

April, 1931

RADIO

REG.
U. S. PAT.
OFF.

THE NATIONAL TRADE MAGAZINE



EIGHT YEARS A FAMOUS BRAND

It is undisputed that the Silver-Marshall brand on a radio receiver means Quality. And for eight years the "bar-and-circle" has been the sign of Progress. *Fourteen times* Silver-Marshall has been months, sometimes years, ahead of the rest of the radio industry with developments that are now universal. Screen-grid in 1927, tone-control in 1929, and exclusively superheterodyne since last July—they are a few.

Silver-Marshall has one of the few real radio laboratories in the world—designs and manufactures not only complete receivers, but chassis, auditorium amplifiers, auto sets, police receivers, aeroplane sets, short-wave sets, tuners, converters, power-packs, and over one hundred forty various radio parts.

These are some of the reasons why you can be sure that important developments will come *first* from Silver-Marshall.

SILVER-MARSHALL

Superheterodyne

6401 West
65th Street . . .

RADIO . . .

Chicago
U. S. A.



A straight course . . . straight ahead!

Radio dealers know now that the one sure way to profits lies in the sale of merchandise that is built to sound standards of quality and is backed by a name of long-established reputation. Brilliant stars may flash across the sky . . . but they burn out while the steady, unflick-

ering light of old, standard names grows from year to year as a dependable guide to the safe and sure pathway to profits and success.

Brunswick Radio Corporation
 MANUFACTURERS OF RADIO, PANATROPE AND
 THE WORLD-FAMOUS BRUNSWICK RECORDS
 NEW YORK — CHICAGO — TORONTO
 Subsidiary of WARNER BROS. PICTURES, Inc.



BRUNSWICK LOWBOY
 MODEL 15

Armored chassis with 3 screen-grid tubes and two 45's in parallel. Uni-Selector and Illuminated Horizontal Tuning Scale. Tone Control. Cabinet of seasoned and selected butternut with carved front panels. \$13950
 Other models \$170 up (less tubes)

BRUNSWICK RADIO



The **NEW**

Echophone

RADIO

AN 8 TUBE

SUPERHETERODYNE

Sensationally New

Delightfully Different

Emphatically Better

ECHOPHONE, long recognized in the radio industry as an instrument of the finest proven quality in every detail, now challenges the world for superlative performance superiority under all conditions.

ECHOPHONE is unique in the compact arrangement of unit construction. Amazingly sensitive, it penetrates to extreme distances. Highly developed selectivity permits you to USE its great power without restraint or fear of interference by close-in stations.

Specifications

CIRCUIT: Improved Super-heterodyne circuit employing a new Push-Pull audio system, resistance coupled — thereby insuring uniform tone response.

TONE-CONTROL: Permits the listener to adjust the tone of any program to his individual taste, thus bringing added enjoyment to the programs broadcast today.

VOLUME CONTROL DESIGN: New improvement resulting in elimination of Super-heterodyne noise.

VERNIER DIAL: Illuminated—dial calibrated to read directly in kilocycles.

IMPROVED ELECTRO DYNAMIC SPEAKER: Embodying the latest refinements and designed scientifically to match the acoustics of the cabinet.

PUSH-PULL AUDIO CIRCUIT RESISTANCE COUPLED: Insuring perfect uniform tone response.

BAND-PASS COUPLING: Providing smooth, distortionless tone qualities.

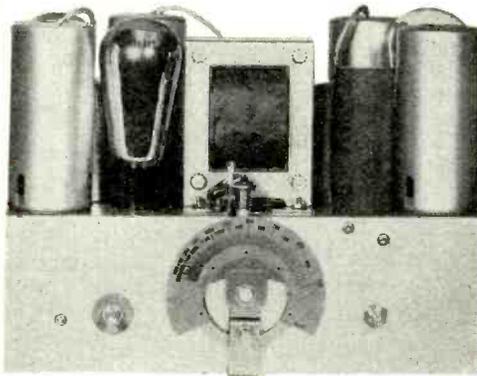
PHONOGRAPH PICK-UP JACKS: Automatically closes circuit for radio reception when pick-up leads are removed.

SCREEN GRID POWER DETECTOR

LOCAL DISTANCE SWITCH.

COMPLETELY SHIELDED.

Licensed under R C A patents,
Also Hazeltine and Latour patents



\$ **69** ⁵⁰

COMPLETE WITH TUBES

From the highest treble to the lowest bass, ECHOPHONE accurately reproduces both voice and instrument with all the warmth and charm of actual presence of the artists themselves.

ECHOPHONE RADIO MFG. CO., LTD.

Factory: 104 LAKEVIEW AVE., WAUKEGAN, ILL.

Pacific Coast Warehouse: 968 NORTH FORMOSA AVENUE, HOLLYWOOD, CALIF.

Export Office: 44 WHITEHALL ST., NEW YORK CITY

Tell them you saw it in RADIO

Established
1 9 1 7

RADIO

REGISTERED
U. S. Pat. Off.

THE NATIONAL TRADE MAGAZINE

VOLUME 13  NUMBER 4

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P. S. LUCAS, Editor

General Office—Pacific Building, San Francisco

BRANCH OFFICES

New York 415 Lexington Avenue
Chicago 211 West Wacker Drive
Boston 86 St. Botolph Street
Los Angeles 508 Crane Boulevard

H. W. DICKOW, Business Manager

SUBSCRIPTION RATES: \$2.00 per year in the United States;
\$3.00 per year in Canada and foreign countries.

Entered as second-class matter at the Post Office at San Francisco,
California, under the Act of March 3, 1879.

It's Easy To Identify 1931 Tubes

Look for Robust Rectifiers

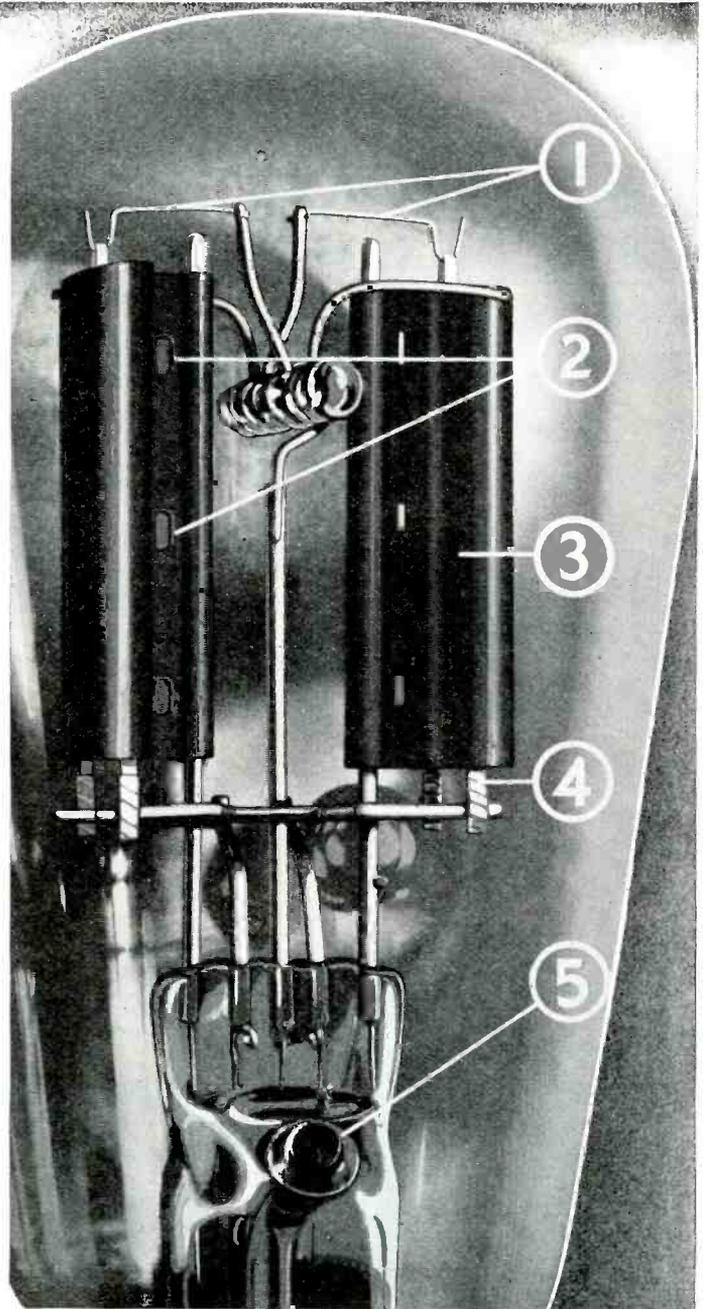
Ample and uniform current supply for every tube in the A. C. radio set—that is the function of the rectifier tube. De Forest engineers have insured that function with these latest refinements:

1. Special alloy hooks maintaining uniform tension on filaments.
2. Ingenious clamping to insure accurate plate dimensions for equalized full-wave rectification.
3. Carbonized plates insuring maximum heat dissipation at higher outputs demanded by latest sets.
4. Tabbed filament to insure low-resistance welds and prevent weakened filament due to spot welding.
5. Exhaust port positioned well below press to avoid leakage.

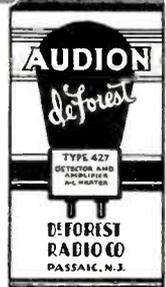
These and many other advanced features found in every type of fresh De Forest Audion, insure the 1931 performance of any radio set.

This is the fourth of a series of debunking messages dealing with 1931 radio tube features. The entire story can be sent to you immediately, if you so desire.

DE FOREST RADIO CO., PASSAIC, N. J.



de Forest
AUDIONS
RADIO TUBES



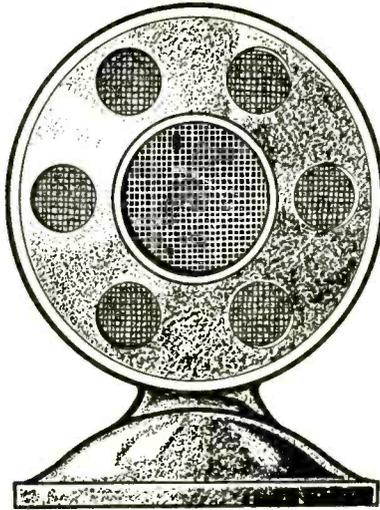
After all, there's no substitute for 25 years' experience



\$5⁰⁰
LIST PRICE

**THE DEMAND NOW
EXCEEDS THE SUPPLY**

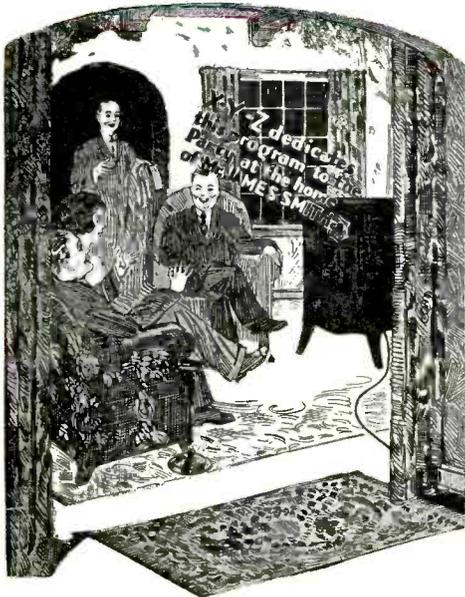
So great is the nation-wide demand for NOVO-MIKE that our factory is working a two shift schedule to catch up with the demand. Beginning April 9th, deliveries will be made on same day your order reaches us. Send us your requirements at once.



**EVERY RADIO
Owner Is a Genuine
Prospect for the «
NOVO-MIKE**

No matter who they are—where they are—they WANT Novo-Mikes. Dealers have found that this \$5.00 MIKE has the QUALITY and APPEARANCE that SELLS. Why not cash-in on the demand? Wire us for a sample order.

The **NOVO**
HOME BROADCASTING
MICROPHONE **MIKE**



**LARGE WINDOW CARD
FOR DEALERS**

A strikingly colorful LARGE window card, with a NOVO-MIKE mounted on it, helps you sell NOVO-MIKES. By all means, get at least ONE today.

ORDER AT ONCE!

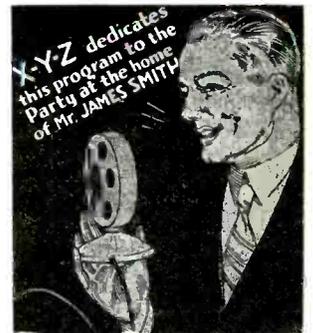
**The Sensational Seller
Is the \$5.00 Novo-Mike**

Usual discounts to dealers—You can sell a NOVO-MIKE with every set—you can sell them to all of your customers if you will take but a few moments' time and DEMONSTRATE IT. Talk in a distant room—unseen—amuse and thrill your friends. Break into the station programs with your "own programs"—and amaze your audience.

JOBBERS
Your dealers want Novo-Mikes. And we want your jobbing business.
WIRE US.

The Novo-Mike connects to the detector tube of any set. Press the button and the broadcast music stops—and you break into it with your own voice. Release the button and the broadcast is resumed.

Installed in a jiffy. One wire to the detector tube prong—another to the ground. THAT'S ALL!



AMERICAN LABORATORIES, LTD.
2903 Beverly Boulevard Los Angeles, California

AMERICAN LABORATORIES, LTD. RADIO
2903 Beverly Boulevard, Los Angeles, Calif.

Send _____ NOVO-MIKES and _____ display cards at once. Ship C.O.D.
at NET price.

Name _____

Address _____

City and State _____

Tell them you saw it in RADIO

HERE COME THE PENTODES

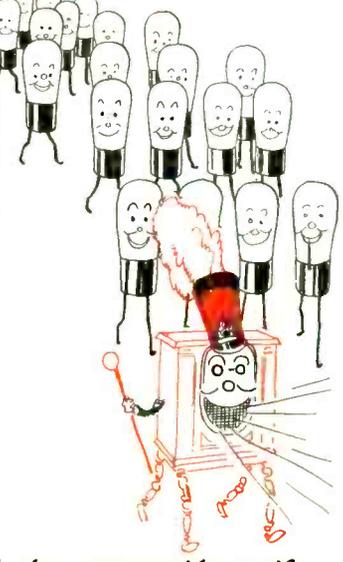
AND THE FAMOUS MODEL "90" IS THE ONLY ANALYZER



Dealers Net Price, F.O.B. Greenwood, Miss. \$78.50

• • • • • which is provided with adequate meter ranges and switching facilities for all tube tests and circuit analytical indications of the new space charge (pentode) power amplifiers. These features are a tribute to the foresight of Supreme engineering design against early obsolescence of practical testing equipment.

The Model 90 Supreme Set Analyzer, with the copper-oxide rectifier "wonder meter" which gives all A-C and D-C current and voltage readings, instantaneously and accurately, is the instrument for today's and tomorrow's servicing. Its functions and flexibility will prove astounding.



AND HERE COMES THE "SEVENTY"

READY for delivery April 15th. Confidence in Supreme is evidenced by the hundreds of orders on file for the Model 70 Oscillator—many placed even before a picture or description was available. THE RADIO WORLD "KNOWS" SUPREME'S REPUTATION FOR SERVICE INSTRUMENTS—"SUPREME BY COMPARISON!"

Both Oscillator and Output—Ohmmeter of revolutionary design. Model 70 covers intermediate frequency range from 90 K.C. to 550 K.C., and broadcast range of 550 to 1500 K.C. Operates from A.C. or D.C. 110 volt line or self-contained batteries. Completely shielded—tapered output control. Output meter of rectifier type is also provided with resistance measuring range of 0 ohms to 1 megohm.

It will pay to order yours today!



Supreme Oscillator Model 70, Less Tube and Batteries, Dealers Net Price, F.O.B. Greenwood, Miss. \$49.75
 Supreme Output-Ohmmeter, Dealers Net Price, F.O.B. Greenwood, Miss. \$30.00
 Handsome carrying case of hardwood for combined Oscillator, Output-Ohmmeter, and Accessories. Dealers Net Price, F.O.B. Greenwood, Miss. \$5.00

SUPREME INSTRUMENTS CORP.

403 SUPREME BLDG., GREENWOOD, MISS.
 DISTRIBUTORS IN ALL PRINCIPAL CITIES

Service Depots in: New York, Philadelphia, Pittsburgh, Chicago, Kansas City, Seattle, San Francisco, Toronto
 Foreign Division: 130 West 42nd St., New York City. Cable Address: LOPREH, New York



Tell them you saw it in RADIO

20,000 Level-Headed Radio Dealers ARE FIGHTING FOR BUSINESS

◆

Thousands of them going to Chicago to visit the June Trade Show. Other thousands staying at home because they can't get to Chicago All of these dealers want to know what you will exhibit at the show Many of them read "RADIO" EXCLUSIVELY because "RADIO" tells them what they want to know This year's Show Issue of "RADIO" will eclipse anything yet published by us in 14 years Advertising forms close in Chicago and New York on May 20th. Make your reservations now. Color-rotogravure in "RADIO" — if you want it No other radio trade magazine has it. Write for rates.

— The Publishers



View of Playland Casino, Rye Beach, Rye, N. Y., Showing Wright-DeCoster Speakers on the Side Wall, Recessed Back of Grills

For Tonal Quality and Volume Reproduction WRIGHT-DE COSTER REPRODUCERS Meet Exacting Demand

PLAYLAND

Westchester Co. Park System
Rye, N. Y.

August 21, 1930.

Wright-DeCoster, Inc.,
Saint Paul, Minnesota.

Gentlemen:

It gives us pleasure to advise you that the sound installation placed in the Playground Casino under contract by the Haynes-Griffin Company of New York City is the most satisfactory installation we have ever seen or heard. We have two other systems working here in Playground, both of them of recognized standard and both doing their work satisfactorily, but the system in the Casino was a very difficult installation. The Wright-DeCoster loud speakers used in this installation seem to have a tonal quality of reproduction which make them perfect for auditorium installations.

This system has now been in use for four months, has required no attention, and has been satisfactory since its final installation test.

Yours very truly,

By: FRANK W. DARLING,
Director.

FWD:Z

There are many kinds of businesses and institutions which are wonderful prospects for sound equipment if you will show them the advantage it will be to them. Large auditoriums, amusement parks, recreation centers, beaches and swimming pools, airports and many others can use high grade amplification systems. You can depend upon Wright-DeCoster Speakers for clean, true reproduction and volume, when installed with other high grade sound equipment. Your most exacting customers will be pleased with them.



The Speaker  *of the Year*

Write for Complete Information and
Address of Nearest Sales Office

WRIGHT-DE COSTER, INC.

2217 UNIVERSITY AVE., ST. PAUL, MINNESOTA

Export Dept.: M. Simons & Son Co., 25 Warren St., New York, N. Y. Cable Address: Simontrice, New York

Tell them you saw it in RADIO

How Much Money

Did YOU Lose
by not selling



UNIVERSAL MICROPHONES



Figure It Out . . . you sell, let us say, ten sets a week. At least half of these sets could have had included a UNIVERSAL MICROPHONE . . . even the little Baby Mike. 5 sets per week—5 UNIVERSAL MICROPHONES per week—THAT GIVES YOU AN ADDED PROFIT OF \$ \$ \$ for the week. Perhaps enough to pay a goodly share of your rent.

Announce Thru Your Radio

\$7.50

BABY MIKE is a real microphone, single button with circuit switch and 25 foot cord. The case is 3 inches high. The button is gold plated and the response of far better quality than would be expected for the low price of \$7.50. A sheet of instructions is included. Weight 12 oz.



Model "BB"

With Gold Spot Metal Diaphragm. A two-button microphone built especially for voice pick-up, public address work and for amateur broadcasters and experimenters. Its frequency range is from 50 to 4000 cycles, 200 ohms per button. A split primary microphone input transformer must be used with this microphone. Accurately machined, and silver plated. Made in 3 degrees of sensitivity: S—Very Sensitive; M—Medium Sensitive (Standard); D—Highly Damped.



LIST PRICE
\$25.00

Universal Handi-Mike

A single button hand microphone for radio receiving set operation, for personal call systems, etc. Equipped with thumb switch and 6-ft. cord. Handi-Mike is decidedly a microphone in both appearance and operation, and responds to frequencies from 70 to 2000 cycles. The button is 200 ohms. Packed in individual boxes. Size head, diameter 2 1/4 in.; length overall, 6 in. Net weight, 1 lb. Packed weight, 1 1/2 lbs.



List Price **\$10.00**

Banquet Stand

A half height stand for use on tables, at banquets, desks, pulpits, etc., also preferred by some for studio announcer's use.

Adjustable from 18 ins. to 28 ins. high. Beautifully finished in maroon statuary bronze. Base 7 ins. diameter. Top ring 6 1/2 ins. diameter. Furnished with 4 eyes for suspension of Universal "A," "BB," "KK," "LL" and any other carbon microphone.

Packed in individual cartons. Net weight, 11 lbs. Packed weight, 15 lbs.

New List Price for 4 Point Microphone Suspension as shown, with 8 Suspension Springs, Reduced to **\$15.00**

Code Word "BANK"



Write for New 32-pp. Catalog Just Out



Junior Radio and Amplifier Input Stage. For use with any single button microphone. Consists of microphone input transformer, switch and battery bracket in neat wooden box.
List price **\$8.00**

Start the New Season Right!

Selling is difficult enough these days . . . without the number of prospects you used to have. Each UNIT SALE must, therefore, produce a greater net profit for you. And your FAST SELLING accessory is the UNIVERSAL MICROPHONE. It even makes selling easier. The customer gets a genuine "kick" out of talking through a microphone. Have a UNIVERSAL MICROPHONE connected to every set in your store. Cut right into the broadcasts with your voice. And . . . here's another tip . . . go after all of those service calls with a UNIVERSAL MICROPHONE. Hook it up and demonstrate it to the prospect. Remember . . . every UNIVERSAL MICROPHONE sells another. The extra profit is there . . . plain as daylight. But you will never know how easy it is to sell until you try. That is why we urge you to send the coupon AT ONCE for a sample order. That starts you on the road to better profits.

