

# The CROSLEY

# Broadcaster...

VOL. VIII.

APRIL 1, 1929

NO. 7.



WSAI

## Ohio Senate Broadcasts Over WLW

### Ohio School of the Air Sits in on Actual Legislation

"Radio is as necessary a part of schoolroom equipment as the blackboard or text book."

That opinion of educators as enunciated by B. H. Darrow, director of the successful Ohio School of the Air, has established a new goal for radio sales. It will be reached only when every classroom in every public and private school in the United States and Canada has been equipped with its own radio set and loud speaker.

The Crosley Radio Corporation in giving the services of its 50,000 watt transmitter, WLW, to the state of Ohio for the broadcast four times a week of the Ohio School of the Air, has opened the field of education to the radio dealer, and has convinced educators that radio has come to the school room to stay.

What Ohio has done in pioneering in the field of radio education will be described later in detail.

For the benefit of radio dealers in states too far removed from WLW to be vitally interested in its radio school, it should be remembered that educators in 19 other states and in Canada already have begun to make intensive study of the Ohio plan in preparation for the adoption of radio education for their own schools. National education by radio seems just around the corner. Plans even now are being made to broadcast intensive public school education courses next year.

Of most vital importance both to the classroom instructor and to the radio dealer is the acknowledgment by all student supervisors that every class room must be equipped with its own radio set to derive from radio education its greatest benefits.

When the first lesson of the Ohio School of the Air was broadcast by WLW on January 7, at 1:30 P. M. (E. S. T.) its estimated audience was more than 200,000 children who were listening in more than 600 radio equipped schools. Many of the children were gathered in the school auditoriums. Others were in class rooms into which three or four grades had been seated for the lessons. The Ohio State Department of Education, sponsor and organizer of the School of the Air, had provided time between periods of the broadcast to shift the classes for the radio programs suitable for different grades.

Even under the trying conditions of managing several hundred school children in circumstances which would create the impression of a vacation from regular school routine, school



Governor Flem Sampson of Kentucky and Powel Crosley, Jr., caught by the staff photographer at the opening of the George Rogers Clark Memorial Exercises broadcast over WLW for the Ohio Department of Education. Governor Sampson spoke briefly concerning the exploits of the Revolutionary hero.

teachers, superintendents and principals were enthusiastic over the first lessons. They prepared to give their classes the benefit of all the WLW radio lessons. Other schools heard glowing accounts of the favorable impression made by the new Ohio School of the Air. They began buying and borrowing sets.

Then a new and more moving factor entered the picture of education by radio. Mothers listened in their own homes to the classes as they came over the air. They were thrilled by the type of education that was being broadcast. They determined that their own children must have the benefits of this newest form of intellectual stimulation and enlightenment.

They could not wait for the monthly meetings of Parent-Teacher associations to broach the subject of equipping their children's schools with radio sets. They called special meetings. They bombarded boards of education with demands for radio equipment in the school. They

begged receivers. They lent their own radio sets to the schools. With the enthusiasm that only mothers can have when the question is one concerning the welfare of their young, they went about the business of getting radio sets in the schools.

Boards of education met between the hours of 1:30 and 2:30 P. M., listened to the Ohio School of the Air, and immediately created special funds for the purchase of receiving sets.

That briefly, is the history of how the Ohio School of the Air has been so enthusiastically accepted that the Ohio State Department of Education now finds itself so swamped with reports on the success of its venture that it is unable to give any accurate estimate of how many schools are equipped with radio sets.

A better estimation may be gained from the knowledge that every school in Dayton, O., has a radio set; that an Indianapolis newspaper is so interested in the Ohio education by radio that it is co-operating with the schools in the city in obtaining radio equipment; that schools all over Indiana, Ohio, Kentucky, and even in states so far away as Michigan and Nebraska, are holding open-house to demonstrate to parents the worth of radio in the schools.

With this background of general acclaim for Ohio's School of the Air, no sales resistance is being met with now that teachers are beginning to declare that each class room must have its own radio set.

"Radio education must enter the class room as a regular part of the day's recitation," says B. H. Darrow, who has been appointed by J. L. Clifton, Ohio superintendent of Education, as director of broadcasting for the state of Ohio as well as director of the Ohio School of the Air.

"There must be no feeling that listening to the radio has anything of the picnic in it. When we undertake to double up classes, or to move children into an auditorium, classroom discipline immediately is destroyed. There is always a 'smarty' in every class. Always an obstreperous youngster has to be controlled. The radio teacher is spared the necessity of being a disciplinarian. He is devoting himself to his subject. The classroom teacher is his assistant and to the classroom teacher, the matter of disciplining a single wiggly youngster is the easiest thing in the world—if that youngster is in his

(Continued on Page 13)

Leaders in Government, Education, and Dramatic Art who have assisted in making the School of the Air Successful.



EDMUND Vance Cooke, poet, who broadcast his own literary work during the Ohio School of the Air program over WLW in accordance with the plan of the School to present the work of the greater living poets with their own personal interpretation.



HELEN Schuster-Martin, head of the Schuster-Martin School of Speech, whose keen interest in the "Ohio School of the Air" has prompted her to offer her services and the services of her school in presenting drama for high school listeners. Working in conjunction with the Stuart Walker Stock Company, the Schuster-Martin School will be on the air every Thursday.



THE Ohio State Senate Chamber where for the first time in the history of the Ohio legislative body, the Governor of the state, Myers Y. Cooper, appeared in person to lead in the Oath of Allegiance to the flag during the Senate broadcast through WLW for the Ohio School of the Air.

## THE CROSLEY BROADCASTER



THE fifth and sixth grades at the McKinley School in Cincinnati, Ohio, receiving the proceedings of the Ohio State Senate broadcast from the Ohio Senate Chamber over WLW. It will be noted that a Showchest is the radio vehicle selected as a receiver.



KINDERGARTENERS and first grade students at the McKinley School in Cincinnati, Ohio, listening in on the program of the "Ohio School of the Air" inaugurated through WLW by the Ohio Department of Education. This epic in the history of education was introduced to the children via the Crosley Showchest receiver set.

## THE CROSLEY BROADCASTER



GOVERNOR Myers Y. Cooper of Ohio at the studios of the Ohio State University, Columbus, just before his brief eulogy to the memory of George Rogers Clark, broadcast over the Crosley Station, WLW, for the Ohio Department of Education. More than 200,000 school children in Ohio, Kentucky and Indiana listened in.

Government  
Business  
Health  
Literature  
and Art  
on WLW

Pictorial Revue of Notable Personages and Important Events attending the Inauguration of the "Ohio School of the Air"

**G**WENDOLYN Jenkins, Director of the School of the Air Players of Ohio State University, who presents a series of History Dramalogues for the School of the Air which are broadcast to high school students.



**W.** R. McConnel, Head of the Department of Geography of Miami University, who is presenting over the School of the Air a series of special Geography Travelogues. The success of the Ohio School of the Air seems assured with the able assistance of such an eminent scholar as Dr. McConnel.



**J.** L. CLIFTON, State Superintendent of Education for Ohio, and Governor Cooper listening in on the Senate proceedings broadcast as a feature of the School of the Air program through WLW.



**B**ENJAMIN H. Darrow, appointed Director of the Ohio School of the Air by J. L. Clifton, Superintendent of Education. A great deal of the credit for the success of the School of the Air may be attributed to the tireless efforts of Mr. Darrow who worked ceaselessly with Mr. Powel Crosley, Jr. in overcoming the resistance of the Ohio Department of Education, and effecting this revolutionary change in educational methods.

MEMBERS of the Stuart Walker Company and the Schuster-Martin School who interpret Shakespeare for high school classes every Thursday as a feature of the varied program of the School of the Air.

## THE CROSLEY BROADCASTER



Published by the  
**CROSLEY RADIO CORPORATION**  
Manufacturers of Radio Apparatus  
Colerain & Sassafras Streets  
CINCINNATI  
Telephone : Kirby 3200  
Editor : Eugene Deaderick

Crosley manufactures radio sets for radio amateur, experimental, and broadcast reception use, under patents of the Radio Corporation of America and Associated Companies, The Hazeltine Corporation, and the Latour Corporation.

All prices quoted in the Broadcaster are Eastern prices. Western prices are slightly higher.



This is your paper. Help make it interesting by sending in contributions. Material sent in is most welcome. Comments of every description will be appreciated. Let's all pull together.

## Save Broadcaster Copies

Every issue of the Crosley BROADCASTER has in it a large amount of material of direct interest to all Crosley authorized dealers.

It is in the BROADCASTER that many important announcements are made to our dealers. Every issue carries information of great value to salesmen and servicemen.

So we urge all our dealers to save their copies of the BROADCASTER.

