

The CROSLLEY

Broadcaster...

WLW



WSAI

VOL. VIII.

SEPTEMBER 1, 1929

NO. 17.

Boy! Page Aladdin!



ALADDIN RUBBED HIS MAGIC LAMP and in the twinkling of an eye a powerful genii raised a glittering palace. Powel Crosley, Jr., in the role of modern Aladdin, has set modern industrial forces working that have produced with bewildering rapidity an 8 story office and factory building, and a 600 foot, one story plant. Only a fortnight ago we published a picture of the new building which showed the fourth floor under construction. Almost as we wrote four more floors were added. As fast as they are added machinery and equipment for the manufacture of radio receivers is moved in.

In the new building all is bustle and orderly activity. The first, second, third and

fourth floors are already occupied by hundreds of new employees. Production is being pushed to fill the thousands of orders pouring in by phone, telegraph, and letter.

Concrete is being poured on the eighth and last floor of the building although the photograph shows only the seventh floor under construction. Across the street, Building "K", the 600 foot Cabinet Assembly and Shipping Plant, is teeming with industrial life. Hundreds of chassis are installed in Crosley cabinet models and shipped at the rate of thirty carloads per day. The conveyor bridge is completed and the conveyor line has been transporting chassis from Plant 1 to Building "K" for more than two weeks.

Every newspaper in Cincinnati has been carrying notices of employment, and so many hundreds of workers have appeared that a residence near Plant 1 had to be equipped as an employment department, the employment facilities of the plant being inadequate. A hundred new employees every day are taking their places in the Crosley scheme.

The entire factory will be completed, the Crosley roll will be swelled to 5,000 (this doubles the number now employed) and maximum production will be reached by the 15th of September. Office quarters and studios will be completed about the middle of December and the knights of the spotless collar will be in the trenches by Christmas.

AMRAD PRESENTS THE BEL CANTO SERIES

Triple Screen Grid

The advantages of the Screen Grid Tube are fully recognized by Amrad which has built its 1929 chassis especially for Screen Grid operation and utilizes THREE Screen Grid Tubes.

The demand of the public for *beautiful tone* is recognized by Amrad in its use of the finest electric speakers made, mounted on baffle boards and attuned to the receiver.

The necessity for *real furniture* was recognized when Amrad employed one of the outstanding furniture artists of America to design the Bel Canto Series.

And most important of all, Amrad sets are produced at a price which makes them readily salable and wonderful value—BUT they are not in the class of low price competition. The consumer is glad to pay a little more for beautiful furniture, superior engineering, sturdy construction and *the finest tone in radio!*

Write for details as to open territory. Address
Sales Desk AA
THE AMRAD CORPORATION
Medford Hillside, Mass.



The DUET
Magnificent electrical radio and phonograph combination in console of East Indian Laurelwood with inside panel of fine Oriental Walnut.
Price, \$495 (less tubes)



The ARIA
Beautiful console of American and African Walnut. Standard Amrad Screen Grid Chassis with built-in speaker.
Price \$198 (less tubes)



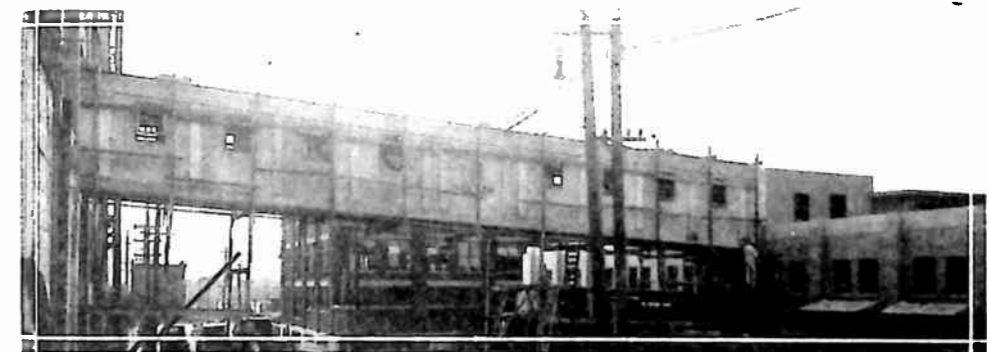
The SERENATA
Sliding door cabinet of Walnut with panels of curly maple and ebony inlays. Built-in speaker.
Price, \$245 (less tubes)



The SYMPHONY
Cabinet of Laurelwood, Macassar Ebony and fine Walnut veneers. Eight tube chassis with superb dynamic speaker built in.
Price, \$295 (less tubes)

Building "K" Completed

Exterior And Interior Views Of The New Cabinet Assembly And Shipping Plant



Upper Left: Interior of Building "K" showing Carousel conveyor (floor). Upper Right: Exterior of Building "K" showing spur track and cars for early morning loading. Below: Conveyor bridge providing for straight line system from Plant 1 to Building "K".

YEARS AGO, WHEN THE RADIO INDUSTRY was still in its infancy, Powel Crosley, Jr., succeeded in bringing radio prices down to the level of the average pocketbook.

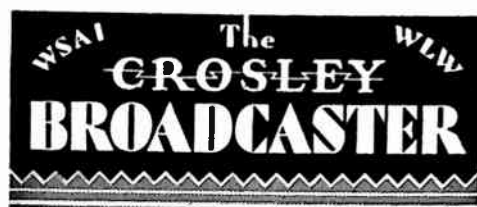
He concentrated on simplification, straight-line mass production. Today, rapidly nearing completion is a plant that is one of the marvels of modern industry. Only such a plant could hold consistently to the policy: fine radio for all, at the lowest cost of all.

Thousands more square feet of floor space

have been made available by the completion of Building "K" shown above. The interior shows the new Carousel conveyor. This conveyor is constructed of sections of steel joined to make a flat walk operating over a roller bed. On this conveyor cabinet models are placed and carried to the loading platform where freight cars are speedily filled with Crosley receivers. The exterior shows the spur track from the B. & O. with eleven cars ready for the morning shipment. Maximum production will see thirty or more cars loaded

with Crosley receivers destined for all parts of the world going out daily. The conveyor bridge permits passage from Building "K" to the main plant. This bridge houses the overhead conveyor line which carries the completed radio chassis to Building "K" for installation in cabinets.

All this evidence of growth and expansion means just one thing—the biggest year in Crosley's history is just ahead. Are you ready!



Published by the
CROSLLEY RADIO CORPORATION
Manufacturers of Radio Apparatus
Colerain & Sassafras Streets
CINCINNATI
Telephone : Kirby 3200

Editor: Edward F. Mottern
Assistant Editor : Francis G. Wilson

NEUTRODYNE 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.

Newspaper Matrices And Electrotypes

THE POLICY WHICH HAS GUIDED THE preparation of the complete newspaper ads, which have been sent out in matrix form, has been to give emphasis to the cheaper models in the Crosley line and thereby stimulate interest which would naturally be shared by the rest of the line when the prospective purchaser was contacted. This is a sound merchandising principle and those who analyzed the situation readily saw the advantage of "playing up" these models in their newspaper advertising.

We feel, however, that at the present time, Screen Grid advertising is in heavy demand. To meet that need a large matrix, containing eight newspaper ads, covering the Screen Grid models, has been prepared. This matrix may be ordered by requesting Radio Ad E.

In addition there is a small matrix containing several Crosley Autogym Electric Vibrator newspaper ads. This may be had by simply requesting "Autogym mat".

There seems to be some confusion as to the actual use of these matrices. These matrices are simply forms or patterns from which castings, which do the actual printing, are cast. One casting does not render the matrix obsolete, but, many castings can be made from the same matrix. For example: When a card mat, such as "Radio Ad E" is ordered, the person receiving it gets not one ad but

eight! From any of these eight an indefinite number of castings may be made.

In addition to the prepared advertising matrices, cut mats have been sent out. These contain various sized impressions of every model in the line and also the various sized logotypes. Therefore if the recipient wishes to prepare his own ad he simply writes his copy, cuts out the model which is needed, from the matrix and gives the material to his newspaper. The paper sets the copy in type, casts the matrix cut, sets the entire thing up and prints it.

Crosley in the Field of National Advertising

ADVERTISING SEEKS TO IMPRESS UPON the public, by a constant repetition of its message, the distinctive superiority of a particular product.

Intensive Crosley advertising in national magazines is focusing the attention of the public upon Crosley and the superiority of Crosley products. It is to your advantage that this national message be further strengthened by tying in locally with this advertising.

This list will give some idea of the national advertising now appearing in national, farm, and trade periodicals which is undoubtedly an important factor in advancing the sale of Crosley receivers.

No doubt you saw the two-page announcement spread in the Saturday Evening Post the week of July 20th. Also our ad in Collier's and Liberty, and the WLW ad in the Saturday Evening Post for the week of July 27.