Microphones from
\$5.50 List to \$350

FOR EVERY POSSIBLE USE

Also

Mountings, Transformers,
Cables, Plugs, Etc.



Write for New 32-pp. Catalog Just Out

REPRESENTATIVES

Exporters—Ad Auriema, 116 Broad St., New York City
Western Pennsylvania, West Virginia—Baumgarten, Frank, A., 429 Penn Ave., 212 Professional Bldg., Pittsburgh.
Minnesota—Barnard, Joseph, L., 2101 Blaisdell Ave. Minneapolis, Minn.
Oregon, Washington, Montana, Idaho—Burcham, Don, 382 Oak St., Portland, Oregon
Eastern Pennsylvania, District of Columbia, New Jersey, including Trenton on South, Delaware, Maryland—Byrd, Ken, Terminal Commerce Bldg., 401 No. Broad St., Philadelphia, Pa.
New England States, Upper New York State—Daw, Walter E., Room 401, 50 High St., Boston, Mass.

Illinois, Wisconsin—Cushing, L. G., 9 South Clinton St., Chicago, Ill.
Atlanta, Georgia—Fowlkes, Sam. H., P. O. Box 42.
Indiana—Gnas, John C., 415 Architects & Builders Bldg., Indianapolis.
Northern California—Hermans, James P., 585 Mission St., San Francisco, Calif.
Cleveland, Ohio—Handel-Davies Co., Chester Twelfth Bldg.
New York City—Smith, Howard F., 142 Liberty St., New York City.
Southern Sellers: Louisiana, Mississippi, Alabama—J. E. Muniot, Jr., 918 Union St., New Orleans, La.
Missouri—Beneke, J. W., 1689 Arcade Bldg., St. Louis.
Canada—Continental Radio Corp., 79 Elm St., Toronto 2.

Universal Microphone Co., Ltd.

Largest Exclusive Manufacturer of Microphones in the World
1163 Hyde Park Blvd. Inglewood, Calif.

UNIVERSAL MICROPHONE CO., LTD.
1163 Hyde Park Boulevard, Inglewood, Calif.

Ship me, C.O.D. at dealer's price, _____ Model _____
Microphones. In enclose 50% deposit.

NAME _____

ADDRESS _____

CITY AND STATE _____

SELL OWLS

50% OF YOUR CUSTOMERS
will **BUY** **RADIO OWLS**

Automatically Turns Off
Radio Sets and Electrical Appli-
ances at a Predetermined Time

Radio Owl is a hydraulic type oil pressure which turns off your radio silently—automatically! Your customers can go to bed at night and listen to their favorite dance orchestras while being lulled to sleep—Radio Owl, standing guard, turns off the set. Absolutely foolproof in construction and operation. A sensational seller, in fact, one of the best paying side-lines because every radio user needs one.



5 DOLLARS

Prize Winning Money-Making Idea Awarded by "RADIO" to Gilbert's Radio Store, Pomona, Calif., for Best Business-Getting Suggestion

"We have found our service men and tube salesmen can make their salary, a profit for us and a commission for themselves, in the following manner:
"The men who call on prospects in their homes carry a Radio Owl with the cord unwrapped. When their kit is opened the Owl is in the way and the convenient place to put it is on top of the radio. Even if nothing is said, the lady of the house becomes inquisitive as to what it is. The salesman explains its advantages. If tubes have been replaced, he tells her the Owl will save the tubes (we know they will probably leave the set on longer, for they will play it after going to bed). We offer to leave the Owl for trial. When we go back to get it in a few days, we get \$5.00 bills for more than half."

You, Too, Can Profit By Selling RADIO OWL
It Retail for \$5.00. East of the Rockies, \$5.50.



Attractive, individual new container. Striking effect for window and counter displays. Ask for display cards.

ORDER SAMPLE TO-DAY

List Price, \$5.00.
East of the Rockies, \$5.50.

TAYLOR-TRAVERS CORP., LTD.
2201 East 51st Street, Los Angeles, Calif.

Send me _____ Radio Owl for which I enclose \$ _____

NAME _____

STREET _____

CITY _____ STATE _____

Tell them you saw it in RADIO

SENSATIONAL NEW MODEL 68

Ready!

8 TUBE



JACKSON-BELL

Midget RADIO



NEW • FINER

\$69 50

complete with 8 tubes

NEW MODEL 50

5 tubes (3 screen grid), dynamic speaker, tone control, attractive walnut cabinet - - 8" x 11 1/2" x 15"

\$49 50

complete with 5 tubes

NEW MODEL 62

6 tubes (4 screen grid) Magnavox dynamic speaker, perfected tone control, exquisite walnut cabinet 8" x 11 1/2" x 15"

\$59 50

complete with 6 tubes

JACKSON-BELL COMPANY . . . LOS ANGELES, CAL., U. S. A.
MANUFACTURERS OF ALL-ELECTRIC RADIOS . . . SINCE 1926

The THIRD in the 1931 line of JACKSON-BELL Midgets. The ONLY exclusively Midget Line in America. Big extra profit. No conflict with your present lines. Profit proven by the experience of thousands of Dealers and Distributors everywhere. Dependable merchandise, produced by an old established Manufacturer, pioneer and recognized leader in the Midget field. Generous co-operation. Effective advertising. Sure-fire sales plan. Write TO-DAY for proposition.



Model 68 Features

- 8 tube "wallop"
- 4 screen grid tubes
- local and distance switch
- illuminated vernier dial
- Magnavox dynamic speaker.
- push pull amplification
- improved tone control
- walnut cabinet 19" x 11" x 16 1/2"



RADIOTORIAL COMMENT

Television: THE radio dealer is puzzled by contradictory reports as to when television receivers will be ready for general sale and as to what kind of equipment he will have to offer the buyer. One inspired source is vociferously shouting to the house-top aerials that television will not be ready for the home for at least two years. Other equally inspired sources are industriously circulating reports that they will start large scale production of television equipment during the next radio season.

Most of the two-year proponents are conservative business men who wish to avoid a repetition of the confusion and market instability which marked the beginning of the broadcasting of speech and music. They are waiting until they deem it expedient to market radio movies for the home, until there is assurance that provision has been made for the broadcasting of pictures that will continue to hold the interest of set-owners, until they feel assured that their models will have a reasonable life expectancy before they are made obsolete by improvements in transmitting and receiving methods, and until they can market a set which will not be a vulnerable target for imitators. All of which is good business, not only for the manufacturer but also for the dealer.

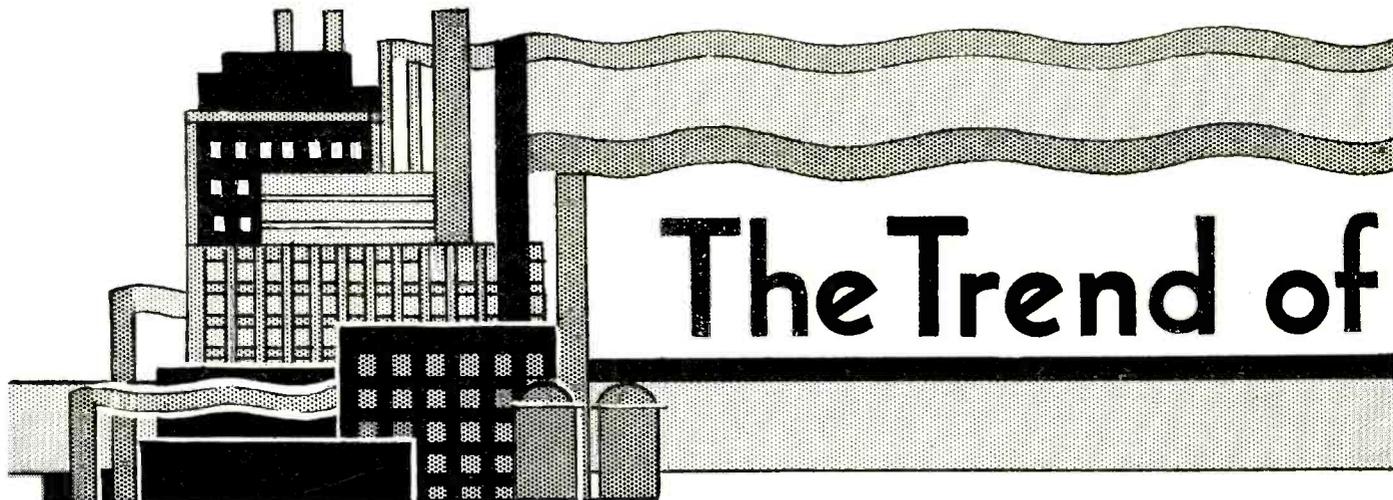
Most of the six month adherents are progressive concerns who have attained a modicum of success with somewhat crude equipment and who realize that many people will be satisfied with the immediate marvel of television without waiting for its ultimate perfection. They would just as soon sell kits as complete instruments.

These progressives are very likely to force the hand of the conservative. All of which indicates with some degree of certainty that a great many people will be asked to buy television receivers in 1931.

And What BUT the best equipment will be minus the awkward scanning disc and manual control of synchronization that characterize several of the instruments that are available for public purchase today. The equipment will consist primarily of a short-wave receiver easily tunable to the several bands which have been allocated for experimental use between 100 and 150 meters. The scanning will be accomplished by means of a cathode ray tube on whose fluorescent surface the image will appear or from which it will be projected onto a larger screen. The pictures will be large enough to be viewed by several persons simultaneously and have enough detail to make the faces of full-length figures recognizable. Synchronization will be accomplished by means of special frequencies transmitted by radio.

All this, and much more, has been accomplished in the research laboratories in the hands of experts. But these instruments are not yet ready for the tyro. Any mechanism for reproducing pictures by radio is necessarily more complicated than that for reproducing voice and music. It must be made fool-proof and designed so as to require a minimum of servicing after it has been installed.

While the probable delay in the wide-spread distribution of television sets is irksome, such a course is wiser than would be the early marketing of half-baked equipment. While we decry any unnecessary delay in putting a new instrumentality for profit into the hands of the radio dealer, we realize that the introduction of television should be under the supervision of those who will not make the same mistakes as were made in 1921 and thereafter.



Pentode Finding Its Place

THE pentode is again in the limelight; this time to stay. Atwater-Kent has announced a new super-heterodyne receiver in which this type of tube is employed. All-American Lyric and Remler have done the same; and it is to be expected that before long the '45 type of power tube will go the way of the '10 and the '50. The power pentode, or five element tube, has everything in its favor. It is capable of supplying fifty per cent more undistorted output than the '45, it requires only about half the signal voltage from the preceding tube, and it is capable of many times the amplification. In other words the pentode will serve the same volume requirements as the '45, plus fifty per cent, it may be energized by the detector without the usual "first audio" stage, and it has sufficient ability to amplify that signal to the value necessary for power output. The elimination of the first audio stage, alone, makes it worthy of any set manufacturer's consideration, as the preliminary audio stage is expensive and well attended with complications.



Confusion Reigns

FOR some reason or other the tube manufacturers did not get together on the branding of their new tetrode, or improved screen grid radio frequency amplifier tubes. Arcturus came out with one labelled Type 551, while RCA introduced the RCA 235. The two tubes are similar but not identical. Both are designed to do the same things, namely, provide smoother volume control and reduce cross modulation and modulation distortion. While the two tubes will be more or less interchangeable the one will not give equal results in a circuit designed for the other. Confusion is bound to result unless all manufacturers get their heads together and agree to standardize; make not only the type numbers correspond but make their tubes with identical characteristics. The

RCA Radiotron Company refers to its tube as the "Super-Control" tube, a name which partially explains the improvements in it, but is not completely self-explanatory. Most of the others have adopted the more technical name; "Variable Mu", which means variable amplification factor. This tells the whole story to the engineer but is so much Greek to the layman.

As to the type number the other independent tube manufacturers have divided themselves more or less equally on both sides of the fence, some using the '35 and others the '51. CeCo has adopted both, manufacturing two different tubes, the 551 being similar to the Arcturus and the 235 being made along the lines of the Radiotron.

It is also interesting to note that with the advent of the "Super-Control" Radiotron, the Corporation has changed the prefix of the type number. This tube is to be known as the RCA 235 instead of the UY 235. With the report that '24s are now being received by jobbers bearing the label RCA 224 on the base it is presumed that the old base prefix is to be dropped in favor of the company's initials.



Distance Is Making a Comeback

A FEW years ago most radio dealers looked forward to the day when the "DX" idea would die a natural death and be given a handsome funeral,—without the tears. Those were the days when distance reception was the cause of many sales and much grief. They hailed the chain broadcasts with the hope and expectation that people would become satisfied with listening to the best programs without having to "fish" for them. Even those receivers most suited for distance brought along their troubles. Buyers needed instruction; sometimes requiring the salesman to drop around for three evenings in a row. If they were not able to handle the set as well as the experienced salesman they considered themselves "gyp-ped". ("The fellow who caught that

fish is a durned liar!") Invariably the set was "noisy", the average human being failing to understand that the only way he could expect quiet reception with *any* receiver was to keep out of the noise level.

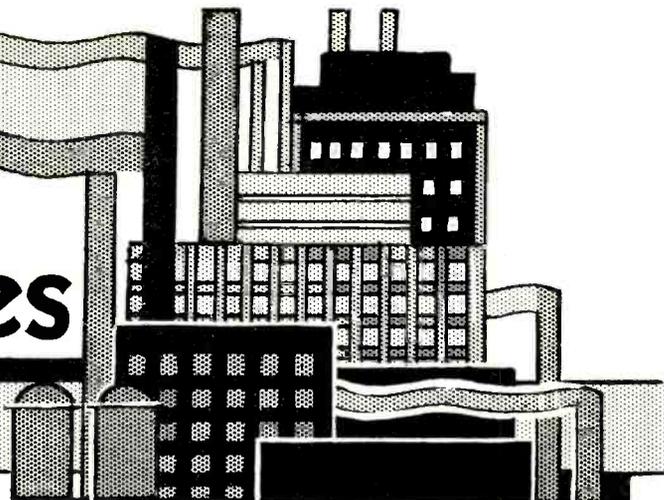
Now, after a year or so of selling quality, fine furniture, and above all, splendid programs, it begins to appear as if the radio dealer was going to be forced back into the old days of trying demonstration, discontent, and promises that may be hard to fulfill. However, if distance reception can be a talking point that will sell a distinctly better piece of merchandise instead of an inferior model, more power to it. Majestic had an interesting and rather novel idea recently. They held a DX contest for their dealers, with the idea of selling the *dealer*, himself, on the ability of their new receiver. They are evidently leaving it up to the dealer as to whether or not he wishes to push distance in making his sales. Knowing that a receiver is good increases the salesman's enthusiasm, naturally, even though he might not choose to talk up the particular point that was proven to him.



Radio Racketeers of 1931

THE radio business always has its gangs; its racketeers. There have been fake aerials, high priced tin cans for grounds, tube bootleggers, and what not, but last year and so far this year it has been the midget that has caused all the uproar. Without a doubt the midget receiver has caused many dealers to lose money, although it will not be denied that many others have made money they wouldn't have made otherwise. The fault is not, however, with the midget, as a class of merchandise; it is with the "racketeers" who prostituted the midget business before it ever had a chance to make its own legitimate way in the world. As soon as a few manufacturers began to show that the small, mantle-type receiver was going to become popular a half a hundred "fly-by-nights" jumped into the arena and began to cut

The Radio Times



each other's throats,—and they've been doing it ever since. The midget receiver idea is a good one and should be boosted, BUT—if dealers are to make any money they will have to drive the "peanut" manufacturer out of the business so that the reliable ones can spend enough on their products to do a good job of it, raise the list price of the sets to a place where they, their jobbers and their dealers can make a profit which will make it worth their while. If the dealers would refuse to handle any midget selling below, say, \$64.50 there would be no hue and cry that the midget business was ruining the radio game. For every midget, selling at that price, that cut into the sale of a console another midget can be sold as the second set in the home, thus equalizing the first loss.

The first step in making the midget manufacturing business fall into line has just been taken by the Radio Corporation of America in its attempt to close up several Los Angeles firms that have been operating without benefit of license. Once the unlicensed manufacturers have been eliminated it will be necessary to turn the guns on those manufacturers who have taken out licenses but who insist upon operating in a barn on a small time basis.



Department of Commerce Reports Buyer's Market

ACCORDING to H. E. Way, assistant chief of the electrical equipment division of the Department of Commerce, more value per dollar was obtained by radio set buyers in 1930 than in any other year since the inception of broadcasting a decade ago. This, of course, is the bad news the dealer has been digesting for the past fifteen months. What the radio dealer wants is a "seller's market".

While it was natural, under the circumstances, for unit sales to fall off, it was a bitter blow to have to see the average set sale drop from \$133, which it was in 1929, to \$87 in 1930. This

was partially the result of the introduction of the midget and partially due to the enormous sales of distress merchandise at from twenty to forty or fifty per cent off the list. It is hoped that the dumping season of last year will not repeat itself, and it is certain that it will not if manufacturers take the lesson they learned to heart, as indications show that they are doing.

All the industry may console itself, however, by reasoning that radio sets become obsolete; arrive at the replacement stage; just as rapidly as they ever did, and that as soon as business picks up those sets that should have been, but were not, replaced last year will be relegated to the junk heap this year along with those that have "done their time" and would normally be replaced this year. The same reasoning applies to tubes. Last year, due to fear of hard times, the replacement business in tubes was considered disappointing by the industry. With 12,000,000 modern tube sets in use there should have been, according to leaders in the industry, replacements of at least 30,000,000 tubes; $2\frac{1}{2}$ per set. As it was only 24,000,000 were sold for this purpose. If the statistician's figures are not too optimistic the year 1930 ended with 6,000,000 tubes that ought to have been replaced but were not. There is no reason why that figure should not be added onto the figures for 1931's replacement tube sales, not in its entirety, perhaps, but at least in part. Hence it would appear that last year's failures should add to this year's successes when good times are here again.



Four Years Average Set Life

ACCORDING to the recent census report the average life of a radio set is four years. At that rate three million sets would be required this year for replacements alone, and three million sets are just a half million less than last year's total business. While it is readily conceivable that radio receivers of the vintage of 1927 would be ready for replacement in four years it is a question

whether those of later manufacture will reach the stage of obsolescence or inability to perform at such an early age. 1927 was the day of the first a-c receivers with the '26 type tubes. Most of them were table models. Since that time the industry has been more or less revolutionized several times.

Still, judging by developments that are hanging fire right at this time, it is very possible that in four years from now 1931 models will bring forth the same degree of mirth as that displayed over the first a-c sets of four years ago. If the manufacturers continue to improve their products with the same rapid strides as in the past; if television attains the same popularity as radio has; if the '24 and the '27 and the '45 tubes pass out of the picture to make room for newer and improved tubes; if automatic phonographs and home recording instruments change the public's attitude on phonograph entertainment; if other things not as yet conceived make their appearance, as they have a habit of doing in the radio game; the census report will continue to be useful in forecasting the amount of replacements that should be made. The most pessimistic view of the replacement business cannot be depressing, especially knowing that the first set market has not reached its third milestone.



More Interest Shown In Trade Show

THE R. M. A. trade show, to be held in Chicago during the first week of June, is beginning to attract attention and more interest than heretofore. The promises that this year's convention is to be a strictly business proposition, devoid of the customary ballyhoo and hilarity, have evidently been accepted by the trade on their face value and have met with universal approval. If the exhibitors will do their part in cooperating with the Radio Manufacturers' Association the show can assume a very valuable part in the constructive program of the industry.

PRIMING THE PUMP

By H. E. RINGOLD*

WE ARE pretty much prone to take the conveniences of modern science and engineering for granted. Maybe you can remember the time "way back when" there were not only no radios but no automobiles, no electric lights and no running water. If so you of course remember the household pump. If, as a boy, it was your job to carry in the water as well as the wood, I'm sure you remember it.

Maybe you were lucky enough to have the pump empty into the sink in the kitchen. I wasn't. The darned thing was fully fifty feet from the house and when it's 15 below zero fifty feet is a long way to lug two big buckets of water. Many times the pump would be frozen. Then I had to thaw it out, prime it, keep pumping and pretty soon pure, cold water would come gushing out. All we wanted of it.

I'm going to run the risk of being suspected of smoking hashish, or of having just come from one of New York's forty thousand speakeasies when I say that the average radio dealer has a pump in his store from which—with a little priming—he can pump an assortment of bright silver dollars steadily into his cash register.

The pump is a record department and the priming is the small investment necessary to make it function.

I'm going to lose some readers right here. That doesn't worry me; some people walked out on Lincoln's Gettysburg Address. To those who continue I hope to say some things about **radio merchandising** which may not have occurred to them.

One of the chief reasons why 1930 was unsatisfactory to most radio dealers from a standpoint of profit, if any, was because of the decreased unit value of every set sold. To state this elementally, you can make more profit, other things being equal, from a hundred dollar sale than a fifty dollar sale and still more from a two hundred dollar sale. The radio dealer who profitably conducts his business during 1931—and 32, 33, and 34—will be the dealer who sells merchandise of high enough unit value so that when his rent, light, heat, salaries, trade in allowances, service, and all the other items of overhead, are subtracted from the gross profit of an instrument sale, **THERE IS ENOUGH LEFT TO CONSTITUTE A SATISFACTORY NET PROFIT.**

It is vital to the profitable existence of the radio dealer that he increase the **UNIT SALE.** The only sane way in which this can be done is by switching the radio prospect to a **RADIO PHONOGRAPH** or an **AUTOMATIC COMBINATION.** The list price of a combination is approximately \$100 more than straight radio. You can get that extra \$100 if you will just take the trouble to prime the pump.

