

VOL. VII.

DECEMBER 15, 1928

SERVERY ERVERY ERVERY ERVERY ERVERY ERVERY ERVERY ERVERY

hristmas again, and another New Dear before us. Inventory or stock taking time! While our material stock is low, I find in our inventory that Crosley good will==the most baluable thing for any business to acquire --- has enhanced tremendously.

The public good will towards Crosley products has never been greater. The dealer and distributor good will are at high tide for those things that we make and sell. The gross volume of our business for the year 1928 has more than doubled. So our thanks go to you dealers and distributors who are respon= sible for the measure of success and good will that has come to us this year.

We like to think that you have shared in the Crosley success of this year, and assure you that we shall work untiringly to build for your greater prosperity in 1929.

·法学学学学学学学学学学学学学学学学学学学学学学学

Powellerosley gr.

The

NOCTURNE

Price \$295





The SONATA

\$475

(without tubes

New York knows it/

A Nineteenth Century "Scoop"

Marconi Broadcasts British Races Terrifying Distance of 14 Miles!

Bold headlines appearing in the "Dublin Daily Express" during the month of July, 1898, indicated that that paper had staged a "scoop".

The events reported were results of the British yacht races during the big annual regatta at Kingston, and the means which made the "scoop" possible was radio. It was the first time that a newspaper had ever made use of radio.

"During July (1898)," says a contemporary report, "the Wireless Company put into execution a novel kind of service directed by Marconi in person, which had found great application in the daily papers; that is to say, he was entrusted with the work of supplying the 'Dublin Daily Express' from oversea the incidents occurring during an interesting regatta at Kingston.



While operation of radio stations by newspapers has not been extensive until recent years (since the development of broadcasting), one of the earliest wireless stations in America was owned by a newspaper. The station of the "New York Herald" at Siasconset, Nantucket Island, Massachusetts, shown in the picture above, was in operation more than twenty-five years ago.

World Radio Histor

THE CROSLEY BROADCASTER

Dynacone Adapter

With this new Crosley device the type E Dynacone may be adapted to other than Crosley A-C Receivers !

OUTPUT

With the Dynacone Socket Adap-

Your Distributor Can Supply You

somely finished

THE CROSLEY BROADCASTER



CROSLEY RADIO CORPORATION Manufacturers of Radio Apparatus Colerain and Sassafras Streets, Cincinnati, Ohio

Telephone Kirby 3200

Editor: A. E. Deaderick



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



This is your paper. Help make it in-teresting by sending in contributions. All material sent in will be most welcome. Comments of every de-scription will be appreciated. What do you say? Let's all pull together.

coming in to the editor of the Broadcaster, our "Crosley Dealer's Radio Course" is meeting with warm approval by the Crosley family.

The course is very simple. It starts from scratch and works dealers.

know about radio, the wilder their of Cincinnati. questions are! You have noticed The entire statement as presented

helps a lot to know the fundamen- of the Electric Club, follows: principles of radio transmission. gether.' We recognize the oppor-

"School of the Air" for Ohio

State Education Experts Cooperate in Experimental Programs over WLW

Air" in January, 1929. The plan is to start with four pro- of the Air is planned to begin on room.

ment of this radio course, declares sons in Agriculture and general sci- grams. school curriculum calls for this new talks on Art and Science. determined through careful and cational broadcasting has been car- This would make it possible to resystematic investigation during the past few years to justify the definite trial of adapting radio to the periment Fund. Mr. B. H. Darrow, department furnishes a list of availeducational processes of the school- chief investigator, is to make the able receiving apparatus but offers room."

Lesson leaflets containing illustra- Schools. Mr. Darrow is one of the lar makes.

Judging from the letters which are Radio Division of Electric and experience." Club of Cincinnati Goes on Formal Record

It is a known fact in selling mer- Previous to this meeting a com- plaints. chandise, the more you know about mittee had been designated to for- The Code of Ethics calls for the 796, a decrease of 3.1 per cent, as

that yourself. There's nothing like by the committee in question, is too to fortify you against any questions, amble will interest Crosley dealers whether they be sensible or foolish, who may be active in local organi-A learned discussion of the tech- zations in which a code of ethics nical side of radio is seldom neces- would be helpful. The Preamble

tal facts involved in the composi- "We re-affirm our faith in the tion of the set and also the main pledge 'Work together and Win to-

special course for Crosley dealers, tion to obtain and maintain those issue of "The United States Daily," ies, 133,143,601, valued at \$6,035,659; takes you through all the material principles of conduct and action in published at Washington, D. C., parts and supplies for dry batteries, actually needed. At the end of our business life, that shall secure to there is a decided advance in the \$6,756,241; wet primary batteries, each les on you will find a few ques- us the respect and confidence of the production of radio apparatus and 2,410,927, valued at \$3,358,729; parts tions. If you read each lesson public in our own integrity and of tubes for 1927 over the 1925 record, and supplies for wet batteries, \$123,carefully and then ask yourself these the radio industry of Cincinnati. The account follows: questions seriously, you will be en- In this connection we affirm the ab- The United States in 1927 producabled to give yourself an excellent solute democracy of this organiza- ed radio apparatus and tubes ag- "About ten days ago I bougat test in your knowledge of radio. tion, in which the action of the gregating \$191,848,665 in value and one of your Bandbox Jr., outfits. The lessons are well illustrated majority shall be the guide and representing an increase over the We either have an exceptional one

