10 complete.

**Satisfaction Guaranteed**  
**DURHAM & CO.**  
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FOR THOSE WHO SELL.

How many of the 60,000 actual readers of this magazine live near your store? Make sure your cash register refers to the campaign for better radio parts. Stock DURHAM-DUBILIER, the brand with a backing.

### Some Notes on the Neutrodyne

(Continued From Page 11)

New York, Schenectady, New England, Chicago, Kansas City and, on the night of July 4, I had the Municipal Band at Havana, Cuba, from station PWX loud enough to be heard comfortably on a loud-speaking horn.

But for the man who has handled a great many radio sets perhaps the most remarkable feature of this neutrodyne circuit is the absolute absence of "body-capacity" effects. Any one who has tuned a regenerative circuit and, on taking his hands away, has lost signals or on putting his hands out to the dial has been deafened by howling or squealing will appreciate what this means.

With this neutrodyne circuit I can almost sit on the set without any effects whatever upon the signals.

I can even put it to the supreme test of placing my hands directly inside of the coils of the transformers, and even this will not have any body-capacity effect.

This circuit seems to work particularly well with the Ducon plugs which go into an electric light fixture and enable you to use your electric wiring instead of an outdoor aerial.

I can also put the Philadelphia stations on all four loud speakers by

merely connecting my ground wire to the aerial binding post and having nothing connected to the ground binding post.

This makes it a very fine set for the dweller in an apartment house or boarding house where it is absolutely impossible to put up an outdoor aerial. It means that a wire connected to the cold-water spigot or the steam radiator and then connected to the aerial binding post of this set will give local stations with all of the volume necessary for complete satisfaction.

The neutrodyne circuit does not, however, seem to work well with a loop aerial. I have tried it with a loop aerial attached to the aerial binding post and the set grounded in the usual way, but even this does not work so well.

It seems to be very much better to use a short length of wire run across the ceiling of the room or around the picture molding and with the ground connection as usual. This gives very good signals, but for the man who can not have an outdoor antenna I think the Ducon plug is by far the best. With a Ducon plug on this set I can put the New York stations on the loud speaker very easily.

There is another very great advantage of this set, and that is that once you have made a list of the stations and the dial settings at which you get them, you can turn to those dial set-

tings and be sure of getting the stations right there where they belong.

This is remarkable when the sharpness of tuning is considered. I can tune out the Philadelphia 509-meter stations completely and receive WEAJ in New York only seventeen meters below them, and this I did with four loud-speaking horns to get the ringside report of the Firpo-Willard fight and received the signals loud enough to put horns and extension wires outside of our shop at Delanco, so that the crowd which gathered to hear the returns could get every word.

I can also tune out the 395-meter Philadelphia stations and receive WGY at Schenectady only fifteen meters from them in wave length, and Schenectady will come in loudly enough to be heard all over the room without any fringe of the signals from the nearer Philadelphia stations.

I have handled several other hook-ups that will separate stations as well as this, but they lack the very great advantage of being able to make up absolutely accurate lists of dial settings, so that you will always find the desired stations whenever you return to them.

You may judge from this that I think Professor Hazeltine has done a wonderful piece of work in developing this circuit. He has added immeasurably to the efficiency of broadcasting and he has given us a circuit which is

entirely free from the terrible distortion and the howling and squealing that so frequently mar the reception with a regenerative circuit.

But he certainly has not given us the circuit which the average beginner can build with any degree of success.

There is, however, for the man who really cannot afford to get the factory-made neutrodyne circuit some hope. Several manufacturers have put on the market the transformers and condensers and the neutralizing condensers all ready for mounting, and the beginner can easily get these and the rest of the apparatus and mount them on a panel.

Then, after he has fussed around and convinced himself that he cannot make the set work well, he can take it to one of the "radio doctors" who have sprung up in almost every city and are doing such a thriving business.

These men are quite expert in their line, and as they make a business of correcting faults in amateur hook-ups they are quite familiar with all of the latest circuits and the adjustment of the neutralizing condensers and the transformer coils is a matter of course with them.

For ten or fifteen dollars or perhaps a little more one of these men will readjust your set for you and make it work.

I would, however—especially with the neutrodyne circuit, although I advise it for all circuits—urge everybody to buy a factory-built product, for no amateur can hope to equal the efficiency of a well-designed set put out by people who have specialized in it.

### Dry Cells and How To Use Them

(Continued From Page 24)

larger currents than this, it is not economical to put such heavy demands on them, for at these greater loads their capacity is materially reduced.

