

PUBLISHED BY THE CROSLY RADIO CORPORATION, FORMERLY THE PRECISION EQUIPMENT COMPANY AND CROSLY MANUFACTURING COMPANY, Manufacturers of Radio Apparatus, Cincinnati, Ohio.

VOL. III, NO. XI. PRICE \$1.00 A YEAR MARCH 17, 1924

U. S. Is Responsible For Development of Radio, Lewis Says

"It Was Not Invented By Marconi, As Many People Believe," Crosley Engineer Tells Rotarians.

"Radio is a child without a father," George Lewis, assistant to Powel Crosley, Jr., President of The Crosley Radio Corporation, declared in an address delivered recently before the Rotary Club of Cincinnati. Mr. Lewis holds the first radio license issued by the Department of Commerce and is a graduate of the Naval Academy. He formerly was secretary of the National Radio Chamber of Commerce, and is well-known as an authority upon radio engineering. In his address, Mr. Lewis said:

"This new child of science, radio, is without a father. Radio was not invented by Marconi, as many people seem to think, but was developed in the United States, most of the experiments having been made in Washington," said Mr. Lewis. "No application of the electrical art has advanced so rapidly as radio. It was developed during the past fifty years and the experiments were made in England, Italy, Germany and of course, the United States. A host of engineers and physicists participated in this development but the real work of perfection, as we now know it, is due to the United States scientists.

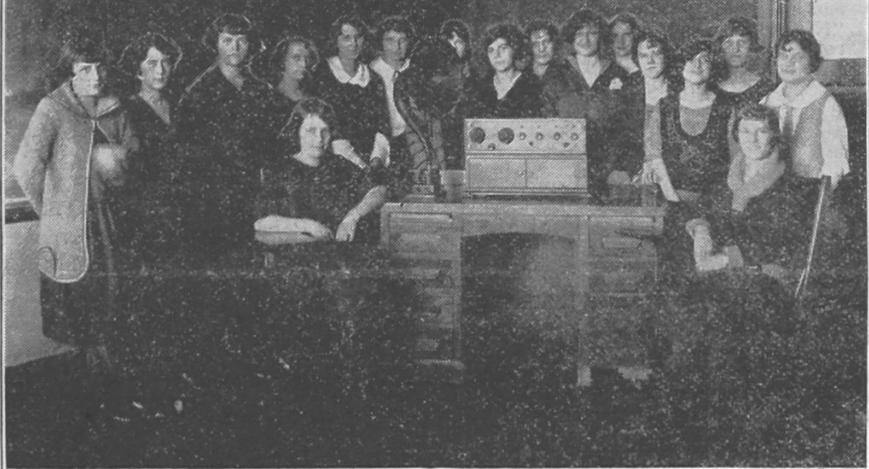
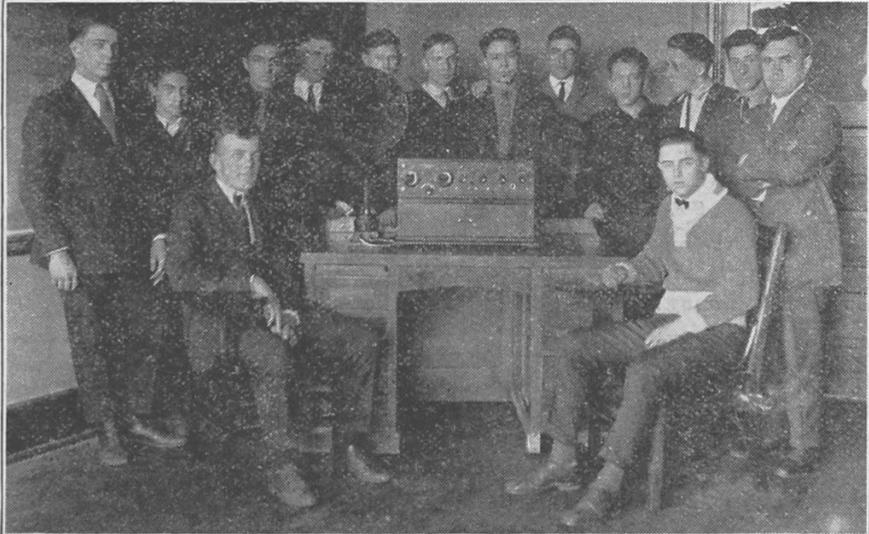
"The first suggestion of 'made in America' was applied to communication in 1842 when F. B. Morse, in Washington, telegraphed across the Washington-Maryland canal. It was in this same year that a form of telephone was used in which a wire was drawn tightly between two sheep-skin diaphragms."

Lewis then sketched the advance of radio up to the time Marconi grounded one side of the oscillator demonstrated by Hertz. This is just like grounding to a water-pipe of the present-day radio set. That was in 1894 and two years later, using both antenna and ground, covering of a distance of two miles was possible in wireless transmission. Now, in 1924 it is possible to send a voice message completely around the world.

"It was in 1897 that Marconi went to England and interested Sir

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Crosley Sets In High Schools



The above pictures show how Crosley radio sets are being used by radio classes in high schools. Both the boys and girls are interested in the new study, which has been added to the curricula of many high schools and colleges.

All Listeners Should Understand How Radio Loud Speakers Operate

The popular conception of the function of a horn on either a loud speaker or a phonograph is erroneous. We hear that a horn "resonates," or it "concentrates the sound," or it "amplifies," and many other explanations, all of which are vague and most of them incorrect. It is true that a horn resonates at certain frequencies, and for that reason increases the amount of radiation of those frequencies. Any form of resonance, however, is undesirable, because it is impossible to increase the amount of radiated energy uniformly at all frequencies within a wide range by this method. If a horn is not to distort, its walls should be non-vibrating and its air column resonances, within the range of frequencies used, should be slight.

If we think of the term "amp-

plification" as meaning the increasing of any form of response by supplying energy from another source, we see at once that a horn cannot amplify, because it cannot supply energy. It should be evident, therefore, that a horn merely loads the diaphragm in such a way as to cause more sound energy to be radiated into the surrounding space from the diaphragm. A simple analogy is found in the electric motor. When the motor has no load connected to it, all the energy supplied is used up as losses in the machine. If a load is coupled to the motor it draws more power from the line in order to supply energy to the load. When the load is light the efficiency is low, as the load is increased the efficiency is increased. So it is with the dia-

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Surprise Concert By Mabel Garrison Is Triumph Of Radio

Wonderful Singing Of Opera Star, As Broadcast By WLW, Is Lauded In Newspaper Editorials.

By Fred Smith, Studio Director At WLW.

When Mabel Garrison, Metropolitan Opera Star and Victor Artist, came to Cincinnati to give her concert on the evening of February 24th, the local management arranged with WLW to broadcast her program on condition that there would be no previous announcement of the event either over the air or in the newspapers. At eight o'clock on that evening an announcement was made from the microphone of the director in the Ball Room of the Hotel Sinton that Miss Garrison would begin her program in about twenty minutes. Outside, the weather was in a condition of blizzard and turmoil that made venturing out a thing of peril, so that the coming of the crowd was noticeably delayed.