You may not have the time to read it at the moment it comes to you through the mails, but do not destroy it or throw it carelessly aside. Keep it where you can get hold of it later and look it through to see just what material is in any issue. Later, when some question arises of a technical nature, you'll remember having seen something about that in the BROADCASTER, and you'll be able to refer to back copies for the information.

Many times, dealers write in to us, asking us questions for which the answer has already appeared in the magazine. For example, we are often asked about set balancing, in spite of the fact that several articles about balancing radio sets have been printed in the BROADCASTER.

The Crosley Dealer's Radio Course comes to completion with this issue. It has stirred up much interest. We know, from letters, that many dealers and servicemen have followed through on this course. We hope you have all the issues containing this material intact, for you'll discover just by glancing over it, that invaluable information of a reliable nature on the subject of radio is to be found in it. In those lessons are to be found answers to questions which are bound to come up in your handling of radio sets.

## Don't Slack Demonstrations

SPRING, a year ago, saw the Crosley Gembox introduced to the radio world and causing a tremendous stir. It was the talk of the great radio shows. Then the radio-buying public, alive to the fact that they could hear this remarkable A. C. receiver right in their own homes without charge, took advantage of this opportunity to apply for free home demonstrations, on a large scale. The outcome was an enormous Gembox sale.

It was the free home demonstration coupled with the price feature which made the Gembox the outstanding success of the 1928-29 season.

Now the new Gembox, an even greater value and at the sensationally low sixty-five dollar price, is repeating the performance of its predecessor.

The free home demonstration is perhaps the greatest merchandising idea you can use in selling radio sets.

Put yourself in the prospect's place. Think what it means to be intrusted with this magical instrument, to be allowed to tune it to one's hearts' content, to open up the top and gaze into its construction with the neat shielding, the ship-shape engineering, the accurate workmanship on this Crosley receiver! Suddenly to have at one's disposal the wealth of the radio world in the form of programs near and far, in all their variety and interest, that's a big experience! And it's so convincing that the prospect can't bear the idea of relinquishing the set, once he's had it in his home.

Keep on with home demonstrations. "The set is the salesman" is a slogan we have used before. It's truer than ever. A number of Crosley sets sent on free demonstration means that a widening circle of Crosley prospects is in process of being converted into Crosley customers!



## Powerful Stations Radio's Salvation

In this day of radio interference when there is so much talk of radio stations being too "broad" (that is, not confining themselves closely enough to their assigned broadcasting frequencies) it is refreshing to receive the comment that WLW borders on the other extreme—that of being too "sharp."

Mr. Harry LaMertha, Radio Editor of the St. Louis Globe Democrat, writes that he receives station WOR, New York City, clearly when the powerful WLW station is operating on a wave length separated but 10 kilocycles from that of WOR. When it is realized that WLW is several hundred miles closer to St. Louis than WOR it will be recognized that that is truly remarkable.

A program heard "over the network" represents a tremendous co-ordination of forces, all operating at high efficiency.

## "It's on the Network!"

When you tune in on a program and the announcer tells you that it is sent out on one of the broadcasting chains, have you ever considered what this means?

The coverage of a single program over one of the leading networks is enormous, involving a large number of individual broadcasting stations.

A program originates in the studio of the broadcasting company where it is handled much as any program. It is picked up and amplified, and goes out from the studio over special line amplifier wires. Network lines are especially transposed telephone wires which cut out cross-talk and are also insulated and equalized so that they will transmit at all frequencies.

These lines go to all stations in any particular network. There are three major networks, the Blue, the Red and the Purple, and a number of smaller networks.

There are "repeaters" at every 90 miles of standard cable. In this instance, 90 miles is a unit of measurement and not an actual distance. In some cases, there are repeaters within a few miles of each other; in others, they are several hundred miles apart. The location of a repeater is determined by the conditions—local interference, and the like. A repeater is placed wherever the volume shows a tendency to drop. It is the function of a repeater to boost up the volume.

Repeaters are operated by special operators. Wherever a line branches, a repeater is placed at each branch, each with an operator. These operators are important to the perfect working of a network program. With each network system there is an order wire system to all stations on that network.

All communications dealing with chain programs are sent by telegraph, and the operators must be acquainted with both the International and the Morse codes. During the broadcasting and transmitting of a program over the network, every repeater is manned by an operator at alert attention.

The chain program enters any individual station as a remote control and is fed into amplifiers. The program then goes out from the station in the same way that a program would if it were presented before a microphone.

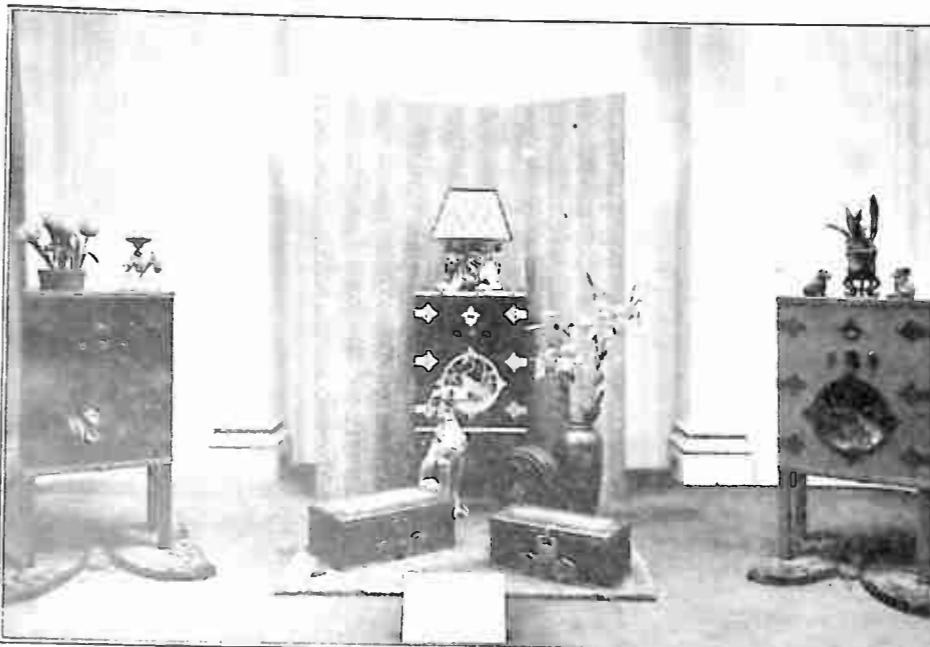
From the above, you can get some idea of the thousands of men involved in a nationwide hook-up, the many thousands of lines in use and the extent of costly equipment called into play.

If a Crosley dealer advertises the new Gembox, here's what happens: A prospect calls at your store and you show him the article in which he is interested, in this case, the Crosley Gembox. He may not care for this particular receiver. In that event, you can then show him the instrument housed in a beautiful console in the form of a Gemchest with built-in speaker, at but \$4.00, additional.

Or you may approach the prospect by showing him a real 8-tube set in a table model or a console, and in all probability the sale of a Showbox or Showchest will result!

## THE CROSLEY BROADCASTER

## Wanamaker Features the Showchest in New York Store



On one of the busiest streets of the world this beautiful yet simple window told a straightforward story of radio quality and value to crowds of passers by. Thus did John Wanamaker and Son bring Crosley radio to the public of Broadway, New York City. As you look at this display you will note that it is simple, yet attracts and holds the attention in a dignified way. Above all it gives the impression of quality, a Crosley talking point that needs to be driven home.

## Large Production Schedule Operating on Icyball

## New Stabilizer Lengthens Unit's Cycle

## Just about a year ago, we announced to our dealers that the Crosley Icyball was ready for the market. Up to that time a few hundred had been sold in various parts of the country in course of the thorough testing of the Icyball under all conditions.

Since last January between twenty-two and twenty-five thousand Icyball refrigerators have been sold. Nearly two million dollars worth of them were sold to the public. This is, we believe, a most startling record for a new article during the first year of sale.

Our plans have been laid for the tripling of production this year. Our plant facilities will not permit more in excess of that quantity, which we fear is going to be as inadequate as was our production last year all throughout the season. We, therefore, urge you to make your plans and anticipate your requirements.

Your Crosley distributor is prepared to tell you more about the new stabilizer and explain attractive merchandising plans for the coming year. Last year so great was the demand that we did not dare to advertise the Icyball refrigerator extensively, as it would have only aggravated the situation of our not being able to fill orders. This year, however, we plan to go into the farm papers and other general media to educate the public to the advantages of Icyball refrigeration. This will make sales easier than ever before. The past year's experience has convinced us that there is a tremendous field for the sale of the Icyball refrigerator, much greater than we had ever anticipated.

