Radio in the Home

Conducted by

HENRY M. NEELY

Radio in the Home of Harry M. Dittman, Narberth, Pa.
Photo by Harry S. Hood, courtesy of Durham & Company, Philadelphia

October, 1923

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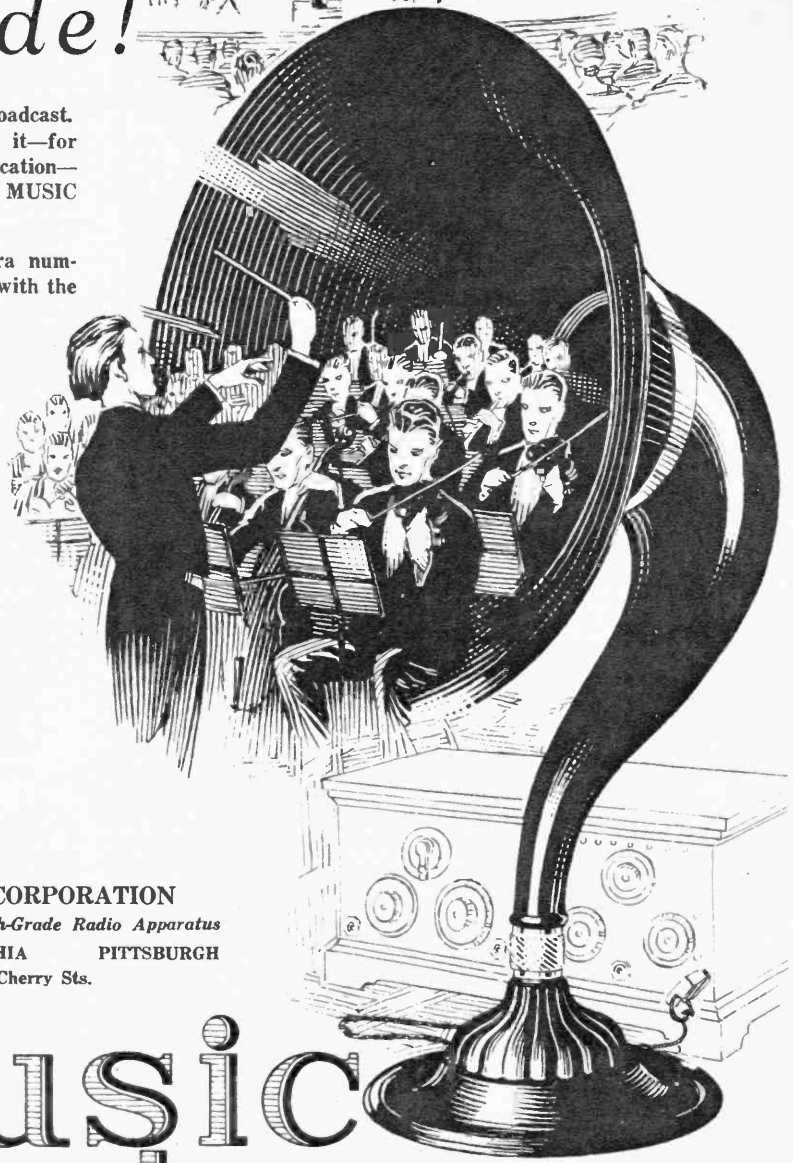

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RADIO IN THE HOME

VOLUME II — *October, 1923* — NUMBER V

Radio in the Home of Carl B. Gardner, of Oak Lane, Pa.
Photo by Harry S. Hood, courtesy of General Radio Corporation, Philadelphia.

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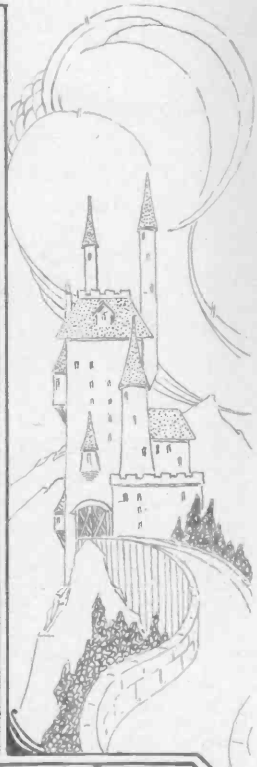
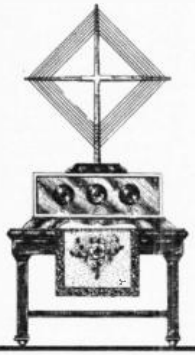
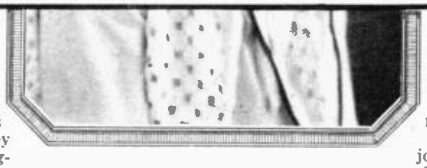


Marjorie Daw, film star, is just crazy about radio as you will see if you read the story on the next page. Of course, it may not contain much about radio, but it is an excellent illustration of how crazy Marjorie is about the hobby and how women discuss it when they get together.



Marjorie Daw is Crazy About Radio



By Constance Palmer Littlefield

CANDID eyes—a mouth with turned-up corners—and freckles—that's Marjorie Daw. The eyes regard you steadily, quite seriously, as you talk of ships and sealing wax. The mouth with those turned-up corners smiles and smiles encouragement. The freckles? Well, they just freck in the friendliest manner imaginable.

To begin with, Marjorie has been married only a few months to Edward Sutherland, right-hand man to Charles Chaplin. I say this in the beginning so you'll understand later.

Beatrice Measure and I went up to see her yesterday. Beatrice is from the East and had never met a movie actress, so I thought it would be fun for her to go along.

When we arrived we were met by a colored maid and a broad smile. She assured us that, though "Miss Mawgie wan't home that minute," she would be in a couple of minutes more. It seems she had just gone to do her marketing.

Out attention was arrested by a scramble on the landing leading to the living room. A tiny puppy, barely three weeks old, cocked one ear at us and immediately burst into tears. The more we tried to assure him of our good intentions, the louder he wailed. We petted, cajoled and tried to change the subject for ten endless minutes, but he refused to be comforted.

At last Marjorie returned, presumably laden with garden produce, and the wails immediately subsided to a whimper. He tumbled off the couch and scuttled over to his mistress, now quite happy.

"I've only had him a couple of hours—just brought him home from the kennels this afternoon. "Blackie Daw"—pointing to a larger police dog, not full-grown himself—"is terribly jealous. He bites the little one's ear whenever he thinks I'm not looking."

Marjorie is the kind of girl you went to school with—the nicest kind—except that she still looks as if she ought to be attending a nice, peppy high school. Dances and classes, teachers and beaus seem to harmonize with her personality better than Kleigs and makeup and directors. It is hard to realize that she has been an actress on the screen for some seven years, and now has a husband and a home of her own.

Her house is just what you might expect two young married people to start off their life together in. In fact, it's just what you'd know two young married people in the motion picture business would choose. (That is, if you aren't one of the eager-eyed ones who revel in a high-wide-and-handsome conception of the motion picture business!)

NOT so long ago, when I was guilty of running a newspaper's motion picture department, my favorite correspondent was Constance Palmer, who sent me a daily letter from the movie colony in Hollywood.

Since then Miss Palmer has married Lucien Littlefield, one of the well-known film actors, and has more or less given up writing but, knowing what a clever pen she wields, I thought the readers of RADIO IN THE HOME would be interested in having some genuine stories about radio among the more famous of the movie actors and actresses.

And so I got in touch with Mrs. Littlefield and she has agreed to write a series of such stories for me, keeping entirely away from the "press agent" atmosphere which mars so much of the otherwise interesting material that comes out of Hollywood.

This interview with Marjorie Daw is the first of this series.

Read this article and seee what Miss Daw thinks about our favorite hobby.

And, by the time you have finished it, see what you think of the troubles of a radio editor who tries to get two or three women together to talk seriously about radio.

The house was originally built by an artist, to be used as a studio. To the right, as you enter, is a tiny dining-room—evidently the artist didn't expect to eat much!—and through a little reception hall you can see into the large living room, which extends the full width of the house. The two opposite walls of the room are almost entirely of glass, and the view through these immense windows encompasses most of the justly-famed Hollywood hills.

Since the house itself clings to the steep incline of these very hills, the bedrooms are both below the living room.

"It's almost burglar-proof," said Marjorie. "Nobody but an Alpine mountain-climber could get in!

"But the other day I had the scare of my life. I'd just been down to the market and was walking home with a duty-accomplished sort of feeling when, lo and behold, I looked up, to see clouds of smoke rolling around our dear little house! You can imagine how fast I covered the two blocks. Yes, up that hill, too!

"Never thinking it might be dangerous, I dashed straight into this room. My beautiful windows looked out on nothing but smoke!

"Of course, the first person I thought of was Eddie, so I ran to the phone and called the Chaplin Studio. Afterwards Eddie told me that it had been a very bad day for Mr. Chaplin, who was then in the midst of directing 'A Woman of Paris.' Everyone was depressed. Nothing seem to go right—but when Eddie came dashing out onto the stage shouting, 'My house is on fire—my house is on fire!' it seemed to be just the thing to jerk everyone out of their depression.

"Mr. Chaplin started to laugh and caper around with relief—not that we were burning up, but because the spell was broken.

"He helped Eddie pile every available electrician and prop man into the biggest car they had and sent them careening off to the rescue.

"In the meantime I was trying to get the fire department. We have a party line—and the *party* was on! I kept telling them my house was on fire and they kept telling me to let it burn. They had the wire and weren't going to give it up!

"At last I made life so miserable that they slammed up the receiver with, 'Oh,

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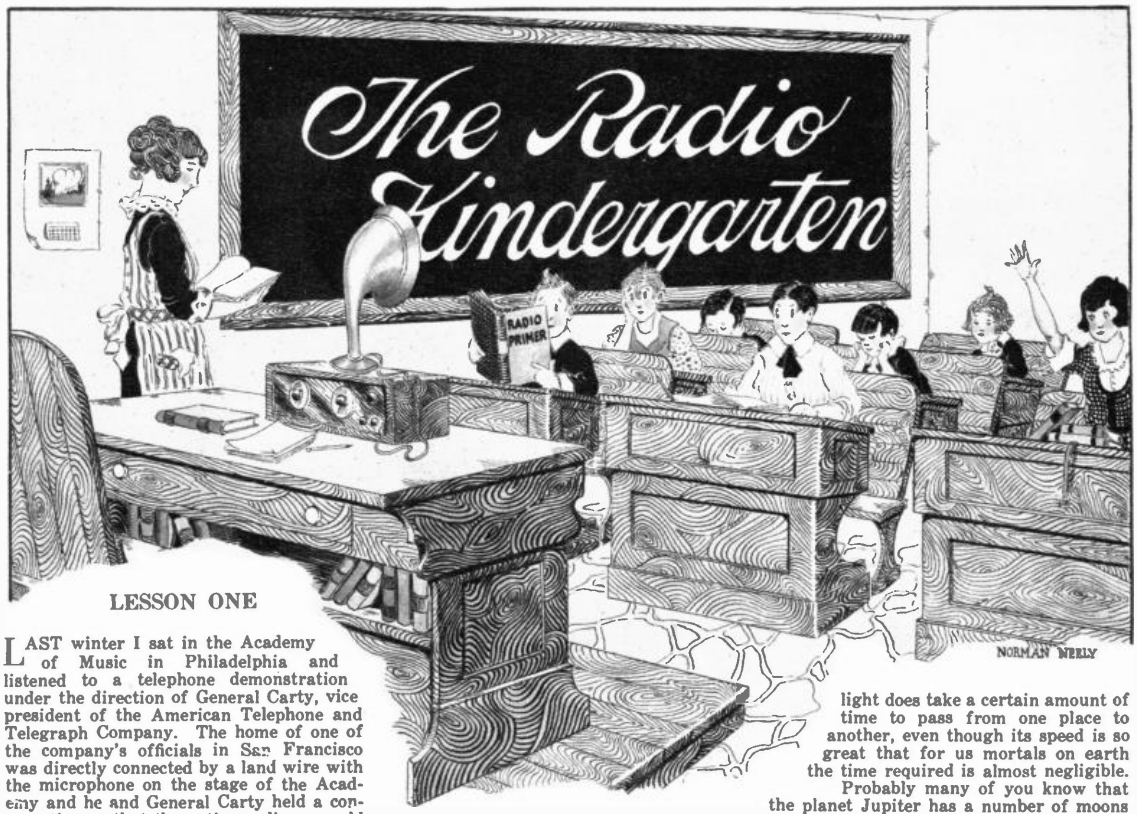


LESSON ONE

LAST winter I sat in the Academy of Music in Philadelphia and listened to a telephone demonstration under the direction of General Carty, vice president of the American Telephone and Telegraph Company. The home of one of the company's officials in San Francisco was directly connected by a land wire with the microphone on the stage of the Academy and he and General Carty held a conversation so that the entire audience could hear it.

And, as I listened, there came to me the realization of a staggering fact. It was this:

Through the marvel of electricity, the man in San Francisco, some 2770 miles away, heard General Carty's voice before the people in the rear of the Academy of Music heard it!

Can you picture that?

There was General Carty on the stage speaking, and a man 2770 miles away heard his voice before it was heard by a man sitting in the very same building with him.

Yet it is a very simple matter to figure it out. Electricity travels at the amazing speed of over 186,000 miles in a second. General Carty's voice then—borne by electricity—required only one sixty-seventh of a second to reach San Francisco.

Sound travels through air at about 1150 feet a second. Assuming the Academy of Music to be 300 feet deep, General Carty's voice, traveling through air, required more than one-quarter of a second to reach the people in the back seats.

In the same space of time, his voice by electricity could have made the round trip to San Francisco and back to Philadelphia eight and one-half times before the same voice, air-borne, reached the man in the back seat.

We talk very easily and carelessly about light and electricity traveling at 186,000 miles in a second. Actually the human mind cannot picture anything like this speed. Have you any conception of what it really means?

Sit down and close your eyes and try to get a picture in your mind of a wheel turning eight times in a second. You can't do it. It is too fast.

Yet a radio signal goes hurtling through space so fast that it can whirl eight times around the entire earth in a second.

Just try this for yourself and get some estimate of its wonders:

The ordinary alarm clock ticks four times in a second. Start counting out loud—one, two, three, four—with the ticks. You can do it for a while, but soon your tongue will stick.

Now try to double your counting speed by counting twice for each beat, or eight times each second instead of four. You can't do it. It will be too fast for you.

Yet radio will travel all the way around the earth for each count that you are trying to make.

Try to make eight circles in a second with the tip of your finger. Make the circles as small as you wish and try to make two to each tick of your alarm clock.

You can't do it.

And yet I repeat that radio will make two circles around the entire earth for each tick of that clock of yours.

Although it may have nothing directly to do with radio, it is very interesting to know how it was that man discovered the speed at which light and electricity travel.