At eight twenty-five Mabel Garrison, with her husband, George Siemonn as accompanist, came down for the concert. She was just a bit dubious concerning the radio, and told the director that she might desire a different placement of her microphone, which was on a pedestal seven feet high in front of the platform from which she was to sing. After the first group of songs she nodded a smiling approval. In the moment of interval between her first songs and the big aria—The Mad Scene from "Hamlet"—the director from behind the screen directly opposite her, quietly asked the local listeners to phone in to the Sinton and report how the surprise program was coming through.

Everyone knows that sopranos are not especially popular as radio performers, chiefly because soprano solos have been overdone during the past two years. Therefore, if a soprano could make a favorable impression, the event would be a triumph. And Mabel Garrison was to sing for two straight hours with never more than a moment's pause!!!

And such singing! Such completely satisfying singing! Here was an American woman, educated in our American public schools and

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Crosley WLW Programs For Week of Mar. 16th

SUNDAY

RADIO PROGRAM WLW

The Crosley Radio Corporation, Cincinnati.
March 16th. Central Standard Time. 309 meters.

9:30 A. M.—School conducted by the Editorial Staff of Sunday School Publications of the Methodist Book Concern.
11:00 A. M.—Services of the Church of the Covenant, Dr. Frank Stevenson, Minister.
7:45 P. M.—Services of the Church of the Covenant, Dr. Frank Stevenson, Minister.

MONDAY

RADIO PROGRAM WLW

The Crosley Radio Corporation, Cincinnati.
March 17th. Central Standard Time. 309 meters.

10:30 A. M.—Weather Forecast and Market Reports.
1:30 P. M.—Business Reports.
3:00 P. M.—Market Reports.
4:00 P. M.—Babson Reports. Times-Star News.
8:00 P. M.—Special Program for St. Patrick's Day.
Broadcast from the Ball Room of the Hotel Sinton
STRING QUARTET
Emil Heerman, first violin
William Morgan Knox, second violin
Edward Kreiner, viola
Walter Heermann, cello
Solos by Oliver Plunkett with accompaniments by Grace Grogan
Solos by Leo Lucas with accompaniments by Sam Morgans-tern
Orchestra from the Cincinnati Symphony directed by Leo Brand.
John R. Quinn, National Commander of the American Legion, Indianapolis, Ind., will make his only address St. Patrick's Day at the dinner of the combined Hamilton County Councils of the American Association for the Recognition of the Irish Republic. He will speak on "Patriotism."
Joseph O'Doherty, Irish Republican member of the Dail Eireann, who recently came to the United States as Attache in the staff of J. J. O'Kelly. T. D. Envoy will give an analysis of the Irish Free State.
His Grace, Archbishop Henry Moeller, will give the invocation.
Rev. William P. O'Connor, former National Chaplain of the American Legion, will introduce National Commander Quinn. J. J. Castellini will give an address "America's Debt To Ireland." M. F. Galvin, Cincinnati attorney, will act as toastmaster.
(Baldwin Piano.)

Old Maid (to boys in swimming)
—"Isn't it illegal to bathe without bathing suits, little boys?"
Johnny—"Yes, ma'am—but Jimmie's father's a policeman, so you can come in."

TUESDAY

RADIO PROGRAM WLW

The Crosley Radio Corporation, Cincinnati.
March 18th. Central Standard Time. 309 meters.

10:30 A. M.—Weather Forecast and Business Reports.
1:30 P. M.—Business Reports.
3:00 P. M.—Market Reports.
4:00 P. M.—Topics of interest to women. Times-Star News.
10:00 P. M.—Special program given by the choir of the Latonia Christian Church. D. W. Winston, Director and Miss Mazie McClure, Organist.
1. Hymn: "He Is Risen."
2. Chorus: "Mammy's Little Colored Man."
3. Anthem: "Seek Ye the Lord."
4. TALK BY REV. H. C. RUNYAN.
5. Hymn: "That is the Love for Me."
6. Hymn: "Sail On!"
Miss Gladys Siple will sing: "Dear Heart" and "Twilight," accompanied by Mrs. Bessie Hildreth.
Stanley's Masked Serenaders in a popular dance program playing: "Bright Lights," "Somebody Stole My Gal," "Hoodoo," "Nine O'clock Sal," and others released by the National Association of Broadcasters.
(Baldwin Piano.)

WEDNESDAY

RADIO PROGRAM WLW

The Crosley Radio Corporation, Cincinnati.
March 19th. Central Standard Time. 309 meters.

10:30 A. M.—Weather Forecast and Business Reports.
1:30 P. M.—Business Reports.
3:00 P. M.—Market Reports.
4:00 P. M.—Special program for "Shut Ins" by the Wurlitzer Concert Company.
8:00 P. M.—Special Broadcast of the Banquet and Dance at Grand Hotel of the National Association of Stationary Engineers. The Walter Esberger Orchestra (furnished by The Lukenheimer Company).
9:00 P. M.—Special program by the Warner & Swope Coon Dog Orchestra, furnished through the courtesy of the Kincaid-McKinley Company Department Store, Radio Department, Georgetown, Ohio.
Members:—
Charles Warner, Violin
K. Dunham, Violin
Charles Watson, Violin
Bob Wooster, Cello
Wm. Swope, Banjo
Bob Carington, Banjo
John Cox, Guitar
Lou Harris, Guitar
A few of the selections to be played by the above Orchestra: "Stonewall Jackson," "Big Fat Gal," "Garfield March," "Bob Walker," "Horn Pipe," "Turkey in the Straw," "Little Brown Jug," "The Old Coon Dog," "Maggie," "Devils Dream," "Irish Wash Woman," "Kings Head."
Popular Songs by Nella Webb.
(Baldwin Piano.)

THURSDAY

RADIO PROGRAM WLW

The Crosley Radio Corporation, Cincinnati.
March 20th. Central Standard Time. 309 meters.