Crosley Radio Dealers will be given the preference on the franchise for the handling of this article. Other dealers will be appointed if for any reason the Authorized Crosley Dealer is unable to handle this line. We urge you to get in touch with your distributor as early as possible regarding your plans.



## Prospects for 1929 Business

The radio season of 1928 commencing in the spring and ending in the late winter was the most prosperous in the history of the industry.

One of the main reasons for the tremendous growth was the A. C. tube, making possible practical light socket receiving sets, which first made their appearance in large quantities last season. Various estimates indicate that there are over twelve million radios in use, of which about two and one-half million are of the plug-in light socket type. This indicates that there is a potential market this year for approximately five million radio sets of the plug-in light socket type. So we can all anticipate another year that will exceed last year in sales.

Acceptance for the A. C. type of receiving set is growing. By the time that it has become possible to saturate the market, new and better sets will have been developed that will carry sales on in ever-increasing volume for many years to come.

Of course, a successful year such as last year is attracting newcomers into the manufacturing field. Dealers will do well—in analyzing the history of the companies with whom they are doing business—to remember the many newcomers in the past who quickly faded out of the picture, leaving behind them disappointed dealers and owners with inefficient sets crammed full of service problems. Caution should be the watch word this year. Offerings should be scanned on a basis of sound facts with all of the beautiful blue sky eliminated.

But one thing is certain—more radio sets are going to be sold than ever before, not only of the A. C. type. We believe that the attention of dealers will be given more than ever to battery set sales because for the past year this market has been neglected.

We anticipate a tremendous boom in the battery set industry this year.

Powell Crosley Jr.

**H**E sold forty of these electric radio sets last month and everything looked lovely—but now it's different. Here are twenty-one of the sets back again—and twenty-one disgusted customers on his neck—all because of bum condensers.



## You can end Condenser Troubles Forever

if the sets you handle contain the

### MERSHON ELECTRIC CONDENSER!

Let us send you the names of those far-sighted Radio manufacturers who are PROTECTING THE RETAILER by making the Mershon Condenser standard equipment in their lines.

**THE AMRAD CORPORATION**  
MEDFORD HILLSIDE, MASS.

In writing, please address Dept. E-3

J. E. HAHN  
President

POWEL CROSLEY, Jr.  
Chairman of the Board



## CROSLEY DEALERS



### About Charging for Service

In a recent issue of the Crosley BROADCASTER we commented on the fact that one of our dealers in St. Louis is making a flat charge of one dollar and a half for service calls on radio customers. This is the Modern Electric and Radio Company.

This subject—that of charging for servicing calls—has been brought up in a recent issue of the "Talking Machine World," a journal which takes an active interest in radio.

They quote the opinion of a radio dealer in Mobile, Alabama, the Reynolds Music House. This firm makes a minimum charge of one dollar and a half for calls. In their experience, this practice has eliminated many useless service calls.

The experience and opinions of Crosley authorized dealers on this subject would be of value in the BROADCASTER.

Quoting from Mr. Reynolds statement in the "Talking Machine World", he says: "Formerly many people would call up on the least excuse. Some actually would have a service man running out simply because they could not get a distant station they wanted. (Vide page 4 of the BROADCASTER for March 1st, for similar instances). This service fee has cut out all that . . . When a customer knows that something really is wrong with his set, he does not object to paying the service charge. On the other hand, he certainly does not want to pay it unless there is something wrong."

Incidentally, this particular dealer takes unusual precautions to see that every set is in A-1 condition before it is turned over to the customer. And when a servicing job is done on a set, the service man turns in a carefully made out report. These practices reduce misunderstandings between the firm and its customers.

We have not had many statements to date from Crosley authorized dealers as to their servicing experience. We know that service on Crosley sets is very minor. Comments have been printed in previous issues of the BROADCASTER in which statistics give the extremely small number of sets returned to the factory for service.

There is, however, a dealer problem in the matter of service which is of interest to all Crosley dealers. Let's hear, for example, from some of that fine crew maintained by Tower-Binford, of whom we have heard the most complimentary reports.

When the St. Louis dealer mentioned above, Modern Electric, brought the fact of their service charge to our attention, they made no comment upon the result of this fee practice. Perhaps they have something to say in the BROADCASTER!

Prof. C. M. Jansky, Jr., of the University of Minnesota, and Arthur Batcheller of New York City, are the two new members appointed by the President to the Federal Radio Commission.

### Delivering Crosleys via Sled

Way up in northern Wisconsin when the wind whistles through snow-laden pine trees and roads are impassable, sled delivery comes into vogue. Witness this sled which Clarence Brodd, proprietor of Brodd's Garage at Sister Bay, Wisconsin, is using to make delivery of a Crosley set.



Sometimes even a sled won't go through the drifts of snow in that frigid region. In that case the inhabitants resort to skis. Below is shown one of Clarence Brodd's customers taking home a Bandbox set and an old-style Crosley Musicone.



The delivery of the Crosley set shown on the sled required seven hours to make, from the time Mr. Brodd left his shop until he was back again!



A copy of "The Star," a daily newspaper published at Christchurch, New Zealand, recently sent us, indicates that WLW programs are received as a regular thing in those far-away islands. 9,000 miles from Cincinnati and along towards midnight, they get the "Top O' the Morning" programs broadcast from WLW at 6:30 A. M.

### Bandbox Essential in Crosley Line

The success of the A. C. radio receiver has been so tremendous that we have a tendency to overlook the great possibilities of marketing battery operated sets.

The field for selling battery sets is not limited to the country by any means. Rural districts remain, of course, the logical market for this type of set for there, if people are to enjoy radio at all, it must necessarily be via a battery operated set. There are, in addition, many city dwellers with a positive liking for this type of receiver, and there are also large town and city sections not enjoying alternation current who must fall back upon the use of battery sets.

#### Explore the Bandbox Field

As you all remember, the Crosley Bandbox was the sensation of its season. It remains today the ranking achievement in battery type radio construction. At its present price of fifty-five dollars (without tubes) it falls well within the popular reach, being, in fact, an exceptionally low-priced set rendering quality return.

We look to our dealers to keep the Crosley Bandbox active. This is a fairly difficult article to advertise because many of the regions most anxious to learn about it are just as short on newspapers as they are on power lines.

#### Direct Bandbox Solicitation

Our dealers, who operate in the fields which form logical markets for the Crosley Bandbox, come into direct contact with prospects. In the Northwest, for example, many Crosley dealers spend much of their time going about in automobiles, answering service calls, placing sets on free demonstration, or making goodwill visits.

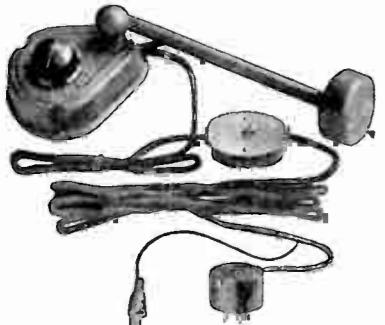
Now if you keep a Bandbox in your car ready to put on demonstration in homes without current, you will be setting a steady pace for Bandbox sales. This is very important because the sale of each Bandbox receiver now pulls into the radio field one more radio enthusiast who will be a logical prospect for an electric receiver at such time as his home is equipped with electric light.

#### Power Lines Extending

You all know how rapidly the great power utilities are going ahead with the extension of power lines. The government has realized the importance of developing our latent power sources so we may expect that this movement will continue until the length and breadth of this great nation is covered by a great network of power lines. So every prospect who is converted to radio today by means of a Crosley Bandbox and a Musicone Speaker, will be in the market for an A. C. set as soon as the current becomes available in his home.

**MEROLA**

Switch from radio to phonograph and back again to radio at pleasure!



**Phonograph  
Pick-up  
\$15.**

List

Crosley A. C. electric receivers are equipped with MEROLA posts, thus making a MEROLA installation the work of a few minutes.

Order from your Distributor

**TUNE IN!**

We broadcast daily at 11:00 a. m. and 1:30 p. m.