In July, a Crosley advertisement appeared in the American Exporter, Electrical Merchandising, Furniture Record, Good Hardware, Radio Retailer and Jobber, and Talking Machine & Radio Weekly.

In August there will be Crosley advertising in the Trade Journals listed above. Crosley advertising will appear in the Saturday Evening Post of August 24 and there will be a similar ad in the Country Gentleman for August.

This advertising has been carefully designed and placed to aid you in merchandising Crosley products. On page 10 is a list of the national publications in which advertising will appear in September; and the circulation of these publications, which will give you a more definite idea of the Crosley coverage, is given.

It is decidedly to your advantage to localize the national interest now being created and strengthened by Crosley advertising. Crosley is fixing the name and the superiority of Crosley receivers in the public mind—your function, a function that will repay you fully, is to focus this attention on your place of business.

The Leviathan, at a cost of about three quarters of a million dollars, will be the first of a number of ocean going vessels to be equipped with radio telephones. The plans provide that each stateroom will be connected with the radio room where special short wave equipment is to be installed to enable passengers at sea to carry on social or business conversations with those on land.

CROSLLEY

THIS LOGOTYPE IS THE OFFICIAL Crosley logotype and should be prominently displayed in all Crosley advertising in order to receive the Crosley co-operative advertising allowance. This logotype, in a modern type face, replaces the former type face used in the corporation name. This is now available in four sizes of 2, 3, 4 and 6 inches wide. All Crosley signs, dealer certificates, etc., will be supplied on order with the new Crosley logotype.



AS WE GO TO PRESS WORD IS RECEIVED that the City Solicitor's office, in Cincinnati, is drawing up an ordinance aimed to prohibit the use of radio loud speakers "wherever they interfere with business or constitute a nuisance to residents." Wording of the proposed ordinance has not, as yet, been completed. Whether it is merely aimed at loud speakers used downtown in the business sections, to attract the attention of passersby, or whether its scope will be wide enough to hit the home, apparently has not been decided.

The ramifications of such an innocent appearing bit of legislation, once it is enacted, might well become a future menace and an eventual intrusion of the home. In the last fifteen years we have seen equally inauspicious beginnings attain incredible growth—we have seen the nucleus of what appeared to be quite sane legislation achieve a gargantuan growth before our very eyes resembling not in practice nor possibility of use, the spirit of its inception.

As we have seen in the past, the price paid for adopting a relaxed attitude on such questions is one paid by the individual. Too many of us are content to confine our interest in such matters to a mere awareness of the situation. The merit of a law stopping the use of loud speakers in the downtown sections, can well be left to the judgment of the business men. They are qualified to answer the question.

Under such a law as proposed above, not merely the advertising phase of the situation would be affected, but the home as well. Any person could phone the police, lodge a complaint against his neighbor, who would be subject to arrest and subsequent fine. The potential possibilities of such ordinance can be imagined.

We do not feel that what is happening in Cincinnati is an isolated case. It can, and probably will, appear in the same form in every city. Radio, for the most part, has enjoyed an immunity to tampering legislation. However such an immunity carries with it no guarantee of future invulnerability. Sane laws are, and will in the future, be needed to insure everyone the maximum of enjoyment from their radio set, but no law should be permitted enactment unless it be under the careful and vigilant eye of public consideration.

Five Days Weekly of Radio School for WLW

FIVE REGULAR SCHOOL HOURS EVERY week with a curriculum planned and presented by the state boards of education in Ohio, Indiana, and Kentucky are promised by the Crosley radio station, WLW, in the Central States School of the Air it will broadcast every school day from 2:00 to 3:00 P. M. beginning on Monday, September 16.

MAXIMUM IS PLANNED

This is the minimum radio education to be transmitted by WLW. The maximum is not yet known, although Ford Billings, director of Crosley broadcasting, is making plans that probably will make it possible for the School of the Air to pick up additional programs at Chicago and New York.

This would permit an even wider choice of talent than that now available, and would make it possible to introduce to the radio-listening children, an even greater number of important living Americans, Billings said.

Last year, the state of Ohio, using WLW's 50,000 watt transmitter, pioneered in the field of consistent and regular public school education via the air. Its radio school master, B. H. Darrow, was the first director of broadcasting ever to be appointed by a state. The Ohio legislature expressed its faith in radio education by appropriating funds to pay for the first and second years of the state's participation.

This year, Darrow again heads the school. In addition, Roy P. Wisheart, director of education in Indiana, and Director W. O. Bell of Kentucky, are planning active participation for their states and are preparing material for some of the programs.

In addition to the broadcast by WLW and the programs that will emanate from the Crosley studios, the Central States School of the Air also will be transmitted by WEAQ, the Ohio State University station in Columbus, O., and by WFBM, Indianapolis. Both studios will be used by the School of the Air officials.

NEW COURSES ARRANGED

Courses of study for the Central States School of the Air, while not radically departing from those established last year, offer several new ideas in education by radio.

Harrison Sayre, editor of Current Events and other school publications, again will have charge of the current events period on Monday. With the idea that "the roots of the present lie deep in the past," Sayre will interest himself particularly in pointing out historical backgrounds in their relation to present events.

Gwendolyn Jenkins, director of radio drama for Ohio State University and for the School of the Air, will present university dramatic students in History Dramalogues on Monday that will give a chronological picture of important historical events. Again Alma Ruhmschussel, director of Physical Education in Dayton, O., will conduct the story games and rhythmic on Monday.

NATURE STUDIES INCLUDED

Tuesday's program is to bring three new features before the WLW school audience. Dean Alfred Vivian of Ohio State university; L. L. Rummel, associate editor of the Ohio Farmer; and Ray Fife, director of Smith-Hughes work in Ohio, will conduct the course known as "Out at Old Aunt Mary's." Cross country trips with Uncle John, and adventures of discovery in Aunt Mary's garden will be replete with the facts of Nature Lore that would be taught in such a class in ordinary school.

Dean William A. McPherson and Dr. William Evans of the Ohio State university will direct the course in Chemistry that will alternate with French. Their aim will be to give, from their own thorough knowledge of the science, the supplementary instruction that will be of greatest value to young students of the subject. In the French lessons, emphasis will be on pronunciation and significant points of grammar.

LEADERS WILL APPEAR

The Physics Course, similar to the Chemistry lessons, will originate at the University of Indiana. In both science courses, it is planned to introduce leaders in the fields so that the pupils may hear the writers of their text-books, and the scientists most widely quoted.

Alternating with the Physics lessons, a period devoted to health talks will stress preventive measures to help the school children correct faulty diet, and to impress upon them the importance of sleep and exercise. The Indiana State Department of Education plans to offer this course with the help of prominent Indiana doctors and surgeons.

Literature will be reviewed in story and drama as the completion of the Wednesday program. On Friday, Stuart Walker, producer and playwright, and the Schuster-Martin dramatic school, will broadcast a variety of dramas including portions of Shakespeare.

Dr. W. R. McConnel, head of the Geography department of Miami University, will continue the World Tour series he gave last year for the Ohio School of the Air, in Thursday lessons for upper grades. For the lower grades he will take a radio tour of the geography of Ohio, Indiana, and Kentucky, and then will tour America.

To supplement the radio lessons, the three departments of education will supply teachers everywhere with outlines of all lessons so that the salient points of the broadcast may be brought out in classroom discussions. The School of the Air will be limited to courses that cannot be given by individual schools and to those a specialist can teach better than the teacher whose attention is spread to many subjects.

During the month of September the Crosley outlay for national advertising in the dominant national, women's, agricultural magazines and trade papers is \$50,000.



WHILE WORKMEN ARE pouring concrete on the top floor of our new building and while they are hammering on the roof, approximately five hundred people are working on the lower four floors making radio sets. As soon as a floor is finished, tables are put up and the assembly begins. Every day shows added expansion as we are gradually spreading out over the new space. I wish every one of you could see how things are humming here at the factory, for it is a picture of tremendous activity that I am sure would fill you with enthusiasm.

The radio season is beginning to get into full swing and we are prepared to ship merchandise to you in large quantities. As you know the Crosley line for 1929-1930 is meeting with unusual consumer acceptance, and you want to be prepared to do your share of business this fall. Whether your customer demands an electric set, using either regular tubes or the screen grid tubes, or a battery set, in table models or cabinets, you can satisfy him with a Crosley model. Do not overlook the fact that our line represents the very latest improvement in all types of radio sets. Be sure to have a complete stock and anticipate your requirements as much as you can so that your distributor may place his order with the factory immediately.

Our business is growing just as fast as our building will permit, and we want you to know how rapidly things are moving so that you can set your pace with ours.

Powell Crosley Jr.

The
CROSLLEY
BANDBOX



NOW
\$20.00
NET

(Without Accessories)

ONLY A LIMITED number of these popular battery receivers are now available—therefore, it is urged that you place your order immediately.

REMEMBER: Authorized Crosley Dealers only may purchase these receivers at this price.