10:30 A. M.—Weather Forecast and Business Reports.
1:30 P. M.—Business Reports.
3:00 P. M.—Market Reports.
4:00 P. M.—Piano Solos by Adelaide Apfel. Times-Star News.
10:00 P. M.—Special Program Sinfonia Fraternity of the Cincinnati Conservatory of Music.
Sinfonia Quartet:
1st Violin, Mr. Heiman Weinstein
2nd Violin, Mr. Russell Moore
Viola, Mr. Paul Ferguson
Cello, Mr. Jack Paton
Flute, Mr. Herbert Diechman
Oboe, Mr. Wilbur Myers
Clarinet, Burnet C. Tuthill
Piano, Ernest Daulton
1. Sinfonia String Quartet
2. Trio for Flute, Oboe and Clarinet
3. Tenor solo—Mr. Clifford Cunard
4. Quintet for clarinet and strings
B. C. Tuthill and Sinfonia Quartet
5. Quartet for Flute, Oboe, Clarinet and PianoSaint-Saens
6. Duet for tenor and baritone
Mr. Clifford Cunard and Mr. Howard Fuldner
7. Septet for flute, clarinet, string quartet and piano
11:00 P. M.—Popular Dance Program by DOHERTY'S MELODY BOYS
F. A. Pendergast, Piano
Ridge Bludin, Trumpet
Leo Bludin, Saxophone
Bake Holthaus, Drums
Harry Kennedy, Trombone
J. L. Doherty, Banjo and Manager
playing: "Hoodoo," "Nine O'clock Sal," "Dream Daddy," "Bright Lights," and others released by the National Association of Broadcasters, and other features to be announced.
(Baldwin Piano.)

FRIDAY

RADIO PROGRAM WLW

The Crosley Radio Corporation, Cincinnati.
March 21st. Central Standard Time. 309 meters.

10:30 A. M.—Weather Forecast and Business Reports.
1:30 P. M.—Market Reports.
3:00 P. M.—Stock Quotations.
4:00 P. M.—Special Program.

SATURDAY

RADIO PROGRAM WLW

The Crosley Radio Corporation, Cincinnati.
March 22nd. Central Standard Time. 309 meters.

10:30 A. M.—Weather Forecast and Business Reports.
1:30 P. M.—Market Reports.

DAILY PROGRAM

10:30 Weather Forecast.
A. M. Fifth-Third National Bank Bond Department Report; financial letter, call money rates, on Cincinnati and New York, Liberty Bond opening quotations, Foreign Exchange opening, Chicago opening grain quotations, Cincinnati and Chicago hog market reports.
Westheimer and Company, opening quotations of New York Stock Exchange.
Weather Forecast repeated.
P. M.
1:30 Fifth-Third National Bank Bond Department Report; financial letter, call money rates, on Cincinnati and New York, Liberty Bond, Foreign Exchange and Chicago grain noon quotations. Also closing Chicago cash grain quotations. Complete Indianapolis and Chicago live stock report; Cincinnati cattle market report.
Westheimer and Company, closing quotations Cincinnati Stock Exchange, giving the bid, offer and sale.
3:00 Henry W. Brown & Company, Cincinnati Cash Grain Market closing quotations with market conditions. Closing quotations of the Chicago Grain Market.
Westheimer and Company, closing quotations at New York Stock Exchange.
Bureau of Markets, United States Department of Agriculture, Chicago and New York Butter and Egg Market reports.
Special Half Hour Program and News at 4:00 each afternoon, except Saturday and Sunday, as announced by Radio.
Sunday School Services at 9:30 and Regular Morning Services of the Church of the Covenant, beginning at 11:00.
Special Program at 8:00 P. M.

TO HANDLE CROSLY RADIO

The Richards & Conover Hardware Company, of Kansas City, Mo., has taken on the well known Crosley line of radio products. This is one of the largest hardware concerns in the United States. Mr. Galloway is in charge of the radio and electrical department. These people also have a branch at Oklahoma City. Mr. George Conover is in charge at this branch.

NEW DISTRIBUTOR IN TEXAS

The Tel Electrical Company, of Houston, Texas, will act as Crosley distributors in the Houston territory. This company is now under the very able management of Mr. Philo, former sales manager of the Interstate Electric Company. Mr. Philo is not only a very able electrical man but a radio expert, as well.

CONDENSED TIME TABLE OF WLW BROADCASTING STATION OF THE CROSLY RADIO CORPORATION

970 KILOCYCLES, 309 METERS CENTRAL STANDARD TIME CINCINNATI, OHIO

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
9:30 A. M.	10:30 A. M.	10:30 A. M.	10:30 A. M.	10:30 A. M.	10:30 A. M.	10:30 A. M.
11:00 A. M.	1:30 P. M.	1:30 P. M.	1:30 P. M.	1:30 P. M.	1:30 P. M.	1:30 P. M.
	3:00 P. M.	3:00 P. M.	3:00 P. M.	3:00 P. M.	3:00 P. M.	
	4:00 P. M.	4:00 P. M.	4:00 P. M.	4:00 P. M.	4:00 P. M.	
	8 P. M. to 10 P. M.	10 P. M. to 12 P. M.	8 P. M. to 10 P. M.	10 P. M. to 12 P. M.		

Crosley Radio Weekly

Published by The Crosley Radio Corporation, formerly The Precision Equipment Company and Crosley Manufacturing Company, Manufacturers of Radio Apparatus Colerain and Alfred Streets, Cincinnati, Ohio
 Telephone, West 6370
 Subscription Price, \$1.00 a Year
 Robert F. Stayman
 Editor
 Alvin R. Plough
 Associate Editor

RENEWED SUBSCRIPTIONS

Just about a year ago, the Crosley Radio Weekly was placed on a paid subscription basis. The 600 radio fans who subscribed the first week have been notified that their subscription has expired, and from all indications there will be an almost 100% renewal, letters piling in from all parts of the country from persons who state that they do not wish to miss a single issue. Naturally we feel elated over this, and we desire to thank those who appreciate our efforts. We are trying to make the Weekly better all the time, and hope that before another year rolls around it will be of great value to every owner of a radio receiving set.

Once more we thank those who are renewing their subscriptions and those who are permitting us to add their names to our mailing list.

LET'S HELP THE KIDDIES

The next contest to be conducted by WLW will be for the children of Cincinnati—those little kiddies whose hearts are gladdened so seldomly and who appreciate tremendously the small favors extended to them only too infrequently. This is perhaps not the proper column in which to announce a contest, but we usually hold it for the best we have, and never before have we been able to tell the public about a future event that is so deserving of careful consideration.

The contest is to be conducted by mail. All you must do to help the boys and girls is to send in a post card mentioning one of the institutions listed below. The home receiving the largest number of votes will receive the grand prize, a \$650 Gold Medal Player Piano offered by The George P. Gross Company, of Cincinnati. Other prizes have been set aside for the other institutions, so each of them will have something for the kiddies of whom we think so seldomly.

Eight homes are in the contest, and the seven that do not win the piano each will receive a box top Singer sewing machine offered by L. W. Mull, 4014 Hamilton avenue, Cincinnati; six decorated cakes offered by the L. Weinberg Baking

Company and three American Beauty Hams offered by E. Kahn's Sons.

The eight homes selected for the first contest of its kind follow:

The American House for the Education of Foreign Born.

St. Rita School for the Deaf.

Salvation Army.

Cincinnati Children's Home, Ninth Street.

Jewish Foster Home.

Cincinnati Orphan Asylum, Mt. Auburn.

St. Joseph's Orphan Asylum.

Working and Newsboys' Home.