The Department of Education of tions, bibliographies, and suggestions leading authorities on education by the State of Ohio will make a strik- to teachers, will be supplied in ad- radio. From a comprehensive naing experiment in educational work vance of the broadcasts, to supple- tional survey, he knows that thouswhen it starts its "School of the ment the radio course. The sug- ands of educators will welcome the gested schedule for the Ohio School introduction of radio into the class-

grams weekly, broadcasting over January 2, 1929. It includes the The Crosley Radio Corporation is WLW Monday, Tuesday, Wednesday following features: Current Event donating the services of its new 50and Thursday of each week. The talks; Historic Dramalogs; Talks on Kilowatt station WLW, which is programs will go out on the air at Achievements of great men and known positively to be available to Crossley manufacturers radio sets for radio amateur, experimental, and broadcast reception use, under patents of the Radio Corporation, and the Latour Corporation. 1:30 P. M. and continue for an hour. It is planned for all Ohio schools to have their classes listen in at the prescribed hours. 1:30 P. M. and continue for an hour. It is planned for all Ohio schools to have their classes listen in at the prescribed hours. J. L. Clifton, state director of edu-comparation. cation, in making the announce- ment; Games and Calisthenics; les- schools with these educational pro-

that the general expansion of the ence for upper grades; and series of State Director Clifton advises one receiving set to each school, with development. "Enough has been Much of the investigation in edu- a loud speaker in each class-room.

actual experiment with Ohio no recommendations as to particu-

Radio Code of Ethics will foster and promote friendly output value in 1925 was \$176,990.334. competition based on sound ethi- as compared with \$54,000,470 in 1923 cal, constructive business conduct and \$10,627,617 in 1921. The production of socket-power

There follow nine articles, defin- devices in 1927 aggregated 1,405,191, ing mutual relations, the duty of with a value of \$23,357,814, or 13.4 the radio industry to the public, per cent of the total value of radio guarantees, unethical acts, etc. apparatus manufactured during the

methods of lodging informal com- manufacture of batteries in 1927 re-

the line you are handling, the bet- mulate a statement of ethical prin- formation of a permanent Fair compared with \$155,247,811 for 1925, ter you can sell it. In selling Cros- ciples. This committee was head- Trade Practice Committee. This the last preceding census year. ley radio sets, a lot of questions are ed by Mr. John Schuster, president committee shall function in all cases The production of tube-type reasked by prospects. The less they of the Schuster Electric Company of complaint both as arbitrator and ceiving sets in 1927 was 1,938,192, referee.

Value of Radio Output for 1925.

in 1927 over 1925

Production

with diagrams and pictures to make practice of its membership. It shall 1925 output of 8.4 per cent, it was of these little fellows, or they are each important point as clear as be our endeavor at all times to strive stated November 12 by the Depart- certainly much above the average."

Under the section, "Unethical year. The production of socket-At a meeting held November 16, Acts," are given methods of formal power devices was very small in through the essentials of radio. 1928, the Radio Division of the Elec- complaint by one member of the 1925, and the value was not reported This course was laid out by a very tric Club of Cincinnati, brought up Radio Division of the Electric Club, separately but was included in the competent man and is well worth for discussion before its members against another member of the or- value of miscellaneous radio parts. the serious attention of all Crosley of ethics.

ported products valued at \$150 451 -

valued at \$94,050,031-a decrease of 19.1 per cent in number and an increase of seven-tenths of 1 per cent a sound knowledge of the set itself long to quote in full. The Pre- Production Increase in in value as compared with 2,395,790 sets, valued at \$93,356,546, reported

The total production for 1927 was nical side of radio is seldom neces- would be helpful. The Preamble sary to bring about a sale. But it as presented to the Radio Division Census Shows 8.4% Gain distributed as follows: Storage bat-teries, \$80,496,735; parts and supdistributed as follows: Storage batplies for storage battries, \$17,486,178; 6-inch dry cells, 54,985,815, valued at \$9,287,154; cells for radio B and C batteries, 530,512,320, valued at \$26,-In ten lessons, the author of this tunity given us through organiza- According to a report in a recent 907,806; cells for flashlight batter-294

for such unanimity of opinion as ment of Commerce. The aggregate N. G. Sherouse, Jacksonville, Fla.