Let's see how it works out: A man and his wife visit your store. You demonstrate an instrument of excellent make and the prospect is pleased with the performance, cabinet design and terms. The price is \$150.00. His eye, however, keeps straying to another make which sells for \$107.00. He is thinking—"Maybe that would do just as well and would leave \$43.00 in my pocketbook." His intention is to buy a radio which meets his requirements for as little money as possible. Assuming that he is a good credit risk, you are trying to sell him the best possible instrument. You are, or should be, trying to tempt him into higher price fields by talking and demonstrating the better performance, the greater entertainment

and satisfaction, the greater pride he will feel in a unit of higher price.

The best way to get his mind *off* the instrument selling for \$107.00 is to get his mind *on* that combination standing right next to it. Let us say the price of this instrument is \$250.00. The radio chassis is the same that pleased him so much in the \$150.00 Model. He is already convinced that its performance is entirely satisfactory. Now you must sell him on the immeasurably greater entertainment to be had from an instrument that—in addition to receiving radio programs—also reproduces electrically, electrically recorded music. You must also convince him of the economy of having these two instruments—radio and electrical phonograph—in one cabinet.

Marvelous as the performance of the straight radio model may be, it cannot bring in radio programs, pleasing to an individual listener, if no such programs are being broadcast.

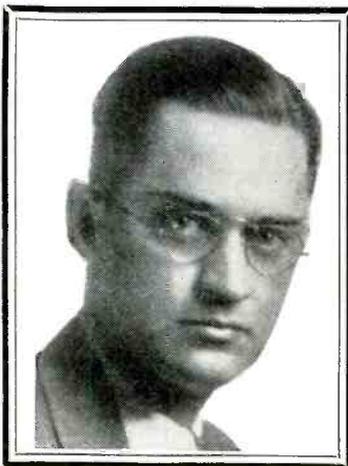
Beautiful or exciting as some broadcast may be it can not be recaptured for the listener's entertainment—it is gone forever. Radio programs are "table d'hote"—usually excellent but still "table d'hote." Recorded music allows you to make an a la carte choice—likely no better than a table d'hote musical meal but it allows you to cater to your appetite and order "what you want when you want it." The latest dance tunes, great symphonies, organ music, hill-billy ballads, cowboy songs or dinner music are yours to choose from and can be reproduced fully and flawlessly, without danger of air disturbances even under the most trying weather or other conditions which sometimes interfere with perfect radio reception.

These are some of the things you must explain to "sell" the radio prospect on records as only by doing so can you extract the added \$100 as payment for the added pleasure to be had from owning an instrument that will electrically reproduce records.

But explanation is not enough. Demonstration is necessary. Naturally you must have at least a small stock of records to give a proper demonstration. A dozen, or so, picked at random, are not sufficient and the limited choice they allow is very apt to be the reason for a lost combination sale. Besides, they would not constitute a stock from which to sell and would be an item of sales expense. New numbers would have to be added from time to time which would increase this expense. The sensible thing to do is to have a record department large enough to give every possible advantage to radio and combination sales and to show a profit on its own operation.

Not to have a record department of this size is to fail in what should be your ability to properly service the wants of your customers after you have gained the added profit of selling him an instrument of high unit value. The customer is entitled to look to you as a reliable source capable of supplying him with the records which are necessary for his continued enjoyment and satisfaction from the instrument. If you cannot do this you have put a formidable hurdle in front of your goal

*Mr. Ringold left Northwestern University in 1921 to become a member of the advertising staff of a nationally advertised clothing manufacturer. He next took over a job of advertising and selling for some very well known retailers in the middle west, planned and wrote mail for various types of manufacturers, distributors and retailers. Then he joined the advertising staff of the Brunswick-Balke-Collender Company, taking charge of the Dealers' Advertising Service, from which he was later transferred to the General Record Sales Division. He is now assistant to E. F. Stevens, Jr., Sales Manager of the Brunswick Record Division of the Brunswick Radio Corporation, New York City.



of higher unit sales. The fact that you can not supply your customer's wants is pretty clear evidence that you yourself do not realize the advantages of recorded music which you have been explaining to the customer. The customer may not think this out but he SENSES it. It increases the natural wariness of the buyer. It makes it harder to close the sale, that makes the profit, that pays the rent.

An adequate record department will not only help to sell the radio shopper, but it will create for your store a clientele who prove by their presence that they want music in their homes and are willing to pay for it. What better prospects for radio and radio-phonographs than these? You couldn't get a better list of prospects by making a personal call on every family in your town or community. And they are right there in your store, have come of their own volition, and are admittedly interested in home entertainment!

An intelligent record girl, in a wide awake department, can turn over to the radio department more people genuinely interested in a radio or combination than several field men. She can do this in many ways. One of the simplest is to offer to send literature announcing new releases to the record buyer and to ask the name and address. It is usually a simple matter for a tactful girl to also find out whether the person has a radio, its make, age, etc. Often she can ask a customer on what kind of instrument he plays the records he is buying and ask him if he would like to hear ALL the music on a combination instrument. If the customer has been hearing the records on an old style phonograph he is usually surprised and delighted to hear the full rich tones of electrical reproduction and so another interested prospect is gained.

I have heard intelligent and highly successful dealers say

that they would maintain a well managed record department if they never made a cent on it. They figured that they were repaid many times over by the help the record department was to the rest of the store. Few, if any, of these dealers were ever called on to put their theories into practice because they maintained well managed record departments that paid their way—showed a profit in their own right.

You have a perfect right to expect a record department to return a pleasing profit on the money you have invested in it. The only thing that can stop it from doing so is lack of attention or unintelligent supervision. Records should be a quick turnover, cash and carry business with no service costs, no installation costs, and no credit losses. They give valuable aid in selling combinations and then keep the combination buyer as a repeat customer who buys records in quantity units. It's a combination in more ways than one: Records sell the combination and then the combination sells records.

These things are doubly true when the automatic record-playing combination is considered: Records are of even more importance in selling the automatic and the automatic sells records in even greater quantity.

Perhaps, gentle reader, you are saying to yourself: "These things apply to many other radio dealers whom I know but they do not apply to me." Human nature is like that. Let me assure you that in all probability they DO apply to you. They most certainly apply if you are a "large" dealer or a "medium sized" dealer. Let me tell you of an actual case where they applied very much to a small dealer:

A man whom we shall call Mr. Jones (name on request)

(Continued on Page 40)



They Sell Midgets like BANANAS

By THOMAS CALVERT McCLARY

WHILE MOST of the New York radio dealers are refusing to take on what they consider treacherous midget receiver lines, A. G. Spaulding & Bros., famous sporting goods firm, have adopted the midget and made it profitable. And they have done this in spite of the fact that ninety per cent of their clientele are of the wealthier classes.

"What?" you say, "Spauldings sell a sixty or seventy dollar midget to a man who might buy a three hundred dollar combination?" Well, perhaps a few more details will explain Spauldings' attitude in the matter more clearly. In the first place this store's clientele is such that money—price—is seldom allowed to enter into the matter. The midget is not looked upon as a competitor of the console; none of Spauldings' salesmen ever think of selling a midget as the *first* radio set. They sell them for *extra* convenience, *extra* comfort, *extra* radio entertainment—and they sell them sometimes in bunches of half a dozen. They sell them for the bedroom, library, maid's room, club; anything that comes to the fertile minds of the salesmen. Midget receivers, they tell their customers, are no more expensive than good speakers, give better reception generally, and offer the advantage of different programs for different users. It is actually a fact that many of New York's largest homes are now equipped with a radio set in every room.

The Spaulding Company opened up its radio department just two years ago. Its success was immediate. According to

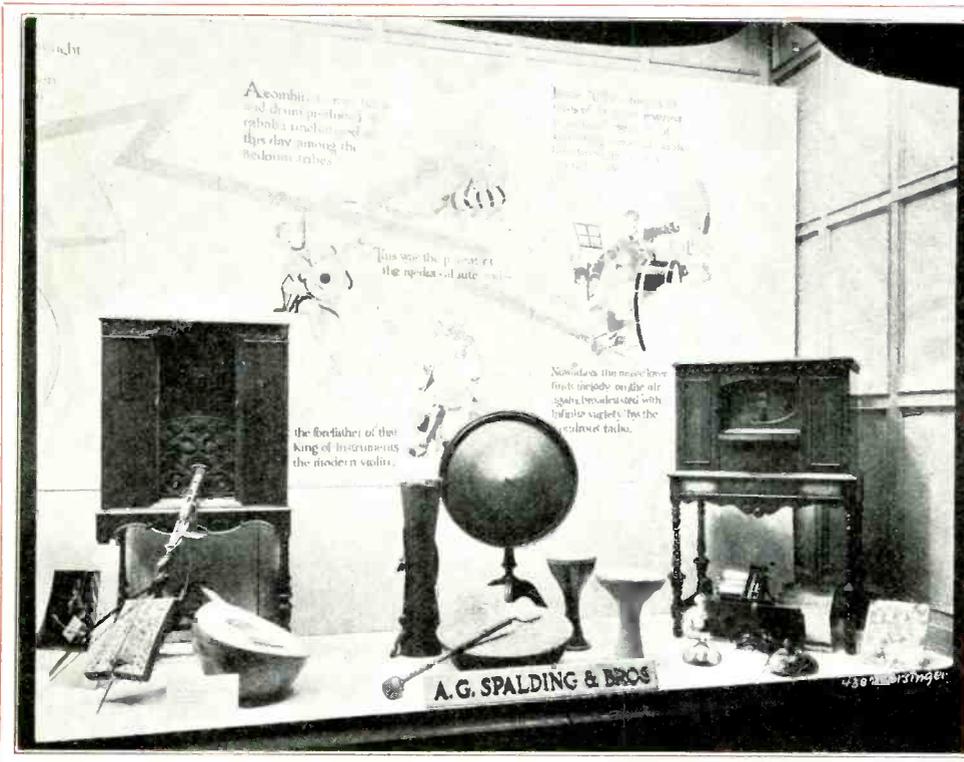
W. G. Harrison, speaking for the radio department of his store, Spauldings' patrons, all sportsmen, are fast buyers if reminded by display that after the day's skating or tennis a handy radio makes the rest period the more enjoyable and keeps them in touch with events in the world of sport. For this reason, says he, the radio department is always kept next to the merchandise selling best at the season of the year.

Spauldings' were one of the first stores to push the idea of having midgets in various rooms instead of speakers all hooked up on the same receiver. They have put the idea over most effectively. Another field this store has opened up for the midget is that of playing them up as gifts. Men particularly are often at a loss to know how they can properly repay a visit to country friends who seldom come to town. Extra radio sets are at a premium in country homes where many guests are invited, and the midget offers an acceptable gift not beyond the means of the bachelor's pocketbook.

"We're sold on midgets," says Mr. Harrison. "We have had very good success with them. We install them and service them free of charge for a period of three months, even at some distance, because doing so builds good will. Sportsmen are easy buyers but don't like to be pushed. We use subtle displays instead of high pressure sales talks."

Another thing Spauldings' have found out about the type of customer that patronizes their store is that they are beginning to show an interest in remote control. This is a particularly attractive feature to sportsmen who enjoy sitting still after a hard day's exercise and tune in the stations from an easy chair. Up until this year many remote control prospects have shown hesitation about buying a radio to which they had not been educated, but now that some of the well known receivers have adapted remote control they are readily talked into using it. This is a feature in modern radio that is not limited to sportsmen or to wealthy people in general; in fact these systems are available at a cost almost any buyer of a radio set can afford.

"Then we cater to the radio 'stylist,'" says Mr. Harrison. "He is the man who wants the latest in design and mechanism and changes his set as often as three times a year. This group constitutes a much larger body of buyers than is imagined. I see no reason why wealthy people can't be sold a new design of radio as often as a new design of automobile."



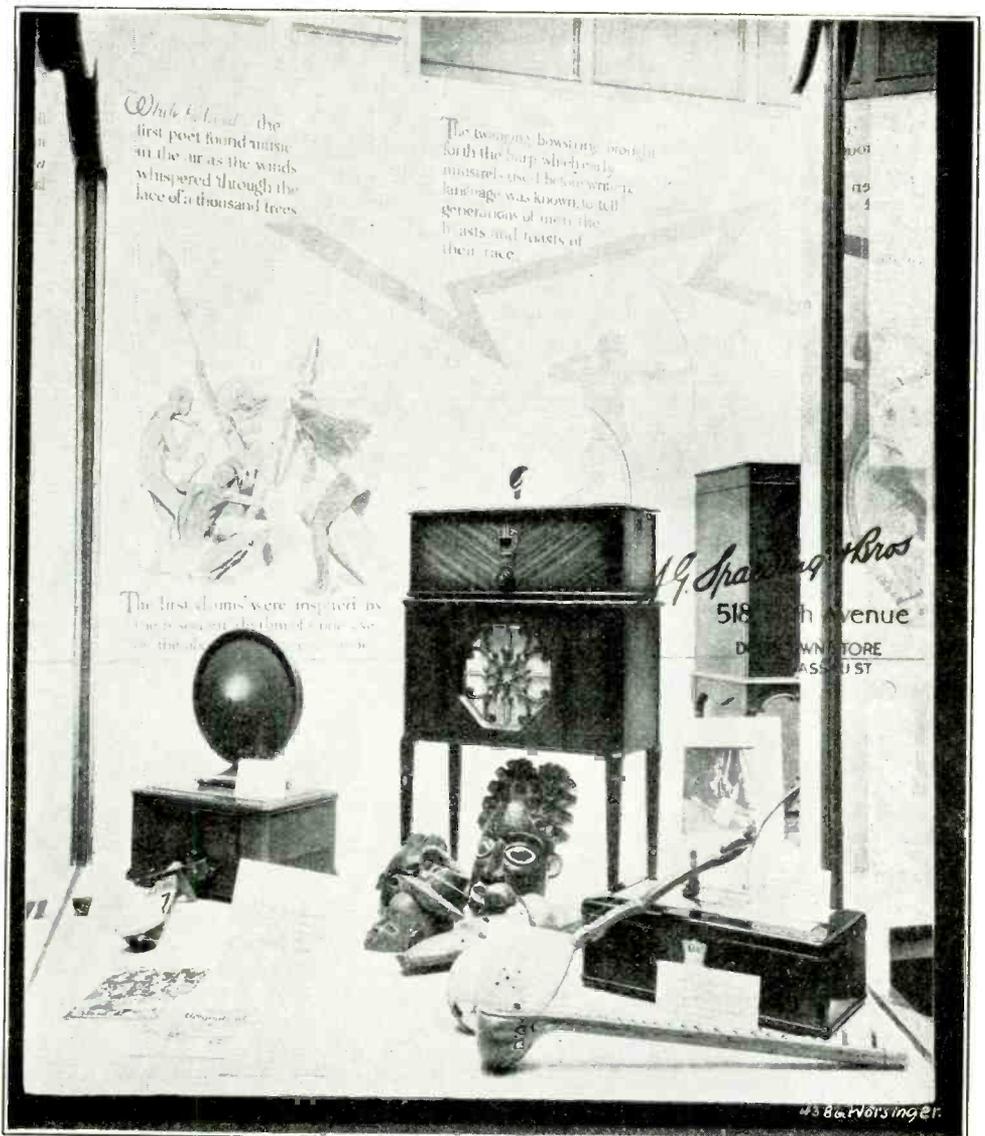
There is no getting away from it, the midget radio receiver is not up to its big brother in performance. There are two definite fields for it, however; the family that cannot afford a higher priced set, and the family that already has one. The first field should be bounded on all sides and not allowed to expand, while the second should be enlarged upon at every opportunity. Make the buyer prove he belongs to the first; prove to him that he belongs to the second. The article on these pages drops a few hints as to how this second field is developed by a dealer in New York. While the greater part of Spauldings' clientele is extremely wealthy the same principles of salesmanship can be made to apply even to the customer in the \$2500 class. **Sell the midget as you would sell an accessory!**

The casual buyers are the ones that Mr. Harrison likes best. These are either people who happen to see the radios on their way to another department or those customers whose offices are near at hand and run in to hear some particularly interesting sports program during business hours. High pressure sales methods are never used in these stores as the particular type of patron with whom most of their business is done does not like to be sold in that way. A customer gossiping over his purchases with a salesman is reminded that an important sporting event could be heard over the radio upstairs. Listening to it reminds him that he needs a new radio. Behind the sets are displays made with the psychological effect of this in mind.

Window displays are considered of the utmost importance, also. The new Westinghouse Columaire, for instance, created a sensation after being displayed with a decided twentieth century type of background. In one day and a half over thirty inquiries were made, most of which were turned into sales. In these window displays items of general interest such as unusual carvings, South Sea curios, etc., are interspersed with the radio sets. While the store advertises the radio department to some extent they believe that most of the sales come from window displays and from customers who drop in to hear a game or match. This latter group is cultivated on a friendly basis—welcomed—and during the hours of important sports broadcasting no effort is made at direct sales.

"Charge account customers don't ask prices but they are interested in technical reasons for new improvements and attachments," Mr. Harrison continued. "This, surprisingly, includes the women, who like to be able to talk over details of a new purchase with their husbands. Wealthy

people buy what they want. The trick is to make them want what you have to sell. Remember that the 'Gold Coast' residents are theoretically good for two or three sales a year. And they're charge account minded. Cater to their whims and they'll buy without thought of price."



Level Off the VALLEY of RADIO SALES with Electric Refrigeration

By LEO P. WHITE*

THE radio dealers of today are faced with a problem that must be decided in the very near future. The question is "Can you continue to stay in business with radio alone? If not, what line should you add?" In the main all radio dealers are faced with the same fact, that radio has its peak season and that during a certain period of each year radio depression is sure to arrive. To balance out a radio dealer's year some article must be merchandised that has its peak during the radio depression. Electric Refrigeration answers the question in its entirety.

Electric Refrigeration offers the greatest specialty selling opportunity of any specialty on the market today. Think of a market keeping pace with production! Think of a market only 14 percent sold in 17 years of effort, although during those 17 years more than three million electric refrigerators were sold. Domestic electric refrigeration sales during 1930 totaled more than \$220,000,000.00 and in 1931 will total nearly \$300,000,000.00. The wise radio dealer will give serious consideration to electric refrigeration because the peak season for refrigeration is from March to September while the radio peak is from September to March.

Electric Refrigeration and Radio make two ideal running mates. The people who buy electric refrigeration are the better people of any community. They are usually home owners or other responsible people whose credit is of the very best. This fact makes time selling a safe practice. Reverts

seldom occur because of the type of people who buy electric refrigeration and because after a family has used electric refrigeration for sixty days and have a chance to really learn what economies and convenience electric refrigeration will effect, they then will bend every effort to meet their refrigerator payments, and will sacrifice other pleasures to meet these payments.

In order to derive a volume of refrigerator business a Radio dealer must be educated to a different method of selling than he has been accustomed to. People don't buy electric refrigerators from a dealer's floor as they do radios. Prospects must be developed in the homes by salesmen who are equipped with convincing sales talks on the economy and convenience of electric refrigeration and an intelligent story on food spoilage and proper food preservation.

The proper education of a radio dealer in refrigeration is so important that Thompson & Holmes, Ltd., of San Francisco, distributors of Majestic Radio and Refrigerator have established an educational department in their building where all dealers and their salesmen are brought in and thoroughly trained in the fundamentals of refrigeration and how to sell the Majestic Electric Refrigerator. After the refrigerator school has been completed a written copy of the training course in book form is presented to each dealer for his future reference. Weekly contact with each dealer by a representative

is made to assist the dealer on his refrigerator problems and prospects. The training course covers more than just the selling of electric refrigerators. It teaches him fundamentals in selling any specialty so that when he finishes his training he is in a position to become a better salesman than before. This training will enable him to increase his radio sales.

A radio dealer must realize that the town or territory in which he operates has a certain potential of radio outlet. When that potential has been sold he is faced with one of two things. He can move to a new location and start over again or he can stay where his friends are and start trading for the sets he has sold. If he has an electric refrigeration franchise he has doubled the potential in his territory, his radio customers become his refrigerator prospects and he is not confronted with the problem of a saturated market that calls for "trade ins." His sale is a "clean sale" which nets him his legitimate profit.

*Refrigeration Sales Manager, Thompson and Holmes, Ltd.





Truly electric refrigeration will level that valley of radio sales.

Every family that buys food for home consumption, is a prospect for electric refrigeration provided it has electricity. This may seem like a strong statement, but let us see: The things that cause all food to spoil, namely mould, yeast, and bacteria are kept practically dormant in temperatures under 50° F. and above 32° F. Over a ten-year period nature has furnished an average of only nineteen days per year of this temperature throughout the United States. Northern California averages six days, Southern California none. If nature doesn't furnish these temperatures man must do so. Automatic electric refrigeration is the only thing that man can get which will provide him with constant temperatures that will properly preserve his food. Every family that uses ice, coolers, window boxes, cellars, springs or caves as a method of refrigerating his food is paying for an electric refrigerator, without owning one, through inconvenience and food spoilage.