Where currents over one-quarter ampere are required, the drain on each cell can be kept down to one-quarter ampere or less by connecting a sufficient number of cells in multiple, thus evenly dividing the total drain among all the cells. For example, with a radio set employing four WD-11 tubes, the total current required is one ampere. In this case, four dry cells connected in multiple should be used to keep the drain on each cell down to one-quarter of an ampere.

By reducing the current drain on each cell from one-quarter to one-eighth ampere the capacity of the cells is measurably increased. In the above case, the drain on each cell can be reduced to one-eighth ampere by using eight dry cells instead of four. And although this requires double the number of cells, the amount of service obtainable from them is more than double that of four cells. It is for this reason that we recommend the use of two cells for each WD-11 tube, or six cells for four or more UV-199 tubes, for this results in the user obtaining maximum economy from his dry cells.

If the current is reduced to too low a point, the time required to exhaust the battery is so great that the factor of natural depreciation becomes active, serving to reduce the amount of useful work obtainable from the cells.

This natural depreciation of dry cells is quite similar to the evaporation of water from a tank. If a tank of water is allowed to stand idle long enough, all the water will evaporate, and none will be left for useful pur-

poses. If water is drawn off only occasionally, and in small amounts, less will be available for use because evaporation is going on all the time, and more time is allowed for evaporation under these conditions.

The same is true of dry cells. What we might call "evaporation" of electrical energy is going on all the time, and in order to get the maximum amount of service from a dry cell, a compromise must be struck between a heavy rate of discharge, which drains the cell quickly, but reduces its capacity, and an extremely light rate of discharge which prolongs the time of service, and therefore allows the "evaporation" to increase.

On radio loads, where current is drawn from the cells two or three hours per day, this happy medium occurs at a current drain of approximately one-eighth of an ampere per cell.

Going back for a moment to the comparison with a water tank, if the tank is in a hot place the evaporation will be more rapid than if the tank were protected from the heat.

The "evaporation" of electrical energy from a dry cell is hastened by heat. Never expose a dry cell to high temperatures.

### "This is KSD—Miss Jones Announcing"

(Continued From Page 5)

the ease with which she dismisses her many tasks; though not to be marveled at so much when it is considered that she brings to her work superior equipment, not only of natural endowment, but of training and experience. She is a graduate of Leland Stanford Junior University and, as I have said, is broadly experienced in that most broadening work, newspaper reporting and editing.

During the war she was made executive chairman of the women's auxiliary of St. Louis' 138th Infantry. So wholeheartedly did she devote herself to this job and so almost single-handedly did she engineer all the hometown activities on behalf of the boys at the front that she became known as the "Sister of the Regiment" besides establishing in the minds of the people an almost unapproachable reputation for public-spiritedness and patriotism.

No wonder when the Post-Dispatch sought an announcer for its broadcasting station it turned to Miss VAL Jones.

The wonder is that through all this vast contact and applause a woman's head has not been turned. The wonder is she still retains that attitude of absolute impersonality, detachment, faithfulness to the task in hand.

Many an individual would have been tempted to capitalize to selfish ends the advertisement that has come to her. But such an idea is farthest from her thoughts. She appears to regard her services as a public trust. Jealously she guards her listeners in from every selfish encroachment.

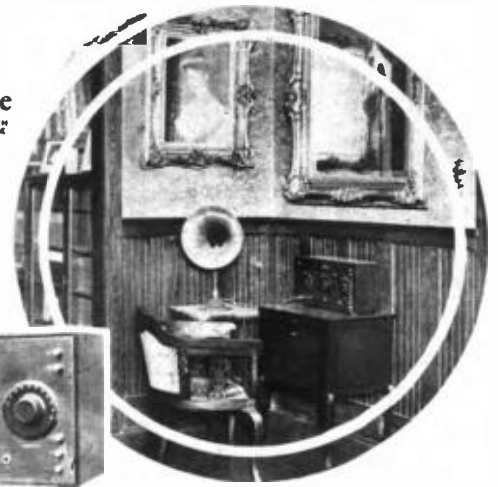
"I appreciate the many letters of appreciation that come addressed to me as the only tangible personification of KSD and accept them with what grace I may on behalf of the radio staff and the owner of the paper which is providing this service," declares Miss Jones. "But the letters from which I get my real personal satisfaction are those which tell me that my voice is distinctly heard."