And this is to be one contest in which the voters are to be the real judges. In other words we are to rely upon those who take part in the contest to see that it is conducted with all fairness. We know it will be possible for the friends of certain institutions to "stuff" the ballot boxes, but we do not believe anyone will attempt to do such a thing when the interests of children are at heart. Therefore we are asking that only one vote be sent in by each person who desires to extend a helping hand to the boys and girls of greater Cincinnati.

The contest will close March 31.

Listeners Should Know How Loud Speakers Operate

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phragm; without a horn the efficiency is low, and with a horn the efficiency is increased. The horn may be thought of as analagous to a lever which gives the diaphragm a better grip on the surrounding air. And so the term "radiator" more accurately describes the action of a horn.

A good horn, therefore, is one which causes the diaphragm to radiate almost uniformly at all frequencies within the desired limits. This condition is more easily obtained in a phonograph than in a loud speaker. In the phonograph the diaphragm is forced to follow the vibrations of the record except for the slightest spring of the needle; while in the loud speaker the diaphragm is not impelled to follow the variations of current in the windings, because there is no rigid connection between the two. In the phonograph it is necessary only that the horn shall radiate uniformly at different frequencies for a given root mean square velocity of the diaphragm. In the loud speaker the horn must fulfill this condition, and also help to cause the diaphragm to vibrate at a nearly uniform velocity when the current at different frequencies is passed through the windings.

Use sealing wax to hold the ends of the winding coil in place; do not use shellac on any windings.

Surprise Concert By Mabel Garrison Is Triumph Of Radio

(Continued from Page 1)

colleges, singing with an understanding that revealed the universal knowledge which formed her background. Arias, lullabies and folk songs received in turn an interpretation so sympathetic, so artistic, and so humbly satisfying, that her audience thrilled and thrilled under the charming spell of her supreme personality.

And the reports from radio listeners? They came as a deluge! Before the concert was half over long distance calls from West Virginia, Indiana and Kentucky, together with telegrams from Baltimore, the home city of Miss Garrison, from Arkansas, Texas and many other distant states, added themselves to the flood of telephone calls from Cincinnati and suburbs. All of these were shown to the superb artist and charming woman between her songs. While responding to the applause for the last group, those wonderful folk songs, she ran upon the stage with a number of telegrams in her hand—a bouquet more expressive of appreciation than ever the most gorgeous bouquet of flowers might have been!

Since that marvelous performance The Crosley Radio Corporation has received the greatest number of letters that ever came to us on a single radio performance. And these are letters from professional men and important officials in companies of first magnitude, from women of intelligence and all that vast audience that rarely deigns to write to a broadcasting station. And how full of praise they were! One doctor concluded his remarkably enthusiastic letter by saying: "I was rocked to sleep by her heavenly lullabies, and that night I slept in paradise."

Such is the conquest of great art. The Victor people had given Mabel Garrison special permission to have her concert radioed. The perform-

ance was a great victory for radio because it proved that famous artists may be wonderfully advertised without injuring their value as recording artists. Mabel Garrison's WLW concert marks the beginning of great new things for radio audiences. So great was the impression she made that even the newspapers of our city wrote editorials upon her performance, and we quote in full the editorial statement of the Cincinnati Post under the caption, "A Musical Event And A Radio Triumph."

"Good radio programs have been put on the air by the two Cincinnati broadcasting stations in the past, but there has been nothing to compare with that program transmitted Sunday night by WLW from the ballroom of the Sinton Hotel.

"Radio listeners, not only in Cincinnati but in cities hundreds of miles away, listened spell bound to the marvelous voice of Miss Mabel Garrison, of the Metropolitan Opera Company, in a program of operatic selections, folk songs and ballads.

"It was a program which the lover of classical and the devotee of the lighter, more popular music alike could enjoy to the utmost. Miss Garrison's clear, sweet, perfectly trained voice was wafted through the ether with a clearness that could not be surpassed. Not a note of the coloratura thrills was lost or blurred in transmission. Miss Garrison's training and experience as a singer for phonograph reproduction probably had much to do with the excellent effect.

"As a musical event, Miss Garrison's singing here was of no mediocre importance. As a radio event it was superexcellent. If radio programs of like quality were the rule instead of the exception, radio fans would increase by the thousands."

A powerful wireless station, costing \$2,000,000, is to be erected at Vancouver, Canada, which will be in direct communication with London and Australia. The new station will be capable of receiving at high speed from 200 to 300 words a minute.

SUBSCRIBE NOW!

Detailed information regarding the development of receiving and broadcasting, interesting news and feature stories and advance programs of WLW are to be found in the Crosley Radio Weekly. This is the most up-to-the-minute paper of its kind in the radio field, and should be in the home of every owner of a radio receiving set. Information contained in every issue is of the greatest value to you. The subscription price is but \$1.00 per year. Subscribe now.

Name

Street and Number.....

City and State.....

Attach \$1.00 and mail this to the Crosley Radio Weekly, The Crosley Radio Corporation, Cincinnati, Ohio.

Radio Predictions Beyond Imaginative Power, Prof. Says

Big Strides Pointed Out By
Columbia University Pro-
fessor—Transmission
Secrecy Forecast.

Recently Professor Morecroft, of the Columbia University, said as follows:

"In spite of some disappointments, if the next few years give us as much improvement and advance in radio broadcasting as the one just ended has done, it passes our imaginative powers to predict what its status and service may become."

Picking up the several uses of radio over the twelve months' period, it was found that radio was the only link connecting the outside world at the time of Japan's earthquake. It was the radio that enabled a materially sympathetic world to reach a grievously stricken people in its greatest hour of need.

Contrary to the use of radio in such trying times, radio was used to carry good cheer at Christmas time from Americans to their European kin.

Talking across the ocean is a comparatively simple matter and the transmission of music gives the European listener an idea of the progress being made on this side in perfecting radio broadcasting.

The last year has had a great deal of help from the American government in straightening out the tangle of wave lengths in broadcasting. As it more nearly approaches the time when owners of receiving sets learn better their operation, the present allocation of wave lengths will be found almost perfectly satisfactory.

The work of the bureau of standards at Washington has done much to simplify interferences and also to standardize apparatus. Unfortunately, the bureau is not overcrowded with help and it is equally unfortunate in that the American government does not provide salary sufficient to warrant the best class of men in taking positions requiring highly-trained minds.

Radio has become the only means by which a disabled ship at sea can secure assistance.

In the apprehending of criminals, radio is beginning to play a more important part.

Radio in foggy weather is beginning to be relied upon to direct ships on rocky and ragged coasts, and shipping has been made more safe thru the freer use of radio compasses.

Health talks are improving the nation slowly but surely, and the

transmission of power thru radio agencies is already accomplished: much progress has been made in the knowledge of transmission of radio waves and the use of short waves for retransmission has developed to a full-fledged certainty.

