

ALLEN THEATRE BROADCASTING STATION WADC

Located
HOTEL PORTAGE



Akron, Ohio, Jan 2 1926.

We hereby acknowledge receipt of your appreciation of our
Morning Glory Programme, and
wish to thank you for your interest shown in our station.

Signed Allen T. Simmons
Member National Association of Broadcasters

Ray Stewart

5.

JAN 2
12 630 PM
1926
OHIO.

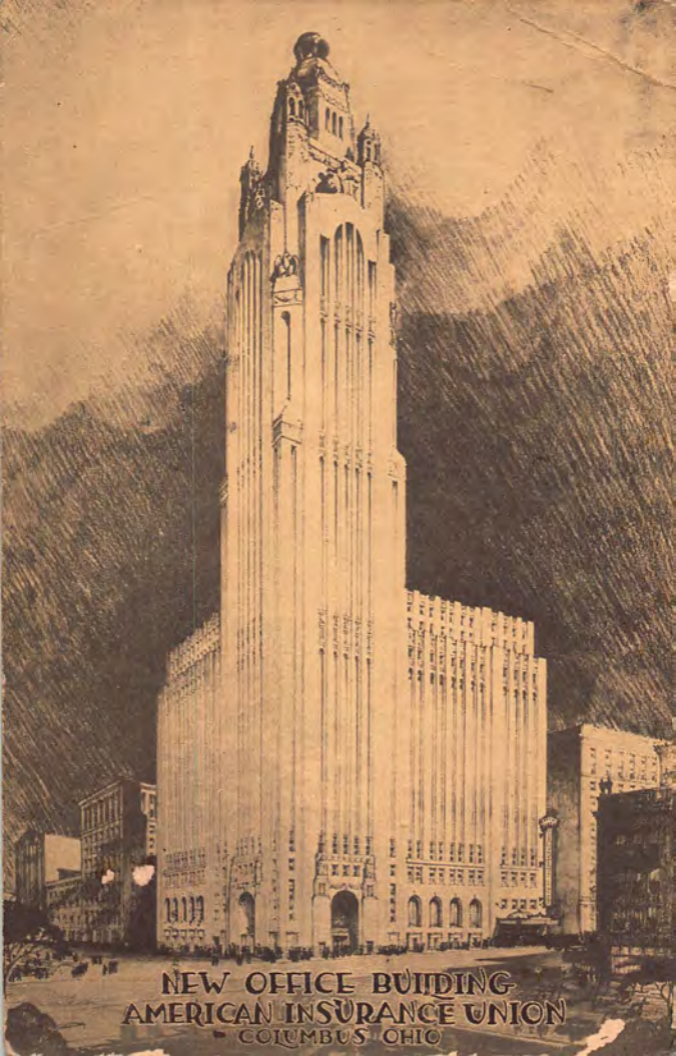
GRACE PARK
STATION

568



THIS SIDE OF CARD IS FOR ADDRESS

David F. Thomas
Proctorville
Ohio



NEW OFFICE BUILDING
AMERICAN INSURANCE UNION
COLUMBUS OHIO

332

520

Post Card

MESSAGE

New Office Building of American Insurance Union, fraternal insurance company of Columbus, Ohio, now in process of erection. Fifth tallest building in United States. Height 555 ft. 5½ in. Overlooks Columbus' new civic center. Owners, American Insurance Union, Columbus, Ohio. Architect, C. Howard Crane, Detroit, Mich. Builders, John Gill & Sons, Cleveland, Ohio. Rental Agents, Beggs Realty Company, Columbus, Ohio.

STATION WAIU

Dear Friend:—

We are glad you enjoyed our program and hope you will "listen in" often and tell us what you like best.

Sincerely yours,

AMERICAN INSURANCE UNION,
Radio Department

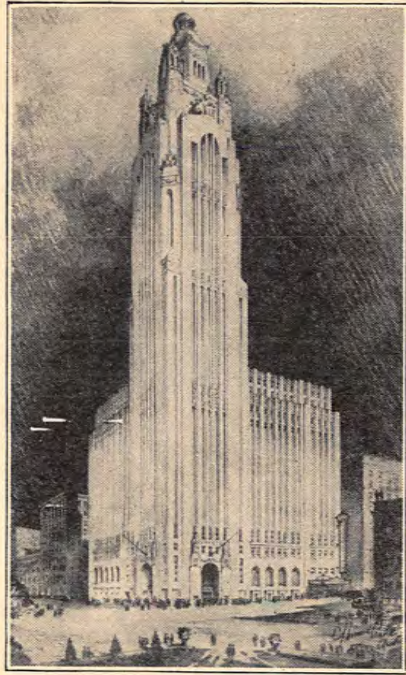


RED CROSS
RAILROADS
JOIN



David F. Thomas,
Proctorville, Ohio.

A. I. U. CITADEL
 Stronghold of Fraternalism
 HOME OF BROADCASTING STATION
 W A I U



New National Office Building of American Insurance Union, Columbus, Ohio, now in process of erection. One of the five tallest buildings in the world. Height 555.5 feet. Overlooks Columbus' new civic center. Owners, American Insurance Union, Columbus, Ohio. Architect, C. Howard Crane, Detroit, Mich. Builders, John Gill & Sons, Cleveland, Ohio.

City ----- State ----- 192-----
 Month -----

Broadcasting Station W A I U
 American Insurance Union,
 Columbus, Ohio

I enjoyed your program on-----
 I particularly enjoyed-----

Singing by-----
 Address by-----
 Instrumental Music by-----

The broadcasting station will appreciate your filling in the above as well as listing, in the order in which you prefer them, the following kinds of broadcasting:

Orchestra classical Songs popular Sports
 Orchestra jazz Lectures Theatrical Productions
 Songs classical Politics

Name -----
 Address -----

COLUMBUS, OHIO

41 WALL STREET

AMERICAN INSURANCE UNION

Place
Two Cent
Stamp
Here

Post Card

Post Card

569



MESSAGE

Station W A I U



ADDRESS

Dear Friend:

We are glad you enjoyed our program and hope you will "listen in" often and tell us what you like best. Use card attached.

Fraternally yours,

AMERICAN INSURANCE UNION
Broadcasting Station W A I U

AMERICAN INSURANCE UNION
"Something Different in Life Insurance." Our Legal Reserve Cash Savings Step Rate Policy Provides MORE INSURANCE for less Money When MOST NEEDED.

Life, Health, Accident and Child Insurance at Cost.

Mr. Dave F. Thomas,
Proctorville,
Ohio.

RADIATIONS

“Sweetest melodies are those that are by distance made more sweet.”
—Wordsworth.

“The man that hath no music in himself,
Nor is not moved with concord of sweet sounds,
Is fit for treasons, strategems and spoils.”

—Shakespeare

“With melting airs, or martial, brisk, or grave;
Some chord in unison with what we hear
Is touch'd within us, and the heart replies.”

—Cowper

28

Welcome to our family of listeners.
Encouragement warms the musicians to increased efforts toward perfection.



That's what keeps up the standard of QUALITY PROGRAMS.

Columbus Dispatch "Quality" concerts are in the air at 8 P. M. every Friday (Columbus Time), and every week day at noon.

WBAV, of the Erner & Hopkins Co., is the broadcasting medium. It is a Class B station, powered at 500 watts; wavelength, 390 meters or 770 kilocycles.

THE COLUMBUS DISPATCH
Columbus, Ohio.



LET'S GO
CITIZENS' M...
TRAINING CAMPS

David F. Thomas,
Proctorville,
Ohio.



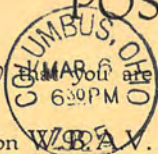
W. B. A. V. ORCHESTRA of The Erner and Hopkins Co., Columbus, Ohio

94

282.

POST CARD

We are glad to know that you are receiving our programs.



Our broadcasting station W.B.A.V. operates on 390 meters. The W.B.A.V. Orchestra plays Monday and Friday evenings at 8 o'clock central standard time.

W.B.A.V. is a class B station operated for your benefit, and your future comments are welcome at all times.

Thanking you again for writing us, we are, cordially yours,

RADIO DEPARTMENT,
The Erner and Hopkins Co.,
Columbus, Ohio.

LET'S GO!
CITIZENS
MILITARY
TRAINING
- CAMPS -



Mr. David F. Thomas

Proctorville, Ohio.

W B L Y

1600 KC on Your Dial
Chamber of Commerce Bldg.

FAirfax 3-4676
Springfield, Ohio

Dear Sir:

This is to verify reception of Radio
Station WBLY, 1600 KC, on *Dec. 29, 1958,*
from 4:00-4:45 AM

Thank you for your letter. Your interest
is very much appreciated.

Sincerely,

CHAMPION CITY BROADCASTING CO.

Carl Egbert
Carl Egbert
Chief Engineer

CE:VO

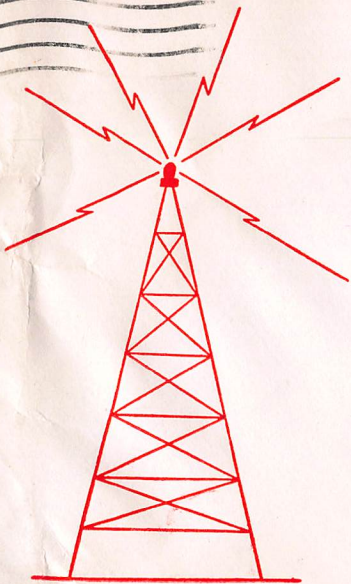
Thank you for a complete report.

WHEREVER YOU GO THERE'S RADIO Radio serves and entertains without interfering
with other activities. No other advertising medium has this flexibility!



WBLY

Springfield's Most Powerful Station



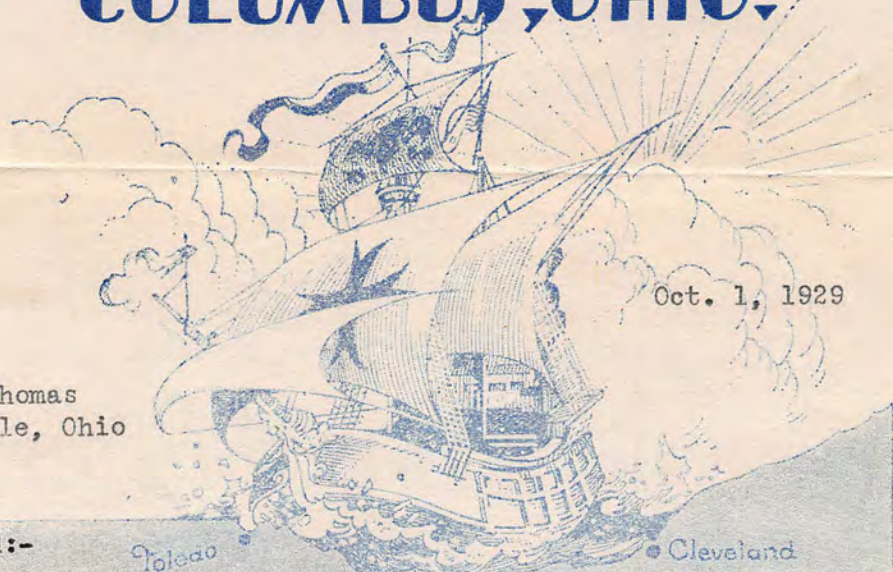
David F. Thomas
Longwave Listening Post
Radio WUMS
Proeterville, Ohio

**CHAMBER OF COMMERCE BUILDING
SPRINGFIELD, OHIO**

THE PIONEER BROADCASTING STATION OF COLUMBUS

WCAH

HOTEL FORT HAYES STUDIO
COLUMBUS, OHIO.



Oct. 1, 1929

David F. Thomas
Proctorville, Ohio

Dear Friend:-

We acknowledge your communication of recent date. W C A H and the artists take this opportunity to thank you for the interest you have shown. We are always glad to hear from our listeners.

It is our endeavor to provide the best possible features and your comments on future programs will be appreciated. With the cooperation and suggestions of friends like yourself we will endeavor to continue to raise the standard of broadcasting.

We trust you will continue to enjoy our programs, and hope to hear from you again soon.

With best wishes, we are,



Radiospectfully yours,

RADIO STATION W C A H,

H. P. Drey
H. P. Drey,
Manager.

The HEART
OF
OHIO

HPD:MPO

This letter verifies your reception.

THE PIONEER BROADCASTING STATION OF COLUMBUS

WCAH

HOTEL FORT HAYES STUDIO
COLUMBUS, OHIO.



Toledo

Cleveland

Youngstown

Columbus



HEART
OHIO

Cincinnati



668



David F. Thomas
Proctorville, Ohio



THE
OHIO STATE UNIVERSITY

Department of Electrical Engineering

COLUMBUS

9:43 - 11:00 a.m.

13- WEAO—500 watt, Telephone

Schedule,—Daily—1:30 P. M. Markets, News, Weather 360 λ

Wed. and Fri.—4:00 P. M. Educational Talks, Music 360 λ 294

Thursday—8:00 P. M. Educational Talks, Concerts 360 λ

Dear Sir—We acknowledge with thanks yours of 11-22-24. We appreciate your co-operation in writing to us and shall be glad to hear from you again at any time when anything of especial interest occurs.

Very truly yours,

Ann Charles
Operator

Announcer

160

160



David F. Thomas
Proctorville
Ohio



RADIO STATION

WEAO

THE OHIO STATE UNIVERSITY

COLUMBUS, OHIO

Wave Length—293.9 Meters. Frequency—1020 Kilocycles

Broadcasting Schedule (Eastern Standard Time)

- 9:45 A. M. (Daily except Sundays and holidays): Weather and Market Reports, and Agricultural Bulletins.
- 11:00 A. M. (Daily except Sundays and holidays): Weather and Market Reports.
- 1:00 P. M. (Daily except Sundays and holidays): Music and Market Reports.
- 8:00 P. M. (Wednesday): Lectures and Musical Program.
- 9:00 A. M., 1:30 P. M., 4:00 P. M.: Lectures by Faculty Members are Frequently Scheduled.
- Play-by-play Reports of Athletic Contests Are Broadcasted.

We wish to thank you for your communication concerning your reception of a program broadcast from WEAO. Your comments will always be appreciated.

Respectfully yours,

RADIO STATION WEAO.