Most radio dealers have ideal stores in which to display

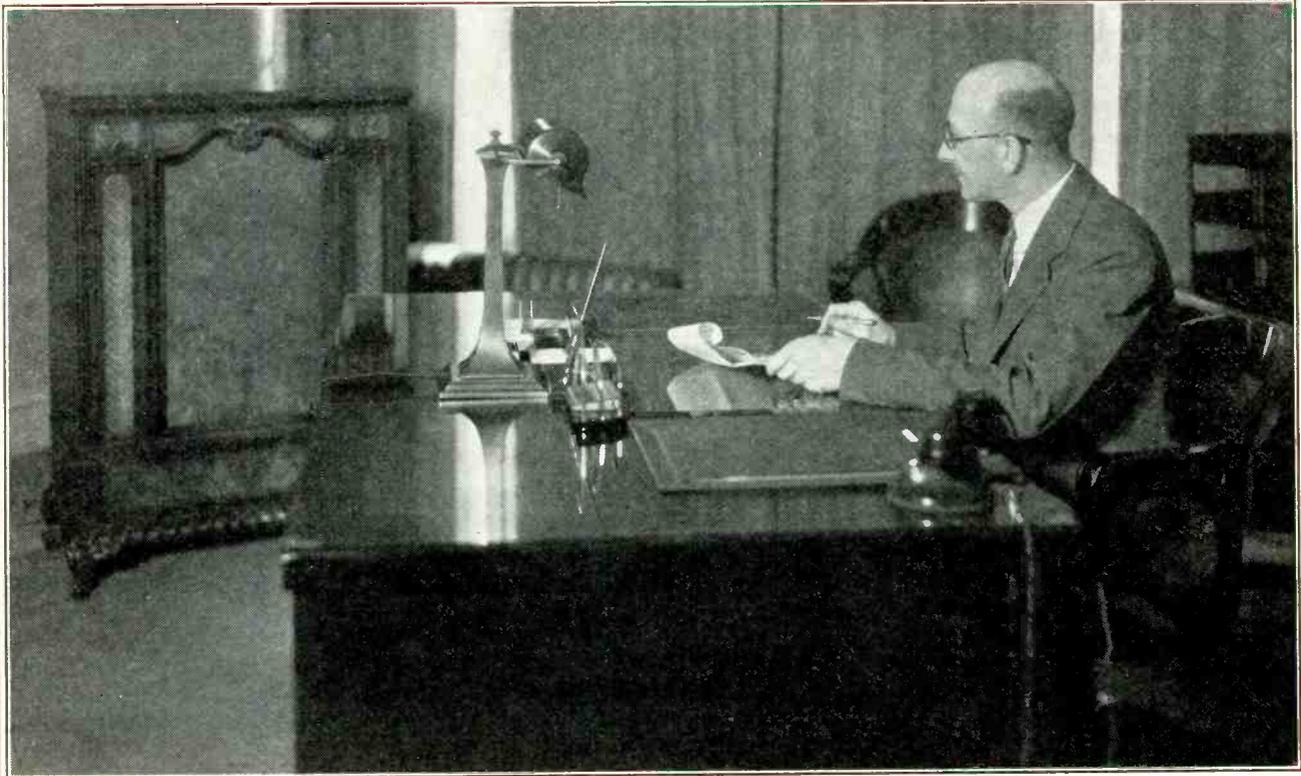
electric refrigerators. Selling forces are already organized and, in many instances, trained for house-to-house canvassing. Add one or more experienced refrigerator salesmen and virtually the only additional overhead will be the refrigeration inventory. The two lines, radio and refrigeration, are so

closely allied that many radio salesmen can be trained to also sell refrigerators, thus adding to their earning capacity, not only for themselves but for the dealer as well.

During 1930 when almost every form of commercial activity operated at a loss, electric refrigerator enjoyed a steady increase. There are more than twenty million homes in the United States wired and ready to receive an electric refrigerator and only three million homes have been sold. Statisticians conserva-

tively estimate that one million domestic electric refrigerators will be sold in the United States this year, and it stands to reason that any live radio dealer can get his share of this business if he will add some dependable service-free electric refrigerator to his line.

One of the points Mr. White brings out in this article is that the business of merchandising electric refrigerators requires a vastly different technique than that employed by the average radio dealer who has been brought up to expect his customer to come into the store and listen to his assortment of radio receivers. Mr. White says that the radio dealers who are making a success of the refrigerator business are the ones who go out into the field and do their selling in the homes, either giving a demonstration if desired or inviting the customer down to the store. Probably the reason for this difference is based on the fact that the public has been radio minded from the beginning, while it has not been taught the economics, conveniences and health factor of electric refrigeration. After listening to a sales talk by a well trained electric refrigerator salesman, one is inclined to think the radio dealer who refuses to handle refrigerators because "they offer nothing to talk about" might just as well shut off the alarm and go back to sleep. The subject becomes not only interesting but fascinating.



"I COULD BE SOLD"

VERY frequently when I arrive home from the office at night my wife informs me that she has heard a splendid talk on some subject she knows I am interested in, or that some man of national prominence spoke over such and such a station, while I was at work and knew nothing about it.

"It's a fine situation," I usually say, with some disgust, "when the broadcast companies can't find a time to give a man a man's program during which he can listen to it. I'll bet not one man out of a thousand who would like to listen to such talks can get away from their offices to where a radio set is playing."

"You might have a radio set in your office," says the wife.

"I can't concentrate on my work with music going on all the time," is my retort.

"Turn it off," the female radio genius advises me. "Use it only for the talks you want to hear."

"And let the talks go by without my knowing it."

"Oh for a legal mind," the good wife sighed. "You know they have programs and such. We get at least two of them here every day. Don't you ever read the radio page of the papers?"

"No, and I don't intend to. And furthermore," commenced my closing argument, "it's entirely without precedent, and I do not choose to make myself a laughing stock with my associates by amusing myself with radio entertainment when I'm supposed to be working."

Nevertheless the above conversation started me to thinking. It seemed pretty certain that if it were at all possible the broadcasting companies would be presenting these fine talks during the evening hours. The fact that they do not seems to

A potential customer points out several advantages to the business or professional man for having a radio set in his office.

indicate that it is not possible. Which leaves nothing for the business man to do but pass them up or equip his office with some sort of a radio receiver for the purpose of hearing them.

I looked back over the many fine programs I had missed; programs it would have paid me to hear. They included speeches from the President of the United States, talks by leading economists, discussions of the labor problems, business conditions, foreign situations. To be sure, some of them had been reprinted in the

newspapers the following day, but most of them had not. I began to see that a radio in a man's office would not be merely a means of killing time or entertaining the force, but if sensibly used would be a very valuable piece of office equipment. As I turned the matter over in my mind I wondered why the office radio had not already taken its place alongside the dictaphone and the filing cabinets. Not one man in ten thousand is actually too busy to stop and listen to a broadcast that is worth hearing, any more than he is to glance through a magazine that comes in the mail.

I took a few minutes from the news, sports and stock reports to study the radio programs printed in the papers, and was surprised to see five or six items that interested me very much, among which were the ceremonies at the British Exposition in Buenos Aires, speeches of the Foreign Policy Association Luncheon, answering the question: "Do war debts hamper world recovery?", the National Democratic Forum, and a debate between Harvard and the University of Chicago. Now it stands to reason that not all of those subjects would interest any one man, but for myself, I'd have given anything right then to have heard the speeches on our foreign policy. If I had

Robert H. Hendrickson, an Attorney, Complains That He Has Never Been Approached By a Radio Dealer

had a radio set in my office and had known those talks were coming I'd have lighted my pipe, put my feet on the desk and listened to them without the least tremor of conscience.

But how about this program business? That's a dreary job; something like assorting the drops in a bucket of water. I'll pass it along to one of the girls in the office; one who will understand what kind of stuff I want to hear and will list my possible choices on a small card which I can keep in front of me.

Having completely sold myself, I went to the radio dealer upon whom I call when my household radio goes on the blink; a man whom I have considered an aggressive, up and coming merchant because he never forgets to keep me informed on the obsolescence of my old faithful receiver, or to suggest that I buy this or that to go with it. I asked him if he had ever sold a set to a man for his office, to which he replied that he had not because business men had no time to listen to radio during working hours. That let me out. I couldn't give him an order without incriminating myself, so I switched the subject to radio's use in the doctor's office or in a dental "parlor." But even those ideas failed to find an interested audience.

I talked to a dentist friend on the car that evening, asking him if he didn't think his patients would appreciate a little music during the ordeal through which he put them. The idea was received with much more enthusiasm by the man who would pay than by the man who would have been paid.

"I could be sold on that idea," the dentist told me. "I can see great advantages in it."

"Well, it looks as if you'd have to sell yourself, then," I remarked, still a bit stunned by the reception given me by the family radio dealer. "Have you ever been accosted by a radio dealer on the subject of office radio?"

"No. If I had I'd probably have bought one. I've never even received any literature on the idea. I wonder why."

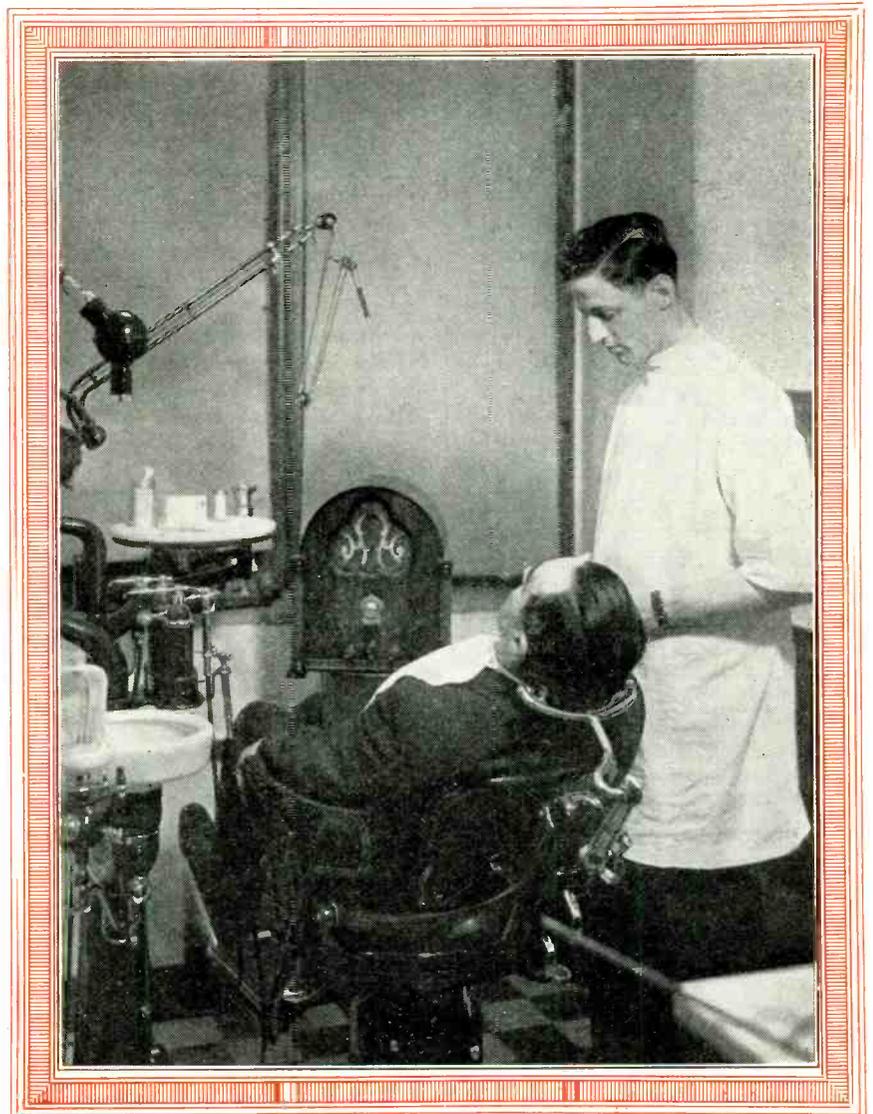
I wondered why, too. Can it be that radio dealers have been so swamped with sales for the home that they haven't had to look for new fields to conquer? I decided, due to the cold water thrown on my suggestion by my own dealer, that the trouble was simply this: the radio dealer had not sold *himself* on the office radio, hence he had taken the attitude that business men ought not to have radios in their offices. Kind of him to be so solicitous for our welfare, but exceedingly unproductive of profits for himself.

I hate these people who insist upon telling others how to run their businesses, especially if they are in an entirely different line of activity themselves, and probably don't know what they are talking about, as I probably don't. However, if I were in the radio business here's what I *think* I'd do: I'd sell myself on every idea presented to me, no matter how absurd it looked at the start, if there were any chance of my turning an honest dollar thereby. Being sold on office radio I'd work it tooth and nail. I'd use direct mail and I'd "go calling." I'd recognize the fact that all most business men need in a thing like that is precedent, and I'd ask permission to refer my prospects to my customers, once I had some. I'd see that the

talks which were likely to appeal to business men received all the publicity possible in the papers and elsewhere. With each sale I'd offer a weekly program service; a printed card with the best bets for business men on it; and perhaps I'd get out a little stand to place them in for constant reference, having my ad stamped on the frame, of course.

I have already missed a week's use of my office radio since I sold myself on the idea, and all because the dealer I went to see didn't give me a chance to tell him that I wasn't a prospect but a customer. After having talked to several of my friends and written this story I am now so thoroughly sold on the practicality of the idea that I am going down to another radio store and buy a set whether the dealer thinks I am a time waster or not. My dentist friend's words come back to me: "I could be sold." There aren't many of us who sell ourselves on these things; we usually leave that up to dealers. We can't be sold unless the dealer or his salesman comes around to talk turkey.

EDITOR'S NOTE—This is a challenge to the readers of RADIO. If professional men and business men are interested in listening to important broadcasts during business hours **go after them.** They will not all be found as ready to listen to the idea as Mr. Hendrickson; they haven't done much thinking on the subject. Therefore it is up to the radio dealer to convince this class of radio buyers that they are missing something they cannot afford to miss. Consult your programs; advertise it; and **make the rounds.**



A Ray of Hope for the Independent Dealer

“**H**OW can I compete with the chain store outlets?” asks that retail radio dealer upon losing a sale to a competitor who advertises lower down payments, longer terms and lower financing charges. “How can I make my offer as attractive as his without throwing all of my profits into the lap of the customer?” Even if the list price of the radio merchandise is maintained by the chain or department store the independent dealer is in a bad way; and the list price is very often reduced. Startling as it may seem, there were only two well-known lines of radio sets which were not advertised at less than list prices last year by some enterprising department or chain store, and always at the expense of the dealer who could not buy for the prices which would have enabled him to follow suit.

As has been recorded before, the chain store has several definite advantages over the independent dealer. Among them are concentrated advertising, transfer of merchandise from one branch to another, ability to carry own paper, and the possibility of a more efficient credit department. But first and foremost in importance is the advantage of greater buying power; the ability to take a whole shipment of a certain type of receiver direct from the manufacturer or his distributor, and thereby get a much longer discount than if two or three receivers were ordered at a time. This applies to standard merchandise and especially to liquidated stocks. Until the independent dealer can buy for the same prices as his more powerful competitor it would seem almost certain that he is doomed to despair. And perhaps it is economically reasonable that this should be so, especially in the critical position in which the radio industry finds itself today. The outlet that can move large quantities of merchandise at a time is naturally of greater immediate value to the manufacturer to whom quick disposal is a necessity, than the dealer who cannot even be counted upon for single sales with regularity.

It is certain, then, that the only saving grace for the independent dealer is buying power equal to that of the department store and chain. While at first thought this may appear to be out of the question, perusal of the plan now to be presented will show that it can be done. In fact, it is being done at the present time, and successfully so. In brief, the dealer's only out is to organize with other independent dealers into an association for the purpose of centralized buying. One man cannot form an organization alone, but several

THE group merchandising plan outlined in this article is proposed by the author as a means with which the independent radio dealer may combat the larger department store and the chain store outlet. The plan provides the independent dealer with the same weapon employed by the larger organizations, namely: equal buying power. With the power to buy on an equal basis with the large chain the independent dealer, small or large, can offer his potential customers equally attractive prices, terms, and service without cutting too deeply into his legitimate profits; this without sacrificing his most valuable asset, perhaps the only asset left him, his independence and the personality of his store.

It will be readily understood that the plan herein described is a roundabout way of stabilizing the radio industry. That can be accomplished only by absolute establishment and maintenance of retail prices. As long as chain store outlets are encouraged to slash prices on supposedly standard merchandise the independent dealer must do likewise if he would live. There is no disputing the fact that the manufacturer, who finds he must get out from under, will be as willing to sell the association of independent dealers as he is to sell the corporate chain. In fact, if the independent dealers could have done as much for him as the department stores and chains he would never have had to resort to the latter.

dealers of similar minds can and have done so. Several methods of cooperative merchandising are now in force, three of which will be briefly described.

First is the corporate chain store enterprise, as exemplified by the Piggly Wiggly Grocery Stores, Woolworth Five and Ten, Atlantic and Pacific Tea Co., and many others too numerous to mention. Where they are properly managed these have been highly successful, but on account of the fact that the identity of the dealer is completely erased they do not form even a palliative for the problems of the independent radio dealer. The second type of cooperative merchandising is the group of associated stores where the individual dealer is franchised and takes the name of the chain, doing all of his buying from one source. While this group has not attained the magnitude of the first group there are many of them operating successfully throughout the country. The third type is the organization of a number of independent groups for the purpose of buying all or a certain part of their merchandise through one source. This is the method used by nearly all of the big department stores. The third method is also most adaptable to the formation of an association of separate radio dealers. It allows

the dealer to continue to operate as an independent dealer and maintain the personal touch, it binds him to nothing; obligates him in no way, and it gives him the opportunity of buying his merchandise at the same prices to which the chains and department stores of similar buying power are entitled.

How to Organize

The method of forming an association for buying purposes is not a difficult matter. While it is possible for the association to handle other forms of collective activities such as advertising, transfer of inventory, financing, etc., it is suggested that at the start it be limited to the one most important function: buying. It is first necessary for a single successful dealer in the community to take the lead. He must have proven his ability by having managed his own business successfully. As a definite action six other dealers of similar caliber, operating in non-competitive districts or cities in the same distributing center should have an initial meeting to discuss the method of formation and the purposes of combining. In this regard it is an urgent necessity that only dealers who will be benefited be present. In most of the present radio organizations the meetings are dominated by

the jobbers or the larger elements and if these representatives should be allowed to dictate the course of action for the dealers' cooperative enterprise the purpose would immediately be destroyed.

After having decided upon the mode of procedure it is necessary to select the buyer. Buying is a science and not every good dealer can handle the job for a large group. The buyer should operate on a percentage of the merchandise purchased; an equitable remuneration, or buying commission, being about 3½%. It would be preferable if the buying could be done at an independent place such as a warehouse or loft, centrally located, although if necessary to keep down overhead for awhile it would be permissible to do the buying from the place of business of one of the association's members.

So much for the founding of the organization, the economies it would accomplish and the benefits the members would derive. It is now necessary to study: 1. The legal form the association should take in order to be effective; 2. Its connections with manufacturers; 3. Arguments as to whether national brands or unbranded merchandise be handled; 4. Method of ordering materials through the association, and 5. Pitfalls which should be avoided, and which have been embarrassing to other associations.

1. In order that all transactions may be legal a definite form of business organization will have to be assumed. This should be such as to give the members the greatest amount of benefit with the minimum amount of cost and liability, either actual or contingent. A suggested method is to form a limited liability corporation for the purposes of buying. Each member would subscribe to one share of this corporation and agree to pay monthly dues of a fixed amount. Members must be in good standing with the corporation but should not be involved in any liability outside of their own purchases. Monthly, or more frequent, meetings should be held in order to keep the association in proper business shape. It is strongly recommended that the corporation be formed under the guidance of a good lawyer, and that a firm of expert accountants be employed to check the records regularly.

2. There are two main methods of maintaining relationships with the manufacturers, depending upon the type of merchandise purchased. First, the group can function as a jobber, either exclusively or in conjunction with other jobbers and distributors. Second, the manufacturer can produce materials to the specifications of the association on an exclusive basis.

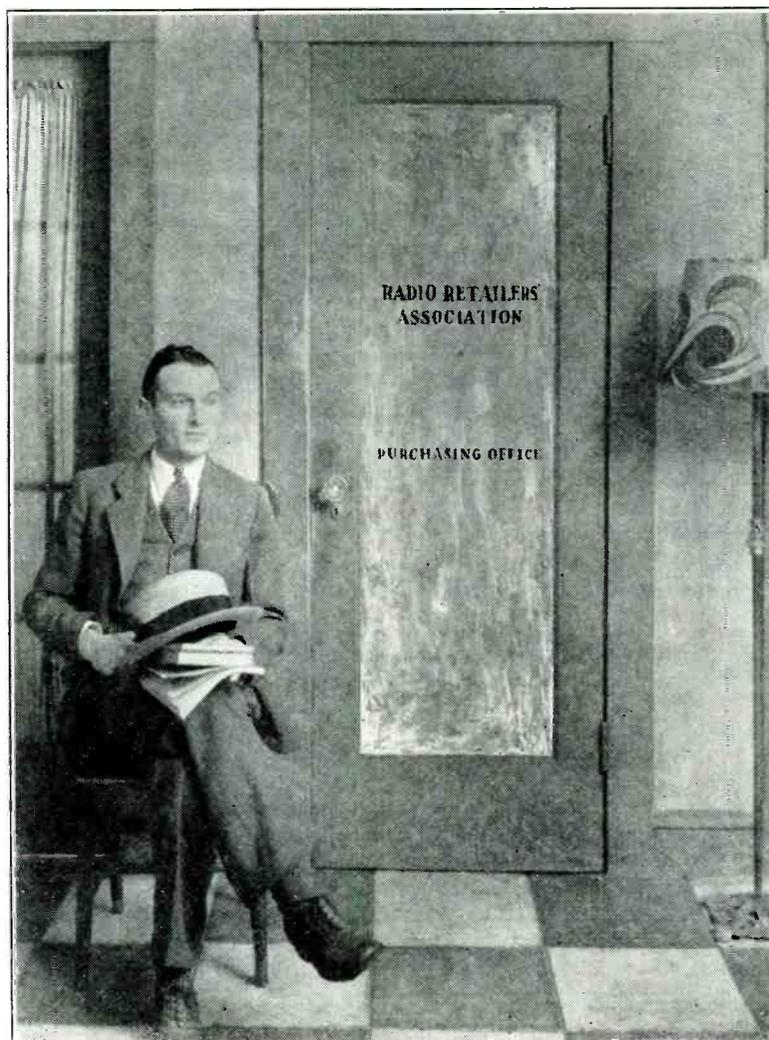
3. Concerning the problem of national or private brands. At the present time there seems to be a very strong feeling from the larger outlets against national brands, due to the fact that during 1930 a large percentage of the manufacturers did not attempt to maintain their prices or keep their merchandise clean. They had

not properly judged the market, although they have insisted upon weekly inventories of dealers' merchandise. This condition has brought about such dissatisfaction and distrust from the retailer that 1931 is seeing a large offering of private brands upon which the price will be maintained at all odds. With this trend in mind it will be necessary to determine what the manufacturers are going to do before a definite policy can be laid down for the association. It is to be remembered, however, that while the large department store can do its own advertising the small dealer will have to rely upon the national campaigns of the manufacturers, with which he may tie in with his own local campaign if he handles national brands.