Radio is bound to affect the moral and cultural conditions of any people.

Voice photograph, in conjunction with ordinary photograph, is now an assured fact. The transmission of objects photographically by radio is yet of a doubtful and hazy nature—it will come in time.

Very little so far has been contributed to provide secrecy in radio transmission, but undoubtedly this will come also with time.

U. S. Is Responsible For Development of Radio, Lewis Says

(Continued from Page 1)

William Preece in the possibility of making a commercial enterprise of radio. Using the Pupin method of tuning which was invented in the United States, the Marconi Wireless Telephone Company, Limited, was formed to place wireless apparatus on ships for communication from shore to ships. It was the wide publicity given to this enterprise that probably gave the impression that Marconi had invented radio. Radio was not invented but developed in the United States.

"Radio broadcasting had an early start in 1899 when Dr. Lee DeForest reported yacht races between the Reliance and the Shamrock. In 1900, John Stone, in Boston, transmitted voice over a short distance with a bank of arc lamps such as are used in street lighting. Two hundred miles were reached with an antenna 300 feet high in 1901. The Fessenden continuous wave generator was brought forth in 1902. A year later this same scientist brought out the heterodyne circuit. Just think of the present day when advertisements are appearing telling of the marvelous discovery of super-heterodynes and it was first shown in 1903! The Fleming two-electrode vacuum tube came out in 1904 and in 1906 DeForest brought out his three-element vacuum tubes as we now know them and use in the receiving sets. General H. C. Dunwoody found carborundum a good mineral rectifier in 1906 and Dr. Pickard discovered silicon for use in the detectors that same year. Developments in this mineral field have been rapid.

"The S. O. S. wireless call came in 1909 when the Florida-Republic ships met with disaster and Jack Binns sent forth the famous distress call. The Armstrong regenerative circuit was brought out in 1906 and in 1912 radio received another 'boost' when the great Ti-

(Concluded on Col. 4 this Page.)

FOR RADIO DEALERS

Don't forget the Crosley Window Display contest! A prize of \$10 and a large amount of national publicity is in store for the dealer who arranges the best Crosley radio window and sends a picture of it to the editor of the Crosley Radio Weekly. Let's all get busy.

The easy-to-approach-and-talk-to prospect is invariably the hardest to sell, and the hard-to-approach-and-talk-to prospect is usually the easiest to do business with once you get to him.

The prospect who tries to keep salesmen "off" is likely to be a thrifty, industrious, business-like person. The type that is worth while. The easy-to-approach prospect isn't sufficiently mindful of his own time to be properly appreciative of the value of a salesman's time.

However, the purpose of this article is not to shoo you off the easy-to-see prospect, who should be seen anyway, but to urge you to greater effort in your attempts to get to hard-to-see prospects.

Your hard-to-get-to prospect is usually a person of decision. Furthermore, the prospect who holds salesmen aloof is probably not so skilled in the fine art of dodging the buying issue.

The easy-to-see, agreeable prospect is a pleasant sort of a person to call on, but you are not out to pass a pleasant day. The main idea is to make the day profitable.

The hard-to-approach, difficult-to-handle prospect may ruffle your feathers and jolt your pride, but if you come out of the scrimmage with what you went after—what of it?

Form a liking for the sales opportunities from which most salesmen are easily scared off. CRACK THE HARD-SHELLED NUTS. They contain the sweetest meat.

(When the raw winds of winter have bared the trees, and their limbs make silhouettes against the sky, if you walk into the country you may see it—the apple that never was picked. Withered and shrunken, its bloom departed, it hangs upon a barren branch—a derelict of nature.

In the autumn the tree was heavy with fruit. Then the farmer came with his pickers, his baskets, his ladders, and limb by limb the tree was stripped.

Yet deep in the foliage there remained one apple. The sun had reached it and colored it a bright and beautiful red. It was cool and plump and rich with juice—an apple to desire. But none desired it because none saw it. Hanging upon an obscure branch, draped in foliage, it was hidden from the view of pilferers and

pickers alike—and they passed it by.

The apple that never was picked is a cousin of the product that is not known. If you go into a store at inventory time you will find this product there on the shelves, its brightness dulled by the dust of the months, its freshness faded by long waiting for a buyer. Since its coming the shelves of the merchant have emptied and filled again, but the product that is not known still lingers and languishes, a derelict of trade.

Nature willed that the apple that never was picked should grow upon an obscure limb behind a screen of foliage. It had no voice to call out that it was there. It had no words to proclaim its ripe sweetness.

Consider now the product. It could have spoken its name in the very ears of the people as they sat in their homes. It could have made the name instantly familiar to the shopper who scans the windows of merchants. It could have told in stirring words the story of its goodness. It could have created desire and the will to buy.

For there is a voice that speaks the merits of worthy products to the minds of the people—a voice that is heard round the world—the voice of advertising.—Retail Merchant's Globe.

There is no radio dealer who can afford to miss reading "The Radio Dealer," a monthly trade paper published at 1133 Broadway, New York City. If you have not seen this paper, write to L. A. Nixon, at the above address, and he will be glad to send you a sample copy. This publication contains the very latest information regarding developments in the radio industry, prepared and illustrated in a style that appeals to everyone. There is published, in connection with "The Radio Dealer," a weekly supplement that is of tremendous value to the dealer. Once more we say "The Radio Dealer" should be on the desk of every person engaged in the sale of radio apparatus.

U. S. Is Responsible

(Continued from Col. 2)

tanic disaster resulted in the loss of many lives. Thereafter Marine insurance was greatly reduced by the installing of wireless equipment.

"The broadcasting as you now know it when you tune-in nightly was first publicly brought to the listening world in 1921 and it is with regret that time will not permit an extensive discourse about this interesting phase of radio which America has brought to the world with such potent force."

Unfortunate Delay Noted In Handling Of New Radio Bill

Oregon Senator Introduces
Old Measure That Failed to
Pass at Last Session.

Although the new White Bill is understood to have been approved in its major features by the Commerce Department, the Navy Communication Service and the Signal Corps, as well as most of the commercial interests, it has not yet been introduced in the House. Congressman White, of Maine, reports progress and says he is "hopeful" of introducing it soon.

The delay, unavoidable as it may have been, is considered unfortunate by some radio enthusiasts and interests. Last week, Senator McNary, of Oregon, reintroduced the old bill which failed to pass the Senate last year. Evidently he and Congressman White had not gotten together, and as a consequence two radio bills will soon be under consideration, although the White Bill, if it passes the House, may later be substituted for the McNary Bill now in the hands of the Senate Commerce Committee.

Generally, the White Bill, a modification of the 1923 bill, still carries the anti-alien ownership and anti-trust provisions. It provides for the licensing at specified fees of all transmission stations and operators by the Secretary of Commerce. No mention of receiving stations is made, it is understood. Details prescribing penalties for infractions of rules, such as operating without licenses, were not worked out at the last report, but it is believed the revocation of licenses and seizure of equipment, as well as fines, will be provided.