233

421

POST



David F Thomas
Proctorville
Ohio

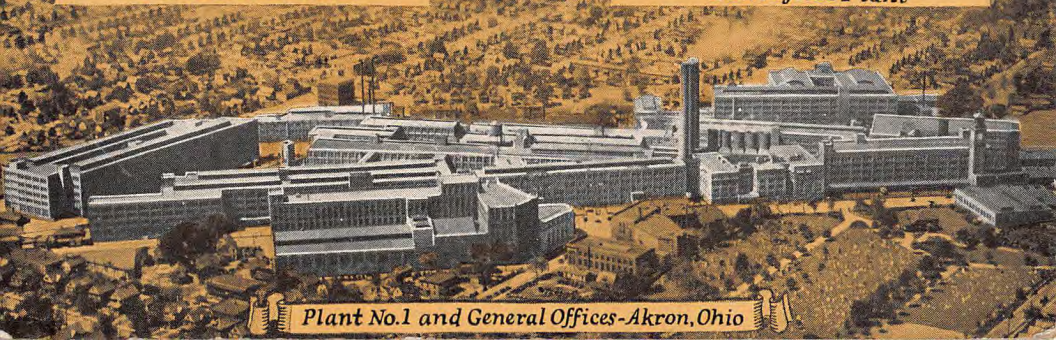
*Airplane
Views of the
Principal Factories
of the Goodyear
Tire & Rubber Co.*



Plant No 2 Akron



Los Angeles Plant



Plant No.1 and General Offices - Akron, Ohio

57.

245.

POST CARD

Thank you very much
for writing us. We
sincerely appreciate
your interest and are
glad you like our
programs. We are
always trying to
make our programs
good, and we hope
you will tune in
often on "WEAR"



Mr. David Thomas,
Proctorville, Ohio.

WEAR

THE GOODYEAR TIRE & RUBBER CO. INC.
Broadcasting Station

UNION TRUST BLDG.
CLEVELAND, OHIO.

June 23rd, 1925

D. L. Thomas
Proctorville Ohio

Dear Friend :

Thank you very much for the nice things you have to say with regard to WEAR's program. We are trying to make our programs attractive, and are proud to know that you are one of our listeners-in, and that our work has pleased you.

Will you please help us by filling out and returning the enclosed post card? We want to learn something about WEAR's audience, and your reply will be particularly appreciated; you do not need to compliment us in your answer - if you listen in on WEAR for only five minutes once every couple of months, that is exactly what we want to know. A frank answer to the questions on the card will be appreciated, as they will greatly help us in formulating future policies for operating this Station.

Very truly yours,

A. K. Carpenter

Manager - W E A R .

WEAR

THE GOODYEAR TIRE & RUBBER CO. INC.
UNION TRUST BLDG.
CLEVELAND, OHIO.

195



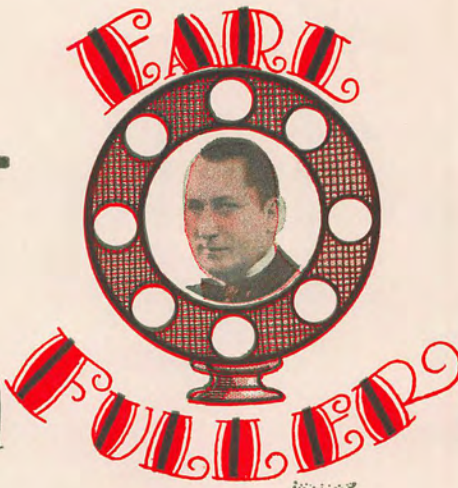
383



D. L. Thomas

Proctorville Ohio

W I F
Park View Hotel
PArkway { 2760
 2761



B E Inc.
Cincinnati Ohio
Cable Address
"Earful"

Dear Radio Fan:

Thanks!

We appreciate very much your courtesy in advising us that you heard the test program over our station. Accept the enclosed radio log with our compliments.

The new transmitter which was being tested has not yet been officially put into operation, but we hope to have it ready within the next few days.

It is our earnest wish that we shall number you among our steadily growing list of regular listeners.

Sincerely yours,

STATION W F B E

"If You're on the Air they know You're there"

W. F. JONES
President & Treas.

MAIN 3316

PAUL M. BURKE
Business Manager

W.F.J.C.

W. F. JONES BROADCASTING, INC.

309-315-319 Beacon Journal Bldg.

140 East Market Street

AKRON, OHIO

Oct. 16, 1929

Mr. David F. Thomas,

Proctorville, Ohio

Dear Mr. Thomas,

Thank you for your comments on our programs. We now have an average of two hours of N.B.C. Red network, programs per day, the hours varying of course.

We are scheduled as follows 12:00 noon to 3:00 PM and 5:00 to 12:00 PM, with two silent hours each night, except Sunday, when we sign over to WCSO at Springfield, Ohio

Sincerely Yours,

Lila Burkhardt
R.N.

Program Director

W.F. Jones Broadcasting, Inc.

LB/RN

W. F. JONES BROADCASTING, Inc.
309-315-319 Beacon Journal Bldg.
140 East Market Street
AKRON, OHIO



WFJC 668



X

Mr. David F. Thomas
Proctorville, Ohio



Thanks for writing. We always like to hear from our radio audience. Can we do anything for you?

This verifies your reception.

THE RADIOVOX CO.

R. M. ROLAN,

Station Director



REGISTER
OR
INSURE
VALUABLE MAIL

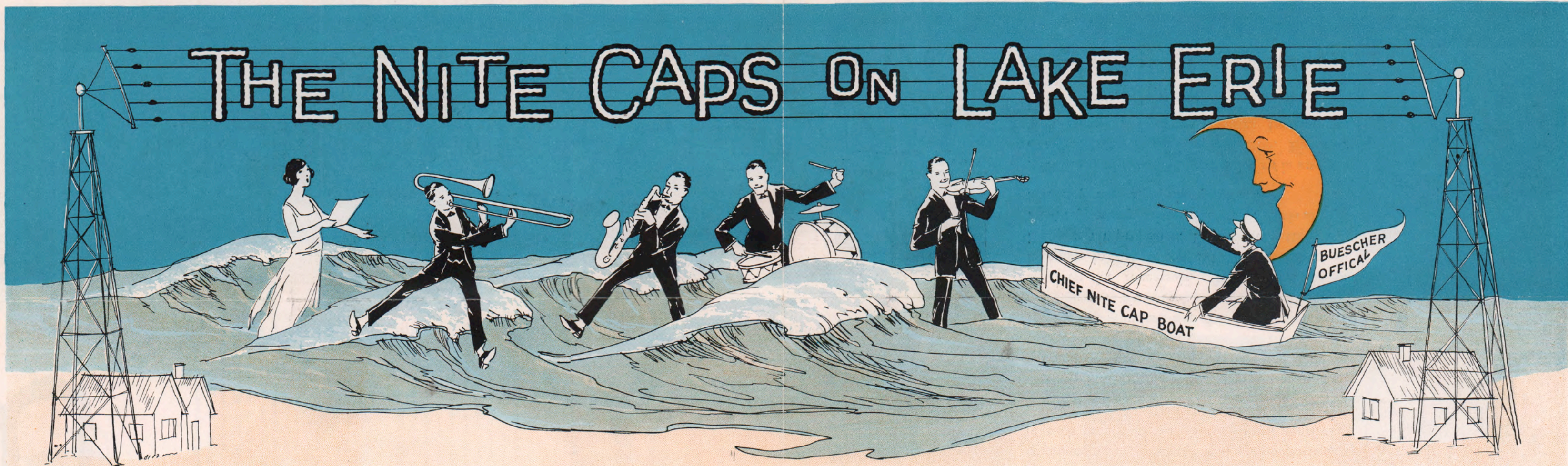


THIS SIDE OF CARD IS FOR ADDRESS

David Thomas
Proctorville
B

272 m.

They all play Buescher Instruments in the Nite-Caps — Hear them in your own home on the Radio



BROADCASTING
FIRST SATURDAY IN EACH MONTH
COMMENCING MIDNITE

W -- J -- A -- X
CLEVELAND, OHIO
390 METERS

INTRODUCING THE
CREAM OF CLEVELAND'S MUSICAL TALENT
BY RADIO



AUSTIN J. WYLIE
Director



AUSTIN J. WYLIE & ORCHESTRA
Golden Pheasant Restaurant



THE RAINBOW ORCHESTRA
Rainbow Gardens



HOWARD MORAN
Director



HUGH THOW
Director



HUGH THOW & ORCHESTRA
Gilberts Academy



VERNON-OWEN ORCHESTRA
Winton Hotel



VINTON VERNON
Director



JOE SMITH
Director



JOE SMITH'S ORCHESTRA
Martha Lee Club



LOMBARDO'S ROYAL CANADIANS
Lake Road Inn



GUY LOMBARDO
Director



GEORGE WARMACK
Director



GEORGE WARMACK'S SYNCOPATORS
The Far East Restaurant



THE KEYSTONE SERENADERS
South Main Gardens—Akron



RAY MCCONNELL
Director



COLEMAN HUBBARD
Saxophone Soloist



MISS JUNE FARLEY Soloist
MISS RUTH SPONSELLER Soloist
MISS ETHEL RHODY Soloist
MISS BOBBIE FITZPATRICK Soloist



MISS JEAN KIBBEY Soloist
MRS. MARTIN HEYDEMAN Lily Carbow Dramatic Reader
MISS WALLA ZELLAR Soloist and Director Plectrum Orchestra
MR. ALBERT DOWNING Tenor Soloist



R. A. HUDSON
Saxophone Soloist



CARL RUPP
Director Hollenden Orchestra



RUDY ADLER Saxophone Soloist Rainbow Orchestra
EDDIE PEABODY Instrumental Soloist Allen Orchestra
HOWARD R. JUSTICE Soloist
A. W. CUBBISON Soloist



JACK MILES Trombone Soloist Vernon-Owen Orchestra
SAMMY WATKINS Saxophone Soloist Wylie Orchestra
TERRY GEORGE Trombone Wylie Orchestra
EDDIE CONNORS Banjo Soloist



ERNEST WHITE
Saxophone Soloist



LARRY OWEN
Saxophone Soloist



IN CLEVELAND, OHIO



The Euclid Music Co.

Saxophones and Band Instruments
are the official instruments
of the Nite-Caps

10602 Euclid Ave.
11794 Detroit

Five Convenient Stores

2067 E. 9th St.

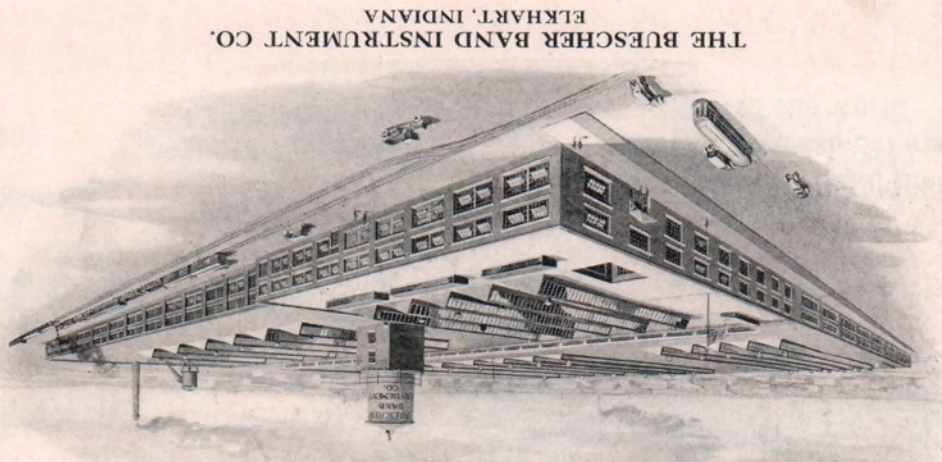
10314 Superior
12338 Superior

Saxophones and Band Instruments
are the professional standard
of the world



ARTHUR MORAN
Saxophone Soloist

All musicians on Nite-Caps are members of A. F. of M., Local 4, Cleveland



THE BUESCHER BAND INSTRUMENT CO.
ELKHART, INDIANA



Ask for this Valuable Book — It's Free
A copy of this interesting book is yours for the asking. It explains the history and development of the saxophone. It tells for what purpose each model is best adapted. It also contains a complete list of the new features found on Buescher Saxophones. Send for your copy today.



SALVATOR'S SAXOPHONE QUINTETTE
L. A. Salvator—Director



KOZLIK-WALLACE ORCHESTRA
MAYBOR PARK



MISS WALLER AND HER
PLECTRUM ORCHESTRA

The Nite-Caps on Lake Erie

Postmaster:
If undelivered, please return after 10 days—return postage guaranteed. Please check reason for non-delivery.

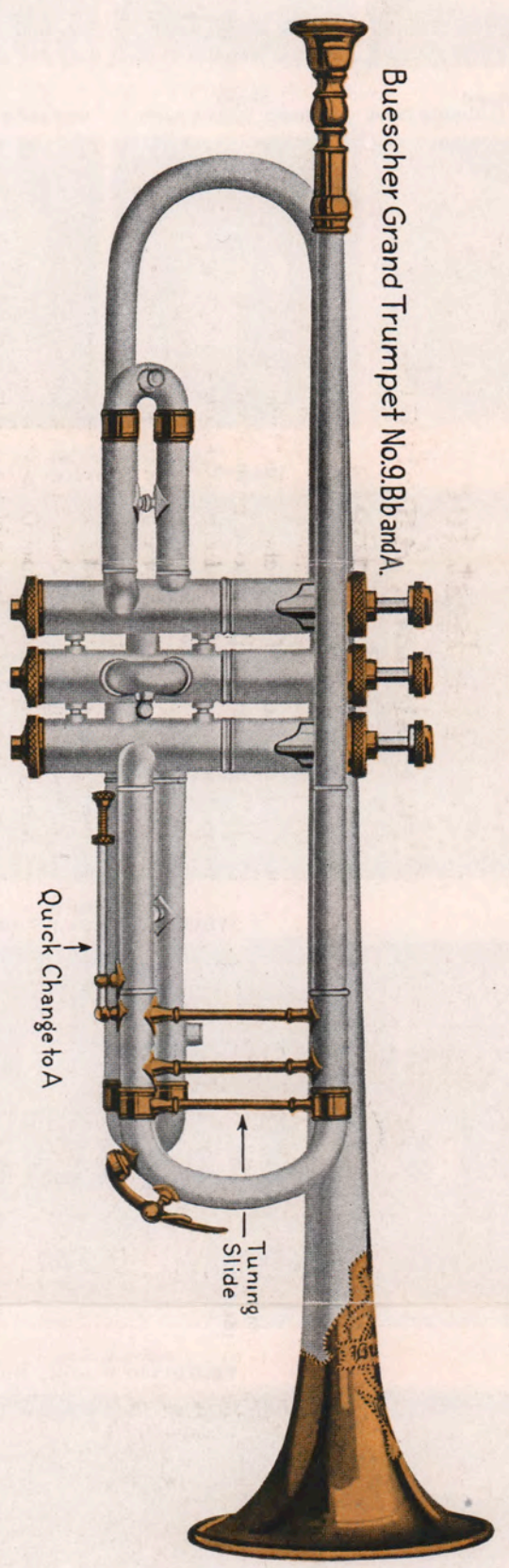
Deceased Refused
Unclaimed

Removed to.....