We usually consider light as being instantaneous—that is, that it does not take any time at all to flash through space but goes instantaneously.

That was the old belief. It was due to an astronomer that it was discovered that light does take a certain amount of time to pass from one place to another, even though its speed is so great that for us mortals on earth the time required is almost negligible.

Probably many of you know that the planet Jupiter has a number of moons or satellites revolving around it just as our earth has one moon revolving around it. Long ago, astronomers were able to figure out just exactly when each one of these moons of Jupiter ought to pass behind the big planet and therefore be eclipsed and at exactly what second the moon should emerge from the other side of Jupiter and come into view again.

Away back somewhere around 1675 a Danish astronomer named Roehmer made a special study of Jupiter and the satellites, and gradually, as he watched month after month, he began to notice a very peculiar thing.

This was that the satellites were getting later and later in being eclipsed and in emerging from behind Jupiter. He did not know at once just what the cause of this was, but he did make the undoubted discovery that there was an increasing delay in the eclipses.

And then, as he figured it out, it suddenly came to him what the cause of this was.

When he had first started to watch the eclipses of the satellites of Jupiter, the earth was on the side of its orbit nearest to Jupiter. Then, as month passed after month, the earth, in its circle around the sun, got farther and farther away from Jupiter until, when it was at its very farthest point, the delay in the scheduled eclipses of the satellites of Jupiter was quite considerable.

Roehmer then rightly decided that this delay must be due to the fact that it took the light from the satellites just that much longer to travel to the earth when it was

on the far side of its orbit than it did when it was on the near side and therefore, by figuring out the distance between those points in the earth's orbit, and knowing the number of seconds difference in the time, it was possible to arrive at very nearly an accurate estimate of the speed of light.

This figured at roughly 186,000 miles a second.

Since then, scientists have devised very wonderful laboratory apparatus for measuring the speed of light and have found that it is actually a few hundred miles greater than this.

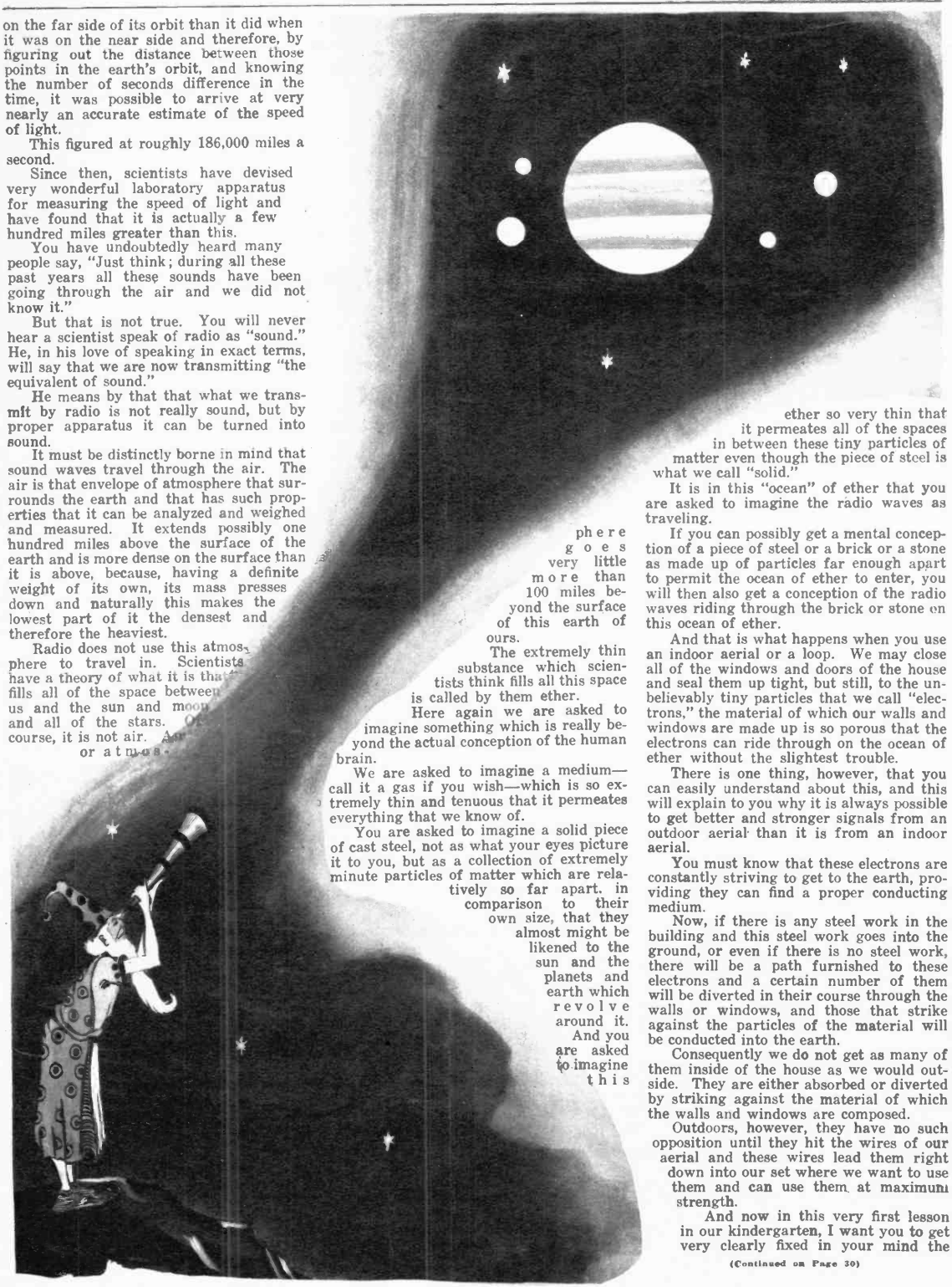
You have undoubtedly heard many people say, "Just think; during all these past years all these sounds have been going through the air and we did not know it."

But that is not true. You will never hear a scientist speak of radio as "sound." He, in his love of speaking in exact terms, will say that we are now transmitting "the equivalent of sound."

He means by that that what we transmit by radio is not really sound, but by proper apparatus it can be turned into sound.

It must be distinctly borne in mind that sound waves travel through the air. The air is that envelope of atmosphere that surrounds the earth and that has such properties that it can be analyzed and weighed and measured. It extends possibly one hundred miles above the surface of the earth and is more dense on the surface than it is above, because, having a definite weight of its own, its mass presses down and naturally this makes the lowest part of it the densest and therefore the heaviest.

Radio does not use this atmosphere to travel in. Scientists have a theory of what it is that fills all of the space between us and the sun and moon and all of the stars. Of course, it is not air. Air or atmosphere goes very little more than 100 miles beyond the surface of this earth of ours.



The extremely thin substance which scientists think fills all this space is called by them ether.

Here again we are asked to imagine something which is really beyond the actual conception of the human brain.

We are asked to imagine a medium—call it a gas if you wish—which is so extremely thin and tenuous that it permeates everything that we know of.

You are asked to imagine a solid piece of cast steel, not as what your eyes picture it to you, but as a collection of extremely minute particles of matter which are relatively so far apart, in comparison to their own size, that they almost might be likened to the sun and the planets and earth which revolve around it. And you are asked to imagine this ether so very thin that it permeates all of the spaces in between these tiny particles of matter even though the piece of steel is what we call "solid."

It is in this "ocean" of ether that you are asked to imagine the radio waves as traveling.

If you can possibly get a mental conception of a piece of steel or a brick or a stone as made up of particles far enough apart to permit the ocean of ether to enter, you will then also get a conception of the radio waves riding through the brick or stone on this ocean of ether.

And that is what happens when you use an indoor aerial or a loop. We may close all of the windows and doors of the house and seal them up tight, but still, to the unbelievably tiny particles that we call "electrons," the material of which our walls and windows are made up is so porous that the electrons can ride through on the ocean of ether without the slightest trouble.

There is one thing, however, that you can easily understand about this, and this will explain to you why it is always possible to get better and stronger signals from an outdoor aerial than it is from an indoor aerial.

You must know that these electrons are constantly striving to get to the earth, providing they can find a proper conducting medium.

Now, if there is any steel work in the building and this steel work goes into the ground, or even if there is no steel work, there will be a path furnished to these electrons and a certain number of them will be diverted in their course through the walls or windows, and those that strike against the particles of the material will be conducted into the earth.

Consequently we do not get as many of them inside of the house as we would outside. They are either absorbed or diverted by striking against the material of which the walls and windows are composed.

Outdoors, however, they have no such opposition until they hit the wires of our aerial and these wires lead them right down into our set where we want to use them and can use them at maximum strength.

And now in this very first lesson in our kindergarten, I want you to get very clearly fixed in your mind the

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And now—The Radio Apartment House

Master Atlee Van Fleet can listen-in by himself in his home in the Ritz Apartments, in Newark, New Jersey.

The photo is copyright by the Western Electric Company

EDWARD BELLAMY wrote the first story like this in "Looking Bockward." His hero awoke from his long trance and found himself in a home where he could get any kind of entertainment he wanted simply by plugging into the proper switch in the living room of the house of his host.

Bellamy was a visionary, of course. All of us are, who see an inch or two beyond the tips of our more-or-less Grecian noses.

But read the story on these pages.

Bellamy's vision is here today not only in actuality, but more wonderfully than even his fertile imagination conceived it.

THE well-dressed man pacing to and fro in the lobby of one of Philadelphia's largest and most modern apartment hotels glanced hastily at his watch and muttered impatiently:

"Confound Jim! It's almost 12.30 and he promised to meet me here at 12 o'clock for lunch. If he can't come, why doesn't he telephone?"

Just at this moment a voice, coming apparently from no person in the well-filled lobby, nor from any of the bell-boys flitting through the corridors or standing at the lobby desk, spoke in a clear and well-modulated but penetrating tone, heard plainly above the babel of conversation:

"Mr. Bradford is wanted in the telephone lobby."

While the voice was repeating the message, Mr. Bradford—he of the impatient pacings—disappeared into a side room, where a pleasant-voiced, quiet-mannered young woman, seated before a switchboard, directed him to a telephone booth.

"Mr. Fielding is calling, sir," she said.

"Sorry to keep you waiting, old man," came the voice over the wire, "but I've been detained at the last minute. I'm sending Collings, Mr. James B. Collings, instead, and you'll find him a fine chap and thoroughly informed about that deal. I'll see you tonight sure at the Engineers' Club."

Looking somewhat relieved, our well-dressed friend hurried from the booth and called to the telephone operator: "Page Mr. Collings for me, please!" The girl at the board made a few rapid movements and then spoke into a microphone in front of her.

And again the same smooth, well-modulated, clear and penetrating voice, coming apparently out of nowhere, spoke through the lobby: "Mr Collings is wanted in the telephone lobby." This was repeated several times, but no one appeared

"I'll page him in the smoking-room and the lounge," she said, glancing at Bradford.

No page moved through the lobby or walked jauntily from room to room, but through both smoking-room and lounge the bodiless voice paged Mr. Collings.

Again it came back to the lobby and a moment later Collings presented himself at the telephone desk and both men passed down the corridor to the grill room.

As they went by the open doors of the great dining-room, music from a superb concert orchestra floated through the corridors. Many men and women were entering or leaving the room; one of the women nodded pleasantly to our erstwhile impatient friend, now restored to good humor.

"That's Fred Thompson's wife; they live here now," he remarked to his companion. "Fred's just purchased a loud-speaker and I'm going to drop in on them some night soon and see how it's working. He says it's great."

"Does he use his own radio set or just plug in on the house radio service system?" queried Collings, as they seated themselves in the grill, and having ordered, relaxed comfortably in their chairs.

"Fred says he uses both," replied the older man, sipping at a glass of ice water. "The set works fine for local stuff, he says, but it doesn't equal the house service in bringing in distant stations. But he says he likes to have the old set around, just to remind him of old times before there

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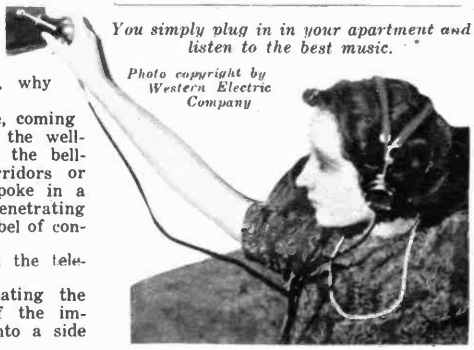
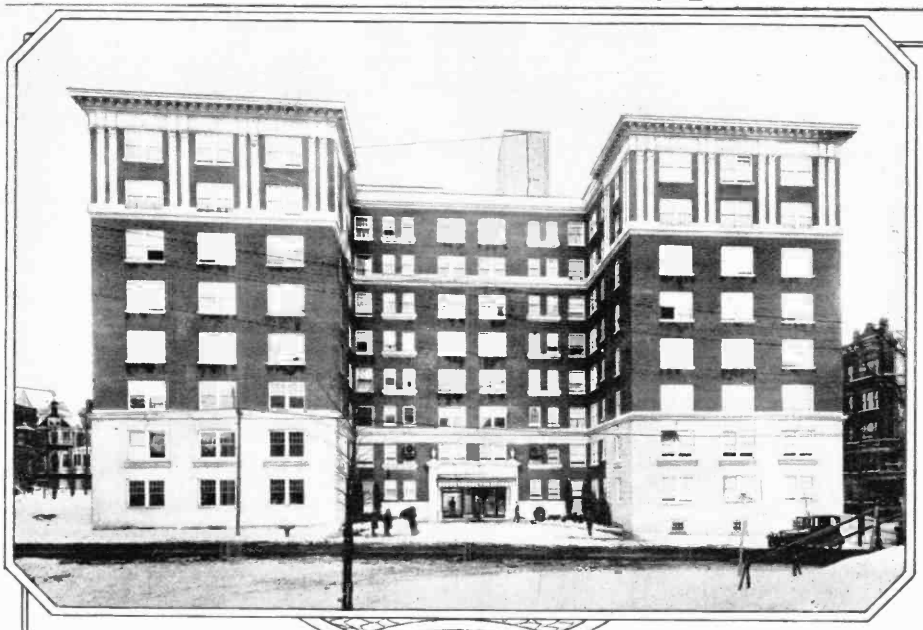


You simply plug in in your apartment and listen to the best music.