Vorld Padio Histor

Flirting With Foreign Stations

California is Getting Chummy with Japan via Showbox Route

A number of letters have been Another letter tells of getting coming to us recently, from Cros- JOAK. It is G. B. Gross, located ley set owners on the west coast, at Watsonville, California: "A few telling us that they have picked up days past I bought a Crosley Showsome of the Japanese broadcasting box and Dynacone. Since then I stations. The station which seems have enjoyed some very fine proto come in most clearly is JOAK, at grams from WLW. Your station Tokyo

Here's a letter from a Crosley deal- ba; and stations from many points er in Vallejo, California:

Vallejo, Calif., October 6, 1928.

Gentlemen: sold to Mr. E. A. Archer, of 634 Marie Prewitt, Crosley fan living at On Septmber 17th this year, I Showbox. The first morning he on November 13, 1928: "At 1:50 P. Japan, and has heard them every a Crosley Showbox that is in our morning since. Yesterday morning, home on demonstration, and we morning besides innumerable other ed his message three times." distance stations.

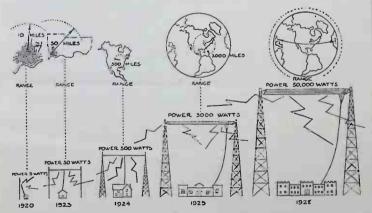
and gets home around 4 a.m. You may use this letter any way you see fit.

Thanking you for past favors, I am.

> Respectfully yours, (Signed) E. W. PRICE, eign stations as casually as we now Vallejo Radio Elec. Shop.

WLW's Increased Power Extends WLW's Area of Influence

From 5 Watts to 50,000 Watts in 8 Years!



Can you imagine a 10,000% increase? That is the increase in transmission power of WLW in the eight years of its existence. From a small, greater success. experimental station in 1920 it has grown into a great national station in 1928. If the diagram were accureately drawn, the present towers would have to be shown many times the size of the 1920 towers.

With this tremendous increase in transmission, the area of Crosley influence is increased but the percentage of population affected is greater in proportion because of the densely inhabited territory in which WLW stands.

THE CROSLEY BROADCASTER

comes in so loud and strong that I in the U.S. A. and Canada. With the Crosley, of course.

England Heard in Oklahoma! Here's a surprising thing: Mrs.

Imagine a Showbox demonstra lish station signalled another station in England. It reads like a matter of usage, to pick up for- line. listen in on American stations.



Page 5

POWEL CROSLEY JR.

This has been our most successful year. It has been successful in more than one way. First, our sales have doubled. This fact foreign station but you have to sit I think that is remarkable reception. alone would be sufficient to cause satisfaction. up pretty late to do it. The Jap- I am not a DX fan but I have but in addition to increasing our sales, the exin the wee hours of early morning. Australia; and PWX at Havana, Cu- cellence of our product in performance, design and construction, have enabled our Distributors and Dealers to have their most successful year, also.

This year, we have a smaller number of Florida street, Vallejo, a Crosley Oklahoma City, Oklahoma, wrote us Dealers, but of higher calibre. These are used the set he picked up JOAK, M. today, I turned dial to No. 77 on having marked success with our line.

Everyone likes to play a winner. Success Japanese stations. He gets the set- M., Bournemouth, Great Britain, is like a powerful magnet. Last Fall, when Japanese stations. He gets the set-ting up exercises from Chicago each calling Station 2 L. S. He repeat-you cast in your lot with the Crosley line, you were confident it would prove to be one of the Mr. Archer works on the Vallejo tion out in Oklahoma which permit- leading radio lines for the season. In this Times Herald, a morning paper, ted hearers to listen while one Eng- your judgment has been amply confirmed. Just as everyone wants to bet on the winning something out of a Jules Verne ro- horse at a race track, just so every other dealer mance but doubtless will soon be in the country has tried to bet on the Crosley

> There is far more assurance of success in playing the Crosley line than there can ever be in betting on winning horses or the leaders of any contest of sheer physical strength.

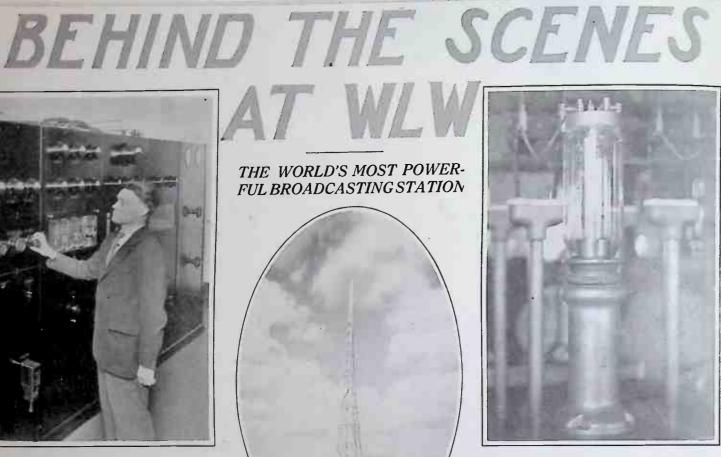
> In horse racing, golf, tennis, automobile racing, skiing and the like, successful leadership goes to one man alone. Everything depends upon his strength and endurance.