The **Euclid Music Co.**
Cleveland, Ohio



David T. Thomas
Proctorville
Ohio



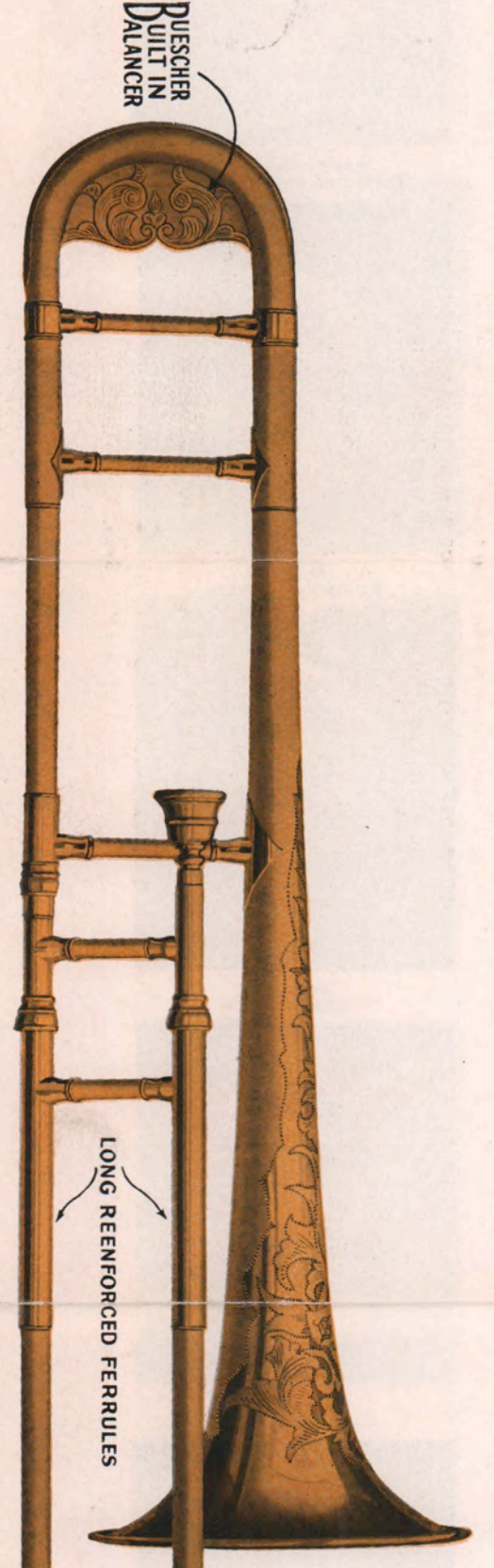
Buescher Grand Trumpet No. 9 Band

Buescher True-Tone Trumpets

A more brilliant trumpet has never been made, nor an easier blowing one. It perfectly satisfies professional musicians who want great brilliancy and body of work for outdoor solos, parades, and also fully meets the requirements of indoor work.
When played muted it has a wonderful soft sweet tone. The mute does not make it hard to hear. The quality of the tone is just as good as when the instrument is played without the mute. The Buescher True-Tone trumpet is the only one of its kind in the world. It is made in the U.S.A. and is guaranteed to give you the best of service. Eight different models to select from. Ask us to send you Circular No. 9.

Buescher True-Tone Trombones

The Buescher True-Tone Trombone is indeed a work of art. So graceful in design, so artistic in appearance, so beautiful in workmanship and so well balanced. You hear its pure tenor voice whenever you "listen in" on the famous Nite-Caps concerts. You hear it on 75 per cent of the phonograph records made by the world's greatest orchestras. Its tone—so pure in its richness, so pleasing in its sweetness, and yet so startling in its fullness—just holds you in wonder. You will be proud to own a Buescher Trombone. Four beautiful models to select from. Send for illustration sheet No. 23.



BUESCHER BUILT IN BALANCER

Buescher True-Tone Saxophone and Band Instruments cost no more than others and are sold on convenient terms. Send for catalogs.

LONG REINFORCED FERRULES

NICKLE SILVER PISTONS

The Best for Professionals, Amateurs and Beginners

Every day millions of people listen in wonder to the gorgeous tonal beauty of Buescher True-Tone Instruments. Every time you listen to a phonograph record, every time you tune in on a radio broadcasting concert being sent through the ether by one of your favorite orchestras, the chances are, you are listening to Buescher Instruments. Each and every musician pictured on this circular use Buescher Instruments, as do the musicians in Paul Whiteman's Orchestra, Paul Speck's Orchestra, Benjie Krueger's Orchestra, Oriole Orchestra, and other internationally famous orchestras which for lack of space we are unable to mention. These musicians are paid high salaries for extraordinary results. To get results they must have the best—they unanimously select the Buescher True-Tone.

The instrument that is best for the professional musician is undoubtedly the best for the beginner. The beginner of today will be the professional of tomorrow. In order to reach the goal for which he is striving, it is necessary to have an instrument that will aid him to attain his ambition. Many beginners on musical instruments who had a bright future before them and many of whom might have reached the zenith of fame, have been handicapped by playing on an instrument on which it would be impossible for anyone to produce the tones that the talented mind creates and expects. If your desire is to become a good musician, buy the best—it will cost you no more.

Buescher Snap-On Pad

One point on which the Buescher Company prides itself above all others is the perfection of its workmanship. Mechanically, as well as musically, the Buescher Saxophone is as near perfect as it is possible to make a Saxophone. The improved key system and exclusive features make it especially easy to learn. It is the only saxophone on the market with Snap-on Pads.

No plie, cement or shelle is necessary with this new pad. It fastens like a glove and all you have to do is just PUSH THE BUTTON. This patent has received more favorable comment than any other feature since the saxophone was invented.



Buescher True-Tone Saxophones

F. A. Buescher built the first saxophone made in America—nearly one-half century ago—and has had more experience in constructing high grade band instruments than any other man in America. When you purchase a Buescher True-Tone Saxophone you know that you are getting the best—an instrument with an absolute guarantee back of it.



CHIEF NITE-CAP
J. R. FREW—Program Director



STUDIO OF WJAX
The Union Trust Broadcasting Station



J. M. THORBURN
Radio Engineer, WJAX



E. G. JOHNSON—Announcer
Nite-Caps on Lake Erie



G. H. DENBY—Publicity Director
Nite-Caps on Lake Erie



DON KNOWLTON—Studio Director
Nite-Caps on Lake Erie

The NITE-CAPS on LAKE ERIE
MIDNIGHT RADIO CLUB
CLEVELAND, OHIO

Broadcasted by
W. J. A. X.
THE UNION TRUST CO.

Through the offices of The Euclid Music Co., The Cleveland Daily News and The American Federation of Musicians, No. 4, the Nite-Caps on Lake Erie were organized for the purpose of presenting to the public the finest of Cleveland's musical talent. Unlike other Radio Broadcasting Clubs, only one concert is given monthly, commencing at midnight on the first Saturday of each month and continuing until sunrise.

The musical talent of the Nite-Caps consists of Cleveland's finest professional musicians and entertainers who are selected through elimination contests. The programs are therefore of the highest standard and due to fact that only one concert is given each month, plenty of time is given for rehearsals. The suggestions of listeners in are taken into consideration in building all programs, the talent getting the most replies appearing more often. This always assures you of a popular program.

And the equipment of the musicians is another essential factor in clear reproduction. Buescher True-Tone Band and Orchestra Instruments having been elected the official Instruments, selected on account of their recording qualities. Tune in on the next concert. We invite your criticisms and suggestions.

THE KODEL RADIO CORPORATION

FORMERLY THE AUTOMATIC ELECTRICAL DEVICES CO. AND THE KODEL MANUFACTURING CO.

Manufacturers of Electrical and Radio Specialties

111-118-120 WEST THIRD STREET

CINCINNATI



CABLE ADDRESS:
HOMCHARGER

Mr. David F. Thomas.
Proctorville Ohio.

May 27, 1925.

Dear Friend:-

W K R C, -- your station -- is grateful to you for your report on a recent program. We have checked it thoroughly and there is no doubt but that you heard our program on the night mentioned.

We are endeavoring to make WKRC that most popular station in America. We want everyone to feel that there is always a good program at our station. But we have not employed so-called program experts to arrange our programs. We realize that true program experts, -- the people who really know the kind of entertainment that will please the majority, are folks like yourself, who listen in regularly and show their interest and appreciation by writing in to us.

Your criticisms and suggestions are most welcome and helpful. We hope you will tune in with WKRC often. Our artists and ourselves enjoy working for an appreciative audience.

And now, so that you may know us better, we are attaching a circular illustrating KRC products. The same ideal that makes us strive so hard to please in program thru WKRC, also finds expression in the workmanship and quality of KRC radio products. As a WKRC fan we know you will be glad to recommend KRC products to your friends, and be satisfied with nothing else when you, yourself, are in the market for a product that we manufacture.

Cordially yours,

THE KODEL RADIO CORPORATION.

By *E. S. Mitterdorf*

W K R C Announcer.

EM-kos.

CLASS B

WE OWN AND OPERATE BROADCAST STATION WKRC

1000 Watts

KRC RADIO PRODUCTS

The Sensation of the Season!

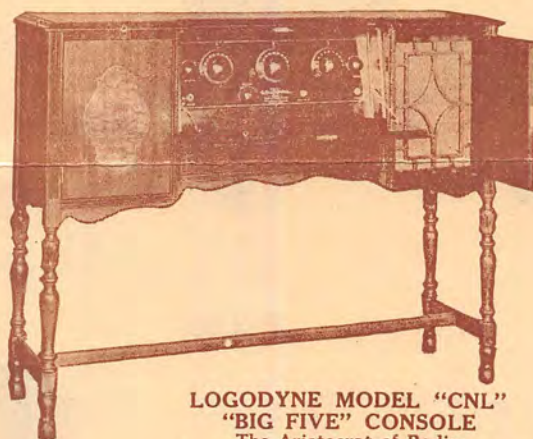
IN no other line of radio receiving sets at any price are the much sought qualities of volume, range and selectivity so efficiently combined with simplicity of control and minimum number of tubes required as in the KODEL line, due to the use of a marvelously sensitive new circuit. Comprising the minimum number of controls possible, consistent with satisfactory operating results, no previous experience is required in order to obtain satisfactory service.

And comprising a wide range of models, priced within the reach of all, there is a KODEL for every purpose and any purse.



C-11—One tube receiver — Range up to 1,500 miles.

\$10.00

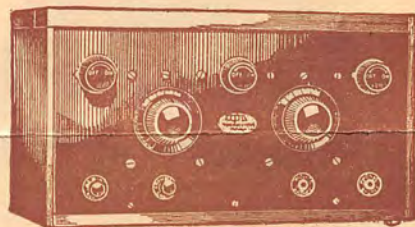


LOGODYNE MODEL "CNL"
"BIG FIVE" CONSOLE

The Aristocrat of Radio

A beautifully designed and highly efficient five tube tuned radio frequency receiver in dark mahogany console type cabinet with self-contained loud speaker. Roomy battery compartment, etc. Unsurpassed for appearance, value and performance—

\$250.00



C-114—Four-tube receiver. The newest Model C-14 in a beautiful dark mahogany addition to the KODEL line. Consists of finished cabinet. Users say it surpasses the highest-priced five-tube set in performance. And priced at only—

\$36.00

C-113—Same as the above, but only three tubes. Due to the use of the KODEL circuit, however, it is equivalent to any four, and most five-tube sets in results—

\$31.50



P-12—Two tube portable, weighs only 8 lbs. complete. Gives loud speaker volume on local and many distant stations.

\$22.50



P-11—A one tube portable—the Camera of Radio—fits in the corner of hand bag, weighs only 4 3/4 lbs. complete.

\$16.00



A-11—One-tube Audio Amplifier—

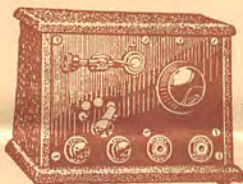
\$12.00



LOGODYNE "BIG FIVE"

A new five-tube Tuned Radio Frequency Set, universally acknowledged as Radio's most beautiful and efficient receiver—

\$82.50



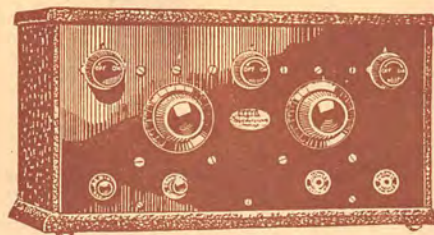
S-1—Crystal Receiver. Beautiful, selective, long range and simple to operate.