Financial News

Market Reports

Government Bond

Quotations

Call Money Rates

Foreign Exchange

Grain and Live Stock

Quotations

**The FIFTH THIRD UNION COMPANY**

14 West Fourth Street  
Cincinnati, Ohio

**TAYLOR ELECTRIC CO.  
MADISON, WIS.**

Exclusively Radio  
Wholesale Only

CROSLEY DISTRIBUTOR

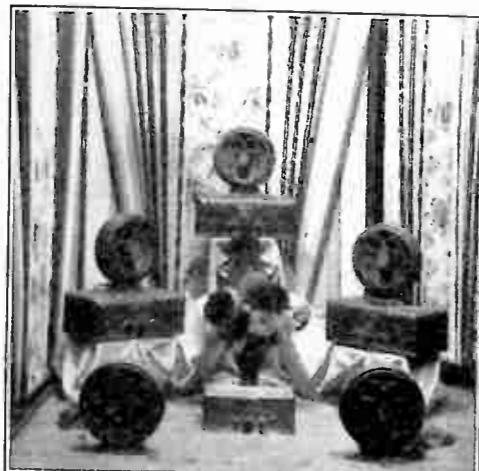
**SCHUSTER ELECTRIC  
COMPANY  
WHOLESALE**

CROSLEY DISTRIBUTOR  
2169 Spring Grove Avenue  
412 Elm Street, Cincinnati, Ohio  
West 144—PHONES—Main 820

**Crosley Showchest Brings Cheer to Wayward**

That stone walls do not a prison make is notably verified by a newspaper clipping from the Montana Record-Herald (Helena, Montana) sent in by Ross Pollock, Manager of the William E. Chase Company, distributors of the Crosley product in Helena. Two nights of excellent reception have convinced the prisoners that they have made a wise choice that will to a large measure relieve the monotony of eating their privately furnished prison fare, card games and other forms of diversion. It is to be noted that The Prisoners' Song is absolutely barred from the programs in the jail house."

"The 25 prisoners who were sent to the Hotel de Burgess to meditate upon the evils of bootlegging, moonshining, possession of liquor and narcotics and other infractions of Uncle Sam's regulations have found a means to while away the dull hours.

**The Feminine Touch!**

Mrs. P. K. Duke installed this Showbox Dynacone display in the window of the Central Hardware Company at Marceline, Missouri. Take note of the jar of flowers in the center!

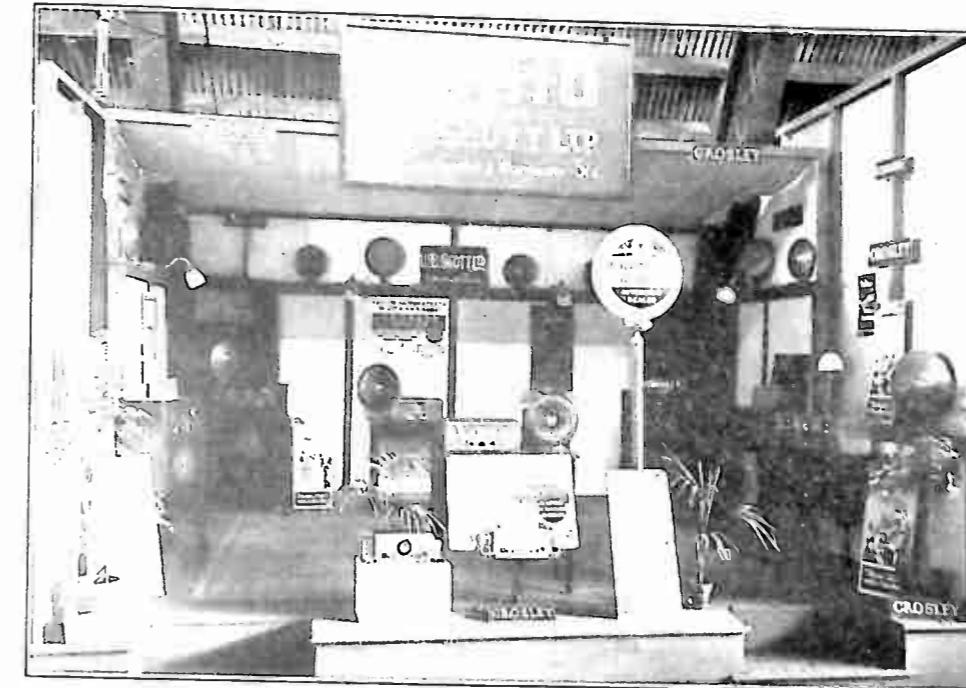
We have seen a very snappy and interesting "Crosleygram" which Hudson-Ross sent around to all their Crosley authorized dealers. These letters, or "Crosleygrams," are sent out periodically by this ever-active distributor to keep their dealers thoroughly up-to-date on Crosley developments.

**Crosley Dealer Gets Results with Direct Mail**

Copy supplied in a general Crosley advertisement was used to advantage by the Rogers Studio of Thurmont, Maryland, in conjunction with their own copy. An analogy drawn between Crosley radio and inexpensive fishing tackle as compared to more costly equipment was enlivened by a cartoon of a rotund gentleman hooking a twenty-five pounder with an old fashioned wooden pole. The ad was inexpensively printed on a post card and was used with favorable results by Rogers. A closer attention to material used in general Crosley Advertising and a combination with local information may prove of considerable assistance to the retailer wracking his brain for advertising ideas.

The Capital-Times, a newspaper published in Madison, Wisconsin, got its dope on the progress of the Wisconsin-Indiana basket-ball game from a Crosley radio set. The game was played at Indianapolis on February 18th, picked up by Frank Marx, the Crosley set owner in Madison, and relayed to the newspaper.

The performance of the new Crosley Gembox is such that you can be proud to recommend it to your trade!

**New Zealand Efficiently Served**

South Island, New Zealand, is served by our Crosley Distributor, L. B. Scott, Ltd., who have a large and modern establishment in Christchurch, N. Z.

**Sanda Sells Showchest to School**

The Lombard School at Ironton, Ohio, is now in proud possession of a Crosley Showchest, due to the efforts of Frank Sanda, proprietor of Sanda's Drug Store of that town.

In order to have the pupils of Lombard School take advantage of the Ohio School of the Air, the Lombard Parents and Teachers Club decided to purchase and install a radio set in the school.

Frank Sanda demonstrated a showchest in strict competition with other makes and, he tells us, the choice of the Crosley set was unanimous.

After the sale was made, Mr. Sanda writes, he installed an outside antenna with a lead in to the principal's office and one into the auditorium and made connections with seven other rooms, so that different classes might benefit from the programs of the School of the Air, broadcast over WLW.

Dynacone Heard One Mile Off

Our Crosley authorized dealer at Claremont, South Dakota, reports that he has used a Dynacone Power Speaker outside his store with unusual results.

On three occasions a farmer and his wife living no less than a mile from Mr. Olson's store have listened to the radio program on their own front porch.

It was so cold that they had to wrap themselves up warmly in order to stay outside. But they seemed glad to hear the music even under such rigorous conditions. They stated that they had no difficulty in hearing the music and even heard the announcements.

Mr. Olson gives the credit for this performance to the combination of a Crosley Showbox, the Dynacone Power Speaker and WLW.

**A Tribute from the Hills**

Boyd, Ky., March 5.  
Crosley Radio Corporation,

Dear sir as i have a icy Ball in my home I want to tell folks what haint got one what tha are misson and this is one of the thoughts, good ice cold tea on a hot summer day good cold watter good cold salid and everythang that good cold in sumer when it is so hot. I couldnt do without my icyBall when one of us get sick that the first thang that gos to work so there will bee plenty of ice as we all no ice is a full good to have when one is sick and living in the Century whar ice is not to bee had for just hollering out the door and say Brang me a hundred Pounds and what ever needed. Now folks it is a fine thang to have. i could write all day a bout a icyBall and get right up to the microphone and talk a day if the lett me and maby Mr. Crosley will lit me come down some day and talk im going to ask him if he will than i can explane every thang. your very truly

Mrs. Margaret McCoy  
Boyd, Kentucky

**Clayton's Radio Bungalow**

In order to demonstrate properly and display his line of Crosley radios, Harry S. Clayton, 110 South Seventh street, Springfield, Illinois, has built at his store a miniature Spanish type bungalow finished in texone and with a raftered roof. There is a large mirror inside which gives a lengthy appearance to the interior. Entrance is by a curved archway door.

The interior of the bungalow is finished in green tint, swirled texone finish and the outside in brown. The radio bungalow is an innovation and the only one in the city used exclusively for radio.

A Permanent and Attractive Advertisement



This giant thermometer enclosed in metal case 10 inches in diameter, is constructed for use on either sunny or shaded side of the street and is guaranteed to show correct temperature within two degrees. It is finished in black, red and bur, and the face of the thermometer is protected by glass.

**ORDER FROM YOUR DISTRIBUTOR.**  
(Enclose cash or money order.)

\$12.00 F. O. B. Chicago.



Attractive new Book Matches featuring the Crosley Showchest on one side with ample space for your own advertisement on reverse. 6 beautiful colors give snap and distinction to this ever-welcome souvenir. Priced for wide distribution at \$3.75 for one thousand, or \$3.50 per thousand on orders of 2 thousand or over. Order today from your Distributor.

At \$3.50 per Thousand, Imprinted

**Revolving Floor Lamp**

This modernistic floor lamp brings your Crosley display up-to-the-minute. The illuminated shade revolves slowly, affording ample time for display.