Orders are limited to 15 sets. This is to prevent dumping of these excellent receivers in any one market.

Only Cash, Postal Money Order, or Certified Check, to the extent of at least 25% of the order will be accepted with orders.

Cut out the coupon below and mail. It constitutes an order for any number of Bandboxes up to 15 that you will require.

Date..... '29

The Crosley Radio Corporation,
Colerain and Sassafras,
Cincinnati, Ohio.

Gentlemen:

Please ship me at once Crosley Bandboxes. I am enclosing (Postal Money Order, Certified Check, Cash) to the extent of% of order; balance C. O. D.

Name

Address

Crosley
Table Model Receivers
Special Merchandising Values
to The Dealer



The Crosley 31, shown in an attractive setting, being utilized as an end table and radio combined. Featuring this handsome receiver at the remarkably low price of \$55.00 without tubes, or accessories, should produce results. For instance, use a home setting as a window background and the Crosley 31 or 41 as an end table—then mount the broadside which features 31 and 41 on a decorative card and place this in the window together with appropriate cards announcing price, free trial, etc.

THE POPULARITY OF OUR TABLE models has undoubtedly exceeded the expectations of a good many of our dealers. The hundreds of thousands of Crosley table models in the homes of set users represent a popular background that undoubtedly carries over into this season. No one who is thinking straight could honestly say that this demand will be chopped off over night. There are countless thousands of prospective customers who for various reasons are not going to buy furniture in order to get a radio.

There are thousands of young men and women living in rented rooms who require compact sets which are portable and can be moved easily. There are any number of places where the larger models can not be used conveniently. Think of a night table right beside the bed with a lamp on it where one may relax and listen to the wonders of radio!

People rarely build a single garage today. Think of the small amount of investment necessary to have two radios, as compared with two automobiles. The table models are ideal for this extra set.

Recently when calling upon one of our dealers to determine why he was selling so many Crosley table models, here was the picture—a very artistic, exclusive radio store—not overdone—but with an air of refinement and quality from the one inch carpet to the top of the ceiling. There were thirty-five

models on the floor ranging in price from \$125.00 to \$375.00. In the back of the store, with an alcove effect, was a lounging room, or demonstrating place, furnished to represent a well planned living room. Here was where the prospect heard the soft, modulated tones of the better instruments. Get the picture?

Now, let's step outside for a minute and look at the window. What do we find? A well decorated window with merchandising ideas and a spot on one set. The price, prominently displayed on this table model set was \$55.00. When this live, wide-awake merchant was asked the reason, he simply smiled, as much as to say, "If you know the radio business, you know my reason." As a matter of fact his reason was the very same recently put into our broadside "Found in a Pocketbook." He was appealing to the eight pocketbooks instead of one.

The interesting part of it was that this dealer was selling a number of table models as extra sets, and he very emphatically stated that under no condition would he think of operating his beautiful store without having a low price table model Crosley radio in the window.

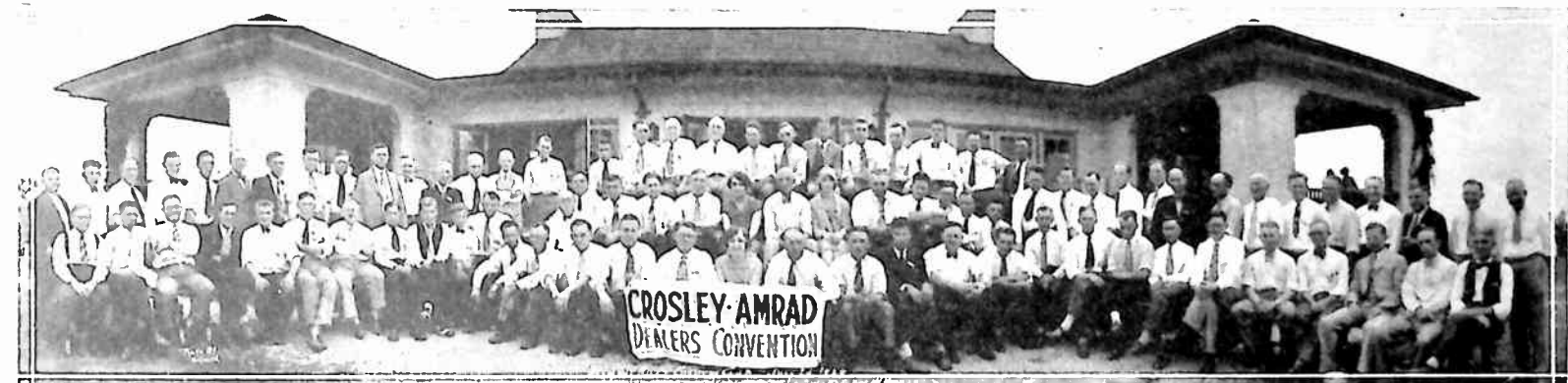
Have one or more table model receivers in your store at all times. The advertising which we are sending out paves the way for your own efforts.

NEAL E. NEWMAN,
General Sales Manager.

CROSLLEY
DISTRIBUTORS

Ott-Heiskell Company Entertains Annual Radio Dealers' Meet

Tri-State Distributors Participate in All-Day Program



A SERVICE SCHOOL, DISPLAY OF MODELS and banquet were features of the program of the annual convention of Crosley-Amrad radio dealers from 29 counties of West Virginia, eastern Ohio and western Pennsylvania entertained by the Ott-Heiskell company. W. F. Kennedy president of the Wheeling firm, was in general charge of the event.

A service school held in the Ott-Heiskell plant opened the convention. Later the en-

tire assemblage was transported by bus to the Belmont Hills Country club where a display of new model receiving sets, cabinets and radio accessories was arranged.

Speakers at the afternoon session included John Dalton, eastern district general sales manager of the Crosley Radio Corporation; R. M. Lowrie, of Boston, Mass., general sales manager of the Amrad Corporation; H. Clifford

Wood, Jr., sales promotion and publicity manager of the Amrad Corporation, and G. J. McCollister, finance expert connected with the Commercial Credit Company of Baltimore, Md. Other visiting executives also made brief addresses.

The convention banquet was served at the Belmont Hills Country club at 5 o'clock, the dealers returning to Wheeling at 6:30 to attend a theater performance.

Kansas Dealers
Brave Floods

Radio Corporation Dealer
Meeting Draws Three Score

DESPITE THE EXTREME INCLEMENCY of a Kansas rainstorm that turned many roads into canals, 60 dealers attended the meeting of The Radio Corporation of Kansas, Crosley distributor in Wichita.

W. E. Titus, President, clad in oilskins and sou'wester, directed the meeting from the top deck, and welcomed the hardy mariners who had ventured forth. C. H. Carey, after a greeting to the dealers in the name of Crosley Radio Corporation, gave a short history of the radio industry in general and The Crosley Radio Corporation in particular.

The cabinet lines of Showers Brothers, and the Memphis Furniture Company were displayed, after which luncheon was served.

By the time that the afternoon session began more than a score of dealers who had been delayed by monsoons, propeller trouble, and other nautical misadventures, arrived to swell the audience.

Merchandising and sales promotion were

discussed by C. H. Carey, and an explanation of the screen grid tube and its importance in the Crosley line was given. The Crosley line was presented by W. H. Baldwin, Crosley representative.

C. B. Titus, of Radio Corporation, discussed the sliding discount plan after which C. H. Carey presented the Crosley advertising program. W. H. Baldwin outlined the merchandising helps plan.

The new Bel Canto series was presented by R. J. Hug, Amrad representative. Mr Naylor of the Arcturus Tube Company discussed radio tubes.

A great deal of publicity in connection with the meeting was secured through the co-operation of the local papers and on the whole the meeting was eminently successful. A parade of busses placarded with Crosley signs rolled through the streets of Wichita toward the picnic grounds where a barbecue dinner was served. Entertainment in the form of a series of boxing matches and a dance closed the convention.

A feature of the Harper-Meggee dealer meeting in Seattle was the publication of a special "Crosley-Amrad" extra by the Seattle Post Intelligencer. The entire front page was devoted to Crosley and Amrad news, the balance of the paper containing the usual news of the day. Only those who attended the convention received the specials.

John Ervin White is Announc-
ed Winner of Kruse Radio,
Inc., Essay Contest

THE JUDGES IN THE RADIO CONTEST conducted by the Kruse Radio, Inc., have announced their decision. Winner of the contest is John Ervin White of Indianapolis, Indiana.

The interest manifested in the contest was beyond all expectations, and it was no easy task for the judges.

The prize offered in the city wide contest was the Crosley 41-S receiver recently shipped by airplane from Cincinnati to Indianapolis in the "Big News By Airplane" campaign. The subject of the essays was "The Significance of Nation-wide Delivery of Crosley Radio Receivers by Commercial Aviation."