\$5.00



A-12—Two-tube Audio Amplifier—

\$17.00



C-13—A three-tube KODEL Masterpiece. Tuned radio frequency, KODEL detector, reflex and audio amplification gives five-tube volume and range—

\$28.00

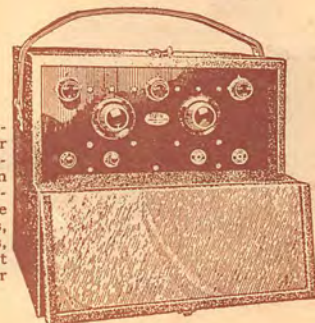


C-12—Two-tube receiver. A marvel for selectivity, range and volume—

\$18.00

P-14—Four-tube Portable. The ideal set for auto tourists, etc. Consists of Model C-14 unit in compact portable leatherette case. Ample space for batteries, head phones, ground and aerial wires, etc. Has coast to coast range on loud speaker under good conditions—

\$37.50



The above prices do not include Tubes, Batteries or Head Phones

WE OWN AND OPERATE BROADCASTING STATION WKRC—1000 WATTS

KRC RADIO ACCESSORIES

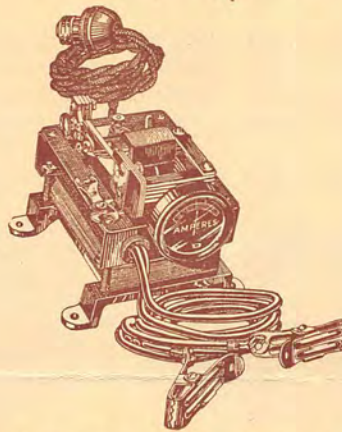
The New Silent GOLD SEAL HOMCHARGER



The World's Most Popular Battery Charger—The GOLD SEAL HOMCHARGER. Charges all Auto and Radio "A" and "B" Batteries over night for a nickle. Over 350,000 already in use. Popularly priced at—

\$18.50

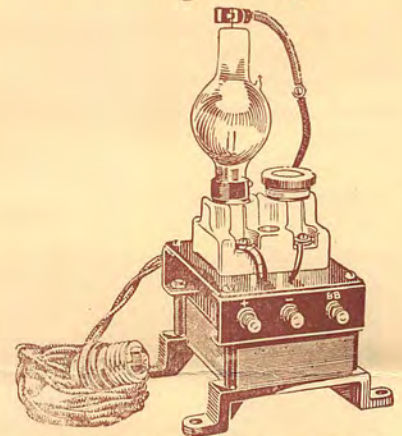
The STAR BATTERY CHARGER



A simple, dependable, low-priced charger of the vibrating type. Charges at a maximum rate of four amperes. Sold at a price within the reach of all—

\$12.00

CRESCENT Bulb Type ~ Battery Charger

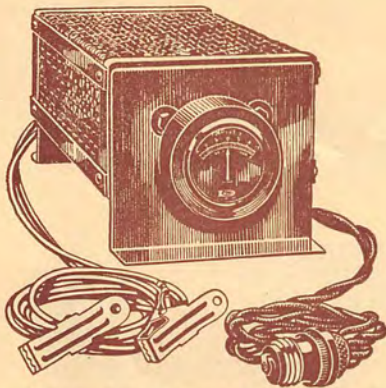


A battery charger of the bulb type, absolutely silent in operation. List price, without bulbs, 2 ampere size—

\$8.00

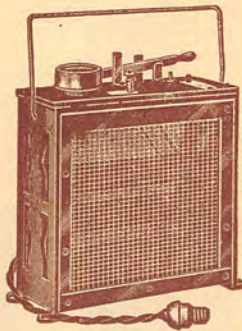
5 ampere size—

\$11.00



Midget type Homcharger for direct current circuits. Complete with ammeter, battery cables and clips—

\$12.00



Type "SA" direct current Homcharger. Three-point switch gives 2, 4 or 6 ampere charging rate. List price—

\$18.50



KODEL Bakelite Socket

Made of highly polished Bakelite. Fitted with positive tube stop. Price for use with UV-199 tubes—

50 Cents

Price for use with 201 tubes—

60 Cents



KODEL Audio Frequency Transformer

Equalled in construction and performance only by transformers listing at \$7.50 and \$8.00. Kodel price—

\$4.50



KODEL Bakelite Enameled Wire Rheostat

The very best made. Used exclusively in Kodel receivers, as sold separately for—

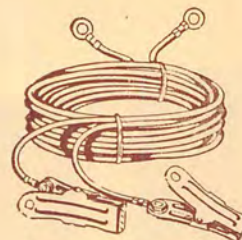
80 Cents Each

Grip-tite Test and Battery Clips



Manufactured from steel stampings, riveted together and heavily lead-plated so as to resist action of battery acid, etc. Made in two standard sizes, one for battery charging, the other for test purposes, making temporary connections, etc.

GRIP-TITE Battery Clips, 1 1/4-in. opening, 25 ampere capacity, each...15c
GRIP-TITE Test Clips, 1/2-in. opening, each...10c



Crescent Battery Cable, consisting of two 5-ft. rubber-covered wires, fitted with Grip-Tite Clips. Ideal for battery connections, etc. Price, per pair—

\$1.00



KODEL Variable Condenser

Simple, efficient and compact. A real "low loss" tuning condenser. Equivalent to 21 and 43-plate standard condensers in capacity. Price, each, complete with Bakelite dial—

\$1.50

THE KODEL RADIO CORPORATION

111-118-120 W. THIRD ST.

23124

CINCINNATI, O.

WE OWN AND OPERATE BROADCASTING STATION WKRC—1000 WATTS

At what hours do you use
your radio most?

- _____
- Orchestra classical
- Orchestra jazz
- Songs classical
- Songs popular

- _____
- Lectures
- Politics
- Sports
- Theatrical Productions

The broadcasting station will appreciate your filling in the above as well as listing, in the order in which you prefer them, the following kinds of broadcasting:

My set is: Crystal
 Tube
(No. of Tubes)

_____ Type of Circuit

_____ Name of Mfr.

Proof of Reception Card

This card is supplied for your convenience in communicating with the broadcasting station to procure an **ekko** stamp supplied by that station.

It is necessary that definite information, other than that appearing in public print, be given to determine the authenticity of your claim.

Instructions for Using "Proof of Reception" Card

Remember that the station must be convinced that you have actually heard their broadcasting. Comments of the Announcer or the mention of some particular identifying incident that occurred during the number are, perhaps, the best proof of this. The exact time that a particular number began or ended or the sequence of numbers are other proofs.

Fill out all the blanks on the card and take care that your name and address are plainly written where they belong and that a dime is inserted. Then put the card in an envelope addressed to the broadcasting station you heard. A list of addresses of broadcasting stations is included in your **ekko** stamp album.

My Name _____

City _____

State _____

Street and Number _____

On _____ at _____ I heard your station _____
Date (Day and Month) Time (A. M. or P. M.) Call letters

broadcasting the following: _____

Please send me one **ekko** stamp of your station.

Enclosed find ten cents to cover cost of mailing and verifying.

Be sure your name and address are PLAINLY marked above.

(OVER)

CLASS
B

Radio Broadcasting Station
WKRC

1000
Watts

OPERATING SCHEDULE

The operating hours of Radio Station WKRC, owned by The Kodel Radio Corporation, Cincinnati, Ohio, are as follows:

SUNDAY—6:45-7:30 P. M. and 10-12 P. M.

MONDAY—January, February, June, October, 10-12 P. M. All other months 8-10 P. M.

TUESDAY—10-12 P. M.

WEDNESDAY—8-10 P. M.

THURSDAY—Until further notice, we stand by on Thursday evenings, so that local fans may receive the Victor program from WEAf New York, without interference.

FRIDAY—Silent Night for all Cincinnati stations.

SATURDAY—10-12 P. M.

WAVE LENGTH

January, March, May, July, September, November - - - - 326 Meters.

February, April, June, August, October, December - - - - 423 Meters.

A bi-weekly publication, KRC Radio News, containing a full account of WKRC's programs and broadcasting activities, is now in preparation and will be mailed you regularly when published.

THE KODEL RADIO CORPORATION

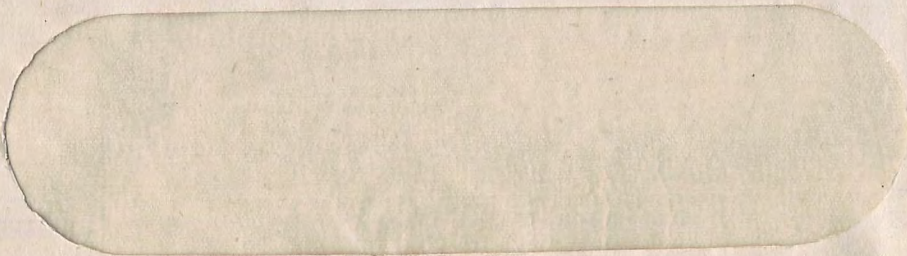
118-120-122 W. Third St., CINCINNATI, O., U.S.A.

After 5 Days, Return to
120-122 WEST THIRD STREET
CINCINNATI, OHIO

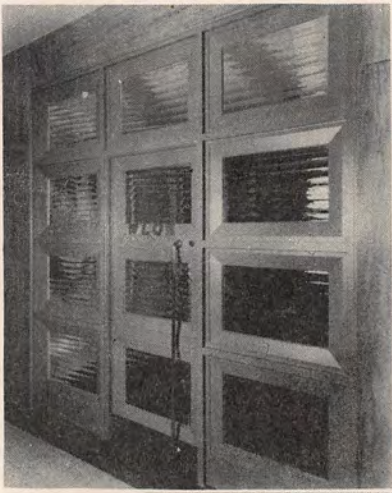
166

- WKRC

DKMRS.



K.



W L O K

BROADCASTING STATION

LIMA, OHIO



March 28, 1939.



Mr. D. F. Thomas,
Proctorville, Ohio.

Dear Mr. Thomas:

This is to verify your frequency check
program report of March 14th, A.M., EST.

Your report has been checked against our
log and found to be correct.



Cordially,

RADIO STATION WLOK

Don Jacob
Managing Director.



DI:NP

P.S. Radio Station WLOK, formerly WBLY,
changed their call letters and dedicated
new studios February 19, 1939. The new
studios are shown on the letterhead.

"The Voice of Lima Speaks from the Heart of the City"

W L O K
LIMA, OHIO



Mr. David F. Thomas,
Proctorville, Ohio.

— HESKETT RADIO STATION —

First Baptist Church,
East Broad Street
Columbus, Ohio
Broadcasting on
Wave length 286 meters

WMAN

Services are Broadcast
every Sunday
at 10:30 a. m.
and 7:30 p. m.
Eastern Standard time



DANIEL F. RITTENHOUSE
Pastor

“Sweetest Melodies are those that are by distance made more sweet” - Wordsworth

We wish to thank you for your communication regarding our Service.

Have conveyed to the Minister your appreciation of his Sermon.

Hope your interest in our Station may continue, and will welcome any suggestions you may care to make.

W. E. HESKETT

116

116



David F. Thomas
Proctorville
Ohio

BROADCASTING STATION W M H

CARD OF APPRECIATION

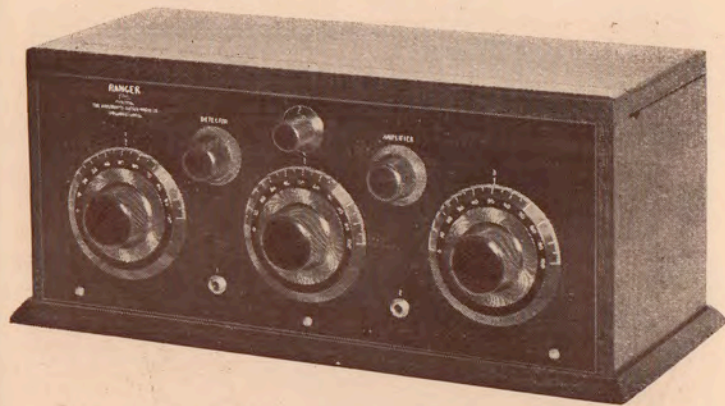
We hereby acknowledge receipt of your report.

WE THANK YOU

*The Ainsworth--Gates Radio Co.
Cincinnati, Ohio*

MANUFACTURERS OF "RANGER FIVE"

The RANGER "FIVE"



Is a More Perfect and Practical Instrument than
Any on the Market To-day.

FOREWORD

The best possible method of demonstration is actual use. For this reason we are briefly stating a few salient points of superiority with the hope that sufficient interest may be aroused to induce the reader to actually try out thoroughly one of these marvelous instruments.

TUNING and INTERFERENCE

The two major difficulties for the average amateur in Radio work have been actually revolutionized to such an extent that anyone can secure perfect results at once with this instrument. Local broadcasting, however powerful, can be eliminated entirely and with ease. Securing any desired station within the range of the instrument is merely a detail of setting the dials on the panel to certain fixed numbers shown by a chart and instantly the station is heard clearly and with more steadiness and volume than you now think possible.

RANGE

The range of this instrument is from 200 to 600 meters. Distances up to three thousand miles have been tuned in repeatedly and easily with a clearness of

Manufactured
by

The AINSWORTH-GATES RADIO COMPANY
CINCINNATI, OHIO, U.S.A.

MANUFACTURERS AND DISTRIBUTORS OF QUALITY RADIO APPARATUS

The RANGER "FIVE"

volume and a steadiness of reproduction that is a real revelation. Signals inaudible to the best regenerative sets are faithfully reproduced by the RECEIVER. Low notes of the organ and high notes of the violin are reproduced in their exact tone and volume—many of them entirely outside the range of the best types of instruments on the market.

SIMPLICITY

Two particular qualifications of this instrument instantly commend it to the user. Stations are recorded at the same setting and tuning in, only means the turning of the calibrated dials to certain fixed numbers—anyone in the household can do it—no time lost—no difficulty.

DESCRIPTION

The Ranger Radio Receiver is a special adaption of the non-regenerative type—simple in construction of such dimensions and design as to make it exceptionally artistic and beautiful in appearance. Its construction is sturdy and compact—nothing to get out of order—no delicate adjustments to be made—needs no fussing or fixing—always on the job.

PRICE \$95.00

CONCLUSION

We have purposely avoided the use of technical terms and drawings in this description, believing that results are what both dealer and user desires, rather than an attempted scientific treatise of the methods used to secure them. As we stated in the beginning, the most practical test is the one of actual use. Hear this instrument under any and all conditions and judge from that. As to the result of such a test we will only say this, that those who have made this trial are of the unanimous opinion that The RANGER RADIO RECEIVER marks a new epoch in the realm of Radio.

RESULTS

are what every purchaser
of a
RADIO RECEIVER
DESIRES.

You Get Them with the



COMBINES
SELECTIVITY

VOLUME — TONE QUALITY
DISTANCE

MANUFACTURED BY

The Ainsworth-Gates Radio Co.
Cincinnati, Ohio

General Offices
and Factory - 416 Main Street

Manufacturers and Distributors

... Quality Radio Apparatus ...