Photo copyright by Western Electric Company

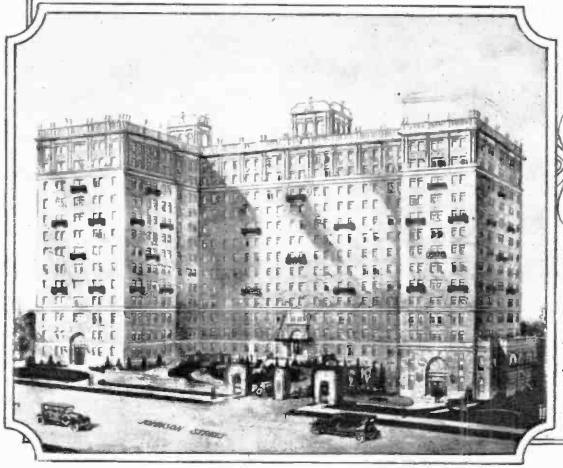


On the left is the Ritz Apartment House, 229 Clinton avenue, Newark, New Jersey.

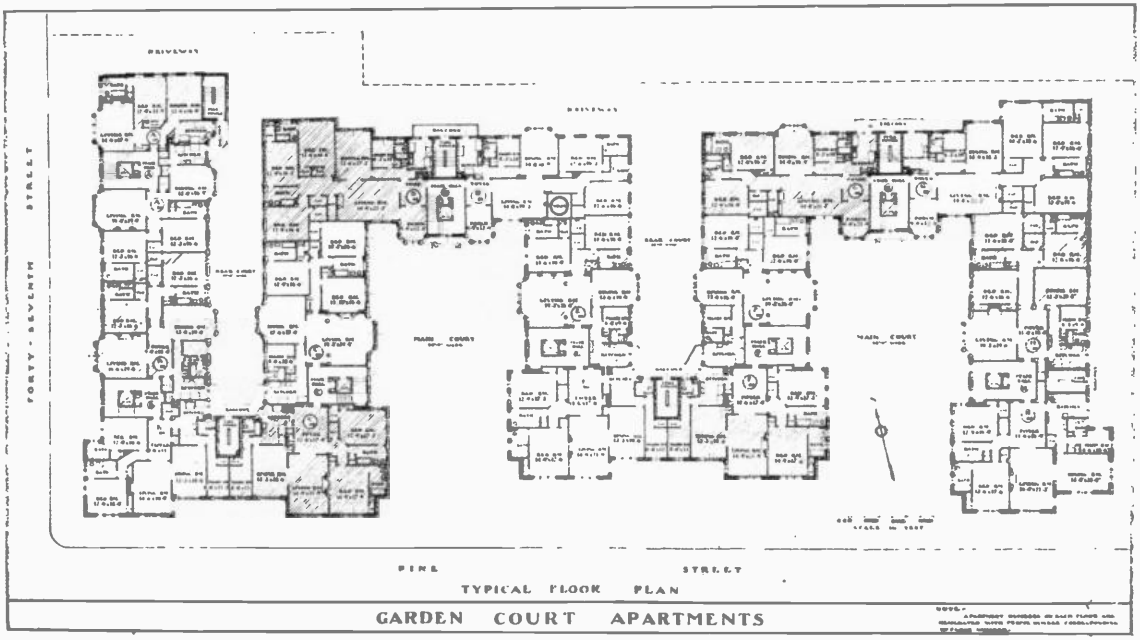
The photo is copyright by the Western Electric Company

Below is the architect's drawing of the Garden Court Apartment, Pine street at Forty-seventh, in Philadelphia.

Below left is an architect's drawing of the beautiful Lincoln Drive apartments which are being built at Lincoln Drive and Johnson street, Philadelphia, and are to be fully equipped with radio.



Above is the new Hotel Pennsylvania, in Philadelphia, which has facilities for all kinds of radio and inter-communicating entertainment.



This plan of only one floor of the Garden Court Apartments in Philadelphia will give an idea of the magnitude of wiring up every apartment of the great building for radio reception.

(Continued from Page 8)

were such things as radio-equipped apartment hotels like this."

"How does his wife like the system?" Collings queried again.

"Fine!" the other exclaimed; "she says radio isn't a luxury to her any more; it's a home necessity. Kiddies go to bed to the bed-time stories, and she uses the house-system output, with her loud-speaker, in entertaining her friends at an afternoon tea or an evening party. Splendid up-to-date type of American woman," he continued, and then broke off to exclaim: "But just listen to that orchestra! Ever hear finer music in your life?"

The younger man admitted he hadn't. Yet there was not a sign in the room of an orchestra, musician or musical instrument of any kind. Full and rich and sonorous, the music ebbed and rose and volumed evenly through the haze of smoke that hung over the groups of men about the grill-room tables.

The two men listened, silent and preoccupied, for a moment. Then Collings exclaimed impetuously: "Who would have thought all this possible, even a year ago! Having yourself paged by radio; turning on radio in your apartment as you would turn on the electric light; hearing the best music and the best thought of the world with no more effort than it takes to lift off the receiver of your telephone!

"And listen to that orchestra music! It's just the same as if we sat over there in the dining-room! And you can hear it even if you want to smoke in the smoking-room or read your newspaper in the lounge! It's all wonderful to me, even yet!"

The older man, with a pleased smile, nodded agreement.

"Yes," he said, "Mrs. Thompson was right; radio isn't a luxury in our life any more; it's a necessity. Take this apartment house, for instance. Do you suppose the builders went to the trouble and expense of installing a radio service system so that every apartment could have radio service and radio broadcasts or the music of the orchestra could be carried to every room, do you think for one minute they would bother with such installations if it were not for the fact that up-to-date people today demand radio in the home?

"The wiring of this hotel with a radio service was a recognition on the

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Mrs. M. Ehrlich and her grandchildren listen-in in their apartment at the Ritz, in Newark, New Jersey.

Broadcasting Started From an Argument Over Watches

IF TWO men in Pittsburgh hadn't had an argument over which one's watch had the absolutely correct time, we probably would not have radio broadcasting as we know it today.

It was that argument that induced one of the men to set up an amateur station. And a little later on, this man's boss made him close his station.

That began broadcasting as we know it.

It all sounds disconnected and paradoxical, but the facts are exactly as stated. The story of the beginnings of broadcasting is one of those fairy tales of science that prove that you never can tell what is going to happen when you start something new.

The man who won the watch argument by establishing an amateur station was Frank Conrad, who is now assistant chief engineer of the Westinghouse Electric and Manufacturing Company. He didn't have any such high position at the time. But he had proved himself one of the most valuable and remarkable electrical wizards in the whole corporation, and it might almost be safe to say that radio was the only form of electrical phenomena about which he knew little.

In the early days when wireless was just beginning to spread and when a few amateurs had begun to wind funny looking coils and cuss at coherers that wouldn't de-cohere, Mr. Conrad and another official of the Westinghouse Company compared watches after luncheon to see if it was time to go back to work. Their watches differed.

Now the other man's watch was brand-new and he was confident it was right. Mr. Conrad's watch was old, but he had been comparing it daily with the Westinghouse master clock, which was regulated by the old system of Western Union time service.

Mr. Conrad had noticed variations in this time service, that he couldn't make any one believe. He had no way to prove his theory that it did vary—that there was sometimes a "lag" in the mechanical process somewhere—until this argument about the watches made him suddenly remember that the naval station at Arlington, Va., had inaugurated a system for sending out time signals by radio and he knew there would be no lag, or delay, in such signals.

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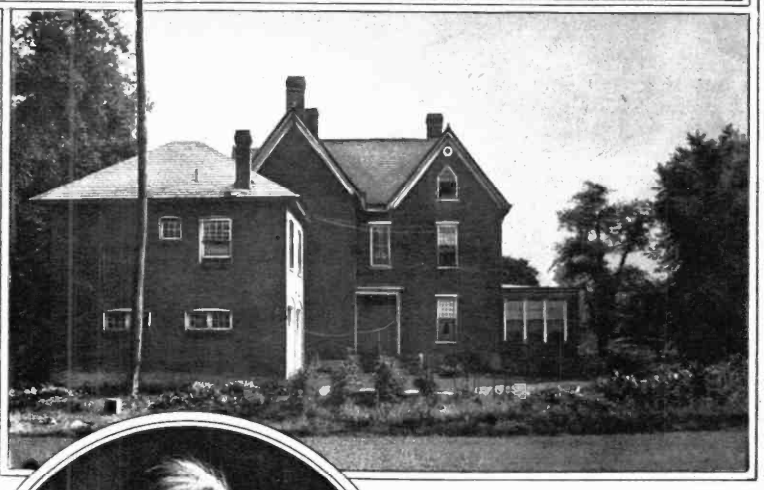
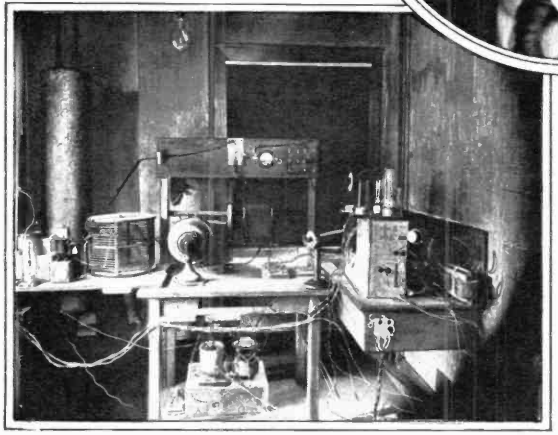
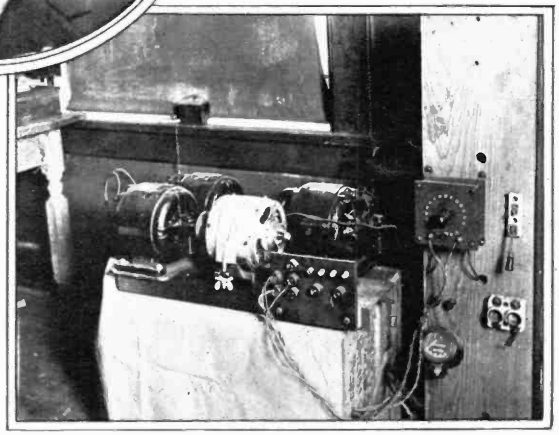


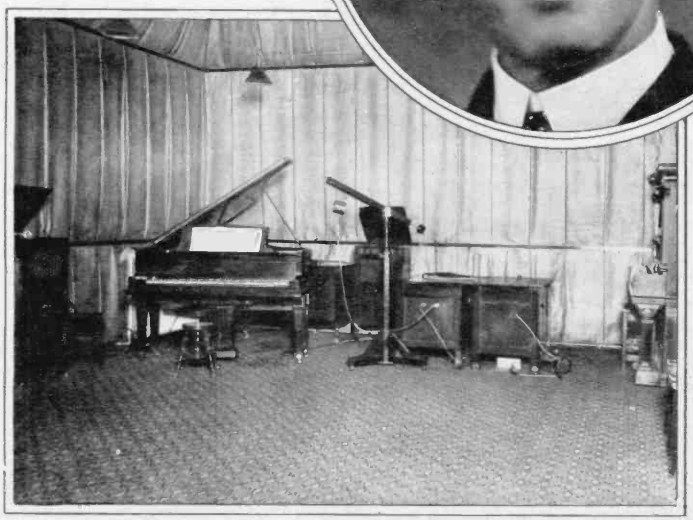


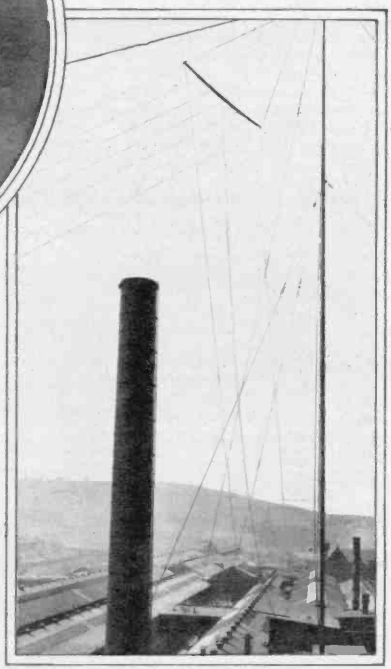


The portrait in the center of this page is of Frank Conrad. The top picture shows the original aerial over his garage, where broadcasting started. The lower left hand picture shows his early transmitting set and in the lower right hand picture are the generators which he installed in the garage.

A good idea of the contrast in broadcasting studios is given on this page. Above we have the present broadcasting studio of KDKA with its draperies to kill all echoes. Below we have the first studio of KDKA in its primitive form.

Below is one of the great aerial masts on the Westinghouse plant at Pittsburgh for KDKA's broadcasting.





In the circle in the center of this page is Harry P. Davis, vice president of the Westinghouse Electric and Manufacturing Company of East Pittsburgh, whose vision resulted in stopping an amateur broadcasting station and establishing the plant of KDKA, which was the pioneer that has been followed by all of the five hundred broadcasting stations in this country today.

KDKA's Little Symphony Orchestra is quite a feature of the prog rams from Pittsburgh.

(Continued From Page 11)

At that time he had paid very little attention to the new field of wireless because it had not seemed likely to come within the ken of the Westinghouse works in Pittsburgh. But now that he wanted accurate time signals, he made up his mind to get them direct from Arlington.

So he figured out a crude way to make adequate receiving apparatus, and soon he had erected an aerial and put up his coils and stuff over a garage at his home.

That started him. Like every one else who gets bitten by the radio microbe, he quickly contracted a hopelessly incurable case, and the first thing he knew—after proving his point about the old wire time service—he was figuring on transmitting apparatus and was working one of the very few amateur transmitters in the United States.

Then came the war and the Westinghouse Company found itself assigned to a vast amount of radio work. Naturally it was turned over to Mr. Conrad, who, by that time, had become an expert and had taken out a number of patents.

After the war, he began experimenting in the transmission of music by radio. He made a practice of sending out Victrola record music through the ether and some of the big Pittsburgh stores, which had installed amateur radio departments, got into the habit of advertising Mr. Conrad's musical evenings as an inducement to amateurs to come in and buy apparatus.

Then one day when Mr. Conrad went to his office, he was called by Harry Phillips Davis, vice president of the Westinghouse Company.

Dr. Thomas, inventor of the glow-discharge microphone, used at KDKA

"Frank," said Mr. Davis, "I'm going to close your radio station."

Mr. Davis had come into his office that morning in September, 1920, with an idea. The idea had come to him while reading the advertisement in his evening paper.

In a corner of a full-page ad, he came across the words. "Mr. Conrad will send out phonograph music this evening." This advertisement was in the interest of the store's amateur radio department.

Mr. Davis could not forget the idea. He was struck with the fact that the radiophone fundamentally did not lend itself only to private communication but that it had a universal field of usefulness and that through it one could communicate with hundreds, thousands or millions; all could listen who had the suitable "ear," for if a certain class of people were interested enough to listen to music from a few records there was a possibility of increasing this small audience of radio listeners to an enormous number by sending out entertainments, current events, etc., in a regular and interesting manner.

Why confine one's audience to a small portion of the country? Why not build a big station and let every one who wanted to hear? Why not make radio broadcasting a public service?