> But in the Crosley success, it is the organization which has grown. Doubling the business each year involves great increases in equipment, personnel, a stronger distribution, all the factors which make for continued success.

> Each year adds more experience to this tremendous organization and aids us in maintaining our lead in the radio industry. 1928 has been a very successful year both for you and for us. Succeeding years will show even

Powellerosley J.

THE CROSLEY BROADCASTER



MASTER OF CEREMONIES-Joe Whitehouse, Operator in Charge. "He is never dressed up." they say. And he isn't. A hard-boiled, ex-Navy man, he believes in always being on the job, with no time for frills.

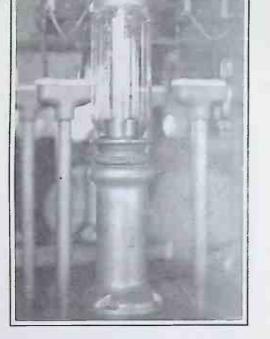


WHAT IS THIS-A POWER PLANT OR A RADIO STATION?-Just between ourselves. it is a radio station. and the most powerful broadcaster in the world at that. It is this view o: the transmitting equipment that greet the visitor as he enters the front door of the main building. At the left is a long line of amphiler and oscillator panels. In the background is part of the power supply rectifier system which supplies high-voltage direct cur-rent to the plates of the tubes. Although now operating at fifty kilowatts, the equipment here pictured has sufficient reserve to enable WLW to broadcast with several times its present power.

THE WORLD'S MOST POWER-FUL BROADCASTING STATION



ON TOP OF THE WORLD-WLW broadcasts its message from the highest spot near Cincinnati. As you stand in these desolate surroundings, it is difficult to picture the hundreds of thousands enjoying the programs.



THE HEART OF WLW-Whose pulse beats in tune with symphonies and cowboy bands, artists and scientists, politicians and philanthropists, Bethovan and jazz, oldsters and youngsters. One of the giant tubes which amplify the programs before they go out "on the air."



"RED" PUSHA DA PLUG-At the lonesome end of thirty miles of telephone wire, connecting the station with WLW studios in Cincinnati. The amplifier equipment which "Red" is operating boosts the voice and music coming over the line before it is fed into the set. A similar amplifier is at the studio end of the line. Red and the operator at the other end of the line must constantly be on the job while programs are being broadcast. Thus two more persons contribute their efforts to the vast chain of coordinated endeavor necesary to the operation of a broadcasting station.

World Radio History

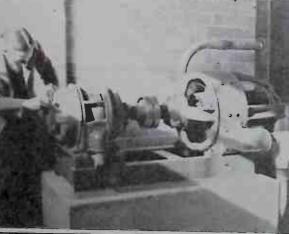


TUBES ARE SCARCE-Would you like to buy some of these? The cost of the six amplifiers shown here would be to most of us a small fortune. Yet this is but one of the several amplifier units of the complete WLW transmitter.

DON'T WORRY-HE WILL NOT TURN THE HANDLE-Unlocking this door shuts off all power and short-circuits the high tension equipment-a safety measure.



FOOD FOR THOUGHT—These insulators anchor the antenna lift cable. The gentleman has just touched the wrong end of them and has been both shocked and surprised. In the background is the hoisting tackle.



HOW WOULD YOU LIKE TO HAVE THIS "A BATTERY" ?---It requires two of these motor-generator units to light the filaments of the tubes in the new transmitter.