Mr. White, in the last paragraph of his essay which won him the Crosley 41-S receiver, concludes:

"The modern business world we live in was created by transportation. Because we can move quickly and cheaply, we are different from all generations that have gone before, therefore, it behooves a fast growing and national organization such as the radio industry to accept these facts and adopt this most suitable and profitable method of distribution in the present air transportation age."

New Amrad Broadside

THE AMRAD CORPORATION HAS ISSUED a very striking broadside featuring Amrad expansion. Three colors are used, orange, light blue, and black. The three Amrad plants, and the four beautiful models in the Bel Canto Series are displayed prominently.

The purchase of a modern, fireproof, brick-concrete structure has tripled Amrad production facilities. It is significant to note, in passing, that this expansion is not built upon projected sales—but on orders for immediate shipment.

The broadside may be used inside the store, or in the window when featuring the Bel Canto Series.

Amrad Performance

A GREAT TEST OF AMRAD RECEPTION was made recently in the heart of downtown San Francisco, where an Amrad was set up within one block of KPO, three blocks of KFRC and one block from a power house.

The following stations were received on only seven and one-half feet of aerial wire which is contained in every Amrad cabinet, and no ground: KOMO, KJR, KGW, KSL, KDYL, KOA, KFI, KNX, KFVB, KHS, KOB.

These were received clearly with the usual Amrad wonderful tone and no background noises or stop-overs. The three screen grids do it!

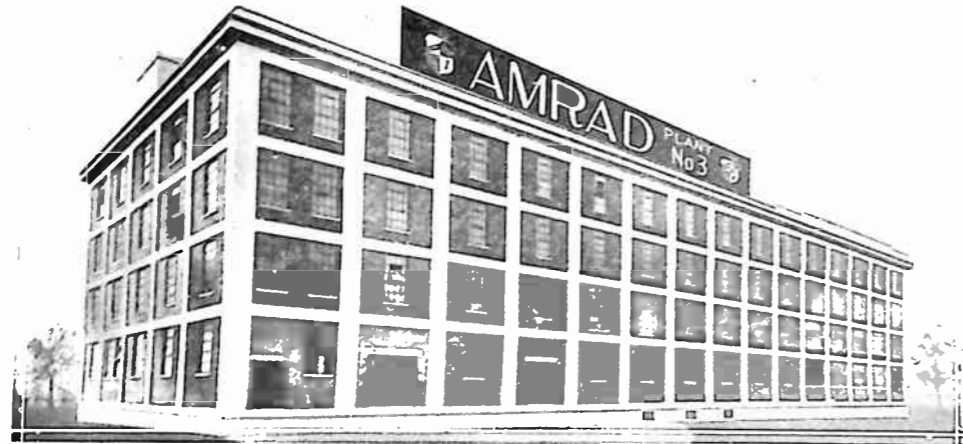
Dillon Appointed Assistant General Manager Of Amrad



HARRY J. DILLON, FORMERLY PRODUCTION Manager of the Amrad Corporation of Medford Hillside, Massachusetts, was recently appointed Assistant General Manager of the Amrad plants by Major James E. Hahn, President.

Dillon's elevation is no surprise to his associates. His qualifications eminently fit him for his new duties.

Amrad Radio Corp. Acquires Third Plant



TO MEET THE DEMANDS OF A TREBLY increased business, the Amrad Corporation of Medford Hillside, Mass., has acquired a large factory in North Somerville, on the Mystic Valley parkway, a few hundred yards distant from its present central plant. The Amrad Corporation now has three factories working at top speed.

The new factory is advantageously located, and offers 140,000 feet of floor space for the use of Amrad's production department. It

adjoins railroad sidings which accommodate twenty freight cars. The chassis of the Amrad radio receivers will be turned out in the central plant, and then transferred to the new factory to be assembled with speakers into the consoles.

This is Amrad's second expansion within a year. One year ago the company acquired a factory near Davis Square, Somerville, to be used for the manufacture of Mershon Condensers.

Arizona Dealers 100% In Placing Orders

THE ARIZONA HARDWARE SUPPLY Company, Crosley distributor in Phoenix, Arizona, held its annual convention at the Hotel Westward Ho. That the new Crosley and Amrad merchandise was enthusiastically accepted by all of those present was evidenced by the orders placed. Every dealer present bought merchandise! 100%!

Twenty-six dealers and their representatives attended the merchandise display and the banquet at which short talks were given. W. N. Miller, Crosley representative, discussed radio merchandise and merchandising. L. D. DeMund of the Arizona Hardware Supply Company talked at length on the subject of training retail salesmen. Robert Hall of the Arizona Republican delivered an interesting lecture on advertising. Financing and the Commercial Credit Company plan was thoroughly covered by C. W. Long of Miami, Arizona. "The Specialist", that inimitable account of the problems of an architect in a younger and harder day written by Chic Sale was read by G. J. Aubineau. The thunder of dealer laughter still echoes in the halls of the Westward Ho!

All dealers not present received a detailed account of the meeting, and descriptive material of Amrad and Crosley merchandise was included. An open invitation was extended to non-attending dealers to visit the show rooms of Arizona Hardware, and inspect the receivers on display.

Warning dealers that a possible shortage of merchandise might occur this fall because of the thousands of orders now in the factory, Arizona Hardware suggested that they place orders early.

Special Radio Sections Valuable

Tower-Binford Gets Results From Cooperative Newspaper Advertising

IT IS DIFFICULT TO DETERMINE EXACTLY the part that any type of advertising plays in merchandising a product. However, E. M. Burns, Crosley representative, offers proof of the value of special radio sections in leading newspapers. He writes:

"I do not know just what the results have been from sections run in other parts of the country.

"In Richmond last February, we ran a Crosley Section. This was in the News-Leader on the twenty-second. That came at a time when the radio season is supposed to be over in this part of the country.

"The thirty days following this section turned out to be the largest thirty days Tower-Binford ever had in the radio business!

"Such results, coming at a time of the year when radio business is supposed to be dull, should be conclusive proof of the value of such sections."

As a consequence of these results, Tower-Binford is planning another Radio Section which will be published soon. Should this section prove as effective as the last the Broadcaster would be interested in hearing the results.

Tenk Hardware Dealer Meeting



ONE HUNDRED DEALERS FROM IOWA, Missouri, and Illinois territory attended the Tenk Hardware dealer meeting at Quincy, Illinois.

Mr. Rudolph Tenk, President of the Tenk Hardware Co., opened the meeting with an address of welcome to the dealers. Representatives from the following factories made talks on their merchandise and the selling policies of these products: Cunningham Tubes, Eveready Batteries, National Carbon Co.

Mr. Hug of the Amrad Corporation exhibited and explained the new Amrad line of receivers, and touched on the merchandising policies for the year. He spoke of the national advertising campaign that was drawn up to help dealers put over the line successfully.

Bill Sayre, Crosley representative, spoke to the dealers regarding Crosley policies with the distributor and dealer. Sayre told of the great progress that the Crosley Radio Corporation had made and explained to the deal-

ers the advantage of handling merchandise manufactured by a reputable house. He discussed Crosley national advertising; its aim to create consumer demand, and the help it offered Crosley dealers.

Howard Souther, Crosley representative, announced the new Crosley line going into detail on each of the receivers. Later in the day he explained the Icyball and told of the possibilities for its sale in rural communities and remote places.

Several prospective dealers were invited to attend the meeting and were signed up to handle Crosley products before they left.

Practically all of Tenk's Crosley stock was sold, and it is certain that there will be a great deal heard about Crosley from the Tenk towns.

The meeting was concluded with an elaborate luncheon at the Elk's club. Crosley songs were sung and a general spirit of good will was apparent in Tenk's successful meeting.

The Ahrens Supply Co. Is Host To Oklahoma Dealers

THE AHRENS SUPPLY CO., STATE DISTRIBUTORS of Crosley Radio, held their annual Crosley dealer meeting at the Huckins hotel in Oklahoma City. Over 200 radio dealers from all over the state attended this live meeting. Many business problems were tackled and solved during the day at the red hot meeting in the big room of the hotel. A beautiful display of the latest models in Crosley radio were shown and demonstrated. During the evening all dealers were feted at a dinner banquet given by the Ahrens Supply Co. and entertained by a program of dancing and singing sketches given by the Katherine Duffy School of the Dance.

Governor Holloway gave the address of welcome at the opening morning meeting. This was followed by a presentation of the new Crosley models before a beautiful setting. The new models were introduced to the strains of music accompanied by a clever balloon dance by students of the Katherine Duffy School of the Dance. This was followed immediately by a thorough explanation of the merits of the Crosley line and its possibilities, by members of the Ahrens and Crosley staff.

At noon a cold luncheon was served in the dungeon of the Huckins hotel and the program was resumed at 1:30 in the afternoon.