Mr. Davis was so struck with this idea of a public broadcasting service that the first thing he said to his secretary on entering his office the next morning was, "Ask Frank to come in."

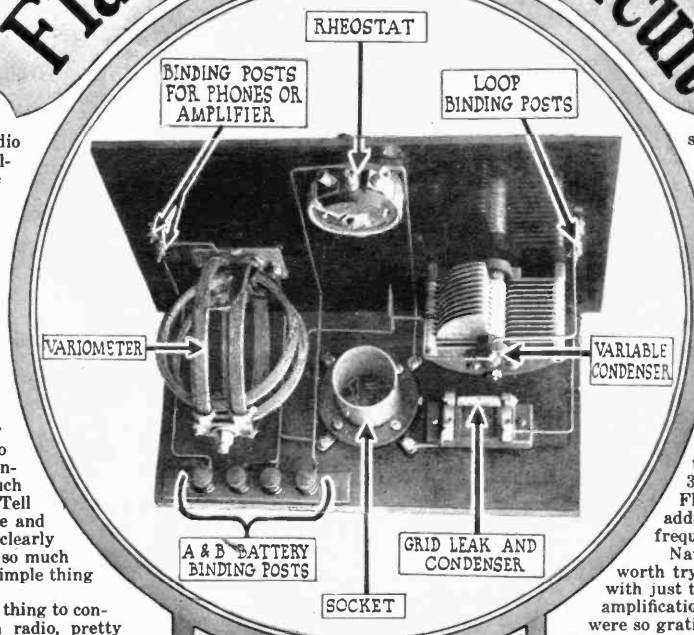
And Mr. Conrad, having been taken so abruptly with his chief's statement, could only listen to what followed.

"Frank, my idea is that you stop sending from your station and we will start a regular service from our experimental station here at East Pittsburgh. We can arrange for a suitable wave length, and I believe that if we do this it will be the beginning of a radio broadcasting service which seems to me to have wonderful possibilities."

The conference with Mr. Con-

(Continued on Page 30)

Flather's Loop Circuit



THE mail of every radio editor brings him almost daily face to face with problems that make him scratch his head for hours of puzzling before he can find anything like the right answer to the questions. Before long he gets the impression that what most readers want is a $5.00 crystal set that will receive signals from London and Paris and put them on a loud speaker with enough volume to dance to. They seem unable to understond that such a thing is impossible. Tell them that it is impossible and they calmly ask why and clearly show that radio can't be so much after all if it won't do a simple thing like that.

It is the most difficult thing to convince beginners that, in radio, pretty much as it is in everything else, you can get out of it only proportionately what you put into it in the form of time, thought and money and adequate apparatus. This is true of the piano, Victrola, automobile, motorboat and everything else. Why should radio be an exception?

And so we come to the question which bothers radio editors probably more than any one other. It is:—

"I want to use an indoor loop—can't put one up outdoors. I want to use only one bulb—can't afford more. And I want to get distant signals loud and clear—can't be satisfied with local stations. Will you please give me a hook-up?"

Why certainly—just like that. That's what they expect.

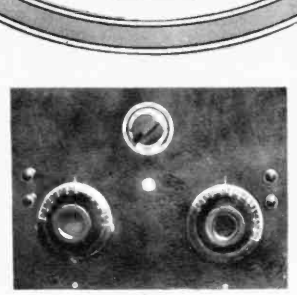
But the problem of the single tube loop hook-up has always bothered me more than any other. It wouldn't be so bad if the readers would spend a few dollars for a couple of transformers and use a reflex circuit. But they won't. They want the minimum number of instruments and the minimum cost—but insist on maximum results.

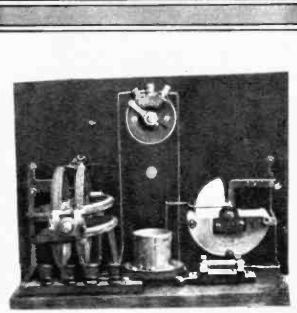
I have tried out many single tube regenerative loop hooks-ups, but I usually find that distance and volume are accompanied by so much difficulty in tuning that they are not at all suited to the novice. And so I have avoided giving such hook-ups.

Not long ago, however, Ted Vollten took a few days off from Station 3XP and ran down to his old stamping grounds in Washington, D. C., and one of the best prizes he came back with was a hook-up which proves to be really suitable for the readers I have spoken of. He got it from an old friend, B. C. Flather, whose transmitting station is listed as 3LR, and he found that Flather had used it with the addition of two stages of audio frequency amplification.

Naturally we felt that it was worth trying, so we put it together with just the single tube and with no amplification whatever. Our results were so gratifying that I am publishing it here for the many readers who have asked for this kind of thing, and, if it solves their problems, as I believe it will, they can give Mr. Flather a vote of thanks. You must understand, in the first place, that I am not offering this circuit with a guarantee that you will hear across the continent with it. You won't. You mustn't expect to get such reception with an indoor loop unless you use a very expensive set with many bulbs and transformers and the other costly gadgets.

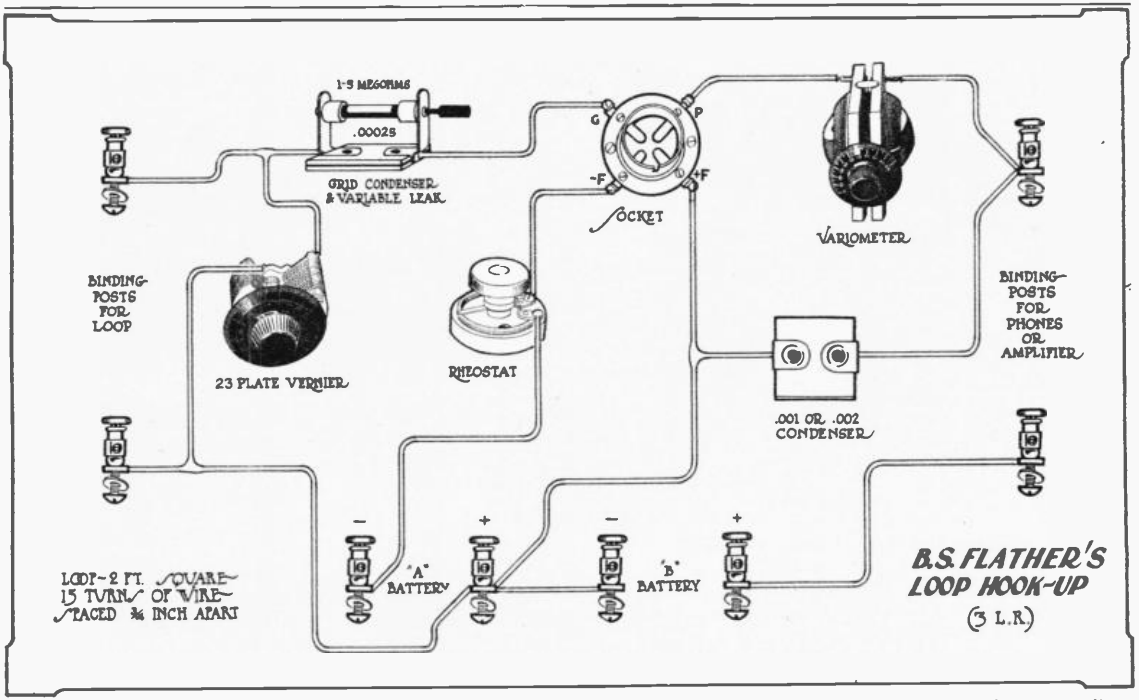
But for a loop hook-up using only a detector tube it is the best I have tried and we have found it gives uniformly clear and satisfactory signals up to a hundred and fifty miles in warm weather. Its range will undoubtedly double with the winter. With our set at Delanco, N. J., concerts from New York City and WOR, Newark, came in with sufficient volume to put them on a loud speaker when we added two stages of audio frequency amplification.





The loop has the valuable quality of selectiveness—that is, when we turn the loop from one direction to the other we can completely tune out a station.

Building this circuit does not require a whole lot of trick parts. Essential parts are one variometer, one twenty-three plate variable condenser



with vernier, one tube socket and one rheostat.

We happened to have a small piece of bakelite lying around the shop eleven inches long by eight inches high. This piece of bakelite we found would hold all the necessary parts to make up this circuit for one tube, so in the lower left-hand corner we installed a 23-plate variable condenser and then in the opposite corner on the right-hand side of the panel we put the variometer. Then in the center of the panel at the top we placed the rheostat.

On the back of this panel is a small base board ten inches long by five inches wide. On this board is mounted the tube socket, the grid condenser and grid leak and the binding posts for the batteries. On the left hand side of the panel in the center are two binding posts, and these are for the connections from the loop. Opposite these are two more binding posts, and these may be used either for the telephones or to fasten the connections for a two-stage audio frequency amplifier if you buy or build one later.

We did not build a two-stage amplifier in conjunction with this one-tube hook-up. We were using a two-stage unit that comes already mounted on a panel and can be installed in conjunction with any one tube circuit.

The loop that we used was two feet on a side and had fifteen turns of wire spaced three-quarters of an inch apart. Looking at the wiring diagram that I am showing, you can readily see that it is a very simple one to follow. The essential thing to be watched in this circuit is to have the movable plates of the variable condenser in the "return filament lead" rather than in the grid lead of the circuit. Be sure that you solder all of your wires and do not have wires running parallel close together, for if you do you will find that the "capacity" of your circuit is very greatly increased, or in other words your variable condenser will not have the minimum which it is supposed to have.

This set is very easy to tune and it is very easy for the novice to bring in concerts from other cities. The operation is as follows:

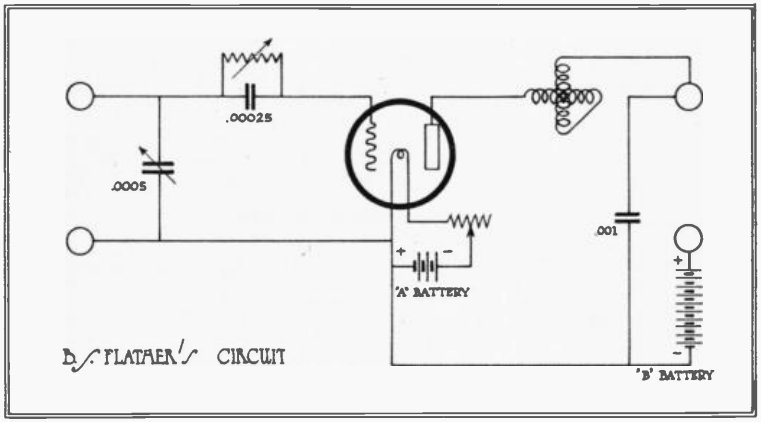
After you have completed the set and inserted in the socket a UV-200 tube, light the filament and point the loop in the direction of a local broadcasting station. Then set the variable condenser at about 40 or 50 degrees.

Now rotate the variometer slowly between 50 and 100 degrees, and get the tube oscillating. You can tell this by touching your finger to the grid connection to the tube. When your tube is oscillating, you will hear a double click—that is, you will hear a click when you touch the grid post and a click when you take your finger off. If you do not hear this second click, rotate the condenser a little further and at the same time rotate the variometer until you do get this double click. It is essential that you have this click so you may pick up the hiss or whistle of the carrier wave of the station you want to hear.

After you have found your carrier wave with your condenser, get right down to the center of it or right in the center of the two whistles of the carrier wave. Then rotate the variometer toward the zero position, and you will find that as you do so the setting on the variable condenser will be changed, so again move the variable condenser to the center of your carrier wave or the center between the two whistles.

Just keep this up until you get the music clean and clear.

The best results from this set are



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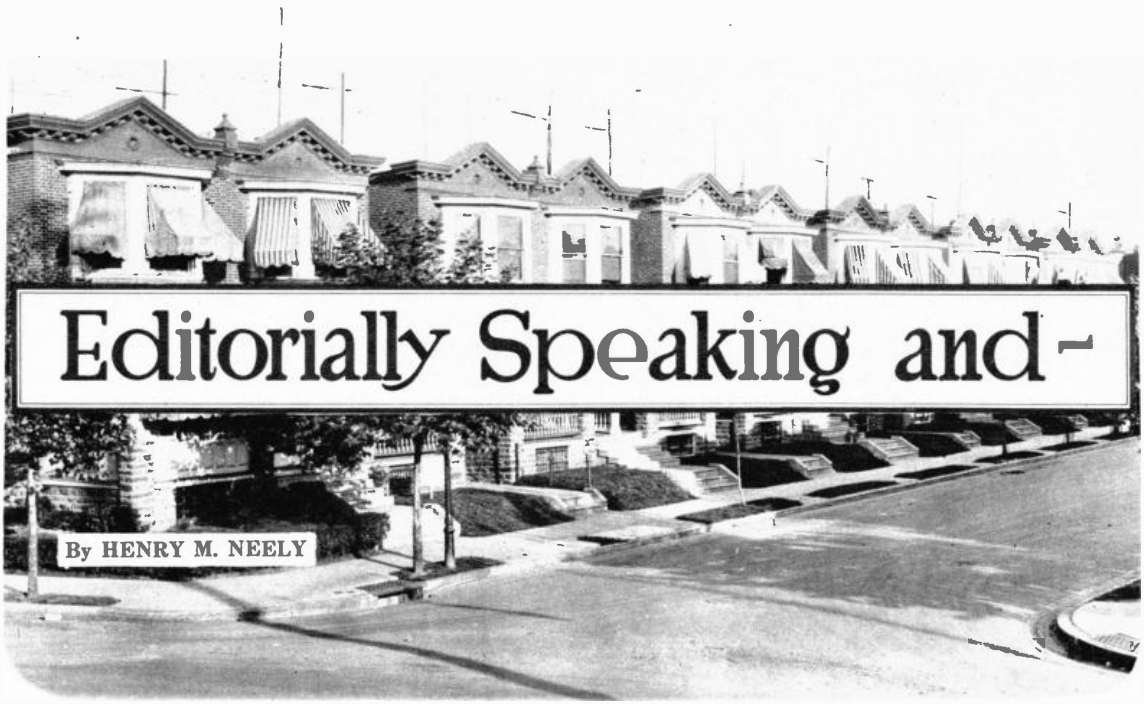


Editorially Speaking and—

By HENRY M. NEELY

THE best radio sales talk that I have yet seen appeared in the August issue of "The Voice of the Victor," the house organ of the Victor Talking Machine Company.

Are You Selling Machinery?

It was not intended as a sales talk for radio and, on the face of it, it has no place whatever in a magazine such as this. But, if you will read the part of it that I am going to quote and if you will think of its applicability to our own particular hobby, you will begin to realize that the radio merchant and radio user can get as much out of it as the Victor merchant or the Victor user.