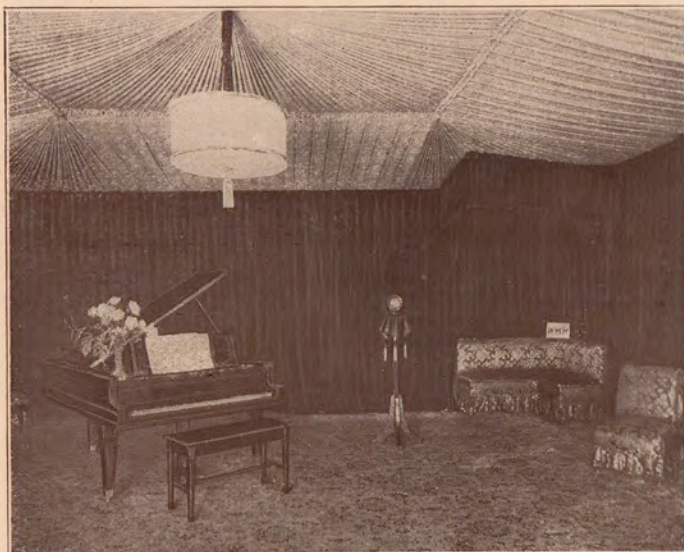
THE Ainsworth-Gates Radio Co.
 Manufacturers of Quality Radio Apparatus.
 CINCINNATI, OHIO

Operators
 AND
 Owners

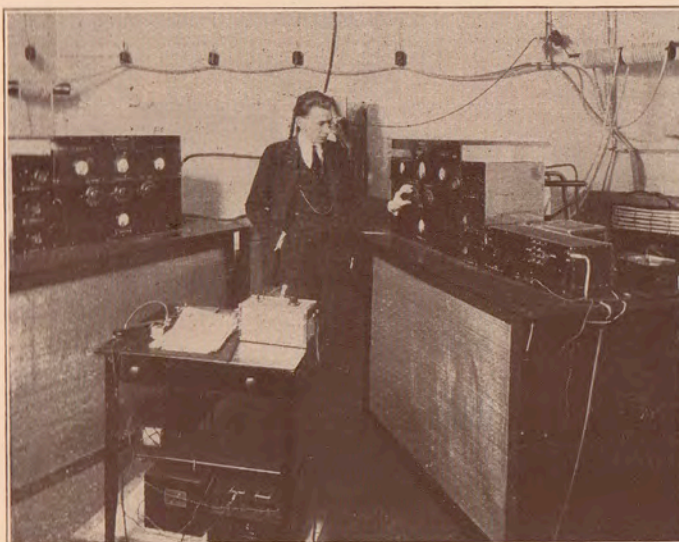
Broadcasting
 Station

W M H

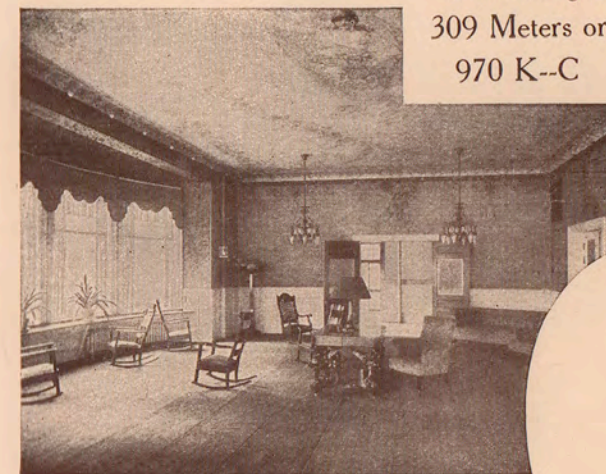
Wave Length
 309 Meters or
 970 K--C



STUDIO INTERIOR



RADIO TRANSMITTING ROOM



RECEPTION ROOM

Broadcasting Station W. M. H. operated from the beautiful Alms Hotel on the hilltops of Cincinnati by The Ainsworth-Gates Radio Co., was practically all built by this Company and consists of a 500 watt Radio Frequency Generating system and a 500 watt Modulator of our own design using 500 watt water-cooled tubes. The Speech Amplifier is a special four-stage, using three 5 watt tubes and two 50 watt tubes. It is entirely transformer coupled using transformers of our own design. The Microphone is a stretched diaphragm, capacity variation type. The antenna is a "Fan", 60 feet across the top and 75 feet in height, constructed of seven strands of No. 14-22 enameled antenna wire, spaced 10 feet apart and coming to a common lead. A counterpoise of very similar construction is used, this being of course, horizontal and mounted directly under the antenna. The plate current of one ampere for the

tubes is furnished by a 2250 Volt Storage "B" Battery and the filament current of 50 amperes is furnished by a very large 12 Volt Storage Battery. This Station has been successful in reaching a vast audience from Southern Florida to Canada and from points dotted entirely along the Atlantic to the Pacific Coast.

The Studio. This is 26 feet by 28 feet. The four walls are draped with crimson velour. The ceiling is false, being made up of a grey broadcloth in a beautifully fluted design. The acoustic properties of this studio have been worked out to best advantage for solo, choral and orchestral work.

Regular programs are given, Wednesday evening, 8 to 11, Thursday evening, 8 to 10, Saturday evening from 10 to 12, Central Standard Time during the Winter, and Central Standard Daylight Savings Time from April to October.



The Best All Around Radio
 Receiving Set Known To-day.

Distance -- Dependability -- Volume
 FIVE TUBE

SELECTIVITY TONE QUALITY
 POSITIVE DIAL SETTINGS

== Price \$95.00 ==

Stations are always Found at Same Points.

Ainsworth-Gates Radio Co.
Distributors Jobbers Dealers
"Quality Radio Apparatus"

Cincinnati, Ohio

73



73



David F. Thomas
Proctorville,
Ohio.



286 Meters

Radio Parts and Sets
Lighting Fixtures
Electrical Supplies

Wholesale

Retail

WE thank you kindly for your report on our broadcasting. The schedule of this station is as follows:

Daily Except Saturday and Sunday

Eastern Standard Time

3:30 to 4 P. M., Late News Bulletins

6 to 7 P. M., Dinner Program

Wednesdays—8 P. M., Special Program

Saturdays—10 to 12 P. M., Dance Orchestra

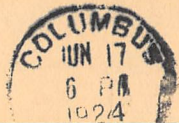
Sundays—5:30 to 7 P. M., Dinner Concert

The Avery & Loeb Electric Co.

“The House of Electrical Service”

114-116 N. Third St.

COLUMBUS, OHIO



THIS SIDE OF CARD IS FOR ADDRESS.

LET'S GO!

CITIZENS' MAIL

TERMINING

34



David A. Thomas
Proctorville
Ohio

SCHEDULE

Wednesday-8:00 P. M.

~~Thursday-10:30 P. M.~~

Sunday-7:00 P. M.

Impromptu programs.

RADIO BROADCASTING STATION WRAV

"The Station Under the Bell"

ANTIOCH COLLEGE

Yellow Springs, Ohio

Dear Friend,

This card is to thank you for your recent communication and to confirm reception of our signals.

This station is owned and operated by Antioch College. Its power output is 100 watts, using two 50 watt oscillators, two 50 watt modulators and one 50 watt speech amplifier. In addition one 5 watt microphone amplifier is used. The wave-length is ~~242~~ meters. 263

We are always glad to hear from our listeners and to know that they have received our programs.

This card will be your pass to our broadcasting station when you visit us.

Sincerely yours,

JOHN G. FRAYNE,

Director Radio Broadcasting Station.

171

170

THIS SIDE OF CARD IS FOR ADDRESS



Mr. David F. Thomas
Proctorville
Ohio



Radio Operating Room

urday 8.00 to 10:00 P. M. and at 12:00 midnight, Central Standard time. (Daylight Saving Time between April 27 and September 28.) WSAI operates on a wave length of 309 meters, 970 kilocycles.

WSAI Radio Chime

A special feature of WSAI programs are the chime concerts on the WSAI Radio Chime. The Chime consists of a set of twelve bells, which were built especially for broadcasting purposes by the Meneely Bell Company. The largest bell weighs approximately two and one-half tons and the smallest, three hundred pounds.

The bells occupy the belfry of a nine-story bell-tower located in the center of the company's grounds. The music from the chime is picked up by a microphone suspended in the air three hundred feet from the bell-tower.

The bells are rung by a single player, operating a series of levers, one for each bell, at a manual located two stories below the bells.

Chime concerts are given Sunday, 3:00 to 4:00 P. M.

Among the best known products manufactured by The U. S. Playing Card Company are the following:



Bicycle Playing Cards

(Regular size)

Famous for their scientifically designed backs, big indexes, perfect finish and superior all-around quality.

Bicycle Bridge Playing Cards



Bicycle Cards of narrow size, two packs in a case, one red, other blue, of same design.

Congress Playing Cards

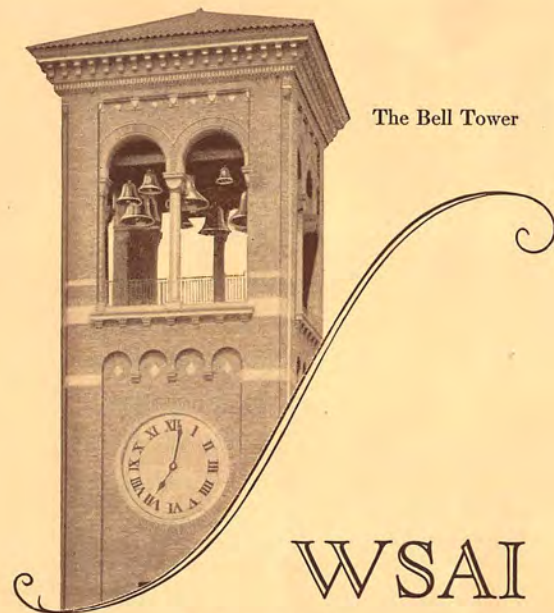
(Regular size and narrow size)

Single Pack Telescope Cases, Two-Pack Telescope Cases, full color art backs, gold edges. The most artistic playing cards in the world.



MAN-CHU—That popular Chinese game in card form.

Toy Cards, Fortune Telling Cards, Playing Card Supplies, etc., etc.



The Bell Tower

WSAI

The U. S. Playing Card Co.

CINCINNATI, OHIO

THIS little folder is sent to those who write to us regarding our radio programs. We trust that it will give some idea of the efforts we are making to please our radio audience.

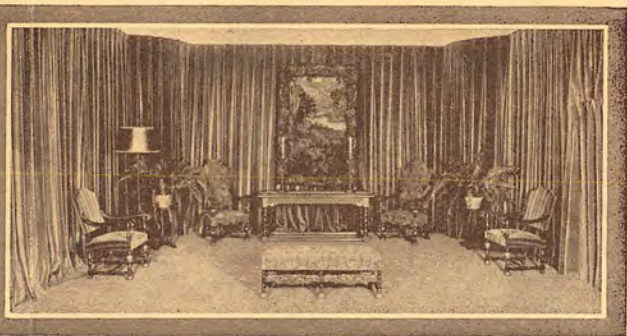
We aim to merit continued approval of all who listen to our programs. We therefore invite suggestions and criticisms that will help us plan the entertainment and educational features that will appeal to the greatest number of people.



Solo Studio



Reception Room



Concert Studio

Broadcasting Station WSAI

of The United States Playing Card Company was introduced to the radio audience of the Western Hemisphere on the evening of June 7, 1923. Programs since the opening night have been heard over practically the entire North American continent and reports have been received from such remote points as Panama, Honduras, Santo Domingo, Mexico, Bermuda, many points in the West Indies and all the provinces of Canada.

Program Policy

It is the aim of those who formulate the program policy of the station to obtain the best talent in the vicinity for the WSAI microphone. The proximity of the Cincinnati Conservatory of Music, The College of Music, both institutions of a national reputation, and the University of Cincinnati furnish an abundance of high-grade talent of an educational

and musical nature. The Hotel Gibson Orchestra, directed by Mr. Robert M. Visconti, a regular Tuesday evening feature, has been recognized by many critics as one of the best radio orchestras in the country.

Studio Arrangement

The broadcasting plant consists of a large reception room, elaborately furnished, flanked by a concert studio for orchestral and choral work, and a solo studio. Both studios have been rendered as nearly acoustically perfect as possible

and are hung in taupe velour. The hangings, with specially constructed sound-proof ceilings render the studios practically reverberation proof.

Structural Data

Broadcasting equipment consists of a 500-watt Western Electric transmitter. Plate current is furnished by 1600 volts of storage "B" batteries and the filament current by 14.3 volts of "A" batteries. The use of storage batteries as a means of furnishing power to the transmitter eliminates the "generator hum" and, by making the radio waves sharper, renders the wave more easily tuned. Two towers of Milliken self-supporting steel form the antenna, which is of the "T" type. The towers are 167' 5" in height.

Programs

Regular programs are broadcast on Monday 10:00 to 12:00 P. M., Tuesday 7:00 to 10:00 P. M., Thursday 10:00 to 12:00 P. M., Sat-



123

W S A I

THE U. S. PLAYING CARD CO.

CINCINNATI, OHIO, U. S. A.

1 2 3.



Mr. David F. Thomas,
Proctorville, Ohio.

Date May 18 1924

We wish to acknowledge receipt of your card
regarding our Program of past date 1924. Our
Programs are being published in various newspapers in the United
States. We appreciate your interest in our Station, and hope that
you may enjoy many of our concerts. May we hear from you again?

PROGRAMS.

Tuesday —7 to 10 P. M.

Thursday—8 to 10 P. M.

Saturday—10 to 12 P. M.

Central Standard Time.

(309 Meters 970 Kilocycles.)

THE UNITED STATES PLAYING CARD COMPANY

Radio Broadcasting Station WSAI

CINCINNATI, OHIO U. S. A.

24



THIS SIDE OF CARD IS FOR ADDRESS

INFORMATION

REGARDING OUR STATION

THE U. S. PLAYING CARD COMPANY—WSAI
Cincinnati, Ohio, U. S. A.

A Western Electric 500 Watt Transmitter. Transmitter power supplied by 1600 Volt Storage Batteries and 2 Motor Generator Sets. A Type-A Amplifier controls the speech input. Special double button Microphones are used to pick up the speech. Two Milliken Towers 167 feet 5 inches high support our huge "T" Type Antenna. Operating Wave length 309 Meters 970 Kilocycles. Music is furnished from two studios by the best artists obtainable.

David F. Thomas,
Proctorville, Ohio.

CHASE ELECTRIC SHOP

WIRELESS AND ELECTRICAL SUPPLIES
RADIO TRANSMITTING AND RECEIVING EQUIPMENT

POMEROY, OHIO

January 13, 1925

Mr. David F. Thomas
Proctorville, Ohio

Dear Sir:-

Your report on the reception of the program which was broadcast from W.S.A.Z. on Sunday P.M. Jan.11, has been received and we thank you very much for it.

We wish to please our listeners in every way possible and any suggestions will be thankfully received.

Station W.S.A.Z. broadcasts on Wend., Sat., and Sunday afternoons, beginning at 3:30 P.M.