\$3.50  
each  
f. o. b. Cincinnati

Order from your Distributor



# READY TO MAKE RADIO CABINETS BETTER FASTER CHEAPER

*Than Anybody Else In The World!*

WATCH FOR  
ANNOUNCEMENT

SHOWERS BROS. COMPANY  
BLOOMINGTON, INDIANA



## CROSLEY DISTRIBUTORS



U. S. Radio Co. Holds Tremendous Dealer Forum in Pittsburgh



CROSLEY-RAD DEALERS CONVENTION  
OF UNITED STATES RADIO CO OF PENNSYLVANIA  
FORT PITT HOTEL FEB. 19-1929

Scene at the Fort Pitt Hotel in Pittsburgh on February 19, 1929, when our Crosley distributor, the U. S. Radio Company of Pennsylvania, assembled their dealers to present the Crosley line of radio sets and Icyball models. It proved to be a very enthusiastic gathering. Among the speakers were C. E. Urban, president of the U. S. Radio Co., Judge Brandon, Leonard Kellogg, sales promotion manager of the Crosley Icyball Refrigerator, Pete Hawley, Bob Lowrie, Hugh Eleyet, George Tanner, Frank Evans, William Hetznecker, Don Mackenzie, J. A. Ricard of the Amrad Corporation, and others.

Haverty's Atlanta Window



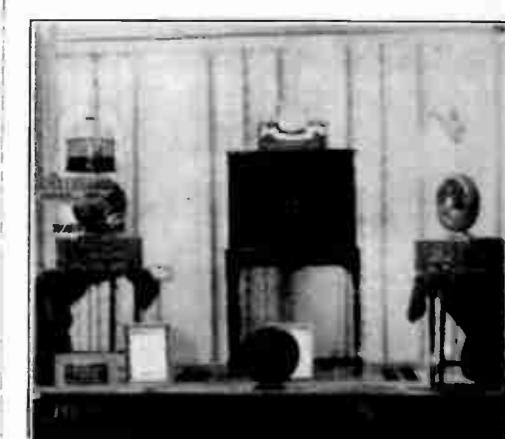
The Atlanta store of the Haverty Furniture Company recently put in a most effective Crosley window. The big cloth banner stopped all passers-by.

Ferry Stories



Walter Ferry, sales chief of the D. W. May Co., Inc., Crosley distributor at Newark, N. J., is shown telling stories to his little daughter, Lenora Ferry. You notice they have a Crosley Showchest.

Handsome Amrad Display



This tasteful Amrad display was installed in the show window of Leach and Thomas, in their Spencer, Iowa, store, and proved an effective attraction.

## Three Attractive Ways to Use the Gemchest

Original Groups by A. V. Hall



Our Grand Rapids Distributor, Mr. Hall of Sherwood Hall, works out effective disposition of Chinese Chippendale set in his own home.

## New Radio Slides for Your Local Theatre

### A Set of 5 Attractive Moving Picture Slides



*Dealer Imprint on Each Slide!*

\$1.50 for set of 5 slides, imprinted: f. o. b. New York City  
Order Now from your Distributor

## Balancing the Bandbox

A few Crosley dealers report that they are having some difficulty in balancing Bandbox sets. If the following instructions are followed explicitly, no trouble should be encountered.

It is easiest to balance these sets if you are provided with a "dummy" tube. This is simply a tube of the 201-A type with one of its filament prongs sawed off, so that no contact can be made between this prong and the socket contact. If a "dummy" tube is not available, an ordinary 201-A tube may be used as a "dummy" by inserting a piece of paper between one of its filament prongs and the corresponding socket contact.

To balance the set, tune to a strong signal, preferably between 1350 and 1500 kilocycles. Headphones should be used on the output, if possible.

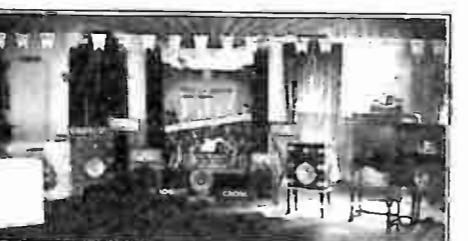
Remove the third radio-frequency tube and insert the "dummy" tube in its place. Tune the set until the signal is loudest. Adjust the third balance condenser (see illustration) by means of a balance wrench until the signal is a minimum with wrench removed. It is necessary that the adjustment be such that the signal is a minimum when the wrench is removed because the metal parts of the wrench may effect the balancing of the set. This precaution may be neglected if a special balancing wrench, made entirely of insulating material, is used.

After balancing the third stage, change the dummy tube to the second stage (inserting a good tube in the third radio socket) and retune the set for maximum volume. Adjust the second stage balance condenser as above.

The first stage may be balanced in the same manner as the second and third stages.

When balancing the Bandbox, it should be adjusted with the tubes with which it is to be operated. This will insure maximum efficiency with the tubes used. Mark the tubes with paper labels indicating the sockets in which they belong. You can then replace them easily after removing them from the set.

## Florida Strong for Icyballs



Down in Gainesville, Florida, where it is hot even in the winter time, the Baird Hardware Company is concentrating on Crosley Icyballs. Above is a picture, sent to us by C. A. Powers, Vice President of the Company, of a display used at a recent meeting of its dealers held in Gainesville.

More than twenty dealers attended the meeting, and "Oh how enthusiastic they were" says Mr. Baird. It would seem that plenty of Icyballs are going to be sold in Florida this season. In fact, plenty are being sold in and about Gainesville right now.

While the meeting featured Icyballs, Crosley radio sets were not neglected, as you may judge from the above picture.

*The Crosley Icyball Unit can be "cooked" or heated while the housewife is attending to her other duties.*

## Prefers Cold Pop to Flat Ale!

Last summer we had occasion to talk to an American who had just returned from a motor trip through Great Britain. He had started at Glasgow, Scotland, and after a trip through the beautiful Trossachs had stopped at Edinburgh and then proceeded leisurely through the Scott country and on down to England. In England he visited Warwick Castle at one time general headquarters for Oliver Cromwell. He sat in the chair of wisdom in Shakespeare's old home at Stratford-on-Avon. Christ Church chapel had housed him during a vesper service one Sunday in classic Oxford and he had recited lines from Gray's Elegy at Stoges Poges. All in all he had a wonderful trip, but in telling about it he had one big complaint.

"Of course," he said, "the main object of my trip was to see the beautiful English countryside and the historical points of interest. I did see them and on the whole rural England is just as beautiful as rural America. However, I missed one feature that has done much to make my tours of the United States more pleasant than the English trip."

"What was that?", we asked.

"Roadside refreshment stands," he replied.

"But how about the famous old English Taverns with their refreshments for man and beast," we asked.

"Oh, they were there, but they lacked modern refrigeration. Even in Jersey I could not get a cold glass of the milk that has made this part of the country famous the world around. Cold water or iced tea was unheard of. I prefer the convenience of the American roadside stand—to the romance of the old English Roadside hosteleries."

Price must be a deciding factor in the purchase of radio equipment when it is being bought in quantities or when the class rooms themselves must buy the radio set with the proceeds of benefit entertainments or by penny-apiece subscriptions.

Perhaps he was right. Now that he has toured England, this traveler may be one of those who will stop at your roadside stand next summer for a cooling carbonated beverage or a glass of fresh milk. He can be assured of the benefits of modern refrigeration and you can give it to him if you equip your stand with a Crosley Icyball bottle cooler. This is a device that works on the same principle as the Crosley Icyball refrigerator, over twenty thousand of which are already in service in homes in this country. With it, the retailer of carbonated beverages can cool six cases of soft drinks and dispense them direct from the cooler. There is no need of having to get up early Saturday morning and then again on Sunday to haul ice several miles to cool the drinks you will sell to the tourists. It is always available and a few minutes work will prepare it for a day's business.

Imagine the price of education at that rate. The normal school year is 36 weeks which would include 180 hours of radio education, considering that radio classes are held one hour every day. Less than one dollar a day for radio education in one year, with 33 children (the prescribed limit for the efficient classroom) listening to every class.

In the McKinley elementary school in Cincinnati, G. C. Emig, principal, has installed a Showchest because it can be carried from one class room to another instead of having to move the listeners. (Pictures of radio-listening in the McKinley school are shown on page 2).

Having seen how education by radio has been received, and its future possibilities as a field for the radio salesman, let us go back and view the Ohio School of the Air and see how it has succeeded where other educational experiments have failed.

In the first place, radio was ready for education just as education was ready for radio. A year ago, Powel Crosley, Jr., president of the Crosley Radio corporation, would not consider broadcasting to the public schools.

"Radio is not yet ready," he said. When blueprints of the Crosley Dynacone were before him, and plans were being made for the dedication of the 50,000 watt transmitter of WLW, B. H. Darrow, the instigator of the Ohio School of the Air, backed by the co-operation of Ford Billings, director of station WLW, who had tried educational broadcasting for the state of Connecticut on a small scale, again approached Mr. Crosley.