The article appeared under the title "Are You in the Machinery Business?" and the part that struck me most forcibly was this:

"One of your customers once took his Victrola apart. He put it together again and it ran. Immediately afterward he played a record by Gigli. But, instead of hearing the voice of the great artist as he should hear it, with the valves of his imagination wide open; instead of seeing in his mind's eye the face and form of the singer, he kept thinking of the spring in the motor; and the little governor-balls revolving in their spindle under the motor board kept also revolving in his consciousness.

"These, he reflected, were all assisting in the reproduction of the great Gigli's voice. The mind picture he found distinctly unpleasant. It despoiled the result of some of its higher pleasure. Your customer stopped playing his Victrola for several days after that until time had smoothed from his brain the impress of the mechanical.

"The greatest artists the world has ever known or ever will know, the music of the universe, its history, opera, concerts, dances, hours and hours of gratification and pleasure and amusement, marvelous excursions into lands which can be traveled only by the emotions—these are the things you should sell with Victrola instruments."

And then the article quotes the classical advertisement of Tom Fitch, famous California real estate man, whose newspaper announcements read:

"On Wednesday afternoon at one o'clock we will sell at public outcry to the highest bidder, the Pacific Ocean, draped with a western sky of scarlet and gold; we will sell ships; we will sell a northern horizon rimmed with a choice collection of purple mountains, carved in castles and turrets and domes; we will sell a frostless, bracing, warm yet unlanguid air, braided in and out with sunshine and odored with the breath of flowers. The purchaser will be presented with a deed to a piece of land. The title to the land will be guaranteed by the present owner. The title to the ocean and the sunset, the hills and the clouds, the breath of the live-giving ozone and the songs of the birds is guaranteed by the beneficent God who bestowed them in all their beauty and affluence upon the land and attached them thereto by Almighty warrant as an incorruptible hereditament to run with the land forever." And that is the way we should sell radio. It is time to stop talking about a condenser's dialectric losses and a coil's distributed capacity and a transformer's flat curve. These things are all very well and very essential in discussions among experts, but they have no place in the presentation of radio to the general public.

It is time to regard radio not as mechanical apparatus but as a medium for putting us in touch with the brain of the thinker and the soul of the artist plus—and do not overlook this "plus"—the marvel that amounts to awe of the almost incredible means by which this wonder is accomplished.

And that is to be the basis of the series of articles which I am beginning elsewhere in this issue under the title "The Radio Kindergarten."

I am going to keep away from the mechanical viewpoint and there will be no mathematical formulae nor technical discussions. I shall only try to give you some slight semblance of a mental picture of the sheer unbelievable marvel of the whole thing.

This will be a series at which the expert will sneer—but that's all right. This whole magazine is designed to win the sneers of the expert. The magazine was founded, in fact, because the radio experts were threatening to keep radio out of the American homes. They were doing this by making every single phase of radio so technical, so abstruse, so involved that the average non-

technical man and—more important still—virtually all women were repelled and were given a distinctly unfriendly impression of radio. This was wrong. It was necessary for some plain, ordinary, non-technical, non-expert dabbler like myself to get out a magazine which would present radio to the man—and particularly to the woman—in the American home on the basis laid down by the article I have just quoted from, "The Voice of the Victor."

And that will be the spirit of this series of articles. There won't be a thing in it to interest the advanced amateur. But, if you are only just getting attracted to radio and are wondering what it is all about, you may by reading this "Kindergarten" series get a sufficient idea of the marvels that radio accomplishes to double the value to you of the radio set which you hope some day to possess.

* * *

AND, before I leave the quotation from the "Voice of the Victor," I cannot refrain from saying just a few words about the relationship of radio to the Victrola.

But Don't Neglect Your Victrola

I have heard many Victor dealers say that radio has hurt their business—that people are now satisfied with radio and sit and listen to it all evening instead of playing their Victrolas as they used to.

That is wrong. It is unfortunate—not from the viewpoint of the Victor dealer, but from the viewpoint of your own musical education if you are one of those who are permitting radio to do this.

Radio can never give you permanently a wonderful musical composition. All it can do is to introduce you to the classics of the world and if, in your enthusiasm for the lure of radio, you permit this introduction to pass by without improving upon the acquaintanceship thus offered you, you are just as short-sighted as though you were to neglect an opportunity of meeting and becoming friendly with some man or woman who could help you along in your career in life. Radio and the Victrola, if you are wise, will not supplant each other, but will supplement each other.

You may listen at your radio set for an evening and may perhaps, out of one of the programs you hear, find one or two unusually beautiful selections which, deep in your heart, you feel that you ought to know better.

If you do not pursue their acquaintanceship any farther, they will not seek you out and your musical appreciation will suffer by just that much.

But if you will make a note of the names of these compositions as you hear them from the announcer and consult your Victor catalogue, you will almost certainly find these selections there and will certainly find them if they are really among the world's best music.

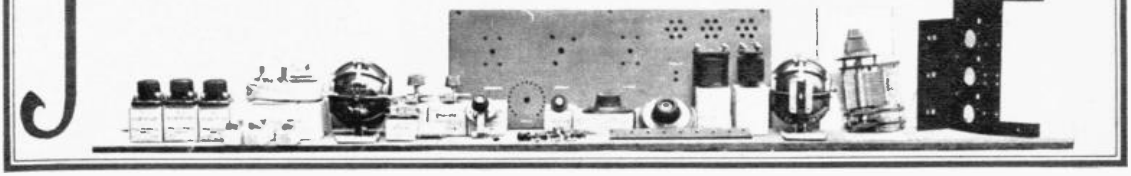
It is, then, the wise thing to do to add these records to your collection and to play them for yourself now and then in order to become more thoroughly familiar with them. A musical education does not consist in hearing a great many compositions and promptly forgetting them. The man or woman who does that has no musical education at all.

The man or woman who has a good musical education is the one who learns to pick out something worthwhile at first hearing and then who contrives to hear that selection several times more in order to become sufficiently familiar with it to delve underneath its surface and to come in close contact with the greater beauties that lie there.

America is very rapidly becoming the most musical nation on earth. The Victrola started it on this most desirable career.

Radio is offering the opportunities to accomplish this result even more rapidly, but the result will not be accomplished if listeners-in depend only on radio and do not make a practice of the more valuable habit of getting permanent records of the things that they hear which are really worth while and using these records to make themselves thoroughly masters of the beauties of the music that means something in life. In the vast multiplicity of the programs that are offered by radio from many distant stations, there is bound to be a big percentage of features that are not of permanent value. Yet I have seldom listened at my radio set for an evening without discovering at least one composition that was worthy of being added to my collection of Victor records.

The JONES SYMPHONY CIRCUIT



This is the complete lay-out of apparatus, panel, bracket and everything just as it comes ready for assembling.

NOT long ago a representative of the firm which makes the Jones Symphony receiver called on me at my office and during the course of the conversation, I mentioned to him the names of one or two manufacturers who very strenuously object to this magazine because of the clearness and completeness of its hook-ups. I told him that they had been frank in stating that they thought this magazine was harming the business of manufacturers of completed sets and asked him if his firm felt the same way.

"Not at all," he said. "On the contrary, I will give you right now the complete hook-up of the Jones-Symphony receiver if you care to publish it.

"We feel as you do; that every man who tries to hook up a set for himself becomes a radio fan and will some day be in the market for a factory finished product.

"I will go even farther than to give you the hook-up to publish. I will send you from the factory a complete knocked-down set so that you can put it together with exactly the same Kellogg parts we use and show your readers just how it is done. Then you will know all about us."

I was very glad to get an offer of this kind because, while I had long been familiar with the name of the Jones Symphony, I had never happened to be in a position to operate one and I was curious to do so.

True to his word, he sent me a box about as complete in its contents as any box of radio apparatus that I have seen.

Absolutely everything needed was there, even including a small box full of extra screws and nuts and bolts in case, through careless handling, I should lose some of the regular ones.

The panel was already drilled so that it was virtually impossible to go wrong in mounting the apparatus. The clever bracket on which the transformers and sockets and binding posts are mounted was ready to be bolted to the panel, and the shield, to do away with body capacity, was already cut out and the screw holes were drilled so that it was impossible to go wrong with that.

This regular set is made of Kellogg parts throughout and when we had finished it, Ted Vollten wanted to mount it in a cabinet with a glass top so that everybody could see the beauty of the inside works.

The finished circuit is a variation of the famous DeForest ultra-audion circuit and the Gibbons hook-up, which I have often given, is another variation of this same fundamental idea.

In the regular Jones Symphony set, the variocoupler has a diamond-wound loading coil which can be attached to it and which is there for the purpose of receiving the longer wave lengths. It is not necessary for broadcasting but is nice to have for those who wish to play with the dot and dash code.

The addition of the variometer in this circuit and also the use of the rotor of the variocoupler as a tickler makes the hook-up even sharper in its tuning than is the Gibbons hook-up though, of course, as is necessarily the case, it somewhat complicates the work of clearing up signals. A little practice, however, soons shows the novice just what to do and he quickly finds himself able to separate two stations operating on wave lengths so close together that the ordinary set could not possibly divide them.

The completed set makes an extremely neat receiver.

In wiring this circuit it is advisable to wire in first the switch contacts from the variocoupler and the diamond-wound coil.

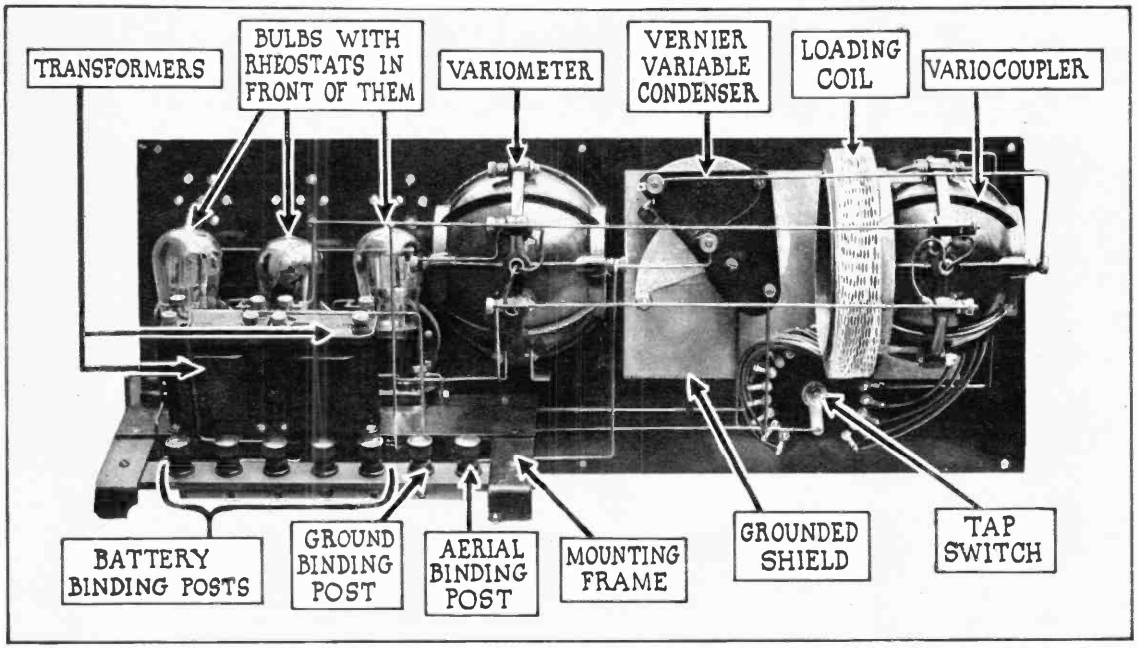
Looking at the back of the panel on the right hand side of the variocoupler we find that we have four taps taken off to run to the switch contacts. These four switch taps I would run direct to the contacts and make the connections as straight as possible without having them cross each other. This means that the one on the furthest right hand side runs to the first contact, then the second one to the second contact and the third to the third contact and so on.

The fifth contact goes to the center winding of the variocoupler—that is, the place where you will see two wires brought out from inside and connected under a binding post. The sixth contact is the first one that comes out from the left hand half of the molded shell. There are four of these taps taken off of the left side of the variocoupler. The tenth contact is the outside binding post on the left hand side of the variocoupler. You must also run a wire from this binding post to the first winding of the diamond-wound loading coil.

The other switch contacts are taps that come from the diamond-wound coil. If you look at the photograph of the switch contacts as we have made them on the set you will find that each wire is running to its individual contact without crossing any other wires or running at right angles to them.

If you look at the wiring of this set you will find that the rotor of the variocoupler and the movable plates of the variable condenser are both connected in the antenna circuit. This is done to counteract the so-called "body capacity" that comes in a circuit when your hands get close to either a plate of a condenser or the windings of the variocoupler.

The bracket that is used for mounting the sockets and the transformers and the binding posts and the sheet of aluminum that is placed behind the variable condenser and the variocoupler both have connections to the ground. This connection grounds any of the stray electrical



The placing of the various instruments is clearly shown in this lettered view.

currents that may be set up in the bracket or the shield behind the variometer and the variable condenser. The shielding behind the variable condenser and the variocoupler is grounded so as to eliminate any body capacity from your hands when you tune this circuit.

The two transformers may be mounted very close together as we have shown them with no interference from induced currents from one transformr to the other. This is due to the fact that each transformer has its own metallic case, which is grounded to the bracket that supports it. This bracket being grounded there is no interference from these transformers.

You will find that the "return" of the filament is grounded. This is the minus filament battery and a connection runs from the minus filament post to the ground post. The ground post having a connection running from it to the bracket that supports the transformers, rheostats and sockets is naturally in the negative side of the filament batttery. The Jones Symphony diagram shows the three rheostats in the positive filament lead. This we changed to the negative lead so that, should there be an accidental contact between the rheostat and the bracket which is also in the negative lead it would not cause a short circuit directly across the storage or filament battery and absolutely ruin a valuable battery.

The positive terminal from the storage battery goes direct to the positive connection on each of the three tube sockets. Therefore there is no danger of any short circuit from the plus to the minus of the storage battery.

In mounting the rheostats on the bracket we found that it is advisable to put a stiff piece of cardboard or any kind of insulating material between the rheostats and the bracket.

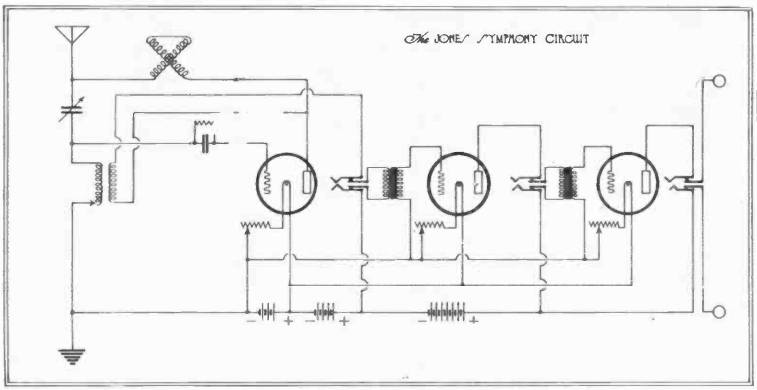
We found when we first wired up this circuit that the rheostat of the detector tube was making a connection to the shield and we had absolutely no control of the filament of the detector tube until we had inserted an insulating material behind this rheostat and the bracket.