The abandonment of operator's licenses, suggested in some quarters, is understood not to have met with the approval of Mr. White, who is said to favor, as in his previous bill, standard operator's requirements and licenses as a means of aiding their control by the Department of Commerce. This also has the approval of both commercial and amateur operators, as well as most commercial companies.

It is possible that the White Bill may be introduced next week, but the author says he can give no assurance of the date.

THE DRAWBACKS OF RELIGION

A colored woman consulted the village lawyer.

"Ah want to divo'ce mah husband," she said.

"What's the trouble?" asked the lawyer.

"That nigger's done gone and got religion and we ain't seen a chicken on the table foh two weeks."

Ice Bound but not Isolated

It can't be done, you say? We didn't think it could either. But listen. It's a long distance from the Arctic Circle to Minot, North Dakota. We really never thought of the two places before in connection with one another, until Mr. L. H. Weeks, of the Radio Equipment Corp., and Crosley Type V and 3B receivers brought them together.

As you know the MacMillan Expedition, station WNP, is at present frozen in somewhere near the North Pole. We're all trying to pick up their nightly messages. Once in a while we succeed. But to the little Crosley Type V and the Crosley Type 3B, operated by Mr. Weeks, 9DKB, goes the distinction of being the only consistent relay point of WNP.

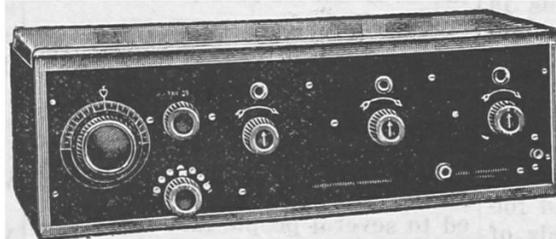
Here's what Mr. Weeks says:

Nov. 21, 1923.

"The Little Crosley Type 3B isn't so bad for selectivity, cutting out a ten watter, radiating 3 amps. and bringing in the louder B. C. Stations. Hung up a little record with one last night. Heard WNP and worked him using 50 watts and the 3B. Hi."

December 11, 1923.

"Worked WNP the other morning and took 1,500 words NANA story for him. Took a message from him the morning before that was destined for Sommerville."



CROSLY TYPE 3B NOW \$42.00.

Licensed Under Armstrong
U. S. Patent No. 1,113,149

This is the first NANA message

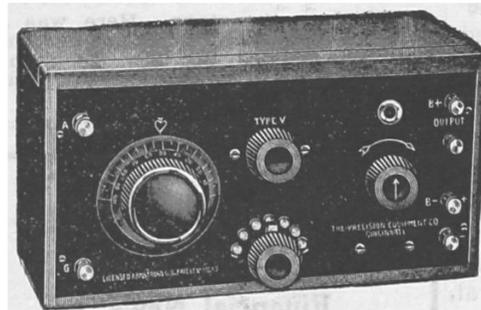
from WNP sent direct to the U. S. It took over an hour, and the Crosley Type 3B, on which it was received, brought it in QSA without a miss.

December 19, 1923.

"Took twelve messages from MacMillan two hours using Crosley Type Five."

Now do you believe us? If not, we can give you plenty more evidence.

But maybe this isn't news to you. Perhaps you have had success in bringing in WNP. If not keep on trying. Your Crosley Type V or 3B may



CROSLY TYPE V NOW \$16.00

Licensed Under Armstrong
U. S. Patent No. 1,113,149

not bring them in the first time you try, but if they can do it in Minot, N. D., they can probably do it for you.

FOR SALE BY GOOD DEALERS EVERYWHERE

THE CROSLY RADIO CORPORATION

POWEL CROSLY, JR., President

Formerly The Precision Equipment Company and

Crosley Manufacturing Company

200 ALFRED STREET

CINCINNATI, O.

Shut-Ins Appreciate The Broadcasting Of "Abie's Irish Rose"

Other Listeners Report Enjoying Play As "Radioed" By WLW—Box Office Receipts Increased.

"Abie's Irish Rose" is one of the outstanding theatrical hits of a decade. Many companies are giving the play by Anne Nichols in cities throughout the country and meeting with unusual attendance at all the performances. One of these companies is at the Cox theater in Cincinnati where Ralph G. Kemmet is business manager. At the suggestion of the manager and following the request of hundreds of hospital patients and shut-ins, a performance of the play was radioed through the WLW station of The Crosley Radio Corporation.

Microphones were placed on the stage but only one of them was used as it was found to be sufficiently sensitive to receive both the speech of the actors and the laughter of the audience. The play is such that after nearly every speech of the actor, there is an interruption of audience laughter and this came through the air with clearness, due to the efficient relay of the play by The Bell Telephone Company under the direction of Professor Hickey. There was a direct telephone line from the theater to the transmitting station five miles away and from the latter place the play was sent into the air with perfect modulation.

Aside from the monetary value of broadcasting "Abie's Irish Rose" there is the human side of the ledger, which, after all, is the most important to the theater manager whose house is always crowded. Many letters were received from all over the country from the ones who enjoyed the broadcast of the play and they are typical of this one from Samuel N. Lentz of the U. S. Veterans' Hospital No. 69, at Newport, Ky.:

"You don't know what it means to me, as I can't get out to attend the theater. I have a small set in my room here and hope to hear more."

If you wish to BUY or SELL
SECURITIES

Or Own some about which you
DESIRE INFORMATION
COMMUNICATE WITH US
Our Statistical Department is at
your service

WESTHEIMER & CO.

Members of—
The New York Stock Exchange
The Cincinnati Stock Exchange
Telephone Main 567
326 Walnut Street

Another shut-in wrote that the play had brought sunshine that night to him and that he longed for more such radio programs. There are hundreds of messages of praise for the company and for radio which were turned over to the members of the company for keep-sakes.

As to the value of radio broadcasting to the box office, much could be said but just a few lines should be sufficient to tell of its great value. An extract from a letter from Edward Germain, of the O. Armleder Motor Truck Company, follows:

"I happened to come past the Cox theater at noon today, following your broadcast of the play—and does it pay to advertise?—Well, they were lined out to the gutter waiting for tickets. I talked to several people last night who heard the radioed play and who are going to see it as soon as they can secure tickets."

Many theatrical managers are in favor of broadcasting their plays and Ed Wynne was the first to have his musical revue broadcast a few years ago. Thurston always gives a radio talk with resultant good business and Julian Eltinge and Tom Browne sang and played for the radio audience. There are many artists who entertain those who cannot come to the theater and to those who are able to purchase tickets, there has been a marked increase in the number of purchasers due to the radio performances.

As an incidental part of the broadcast of "Abie's Irish Rose," a receiving set was installed in the room of the electrician of the Cox theater and the players listened to the work of their fellow artists upon the stage. Here was a fine demonstration of radio for the play was picked up, broadcast and received within a few yards in the same building.