A program of the Crosley advertising and dealer helps was carefully outlined by factory representatives and officials of the Ahrens Supply Co. Shortly after the new Amrad models were presented, and talks by representatives of various radio accessory manufacturers were given throughout the afternoon. The meeting was adjourned at 4 p. m. until 6 p. m., at which time a dinner banquet was held in the Colonial room of the Huckins hotel. After the entertainment of the evening, several surprise announcements were made. The curtain rung down the most successful Crosley dealers meeting ever held, after an inspirational talk and closing address by Mr. Albert Ahrens, president of the Ahrens Supply Co.

According to the Department of Commerce, fully 75% of the radio sets and equipment used the world over are supplied by American manufacturers. Exports are constantly on the increase through tremendous demands from every corner of the globe.

Osculation In Oklahoma Out Of Order



WHAT TURNED OUT TO BE A SERIOUS error, causing humiliation and chagrin to W. H. Baldwin, Crosley Representative, while attending the Crosley dealers' banquet Monday evening at the Huckins Hotel in Oklahoma City, will never happen again, according to an interview with the manager of the hostelry.

A waitress, whose name could not be learned, it is reported on good authority, was passing through the Colonial room of the Huckins on her way to the kitchen with a tray heaped with silverware. Out of the corner of her eye she spied a familiar face at the speakers table.

In her haste to greet her supposed friend, and without the usual decorum resorted to in matters of this kind, the young lady rushed to Senor Baldwin, dropped the tray of silver with a crash, threw her arms about the neck of the speaker of the evening and placed a resounding smack upon his brow.

Almost immediately thereafter, she looked again, turned a subdued carmine and screamed her pardons. "It must have been two other fellas," she was heard to murmur as she was dragged out of the room by her crowning glory.

The officials of the hotel and the Ahrens Supply Company have asked that a public apology to Mr. Baldwin for this most embarrassing and humiliating situation be printed.

In an interview with the manager of the hotel it was learned that the waitress was immediately discharged from the hotel's employ and is now enroute to her home town.

Ahrens "Extra" Features Crosley-Amrad Meeting

THE AHRENS SUPPLY COMPANY, Crosley distributor in Oklahoma City, broke into the headlines of The Oklahomo News during their convention in Oklahoma City recently.

The Oklahoma News published an "Extra" edition featuring Crosley and Amrad. This special edition was given out at the convention banquet in the Huckins Hotel and consisted of four pages featuring Crosley Amrad affairs locally and nationally, the bulk of the paper consisting of the news for the day.

Crosley dealers and representatives got a big kick out of crashing the front page of the metropolitan sheet.

Where Millions Will Read About The New Crosley Models In September

GENERAL MAGAZINES

CIRCULATION

SATURDAY EVENING POST	2,900,000
COLLIER'S	2,000,000
LIBERTY	2,000,000

WOMEN'S MAGAZINES

LADIES' HOME JOURNAL	2,500,000
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FARM AND SMALL COMMUNITY PUBLICATIONS

COUNTRY GENTLEMAN	1,600,000
FARM AND FIRESIDE	1,300,000
FARM JOURNAL	1,350,000
SUCCESSFUL FARMING	1,000,000
CHRISTIAN HERALD	210,000
TOTAL	14,860,000

This represents approximately a coverage of 50% of the homes in the U. S.

TRADE PAPER ADVERTISING

CROSLEY ADVERTISEMENTS WILL APPEAR in the following in September: Retail Furniture Selling, American Exporter; Trade Journal and Motor Age; Electrical Merchandising; Furniture Record; Good Hardware; Radio Retailer Jobber; Radio Retailing; Talking Machine & Radio Journal; Talking Ma-

chine & Radio Weekly; Talking Machine World & Radio Music Merchandising; Radio. This represents a tremendous trade coverage.

It is easy to see how prospects are being created for you every day by this strengthening of the position of Crosley products in the world of merchandising.

Are you prepared to cash in on this gigantic campaign by tying in locally? Special newspaper advertising is at your disposal—advertisements that have been prepared with the most painstaking care for your exclusive use.

GET IN TOUCH WITH YOUR DISTRIBUTOR

CROSLEY DEALERS

Crosley Radio? Vellee Fine Vellee Lowest Prices!

CROSLEY RADIO



美國歌是利廠新式
401及601號無線電收音機
此種無線電收音機使用便利收音靈敏裝有真空管五只及六只定價極廉在裝設最簡實為家庭中之無上娛樂品
所有機件裝在一金屬底盤上可自箱取出箱頂之蓋揭開即可修理美觀耐用蓋底盤之地方用401及601號機最為適宜
此外天地線電池線以至收音機之接頭均備在箱內以求整齊美觀收音時調度電流遠近俱備一單為機件音高底及電流為開各另有設備管理
總代理 華美洋行
地址 上海南京路四十七號

THIS IS THE TYPE OF MAILING PIECE that the Asiatic American Company, Crosley distributor in Hongkong, China, uses to drum up trade among the followers of Confucius.

We wonder how the Crosley Bandbox, featured here, would look among the jade and ebony and Ming ware of a mandarin's palace.

Chinese printing reads from right to left and from top to bottom. You start at the extreme right and read down. Each symbol stands for a word.

Complete Service Form

PREST ELECTRIC CO. [Radio Prospect]
San Bernardino, Calif.

Name _____ Date _____
Address _____ Phone _____
Antenna _____ Have a set _____
Make _____ Expect to trade in _____ Price _____
Trying set now _____ Make _____
Other sets tried _____
Why did not buy _____
Will make allowances for interferences, fading, etc. _____
Expect to receive distant stations _____
Cash or time _____
Salesman _____

THIS SERVICE FORM HAS BEEN USED very successfully by The Radio Store, Crosley dealer in Pasadena, California. Robert C. Bradshaw, owner, states that this order enables him to keep a complete and absolute check on every receiver brought to his shops for servicing.

Important Notice

A recent increase in the price of certain types of motors makes it necessary for increase in price on certain types of the Crosley Autogym, Electric Vibrator, on special order.

The Crosley Autogym utilizing 110 and 220 volt, 25 cycle, A. C. motor is \$5.00 extra. In other words price of this type is \$60 without pedestal.

The Crosley Autogym utilizing, 32, 110 or 220 D. C. equipment is \$15.00 extra. Thus, the price of the Crosley Autogym equipped to operate from D. C. is \$70 without pedestal.

Interesting Icyball Letter

La Belle Radio Shop

LA BELLE, FLORIDA
AUTHORIZED DEALERS FOR
Crosley Radios, Icyball Refrigerators and R. C. A. Radios

WE announce the Crosley Icyball Refrigerator as the greatest invention for providing refrigeration without the use of gas or electricity.

You can be sure of reliable refrigeration for home needs any time anywhere.

The Crosley Icyball Refrigerator combines the Crosley Icyball refrigerating unit with an attractive refrigerator cabinet.

The first cost of this outfit is very reasonable and the operating cost averages but two cents per day.

The Crosley Icyball unit provides daily refrigeration equal to that of thirty-five pounds of ice.

Crosley Icyball refrigerating units in combination with specially insulated cabinets of attractive design form the Crosley Icyball Refrigerator line produced by the Refrigerating Division of The Crosley Radio Corporation, Cincinnati. The Crosley Icyball units keep the contents of the refrigerator cabinets cold preventing the formation of dangerous bacteria, preserving the health of babies and children as well as grown-ups.

THE CROSLEY ICYBALL REFRIGERATORS ARE MADE IN FIVE DESIGNS AND SIZES.

UPON YOUR REQUEST WE WILL BE GLAD TO DEMONSTRATE ONE OF THESE REFRIGERATORS OR RADIOS IN YOUR OWN HOME.

IN OUR HOME IN NORTH LA BELLE HEIGHTS, WE HAVE A COMPLETE DISPLAY OF REFRIGERATORS AND RADIOS IN OPERATION, AND WE WOULD BE VERY MUCH PLEASED TO HAVE YOU CALL ANY TIME FOR INSPECTION.

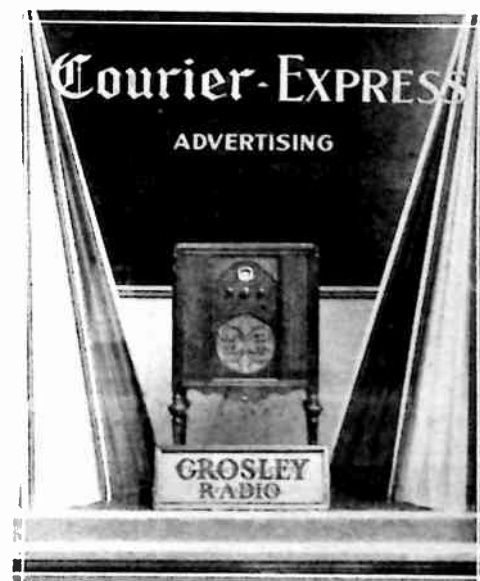
IF YOU ARE INTERESTED (WHICH NO DOUBT YOU ARE) KINDLY GIVE US A CALL OR SEND US A CARD, AND WE WILL CALL.