In this bracket that supports the transformers and sockets and rheostats you will see in the photographs that there are several holes cut for running wires through. Be sure that you cover the wire where it goes through the hole with a piece of spaghetti or some other insulating material.

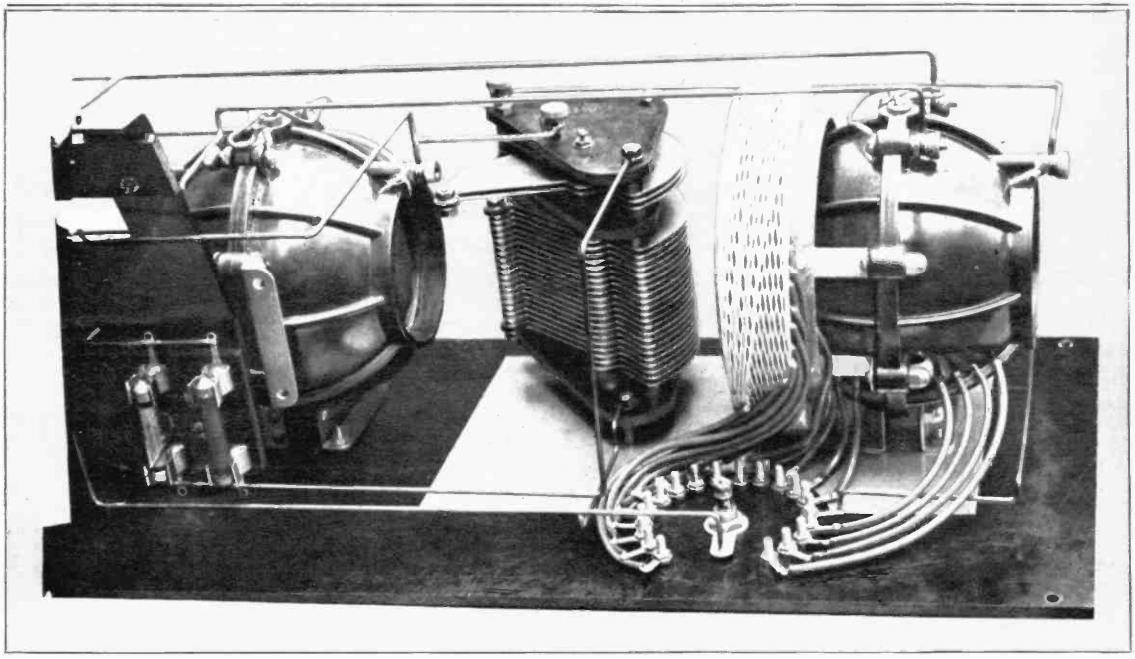
If you are using spaghetti be sure to buy only the varnished cambric tubing and not the cheap stuff that is on the market at the present time. This cheap spaghetti happens to be what milliners use for covering the stems of flowers and the electrical leakage that goes through this cheap spaghetti will throw a short circuit directly across your A or B battery, whichever it happens to be.

The well designed lay-out on this panel for the mounting of the different pieces of apparatus has made this set very easy for wiring. That is, all the wires that run from connections on either the variometer, variocoupler or variable condenser can be mostly made in straight lines with the minimum amount of wire and the parts are so placed as to keep the wires from running parallel to each other and close together. Wires can be widely separated so there is no interference from one lead to the other.

In wiring up this circuit it is not necessary for you to cover all of your leads with spaghetti or even to use insulated wire. As you see in the photographs we have used number ten bare copper wire that we have previously put in a



Here is the symbol diagram for the Jones Symphony Circuit



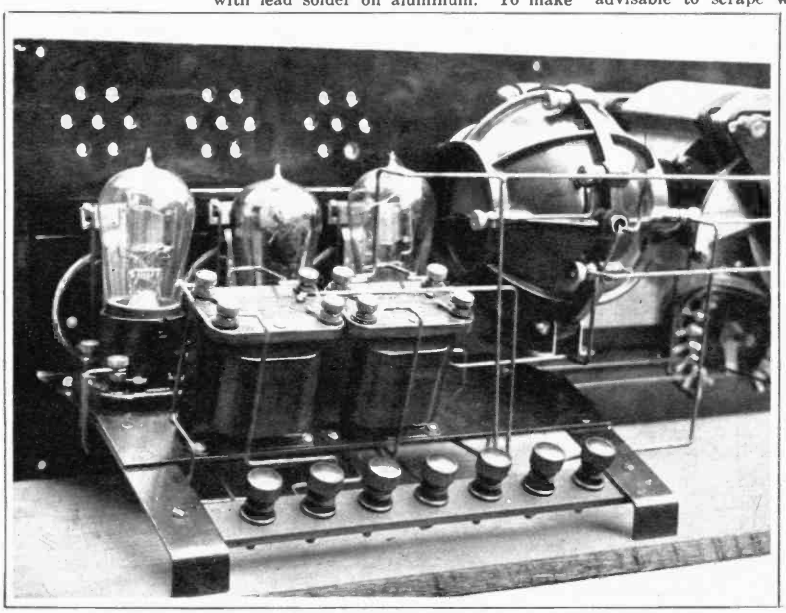
Here you have the tap switches of the variocoupler and the condenser both mounted on the shield in the neatest manner.

vise and stretched until it is hard drawn. By hard drawn we mean that the wire is stretched to such an extent that it is impossible to stretch it any more; and it makes the wire very stiff and when you have made a bend in this wire you find that it is a permanent bend and the wire is not flexible and will not sag and fall all over the place.

We have used this number ten wire at Station 3XP for quite a while and we find it is ideal for wiring up any type of circuit. Bare wire makes the average amateur or radio fan more careful in wiring their circuits because they have to guard against wires touching each other and when they do this they have to space the wires further apart and when we space wires further apart we find that we are getting rid of a certain amount of capacity between the two wires.

All the connections are run as short as possible—that is, we do not make a lot of unnecessary bends in running a lead from one connection to the other. We run them as short as possible and yet at the same time making the set look decent and keeping away from wires running parallel too close.

In making connections to the shield and also to the bracket in this circuit, do not try to solder a wire either on the shield or on the bracket as they are both made of aluminum and it is impossible to solder with lead solder on aluminum. To make connections to this it is advisable for you to make your connections either on the screws that hold the variable condenser or the variocoupler in place on the shield and a connection to the bracket can be made either under a transformer or under a tube socket. If you are making a connection on this bracket, which is painted black, it is advisable to scrape with a knife underneath the nut where you are going to make the connection until you are sure that you get a good contact.



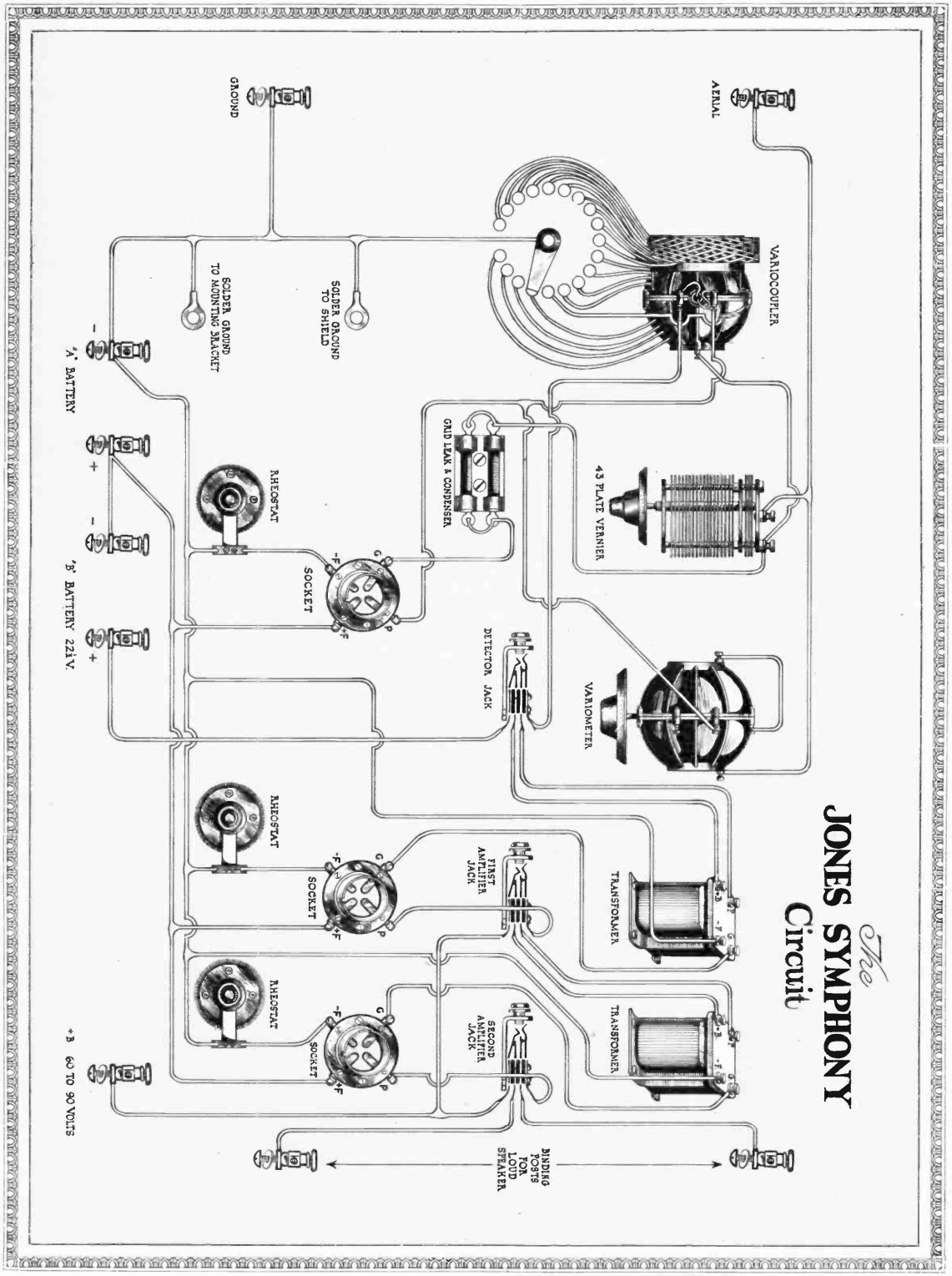
A back view of the bracket shows how binding posts, transformers and tubes are mounted. The jacks and grid leak and condenser are mounted underneath this bracket.

There are no rules that I can give you for tuning this circuit. It is a matter of practice, but it is soon learned.

Broadcasting stations come in with the tap switch on from the third to the sixth or seventh contacts and signals are found and cleared up with the three dials.

The vernier of the condenser will usually take away all distortion, once you have the signals at maximum strength.

And, with tuning accurately done, I have, with this vernier alone, clearly separated two stations whose wavelengths were only five meters apart.


The JONES SYMPHONY Circuit
AERIAL
GROUND
VARIOCOUPLER
.43 PLATE VERNIER
GRID LEAK & CONDENSER
SOLDER GROUND TO MOUNTING BRACKET
SOLDER GROUND TO SHIELD
RHEOSTAT
SOCKET
DETECTOR JACK
VARIOMETER
TRANSFORMER
FIRST AMPLIFIER JACK
SECOND AMPLIFIER JACK
BINDING POSTS FOR LOUD SPEAKER
'A' BATTERY
'B' BATTERY 22½ V.
+B 60 TO 90 VOLTS

Radio Reforms a Very Modern Eve

"The very modern Eve had been brought back to a realization and appreciation of the comfort and a pride in the appearance of her home"

By SIDNEY LEAR

THERE is one incident that you'll find in almost any home for aged and worn-out jokes that you care to visit. And that is the one of the man who came staggering home from his club late at night to find his wife waiting for him with a rolling pin.

Back in the dark ages when this was a young and popular joke, appearing on the stage, in the comic strips of newspapers, on the anecdote pages of magazines, it was considered very funny. But it isn't half so amusing or so full of the element of surprise as the new rolling-pin joke that radio has brought out, so long after the retirement from public life of the first one.

The best part of this is that it is actually true. It happened just last winter in the home of Mr. and Mrs. Charles Hammond, of—but perhaps you know them? Charley used to be a club widower, something on the order of the golf widow, only of the opposite sex. Eve was a modern woman, and she didn't care who knew it or what anybody said about it. She believed, with a scornful lift of her eyebrows, that it was her business and hers alone if she wanted to go to club meetings and be of some use in the world instead of sticking around at home all day long or else going to somebody's house to play cards.

And, of course, everybody hastily agreed it was entirely her business, though hard on Charley. For on club afternoons Charley would have to set the table and find out what to start for dinner himself, instead of sitting right down to rest after his hard day of sitting at his desk. By the time Eve got home things would be humming on the stove, or if they weren't Eve would make things hum.

That was the way things went for a year or two. Then last winter several of Charley's friends got to talking to him, advising him, telling him of their experiences, until at last the worm turned.

And the tables turned with him, for one Wednesday afternoon when Eve returned home late from a meeting of the Home Improvement and Development Association, Charley was waiting for her with a rolling pin! No table set, no food cooking and her husband brandishing a rolling pin! Her rolling pin, her best rolling pin, her only—!

She stood in the doorway speechless with astonished indignation. Charley felt her silent presence and looked up from his absorption over the rolling pin.

"Oh, hello, Eve!" he grinned at her amiably. "Is it that late? Look, this is going to make a corking good coil, I sawed off both ends and it's just the right shape—sorry I had to take your good rolling pin, but you never use it, do you? I'll get you another one."

And he returned to his work, entirely oblivious of her glaring eyes and set mouth. Evidently it was as impossible to reach him mentally as it was physically, and impassable barriers of decidedly material nature surrounded him on all sides. Pliers, the saw and the ends of the rolling pin, prickly looking ends of copper wire, strange little screws and nuts and nails, the greater part of the tool box and—was it, could it be? Yes it was, but it could not be—her best scissors! Advancing to the edge of the battlefield, Eve snatched her treasure from the clutch of the enemy. She was speechless, but she could still think and act.

"Aw, Eve!" protested the enemy. "That's the only thing that will cut this wire decently, and it says here in the magazine that you've got to make your connections tight and neat—how do you expect me to make 'em neat if the wire's all chewed up? I won't hurt the scissors!"