We broadcast daily at
10:30 a. m. and 1:30 p. m.

Financial News
Market Reports
Government Bond
Quotations
Call Money Rates
Foreign Exchange, Grain
and Live Stock
Quotations.
Bond Department

THE
FIFTH-THIRD
NATIONAL BANK
of Cincinnati.

Illinois Man Hears British Station On One Tube Receiver

Other Long Distance Records Established By Radio Fans—Set Entertains Men In Caboose.

John Morris, of East Jasper street, Paris, Illinois, claims the long-distance record for a one tube radio receiver, having heard London, England, as well as practically every large broadcasting station in the United States and Canada. He uses a Crosley Model V receiver.

L. Clyde Simpson, of Bangor, Maine, operating a Model XJ, claims to be the most consistent northeastern listener of California stations. Bangor, Maine, is a long distance from Los Angeles, and it is with pride that Simpson shows his friends how to bring in the stations there.

Dr. C. C. Butt, of Nelsonville, Ohio, also operating a Model XJ, writes us about hearing KHHJ, at Los Angeles, and the station at Havana, on a loud speaker, closing his message with this statement:

"I realize that the greatest liar at the present time is the radio liar, but I will make affidavit in regard to my assertions."

And here is an interesting letter from a railroad conductor, who, during his idle hours, tunes in one

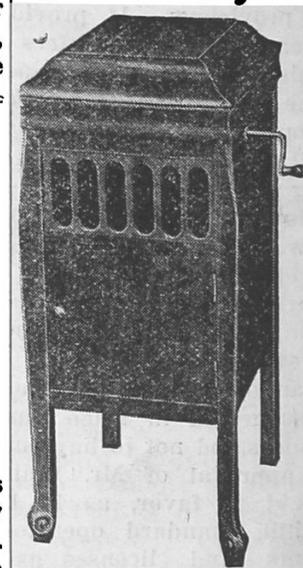
radio station after another:

"Dear Sirs:
"I wish to inform you of the splendid results obtained from one of your radio sets installed in the caboose of the train of which I am conductor. I have a single wire antenna strung around the top of the car, and use a three foot iron pipe, driven into the cinders, as a ground. We use the radio set after working hours, when we are sidetracked, our's being a work train. Using four sets of head-phones, we hear all the large broadcasting stations, and, believe me, the set helps us pass the long evenings away from home. We are using your one tube Model V set.

"Yours truly,
"H. L. Young,
"Riverside street,
"Chillicothe, Ohio."
Hundreds of such letters are received by us every day, and all testify to the efficiency of the Crosley sets and to the satisfactory service rendered by them.

New radio units are being installed in the giant air cruiser, the Shenandoah, to transmit messages 1000 miles. The equipment will include two transmitting sets, two receiving outfits and a radio compass. The call letters are "NERK".

\$1 DOWN
a year to pay



For
This
Beautiful
Cabinet
Phonograph.
Balance
\$48
On Easy
Monthly
Payments

Look at the picture of this 23-inch mahogany finished MARION Phonograph, the phonograph you have been waiting for. Double spring motor. Wonderful tone qualities. Cabinet for records. Two double records free.

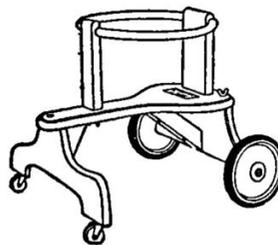
The MARION was designed to sell for \$75. Large production in our own plant enables us to make this wonderful introductory offer for a limited time only.

We will send the MARION to any responsible person on approval for \$1 with the privilege of trying it out five days for \$1.00. If you decide to keep it at the end of that time pay us \$4.00 per month for twelve (12) months and the MARION is your property. Total price, \$49.00 f. o. b. Cincinnati.

Send one dollar with your name and shipping address to

MARION PHONOGRAPH CO.
1652 Vandalla St. Cincinnati, O.
Department "A"

The Go-bi-bi



MOTHER'S BEST FRIEND

"I received the GO-BI-BI two weeks ago and like it very much. My wife says it is a life saver for her. She can do all her work while the baby is riding around. He is only nine months old and gets around very swiftly. I am glad I learned about the GO-BI-BI.

"Phillip Velanski,
"Rochester, N. Y."

So Daddy appreciates it too. Everybody loves the baby and wants him happy and healthy.

Every store who sells baby things of any kind or children's vehicles should write us for our dealer proposition. Right now is the time to take advantage of the great publicity given the GO-BI-BI through the holiday sales. Write today.

CROSLY MFG. COMPANY

GO-BI-BI Dept.
1629 Vandalla St., Cincinnati, O.

TELL ALL YOUR FRIENDS ABOUT CROSLEY RADIO RECEIVERS

Every person who reads this has a friend who is contemplating the purchase of a radio receiver. Won't you tell your friend about the Crosley sets? Thousands of you own these receivers, and you know they are giving exceptionally satisfactory service. You know your friend wants a set that will give results similar to those produced by your receiver.

Other thousands know, through reading this paper, what the Crosley sets will do. They are well acquainted with the Crosley Products, and their friends will appreciate their recommending a set the quality of which is beyond question.

We wish each of you would point out to some friend the sets itemized below. Have this friend select the one he believes is most suitable to his needs. Have him fill out the blank in the lower right hand corner and mail it to us. We will see that he gets complete details regarding the set in which he is most interested.

The list of sets follows:

CROSLEY TYPE V, single tube Armstrong regenerative receiver, the same instrument used by Leonard Weeks at Minot, North Dakota, in his established communication with the McMillan expedition at the North Pole, formerly \$20.00 now reduced to \$16.00.

THE CROSLEY TWO STAGE AUDIO FREQUENCY AMPLIFIER to match the Crosley Type V, formerly \$20.00 now \$18.00.

THE CROSLEY MODEL VI, two tube receiver incorporating radio frequency amplification and detector, formerly \$30.00 now \$24.00.

THE CROSLEY TYPE 3-B, a three tube Armstrong regenerative receiver, consisting of detector and two stages of audio frequency amplification in a beautiful solid mahogany cabinet, formerly \$50.00 now \$42.00.

THE FAMOUS CROSLEY MODEL XJ, a four tube receiver, consisting of one stage of radio frequency amplification, detector and two stages of audio frequency amplification, probably the biggest selling radio receiver in the world, formerly \$65.00 now \$55.00.

THE CROSLEY TYPE 3-C, a three tube Armstrong regenerative console model with built-in loud speaker, formerly \$125.00 now \$110.00.

THE CROSLEY MODEL XL, a four tube set consisting of one stage of radio frequency amplification, detector and two stages of audio frequency, formerly \$140.00 now \$120.00.

Crosley Regenerative receivers are manufactured under Armstrong U. S. Patent Number 1,113,149.