"To have it said that I am a good announcer, that my announcements and introductions are clear, concise and complete, that is all I ask of myself in relation to our nation-wide audience."

# NEUTRODYNE

The better type of receiver WITH 5 improvements

GAROD TYPE-B-BAF HAZELTINE NEUTRODYNE



Garod Radio in the Home of Franklin P. Jones, Jr., Cashier, First National Bank, Beverly, N. J.

The Hazeltine Neutrodyne Circuit is an inherent part of the Garod Broadcast Receiver illustrated here. The five outstanding features are utter simplicity in tuning, freedom from all objectionable squeals, clarity and full-bodiedness of tone, selectivity and long-distance reception. Reception of radiophone concerts at a distance averaging 1,000 miles is a regular accomplishment of an inexperienced operator.

## GAROD CORPORATION

8 WEST PARK STREET NEWARK, N. J.

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## Radio in the Home

Conducted by HENRY M. NEELY

Q The women in the homes of America have been the deciding factors in the buying of the piano, the Victrola, the automobile and everything else that has become an intimate part of American home life.

Q Radio is now becoming an intimate part of American home life.

Q This is the only magazine which is presenting radio as the American woman is willing to see it in her home.

Q It is the only magazine which is reaching the purchasing power of America.

By Subscription Two Dollars the Year



## Trouble With Your Set? See a "Radio Doctor"

"Radio in the Home" wants to solve the difficulties of the novice with a receiving set. On our editorial pages in this issue you will find our viewpoint on the tendency to hold the salesman responsible for any trouble which the user's carelessness may cause in the factory-made set.

Our mail constantly brings us evidence of a tendency to blame us if the novice can't make our hook-ups work.

Two things must be borne in mind:

1—The factory-made set will work if you treat it right. If it works when installed, the salesman's responsibility ends there.

2—Our hook-ups work for us before we publish them. If they don't work for you, it means you have done something wrong. Our responsibility ends when the tests at Station 3XP prove satisfactory.

Don't expect the salesman to spend his valuable time rectifying your mistakes. It isn't fair to him.

We can not possibly diagnose your troubles with our hook-ups without examining your set, and we cannot undertake that. It isn't fair to expect us to do so.

## Go to a "Radio Doctor!"

There are experts in every big city who make a specialty of doing this kind of work for novices. They are to radio what the garage man is to the automobile; what the tuner is to the piano; what the doctor is to the ailing man or woman. For a reasonable fee they will put your set in working order. If radio isn't worth this to you, it isn't worth anything.

### WE WANT ALL SERVICE STATIONS TO REGISTER WITH US

We desire to have on file in this office the cards of all "service stations" or "radio doctors" in every city for the benefit of our readers.

Send us a supply of your cards, and when questions that we are unable to answer come to us from your city, we will send the inquirer one of your cards and advise him to take his set to you.

We want all radio sets to give satisfaction, and this is the only way in which it can be done on a business basis.

**RADIO IN THE HOME**  
608 Chestnut Street Philadelphia, Pa.

## Warren G. Harding As a Listener-in

The short article which follows is printed at the written request of many radio fans from virtually all sections of the eastern part of the United States. It was an address delivered on the spur of the moment from Station W.D.A.R. Lit Brothers, in Philadelphia.

I had been scheduled to speak from that station on a totally different subject when the sudden death of the late President caused a change in all broadcasting programs and W.D.A.R. joined with other stations in holding a memorial service by radio.

I have had many letters asking for copies of the talk. I am accordingly reprinting it here as nearly as I can transcribe it from the brief notes jotted down on a bit of paper at the dinner table before going to the station.

HENRY M. NEELY.

**T**HERE is a radio set silent to-night in Washington. It has been silent for several weeks because its owner has been away, but to-night its silence is more somber, more significant, more filled with tragedy. For the strong, warm fingers that once turned its dials are strong and warm no more. The owner of that set has listened-in for the last time and listening-in has heard the farthest of all DX calls.

President Harding is dead. If he had been only President, I should not have been asked to speak here to-night. You would have heard only those who are competent to tell you of his place in history, of his achievements in world affairs and in the vast task of guiding our nation upon its voyage to its destined port. I am not fitted to speak of these greater affairs.

But you and I have had a closer, though a less tangible touch, with this great man who is now dead. For he—like you and me—was a member of our great radio family of listeners-in. In the White House to-night, silent, as I have said, is the receiving set that gave to him in his very few moments of relaxation the same thrill of the unexpected, the same lure of the unexplored, the same awe of the almost inconceivable that knits you and me together in our love of the most marvelous hobby that the genius of man has yet given to us.