Over THEATER LA BELLE RADIO SHOP

FROM ALL REPORTS, FLORIDA IS A territory ideally suitable for refrigerator sales. That the Crosley Icyball is being pushed in La Belle, Florida, is attested by this interesting and well planned circular letter sent out by the LaBelle Radio Shop, Crosley Dealer. The illustration, originally designed at the Crosley offices for newspaper advertising, is ideally suited for this type of mailing piece. The letter, which stimulates curiosity, is carefully written, and should attract more than adequate response.

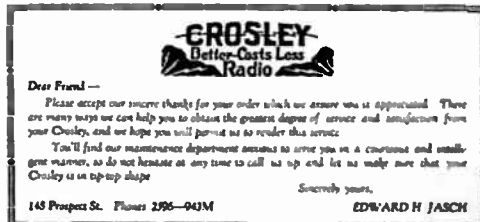
Newspaper Features

Crosley Receiver in Display Window



THIS CROSLEY WINDOW APPEARED IN one of the windows of the Buffalo Courier-Express for an entire week. An exceedingly advantageous position, it attracted the attention of passersby by its singular simplicity and dignity.

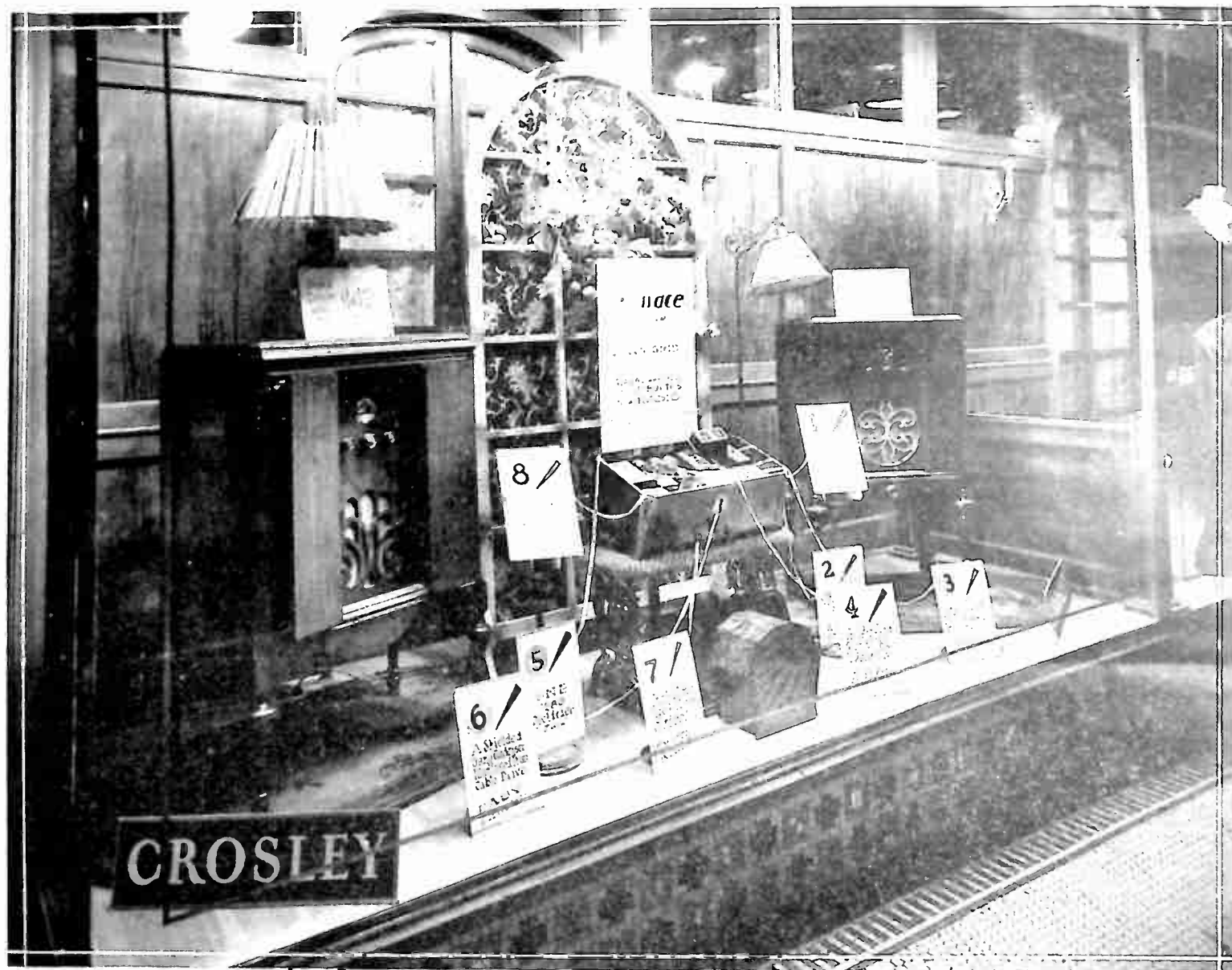
Connecticut Dealer Employs Thank You Card



EDWARD H. JASCH, AUTHORIZED Crosley dealer in Torrington, Connecticut, employs the thank you card pictured above to promote and retain good will. He asserts that it has been very helpful to him in his promotion of Crosley products.

In a recent communication Mr. Jasch expresses considerable satisfaction in the performance of the Crosley Unitrad. He states that "on five occasions already I have come through with flying colors with Crosley. The new Crosley Screen Grid set surpasses anything any dealer hereabouts has in competition tests."

A Timely And Effective Window



ELSEWHERE in this issue, window display and national advertising tie-up have been stressed. This window of the Harris Goar Co., Crosley dealer in Wichita, Kansas, is a splendid example of a carefully planned and especially timely display.

The window ties in effectively with the national advertising campaign on the Crosley Unitrad, the Screen Grid receiving unit. The cards, emphasizing the Unitrad features, show careful planning both in copy and execution.

This window shows the result of considerable thought and artistic handling. It should sell goods.

The Crosley Broadcaster Each Month Will Feature On This Page
The Best Window Submitted By Crosley Dealers

Crosley Dealer Wins First Place In Fourth of July Celebration



A BIG EVENT IN HENNING, MINNESOTA, is the annual Fourth of July parade in which the business men of the community enter elaborate floats in competition for a substantial cash prize. The Fourth of July celebration is largely attended by all of the neighboring gentlemen of the soil for miles around. Several thousand people were on hand to witness the parade.

The first prize was awarded to J. D. Lifquist, authorized Crosley dealer in Henning. His entry, one of forty floats in the business men's parade is shown above. The Crosley entry was adjudged first for "beauty and attractiveness."

The superstructure of the float is topped with a Crosley Big News sign and a four strand aerial. The body of the car, covered with white muslin is crisscrossed with canary yellow and white festoons held in place at each intersection by dark yellow daisies.

The color combination was admittedly beautiful, and the photograph does not do justice to it. Flags were arranged fan wise in front and back of the float, and "Uncle Sam" was the chauffeur.

The interior of the car was decorated in canary yellow. A phonograph and a choice selection of records were in the back seat and a microphone was hooked up to a loud speaker. J. D. Lifquist was thus able to switch from mike to phonograph and the listeners supposed that they were hearing WLW.

Immediately after the celebration Mr. Lifquist displayed the new Crosley Unitrad and other models at his place of business. Early sales by Lifquist have frozen the talk of "other radios" by prospective customers in Henning. The Crosley float has already paid for itself in the form of prize money and Crosley sales. According to Lifquist his wife designed the float and received the prize money.

Crosley Display At Broom County Fair



THIS ATTRACTIVE AND COMPREHENSIVE display featured the new Crosley line of radio receivers, and the Crosley Icyball, at the Broom County Fair, N. Y. The display was designed and conducted by William E. Bull, au-

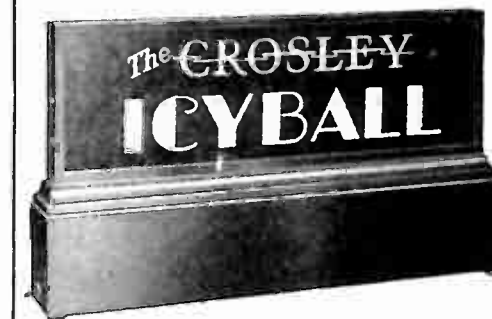
thorized Crosley dealer in Whitney Point.

Mr. Bull reports that a great deal of interest was directed toward the display and that the Crosley 31 displayed was the object of considerable favorable comment.