Thanking you again, we are,

Yours truly,

Chase Electric Shop

By

Glenn E. Chase

CHASE ELECTRIC SHOP
WIRELESS AND ELECTRICAL SUPPLIES
RADIO TRANSMITTING AND RECEIVING EQUIPMENT
POMEROY, OHIO

13.

~~XIII.~~

Mr. David F. Thomas
Proctorville
Ohio



201.



DISTRIBUTING AND JOBBING OFFICE
811-12 GIBBONS HOTEL
BELL M. 3118

BROADCASTING STATION W. S. M. K.
810 GIBBONS HOTEL
BELL M. 3118

THE S. M. K. RADIO CORP.

BROADCASTERS AND DISTRIBUTORS

RADIO EQUIPMENT

DAYTON, OHIO

IN REPLY REFER TO S.M.Krohn, Jr.

November 16, 25.

David F. Thomas,
Proctorville, Ohio.

Daer Sir;

We are in receipt of your card, and wish to
verify same as being correct.

Now to answer your questions. We are not on WEAF
chain. We issue EKKO stamps. Our power is 500 watts.

Thanking you very much for your inquiry, and
trusting to hear from you again, we are,

Yours Very Truly,

THE S.M.K.RADIO CORP.,

Per *S.M.Krohn Jr*

S.M.K. Radio.

327



515



Mr. David F. Thomas,
Proctorville, Ohio.

HOTEL GIBBONS

EUROPEAN PLAN - SERVICE UNEQUALED

ABSOLUTELY FIREPROOF

DAYTON, OHIO

HEADQUARTERS OLD COLONY CLUB, INC AND DAYTON AUTOMOBILE CLUB

275-
M



It pleases us to hear from you and know that you are enjoying the Programs from

W S P D

THE

SPEEDENE

STATION

AT

TOLEDO

Your request will be given prompt attention. Let us hear from you again and often.

Agnes Northup, *Program Director*

681



THIS SIDE OF CARD IS FOR ADDRESS

David F. Thomas -
Proctorville,
Ohio

RADIO BROADCASTING STATION

"WSRO"

"WE SELL RADIO ONLY"

JOBBER'S OF
"RADIOCO" PRODUCTS



American-Brand Corp.
Atlas
Accuratune Dials
Acme
Alden Napier
Allen-Bradley
"Amertran" Transformers
Atwater Kent
Baldwin
"Balkite"
Burgess
Carter Jacks and Plugs
Connecticut T. & E. Co.
Copper Clad Steel Co.
Crosley
Cunningham
Cutler-Hammer
"Day Fan" Products
DeForest Tel. & Tel.
Dictograph
Doron Bros. Electric Co.
E. I. Co.
Eisemann Magneto Corp.
"Electrose"
Erla
Eveready Batteries
Federal Tel. & Tel.
"Formica" Insulation
Freshman Co. Inc.
Frost
Grebe
"Hilco"
Jewell Elec. Inst. Co.
Kellog
Kennedy
"Lefax"
Magnavox
Mazda Lamps
Morrison Laboratories
Mueller Clips
Murdock
N. Y. Coil Co.
Radio Industries
Radio Corporation
"Radioco" Portable
Scientific Laboratories
Sensory
Twin Dry Cell
Tattler Phones
U. S. Tool Co.
Victory Radio
Western Electric
Westinghouse
Willard
"Zenith"

CABLE ADDRESS "RADIOCO"

PHONE 2333

MANUFACTURERS OF
"RADIOCO" PRODUCTS



June 6, 1925.

Mr. David Thomas,
Procterville, Ohio.

Dear Sir:

Glad you liked our program
and hope you will ~~tune~~ us in again.

We are on the air on Sunday
afternoons and evenings and also
Wednesday and Friday evenings. Let
us hear from you again.

Have you a stamp album? If so,
you should have our station stamp.

Yours very truly,

H. Fahrlander
RADIO COMPANY.
H. Fahrlander.

HF.FM

EIGHT HOUR BATTERY RECHARGE SERVICE

176

WSRO



RADIO CO.
409 HIGH ST.
HAMILTON
OHIO.



364.



Mr. David Thomas
Proterville, Ohio

Willard Storage Battery Company

MAIN OFFICE AND FACTORY
246-286 E. 131ST ST.

Cleveland, Ohio

Dec. 4, 1924.

ADDRESS YOUR REPLY TO
S. E. Baldwin

Mr. David F. Thomas,
Twenty Sixth St. Ferry Co.,
Proctorville, Ohio


Dear Sir:-

We have your letter of Nov. 30th and appreciate your writing to us.
We are glad to know you are listening in and enjoying our programs.

While we have been licensed to increase the power of our station to
1500 watts the change has not been made and we are not able to tell
you at this time just when we will do so.

Very truly yours,

RADIO BROADCASTING STATION, WTAM


In Charge of Broadcasting

CCA.HS



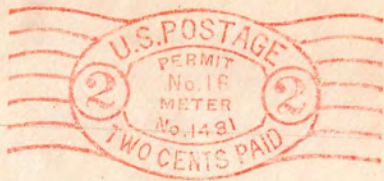
AFTER 5 DAYS RETURN TO

Willard Storage Battery Co.

246-286 E. 131ST

Cleveland - Ohio

165



400-33

165

Mr. David F. Thomas,
Twenty Sixth St. Ferry Co.,
Proctorville, Ohio



May 11, 1925

Dear Friend:-

Your recent words of encouragement are especially appreciated by us at WTAM as well as by the entertainers you hear at our station. We like to feel that our programs are pleasing and the artists themselves are not unappreciative of applause from their audience, for it is the only sort of encouragement they receive from their listeners.

On the stage they may resort to mannerisms, tricks, settings and other conventional "hokum", as it is called, to put over their act. Not so, however, in broadcasting. An entertainer stands or falls on sheer merit of performance. And letters received from listeners-in represent not only applause but are our only method of judging the success or failure of a program.

Broadcasting, as you must know, presents a number of problems altogether outside the mechanical operation of the station. No two radio listeners are exactly the same in their tastes. A broadcasting program to be ideal must be as varied as the taste of its many listeners. To meet the fancy of every radio fan is practically impossible. But to try to please every listener is not so impossible and that is the goal we have set for WTAM. It is a big task but the very hugeness of it gives us the energy and patience to attempt it.

We thank you for your courtesy in writing to us and hope that WTAM will continue to merit your approval.

Yours for "Better Results from Radio".

WILLARD RADIO STATION WTAM

S. E. Baldwin





Dear Friend:-

Your continued appreciation of the efforts which WTAM is making to give its listening public really satisfactory programs is certainly pleasing to us. We note that this is not your first response to WTAM programs, which is even more pleasing, because it leads us to believe that our programs are continuing to be entertaining, which is what we are working for.

Just like everybody else we are human and like to be told if we do a good job.

We are always endeavoring to keep our radio audience in mind when planning our programs. We try to satisfy all tastes and fancies. It is a big job but we believe in trying.

We thank you for your courtesy in writing WTAM again and hope that this broadcasting station will always be worthy of your approval.

Yours sincerely,

WILLARD BATTERY STATION - WTAM

S. E. Baldwin



Willard Storage Battery Co.

Cleveland, Ohio

BRANCHES

Atlanta, Ga.....	Corner Ivy and E. Baker Sts.
Boston, Mass.....	760 Commonwealth Ave.
Chicago, Ill.....	3916 S. Canal St.
Cleveland, Ohio.....	Chester Ave. and E. 23rd St.
Dallas, Texas.....	2020-22-24-26 Jackson St.
Denver, Colo.....	2145-2155 Market St.
Des Moines, Iowa.....	410-16 West 16th St.
Detroit, Mich.....	5946-54 Cass Ave.
Indianapolis, Ind.....	914 North Senate Ave.
Kansas City, Mo.....	2020 Grand Ave.
Minneapolis, Minn.....	36-40 South 10th St.
New York City.....	4-6 LaSalle St.
Omaha, Nebr.....	1108-10-12 Nicholas St.
Philadelphia, Pa.....	1423-25 Spring Garden St.
Portland, Ore.....	106 14th St. N.
San Francisco, Cal.....	480 Second St.
St. Louis, Mo.....	2918-20 Washington Ave.
Syracuse, N. Y.....	414 West Taylor St.

Service Stations and Radio Dealers in principal cities in U. S. A. and Canada sell

Willard Radio Batteries

In Canada the

Willard Storage Battery Company of Canada, Limited
Toronto, Ontario



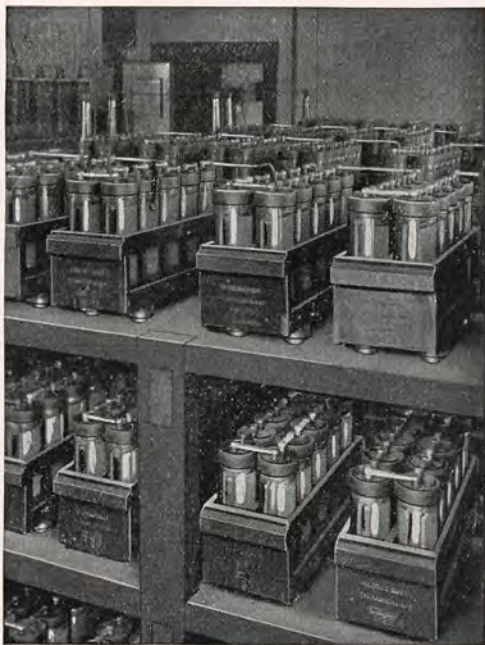
**Better
Results
from
RADIO**

Copyright 1924
Willard Storage Battery Co.
Cleveland, Ohio



A scene in WTAM's studio—which was designed and built to insure absence of noise

who make up its audience. To this end it solicits your views and comments and the suggestions of all other listeners-in. Send your communications to WTAM, Willard Storage Battery Co., Cleveland.



Some of the 1280 Willard CTR cells
which supply the energy for WTAM's broadcasting

numbers. This program often is largely selected by the radio fans, who send in their requests. These requests are met wherever possible.

It is Willard's aim to make the programs of WTAM enjoyable to the great majority of those

Noise—and How to Reduce It

When jazz, symphony or sermon comes forth from your radio blurred or drowned out by a medley of noises, what do you do?

If you are like a great many radio fans, you look to your connections to be sure they are tight, try to tune out the noise, and then, if you fail to get results, decide that it's due to static, and so can't be helped.

Perhaps you're right—it may be static that's causing the trouble, but did it ever occur to you that there might be another explanation—and one that could lead to quick relief?

Well, there frequently is, and it can be summed up in one word—*batteries*.

“But how can my batteries cause noises?” you ask. To understand the “how” and “why”, first consider what your batteries do to keep your set in operation.

As you know, every radio set equipped with one or more tubes requires two kinds of batteries—an “A” battery to supply the current which heats the filament of the tube, and one or more “B” batteries to supply current for the plate circuit of the tube, which reproduces the incoming signals and causes the vibrations in the diaphragm of the phones that make the signals audible.

While battery noises may be due to either A or B batteries, or both, it is the B batteries which are principal offenders, for the reason

that they are right in the phone circuit, while A batteries are not.

Because they are in the phone circuit, any disturbances caused by or within the B batteries immediately affect the vibration of the phone diaphragm, producing a variety of harsh, discordant sounds. The intensity of this disagreeable effect, of course, is greatly increased when amplified, especially wherever loud-speaking apparatus is used.

The battery disturbances which cause noise are set up in several ways, differing according to whether dry cells or storage batteries are used to supply the plate current.

Why Dry Batteries are Noisy

In the case of dry batteries, these disturbances are the result of one or both of two conditions: 1—Internal electro-chemical action, and 2—Unseen wearing away of connections within the battery, due to corrosion.

Internal action is constantly going on in even the best dry batteries, due to the very nature of the construction of this type of battery. Each cell, as you know, consists of a carbon electrode surrounded by what is known as the "mix" and around which is wrapped a thin sheet of zinc to form the outside wall of the cell and also to act as the other necessary electrode.

This internal action becomes more noticeable as the cell increases in age and the voltage drops.

Traveling instantly from batteries to phones, this constant disturbance is reproduced in the form of frying or hissing noises. Yours may be

regularly been broadcasting on a wave length of 390 meters.

Within a few months after its opening it was recognized by radio fans all over the United States, in Canada, Cuba, Mexico and elsewhere as one of the world's outstanding radiophone stations.

Countless letters, telegrams and telephone calls have been received from listeners complimenting WTAM both on its programs and on their transmission. Every mail brings its additions to this number, each day usually swelling the total by hundreds.

These letters show that WTAM has been heard not only from coast-to-coast, but also in the West Indies, Central America, Panama, the Hudson Bay Country, British Columbia, Hawaii, and on one occasion, at least, in the British Isles.

WTAM has its own operating staff and its own orchestra. The orchestra contains seven members, all of them also members of the Cleveland Symphony Orchestra.

Two Types of Programs

On Wednesday nights the program usually consists of various numbers to please the many different tastes of the far-flung radio audience. It includes orchestral music of different kinds, vocal numbers, talks by well-known persons and the like.