We have all read to-day of the humanness of this man who has been called away from us. We know that he sprang from the ranks of the common people whom, as Abraham Lincoln said, "God must have loved since He made so many of them." And we know that never in the course of his career did President Harding once swerve from that sympathetic understanding of the masses of Americans which was the fundamental upon which he built every one of his official policies.

With you and me, reading of these things leaves us perhaps unmoved and unconvinced compared with the knowledge that while the country has lost a great President and the world a fine statesman, you and I have lost that much closer and more convincing contact—the contact of the fellowship that radio has brought to break down all barriers of caste and wealth and social and political differences among its devotees.

Warren G. Harding was one of us listeners-in. We know intuitively from that one simple fact that he must have been every bit as human as these hastily printed biographies of him assure us that he was. We do not need their assurances. If they had printed only the simple announcement "the President was a radio fan" we would have known that under the gravity and dignity that cares had given him lay the same susceptibility to joy and wonderment and thrill that binds you and me together in the vast brotherhood of radio. Warren G. Harding was a radio fan. Let others mourn the statesman or the politician or the great executive that he was; you and I will mourn more intimately than that, for we have lost one whose humanness of heart and vividness of imagination led him to spend many of his moments of relaxation just as you and I love to spend ours.

President Harding has signed off and bidden us good-night. Some time you and I, too, will sign off and say good-night.

And when we do may we be able to do it as he did—with the consciousness that the program we have given was as fine and as worthy as it was in us to give and that if it fell short of our desires it was because our aim was higher than our abilities and our ambition to do something better for our fellow men was greater than one frail human frame could accomplish.

The set that the late President used. It has three stages of radio and two of audio frequency amplification, with a power loud speaker.

Photo courtesy of Navy Department





# Radio takes another step forward

THE new Magnavox models here shown not only extend and supplement the already famous Magnavox line, but are perhaps the most notable addition to radio since the original and basic inventions. They include an ideal apparatus for every purpose of radio reproduction and amplification—for the home, club, hotel, church, school, on the farm, etc.