"Now I am ready to consider giving the use

## Ohio Senate Broadcasts from W L W

(Continued from Page 1)  
own seat and in an atmosphere in which he is accustomed to being obedient."

This acknowledgment by teachers that a single radio for the entire school will not suffice, should give the radio dealer an entry into every board of education, every Parent-Teacher meeting, every class room.

Crosley dealers so far seem not to have taken advantage of their remarkable opportunities to place radio sets in school rooms. Newspaper clippings coming to the Crosley Radio corporation, indicate that in too many cases, the Crosley dealer has been asleep while the salesman with more expensive receiving set has made the installation.

Undoubtedly, the name Crosley is better known to more radio listeners in the United States than the name of any other radio set. The mention of Crosley Radio Corporation in the call letters of WLW at the beginning and end of the Ohio School of the Air, cannot fail to impress upon every interested listener the idea that the Crosley Radio receiver is materially responsible for the School. That in itself would make it possible to sell Crosley Radio sets to educators.

Price must be a deciding factor in the purchase of radio equipment when it is being bought in quantities or when the class rooms themselves must buy the radio set with the proceeds of benefit entertainments or by penny-apiece subscriptions.

Here again, Crosley dealers have an advantage over all others. The Showchest, compact, light, easily movable, entirely self contained, so simple to operate that to be the "radio manager" for a week is the coveted privilege in every class room, sells for \$109.00 including its own loud speaker.

When the Ohio State department announced its intention of broadcasting its School of the Air through station WLW, it was explained that radio was to bring to pupils "even in the smallest little red school house" a glimpse of events in the outside world, and contact with minds that otherwise would be able to reach only a very few children in city schools.

On Monday, January 14, the beginning of the second week of the radio school, Ohio inaugurated Meyers Y. Cooper as its governor. The ceremonies were broadcast from Columbus and the School of the Air enrollment listened in to the entire procedure with Uncle Ben, the radio school master (B. H. Darrow) explaining the history and significance of the event.

It may be said at this point that the School of the Air originates in Columbus on Monday and Tuesday in the studios of the Ohio State University station and is brought to the WLW transmitter and Cincinnati studios by land wire. On Thursday and Friday, the programs are presented in the studios of WLW.

History in the making, unexpected and unscheduled, came to the Ohio school children and others in all radio-equipped schools on January 28, when Captain Fried and the crew of the America were given official welcome by the City of New York. WLW broadcast the event from the network and the school children were given a picture of the New York crowds and a story of the rescue of the crew of the Florida that promises to remain with them long after they have forgotten stories of heroism that have come to them only in books.

Then came the national inauguration on March 4 with a continuous program of events on the air from Washington, D. C., from 10:00 A. M. until 4:00 P. M.

Realizing the tremendous significance of such a broadcast as an insight into political ceremonies and procedure, Superintendent Clifton

of WLW for educational broadcasting," Mr. Crosley said.

"The Dynacone and other dynamic speakers makes group listening possible where it could not have been entirely satisfactory with the ordinary loud speaker. The A. C. receiving set assures that nothing will be 'out of order' when the classroom expects to receive its programs. The high power of WLW will override static and make listening a pleasure."

The second vital factor in the success of the School of the Air as broadcast by station WLW is the fact that it is planned and executed entirely under the supervision of the Ohio State Department of Education. Educational needs were consulted in planning the programs. Educational methods are followed in presenting them. The result literally is a "School of the Air;" a school adapted to the limitations of radio but utilizing its possibilities to bring the greatest minds of the country to its school children, and events of the living world into the school room.

One of the most remarkable things about the Ohio School of the Air has been the fact that so far it has been run entirely without funds. Even its director has given his services. The Crosley Radio Corporation has donated its transmitter. Statesmen, artists, poets, dramatists, have donated their services. The Ohio state department of education has closed its eyes to the fact that it must first spend its money on education and run the risk of getting it paid for either by state appropriation or by donation. Always there has been a determined refusal to permit commercial sponsorship because of the necessity of avoiding all taint of propaganda or influence which has had such a devastating effect on other radio school projects.

When the Ohio State department announced its intention of broadcasting its School of the Air through station WLW, it was explained that radio was to bring to pupils "even in the smallest little red school house" a glimpse of events in the outside world, and contact with minds that otherwise would be able to reach only a very few children in city schools.

On Monday, January 14, the beginning of the second week of the radio school, Ohio inaugurated Meyers Y. Cooper as its governor. The ceremonies were broadcast from Columbus and the School of the Air enrollment listened in to the entire procedure with Uncle Ben, the radio school master (B. H. Darrow) explaining the history and significance of the event.

It may be said at this point that the School of the Air originates in Columbus on Monday and Tuesday in the studios of the Ohio State University station and is brought to the WLW transmitter and Cincinnati studios by land wire. On Thursday and Friday, the programs are presented in the studios of WLW.

History in the making, unexpected and unscheduled, came to the Ohio school children and others in all radio-equipped schools on January 28, when Captain Fried and the crew of the America were given official welcome by the City of New York. WLW broadcast the event from the network and the school children were given a picture of the New York crowds and a story of the rescue of the crew of the Florida that promises to remain with them long after they have forgotten stories of heroism that have come to them only in books.

Then came the national inauguration on March 4 with a continuous program of events on the air from Washington, D. C., from 10:00 A. M. until 4:00 P. M.

Realizing the tremendous significance of such a broadcast as an insight into political ceremonies and procedure, Superintendent Clifton

(Continued on Page 16)

## The Magic of the Free Home Demonstration Plan!

"Ralph, I told you that we weren't going to buy a radio. What do you mean by ordering that thing sent up here?"

"But Dad, we don't need to keep it. Mr. McCarty told me so. I've been in his store a lot, and he said we could have it just on trial a week, because he knows I'd take good care of it. He said he bet the only reason you didn't want one was because you didn't know how nice they are."

"Huh, he did, did he? Well you tell Mr. McCarty I'm capable of taking care of the needs of my own family."

"And he said that being way out on the edge of town this way—"

"That will do, Ralph. We have as many conveniences as most folks I guess. Now you load that thing into the car again—"

"What's he got?" a woman's soft voice questioned in surprise. "A radio! Jim you didn't—"



ROUND 1. MA WINS THE DECISION.

"Now Mary, don't be foolish. You know we have no use for a radio. Especially in a house with a phonograph. But Ralph here," he continued angrily, "had to go beg for one on trial—"

"Dad, I told you—"

"How long can we keep it, son?"

"A week."

"And then you'd be perfectly satisfied to give it up, wouldn't you?" his father said sarcastically. "I tell you, we've talked about this long enough—"

"Honest, Dad, I won't ask you to keep it if you don't like it at the end of a week—"

"Like it? We have no use for it I tell you!"

"It might be rather nice, Jim."

"Mary, it isn't as though you wanted it for yourself; you know that. But you just lose your head when it comes to the children."

"Well, it surely can't hurt to have it here for a week Jim."

All right, all right! Keep it for your week. But at the end of that time it goes—and I won't hear a word from any of you coaxing to keep it, either." He started toward the barn with long strides.

"Mother, you don't mind my getting it on trial this way, do you?"

"It won't help any, Ralph."

"It isn't as though Dad couldn't afford to buy a radio. And he knows I'm saving my money for school. I'm sure if he'll just listen to it for a week—"

"He thinks we haven't any use for it."

"Mother, I've got a scheme. Will you help me? Please do!"

"You've always got a scheme, Ralph," she smiled at him. "What is it this time?"

"He thinks we haven't a use for it. Let's use it all the time. You help me. We'll keep it going every minute there's a program on the air. Come in the house and we'll read the announcements."



ROUND 2. A DRAW.

When Mr. Walters came down stairs the next morning, he found his family in the living room.

"Exercise number three," the words came from the radio, "is the bicycle movement. Lie flat on your back."

Mother, son and small daughter obeyed instructions at once.

"Good morning, Jim," called his wife from her position on the floor. "Do you want to join us?"

"Thanks," he replied gruffly. "I get enough exercise."

"Lift your legs as high into the air as possible; then start circling them in time to the music. Ready, begin!"

And the Walters family, with the exception of the head of the household, who stood watching in astonishment, moved in strange contortions with the music.

"You're all crazy," exclaimed Mr. Walters. "Ha! Ha! Ha!" he broke out a minute later. "Gosh, Mary, you sure look funny!"

Luncheon that day was particularly attractive. There was a fancy salad, and a new kind of pudding for dessert.

"You're a great cook, mother," complimented Ralph, winking at her behind his father's back.