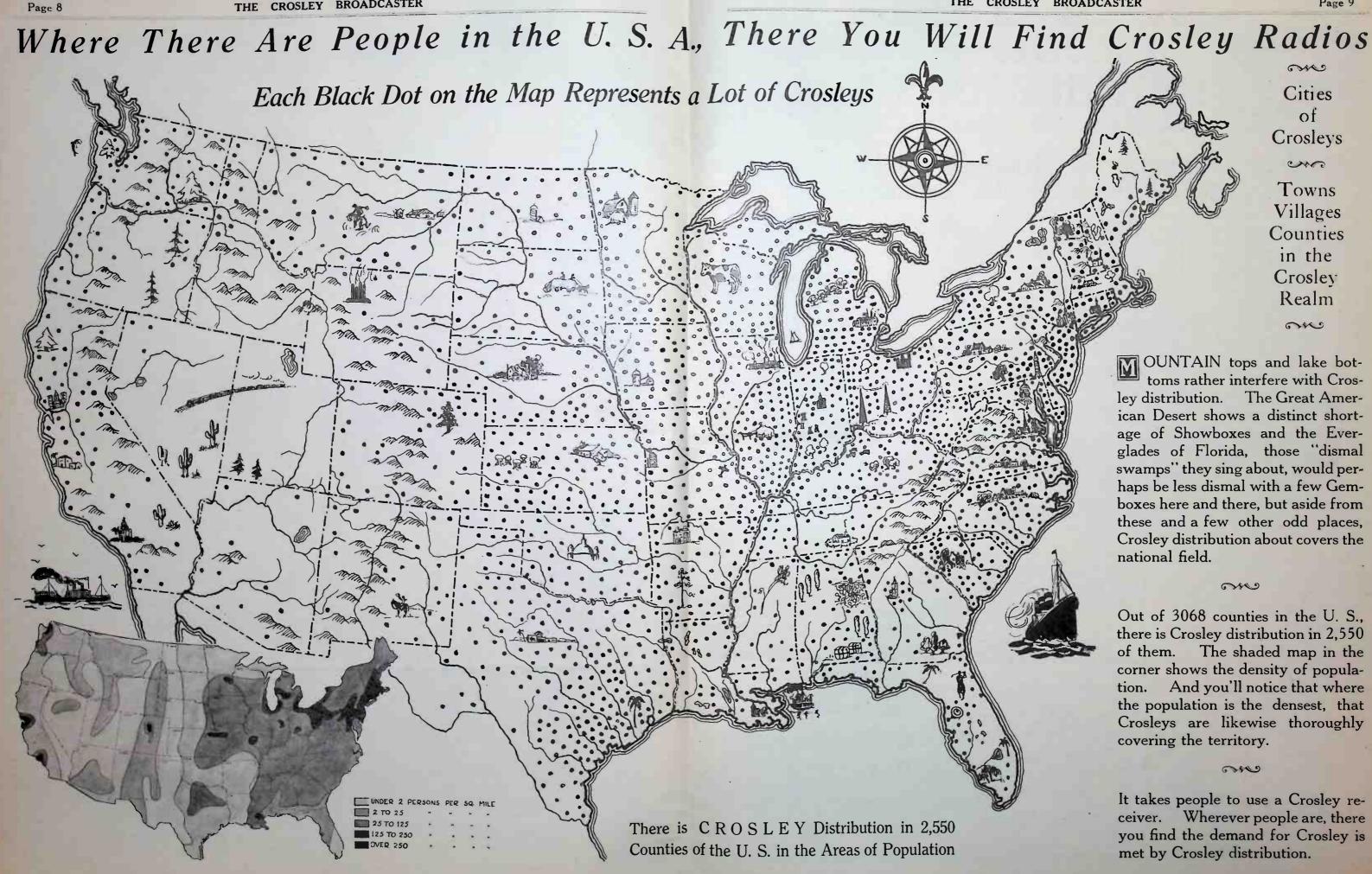
THE CROSLEY BROADCASTER

WHETHER YOU BELIEVE IN SIGNS OR NOT-YOU can't hurt yourself at WLW. To get inside the screen you must turn a lock which not only automatically shuts off the power but discharges the high-voltage condensers as well.

> BEHIND THE BARS (Below)-Some coils of pipe, some wires, tubes and other simple-looking units are silently working away. They are sending the voice of a noted singer thousands of miles around

> > the world. How do they work? The engineers claim to know. but we do not believe them.

STANDING ON ITS OWN COSTLY FEET-Each tower of the WLW antenna is completely insulated from the ground. The amount of money invested in these insulators would make a sensational story.



THE CROSLEY BROADCASTER

Page 9



ono Cities of Crosleys cono Towns Villages Counties in the Croslev Realm Ono

MOUNTAIN tops and lake bottoms rather interfere with Croslev distribution. The Great American Desert shows a distinct shortage of Showboxes and the Everglades of Florida, those "dismal swamps" they sing about, would perhaps be less dismal with a few Gemboxes here and there, but aside from these and a few other odd places, Crosley distribution about covers the national field.

Out of 3068 counties in the U.S., there is Crosley distribution in 2,550 of them. The shaded map in the corner shows the density of population. And you'll notice that where the population is the densest, that Crosleys are likewise thoroughly covering the territory.

on

It takes people to use a Crosley receiver. Wherever people are, there you find the demand for Crosley is met by Crosley distribution.