### A MAGNAVOX FOR EVERY RECEIVING SET

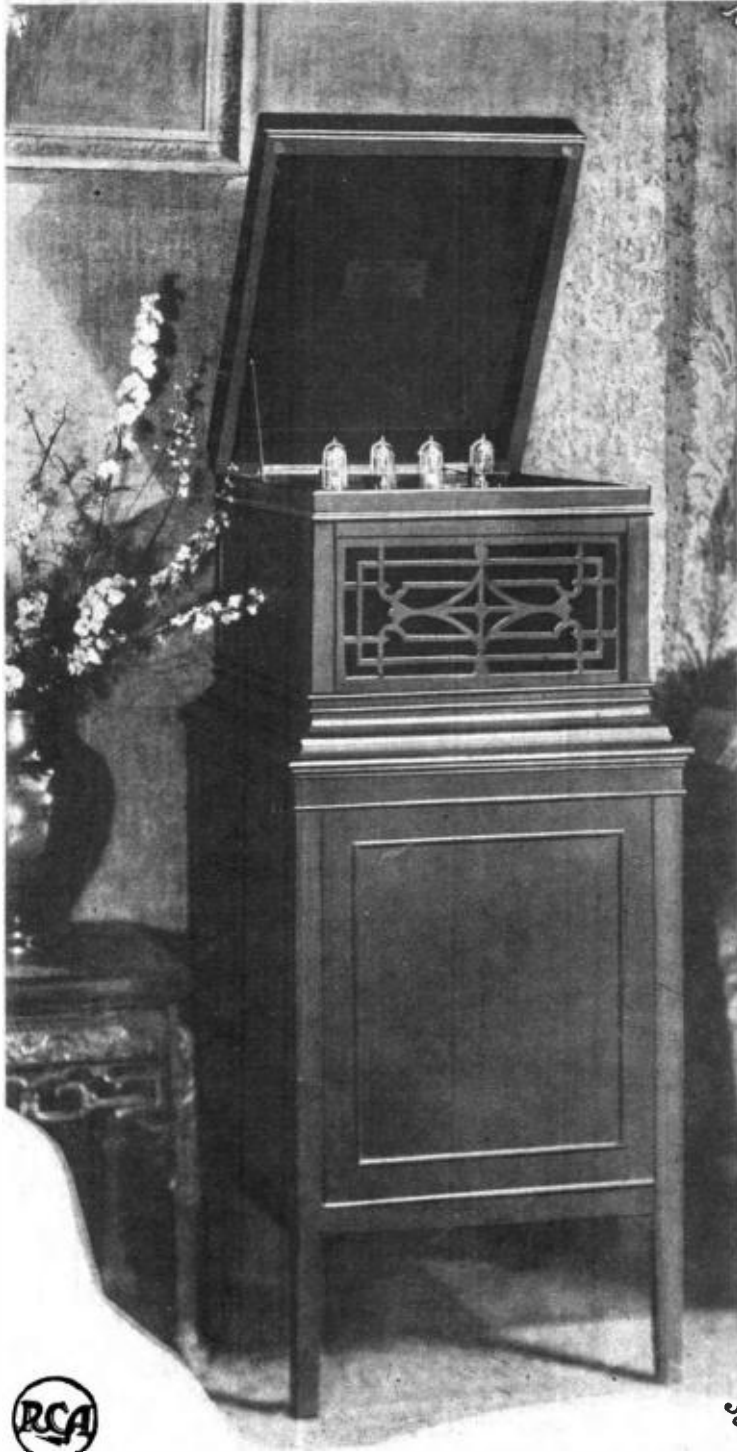
<b>Magnavox Reproducers</b>		
R2 with 18-inch convex horn in new acoustic finish	\$60.00	
R3 with 14-inch convex horn in new acoustic finish	35.00	
M1 new Magnavox Reproducer requires no battery for the field, thus meeting requirements of dry battery receiving sets. With 14-inch convex horn in new acoustic finish	35.00	
<b>Magnavox Combination Sets</b>		
<b>Single Units</b>		
A1-R consisting of Magnavox R3 Reproducer with 14-inch horn and 1-stage Magnavox Power Amplifier	59.00	
A2-R consisting of Magnavox Reproducer with 18-inch horn and 2-stage Magnavox Power Amplifier	95.00	
Special: same as above but with 14-inch convex horn (as illustrated). Price of these instruments does not include tubes	85.00	
<b>Two Units</b>		
Two units consisting of AC-3-C Magnavox Power Amplifier and R2 Magnavox Reproducer		\$135.00
Two units consisting of AC-3-C Magnavox Power Amplifier and R3 Magnavox Reproducer		110.00
<b>Magnavox Power Amplifiers</b>		
A1 meets the demand for a 1-stage Power Amplifier. Special finish metal case		27.50
AC-2-C Magnavox 2-stage Power Amplifier with Bakelite panel in highly finished hardwood case		55.00
AC-3-C Magnavox 3-stage Power Amplifier with Bakelite panel in highly finished hardwood case		75.00

Ask your dealer for a demonstration. Interesting booklet will be sent on request.

**THE MAGNAVOX COMPANY**  
 OAKLAND, CALIFORNIA  
 370 Seventh Avenue, New York  
 World pioneers in the development and manufacture of sound amplifying apparatus

# MAGNAVOX PRODUCTS

No Radio receiving set is complete without them



This symbol  
of quality  
is your pro-  
tection

Radiola Grand and Mahog-  
any Stand with "B" bat-  
teries and 4 Radiotron WD-  
11 dry cell vacuum tubes  
\$350.00

# Radiola Grand

WITH the Radiola Grand, radio takes on new meaning. The simplicity of tuning in—just a knob or two to turn. The big distances it covers—picking up far-away stations with volume enough to fill a room. The perfection of tone with which the loudspeaker—carefully built in like the horn of a fine phonograph—gives forth the music and speech. All this—combined in a cabinet of skillful workmanship and tasteful design—places radio in the home where beauty counts—and performance.

## Points to note:

All the batteries—dry cells—are hidden away inside.

You can regulate the volume of sound by a control that governs the loudspeaker.

For long distance, plug in the headphones. Coast to coast reception is no unusual record for Radiola Grand!

Famous for true reception, undistorted. For keen sensitivity. And for beauty.

*"There's a Radiola for every purse"*

at the nearest Radio or Electrical Store

Radio Corporation of America

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233 Broadway  
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433 California Street San Francisco, California

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Dept. 2098. Address office nearest you.  
Please send me your free Radio Booklet.

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R. F. D. \_\_\_\_\_

State \_\_\_\_\_

# Radiola

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