4. Methods of ordering. In very few cases will all ordering be done through the association, although members would be privileged to do so if they desired. Whether they did or not they could always use the organization membership as a means of getting rid of the many time-taking salesmen by referring them to the main buyer. When a dealer wishes merchandise he issues a purchase order on the association. This requisition is binding on the dealer to accept the merchandise if satisfactory. The association merchandiser takes this requisition with those from other dealers that have come into his office and makes out an association order upon the manufacturer. He then becomes responsible to the dealer and to the manufacturer. The merchandise may be delivered to the individual dealer's place of business or to the association's headquarters.

5. Pitfalls which should be avoided. Any undertaking which has to take into consideration the personalities of a group of individuals combined together is not going to run a course without a few ruffles. However, we are living in an age of combinations, mergers, syndicates, corporations and organizations which have succeeded where independents have failed. Business is getting to such a stage that our machinations of doing business do not take into consideration the success of the smaller unit. The grocery business, the shoe business, the drug business — practically all businesses — have gone "en masse." And there is nothing peculiar about the radio business to preclude it from doing the same.

The great thing necessary is leadership, both mental and personal. The ability to organize; gain confidence and operate successfully is as necessary in an association as it is in a business, and providing the rank and file of the association can be made to recognize the benefits of an organization and real management there is no stopping the growth of the movement. That mass buying is a development of the times and that individual effort is being routed in its advance seems to be an unquestioned fact.



The Results of Radio's Midget Survey in New York

By THOMAS CALVERT McCLARY

With Appreciation to the Co-operation and Helpfulness of Advertising Students at the New York University

IT IS ESTIMATED that there are approximately sixteen hundred radio dealers in Greater New York. The private opinion of a credit specialist is that not more than six hundred are A1 credit risks, and it is mostly from this group that the present survey was made. Their grading is made not according to capital or turnover, but to business ability and integrity.

All questionnaires were filled in by representatives of RADIO at the time of a personal interview. In cases where the dealers did not carry the midget line, the dealers were asked to answer the questions candidly as if they did, or as they would should they put the line among their stock.

The outstanding points of the survey proved: that over ninety per cent of the dealers handle midgets; that in most cases the customers demand that they carry same; that over three-fourths of the dealers do not consider the midget a good merchandising item; that the dealers do not believe midgets open the field of larger set sales; that most of them believe that midgets actually interfere with larger set sales and that most of them have a definite antagonism to the line; and that in almost every case, buyers expect the same results from a midget that they get from a larger set.

There is no doubt that in New York the dealers are down on midgets. The consensus of opinion is that the profit is too small, the advertising insufficient, the servicing and keeping of good will too expensive compared with the profits, and that midgets give unsatisfactory performance—for what the buyer expects. It is agreed that it is almost impossible to explain to buyers that a smaller and cheaper set cannot give the performance of a more expensively made one.

However, the midget has its champions and there are many dealers who are quite willing to admit its good points. These have found on investigation that many owners of midgets are themselves responsible for mechanical troubles. The midget is usually placed on the most important table in the living room. It is constantly moved about, often getting jolted, and the inevitable result of this rough handling is some minor trouble that has nothing to do with the construction of the midget.

As far as time payments are concerned there is every evidence that the subject has received no careful thought from the dealers as a group. The down payments and months for balance are scattered all over the map without the least trace of intelligent analysis as to carrying costs, the number of months the dealer can allow on percentage of down payment, liability, credit risk, etc. The more successful small dealers

agree, however, that not less than one-third down should be taken and not more than five months allowed for remaining payments on any radio under \$69.50.

The majority of dealers commented on the fact that they would refuse free installation and servicing on midgets were it not for the fact that much of their business has been built on good will and they are frankly afraid to chance losing any of it. Several said they made a five dollar installation charge.

One striking fact, volunteered by the dealers, is that midgets are often used merely as a drawing card. Once inside the store the customer has about as much chance of actually buying one and getting out alive as he would in a lion cage the last day of Lent. He is shown the difference in trade-in value, cabinet work, tone quality, selectivity, distance reception, general performance, small difference in price, and countless other sales talks. The three best ways of changing the customer's mind over to a larger and more expensive set seem to be: pointing out the placing in the home and the impression on friends if a cheap set is seen; the longer and better service to be had from a larger set (and size has a psychological effect); and the heat of a small set.

The latter is a most important argument. The average customer, knowing nothing about radios, is duly impressed and ready to agree with the salesman when he suggests that said customer knows everything and can understand that such an intense heat will affect the tone and selectivity.

Treated cryptically, the reasons dealers are definitely against midgets are that the women object to same in home, but husbands insist on buying them because of saving—thereby making the wife an enemy of the dealer; that the service cost is too expensive; that the profits are too small and sales take the same time as larger sets; that midgets don't give the same performance, and even if they do the buyer soon has them out of order through too much moving about; that they definitely cut into large set sales; that the price hurts comparison with big sets; and that the unit of sale is too low to maintain the necessary overhead.

However, investigation made after all the above bad news came in on the survey showed that dealers who are to some extent in sympathy with the midget are almost all good merchandisers. They use the midget sale as a wedge with which to open a field for further midget sales or a very high priced combination, thereby making up for the loss on the single unit. These dealers have discovered that three weeks is sufficient time for the average buyer to wish he had a bigger and more

This survey, made by RADIO'S New York correspondent, shows some very interesting things about the acceptance of midget radio receivers in that territory. Most interesting of all is the fact that midgets are denounced in one breath and sold over the counter in the next. It begins to be very apparent to all concerned that RADIO'S original policy in the matter of midget merchandising still holds; make the midget an accessory to the console and combination! The dealer has two chances to do this with every midget prospect; he may sell him a console at the first crack, with a midget to go with it, or sell him a midget if necessary and follow up with a console in the not too distant future, when the customer begins to yearn for a set of which he can be proud.

expensive set. The buyer is in a weak mood from a sales standpoint. A live wire salesman is often able to sell them a much more expensive set or combination than he would have at the time of the original sale.

The midget is then relegated to a bedroom as a second set. If the owner is fairly wealthy or has a country house, "bed-room radio mindedness" grasps him and before long he is

back for more for other members of the family.

Yes, the midgets have their good points, New York dealers agree, and would be pushed to some extent if it were not for the low unit of sale. But until the time when the midget offers a good merchandising hook-up the cry here will be "Death to the Pretender." They are learning that business cannot be run on turnover without profit.

Answers to Questionnaire

1. Does dealer carry midget line?
351 answered Yes; 19 answered No.
2. Does he consider midget a good merchandising item?
72 answered Yes; 298 answered No.
3. Do customers demand he carry line?
290 answered Yes; 80 answered No.
4. Do midget sales open field for larger sets sales?
70 answered Yes; 300 answered No.
5. Do midget sales conflict with larger set sales?
324 answered Yes; 46 answered No.
6. Does dealer have definite sales antagonism to line?
271 answered Yes; 99 answered No.
7. What general class of people buy midgets?
154 answered All; 216 answered Middle and Wage Earners.
8. Do buyers expect same performance as from larger set?
365 answered Yes; 5 answered No.
9. Does dealer feature midget in sales? In display?
53 answered Yes; 317 answered No.
10. What payment arrangement does dealer use?
45 answered Cash
74 answered 10% down
25 answered 15% down
161 answered 20% down
43 answered 30% down
22 answered 40% down.

The time limit on the balance ran from 3 months to 12 without any apparent connection with the amount of the down payment. This question, without doubt, has received no real thought amongst the dealers.

13 answered 3 months balance
33 answered 4 " "
14 answered 5 " "
62 answered 6 " "
21 answered 8 " "
43 answered 9 " "
42 answered 10 " "
107 answered 12 " "
11. Does dealer install and service midget sets free of charge?
329 answered Yes; 41 answered No.
12. What are the mechanical difficulties most often encountered?
208 answered Tube trouble
9 answered Wiring
92 answered Aerial
40 answered Bad installation
110 answered Selectivity
47 answered Shielding
50 answered Outside noises
42 answered No more trouble than larger sets
124 answered Bad treatment by owners.
13. Approximately what percentage of sales are in the following classes: below \$72.50?
25 answered 10%
65%
25%
35 answered 25%
50%
25%
12 answered 50%
45%
5%
94 answered 20%
65%
15%
72 answered 40%
50%
10%
- (Note: Not all of the dealers answered this. There were a few who estimated their percentages differently than the above, but they stood by themselves and have not been included.)
14. What sales methods does dealer use to persuade customer to buy more expensive set than midget?

(This is detailed in attending story.)

What I Would Do If I Were Selling Tubes

By L. P. NAYLOR*

THE VERY FIRST THING I would do, if I were a radio dealer, would be to establish myself as an *aggressive* merchandiser. A study of the radio tube market indicates that tubes form approximately 40% of the total radio sales volume. With radio receivers listing at \$65.00 and upwards, one can immediately see that a complete set of tubes listing at \$15.00 and upwards, forms 25% of the sale unit for initial equipment alone. The 15,000,000 receivers now in use easily provide an additional 15% in tube sale replacements, making a sum of 40% of the total radio sales volume that the aggressive dealer should garner.

How To Get That 40%?

In my desk I'd have a veritable encyclopedia of the complete territory I sell. This record would contain the names and addresses of everybody having a home in the vicinity, the kind of radio set they have, how long it has been in use, why some of the residents don't have a radio, etc. Such a list of names and addresses can be obtained very easily from the local telephone company or by house to house canvassing by several young salesmen who could readily gather this information under the guise of a survey being made in the interests of better radio reception. And, last but not least, the telephone could be used to get this valuable information together.

The names should be segregated so that those of owners of sets over one year old would be all together. An efficient and well-trained service man would then make a personal call on

these owners and offer free tube service at positively no cost. Offer to test the tubes in the set, by meter, right before the party of the



house and convince her or him that a frank report will be made on their condition. Ofttimes a complete new set of tubes, after being installed in the receiver to demonstrate the comparative betterment in reception by using new tubes, will be sold.

By gaining access to the house in this way, and by endeavoring to make a very favorable impression, the opportunity exists to present a sales talk on other electrical devices handled in the store—a new radio set, a vacuum cleaner, an electric refrigerator. It is apparent, therefore, that radio tubes, besides being a sizeable business in themselves, become a lever for the sale of other electrical goods of large unit sale.

The service man, by making a good, sincere impression can also capitalize on the opportunity to inquire whether there are any neighbors or friends who do not have radio sets, who are getting poor service from their set, who need other electrical devices, etc. This same procedure can also be followed with people coming into the store to purchase. In this way I'd manage to keep a perpetual prospect list that I would cover completely and thoroughly.

A complete record would be kept of all new set sales and, at the expiration of one year, these customers would be approached for a complete new set of tubes. In a large percentage of cases, these customers buy new tubes at the end of the year so that their sets will continue to give good performance and to assure good reception.

Because radio tubes constitute such a potent factor in maintaining and increasing sales, I'd display them regularly and prominently in my show window and inside the store. Frequently a customer, intent on buying some other commodity, is reminded by these displays to replace his tubes. This is just another factor to help capture that 40%.

Minimizing Sales Expense

With an eye to sales costs and expenses, I'd decide on selective selling of all the products I handled. By that I mean I'd concentrate on as few lines as possible to do justice to and a good selling job on these products. In case of tubes, I'd handle only two manufacturers' lines.

It would be essential for my clerks, service man and myself to know all the features and advantages of these lines of tubes so they can be intelligently discussed with the customer. A comprehensive knowledge of the product sold by a retailer instills confidence on the part of the customer who will, in most instances, rely on the dealer's recommendation.

Then, too, by concentrating on two lines of tubes it would mean a smaller inventory and less capital tied up, which would not be the case where three or more different makes were handled. It is needless to state that the two brands of tubes I would handle would be of a well known, widely advertised and publicly accepted brand with the definite knowledge that my store could stand behind and guarantee such tubes. I would do this for several reasons: first, a good tube that gives efficient performance will greatly minimize service calls and secondly, these dependable tubes would help build good will for my establishment.

All indications at this early date point to a good tube year for 1931. The 15,000,000 sets now in use averaging six to

(Continued on Page 40)

*Sales Manager, Arcturus Radio Tube Co., Newark, N. J.

The Dealer's Responsibility

In "Putting Over" the Broadcast Program

RADIO BROADCASTING in its early days embraced a listener who marveled at the tremendous advancement of science, who romanced over the great distances and speeds with which words and sounds from far off places were brought to him in his own living room by his own fireside. His interest lay in the thrill of performing something for the first time—the thrill of being a pioneer listener. It was to satisfy this desire for the unique, as well as to quiet their curiosity as to what it was and what it all might mean, that the first purchasers paid over the cash for their receivers. It was a day when the most up to the minute form of progressiveness was to be the possessor of a large super-something that would obliterate distance and make time instantaneous. Many radio sets were purchased on their qualifications as a tube-rack. The greater the number of tubes the more power the set was supposed to have. A highly sensitive and eager public jumped at every announcement of a new development or new hook-up. And the listener was no different in mental processes than the many hundreds who hastily constructed transmitting stations and came on the air with little or no idea as to where they were going or what they would do after the first few broadcasts. The early broadcasters caught a glimpse of the possibilities of this new medium and seeing their competitors and neighbors making plans to utilize it jumped immediately into the role of broadcaster.

But soon it all became very commonplace to be a listener and the average broadcaster began to realize that all was not gold that glittered. The rising cost of talent and broadcast operation forced the average broadcaster to cut down his outlay for the unusual. In the rush to get new things to feed to a clamorous audience it was obvious that all could not have the same things at the same time. What happened was the logical result. The thrill of pioneering for the listener soon was gone. The army of DX fans began to develop a taste for **program material** of certain standards.

The listener of today, ever attentive to get the best that the air affords, and thereby make his receiving set something more than an article of furniture, gives his interest to the fine network programs. He purchases his set to obtain these programs of merit and distinction. He is sold on the desirability of being part of the radio audience because of the quality of the program he will obtain. The advertiser, the broadcaster and the radio dealer should all be interested in what can be done to make improvements in the quality and nature of the material released to the listener. If any one of these fail in their specific parts, the listener, the market for all of them, quickly senses let-down and accordingly becomes of less value.

In which Steven Perkins, of the United Broadcasting Company, points out the benefits to be derived from "selling" the program to the radio customer.

The advertiser, to get greater results, must keep up the quality of the programs which he sponsors. The broadcaster, to hold the advertiser, must keep the quality of all his programs to a high level in order to maintain his audience and following. The radio dealer in order to move his goods must sell the program to the prospect. The buyer of a receiving set today is not after distant stations, or a unique thrill, nor does he seek to quell his curiosity. He obtains his radio set because it will afford him entertainment and pleasure. He is interested in what the set has to offer rather than what it is. Every dealer's salesman should have the latest program information at his finger-tips. He should know beforehand, just what important programs are soon to be released. Furthermore, he should be able to enthuse over any or all of the popular serial programs; good jazz, the symphonies, weekly talks on astronomy, mystery plays, whatever he knows any particular prospective customer will be interested in. Enthusiasm is contagious; it turns a customer into a buyer more readily than all the specifications and matter-of-fact sales arguments combined.

An invitation to a doubtful prospect to visit the showroom during a particular broadcast to his taste and liking will often

sell a set with little or no urging from the salesman. A ready knowledge of all the popular personalities and organizations currently on the air should be instantly available to the dealer salesman who is on the job. In other words the dealer salesman may make his occupation much more interesting and profitable through studying the tastes and particular interests of the prospect in order that he may show him how these desires can be supplied through owning a radio. When the desire to own a radio set is strong enough his prospect will have little hesitation in ordering one.

In whatever way the dealer can find to help promote the more frequent use of radio; in whatever way he can help the broadcaster and the advertiser popularize their programs; in that way can he aid the radio industry in general. Helping to popularize radio programs will increase the demand for more and better radio receivers right in his own neighborhood.

Some live-wire dealers keep themselves and their salesmen constantly prepared for every customer that comes in; starting out the day with a few minutes study of the program lists, and perhaps taking notes on a small card, segregating the programs into classes, such as sports, popular music, classics, and lectures. Sizing the customer up or operating on a hint that might be dropped during the opening conversation, the salesman takes a glance at his card and points out to the customer the various programs in which he might be interested during that afternoon or evening. He enthuses the customer over what he has in store for him; and the radio is half sold.



JOHN I. DEWAR
Secretary of the United Broadcasting Company

TOBE Filterette

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VOL. 2, NO. 4

APRIL, 1931

CANTON, MASS.

Interference Survey By Tobe Engineers Shows Varying Interference Sources High Noise Level Found to be Due to an Accumulation of Many Small Interferences

MANY progressive communities in various parts of the United States having decided that radio interference can no longer be tolerated, have instituted vigorous campaigns to rid themselves of this enemy to radio pleasure and profit. Although such campaigns might seem at first to be for the benefit of the radio dealer, investigation has shown that the individual broadcast listener and the community as a whole have benefited sufficiently from interference elimination projects to render them highly worth while. To the credit of many of the communities who have undertaken to combat radio interference, it may be reported that the Chamber of Commerce or the city government has been the moving power in obtaining for the community relief from radio interference.

The following report of a typical interference campaign in which engineers from the Tobe Deutschmann Filterette Laboratories cooperated with city officials may be taken as a guide in planning such campaigns.

KEY TO SURVEY MAP	
BB Business block	LL Loose lamp
BI Broken insulator	M Motor
BS Belt static	OB Oil burner
C Interference cleared	PC Power line construction
CD Corona discharge	PH Power house
D Diathermy	RC Regular complaint
DR Defective receiver	RL Radio complaint cleared
FA Fire alarm generator	SF Sign flasher
HA Household appliance	TC Traffic control
LC Loose cutout	TG Tree ground
LJ Loose joint	TS Telegraph
	Tel Telephone ringer

Large circles indicate areas of high noise level due to the combination of several interferences. Smaller circles indicate area blanketed by individual interference sources.

"The first step in planning this campaign was the organization of a committee to consider ways and means. This committee included city officials, radio dealers, members of the Chamber of Commerce, Rotary Club, Kiwanis Club, and Lions Club, representatives of the public utilities and the press. At the first meeting of this committee it became evident that only by the wholehearted cooperation of all the organizations represented as well as by all the citizens of the community, could any lasting results be obtained.

It was, therefore, decided to place all findings of the committee before the public and to enlist the aid of all citizens to the fullest extent possible. In order to accomplish this, a questionnaire similar to that shown on the next page was run in the various newspapers for several days. All persons having definite complaints of radio interference were urged through the press and through local broadcast stations to make complete reports on the printed forms and mail them to the City Clerk. These forms were separated

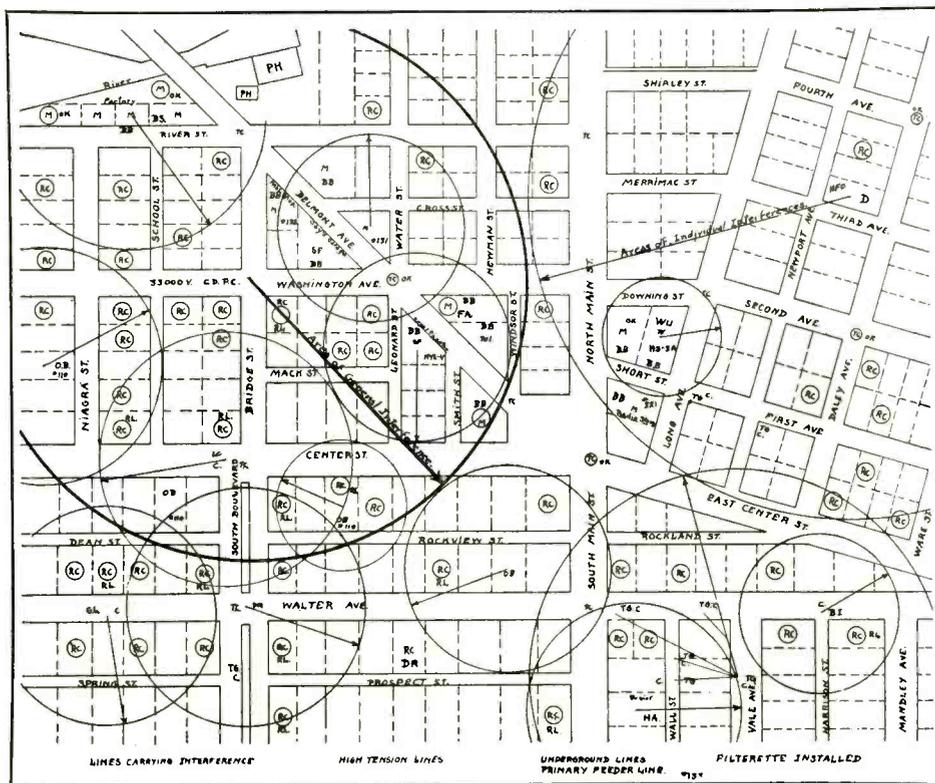




FIGURE 1.
Transformer installed among trees. Many grounds.

essary to visit some buildings known to be housing special equipment and to locate definitely the apparatus responsible for the interference. After this had been done, a comprehensive report of the interference sources and the procedure necessary to overcome the interference either by repairs, adjustments, or filterizing was presented to the City Council.