"Yes, Mary, this pudding's pretty fine. We haven't had this kind before, have we?"

"No, Jim, I heard the recipe over the radio just this morning. I took it down, and we can have it often," she replied with all innocence.

Her husband glanced at her sharply, but she was calmly helping herself to another spoonful of pudding.

Submitted by: ALICE WILDEY.

"The salad came from over the radio too," piped up Betty, "I heard it."

Mr. Walters came in from chores earlier than usual, and dressed for dinner. But his wife seemed in no hurry to start preparing the meal, and Ralph had not returned from town.

"Isn't it getting late?" questioned Mr. Walters at last. "Today is Friday, isn't it—aren't we going to town as usual tonight? The movie at the Palace looks pretty fair, and there's a concert at the Auditorium if you want that."

"Oh, I'm sorry," replied Mrs. Walters, "Didn't you know? The concert is being broadcast tonight, and I thought we'd listen to it here. That is, unless you'd rather—"

"No, no; no; you mean we can hear it all over that radio?"

"Why yes."

"Well, then, why don't we hurry and eat? It's getting late."

"Betty," said her mother some hours later, "It's ten o'clock! You've stayed up for the concert now. Hurry along to bed!"

"Tell me a story, Daddy?"

"Not tonight, Betty. Daddy's tired."

"There's one on the radio," interposed Ralph. "Shall I turn it on?"

"My heavens," said Mr. Walters, "is there anything that radio doesn't do? You exercise by it, eat by it, go to bed by it. Nobody around here seems interested in anything else. I sup-

pose you'll stay home from the baseball game tomorrow to listen to it, Ralph!"

"They are broadcasting the game, Dad. So I guess I will. The tickets are pretty expensive, and there'll be such a jam nobody can see anything."

Upon which Mr. Walters buried himself in his newspaper without a word.

The last day of the week of trial for the radio had arrived.

"I found Dad listening to that talk on poultry the other night," Ralph said to his mother. "And we certainly have proved that we'd use that radio. It was dandy of you to try so many of those new recipes. Mother, I'll bet Dad is just waiting to be asked to keep that radio!"

Ralph, we promised that radio should not be mentioned at the end of the week. Dad agreed to let it stay here that long; we have to keep our part of the bargain, too. You'll have to take it back this afternoon."

"Good morning, Jim," called his wife from her position on the floor. "Do you want to join us?"



ROUND 3. A FAMILY KNOCKOUT

"Hey, what's going on here?" Mr. Walters interrupted his son preparing to move the radio. "What are you doing with that?"

"I was going to take Mr. McCarty back his radio."

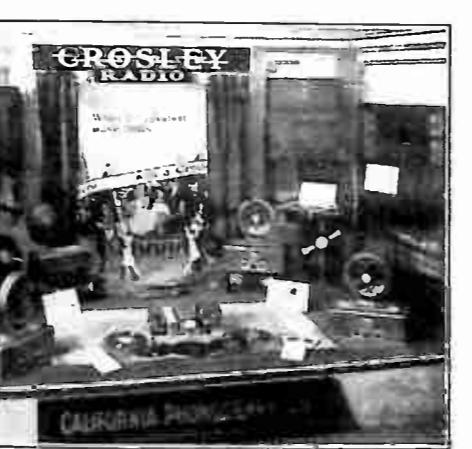
"His radio—what makes you so sure it's his?"

"Why—why—Dad!"

"I paid for it the second day we had it out here. You all seemed to have gone dippy over it. And then too, that was the day they started that series of talks on poultry."

Submitted by: ALICE WILDEY.

### Crosley Dolls Still Dancing



The California Phonograph Company in San Francisco, believes in the drawing power of the Crosley Dancing Dolls Display. If we're not mistaken, this is the second photograph they have sent us, showing that they are making repeated use of this ever-compelling window trim.

## CROSLEY DEALER'S RADIO COURSE

### 10 Simplified Lessons Especially Prepared for Crosley Dealers

#### LESSON X.

##### Radio Circuits.

In the preceding lessons we have been discussing the various properties of electrical circuits, and the general principles underlying the broadcasting of radio programs. In this lesson we shall take a typical radio circuit and analyze it in terms of the fundamental principles that we have learned.

For this purpose the circuit of Crosley Showbox, Model 706, will serve very well, since it is a modern, light socket set, typical of up-to-date radio design.

##### The Circuit in General.

As we have learned in preceding lessons, every radio set may be divided into three parts—the amplifiers preceding the detector (which amplify at radio frequencies), the detector, and the amplifiers following the detector (which amplify the audio-frequency component of the signal).

In the accompanying wiring diagram, the three tubes at the left serve as radio-frequency amplifiers, the one in the center is the detector, and the three tubes at the right are audio frequency amplifiers.

##### Coupling Between Stages.

Some method of coupling is necessary in order to connect the output of each tube to the input of the following tube. It is not practical to connect the plate circuit of one tube directly to the grid circuit of the next tube, for this would put the full "B" battery plate voltage on the grid of the following tube, blocking that tube completely. Instead some scheme of coupling the tubes must be used which will transfer the plate current fluctuations of one tube to the grid circuit of the next tube, without allowing the direct current component or "B" battery voltage of the plate circuit to be transferred to the grid circuit of the following tube.

There are several schemes for doing this. The one which is most efficient uses transformers for coupling the tubes. You will find the mode of action of transformers described in Lesson IV.

In the accompanying diagram you will see that the radio-frequency stages are coupled by means of air-cored transformers, and the audio-frequency stages by means of iron-cored transformers.

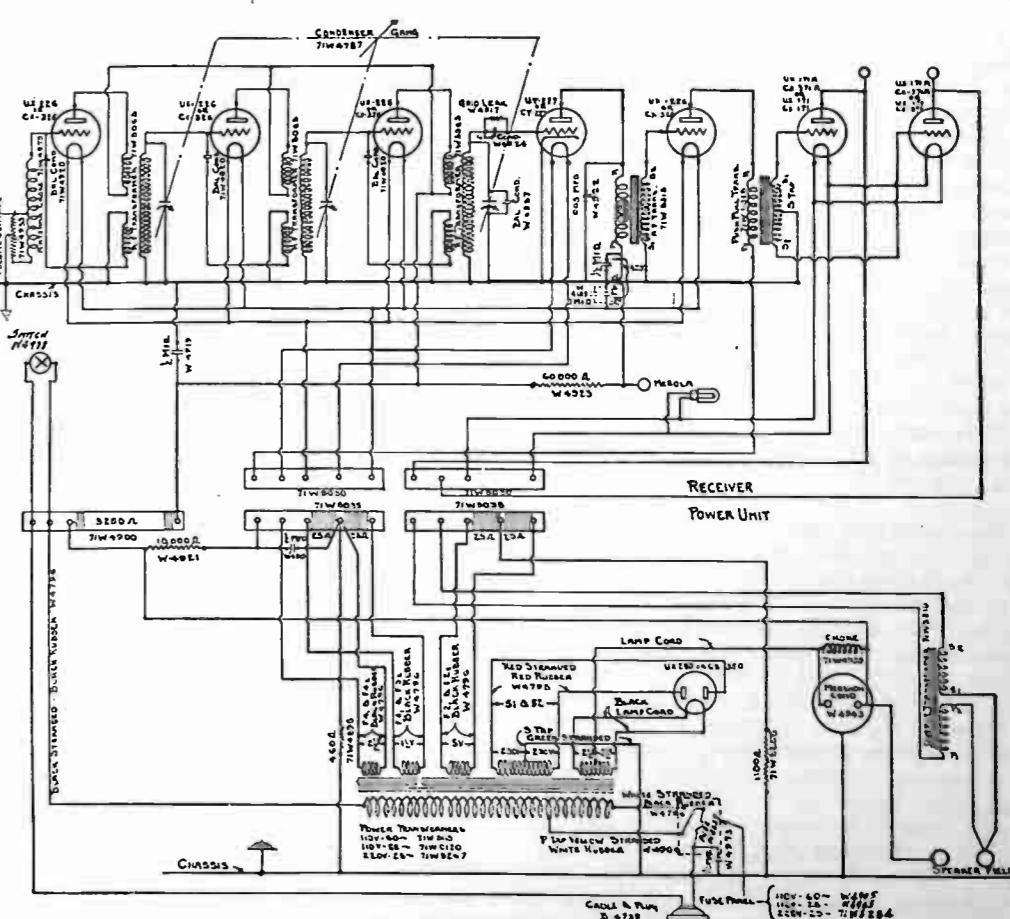
##### Antenna Coupling.

How is the antenna and ground circuit coupled to the grid circuit of the first tube?