Window and Hanging NEON Signs

\$39

(f. o. b. Springfield)



Window Sign No. 29-9
Size 7 1/4" x 16 1/2"

IN THE two models shown the neon tubes are arranged in a horizontal bank or grid in front of which is fitted a plate glass or front. The tubes are straight 24" lengths, 12 tubes to a sign, and are available in three colors, red, blue and green, of which you may choose any one or three. A startling and most pleasing effect is obtained in this sign, the outstanding feature of which is the manner of illumination

Instead of forming the letters with bent neon tubes, the tubes are arranged in a horizontal bank which provides sheet illumination, even and constant. These tubes are so well protected that breakage is rare. The tubes are fitted at each end into special spring clips which hold the tubes securely at all times though enabling you to take them out or put them in easily. Price \$39.00 F. O. B. Springfield, O. Communicate with your distributor for full details.



Hanging Sign No. 29-8
Size 28 1/2" x 10"

Order from Your Distributor

Selling Radio By The Hour

IN EVERY COMMUNITY — IN YOUR community — there are a great many people who would like to own a good new Crosley, but they haven't the money and they don't know how to get it. The CROSLLEY COIN CLOCK SAVINGS CLUB campaign is a plan that will enable these people who "haven't got the money" to get it painlessly.

The plan is merely a variation of the tried and proven "weekly payment plan" but in this case you get most of the money before and not after you make delivery of the CROSLLEY.

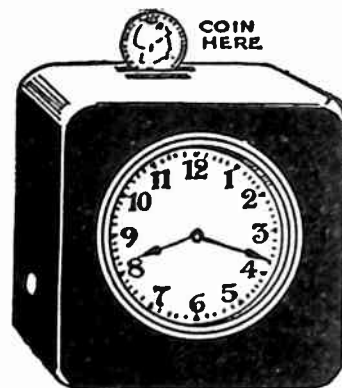
Of course, in order to accomplish this, you must offer the customer an inducement. The inducement is the CROSLLEY COIN CONTROLLED CLOCK which enables your prospect to accumulate painlessly the purchase price.

Offer a CROSLLEY COIN CONTROLLED CLOCK free to all who are willing to enroll in the Crosley Coin Clock Savings Club. The clock is not presented to your customer until he has signed the enrollment blank and has paid the enrollment fee of \$5.00. The blank embodies an order for a Crosley and serves as a receipt for the clock and also for the \$5.00 enrollment fee which is a first payment against the purchase price. The blank also states that if the customer should fail to carry out the terms of the enrollment, you are authorized to apply the \$5.00 to cover the cost of the clock.

In other words, if no purchase results, you get \$5.00 for the clock, which you are at no time obligated to take back. It will act as an additional incentive to keep the customer saving.

This plan has been tremendously successful in keeping the purchaser saving. The whole family starts depositing coins in the clock to help accumulate the necessary amount.

The CROSLLEY COIN CONTROLLED CLOCK is a handsome desk or dresser clock in which it is necessary to deposit a nickel, dime or quarter every day to keep it running. Every twenty-four hours it must be rewound



THE CROSLLEY COIN CLOCK
($\frac{1}{4}$ Natural Size)
Finished in Mandarin Red

HOW THE CROSLLEY COIN CLOCK WILL BUILD YOUR SALES.

1. Creates general interest and curiosity.
2. Gives you several months start on your competitors.
3. Starts the prospect saving for a Crosley because you retain the key and a \$5.00 deposit.
4. Keeps you in close contact with the prospect while he is saving.
5. Helps the customer meet his deferred payments by winding the clock each day with small coins which will not be missed.
6. Obtains new prospects from friends of those who have a clock.
7. Offers the opportunity to sell higher grade sets to people of limited means.
8. Helps your solicitor in his cold canvass.
9. Puts a "kick" in your advertising and window display.
10. Starts people talking about the clock you are giving away.
11. Enables the customer to save for radio accessories when through paying for his Crosley.
12. Enables you to offer a clock to old customers for the name of friends who will buy Crosleys.
13. Can create prospects with small clubs, lodges, churches, societies, etc., by placing a clock with them and asking members to contribute towards the purchase price.
14. Makes the direct mail appeal more effective.
15. Lengthens the selling season by soliciting enrollments for delivery in the future, during the off season.

and every twenty-four hours it is necessary to deposit a coin. What a sure and simple way to accumulate the down payment on a CROSLLEY radio. The small outlay each day is never missed. In a short time rewinding the clock becomes a habit—a habit that will furnish the money for the down payment and all monthly installments.

The plan brings extra business—sales you would make in no other way.

Besides, the clock makes the plan dramatic. Chances are your prospect never saw anything like it before. It is distinctly good looking—different from all other clocks, in that it is necessary to deposit a coin every day to wind it. It really makes saving a game—the clock will excite curiosity, create interest, and close the sale.

Every Crosley Coin Clock is guaranteed for one year. Impress your customer that the Clock is not a toy, but a valuable clock, serviceable only if he keeps faith with his promise to "save a coin a day," and guaranteed to be in perfect operating condition. The company that manufactures these clocks will take care of any necessary repairs free for one year.

You, of course, retain the key to the customer's saving clock. Instruct him to bring it to the store at least once a month to be emptied, and the contents placed to the credit of his enrollment account. Delivery of the Crosley receiver can be made when the credits on the books equal the necessary down payment. The clock is then used for saving further monthly payments on the balance of the purchase price, which is handled on the usual deferred payment plan.

Your own records should contain many prospects. Then there are churches, clubs, lodges, and other organizations who would like to own a Crosley. The Crosley Coin Clock and a suitable sign could be placed in a prominent place in the church, club, or lodge room, and the members urged to contribute.

Your own ingenuity should suggest ways and means of interesting prospective customers in the plan. Feature it in your window display.

START YOUR CAMPAIGN NOW. THE CLOCKS WILL BE FURNISHED TO YOU IN ANY QUANTITY AND AT A PRICE ON WHICH YOU CAN MAKE A PROFIT. GET IN TOUCH WITH YOUR DISTRIBUTOR IMMEDIATELY FOR FURTHER INFORMATION.

Only Crosley Radio Dealers Will Be Privileged To Use This Patented Coin Clock!

CROSLLEY DEALERS' ADVANCED RADIO COURSE

This is the fourth lesson of an advanced course in radio published as a sequel to the "Crosley Dealer's Radio Course" which appeared in "The Crosley Broadcaster" some months ago. The advanced course will be completed in ten lessons.

LESSON IV Regeneration

Radio Tubes As Oscillators

In previous lessons we have discussed the operation of radio tubes as amplifiers and as detectors. In this lesson we shall consider the action of radio tubes as oscillators.

Regenerative Circuits

Perhaps the easiest way to understand what happens when a radio tube "oscillates" is to consider first what happens in a regenerative detector circuit.

There was a time when "regenerative" radio receivers were very popular—and there was good reason for their popularity. With a one tube regenerative receiver a skillful operator could pick up stations hundreds, even thousands of miles away. Remarkable sensitivity and amplification were obtained with a minimum number of tubes.

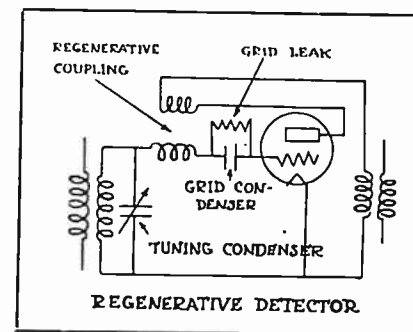


Fig. 1—Regenerative Radio Circuit

Now what is the secret of this remarkable amplification in a regenerative radio circuit? The answer is suggested by the name of the circuit. "Regeneration" implies re-amplification of the signal within the circuit. Roughly that is what happens. The output (plate circuit) of a radio tube is coupled in some way to the input (grid) circuit. By means of this coupling, energy is transferred from the plate circuit back into the grid circuit.

Suppose, for example, that an alternating current is applied to the grid circuit of the tube. Due to the amplification of the tube, the replica of this alternating current reproduced in the plate circuit will be much amplified. Now if the plate circuit is coupled to the grid circuit in such a way that part of the energy of the amplified alternating current will be transferred back into the grid circuit in phase with the applied alternating current, the effect will be to build up the alternating current in the grid circuit. This increased alternating current in the grid circuit will result in a still greater increase of alternating current in the plate circuit, since all grid circuit changes appear as amplified changes in the plate circuit. Thus the amplified signal is made to reinforce the applied signal, by coupling the output of the tube to its input, and the tube is made to do double duty as an amplifier. This is a rather crude explanation of regeneration, but it serves to illustrate the fundamental principles involved.

How a Tube Maintains Oscillations

In a regenerative circuit the plate circuit is so coupled to the grid circuit that the intensity of the applied signal is augmented by energy fed back from plate to grid. Now suppose the coupling between the plate and grid circuits is increased so that more and more energy is fed back into the grid circuit. Suppose further that an alternating current is being applied to the grid circuit. As the coupling is increased, a condition may eventually be reached in which the energy fed back into the grid circuit is as great as or greater than the alternating current applied to the grid itself. The applied current may then be stopped entirely, and alternating currents will continue to flow in the plate and grid circuits of the tubes, that in the grid circuit being maintained by feed back from the plate circuit, and that in the plate circuit being maintained by amplification through the tube.