The Crosley Radio Corporation,
200 Alfred Street,
Cincinnati, Ohio.

I am interested in the Crosley
(Name set here)

Send details regarding this set to me immediately.

Name

Number and street

City and state

FOR SALE BY GOOD DEALERS EVERYWHERE

THE CROSLEY RADIO CORPORATION

POWEL CROSLEY, JR., President

Formerly The Precision Equipment Company and Crosley Manufacturing Company

200 ALFRED STREET

CINCINNATI, O.

Best Radio-Equipped Army Will Win Next War, Engineer Says

Ships Will Be Directed And Torpedoes Controlled By Wireless, Philadelphian Says.

The nation whose armies and navies are equipped with means of communication superior to those of all other nations will win the next war.

This is the opinion expressed by Thomas Appleby, a Philadelphia radio engineer, who declares that the making possible of secrecy in radio communication will in itself cause a revision in the conduct of wars.

The first real successful test of radio in war was not in the World War, as is popularly supposed.

Francisco "Pancho" Villa, Mexican bandit chief, was the first general who really used radio in war. Villa, planning the domination of Northern Mexico, realized that the sparsely populated country would be hard to hold without communication that would enable his forces to move faster than the Federal Mexican troops.

An American radio engineer was employed to construct two complete radio outfits for Villa, one at Juarez and one at Torreon, his two most strategic strongholds. For many months both were successfully operated, it is reported.

Recently a device has been invented that insures a certain amount of secrecy in radio communication. The transmitting machine, which looks something like a typewriter, automatically scrambles the message transmitted and a receiving device picks up the conglomeration of sounds and "unscrambles" them again. This device is capable of scrambling a message in more than a million dif-

ferent ways, Mr. Appleby said, but added:

"At the transmitting station the message in plain language or code is typed out on the transmitting device, which sends the words in the form of unintelligible signals to the receiving station, where it is automatically deciphered, providing the receiving operator is in possession of the prearranged tuning device and directions that apply to the particular combination transmitted.

"Although this eventually will be a big feature in future wars," he added, "I do not believe it will be actually operated for a long time to come. It is risky business, you know. The enemy might get hold of the 'key,' and in such an event our armies and navies would be in great danger.

"As matters now stand, the messages are sent in code which can be deciphered only by one person. With the scrambling machines in operation, you understand, many persons would have to be furnished with the 'key' to each message, an impractical arrangement."

Continues Mr. Appleby: "The more spectacular developments will, of course, include radio-telemechanics, which is the science of operating by radio various devices located at distant points, or even such apparatus as flying machines, etc.

"Radio will control torpedoes and small airplanes. Radio communication also is becoming more and more reliable and accurate.

"A great many naval officers, furthermore, rate armament, power supply and radio as the three things of the most importance to a fleet at the present time.

"The typical use of radio in a destroyer attack would be, perhaps, a surprising revelation to the average layman. Instead of fanning out over miles of sea in scouting for-

FORMICA

The fine finish, perfect insulating efficiency, and good working qualities of Formica have made it a country-wide favorite among amateurs who make their own radio sets.

It is used by the leading manufacturers, including the Crosley Manufacturing Company.

The Formica Insulation Co.
Spring Grove Avenue,
Cincinnati, Ohio.

mation, the vessels pick up the enemy by radio compass, which was fully developed during the World War and was a great help in the warfare on German submarines.

"When contact is about to be established the destroyers approach from the weather side. A heavy smoke screen is laid. The enemy can see only ninety feet of the leading destroyer to shoot at. The second and third boats, hidden by the black pall, are trained to take No. 1's place if the latter is disabled.

"The bridge of the leading destroyer," a noted radio engineer once wrote, "is the only one that can see the enemy." All orders for training the torpedo tubes and maneuvering are given to the following ships by radio from destroyer No. 1.

"Visualize this picture as it would be seen from a plane above. Twenty lean destroyers, half submerged in the spray, are shooting along at forty miles an hour. A smear of inky smoke hides the gun crew. The enemy fleet is in the distance, destroyers and light cruisers plunging in and out of the smoke screen, trying to attack.

"A mountain of water is thrown up as an 'ash can' (as depth bombs are known) is dropped over the

side of a destroyer to destroy a submarine discovered by airplane that has radioed the position to the destroyers.

"The destroyers' tubes, in turn, swing outward on radio orders from No. 1's bridge, and 120 parallel white trails (torpedo wakes) streak out along the sea toward the enemy. Some of the wakes draw up to the enemy ship and score a hit. The course of the others is righted by radio, and they, too, find their mark as the enemy's ships are hit one by one and drop out of sight.

"A sea battle, to be fought largely with radio as the most important factor, is on!"

RADARIO TO BE WRITTEN AROUND PRIZE-WINNING SONG

A radario is being written around the prize-winning song in the contest just closed in The Writer's Digest and will be given from the Crosley radio station.

TWIST W L W FOR CONTEST CODE WORD

George Lewis, of the Crosley radio plant, was asked to suggest some sort of code word that could be used in a forthcoming contest to be held from the W L W station. His suggestion was to reverse the order of the letters W L W.

Genuine Radiotron Tubes

WD-11	\$5.00
WD-12	5.00
UV-199	5.00
UV-200	5.00
UV-201-A	5.00
UV-202	8.00

We carry a large stock of tubes at all times and will make prompt shipment of any of the above upon receipt of remittance to cover. We also are distributors of radio apparatus made by

The Crosley Radio Corporation.

THE JOHNSON ELECTRIC SUPPLY CO.

232 East Fifth St., 331 Main St.
Dept. A. CINCINNATI, OHIO.

A BATTERY CHARGER YOU WILL BE PROUD TO OWN

5

Ampere Size for all Auto and Radio Batteries



List Price

\$18.50

Complete

GOLD SEAL HOMCHARGER

Charges auto, radio or "B" storage batteries over night for a nickel.

Simple, dependable, almost silent and absolutely safe. Beautifully finished in mahogany and gold—may be used right in the living room.

WHY PAY MORE—OR GET LESS?

Why buy a 2 or 3-ampere rectifier *without ammeter* requiring from 40 to 50 hours to charge your battery and costing twice as much to operate, when for the same price you can secure the genuine 5-ampere GOLD SEAL HOMCHARGER, which does a better job in one-third the time and at half the cost? Fitted with high-grade ammeter (eliminating guesswork), charging cable and battery clips—no extras to buy. For sale by all good dealers, **\$18.50**

FREE

Ask your dealer for a free copy of the HOMCHARGER international list of broadcasting stations. Contains call letters, location, name and wave-length of nearly every broadcasting station in the world.

NOT GENUINE WITHOUT THE GOLD SEAL

—The—

AUTOMATIC ELECTRICAL DEVICES COMPANY

CINCINNATI, OHIO

Largest manufacturers of vibrating rectifiers in the world

FOR SALE BY ALL GOOD RADIO DEALERS