This report showed that approximately 58% of the interference was due to the operation of comparatively small electric appliances which created interference even though they were in good electrical and mechanical condition. The correct type of Filterette for application to each appliance was included in the report. Approximately 14% of the interference was found to be originating on power lines, much of it being due to tree grounds. The responsibility for this

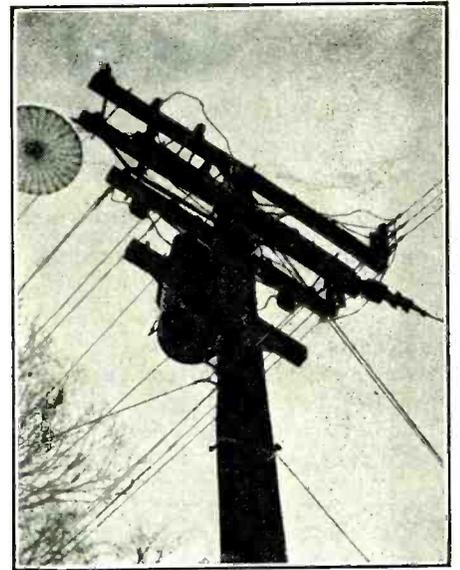


FIGURE 2.
Leakage to cross-arm brace.

rated into groups representing various sections of the city, particular care being taken that all reports appearing to relate to the same interference were kept close together. When the majority of reports had been classified, the Tobe Deutschmann Interference Engineer was notified, and the reports were given him. From an analysis of these reports he was able to determine the approximate source of some of the major interferences and by use of the interference locator he checked the conclusions drawn from this analysis. Figure 3 shows one of the locations of a major interference. On this pole were carried three 2300 volt circuits and three fire alarm circuits. These were being brought from an underground conduit in a single section of non-metallic flexible circuit. Some of the wiring was grounded to metal cross arm braces causing an interference which was distributed over the area in which the power lighting and fire alarm circuits were carried.

After checking the major interference sources and recommending the procedure to be followed in overcoming the interference, the interference engineer next visited the various districts of the city which were affected by lesser interference. By use of the Model 230 Interference Locator the engineer was able to identify many of these interference sources while driving along the city streets. In this way, many other interference sources were located and charted on a map of the city. It was next nec-

RADIO INTERFERENCE QUESTIONNAIRE

Name	_____		
Address	_____		
Make of Radio	_____	Telephone No.	_____
What Electrical Appliances have you for home use?	_____	All Electric	_____ Battery

Interference Characteristics			
Constant	_____	Intermittent	_____
Does it increase or reduce after Six P. M.?	_____		
Describe as near as possible what noises sound like			

What, in your opinion, is the cause of the interference?			
If your residence is on or near Street Cars, can you tell when cars approaching by listening in on Radio?			

Please fill out accurately and mail or bring to City Clerk as soon as possible.			

Do Not Write Below This Line			
Interference Checked By Tobe Engineer:—			
A	_____		
B	_____		
C	_____		

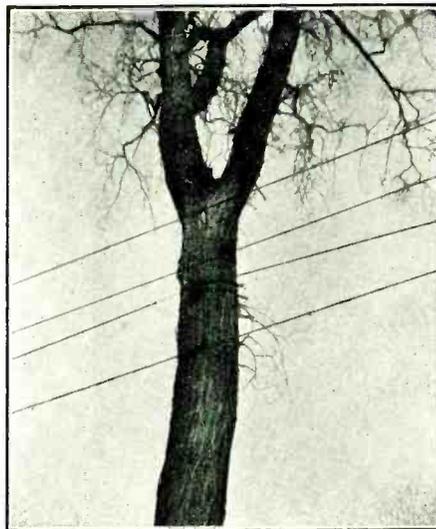


FIGURE 3.
Bad tree ground.

condition was divided between the power company and the City Park Commission. In the case pictured in Figure 2, the fault was obviously that of the power company which had allowed its lines to come in contact with a tree until the insulation was worn from the wire and the conductor was making direct contact with the tree.

In the transformer installation pictured in Figure 1, much interference might have been avoided had the City Park Commission allowed the trimming of trees to allow clear space for power lines and street light circuits. Approximately 12% of the interference was found to be caused by Diathermy apparatus. As will be seen from the partial survey shown on this page, Diathermy interference covers the widest area of any interference. The remainder of the interference was divided among telephone equipment, telegraph equipment, fire alarm equipment and traffic control apparatus.

As a result of this interference survey, many persons who had been unable to obtain satisfactory radio reception again became radio enthusiasts. Many others who had been delaying the purchase of radio receivers because of poor receiving condition became prospects for aggressive dealers. The effective radio load of the power company was increased by the greater interest in radio and the prolonged operation of receivers. The sale of Filterettes recommended by the Interference Engineer resulted in a profit to local radio distributors.

TOBE DEUTSCHMANN CORPORATION

Filterette Division ✓ CANTON, MASSACHUETTS

The Acknowledged Authority on Radio Interference—Makers of FILTERETTES, the Accepted Remedy

SAN FRANCISCO, CALIF.
584 Mission St.

PORTLAND, ORE.
383 Oak St.

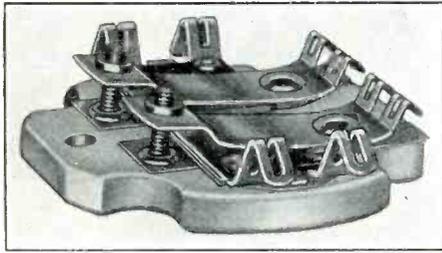
NEW YORK CITY
136 Liberty St.

Advertisement

New Radio Products

Intermediate Tuning Condensers Announced By Hammarlund

Intermediate tuning condensers, in both dual and single style, for superheterodyne and other similar circuits, are now being manufactured by The Hammarlund Manufacturing Company, 424 West 33rd Street, New York City.



These condensers, which are made specially for manufacturers' use, in the single style are known as the "ICS", and in the dual style as the "ICD" type.

Capacity and losses in intermediate frequency condensers must not change under varying conditions of temperature or humidity, if performance levels are to be maintained. Such changes cause a receiver to oscillate in dry weather and to have a very low order of sensitivity in wet weather. Therefore, the Hammarlund condenser has been subjected to the greatest care in manufacture and choice of materials.

New Atwater-Kent Uses Pentode

A new set, known as the Atwater Kent New Golden Voiced Compact with the Pentode Tube, was announced by A. Atwater Kent, president of the radio company bearing his name, as the latest addition to the Atwater Kent line of radio receivers, at the Atwater Kent Distributors' Convention held in Philadelphia, March 19 and 20. This is a superheterodyne receiver, listed to sell at \$69.50, complete with tubes.

The new set employs six tubes—three screen grid 224's, one 227, one rectifier 280, and one pentode. Used as audio output in the new circuit developed for the Model 84 Compact, it handles as much power as two 245's plus the amplification of one 227—all three of which it replaces.

The cabinet design is pure Cathedral Gothic. The front, flanked on either side by graceful pilasters, is of matched butt walnut, and the sides are of selected striped walnut. The speaker grill is decorated with walnut Gothic fretwork.

New Superhet Series Introduced By Crosley

The new Crosley Senior Superheterodyne receiver is now available in three full size models: The Super-Administrator, to retail at \$109.50; the Super-Rondeau, at \$119.50; and the Super-Sondo, a combination radio-phonograph, at \$189.50.

The chassis used in these models utilizes four screen grid tubes, type '24; one tube, type '27; two power output tubes, type '45; one type '80 rectifier tube. The two '45 power output tubes are used together as a push-pull audio amplifier. The Crosley Superheterodyne (Pliodynatron) is used with a full floating moving coil dynamic speaker.

Mega-Coustic Program Reproducer

Speaking of economies in hotel operation, Mr. Hodges of Frazar & Co., Ltd., of San Francisco, specialists in sound re-



production, states that the Mega-Coustic Program-Reproducer lends itself to many uses in the modern hotel of today. This instrument, as pictured above, resembles in appearance a telephone switch-board and contains a radio tuner, electric phonograph, turntable and "pick-up," amplifier and switching controls.

Ohmite Semi-Variable Resistance Units

To bridge the gap between fixed resistance units and the new rheostats which they have recently brought out,



a series of semi-variable units is announced by D. T. Siegel, General Manager of the Ohmite Manufacturing Co., 636 N. Albany Avenue, Chicago. These units are of the standard vitreous enameled type as manufactured by that company, but they have the enamel bared on one side along their length so that contact may be made with the resistance wire by an adjustable clip.

Two types of adjustable clips can be supplied—one that is fitted with bolt and nut and is tightened with a screwdriver, and the other is fitted with a bakelite knob so that it may be tightened with the fingers.

Two New Transmitting Tubes

The DeForest Radio Company of Passaic, N. J., announces two new audions just added to its extensive line of transmitting tubes. Both types are in full production and orders will be filled from stock.

Type 575 audion fills a long-felt need for a power rectifier between the 572 and the 569 classes. It is rated at 15,000 volts inverse peak, and 2.5 amperes peak current. The standard 50-watt base is used. The other is the 571, a high-power air-cooled tube with all the advantages of the popular type 561 or 500-watt screen grid tube yet free from the loss in efficiency, due to the presence of the screen, at ultra-high frequencies.

Lynch Adds to Wire Wound Resistor Line

Lynch Precision Wire Wound Resistors are now available in either cartridge or pigtail type or exactly meet every individual requirement. Type LW-1, cartridge and LW-4, pigtail, are made in all resistances from one ohm to 500,000 ohms. Type LW-2, cartridge is made in all resistances from 500,000 ohms to 2,500,000 ohms. Type LW-3, pigtail, is made in all resistances from 200 ohms to 100,000 ohms.

Burton-Rogers Announce Two New Instruments

Adding to the line of testing equipment the Burton-Rogers Company, 755 Boylston Street, Boston, Mass., has announced the Burton Model No. 3 self-biasing Deadline Tube Checker and the Burton Jr. Oscillator. The former is



compact for portable use, designed to check short circuits and locate noisy tubes as well as tell when a tube has lived its useful life. A chart is engraved on the panel. The Junior Oscillator is designed to emit a constant frequency for the broadcast band as well as the intermediate band for superheterodynes.

Stromberg-Carlson Announces New Police Radio Receiver

A new and improved type of police radio receiver, designed for installation on police patrol automobiles, has been announced by the Stromberg-Carlson Telephone Manufacturing Company of Rochester, New York. The complete receiver consists of receiver unit, loud speaker, control box and two antenna plates.

This company recently received a contract from the city of Rochester, New York, for thirty police receivers to be installed on patrol cars, and transmitting apparatus, which is now being installed.

Clarostat Offers New Graphite Element Volume Control

This latest development of the Clarostat Engineering Staff is a Graphite Element unit that embodies a distinctly new positive rolling contact which eliminates any possibility of erosion of the resistance element.

Life tests conducted in the laboratories under severe and grueling conditions have demonstrated that this Graphite Element Volume Control will outlast the average radio receiver.

The new unit is available in any taper with exceedingly low "hop off" and as replacement control for any receiver on the market today.

Additions Made to Best Line

Some of the latest additions to be made to the Best line of home and theater speakers, control boxes, pick-ups and adapters are the new Best Home Recorder and the Sectional Rotary Switches. The home recorder is built in a portable cabinet with carrying space for the microphone, pick-up and adapters. It does not contain the phonograph motor and turntable. The heart of the recorder is the sectional rotary switch, which is available by itself in almost any size and combination. This switch is used for changing from radio reception to phonograph reproduction, microphone recording or the recording of a broadcast program.

Sentinel No. 108 Superheterodyne

The Sentinel No. 108 radio receiver, recently announced by the Radio Division of the United Air Cleaner Corp., Chicago, is a superheterodyne employing four '24 screen grid tubes, one '27, one '45 and an '80 rectifier. The cabinet measures 18½ in. high, 11¼ in. deep and 14 in. wide.

Audak Company Adds "Musichrome"

The Audak Company, well known manufacturer of phonograph pick-ups is now marketing a portable electric phonograph for use with the audio amplifier in a radio set. It is named the Musichrome and has a list price of \$58.00.

Presto Record Maker for Home Use

A new instrument, the Presto Record Maker, makes records instantly, right in the home or office.

It attaches to any radio receiving set, thereby forming a combination for playing the records back as on a radio phonograph combination. One of the many features of this device is that it cuts and grooves its own records. It does not use pre-grooved records.

The instrument is equipped with a microphone so that "home talent" may be used or connected to the radio set for recording broadcast programs.

Presto uses smooth discs, 6", 7½", 10" and 12" in diameter. Records are made of aluminum alloy and are unbreakable.

Compact Webster Amplifier Power Stage Panel

To meet the current need for a powerful amplifier for Sound Distribution Systems which provides the advantages of larger units yet conserves space, Webster Electric Company, Racine, Wis., has developed a power stage panel with a 56 watt output. The panel is known as Webster Model 6032A and is part of the Webster line of power amplifier equipment for Sound Distribution Systems. The panel measures 14x24 inches;



an additional panel is furnished with condensers mounted thereon in seven sections. The size of the condenser panel is 7 x 24 inches.

National Thrill Box for Both A-C and D-C

The National Thrill Box, Type SW5, a five tube short wave receiver, is manufactured for either a-c or battery operation. The National Company also lists the plug in type inductances and the variable tuning condensers used in this receiver for those who wish to make their own short wave sets or adapters. The SW5 has established a very fine reputation among short wave fans.

Arcturus Company Offers New Bulletins

Two new bulletins have been prepared by the Arcturus Radio Tube Company, of Newark, N. J., covering the complete technical data on the new Type 551 Variable-Mu tube and the Type PZ power output pentode. Both bulletins give complete specifications, characteristics, curves and circuits for these two new tubes.



“CeCo Tubes possess the distinctive feature of retaining true tone quality under full volume.”

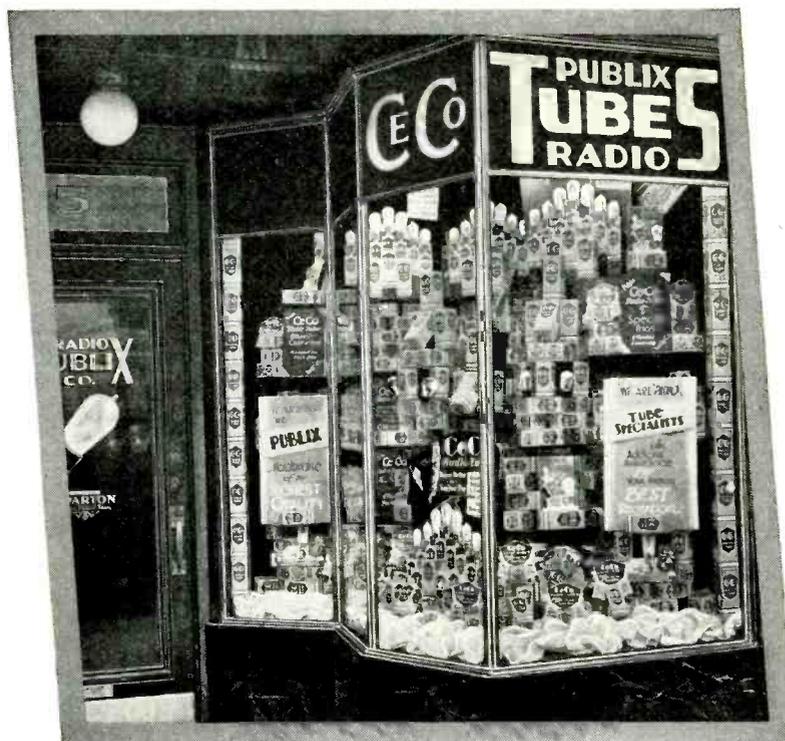
CHARLES SEGAL, Co-Partner, Publix Radio Co., Philadelphia, Pa.

“BELIEVE IT OR NOT!—Before entering the radio tube business, this Philadelphia dealer insisted on the CeCo franchise ...*i.e.*—no CeCo—no store. We joined forces. Their **CeCo sales** have gained month by month—today **90% of their total business** is CeCo...at full list. This series of advertisements tell its own story... .. facts not promises.”

Ernest Kauer
President.

**CeCo Manufacturing Co., Inc.
Providence, R. I.**

No. 6 of a series of unsolicited CeCo window displays



DO YOU KNOW?

- 1.** CeCo types 866, 250, 281 are used throughout the world in theater and power equipment applications.
- 2.** CeCo Radio Tubes were used exclusively in the transmitting and receiving equipment of the Chicago Radiophone Club to report the 1930 National Air Races.
- 3.** For prompt delivery, CeCo maintains warehouses at New York, Chicago, Boston, Philadelphia, Cincinnati, Pittsburgh, Providence, Toledo, San Francisco, Los Angeles, Dallas and Springfield, Mass.

CeCo

RADIO TUBES

Licensed under Patents of Radio Corp. of America

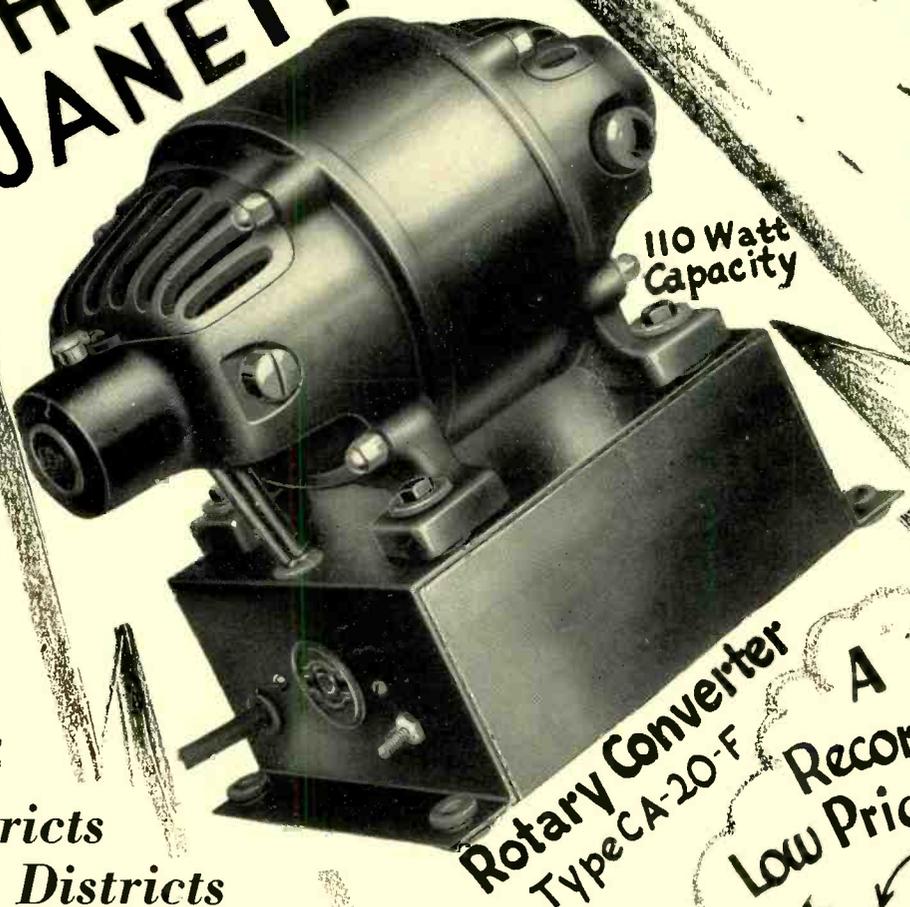
They're Better or You Don't Pay!

A Thunderbolt
Has Struck
the
Radio Market

THE NEW JANETTE

This Converter CONVERTS

Thousands of Prospects into Buyers



110 Watt
Capacity

Rotary Converter
Type CA-20-F

A
Record
Low Price

Opens up
**A VAST
New Market**

- - - *Rural Districts*
- - - *City D. C. Districts*

This New Janette Converter is guaranteed

JANETTE MANUFACTURING CO.

557 W. Monroe Street, Chicago, Ill.
Singer Bldg., 149 Broadway, New York, N. Y. Real Estate Trust Bldg., Philadelphia, Pa.
Harrison Sales Co., 314 Ninth Ave. N., Seattle, Wash.

JANETTE MANUFACTURING CO.
557 W. Monroe St., Chicago, Ill.

Please send me full information and discount on your new type-CA-20-F Converter.

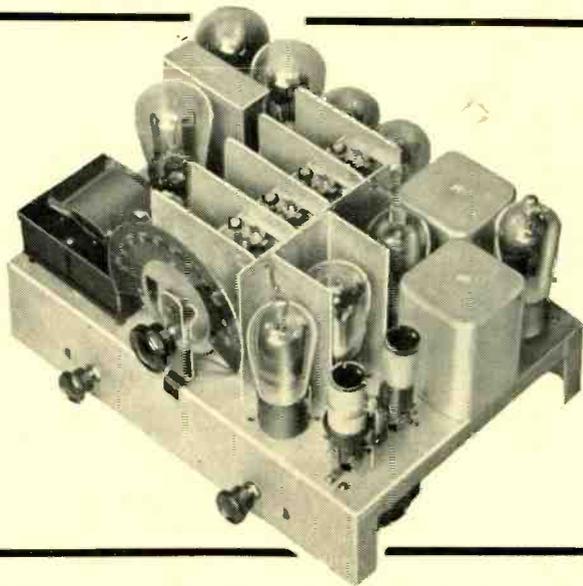
Name _____
Street and No. _____
City and State _____

ONLY
\$49⁵⁰
LIST

Complete with filter,
cord, plug and A. C.
receptacle

Keller - Fuller Announces a 9 Tube Super-Heterodyne

A new receiver with "Tandem Detector"
and other noteworthy improvements - - -



THE latest development from the "RADIETTE" manufacturer is a superheterodyne receiver using the new TANDEM DETECTOR which tremendously improves tone quality and allows the use of greater volume without overloading. Non-re-radiating; free from harmonics, and with clean-cut 10 kilocycle separation of stations. The coils are wound with "LITZ" wire, conceded by radio engineers to be 400% more efficient than coil wound with ordinary enameled wire.