Looking at it in another way—there are certain losses of energy in the grid circuit of the tube, due to resistance, etc. On account of these losses, if an alternating current is started in the grid circuit and the source of applied alternating e.m.f. is removed, the current will quickly stop flowing. If sufficient energy is supplied to the grid circuit to make up for these losses, however, the current will continue to flow indefinitely. That is just what happens in an oscillator circuit. Through the feed back coupling, more than enough energy is returned to the grid circuit to make up for losses of energy in the grid circuit. In this way a continual flow of alternating current is maintained in the grid circuit, and an amplified flow of alternating current is maintained in the plate circuit.

Limit to the Magnitude of Oscillations

What limits the magnitude of the oscillations? As more energy is fed back into the grid circuit this energy is reamplified by the tube, causing stronger oscillations in the plate circuit. Why does this building up not continue indefinitely, every increase in grid oscillations resulting in an amplified increase of plate oscillations, and vice versa, until oscillations of infinite magnitude are built up? The reason is this—in the case of regenerative circuits the amount of feed back is so controlled that the energy fed back is not quite sufficient to make up for losses in the grid circuit. Thus the tube will not maintain self-oscillation, but a signal must be continually applied to the grid circuit for current changes to appear in the plate circuit. The circuit losses being greater than the fed back energy, serve as a control in keeping down the magnitude of the amplified signal.

In the case of an oscillator circuit, the oscillations do build up in magnitude to a certain value, but this maximum value of magnitude is definitely limited by the characteristics of the tube. To understand this, refer to a characteristic curve for a radio tube, showing grid voltage plotted against plate current. You will see that within wide limits along the straighter portion of the curve the change of plate current for a given change of

grid potential is practically a constant. As the grid potential becomes so great or so small that the bends in the curve are reached, however, the change in plate current for a given change of plate potential becomes less and less. Following around the bend of the curve, points will be reached for which changes in grid potential cause no changes in plate current. These points limit the variations of grid potential which will be effective in causing plate current fluctuations. Grid voltage fluctuations greater than this will not result in increased plate current fluctuations. Thus the characteristics of the tube limit the magnitude of oscillation which may be maintained by it.

Uses of Oscillating Circuits

The fact that a radio tube will maintain oscillations in its circuits has been of untold value in many applications. For the generation of radio signals radio-frequency current alternations are required. Because of their efficiency and convenience, and because of the character of the radio frequency oscillations produced by them, oscillating radio tubes have come into widespread use for this purpose. As generators of high-frequency current for radio telephony and broadcasting they are universally used. In wireless telegraphy they are replacing other forms of equipment in many quarters.

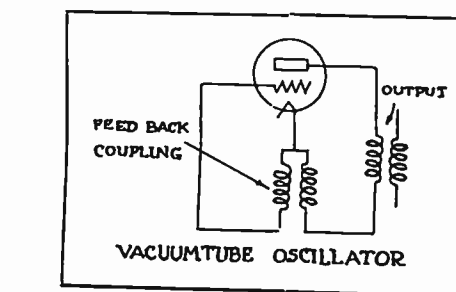


Fig. 2—Oscillator Circuit

Audio-frequency, oscillating, radio tube circuits find application in sound laboratories, transformer testing equipment, and elsewhere, wherever constant sources of easily-controllable audio-frequency currents are required.

Where the Energy Comes From

One point that may not be clear is this: where does the energy for maintaining the oscillations come from? It may seem that the oscillating tube is actually making energy. It is not making energy of course, but simply converting the energy of the direct current "B" supply into alternating current. The oscillating tube and its circuits is, thus, a converter, changing direct current into alternating current.

What controls the frequency of the oscillations? That depends upon the characteristics of the circuit. In the previous course we have seen how inductance and capacity combined in a circuit make that circuit most responsive to alternations of a certain definite frequency, the actual frequency depending upon the values of inductance and capacity. Now a radio tube oscillator circuit will oscillate at the frequency to which its circuits are most responsive—that

is at the frequency to which its circuits offer the least opposition. This frequency will be controlled by the values of inductance and capacity in the circuit. Thus if it is desired to adjust the oscillator so that it will oscillate at different frequencies all that is necessary is to put variable capacities, variable inductances, or both in the circuit, and adjust these to the desired frequency, just as in tuning a radio receiver.

Advantages of Regenerative Receivers

Regenerative receivers have certain marked advantages such as their remarkable sensitivity and amplification with comparatively few tubes. On the other hand they have certain disadvantages. A control is provided for adjusting the regenerative coupling, so that full advantage of regeneration may be taken without pushing the feed back so far as to cause the receiver to maintain self-oscillations. This adds one more control to those which must be adjusted in operating the receiver. Furthermore, it requires skillful handling of this regenerative control in order to get the best results from the receiver.

A disadvantage which has received some publicity is that a regenerative receiver of the single tube type, closely coupled to the antenna circuit, will act as a miniature broadcasting station if allowed to get into a state of self oscillations. Even a clever operator will occasionally allow his regenerative receiver to "spill over" and maintain oscillations, especially when tuning to weak signals. When this is done with a single-circuit receiver of the type

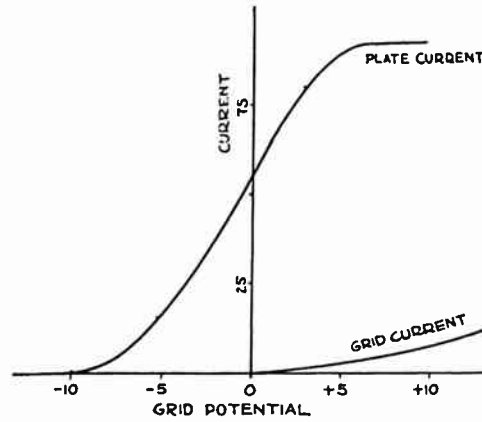


Fig. 3—Grid Voltage—Plate Current Characteristic Curve

described above the oscillations in the receiver are broadcast from the aerial circuit as a source of interference to radio listeners in the neighborhood. To overcome this nuisance of "radiating" receivers, manufacturers of regenerative receivers now provide one or more untuned stages of radio-frequency amplification between the regenerative stage and the antenna circuit in order to block the feeding back of oscillations from the regenerative stage to the antenna circuit.

Unwanted Oscillations

We have seen that the ability of radio tubes and their circuits to maintain self-oscillations

is very valuable in many applications. It can also be very troublesome. If, for example, the oscillations occur in the circuit of a receiver they will drown out the effect of the incoming signal and ruin reception.

At the time when receivers consisted of one or two stages—a detector and an audio-frequency amplifier perhaps—difficulty from oscillations was not experienced. As an increasing number of stages of amplification was added—especially of tuned radio-frequency amplification—it became more and more difficult to prevent the feeding back of sufficient energy among these stages to cause the maintenance of self-oscillations. Methods of preventing these oscillations have given rise to the so-called "balanced", "stabilized", and "neutralized" receivers. These various methods of balancing will be discussed in the following lesson.

Questions

Answer the following questions carefully. If you send your answers to the Editor, "Crosley Radio Broadcaster," you will be advised if your answers are correct or wherein they are wrong.

1. What causes a radio tube to oscillate?
2. Is some regeneration an advantage in the radio-frequency stages of an ordinary receiver?
3. What is the regenerative control usually called?
4. How can radiation be prevented in regenerative receivers?
5. Why are self-oscillations undesirable in radio receivers?

PAPER MACHE DISPLAYS

Put Human Interest In Your Windows

MAKE your windows attractive and interesting enough to bring people into your store. To help you do this the display department at the factory are working constantly. The four display figures pictured on this page are calculated to add that touch of human interest to your window which will take it out of the mediocre and give it novelty



The Dancing Couple—No. 29-1

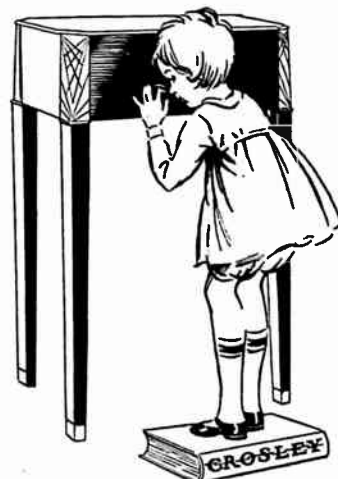


The Old Lady—No. 29-2



Getting A Few Pointers From the Big Leagues—No. 29-3

and distinction. These figures are life-like and are constructed of papier mache. They are hand-colored and are unusually attractive. Designed to attract the eye, they cannot fail to be a great source of interest. Get in touch with your distributor!



Baby Tunes In—No. 29-4