"Indeed you won't!" retorted Eve from the kitchen where she had started hastily, putting water on to boil for the potatoes. "Or anything else of mine, now that I'm home; would you mind telling me what you're trying to make out of all that mess?"

"Radio set. Haven't you seen me reading up all the dope on it lately? I'm going to make us a bulb set that will get Schenectady and Pittsburgh, and New York, maybe Chicago or Boston, I don't know. You wait and see."

"More jazz!" snorted Eve, slamming the refrigerator door viciously.

"Not at all," Charley looked up to correct her. "You club women don't keep up to date at all. Why, they have opera on this thing," waving his half-finished coil vaguely. "And tonight Mrs. What's Her Name, the president of the National Association of your music club or something, is going to speak from New York, and—"

"You mean Rose Carson Williams, the president of the National Federation of Associated Women's Musical Clubs, the famous Rose Carson Williams?" demanded Eve, coming to the door of the living room—the Hammonds live in an apartment.

"I guess so—there it is right in the program. What do you read in the newspapers, anyhow?"

"I never saw this thing, or I never noticed it before," said Eve, glancing over the list of "events" for the evening. "And

here's a recital by Marie Baker and Harold Klein. Why, they're awfully well known. Can you get that thing done by tonight? I'd like to hear them."

The potatoes boiled over right in the midst of Charley's riotous laughter at the thought of getting a bulb set all made in one day, and Eve flew back to the kitchen.

It was interesting to all inquiring friends to see how careful Eve was for some time after that to get home from her meetings in time to get dinner, because she knew Charley would be busy making his set. And then after it was all made and set up she had to get home in time for the late afternoon organ concert.

Like most women, Eve was even more enthusiastic about the radio than her husband was. She invited people in to listen; she turned first of all to the radio program in the morning paper, she discussed last night's entertainment at the club meetings until the president had to rap for order especially on her account. In short, she was a complete and thorough radio fan. In self-defense Charley bought another set of earphones so that he could get in on the listening once in a while, too. That made it very much nicer for Eve when she wanted to give a radio party also.

But there was the difficulty of the aerial. Living in an apartment, they could not very well put the antenna up on the roof without complicated, involved and possibly expensive permission from the landlord. So they hit upon the plan of throwing a wire out the window. This worked very well, except that on breezy nights it had a tendency to strike against the wall and blur the sound at times. This was unfortunate, but they bore it with fortitude until one evening just in the middle of "Buttercup's" solo, sung by a member of the choral society of their own church, some impish little boys walking along the street saw the wire dangling against the wall and gave it a vicious jerk. The result was disaster, and it took Charley all the rest of the first act and up to the somewhat shaky chorus singing in the second to repair the damage. That settled it, something had to be done and done quickly.

"The Blanks use a bedspring for their aerial," Eve suggested. "And you can hear perfectly. Let's try that."

So the strange-looking conglomeration of wires and hard rubber and wooden rolling pin was moved into the bedroom. The ground wire was attached to the radiator, as it had been in the living room, and the aerial wire was connected with the bedspring. The signals came through perfectly, and from that time on the Hammond living room was a deserted place in the evenings. Of course, there was a slight inconvenience in the bedspring idea, for there was no place to put the set except on a little table across the room from the bed. Like all apartment bedrooms, this one required careful placing of the furniture, and once a nook was found for anything, from the bed to the doorstep, it had to stay right in that place or clutter up the whole floor space. Therefore, there was no moving of the table to accommodate the aerial wire, but there was much stretching of wire to reach the table. And, of course, this had to be disconnected as soon as the evening was over, otherwise the room was bisected by thin wire, giving every opportunity for the careless stepper to get into the same condition.

Indeed, there were a good many plunges taken by the Hammonds over that mean little wire. One of them, the last one, was the cause of the first family quarrel since the episode of the scissors and the rolling pin.

Eve had connected up the set in order to listen to the music at 11 o'clock. She had been forced by the nonappearance of her cleaning woman to do the living room herself, and, as always, had hurried to get through because she hated so to do it. At 11 o'clock she was thoroughly exhausted, too tired to make the bed which she had left to air during her cleaning, until after she had rested and been refreshed a bit by music. Before she was ready to move out of her chair the telephone rang and she hurried out to answer it. The conversation took some time, and when she came back and glanced at her watch it was quite late.

Hurriedly she set about the making of the bed, hustled around to the other side of it, caught her heel in the aerial wire which had not been disconnected and

splashed headlong across the floor! Her enthusiasm for radio floated away up among the stars that filled her whole horizon at the moment, her one conscious thought was a yearning desire to fall upon the set and tear it limb from limb. But she couldn't do that because her wrist hurt her too much from having caught almost her full weight as she put out her hand to save herself. She glanced again at the watch upon it as she sat up and rubbed it, glaring fiercely at the radio meanwhile—it was late, she mustn't miss that meeting.

radio. Eve shuddered at the mention of the word and her wrist throbbed. Then the storm broke.

"Yes," she laughed bitterly. "Radio!"

Charley shivered at the meanness in her tone.

"Radio!" she repeated. "Well, if radio did that, radio did this, too, and it's the last little thing radio does in this house! Look at me, home before the meeting was over, home incapacitated, home with a broken wrist, home helpless, suffering, all because of radio! Radio! I'm sick of the word. Not

Charley took the set out and disconnecting his precious pet, came ruefully into the living room to lay it as a sacrificial offering at her feet as he bent over to examine the hurt wrist and kiss away the tears. It turned out that the wrist wasn't broken, only strained, and with some nice hot soup warming her up and some nice warm sympathy and affection comforting her, Eve relented a little and admitted that she didn't hate the radio quite so much as she had thought.

"But you will fix up something so that

Radio in the home of Franklin P. Jones, Jr., cashier of the First National Bank, Beverly, N. J.

Photo courtesy of Garod Corporation, Newark, N. J.

She struggled into street clothes and got off to her meeting, feeling shaken and nervous. It would never have occurred to her to stay at home. But her wrist ached so that she came away early, and she was sitting in the living room, holding her arm on an ice bag when Charley came home.

"Why, hello!" he exclaimed in surprise. "Home so early? You know, Eve, it's great seeing you home here when I get home from the office. You never used to get home until much later, you know. And just think, radio has done all that for me!"

He assumed a rapt expression, indicative of his gratitude to and admiration for

another night, not another hour, Charles Edward Hammond, shall that invention of the devil stay in this house! Don't stand there staring at me. Move, do something. Go tear that thing out. Doesn't it mean anything to you that your wife is hurt, suffering? Do you want that thing to stay in the house? Answer me!" Her voice rose almost to a scream as Charley still stood stupidly staring, frightened and stunned.

"Well, Eve dear, what—" he began bewilderedly.

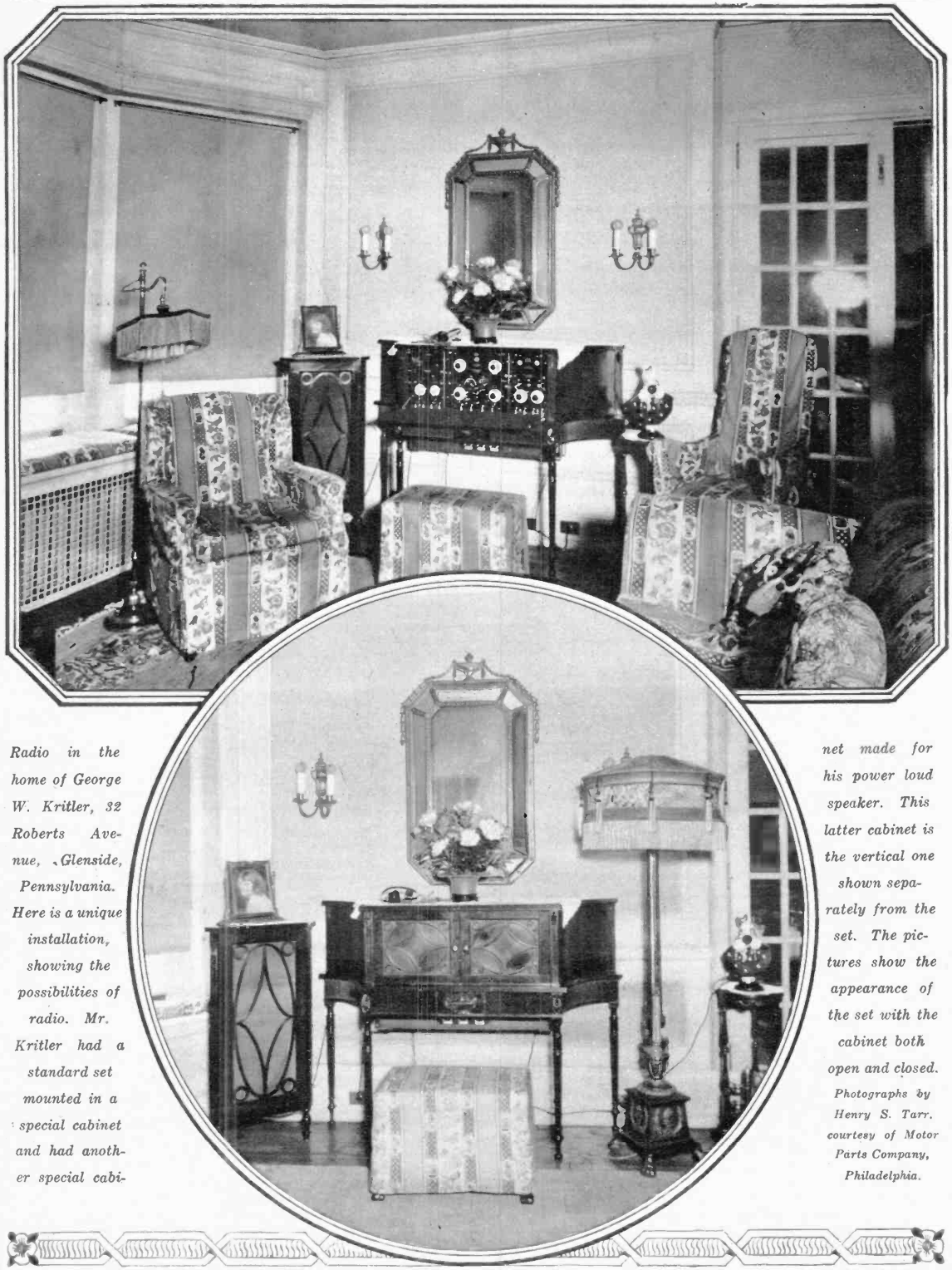
"Take it out!" cried Eve dear, sobbing now with the sheer relief of releasing her pent-up nervousness and self-pity.

we can have it decently in the living room without any horrid little wires running all over the room, won't you?" she pleaded, with a little reminiscent shudder.

"You bet I will," promised Charley, "I'll make a loop aerial, and will bring that little table out here and put it over near the window, so that you can sit there in the rocker and listen in."

So Charley spent three comfortable, messy evenings fussing over a loop aerial, running over to Ed's every now and then to see how he made his and covering the living room with implements, materials

(Continued on Page 27



Radio in the home of George W. Kritler, 32 Roberts Avenue, Glenside, Pennsylvania. Here is a unique installation, showing the possibilities of radio. Mr. Kritler had a standard set mounted in a special cabinet and had another special cabinet made for his power loud speaker. This latter cabinet is the vertical one shown separately from the set. The pictures show the appearance of the set with the cabinet both open and closed.

Photographs by Henry S. Tarr, courtesy of Motor Parts Company, Philadelphia.

Marjorie Daw Is Crazy About Radio

(Continued From Page 5)

get your old fire department!' Nice people—I'd like to meet 'em some day.

"About this time Eddie came tearing up the street with his aides. There seemed to be about fifty of them piled on that one car.

"In my excitement I hadn't gone out-doors—although there's no place to go but the back porch. All the rest is mountain. So out on the porch we tore—all of us. There was a perfectly strange man in overalls calmly squirting our garden hose on the cinders and sparks as they fell about the house.

"We learned soon that he had seen the smoke as he was passing by and had elected himself a committee of one to save us. His niceness almost made me forget the people on the telephone.

"But it looked so silly and it was such a relief to know that is was not the house, but the mountain brush that was burning, that they all began to laugh and I to laugh and cry."

"What about the insurance?" Beatrice and I asked in practical unison.

"That's another joke. You know they always tell how the insurance ran out just two days before the fire? Well, we'd just had everything insured two days before. Perhaps that's why the house didn't burn up!"

"Oh, my word!" I gasped. "I'm supposed to be doing an interview with you about radio. Harry Neely will scalp me!"

"Oh," said Marjorie, hastily, "You'll have to ask Eddie about the radio!"

I glanced over to the table near one of the big windows.

"Can you tune in?"

"Eddie does that. All I know is that he screws this thing"—picking up a wire with a Ducon plug on the end—"into that"—pointing to the electric light socket—"and then he twists a thing and I listen. It's lots of fun to listen."

"How long have you been a radio fan?"

"Ever since we've been married. And I really am a fan! Eddie bought the set and showed me what fun we could have here in the evenings after hectic days at the studio. Sometimes I twist things and it won't work and then I have to ask Eddie. By the way, did you hear about my wedding ring?"

No, I hadn't heard, but wondered if I'd better ask Eddie.

"Well, the other day I was going to the dentist's in the Security Bank Building. In the elevator I noticed my ring was gone. It always was too large, but I didn't think it would drop off so easily. Well, anyway it did. We looked high and we looked low. We combed every inch of that elevator, but no ring.

"I distinctly remembered turning it around on my finger as I walked into the building, so couldn't understand where it had gone. I gave my name and address to the elevator man and he said he'd let me know.

"I asked Eddie about it when I got home, but he couldn't think of a single way it could have disappeared. We put ads in all the papers but for two days didn't hear anything.

"But about six o'clock on the morning of the third day the phone rang and a man's voice said, 'I've got your ring—or rather my wife has. I wish you'd come over here and bring your husband and tell my wife how you lost the ring. I'm hoarse from explaining that it had fallen into the cuff of my trousers in the elevator. You see she found it when it rolled out as I was getting undressed. I've been awake all night trying to explain it to her!'

"We went over and I never saw such an angry woman. I just told her

(Continued on Page 28)

Radio Reforms a Very Modern Eve

(Continued From Page 24)

et al. Eve didn't mind; she was so thankful to get rid of that high hurdle in the bedroom that she would have accepted an even worse mess with gratitude.

All went well for some time after that in the Hammond apartment. Eve's wrist stopped hurting, the radio worked beautifully and there were some particularly good programs just at that time. Eve asked some people in one evening for dinner and the opera afterward. She told Charley about it when she came home late that afternoon.

"I told them to come late so that we wouldn't have to wait around for the opera to start," she said.

"Gee, I wish you'd told me, Eve," replied Charley, regretfully, "I've got the thing apart. There's a new hook-up I'd like to try. Just read about it last night."