0400

THE CROSLEY BROADCASTER

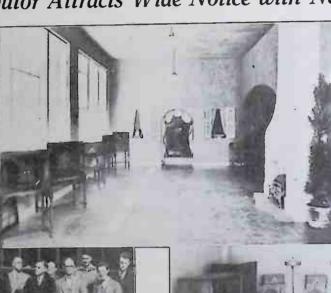






Kierulff & Ravenscroft Advance on Los Angeles Crosley Distributor Attracts Wide Notice with New Quarters

The Crosley line is an added attraction in Hollywood-more so than usual-since our good friends, Al Ravenscroft and Charley Kierulff, distributors in Los Angeles and vicinity took themselves into their new quar-Like so many in southters. ern California, they've gone Spanish. As the pictures of their new place show, Spain is helping sell Crosleys.



Taking advantage of this move, Kierulff and Ravenscroft sent out a natty mailing card in large numbers. The inside is reproduced below. This got attention and induced the radio editors to mention the new establishment in their columns. The card was very amusing and human and contained all the essential information. It was printed in black and white.



The snappy service in Kierulff and Ravenscroft's snappy solarium is the work of the staff shown in the cartoon below. Perhaps you'd like to know who they are. Here goes for introductions all 'round: P. A. Mitchell; B. J. Anderson; C. R. Burrier; R. E. Heathman; W. R. Hocking; W. R. Smith; B. G. Blackman; J. G. Magner; W. L. Brown; W. B. Puffer; B. E. Berghoff; Betty Day, and R. R. Ross.



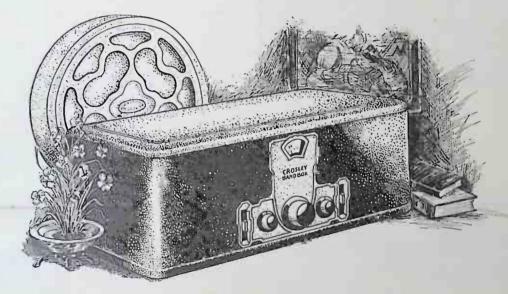
And here are the boys themselves: Al and Charley blowing the horn for their own establishment. We think the likenesses are excellent. Under the stimulating influence of this lively pair, Crosley and Amrad sales have been steadily mount-With the spacious new quarters ing. now at their disposal they ought to find it ever more true: "More room for us-Better service for you."

World Padio Histor

HOME 135-139 W 17th ST. LOS ANGELES and are now better able to serve you in our larger and better quarters-COME IN AND SEE US SOON. WE HAVE JUST MOVED TO OUR NEW







THE Crosley BANDBOX is the set Santa is bringing for the unwired home! It is the undisputed leader among storage battery receivers. The perfect gift for those thousands of homes without electric current is this remarkable Crosley set. The BANDBOX was last year's sensation among battery type sets and is maintaining its lead this season!

Prospects for the Crosley BANDBOX run into the millions, for there are millions of homes without electricity.

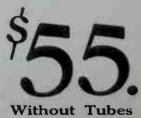
The BANDBOX consists of 3 stages of genuine Neutrodyne (patented) radio frequency, detector, and 2 stages of audio frequency. It is completely shielded, it has acuminators for sharp tuning, modern illuminated dial, and is wired for use from power lines with a suitable supply. The BANDBOX is encased in metal, finished in a handsome gold high-lighted ripple effect. We recommend the Type D MUSICONE as the result-giving Without Tubes speaker with the Crosley BANDBOX.

Sure, There's a Christmas Radio for Homes Without Electricity !



What, no Socket! No Hope? Yes, There's this Crosley Battery Set

6 Tube --- Genuine Neutrodyne --- Storage Battery Type





THE CROSLEY BROADCASTER





During the last week or so our attention has been directed several times to the fact that undergraduate students of Colleges and Uni-

article in the Broadcaster he took the students for you. If the Col- ception.

fontaine Cemetery of St. Louis is business. If a "vogue" is started on As outlined in a previous article,

Rat Electrocuted

If you're bothered with rats, we can tell you one way to get rid of them. It is expensive and it involves putting a Showbox out of commission for a few days, but it certainly disposes of the rat.

We have testimony of an actual case furnished us by our Crosley dealer at Bowling Green, Kentucky, with it. We enjoy programs from Marshall Love. In explaining why Winnipeg, Manitoba, Mexico City, they are returning a Showbox for Pittsburgh, and San Francisco. b2servicing, they tell us: "A large rat crawled into the hole in the back of the cabinet and got across the fuse holder on the low side that was not in use, and was electrocuted. It completely ruined the 280 socket and the tubes fail to burn, so I be- chased one of your Genibox radios, lieve that the filament transformer is also short."

we are not in the habit of passing rat was completely ruined. It en- sibly have," kind remarks, we must say, that he joyed what they refer to at Sing Sing as the "hot squat."