The set lists at only \$79.50, complete with nine tubes. It uses three screen grid tubes; three '27s; two '45 power tubes and an '80 rectifier. It has a push-pull amplifier. Local-Distance switch. Four gang ball-bearing condenser with gear driven vernier dial. Tone Control. Phonograph Connection. Dial Light. Antenna Pre-Selector. Dial markings in kilocycles. 10 x 14 x 19 inches in size. Its shipping weight is but 35 pounds. Electro-Dynamic Speaker. The finest product which has yet come from the "RADIETTE" factory of Keller-Fuller.

◆
*Jobbers and Dealers Are Invited
to Write for Franchise*
◆

Get the whole story on this great new Super-Heterodyne. Its performance is astounding. Tone quality will surprise you. Dealers will find this new receiver the logical answer to better merchandise. Jobbers who are interested in securing protected territory should write IMMEDIATELY.

\$79.50

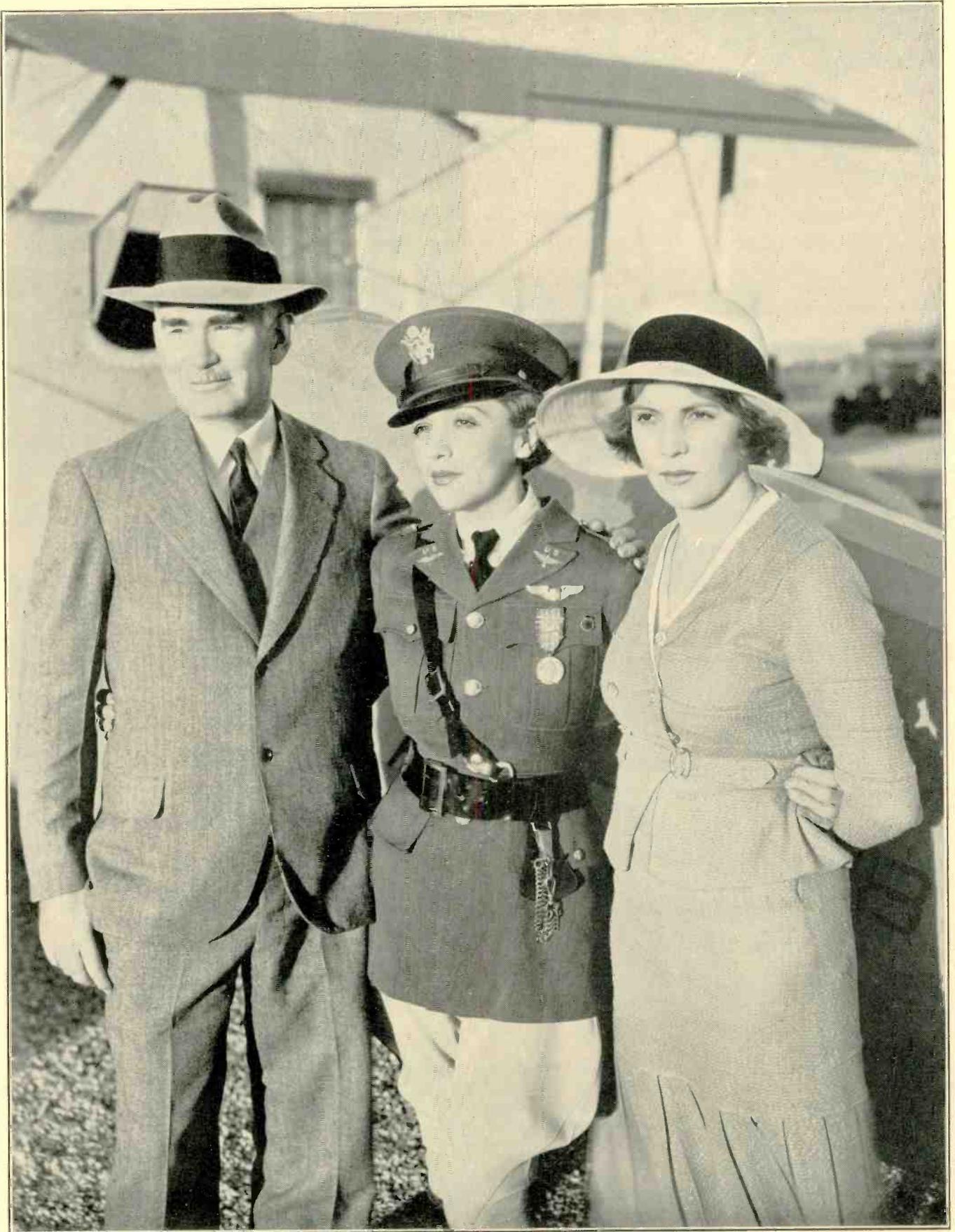
List Price
Complete with 9 Tubes
Can Also be Supplied in Console
Model at \$89.50

The illustrations show the clean-cut professional design and construction of the new "RADIETTE" super-heterodyne. Note the method of complete shielding and the beauty of design. THIS is the receiver you have been waiting for.

Keller-Fuller Manufacturing Co., Ltd.

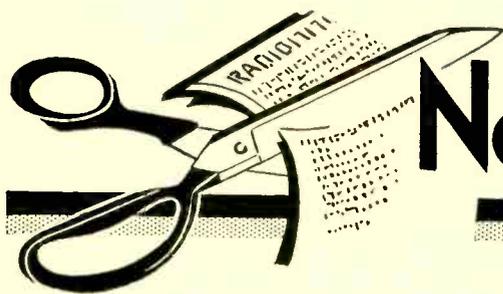
1573 West Jefferson Boulevard

Los Angeles, Calif.



**"Stars in the Skies
and on Land"**

Left to right: Dr. Lee deForest, Bebe Daniels (cousin of the Doctor) and Mrs. Lee deForest. An exclusive photograph of the internationally known radio-movie family, snapped in Hollywood, where Dr. deForest is hard at work on new devices for perfecting talking pictures. Bebe Daniels is a Colonel in the 322nd Pursuit Group, U. S. Army Air Corps.



News of the Month

Magnavox-Grigsby Grunow Fight Reported Over

It was officially announced on March 30 that the Magnavox Company's suit against the Grigsby-Grunow Company for infringement of Magnavox patents has been settled, the defendant having agreed to pay a substantial sum and a royalty on each dynamic speaker henceforth manufactured by them.

President R. A. O'Connor of the Magnavox Company reports that his firm intends to vigorously prosecute other patent suits which it now has pending against other radio manufacturers. The company will soon announce a new loud speaker for which patent applications have been filed, Mr. O'Connor says, which will materially add to the position of Magnavox in the industry.

★ ★

Seawood Corporation Adopts Bosch Boat Radio

The United American Bosch Corporation announces that its motor boat radio receiver, Model 84, has been adopted as standard equipment for the No. 32 "MASTER" Cruiser of the Seawood Corporation of New Jersey. The receiver is standard in every respect except that the table or shelf cabinet usually supplied with it is not used. The chassis is built in the wall of a section of the cabin in such a way that the only thing visible is the grill of nautical design which covers the speaker, and the dial and tuning knobs.

★ ★

M. E. Ricketts Joins Warner- Brunswick, Ltd.

Mr. Matthew Edwin Ricketts has been appointed managing director of the Brunswick Radio Corporation's English subsidiary, Warner-Brunswick, Ltd., London, coming to that company from the Chappelle Piano Co., Ltd., the outstanding merchandising organization in the music industries of Great Britain.

Over fifty million records are sold each year in Great Britain, even during the present depression, Mr. Ricketts points out. There are two thousand music dealers of the old school in England who continue to merchandise gramophones and records and give very little attention to radio.

Sampson Electric Company Visits Williams Plant

On March 19 the Sampson Electric Company, Williams Ice-O-Matic Distributors with headquarters in Chicago, visited the Williams factory with a delegation of over 200. Information on both sales and engineering was passed on to the visitors so that they might put it into effective use in the field.

★ ★

Frank Burns Returns From South

Frank Burns, Vice President and



FRANK BURNS

General Sales Manager of E. T. Cunningham, Inc., has just returned to his executive offices in New York after a month's sojourn and motoring expedition in Florida. He now reports that he is ready to make the radio business stand up to its reputation of by-gone years.

★ ★

Harry Holmes Takes Over Stevens Sales

Harry Holmes, former Sales Manager of the DeForest Radio Company, has joined the Stevens Manufacturing Corporation of Newark, N. J., in the capacity of General Sales Manager. He will handle the sales of Stevens products to radio manufacturers and jobbers, and to the music trade.

Norge Corporation Launches Installation Plan

In order that its dealers might not be forced to sell their paper directly to a finance company the Norge Corporation has adopted a deferred payment plan on a nation-wide basis. It is contemplated that each distributor will enter into a contract with the financing company by which he will assume a limited contingent liability of five per cent of the volume of paper purchased from his dealers through him in any one yearly period.

★ ★

H. W. McClough Appointed Sales Manager

According to a report from the Belden Manufacturing Company of Chicago, Mr. H. W. Clough, formerly manager of the Merchandise Division for that company, has been promoted to Sales Manager. In his new capacity Mr. Clough will devote considerable attention to the sales promotion of the Belden Soft Rubber Plug and New Belden Heater Appliance Plug to manufacturers of electrical appliances.

★ ★

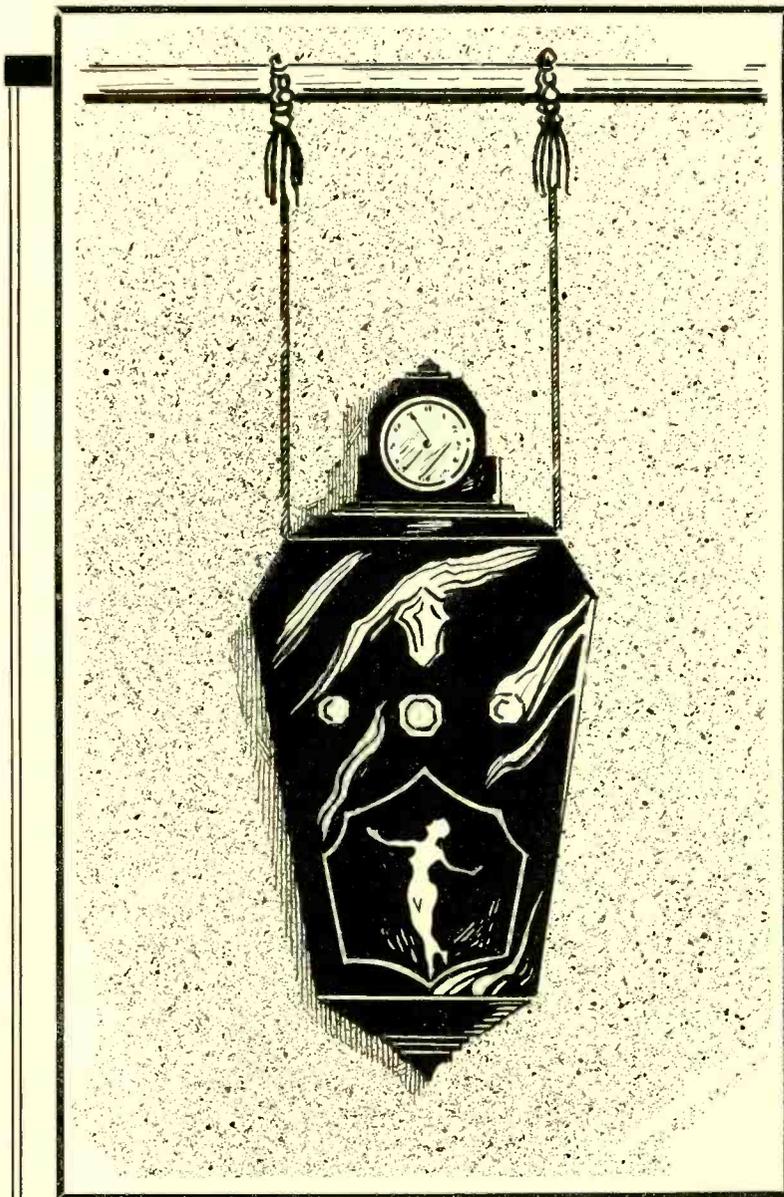
Stromberg-Carlson Declares Extra Dividend

The Stromberg-Carlson Telephone Manufacturing Company declared an extra dividend of 12½¢ on its common stock last month. This dividend is in addition to the regular quarterly dividend of \$1.625 on the preferred stock and to the regular dividend of 25 cents on the common stock.

★ ★

American Laboratories, Ltd., to Handle Wellston Products

The American Laboratories, Ltd., 2903 Beverly Blvd., Los Angeles, manufacturers of the Novo Mike, have recently taken on the complete Wellston line of radio products, including the newly announced replacement parts, such as resistors, fixed condensers and filter condenser blocks for all types of standard radio receivers. This company will continue to cover Los Angeles and all Southern California in its distribution. The Wellston Antenna Eliminator is well known on the Pacific Coast and a new and improved model is now being introduced to the dealers.



The Magnificent Regal Midget Radio

FOR THOSE WHO APPRECIATE
THE ULTIMATE IN DESIGN

SLIGHTLY off the beaten path . . . just a bit different from anything you have ever seen . . . is the new REGAL MIDGET RADIO that hangs from the wall. A superb product of master cabinet-craft, finished in a scintillating black enamel with metal work and ornamentations in chrome. A beauty to behold. A radio receiver that will grace any home. Complete with electric clock, built in, as the illustration shows. A fool-proof five tube chassis and dynamic speaker. Licensed under RCA patents. The tone is BETTER because the baffle is LARGER. Here is something YOU can sell. The price is right. A sample will be sent to you for \$49.50 net, cash with order. Get UP into the better class of merchandising with this beautiful new receiver. Get your sample IMMEDIATELY.

Sold to You at a Net Price of \$49.50

- We sell the REGAL MIDGET WALL TYPE RADIO at a net price of \$49.50 to you. You can resell it at your own price . . . under your own name. It is an outstanding value at this price. You can retail it at one hundred dollars. It enables you to accept low price sets in trade because you make your own selling price.

REGAL RADIO COMPANY

1040 NORTH LAS PALMAS . . . HOLLYWOOD, CALIFORNIA

A SAMPLE RECEIVER FOR \$49.50 NET

REGAL RADIO COMPANY

1040 North Las Palmas, Hollywood, California.

Ship one sample REGAL RADIO at once. \$49.50 is enclosed in full payment.

Name _____

Address _____

City _____

State _____

Jobber Inquiries Invited

Territory is now being assigned to reliable jobbers throughout the U. S.. Meet the demand for private brand radio with the REGAL. Your dealers will buy it when they HEAR it.

Dealers!

Order a Sample Receiver

Telegraph your order . . . or send it by air mail. Get started with a line of merchandise that sells because it looks better . . . works better . . . sounds better. ACT IMMEDIATELY!

New Representatives for Clarostat

The Clarostat Manufacturing Co., of Brooklyn, has announced the appointment of four more direct factory representatives. The Six States Sales Co., with offices in Boston and Hartford will take care of New England; George D. Steele of 8113 Maple Street, New Orleans covers the southern states; Jack R. Davies of 1035 Dime Bank Bldg., Detroit, Mich., is working the Michigan territory while E. L. Burke of 230 Oak Grove Street, Minneapolis, Minn., is active in Minnesota and Wisconsin.

★ ★

RCA-Victor Introduces Midget

The RCA Victor Company has joined the ranks of the midget manufacturers, having just announced the Radiola Superette. This is a midget superheterodyne, as the name indicates, employing an RCA 235 in the r-f stage, an RCA 224 in the first detector, a 227 oscillator, 235 intermediate frequency stage, 227 second detector and a pair of 245s in the audio stage. A nine inch dynamic speaker, like the one used in the Radiola 48, is used.

★ ★

Grigsby-Grunow Goes Into Production

The Grigsby-Grunow Company is now in production of its new models which include a midget and two console models. The factory has increased its employment to 5,795 persons and is turning out 3,500 sets a day. According to Don M. Compton, vice president and general manager, the refrigeration plant is also under way and distributors are now receiving large shipments of refrigerators.

★ ★

RCA Sues Three Manufacturers

The Radio Corporation of America has filed suits recently against three manufacturers of broadcast receiving sets for alleged infringement of patent rights. Those named in the actions are Forrest R. Smith, doing business under the name of Western Manufacturing Company, of Los Angeles; Travler Manufacturing Corporation of St. Louis, and Zaney-Gill Corporation of Chicago. All the suits are in the United States District Courts.

★ ★

Arco Factory Moves

The Arco Electrical Corporation, builders of transformers, chokes and special windings, has moved to a new factory in Niles, Michigan, where they will continue to design and manufacture coils of all types and varieties for receiving set manufacturers.

New Insulation Introduced By Cornish

The Cornish Wire Company has developed a new hook-up wire known as Paralac, designed to meet the exacting requirements of manufacturers of high quality radio receivers. While it resembles the Corwico Braidite, utilizes the same type of outer cotton braid and has the same Corwico push-back feature it is different in that instead of the under layer of cotton wrap employed in Braidite the Paralac has a smooth black impregnated covering beneath the braid. Paralac is impregnated with a mixture of beeswax and cerowax instead of paraffin, in order to give the insulation a higher breakdown voltage.



DON C. COMPTON

Meyberg Gets Victor Line

The Leo J. Meyberg Company, veteran Pacific Coast distributors, have recently been appointed exclusive distributors in California for the Victor line. Already handling RCA Radiola, this firm succeeds the California Victor Distributing Company in the representation of Victor Radio and Victor Records.

The Meyberg Company was one of the first radio distributors on the Pacific Coast, and was one of the pioneers in the broadcasting field, having owned and operated some of the earliest stations in San Francisco and Los Angeles.

Priming the Pump

(Continued from Page 17)

operated a one man radio shop in a small town in Northern Iowa. A record salesman from our Minneapolis branch had discussed the idea of a record department without success. Our Minneapolis manager happened to be in town and called on the radio dealer. He showed Mr. Jones that for an investment of

\$10 in record stocks he could start a department to be operated by an intelligent girl who would work on a commission basis. Mr. Jones' investment at 6% would amount to only \$6.00 per year. For this amount he could have the services of an intelligent girl to answer the phone and be in the store while he went to lunch; he could bring many more people into his store, and he could secure more radio and combination prospects than he had ever had before. Mr. Jones said he would take a chance. That was several months ago. The plan has been entirely successful. Mr. Jones is pleased, the Brunswick branch at Minneapolis is pleased, we are pleased and the girl is pleased.

Yes, records are just as necessary for the small as the large radio dealer—maybe more so.

The function of radio and records is exactly the same—they both offer home entertainment albeit in different ways. They are blood brothers. It is possible that either can make a great success without the other but success will come easier and be greater if they work together.

There is a pump in your store which with a little priming, is capable of pouring a stream of bright silver dollars, in the form of increased radio and record profits, into your cash register. The priming is simply a small investment in time and a small investment in money necessary to install a record department.

The idea is worth the serious thought of every radio dealer in the country.

What I Would Do If I Were Selling Tubes

(Continued from Page 28)

seven tubes per set spell a good replacement order. Coupled with this are the tubes that will be required in the several million new sets that will be sold during 1931.

Harvey Firestone, in commenting on the reasons for the poor tire market, stated in effect that automobile owners, instead of purchasing new tires, had their old tires patched up so as to receive longer profitable use from them. He predicted that in 1931, with business conditions constantly bettering themselves, these same owners would then be in a position to buy new tires. Consequently, the rubber industry looks forward to a very good year.

This analogy, while a little far-fetched, parallels to some extent the conditions existing in the tube industry. Radio users kept using tubes during 1930 in spite of weak signals, distorted reception and other ailments that they would not ordinarily tolerate. In 1931 with improved broadcasts and bettered business conditions, radio users will be more inclined to replace their tubes. A consideration of these various facts points to a good tube year in 1931.

Short Waves on Any Screen Grid Receiver—

Not a "Plug-In"
Connects Between
Antenna and Receiver



Sargent Short Wave Converter

Contains
Its Own Power
Supply

Better Than Most Complete Short Wave Receivers—

The Converter and receiver combination is better than 99 out of 100 short wave receivers. The average screen grid broadcast receiver has a highly efficient screen grid amplifier, power detector, high gain audio system and first class loud speaker. All of this is suitable for short wave use, and for average requirements there is no use in making expensive duplications in order to have a short wave receiver. The Converter contains all circuits that actually operate at short wave lengths. These are designed for high efficiency, and are equal to those found in any short wave receiver, and superior to most of them.

Increases Receiving Range—

The Converter will tremendously increase the receiving range of any set to which it is connected. Under good conditions in the average residence location broadcast and code stations 3000 to 10,000 miles distant can be heard. Many owners are consistently able to get broadcast reception from Europe, South America, Australia and the Orient, while short wave stations in the Eastern United States can be heard regularly in the afternoon and evening with as much volume as local stations. For any "DX" fan, the Sargent Short Wave Converter offers deeply interesting radio adventures in fields that are revolutionizing radio today.

Manufacturers of
Short Wave Receivers
and
Short Wave Converters



A trade name which for
years has signified the
ultra in satisfactory long
distance reception

Cable Address—"RADIOSTRUX"

Highlights.....

- 1—Wave Length Range, 19 to 100 meters.
(Lower on special order.)
- 2—Beautiful Walnut Cabinet.
- 3—Single Dial, Color Illumination.
- 4—Receiving Range 3000 to 8000 miles
and over.
- 5—Contains its own Power Plant.
- 6—Has Antenna Compensator and Input
Regeneration.
- 7—Tubes required, 1-280, 2-227s, 1-224.

Price \$69.50
Less Tubes

A Message To Radio Dealers—

Among every class of radio listener, Short Wave interest is increasing by leaps and bounds. To convince yourself of this, simply contrast the number of customer inquiries you get today on Short Waves with what you were getting a year ago. A Short Wave "boom" is on the way, and will be in full swing before 1931 is over.

Now is the time for the forward-looking dealer to acquaint himself with the possibilities of Short Wave reception. Can you answer such questions as, "What Stations can be heard on Short Waves?", "How many of them are on the air?", "What are the chances of getting foreign reception?" In ever-increasing numbers your customers are asking these questions right now. Every dealer who expects to be in business on January 1st should have a Short Wave Converter right now, both to acquaint himself with its possibilities and to use as a demonstrator. Do not wait for your competitor to establish himself as the leading Short Wave dealer, and take the cream of the business. Get in the game yourself, right now.