The rest of the evening was very chilly for Charley, very warm for Eve. The guests, who came anyhow, were merely amused. They were saving up to buy a set, and the antics of those who rolled their own were very funny to them. They didn't know the aerial from the differential, they declared proudly, and didn't care.

However, the new hook-up was a good one, and the next evening's program was most enjoyable. About that time the Hammonds began to think about getting a house in the fall, planning to move in after their return from their summer trip. Eve would go out house hunting all day long, get home late and sink exhausted into an easy chair with the headpiece on, to be refreshed before starting supper. Most of her clubs adjourned until fall, so that she had lots of time. Eventually she found what she was looking for, and they made the arrangement to move in in September. And having contracted for this, Charley decided that he would just have to have a loud speaker for the radio.

"With all that rent to pay and the expense of moving?" remarked Eve on high C, "Charley, sometimes I wonder—"

Charley didn't get the loud speaker.

But a few days after that Eve came in to find him home early from the office taking the set apart. He thought they ought to get louder signals, he said, and he was fixing something that would bring 'em in better. That took two days, during which there was a lecture by a famous club woman, a recital by one of Eve's favorite baritones and some splendid concerts, all lost.

It was hard on Eve's nerves, but splendid for her character. She was learning restraint. A million times she yearned to break up the whole set and throw it out the window, but her common sense and real appreciation of radio held her back. Anyhow, after about as many episodes of this kind as she could stand, she thought up a better plan. The last straw was added when her parents, who had never visited them in their apartment, came on from the West and stopped in town for a few days on their way to the seashore. Eve had written all about the marvels of radio, and they were specially anxious to listen in. They arrived on Saturday morning, went to their hotel to rest a bit, and then Eve joined them at lunch and piloted them to the apartment in the middle of the afternoon.

The living-room was a horrid sight. Charley in oldest working clothes sat delightedly on the floor, remaking the radio set. He greeted them with a sheepish grin.

"I thought I'd get it done before you got here," he apologized. "But she doesn't seem to work right, even yet. I must have made a mistake in the wiring somewhere. I'll fix it up tonight."

It was Sunday afternoon late before he had it fixed up. And the parents of his disgusted and discouraged wife left Monday at noon!

The Hammonds moved into their new house last week. Charley helped Eve with the larger and heavier part of getting settled, then went back to the office the next day, leaving the smaller arrangements, placing of rugs, setting up of lamps, books, cushions, etc., for Eve and the cleaning woman, and Eve carried out her plan. There was a nice little room on the second floor, just right for a sewing room, nice light and everything; Eve had fallen in love with it as soon as she had seen the house. When Charley arrived that second night she took him gently by the hand and led him to the door of this little room.

"There," she pointed, "is your radio set. Here is your tool box. Here on the back of the door are hooks for your working clothes. There's a table on which you can hammer and sew as much as you like. I can sew in the bedroom.

"And I've found that I can get along without quite so many clubs. They make me miss some things I'd like to hear, especially when the meetings are at night. So I've resigned from three of them, and here's the money I've saved on dues. I'll save more on not needing so many clothes and being able to watch the table better and provide more closely. You take this, and save some yourself, and go buy me a decent-looking radio set that you won't know how to take apart all the time and put together again. I'm tired of this——"

"Aw, Eve!" protested Charley. "I can—I won't—honestly——"

"No, I mean it. I want a set that will be mine, and you can have this one to take apart whenever you feel like it. I don't mind your playing a bit, but I've got to have a set that I can depend on. And, anyhow, that bunch of junk—my rolling pin—isn't fit to be put up in the living-room of a nice new house. I want a good-looking, new set to go with it. Please!"

"Oh, Eve!" Charley objected feebly again.

And so on the third day of the Hammonds' occupation of their new home they might have been seen strolling through the radio department of their favorite store during Mr. Hammond's lunch time, choosing Mrs. Hammond's own particular, good-looking, unrebuildable radio set.

The very modern Eve had been brought back to a realization and appreciation of the comfort, and a pride in the appearance, of her own home.

Marjorie Daw Is Crazy About Radio

(Continued from Page 26)

how it happened and pretty soon she calmed down and I got my ring.

"I asked Eddie afterwards why she was so cross, and he said it was because my ring was so much prettier than hers. It is pretty, isn't it?"

She extended her hand to show the narrow platinum band, and I showed her my ring and we measured them to see which was the thinner. We had to twist around a lot, because mine has never been off. She thought that was a nice idea and wished hers had been the right size in the first place.

"You know Nita Naldi has never taken hers off although I think she's been divorced from her husband a long time. She puts court plaster over the ring when she's in a scene," said Marjorie, admiringly, and wished again that she'd left hers on from the beginning.

"But now about this radio—"I began weakly.

"You'll have to ask Eddie," said Marjorie firmly.

Now I ask you: can an interviewer remain an interviewer when three girls get together?

Flather's Loop Circuit

(Continued From Page 15)

obtained just before oscillation or just before you get the double click which I spoke of. The music that you will hear when the set is oscillating is somewhat distorted and will not be very plain. But when you get down to the maximum regeneration you will find that you have very clear music and no howl or distortion to it.

This set you will find will tune extremely sharp, so you will have to be very careful or otherwise you will go right over a carrier wave without even hearing it. Therefore it is essential that you move the variable condenser say about five degrees at a time and then with the vernier on the variable condenser go slowly toward zero and then to 100—that is, move the vernier plate all the way out or all the way in slowly so you may be sure that you have not missed any carrier waves or stations that you may pick up with this receiver.

Sometimes you will find that a great deal of the mushiness or distortion may be taken out of your set by reducing the filament brilliancy slightly.

And Now the Radio Apartment House

(Continued From Page 10)

part of the builders that an apartment is as much of a home as an individual dwelling and that the housewife who lives in such a home wants and needs radio as much as other housewives do."

Just then the waiter arrived and conversation ceased. And while these two are disposing of a belated noonday luncheon, it is to be explained that the conversation just set down may not actually have taken place in a Philadelphia apartment hotel as yet, but it is so soon to become a possibility that this little sketch has merely forestalled the reality by a few weeks.

An apartment hotel radio equipped as referred to in the conversation between our fictitious friends has actually been in operation for some time in Newark, N. J., while two such structures are now under construction in Philadelphia, and work on the third is to be begun this fall.

For several months the Ritz Apartments, 229 Clinton ave., Newark, have had a splendid radio service. The receiving set, located on the roof, furnishes radio service to all of the sev-

Radio in the Home

Conducted by
HENRY M. NEELY

RADIO IN THE HOME is devoted entirely to *better class radio*—the only kind that is fit to go into the American home.

RADIO IN THE HOME is not in the market for general radio advertising. We make our own tests of apparatus and our own investigations of the financial and commercial reliability of firms, and we solicit advertising only from those manufacturers whose products we ourselves are willing to guarantee in the light of these researches.

This is to assure our readers that they can depend on the things they see advertised in our columns.

It is a reader service.

By Subscrintion
TWO DOLLARS THE YEAR

October, 1923 *Twenty Cents*

enty-two apartments of the hotel. The superintendent of the building reports that so popular has "listening-in" become, especially in the winter months, that elevator service in the evening has decreased considerably, the patrons preferring to listen in at home.

The two radio-equipped apartment hotels nearing completion in Philadelphia are the Pen·sylvania Hotel, Thirty-ninth and Ch·stnut streets, and the Garden Court Apartments, Forty-seventh and Pine streets. Work on the Lincoln Drive Apartments is to be begun this fall, according to present plans.

Plans for the installation of radio service systems in the first two of these ultra-modern apartment hotels were perfected by Durham & Co., radio engineers, of Philadelphia. At the Pennsylvania Hotel a special radio room has been built on the roof, where first-class receiving apparatus feeds the signals to powerful amplifiers, which in turn distribute the broadcasts to lobbies, smoking-rooms, lounge, grill room, dining-room and the large auditorium. This service can be supplied separately or simultaneously to all rooms.

This distributing system consists, in the case of the three Philadelphia and the Newark apartment hotels, of what is known as the Western Electric Public Address System, which is coming to be regarded as a necessity in big auditoriums where speakers' voices must be clearly heard by great throngs.

Another novel feature of the modern hotel radio service is the use of this intercommunicaitng system in paging individuals, something usually done by pages or bellboys. Loud-speaking horns are so arranged in various angles of the various public rooms, such as the lounge, smoking-rooms, lobbies, grill, dining-room, etc., that telephone operators can page any room or all rooms simultaneously merely by making the proper connections at the telephone switchboard.

Individual apartments at the Pennsylvania are not radio equipped, but there will be a radio installation in each of the 100 apartments of the Garden Court Apartments, as well as in each of the 210 apartments in the Lincoln Drive Apartments.

In the radio rooms on the roofs of the Lincoln Drive and the Garden Court Apartments, three radio receiving sets are to be installed, all connected to the house radio service systems. Tenants of these buildings will thus have a choice of whatever three broadcasts are being received at the time the tenant wishes to use the private radio line in his apartment.

Before these great super-up-to-date buildings could be wired for radio service, exhaustive and expensive tests were carried out. Small apartment houses were wired, and from these experiments plans were laid for providing the large apartment houses and hotels with real radio service. Control boxes have also been placed in each apartment, so that the strength of signals may be regulated, permitting the use of head-phones or of attaching the radio service line to the Victrola. Such an apartment is thus both radio and Victrola equipped, which makes the ideal combination.

Radio service will be furnished to the great auditoriums of these modern housing units. These are the first apartment hotels to be equipped with such a service, as these rooms are to be rented to conventions, fraternal societies, clubs, private gatherings and the like, and through radio these assemblies may be addressed by one man, speaking at a single broadcasting station, or to them may be brought, through the radio sets on the roof and through the loud-speaking public address systems, the best of the world's music, entertainment, thought and news of the great events of the day.

Broadcasting Started From an Argument Over Watches

(Continued From Page 13)

rad lasted a short time, and Mr. Davis called other conferences before actual work on the broadcasting started. It was not until November 11, 1920, that the station was formally opened to send out election returns and used "KDKA," the first broadcasting license issued by Uncle Sam.

The remainder of the history of KDKA is now common property. Every one, almost, now knows that there are over 500 broadcasting stations in the United States and that the radio audience numbers into millions each night.

Not every one knows, however, that it was an argument over watches and then a single line in a newspaper which suggested to the vice president of one of the largest electrical manufacturing companies in the world the big thing of turning a scientific novelty into a new kind of public service by unfolding a new field of communication.

The Radio Kindergarten

(Continued From Page 7)

distinction between two forces which we use in radio whose names are thoroughly familiar to you and have been ever since you went to a real kindergarten.

These forces are "electricity" and "magnetism." As you will learn later, electricity will produce magnetism and magnetism will produce electricity; but the two things are entirely different. Which produced the other first is about as problematical as the old question of whether the hen or the egg came first.

You are all familiar with the ordinary mariner's compass, which points its needle always to the north. You long ago learned that it was the magnetism around the earth which caused this needle to keep its point in this direction.

There is magnetism everywhere in the earth. You cannot go anywhere at all with a compass without seeing that the compass is responding in some way to the magnetism that surrounds that spot.

If you take your compass into a house and close the doors and windows and seal them, the compass will still point in the direction from which the pull of the magnetism comes.

Place a plate of glass over your compass and then put a magnet over the glass and your compass will respond. This will prove conclusively that magnetism goes very easily through glass.

Now take two wires from your battery and place one on one side of the glass and one on the other side of the glass and no current will flow through it at all. The energy that is in your wires is electricity. This will show that electricity will not pass through glass.

In other words, you can very easily insulate electricity, but you cannot insulate magnetism.

By "insulate" I mean placing in the circuit a material through which the energy will not go. Insulation is resistance—in other words, it is something that resists the flow of this energy. If it is only a slight resistance, we do not call it a good insulator; we usually speak of a thing as being an insulator only when it virtually stops all of the energy from going through.

I have already said that electricity will create magnetism and magnetism will create electricity. In order to illustrate this former point I am going to quote from an article which I wrote some time ago and which I

published in E-Z Radio Magazine. It was an article explaining how electricity flowing through a wire creates magnetism. This is the excerpt that I want to reprint here:

"If I may be permitted to make a comparison which is not really an accurate one I will try to tell you something that may give you a better idea of this fundamental subject.

"Almost everybody has stood on a station platform when an express train went thundering through and had to hold his hat on his head or have the hat blown off. When a train dashes by at sixty miles an hour along a track it creates in the air an extremely strong current and this current, striking your hat or a piece of paper or the dust along the tracks, is capable of imparting definite movement to these objects.

"You can easily see that this movement is due to the train, although the train and object are not in any way connected to each other. It is impossible for any object to move through the air without creating a greater or less amount of this force.

"Whenever a current of electricity flows through a wire, it creates in the ether about it a force or an amount of motion that might be pictured mentally as something like the force or motion created in air by the express train. The principle difference is that, whereas the air is sucked along in the direction of the train, the current of electricity throws its influence out at right angles to the direction of its motion.

"Just as it is impossible for any material object to move through the air without creating a disturbance, so it is impossible to send a current of electricity through a wire without creating a disturbance in the ether around the wire. We can make the similarity go farther by saying that just as the air current created by the train is capable of imparting actual motion to your hat, so the field of magnetism thrown out by the electric current in the wire will, if it be permitted to cut through another wire, create a current of electricity in the second wire, though the two wires are not connected.

"When we have an alternating current of electricity, the current in a nearby wire will also alternate. This you can understand if you will imagine a double-track railroad running north and south with a piece of paper lying between the two tracks.

"When an express train goes north, the paper is swept in that direction. Then comes an express train going south and the movement of the paper is reversed and it goes in that direction.

"So it is with an alternating current of electricity, which is first positive and then negative many times a second. The field of magnetism created by the positive current is the opposite to the field created by the negative current, and if you have another wire within reach of this magnetism, the current created or induced in this second wire by magnetism will alternate in unison with the alternating current in the first wire, though they will be in opposite directions.

"It is important to know that you can insulate electricity so that it will not go through the insulation from one wire to the other, but there is no way of insulating magnetism. That is why we insulate wire on our coils.

"It keeps the electricity in the original wire, but the magnetism rushes through the insulation and creates electricity in the second wire."

This is what is meant by the word "induction," which you so frequently see. It is the creation of electricity in a wire by a current in another wire by means of magnetism.

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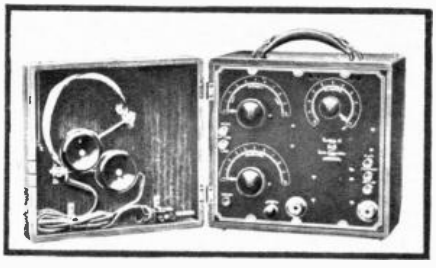

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