Quiet Radio Reception a Sound Crosley Talking Point

-, "the cessful sale of a Showbox to one of box. We are also told that there Neutrodyne method of balancing,

a reasonable sized advertisement in sales feature, every Crosley dealer that he sells are properly balanced

> occasional set may become unbalanced in shipment or through rough handling.

It is quite simple,---if you arrange In Showbox !! a corner of your shop for that purpose,-to give every set that you sell, an actual reception test before Effective But Costly Method you install it. In that way you may quickly tell whether or not the of Killing Rodents Dis- set is properly balanced, and at the covered by Marshall Love same time you may check the con-dition of the accessories. Improper same time you may check the conbalancing is indicated by a whistling sound when tuning to stations, which changes in pitch as the set is tuned.

Instructions for balancing sets will be found on page 4 of the "Crosley Service Manual."

"We have used, almost hourly, this sides exactly 75 stations scattered over the United States."

(Mrs.) W. E. Thacher, Fort Worth, Texas,

and since have been enjoying the most natural reception that any In addition to the 280 socket, the radio that is made today could pos-

> Junior Webb. Eagle Rock City, Cal.

Page 13

THE CROSLEY BROADCASTER

CROSLEY DEALER'S RADIO COURSE

10 Simplified Lessons Especially Prepared for Crosley Dealers

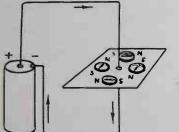
Correction

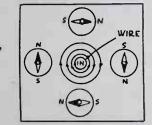
The next to the last sentence in the paragraph "What Resistance handed, or counter-clockwise. * Depends Upon," Lesson II, should read: "Resistance of a wire equals Resistance per unit length per unit crossection, times Length, divided by Crossection." The fourth line under the cut at the head of the second column should read: "Current (Amperes) equals E. M. F. (Volts) Corkscrew Rule divided by Resistance (Ohms)."

LESSON III

Magnetic Effect of a Current

We have studied the flow of currents of electricity through wires, and the attractions and repulsions occurring between magnets. Now we shall see that currents of electricity and magnetic forces are interrelated -in fact, that every current of electricity is accompanied by magnetic forces.

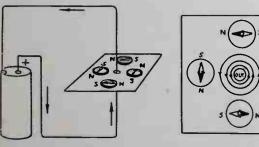




CURRENT FLOWING DOWN

TOP VIEW OF PAPER.

TOP VIEW OF PAPER.



CURRENT FLOWING UP

MAGNETIC EFFECT OF CURRENTS

To prove this, suppose we connect a loop of fine wire to the termi- of the field, but in this instance (renais of a dry cell, so that a current flows through the circuit. Then if sistance remaining constant) the we bring a compass close to the wire, the needle will swing around in current varies directly as the voltdifferent directions corresponding to the position of the compass with re- age induced. spect to the wire. If the wire is disconnected, stopping the current flow, the compass needle will immediately assume a north and south direction. shall see, that radio choke coils,

This experiment demonstrates that a flow of current in a wire exerts transformers, electric generators, magnetic forces in its vicinity. We describe this by saying that the and many other electrical devices electric current sets up a magnetic field.

Direction of the Magnetic Field

By slowly moving a compass around the wire in the above experiment, it will be seen that the magnetic field about the wire is such as to (Fig. 3). Now suddenly disconnect cause a magnetic pole to tend to move in a circle about the wire (a small it. At the moment the circuit is compass, which may be placed close to the wire, should be used, and broken, a spark will jump across the HOW A COIL OF WIRE ACTS AS considerable current should be flowing through the wire). In other break. What causes this spark? words, the magnetic force due to the current is at right angles to the wire. (Fig. 1).

The positive direction of a magnetic field is taken as the direction in about the coil. which a free, north magnetic would tend to move if placed in the field. Reversal of the current causes a reversal in the direction of the field. If is set up in the vicinity. The moment the circuit is broken, the battery we are looking at one end of the wire and the current is flowing away current stops flowing. Thus the magnetic field about the coil is sud-

If the current is flowing toward us, the direction of the field is left-

*Remember that in this instance, as in every other case except when speaking of an actual flow of electrons, the current is considered as flowing from positive to negative ..

An easy way to remember the relation between the current flow and the direction of the magnetic field is by means of the corkscrew rule. If a corkscrew is turned so as to advance along the wire in the direction of the current flow, the direction in which it is turned is that of the magnetic field (Fig. 2).

Current and Field Strength

If several dry cells, connected in series, are used instead of one cell in the experiments described above, the effect will be much increased. This demonstrates that the strength of the magnetic field depends directly upon the current flowing.

Electromagnets

By coiling a wire as shown in Fig. 3 it is possible to take advantage of the magnetic effect of a cur-

rent of electricity in order to exert strong magnetic forces. Such a coil is called a "solenoid".