The Saturday night program, as a rule, is made up of dance music, featuring popular

RADIO PRICE LIST

PRICES EFFECTIVE Jan. 1, 1924

Subject to change without notice

TYPE	Amp. Hour Capacity.	In Cleveland, Chicago, Detroit, Indianapolis, New York and Boston Branch Territories	In Atlanta, Minneapolis, Kansas City, and Omaha Branch Territories	In Dallas, Denver, San Francisco and Portland Branch Territories
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RADIO "A" BATTERIES

FRR 1	50	17.10	17.80	18.70
FRR 3	90	22.00	22.90	23.70
FRR 5	120	27.70	28.80	29.80

"A" BATTERIES FOR PEANUT TUBES

	VOLTS			
CTR 125	2	\$ 2.50	\$ 2.50	\$ 2.60
CTR 129	4	9.80	9.80	10.00
CTR 97	6	12.00	12.00	12.30

RADIO "B" BATTERIES

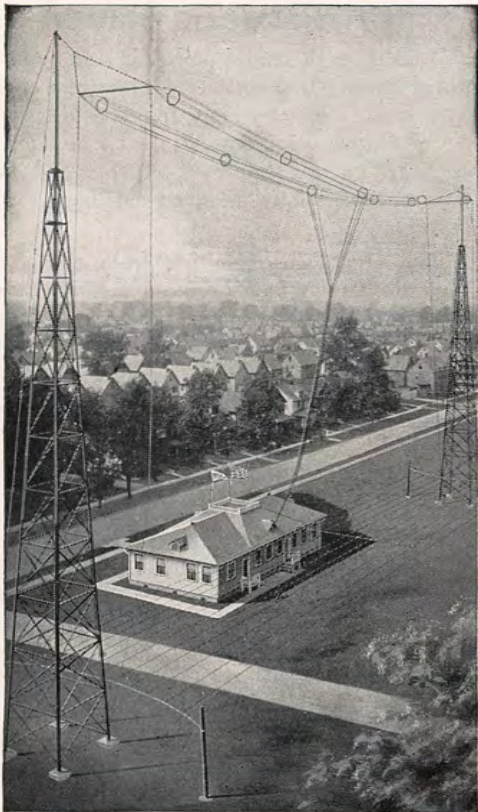
	VOLTS			
CSR 124	24	\$ 9.30	\$ 9.60	\$ 9.90
CBR 124	24	11.60	12.00	12.40
CSR 127	48	18.00	18.40	18.90
CBR 127	48	22.50	23.00	23.60

	Part Number	F.O.B. Any Branch
COLLOID RECTIFIER No. 1.....	2719	\$2.00
" " No. 2.....	2729	3.00
RUBBER MATS { 6½"x9".....	AF 207	.35
{ 8¼"x10½".....	AF 208	.45
{ 9"x15".....	AF 209	.65

Willard Storage Battery Co.
Cleveland, Ohio

RECOMMENDED "A" AND "B" BATTERY VOLTAGES FOR VARIOUS TUBES

TYPE OF VACUUM TUBE				RECOMMENDED "A" AND "B" BATTERY VOLTAGES					
Different Types Radio Tubes	Manufacturer	"A" Filament Terminal Voltage	"A" Filament Current in Amps.	Recommended "A" Battery Willard Types	Resistance of Rheostat in Ohms Necessary	"B" Plate Voltage		Recommended "B" Battery Willard Types	"C" Battery Volts Willard CBR or CSR Cells
						Detector	Amplifier		
UV-201-A	Radio Corp. of America	5	.25 Amp.	FRR-FRR-CTR 6 Volts	15	48	48 to 96	CBR-CSR	0 to 6 Volts
C-301-A	General Electric Co.	5	.25	FRR-FRR-CTR 6 Volts	15	48	48-96	CBR-CSR	0 to 6 Volts
UV-201	Radio Corp. of America	5	1	FRR-FRR 6 Volts	6	48	48-96	CBR-CSR	0 to 4 Volts
C-301	General Electric Co.	5		FRR-FRR 6 Volts	6	48	48-96	CBR-CSR	0 to 4 Volts
UV-200	Radio Corp. of America	5	1	FRR-FRR 6 Volts	6	18-24	CBR-CSR
C-300	General Electric Co.	5	1	FRR-FRR 6 Volts	6	18-24	CBR-CSR
Sodion D-1	Connecticut Radio Co.	..	.25	CTR-FRR-FRR 6 Volts	15	24	CBR-CSR
UV-199	Radio Corp. of America	3	.06	CTR-Cells 4 Volts	30	40	48-80	CBR-CSR	0 to 6 Volts
C-299	General Electric Co.	3	.06	CTR-Cells 4 Volts	30	40	48-80	CBR-CSR	0 to 6 Volts
WD-11	Radio Corp. of America	1.1	.25	CTR-Cell 2 Volts	6	40-48	48-72	CBR-CSR	0 to 4 Volts
WD-12	Westinghouse Electric & Manufacturing Co.	1.1	.25	CTR-Cell 2 Volts	4	40-48	48-72	CBR-CSR	0 to 4 Volts
DV-6-A	DeForest	2.7	.30	CTR 4 Volts	4	24-48	48-200	CBR-CSR	0 to 6 Volts
216-A	Western Electric Co.	6	1.35	FRR 6 Volts	10	48	96-120	CBR-CSR	6 to 10 Volts



WTAM—the most powerful broadcasting station in the world
operated entirely by storage-battery energy

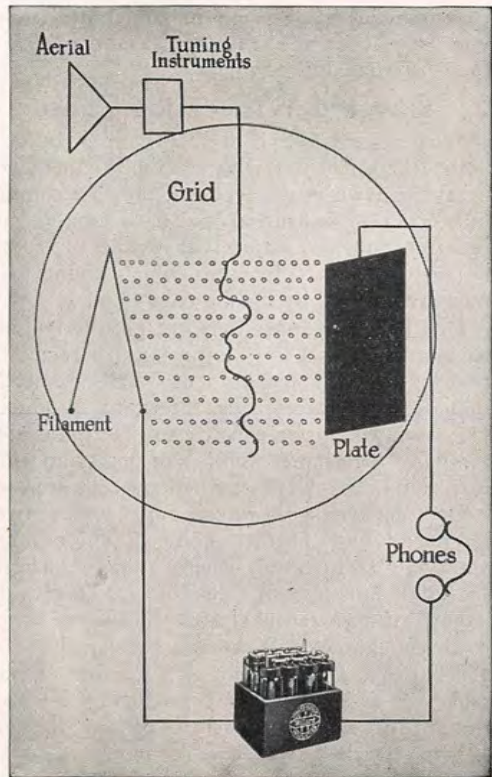


Diagram showing relation of B Battery to other units.
Note its location in phone circuit

a \$50 set or a \$500 set; it may be thoroughly efficient in every other particular, but if you are depending upon dry cells in your plate circuit, you cannot escape the unpleasant effects of their internal action.

Covered Wires Hide Cause

With regard to the other principal source of noise where dry batteries are used, namely, the breaking down of connections, this is a common but often unrecognized cause of trouble—not recognized for the reason that it generally cannot be seen because the wires which connect the cells are covered by sealing compound.

Dry battery connections are peculiarly liable to corrosion, and it is important to remember that for a given voltage more dry cells are needed than storage battery cells, the former producing $1\frac{1}{2}$ volts, the latter 2 volts, so that there are a comparatively larger number of points at which corrosion may take place when dry cells are used.

Dry batteries, however, are not entirely responsible for battery noises. These noises may be present, too, where storage batteries are used, but here they are the result of a different cause—external electrical leakage.

As you know, a B storage battery, like a B dry battery, also consists of a number of cells, each one a complete unit producing a certain amount of electrical energy. From the first cell to the last this energy should follow a given path. If it has the slightest opportunity, however, it will stray from this path, finding shortcuts for itself. When this occurs, the battery is said to leak electricity.

WTAM—Willard's Own Broadcasting Station

WTAM is the most powerful station in the world transmitting entirely with battery energy, and one of comparatively few stations with a power output of 1,000 watts. To produce the necessary energy requires 2,500 volts of Willard Batteries, especially designed and built for the purpose.

The advantages resulting from the use of Willard Batteries have been convincingly demonstrated to many thousands of radio set owners in the quality of WTAM's broadcasting, and this station has won national—one might well say international—recognition for unusual clearness and distinctness, and the absence of disturbing noises.

Praise From Many Quarters

This feature has been so pronounced as to provoke widespread comment not alone from listeners-in everywhere but also from radio publications and newspapers. Their comment can well be summed up in the words of a Boston newspaper which referred to WTAM as "the broadcasting station without a ripple."

Much sharper tuning and less interference also result from the use of Willard Battery power instead of a motor-generator set.

WTAM was formally "in the air" for the first time on September 26, 1923, and since then has

WHAS....Louisville, Ky.
 WHAV...Wilmington, Del.
 WHAZ.....Troy, N. Y.
 WHB...Kansas City, Mo.
 WHK.....Cleveland, Ohio
 WHN.....New York City
 WHO.....Des Moines, Ia.
 WIAJ.....Neenah, Wis.
 WIAK.....Omaha, Nebr.
 WIAO....Milwaukee, Wis.
 WIP.....Philadelphia, Pa.
 WJAG.....Norfolk, Nebr.
 WJAM...Cedar Rapids, Ia.
 WJAR...Providence, R. I.
 WJAS.....Pittsburgh, Pa.
 WJAX....Cleveland, Ohio
 WJH...Washington, D. C.
 WKAA...Cedar Rapids, Ia.
 WKAV....Laconia, N. H.
 WKBF...Providence, R. I.
 WKY.Oklahoma City, Okla.
 WLAG..Minneapolis, Minn.
 WLW.....Cincinnati, Ohio
 WMAH....Lincoln, Nebr.
 WMAQ.....Chicago, Ill.
 WMAZ.....Macon, Ga.
 WMC.....Memphis, Tenn.
 WNAC.....Boston, Mass.
 WNAP....Springfield, Ohio
 WNAR.....Butler, Mo.
 WNAV...Knoxville, Tenn.
 WOAC.....Lima, Ohio
 WOAI...San Antonio, Tex.

WOAP..Kalamazoo, Mich.
 WOAW.....Omaha, Nebr.
 WOC.....Davenport, Ia.
 WOI.....Ames, Ia.
 WOO.....Philadelphia, Pa.
 WOQ....Kansas City, Mo.
 WOR.....Newark, N. J.
 WOS...Jefferson City, Mo.
 WPAM.....Topeka, Kans.
 WPAD.....Chicago, Ill.
 WQAM.....Miami, Fla.
 WQAN.....Scranton, Pa.
 WQAV....Greenville, S. C.
 WRAH..Providence, R. I.
 WRAY.....Scranton, Pa.
 WSAB.Cape Girardeau, Mo.
 WSAD...Providence, R. I.
 WSAG.St. Petersburg, Fla.
 WSAI...Cincinnati, Ohio
 WSAR....Fall River, Mass.
 WSB.....Atlanta, Ga.
 WSY....Birmingham, Ala.
 WTAB....Fall River, Mass.
 WTAG...Providence, R. I.
 WTAJ.....Portland, Me.
 WTAM...Cleveland, Ohio
 WTAR.....Norfolk, Va.
 WTAU....Tecumseh, Nebr.
 WTAY.....Oak Park, Ill.
 WTX.....Chicago, Ill.
 WWI.....Dearborn, Mich.
 WWJ.....Detroit, Mich.

Electrical leakage causes disturbances in the circuit which issue from the phones in the form of noises. A very small amount of leakage can produce plainly noticeable sounds, because of the sensitive character of radio apparatus and, further, because amplifying appliances are frequently used.

Why Leakage is Common

Electrical leakage, for several reasons, is a common fault of the ordinary radio B battery. One of these reasons is that as voltage is increased, the tendency toward leakage is also increased, and the voltage of the B batteries is comparatively high—24 volts for a B battery as contrasted with 6 volts for the A battery.

Another reason is that in the ordinary B battery used in radio service, the tendency toward leakage has not been sufficiently taken into account.

Most ordinary radio batteries are merely adaptations of automobile batteries, and in automobile service battery leakage does not have to be guarded against so carefully as in radio operation. In the first place the tendency of the automobile battery to leak is much less because it is usually only of 6-volt construction, while, in the second, such leakage as does take place has no perceptible influence upon results.

“But,” you may ask, “if I should not use dry cells or the ordinary radio storage battery, what should I use to get rid of battery noises?”

The answer is: A storage battery especially designed for radio work in such a way that leakage is overcome.

Other Big Advantages

By using this kind of battery, you will not only get rid of battery noises, but you will also gain in several other important ways. These gains can all be summed up under two heads: Increased efficiency of operation and greater economy, but they touch a number of different points.

You know, of course, that for your set to deliver the best results, your B batteries should work at a certain voltage. If the voltage drops, the volume of sound coming through your phones is reduced, and signals that you would get with the correct voltage in the batteries may either not be heard at all or may be so faint as to be of no practical value. *Constant voltage, or as near it as possible, is what you want in your batteries, and it is something you can get only with properly constructed storage batteries.*

In a dry battery, the voltage begins to drop with the production of the battery. By the time it reaches the user, which may be some months after its manufacture, there has been a certain amount of loss, and this loss goes on continually after the battery is put into service, making it impossible to maintain constant voltage.

Efficient Dry Cell Life Short

Therefore, most of the time during which a dry battery is supplying current, it is working at much reduced efficiency. Actually, the efficient life of a dry battery is seldom longer than three or four months, although frequently the results of lowered battery efficiency are not

KFNG... Coldwater, Miss.	WDAL... Jacksonville, Fla.
KFOA... Seattle, Wash.	WDAO... Dallas, Tex.
KFOH... Portland, Ore.	WDAP... Chicago, Ill.
KFOP... Dallas, Tex.	WDAR... Philadelphia, Pa.
KFOR... David City, Nebr.	WDAU... New Bedford, Mass.
KFQB... Fort Worth, Tex.	WDBC... Lancaster, Pa.
KFSG... Los Angeles, Calif.	WDBH... Worcester, Mass.
KGG... Portland, Ore.	WDBV... Fort Wayne, Ind.
KGW... Portland, Ore.	WDBY... Chicago, Ill.
KHJ... Los Angeles, Calif.	WEAN... Providence, R. I.
KLZ... Denver, Colo.	WEAP... Mobile, Ala.
KOP... Detroit, Mich.	WEAR... Baltimore, Md.
KPO... San Francisco, Calif.	WEAU... Sioux City, Ia.
KRE... Berkeley, Calif.	WEB... St. Louis, Mo.
KSD... St. Louis, Mo.	WEBH... Chicago, Ill.
KZN... Salt Lake City, Utah	WEV... Houston, Tex.
WAAW... Omaha, Nebr.	WFAA... Dallas, Tex.
WABO... Rochester, N. Y.	WFAN... Hutchinson, Minn.
WABU... Camden, N. J.	WFAV... Lincoln, Nebr.
WBAH... Minneapolis, Minn.	WFBG... Altoona, Pa.
WBAP... Fort Worth, Tex.	WFBH... New York City
WBBG... Mattapoisett, Mass.	WFBU... Cincinnati, Ohio
WCAE... Pittsburgh, Pa.	WFI... Philadelphia, Pa.
WCAG... New Orleans, La.	WGAL... Lancaster, Pa.
WCAK... Houston, Tex.	WGAQ... Shreveport, La.
WCAL... Northfield, Minn.	WGAR... Shreveport, La.
WCAO... Baltimore, Md.	WGAZ... South Bend, Ind.
WCAP... Washington, D. C.	WGF... Des Moines, Ia.
WCAU... Philadelphia, Pa.	WGN... Chicago, Ill.
WCBD... Zion, Ill.	WGV... New Orleans, La.
WCBM... Baltimore, Md.	WHA... Madison, Wis.
WCK... St. Louis, Mo.	WHAD... Milwaukee, Wis.
WCX... Detroit, Mich.	WHAH... Joplin, Mo.
WDAE... Tampa, Fla.	WHAM... Rochester, N. Y.
WDAF... Kansas City, Mo.	WHAR... Atlantic City, N. J.

charge of these stations are a unit in their praise of the way these batteries perform.