In some sets this is done by the use of an air-cored radio-frequency transformer of the type used to couple the radio-frequency stages to each other. In the circuit illustrated herewith, instead of using a transformer with a primary coil and a secondary coil, only one coil is used. The antenna-ground circuit is connected across part of the turns, and the grid circuit of the first tube connected across all of the turns. Such a transformer, in which a single winding serves as both primary and secondary, is known as an "auto transformer." In Crosley sets this auto-transformer is usually referred to as the "antenna choke coil."

##### Balancing Coils.

You will notice in the diagram that each of the radio-frequency transformers is represented as having three separate windings. Of these windings, the small one at the left top is the primary, connected in the plate circuit of each tube; the large one at the right is the secondary, connected to the grid circuit of the following tube; and the small one at the lower left is a balance coil, which picks up energy from the plate-circuit primary winding and delivers it back to the grid of the tube in such a way as to oppose the amplifying action of the tube and thus prevent oscillations.



CIRCUIT CROSLEY SHOWBOX, MODEL 706

You will remember, from Lesson V, that choke coils and condensers may be used to smooth out pulsating direct current so that it is practically uniform, steady, direct current. In the circuit illustrated here, a Mershon condenser, connected in parallel with a choke coil, is used for that purpose.

#### Plate Voltages.

Not all of the tubes operate at the same plate voltage. The output tubes require the greatest plate voltage, the first audio tube next, the radio-frequency tubes third, and the detector tube least.

To obtain these different voltages the fact that there is always a voltage drop in any resistance carrying a current is made use of.

The output tubes are connected directly to the output from the rectifier and filter system (Mershon condenser and choke). From here the "B" supply passes through a resistance, causing a drop in voltage, before it reaches the plate of the first audio tube. A still greater resistance is used to reduce the plate voltage for the radio frequency tubes, and from these tubes the plate supply passes through a special 60,000 ohm resistance to reduce the voltage to the proper value for the detector.

You will remember that the voltage drop in a resistance is equal to the current in amperes flowing through the resistance multiplied by the resistance in ohms. In designing this set it was necessary, therefore, to know the current that was to flow through each of these plate supply resistances before the proper resistance values could be calculated for the voltage drops required. The currents that would flow through the resistances could be calculated from the constants of the tubes used.

#### Application of Elementary Principles.

This brief description by no means tells the entire story of the operation of the Showbox circuit, but it is sufficient to illustrate how the principles outlined in the preceding lessons may be applied in analyzing a typical radio circuit.

## Ohio Senate Broadcasts from WLW

(Continued from Page 13)

advised Ohio schools to hold open house for all parents and others whose homes were not equipped with radio sets. School programs were entirely set aside for the day and pupils got a glimpse of the workings of government that they might never see.

They heard the voice of President Hoover delivering his inaugural address. They heard the voice of Chief Justice William Howard Taft administering the oath of office. They heard the farewell of ex-Vice President Charles G. Dawes and the inaugural speech of Vice President Charles Curtis. They had a glimpse of the Senate chamber and of Senate procedure through the eyes of David Lawrence, veteran political writer and editor of the United States daily. They saw the inaugural parade. They had a minute description of the ground plan of Federal buildings in Washington and of many of the buildings.

Then, to complete their knowledge of American government, the Ohio Senate and House of Representatives both consented to let the Ohio School of the Air into the legislative chambers. On March 12, the Senate session was broadcast by WLW. On March 17, the House of Representatives met by radio. Later in the spring it is planned to broadcast direct from the Ohio Supreme Court deliberations.

So far the speakers have included Governor Cooper; T. H. Winter, Assistant Director of Education; Richard Wisda, Director of Public Works; Dr. C. A. Neal, Director of the Department of Health, who also has spoken on several Mondays on the topic of health; H. H. Griswold, Director of State Welfare; Perry Green, Director of Agriculture; Edward D. Schorr, Director of Commerce; Harry D. Silver, Director of Finance; Gilbert Bettman, Attorney General; Lieutenant Governor John T. Brown; and Clarence J. Brown, Secretary of State. The directors of other state departments will follow.

On February 28, the Ohio radio school pupils listened to talks and dramalogues relative to

After all, a radio set is nothing more than an assemblage of electrical circuit designed to select, amplify, and change electrical currents in certain ways. Once you have mastered the fundamentals of electricity together with certain basic ideas regarding electrical circuits (especially with regard to high-frequency alternating currents) radio will be an open book to you.

#### The End.

With this lesson, the Crosley Dealers' Radio Course comes to a close. In such limited time and space it has been possible only to skim over the most fundamental facts underlying radio. Many interesting topics—such as transoceanic and ship radio, television, commercial wireless telegraphy, etc.—could not even be mentioned. It was the purpose of the course, however, to lay the groundwork only—not to polish off with details.

If those of you who have enjoyed the course or who have any criticisms or suggestions to offer will write to the Editor, "Crosley Radio Broadcaster," your comments will be appreciated.

Instead of appending a list of questions to this lesson, we are giving below a list of books on radio for the benefit of those of you who wish to go further into the subject.

#### A LIST OF BOOKS ON RADIO

"The Principles Underlying Radio Communication", Signal Corps, U. S. Army (may be obtained from the Government Printing Office, Washington, D. C.) This is a good elementary book covering radio in general.

"The Radio Manual", George E. Sterling. A good practical book containing much technical data, especially with regard to broadcast transmitters, ship to shore communication, and the like.

"The Principles of Radio Communication", J. H. Morecroft. An advanced treatise, requiring familiarity with mathematics. It is, however, very complete, and is the standard reference book for radio engineers who have had mathematical and engineering training.

the achievements of George Rogers Clark who so materially assisted in the discovery and development of the territory in which they live. On that day, Governor Cooper spoke from Columbus, and Governor Flem Sampson, Kentucky, addressed them from the studios of station WLW.

A course in art appreciation is being given the Ohio classes by Dr. Henry Turner Bailey, Director of the Cleveland Art Museum, and himself an artist and lecturer. Supplemented by pictures in the classrooms to which the pupils refer, the art talks are designed both to stimulate interest in art and to instill the capability of real enjoyment of good pictures in the children.

To assist Dr. Bailey, the Art Extension Department of the Ohio Federation of Women's Clubs has undertaken to place copies of the subject pictures in every school room. Each of the Ohio women's clubs has acquired two sets of the pictures, one of which is to be given to the newspapers for possible reproduction, and the other to be used by club members and schools. In many cases, the club members are meeting with the schools for the art talks on Tuesdays at 1:50. Mrs. J. E. Clark, Columbus, State Chairman of the Art Extension Department, alternates with Dr. Bailey in giving the talks.

A geography travelogue presented every Thursday at 2:00 P. M. has given the listening children a continuous story of foreign countries and an understanding of their foreign brothers. Dr. W. R. McConnel, head of the Department of Geography at Miami University author of many text books and maps, has given many of the talks. During April, Professor Daniel Bergsmark of the Geography Department of the University of Cincinnati, will be heard.

Stories have been selected and read by Julia Carter, head of the Children's Department of the Cincinnati Public library, and by E. Gertrude Avey, head of the Extension Department. Cincinnati kindergarten teachers and supervisors also have assisted in the story telling broadcasts.

As a spur to pupil enthusiasm, several classes from Cincinnati schools, have broadcast plays and games. Broadcasting by the students

themselves is one of the chief projects now in the minds of the School of the Air directors. They expect to present to the radio pupils, members of their own groups who will talk about subjects near to the minds and experiences of all.

Among the other features on the program at the present time, and that have been broadcast in the past, are the Monday Current Events, given by Harrison Sayre, author of Current Events and other school magazines; health talks for upper grades by Dr. Neal and his assistants in the Department of Health; Story Plays and Games for primary grades, directed by Alma Ruhmschussel, Physical Supervisor of the Dayton, O., schools; a series in chemistry by Professor C. W. Foulk, Professor of Analytical Chemistry at Ohio State University; and talks on science by Professor Firman E. Bear of Ohio State University.

To supplement the radio lessons, the Ohio Department of Education has furnished lesson leaves, programs, and supplementary references. These have been used not only by all listening schools but by parents, and other interested listeners who have found the School of the Air a practical education for themselves. Numberless letters indicate that the School of the Air lessons form the chief subject of dinner conversation in families where children have heard the lessons in their school rooms and parents have listened in their homes.

Radio education has come to stay. That fact is established by educators themselves who are the final court of appeal. In what form, radio education will stay is a question that may be decided within the near future.

Whatever the means of financing may be, the State of Ohio and the Crosley Radio Corporation with its giant broadcasting transmitter have done the pioneering. It remains now only for the radio dealer to get behind the radio educational movement and to see to it that every school room has its own radio receiving set.

"The world is now the modern child's text book," says Darrow. "Radio is the salvation of education."

By NATALIE GIDDINGS,  
Editor of the Crosley News.