If a core of iron is put inside the solenoid, the magnetic attraction for pieces of iron held near the ends of the coil is much increased. A solenoid with an iron core is called an "electromagnet". The iron core acts as a magnet only while the current is flowing through the solenoid, losing practically all of its magnetism the moment the current is turned off.

Generating Currents with Magnets

Suppose a solenoid is connected to a sensitive galvanometer (an instrument reading very feeble electric currents). If a steel magnet is plunged into the solenoid, the galvanometer needle will momentarily "kick" over, indicating a current. If the magnet is removed, the needle will "kick" in the opposite direction. The amount of kick is proportional to the rapidity with which the magnet is moved in or out of the solenoid.

This experiment demonstrates that changing magnetic fields set up currents of electricity in conductors, and that the strength of the currents set up depends upon how rapidly the fields are changing. Actually it is the induced voltage that depends upon the rapidity of change

It is upon this principle, as we depend

Self-Inductance

Connect a solenoid to a dry cell

To explain this, we must con-

sider the interaction of the current in the coil and the magnetic field

When a steady current flows through the coil, a steady magnetic field tron w, the direction of the magnetic field is right-handed, or clockwise. denly destroyed. This rapid change in the magnetic field will, accord-

ing to the principles outlined above, set up a current in the solenoid. The galvanometer experiment demonstrated that the more rapidly the field changes the greater will be the current and voltage set up in the coil. In this instance, the field is changed with extreme rapidity, and a high voltage is set up, sufficient to cause a spark to jump across the break in the circuit.

It is found that the direction of the current set up in a conductor by changes in its own magnetic field is always such as to oppose the changes taking place. Thus, if the circuit is broken, the induced current set up will be in the same direction as that of the original current flowing in the coil. If, on the other hand, the circuit is suddenly made, or connected, the induced current set up will be in such a direction as to oppose the flow of battery current.

This characteristic of circuits such that their magnetic fields tend to oppose any changes in the currents flowing through them is known as "self-inductance". Every conductor has the property of self inductance, but the effect is much intensified if the conductor is wound into the shape of a solenoid, so that the fields due to different portions of the wire reinforce each other.

Applications of Self Inductance.

Self inductance has wide application in radio, in choke coils, in the tuning of radio circuits, etc. We shall have more to say about it in the lesson to follow.

Carefully answer the questions below. If you have any questions to ask about them or about portions of the Lesson text, write to the Editor, Crosley Radio Broadcaster.

OUESTIONS

1. Suppose a rapidly changing electric current is sent through a solenoid and another solenoid, connected to a sensitive meter, is placed beside it. Would you expect current to be indicated by the meter?

2. How does the electromagnet used in your electric bell differ from the one described in this lesson?

3. Suppose that the experiment with the magnet and solenoid, as described in this lesson, were modified so that the solenoid were plunged over the magnet instead of the magnet being plunged into the solenoid. Would the results be similar?

4. Suppose an alternating current is applied to the terminals of a solenoid or choke coil. What will be the effect of the self inductance of the coil on the current flowing through it?

5. How do you explain the sparking at the switch when an electric motor is shut off?

Picking Up WLW Program on Fast Train

60 Miles an Hour No Handicap for Crosley Station

Proofs of the perfect transmission from Crosley station WLW multiply thick and fast. Here's a telegram sent from Minot, South Dakota, giving report of a WLW program heard en route:

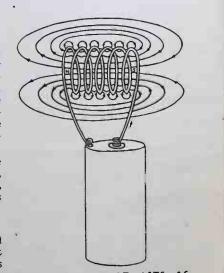
POWEL CROSLEY, JR. NATIONAL BROADCASTING PARTY ON BOARD GREAT NORTHERN RAILWAY FAST MAIL, ARE SPEEDING ACROSS CONTINENT SIXTY MILES PER HOUR, AND HAVE JUST PICKED UP AUTOMATIC WASHER PROGRAM FROM WLW WITH PERFECT CLAR-ITY AND GOOD VOLUME.

JOHN W. ELWOOD

Another Telegram Registering Good Showbox Reception

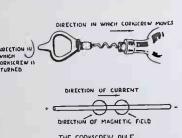
CROSLEY RADIO CORPORATION, CINCINNATI: USING CROSLEY SHOWBOX TODAY, DECEMBER FIFTH, HEARD WGY TIME SIGNALS AT 10:59 A. M. AND KDKA MARKET QUOTATION AT 3:45 P. M. AND ANNOUNCEMENTS. ALL WITH LOUD SPEAKER VOLUME.

ROGERS SALES CO., BLOOMINGTON, ILL.



A MAGNET

World Radio History



THE CORKSCREW RULE

THE CROSLEY BROADCASTER

Page 15





Cash in on the Christmas buying spirit with this truly great radio value. Write Dept. 81, specify whether electro or mat is wanted.

SHOWERS BROTHERS CO.,

Bloomington, Indiana.