The quick acceptance of Willard Rechargeable B Batteries for broadcasting by radio engineers is a remarkable tribute to their merit. It was not until May, 1922, that any effort was made to bring these batteries to the attention of radio-telephone stations. Within less than a year they have been adopted by all of the following, and each week sees new names added to the list.

Broadcasting Stations Using Willard Batteries

AA3.....Denver, Colo.	KDZE.....Seattle, Wash.
CFAC..Calgary, Alta., Can.	KFAU.....Boise, Idaho
CFCA. Toronto, Ont., Can.	KFBK..Sacramento, Calif.
CFCF. Montreal, P.Q., Can.	KFCF. Walla Walla, Wash.
CFCK. Edmonton, Alt., Can.	KFCO. Colo. Springs, Colo.
CFCN..Calgary, Alta., Can.	KFCZ.....Omaha, Nebr.
CFDC. Nanaimo, B.C., Can.	KFEC.....Portland, Ore.
CFYC. Vancouver, B.C., C'n.	KFGZ. Berrien Sprgs., Mich.
CHBC. Calgary, Alta., Can.	KFHJ. Santa Barbara, Calif.
CHCL. Vancouver, B.C., C'n.	KFI....Los Angeles, Calif.
CHCM. Calgary, Alta., Can.	KFIF.....Portland, Ore.
CJCA. Edmonton, Alta., C'n.	KFIQ.....Yakima, Wash.
CKCD. Vancouver, B.C., Cn.	KFIX...Independence, Mo.
CKCK. Regina, Sask., Can.	KFJC.....Seattle, Wash.
CKCX. Calgary, Alta., Can.	KFJL.....Ottumwa, Ia.
CNRC. Calgary, Alta., Can.	KFJA. Grand Island, Nebr.
KDQL.... Muskogee, Okla.	KFKB....Milford, Kansas
KDYL. Salt Lake City, Utah	KFLD....Franklinton, La.
KDYQ.....Portland, Ore.	KFLZ.....Atlantic, Ia.
KDZB..Bakersfield, Calif.	KFNF....Shenandoah, Ia.

recognized as such, and the battery is used until it is entirely dead.

Where the reduced efficiency of the dry battery is noticed, an attempt is sometimes made to overcome the results of the drop in voltage by adding more cells, but this method has a decided drawback, as it means considerably increased resistance in the circuit for the available voltage to overcome.

Two Facts to Remember

In the maintaining of constant voltage, the properly built storage battery has two big advantages. One of these is that the voltage drop is comparatively very slow, so that a considerable period passes before there is noticeable weakness. The other is that the moment the battery begins to show signs of weakness, it can be recharged, either with your own rectifier attached to an electric lamp socket, or, at little expense, by a battery service station.

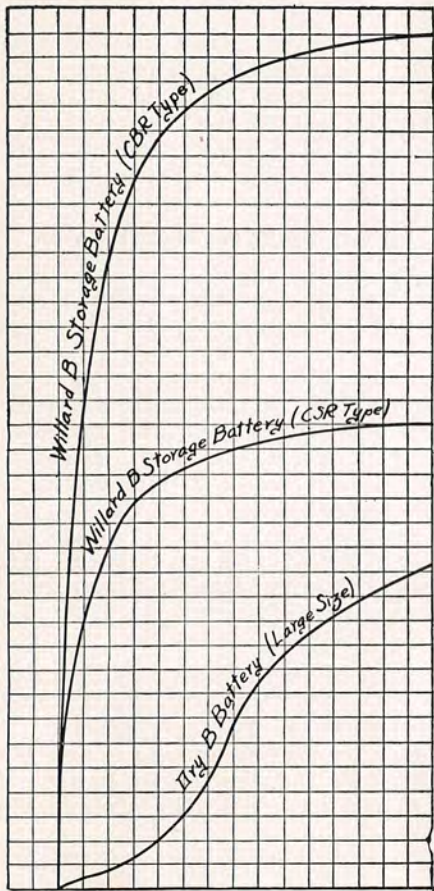
In fact, the right way to use a radio storage battery is to take full advantage of this recharging feature by always keeping the battery well charged, and not waiting for any indication of loss of voltage.

On the following page you will find a curve chart comparing the voltage characteristics of dry batteries and Willard B Batteries. Note that while the line representing dry battery voltage descends sharply, Willard Batteries hold their voltage for long periods before recharging is necessary.

In connection with the subject of constant voltage, it is important to consider external electrical

VOLTAGE CHARACTERISTICS OF DRY AND WILLARD BATTERIES

These discharge curves show voltage drop at 10 milliamperes rate



Note how Willard Batteries maintain their voltage. The voltage line, of course, can be kept horizontal by recharging, making possible maximum battery efficiency at all times

The Leading Batteries for Broadcasting



A typical Willard installation in a broadcasting station

The same characteristics which have made Willard Rechargeable B Batteries the leading batteries for receiving have also won for them recognition as the outstanding batteries for broadcasting.

One hundred and seventy-five broadcasting stations now use them, and the radio experts in



All that is needed to prepare a Willard Radio Battery for use is to pour in the electrolyte

leakage, which, as we have said, is likely to be present in the ordinary radio storage battery. You will recall that we cited this as one of the two principal causes of battery noises.

In addition to causing noise, this has a decided effect upon the voltage of the battery, due to the fact that, however small it may be, it goes on constantly even while the battery is not in use, so that much of the energy is wasted and the battery discharged considerably faster than it should be.

Willard Develops Original Radio Batteries

Early in the history of radio broadcasting, Mr. T. A. Willard and his associates, who have always led in the development of automobile batteries, saw that no then existing types of batteries met the peculiar requirements of radio service. Therefore, they set to work to produce a new and original B storage battery—one that would be leak-proof, that would deliver all its energy in the form of useful current, and that would maintain its voltage for considerable periods without recharging.

In their efforts they were greatly aided by their long and extensive experience in making various kinds of batteries—automobile, airplane, railway, lighting plant, and the like—and by a previous Willard achievement—Threaded Rubber Insulation.

The result of their work is the Willard Radio B Storage Battery—entirely original in design

—which accomplishes all that was desired and gives radio a new meaning for the average set owner.

In many important respects this battery is distinctly different from any other radio B battery, as can be seen at a glance, and every departure from conventional design has a bearing upon the improved results.

How Leakage is Prevented

In this battery, external electrical leakage is made practically impossible by a wide air gap between cells. It would take a pressure of about 2,000 volts to jump the gap between adjacent cells, and a still higher voltage to bridge the even wider gap between rows of cells.

In preventing electrical leakage, the use of glass jars as containers for the individual cells plays a big part, glass being a superior insulating material.

Another reason for the use of these glass jars is that they enable one to see the condition of every cell at all times—when water should be added and just how much; when the plates are beginning to show signs of requiring recharging and also, when they are sufficiently recharged, as indicated by the “gassing” in the cell.

The connectors are a feature of no little importance. For one thing, they are many times the size of the wires commonly used between cells in a dry battery and much heavier than those used in the ordinary radio storage battery, so that they cannot be easily broken. For another, instead of being screwed or soldered on they are burned on by a process which requires

All Shipped Dry and Fully Charged

In buying any Willard Radio Battery there are two other big advantages. One of these is that every Willard is shipped dry and carried dry in stock by the dealer. While a dry cell battery, or a storage battery containing electrolyte, is constantly deteriorating in the dealer's stock—and often this “shelf-life” is a matter of months—a Willard Radio Storage Battery is always brand-new whenever you get it, with not a day of its life wasted.

The other advantage is that in a very few minutes after you buy your Willard Radio Battery it is ready to work for you, and you escape the delay of two or three days required to charge the ordinary radio storage battery.

Special Charging Process

This is accomplished through charging the plates before the battery is shipped by a special process which enables them to hold the charge.

All that is needed to prepare a Willard Radio Battery for use is to pour in the solution. Even before the last cell is completely filled with this solution, the battery is in action.

You can demonstrate this to yourself by hooking up your Willard A Battery before you start to pour in the solution. You'll note that the filament of your tubes will begin to glow while you are still pouring.

To Charge B Batteries

Willard has not only developed new ideas in radio batteries but also the most inexpensive and satisfactory means of keeping your B storage batteries fully charged. This is the Willard Colloid Rectifier for use with alternating current.

Attached to your electric light circuit, this rectifier recharges B batteries at a trifling cost. It is made in two sizes.



Willard
Colloid Rectifier

No. 1 will recharge 24 cells of CBR or CSR at one time. No. 2 should be used for CTR cells and will give better satisfaction than No. 1 for CBR cells.

Rubber Battery Mats



These mats are made in three sizes, for use with both A and B batteries. They prevent the battery from scratching the surface on which it is placed, and otherwise protect woodwork and furnishings.



24 Volt Willard B Radio Battery—Type CBR
4500 m.a.h. capacity. Also made in 48 volt units



24 Volt Willard B Radio Battery—Type CSR
2500 m.a.h. capacity. Also made in 48 volt units

the use of no chemicals or other metal and which makes connector and post virtually one piece. This means absolutely tight connections.

Furthermore, in the Willard B Battery there are only 12 cells, as compared with 15 in a dry B battery, so that there are fewer connections to be considered.

In each cell extra heavy plates are used, and between them, instead of wood insulators as in the ordinary radio storage battery, there are Willard Threaded Rubber Insulators, made of hard rubber pierced with thousands of tiny threads. This is the same insulation as is used in the finest Willard automobile batteries. It lasts longer and permits a more uniform flow of the solution than does wood, and prevents "treeing" or internal leakage.

The Willard B Battery produces 24 volts, as compared with 22½ volts, the rated voltage of dry B batteries, so that it delivers constantly a greater voltage



One of the 12 glass cells of a Willard B Battery
Each develops two volts

With UV-199 and C-299 tubes, *two* CTR cells will replace *three* No. 6 dry cells, and on each recharge will work efficiently several times as long as the dry cells will last. Two CTR cells and a rectifier can be obtained in a well-built case, as illustrated.



4-volt CTR with Rectifier for use with UV-199 and C-299 Tubes

When WD-11 or WD-12 tubes are used a single CTR cell will operate from one to three tubes, but for the best results it is advisable to use one cell for each tube. So used, the CTR will not require recharging for weeks.

The CTR also makes an excellent low-priced A battery for use with UV-201A and C-301A tubes. A combination of six volts of CTR cells and a Willard Colloid Rectifier can be obtained in a case, as illustrated.



6-Volt CTR with Rectifier for use with UV-201A and C-301A Tubes

A Super B Battery, Too

In 20 volt, or ten cell, combinations, the CTR has no equal as a B battery, for it embodies all the many Willard B Battery advantages and has sufficient capacity to operate eight months to a year without requiring recharging. If you want the finest B battery made, use these CTR 10-cell units.

For Peanut Tubes and Other Uses

The development of the Willard Rechargeable CTR Battery has made it possible for owners of peanut tube sets to enjoy all of the many Willard advantages and to save money at the same time.

The outstanding feature of this battery is constant voltage at low cost. Unlike a dry battery, it holds its voltage for long periods without appreciable loss, making unnecessary frequent readjusting of the rheostat. And unlike the dry battery, when its voltage finally shows a drop, it can be quickly and easily recharged. You don't have to buy another battery.

With the Willard Colloid Rectifier, which can be obtained at small cost, (see page 18) you can keep your CTR battery fully charged and always working at its highest efficiency.

The CTR is not only exceptionally efficient, long lasting and inexpensive but it is also of convenient size.



The Willard CTR
Radio Cell

than the best dry battery produces at its moment of highest efficiency.

Moreover, any voltage up to the capacity of the battery can be obtained by simply shifting the connections, and the tubes being highly sensitive to the plate voltage, this is an advantage well worth taking into account.

It Costs You LESS, Too

With all that it offers—freedom from battery noises; constant and greater voltage, so that the volume of sound is maintained and you get stations you would not hear with weaker batteries; easy adjustment of voltage; much heavier and fewer connections; a clear view of the condition of every cell at all times and the various other improvements mentioned—you might naturally expect the cost of a Willard B Battery to be higher. As a matter of fact, it is *lower*, and its use is actual economy.

As you know, the life of a dry battery, even if you use it until there is not an ounce of energy left in it, can be figured only in terms of months. Then you have to throw it away and buy a new battery. Frequent battery purchases are always necessary where dry batteries are used in radio service

Contrast this with the fact that Willard B Batteries, with only an occasional recharging, will last for years without being replaced, and work at high efficiency day in and day out.

As to the first cost of a Willard B Battery, while it is naturally higher than that of a dry battery, it is within easy reach of every radio-set owner's pocketbook.

A Batteries, Too, Should be Built for the Job

Appreciation of the need of a thoroughly reliable A battery, built especially for radio service, has been rapidly growing. The set owner with whom batteries have been an afterthought, who has been under the impression that "any old battery" would do, is rapidly disappearing.

An A battery to give real results must be built for its job, with the particular characteristics called for by that job.

Some set owners have been using automobile batteries in A service, many of them rebuilt, although the requirements which an automobile battery is designed to meet are entirely different from those for radio A battery work. In radio A service, there is need of a constant voltage, otherwise frequent retuning is required because of the sensitive character of the apparatus.

In automobile service, on the other hand, ordinary fluctuations in voltage are not so perceptible in results.

In such service, the rate of discharge is comparatively high; in radio A service, low. This means that it is possible to use thicker, heavier plates in a radio A battery and greatly increase battery life.

All of these and other facts were, of course, recognized by Mr. Willard and his associates and they were no less concerned with developing thoroughly satisfactory and economical A batteries than they were with producing the right kind of B batteries.



Willard All-Rubber
Radio A Battery Type FRR

Willard All-Rubber Radio A Battery

In this battery not a bit of wood is used. The insulation is of Willard Threaded Rubber and the case of moulded hard rubber. The case is monobloc in construction, being moulded into shape under pressure of several tons to the square inch, so that all joints are eliminated. With this method there are no separate jars, for partitions between cells are moulded right into the container.

For long life, ruggedness and ability to maintain their voltage, Willard All-Rubber A Batteries, like Willard B Batteries, stand alone.

These batteries are made in three sizes, with 50, 90 and 120 ampere-hour capacity.

STATION WTAM

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CLEVELAND, OHIO

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