(Signed) E. M. SARGENT.

Radio's Newest Thrill

Order One Today Immediate Delivery

ORDER BLANK

RADIO CONSTRUCTORS COMPANY
357 Twelfth Street
Oakland, Calif.

Here is \$ _____ deposit, for which please ship me, balance C.O.D., one Sargent Short Wave Converter, as soon as possible, the total to be \$69.50, less 40%, or \$41.70 net. If you have a distributor in my territory who carries a stock, please ship this order through the distributor.

NAME _____

ADDRESS _____

CITY AND STATE _____

Tell them you saw it in RADIO

Association



News

Many New Radio Products and Exhibitors in RMA Trade Show

Every prominent radio manufacturer has reserved exhibit space for the Fifth Annual Trade Show of the Radio Manufacturers Association at Chicago next June. Several new companies also will make their debut with exhibits, according to an announcement by Major H. H. Frost of New York, chairman of the RMA Show Committee.

There will be more new circuits, new tubes, new speakers, new cabinet designs, and new radio products, including home talkies, television, and other radio devices than were ever before presented in one year at the big annual industry gathering of the RMA. There will be other exhibits in the trade show and manufacturers' demonstration rooms in the Stevens Hotel of non-radio products

Antique Radio Sets Being Rapidly Junked

Despite the wide use of radio and tremendous growth of broadcasting, an estimate today of the Radio Manufacturers Association is that 10,000,000 or more persons will be added during 1931 to the already enormous army of radio listeners.

"Recent surveys," said Bond Geddes, executive vice-president of the Radio Manufacturers Association, which comprises virtually all prominent radio manufacturers, "indicate prospective sales in 1931 of between 3,500,000 and 4,000,000 new modern radio receiving sets. Of these probably 1,000,000 will replace antique radio fossils of the cat-whiskered crystal set days. Calculating four listeners to each radio set, according to the average of recent Government Census Bureau and broadcasters' figures, there will be 2,500,000 to 3,000,000 new pur-

chasers of modern receiving sets and thus about 10,000,000 new listeners.

Special Convention Railroad Rates

Reduced railroad fares on basis of one and one-half fares for the round trip upon the "certificate plan," will apply for all members attending the Radio Manufacturers Association, Inc., National Federation of Radio Associations, and Radio Wholesalers Association meetings, to be held at the Stevens Hotel, Chicago, Illinois, June 8 to 12, 1931, and also meeting of the Institute of Radio Engineers at the Hotel Sherman, Chicago, June 4 to 6, 1931, provided one hundred and fifty (150) certificates are presented showing the purchase of one-way tickets from points from which the one-way fare is sixty-seven cents (67c) or more.

ROAMER PENTODE



The Midget Sensation
Two '24 R-F --- '24 Det. ---
One Pentode --- One '80 ---

UP to date . . . TO THE VERY LAST MINUTE. The ROAMER PENTODE MIDGET RECEIVER. A set that performs as ONLY a PENTODE set CAN perform.

Made by an old-established manufacturer, five years in the radio business. Thousands of our sets are in use. But this new ROAMER PENTODE is the peer of them all. We urge you to immediately order a sample of this receiver. The usual dealer discounts \$49.50 of 40% and 2% prevail List Price

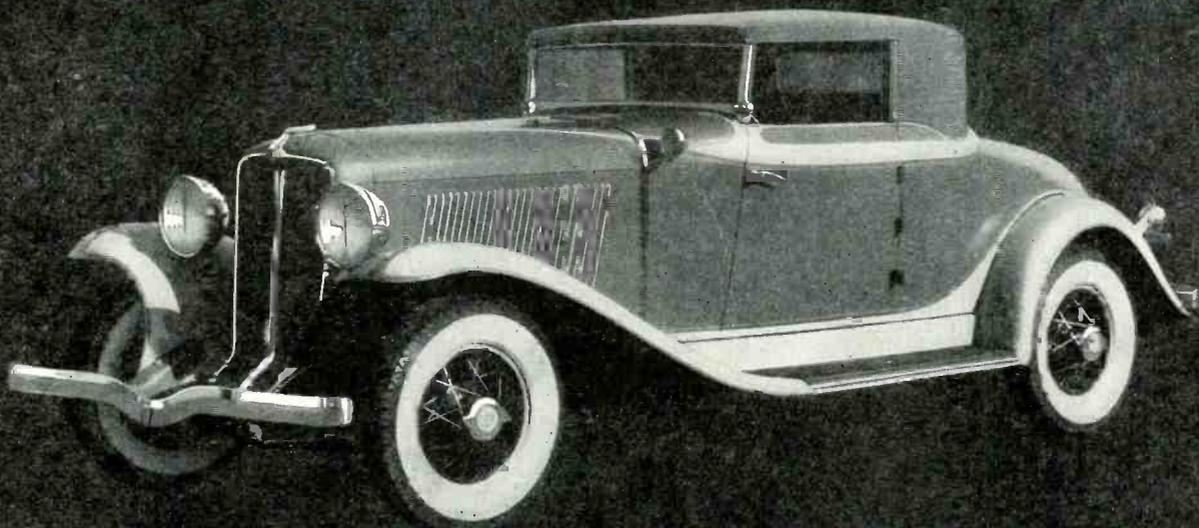
DEALERS WIRE or AIR MAIL your order for a sample. Send 25% with order . . . balance C. O. D.

JOBBERS We want distribution everywhere. Communicate with us for franchise.

BROWN & MANHART

Radio Manufacturers

6219 So. Hoover St., Los Angeles, Calif.



The story has often been told of the employee in the Patent Office who resigned his position thirty years ago because "every new improvement had been invented." Auburn believes the need for pioneering in the automobile industry is greater today than ever, and places a self-imposed requirement upon itself to lead in this respect. Having won a reputation for leadership it is obligatory that Auburn maintain it. That is the basis upon which we invite you to compare the new Auburn Straight Eight models.

AUBURN

POWERED BY LYCOMING



The car illustrated above is the Convertible Cabriolet, Silent-Constant Mesh in Standard Models. Also Free Wheeling in Custom Models. Custom models 8-98A: 5-passenger, 2-door Brougham \$1145; Business Man's Coupe \$1195; Convertible Cabriolet \$1245; 4-door Full Sedan \$1195; Convertible Phaeton Sedan \$1345. All Custom Models include Free Wheeling. Standard models 8-98: 5-passenger, 2-door Brougham \$945; 4-door Full Sedan \$995; Convertible Cabriolet \$1045; Convertible Phaeton Sedan \$1145; Business Man's Coupe \$995; all prices f. o. b. Connersville, Indiana. Equipment other than standard, at extra cost. AUBURN AUTOMOBILE COMPANY, AUBURN, INDIANA

Tell them you saw it in RADIO



HIGH GAIN I-F

Design
with
Standardized
Units

A shielded intermediate-frequency transformer with "Varitor" condenser tuning in primary and secondary circuits. One hundred and fifty to two hundred kc, with standard production winding or step-up ratios. Mechanically suited to upright or inverted mounting.

Write for circular giving complete specifications and Varitor's many uses in modern radio circuits.

DeJur-Amsco Corp

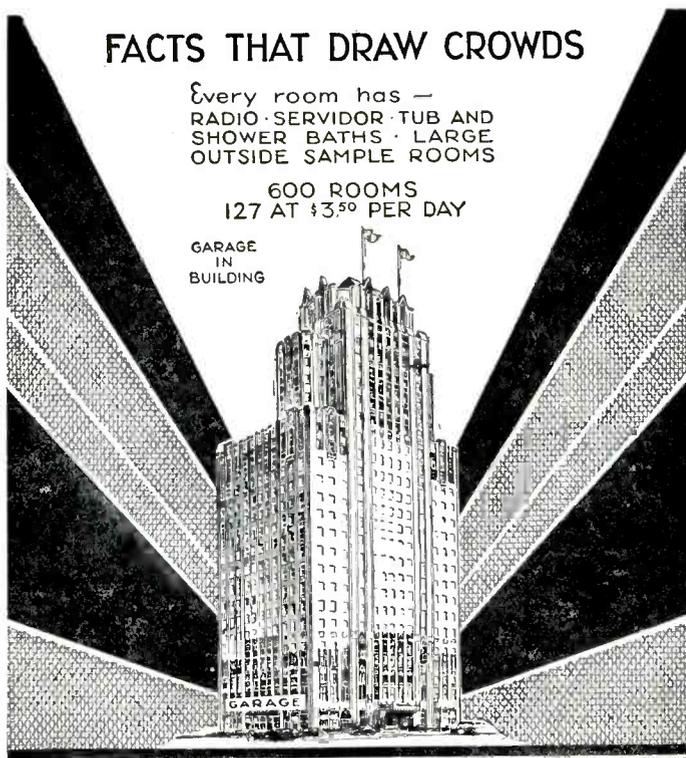
Varitors, Variable Condensers, Power Rheostats, Front-Drive Dials
95 Morton Street New York City

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RADIO · SERVITOR · TUB AND
SHOWER BATHS · LARGE
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600 ROOMS
127 AT \$3.50 PER DAY

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SPARTON DISTRIBUTORS AND DEALERS!
Genuine Sparton (Sparks-Withington) Replacement
Parts at Tremendous Savings! Call, Write or WIRE
for Price Lists.

EXTRA

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SALES COMPANY

19-21 Warren Street NEW YORK CITY

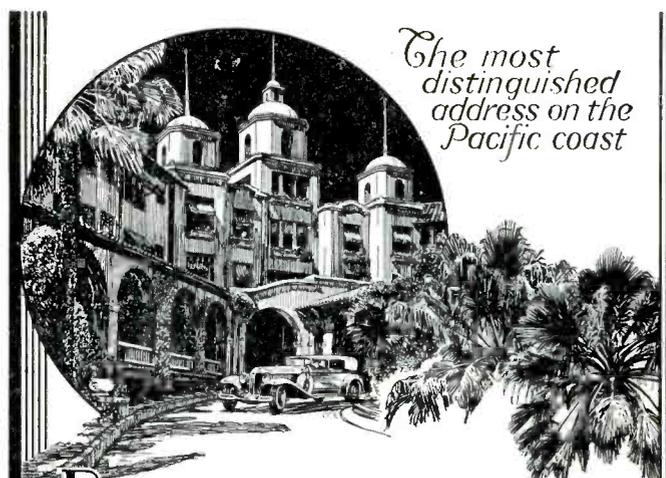
Radio and Electrical Wholesale
BARGAIN BULLETIN NO. 66

DEALERS! WHOLESALERS!
!! WRITE NOW !!

New Wholesale Catalog No.
66 full of real low prices on:
Condensers, Transformers,
Speakers, and other numerous
items, including replacement
parts.

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distinguished
address on the
Pacific coast*

BEVERLY HILLS HOTEL AND BUNGALOWS

Open all Year

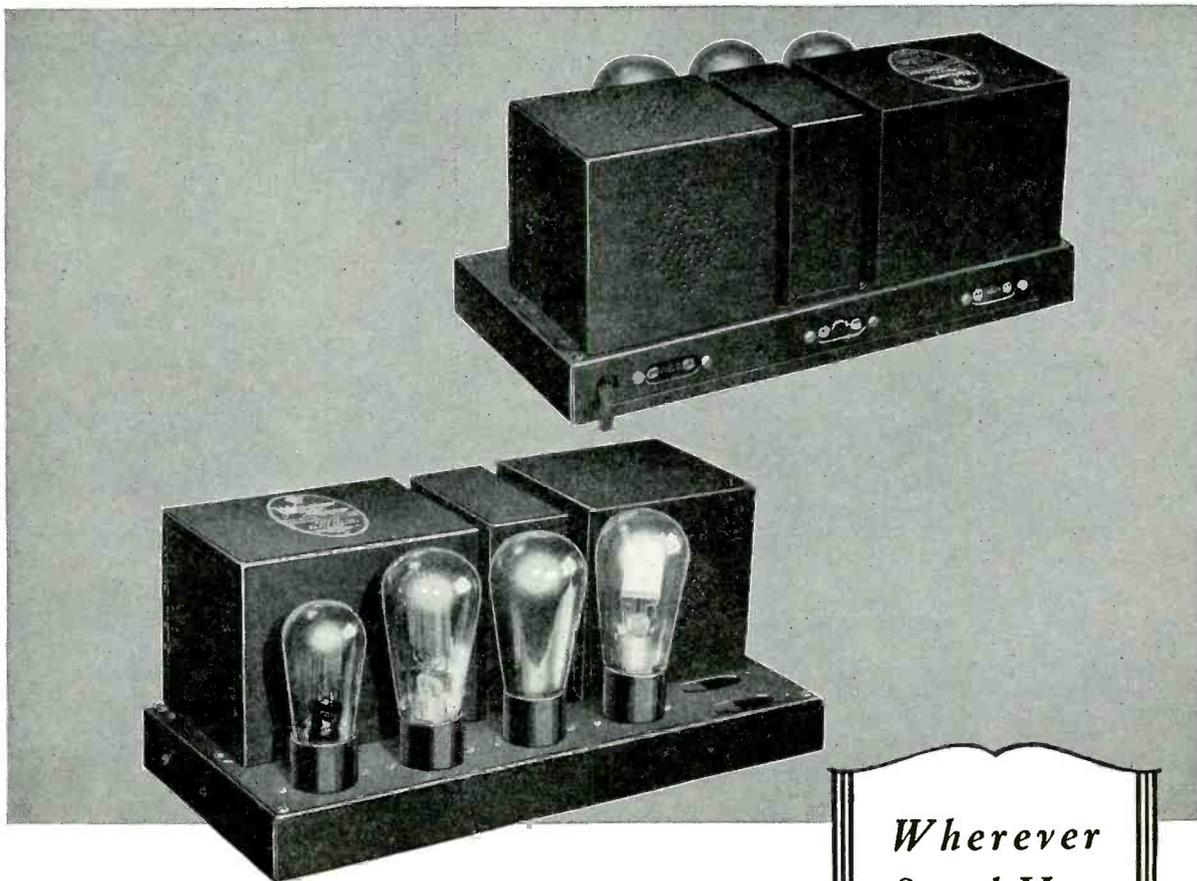
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*A ten-acre tropical Garden midway between
Los Angeles and the sea with Hollywood
only ten minutes distant. A homelike home
for particular people.*

European or American Plan
IRVING G DAY, Resident Manager

Beverly Hills CALIFORNIA

WEBSTER ELECTRIC CO.



A NEW TYPE of Webster Amplifier, the two-stage Model 245 illustrated above, is now introduced for use in homes, small halls, stores, and for adaptation to portable sound- or motion-picture equipment.

Though compact in size and light in weight, this new amplifier retains the same richness and quality of tone, full-frequency response range and volume found in larger and higher-priced amplifiers.

A partial list of the numerous applications to which the established line of Webster Amplifiers has been adapted is given at the right. Over twenty-two years of development in the electrical field has qualified the Webster Electric Company to design and manufacture standard and special equipment to meet a wide range of sound amplification and distribution requirements.

Well-established organizations are offered the opportunity of increased business development with Webster Equipment. We solicit inquiries.

*Wherever
Sound Must
Fill Great
Spaces*

*Webster Electric
Power Amplifiers*

Schools . . . Colleges . . . Academies
. . . Institutes . . . Hotels . . . Convention
Halls . . . Amusement Parks . . . Rail-
road Depots . . . Swimming Pools . . .
Apartment Buildings . . . Riding Acad-
emies . . . Airports . . . Stadiums . . .
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ries . . . Sporting Arenas . . . Assembly
Halls . . . Play Grounds . . . Civic
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Webster Electric Company

ESTABLISHED 1909

Racine

Wisconsin



Webster Transformers . . . Webster Electric Pick-ups . . . Webster Power Amplifiers

Tell them you saw it in RADIO



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The Marvel City

is the ideal spot to hold conventions . . . because of its many places of historical interest . . . its wonderful Lake Front advantages . . . and its ability to handle crowds without congestion.

The place to make your home while in Chicago is THE NEW BISMARCK. Just a few blocks from the Merchandise Mart and the Wholesale District . . . on La Salle, the great financial street . . . in the theatre and amusement belt . . . and within easy reach of all points of civic interest.

It's the one Chicago hotel where your comfort and pleasure are the first consideration of the management. Luxurious lounges and rest rooms . . . Quiet, outside rooms, with comfortable beds . . . the best of food and service . . . and every modern convenience.

Rooms \$2.50 up.
With Bath \$3.50 up.

Send for booklet with map of Downtown Chicago

NEW
BISMARCK
HOTEL
RANDOLPH at LaSALLE
CHICAGO

The Manual

of

Short-Wave Radio

An authoritative 64 page book describing in full the latest and best short-wave receiving circuits, adapters, meters, etc.



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For preserving your copies of "Radio"
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PUBLISHERS OF "RADIO"
Pacific Building San Francisco

Weisser to Go to Pacific Coast

According to F. E. Basler, General Sales Manager of the Atwater Kent Manufacturing Company, Charles O. Weisser has been appointed Pacific Coast Divisional Sales Manager for the company. Mr. Weisser is a well-known figure in the radio industry, having been connected with the Atwater Kent Company for several years in various sales capacities. Most recently he has held the position of Territorial Supervisor in the Boston area.

★ ★

Lyric Adds Portland, Oregon Distributor

Arrangements have recently been completed with the Electric Corporation, 281 Couch Street, Portland, Oregon, for the distribution of Lyric Radios for that territory, states an announcement from Mr. Eugene R. Farny, President of the All American Mohawk Corporation. With the addition of this new firm there is a total of four of the Electric Corporation branches now distributing Lyric on the West Coast.

★ ★

Falck Claroceptor Blocks A-C Noises

The Advance Electric Company, 1260 W. 2nd Street, Los Angeles, has brought out an a-c line filter to be connected between the radio set and the wall receptacle. It is called the Falck Claroceptor and is designed to keep what noises might be brought into the set through the supply lines out of the power pack.

WORLD-WIDE
SHORT WAVE RECEIVER
ONLY 64.5
Span the World with this Set!

A new radio thrill for you! Listen in DIRECT to London, Paris, Berlin, Buenos Aires and other broadcasting stations throughout the world via short waves. Enjoy unique foreign programs from strange lands. Your ordinary receiver cannot tune in these low wave stations. WORLD-WIDE RECEIVER gets 14 to 550 meter stations with surprising clarity. SEND NO MONEY! Just write your name and address on a postcard and ask us to send you this wonderful guaranteed short wave set. Pay postman \$6.45 plus a small delivery charge. All orders West of Rockies must be accompanied by \$1.00 deposit. Price in foreign countries \$7.75 delivered. Order today!

NEW RADIO BARGAINS

Low Power Transmitter adaptable for phone or code. With plug-in coils \$14.75
Auto Radio—Uses 3—227 tubes and 1—245 power tube, single dial, tremendous volume. Compact. Fits any car. We guarantee this set to perform better than sets selling up to \$150 20.00
B Eliminator, Bone Dry, with 280 tube, 180 volts, will operate up to ten tube set, fully guaranteed 6.75
AC—A B C power packs 8.75
Tubes: UX type, 30-day replacement guarantee, No. 210, \$2.25; No. 250, \$2.35; No. 281, \$1.85; No. 245, \$1.25; No. 224, \$1.25; No. 227, 75c; No. 226, 65c; No. 171, 75c.
International Microphone, two-button, for public address systems and transmitters, speech or music \$9.75

Write for Bargain Catalog

CHAS. HOODWIN CO.

4240 Lincoln Ave., Dept. D. 24, CHICAGO

Winslow Announced Western Manager for Centralab

The Central Radio Laboratories, of Milwaukee, Wis., has announced that Mr. William B. Winslow will become Manager of their west coast sales, with headquarters at a factory branch at 2149 E. Sacramento, Los Angeles, Calif.

It has been found necessary to establish the direct factory branch in place of the sales agency that has heretofore been handling Centralab equipment due to the enormous increase in radio set manufacturing on the West Coast and the increased variety of products manufactured by Centralab.

Your Radio Needs AMPERITE Voltage Control

Get from your electric radio the quality that was built into it. AMPERITE automatically regulates line voltage fluctuations. Provides stable, constant voltage supply. Saves tubes. Trouble-proof—long lasting.

Greatly improves any electric radio. Many of the better-known makes are equipped for AMPERITE.

Demand it when you buy a radio, include it when you build. No radio is modern without it. Install the new AMPERITE in every set you service.

FREE—Useful AMPERITE Bulletin and list of AMPERITE-equipped radios.

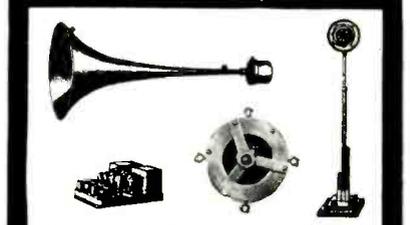
Write Dept. DS-1

AMPERITE Corporation
561 BROADWAY, NEW YORK



AMPERITE
Self-Adjusting
LINE VOLTAGE CONTROL

FOR COMPLETE PUBLIC ADDRESS EQUIPMENT

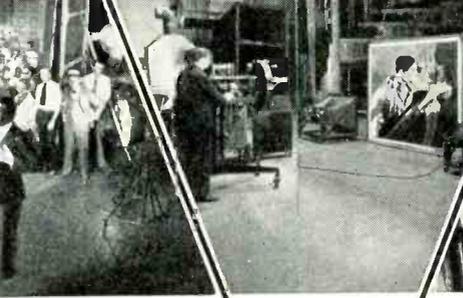


MILES REPRODUCER CO.
MANUFACTURERS
45 W. 17TH ST NEW YORK CITY

TALKING MOVIES TELEVISION AIRCRAFT RADIO



BROADCASTING



Now you can get SPECIAL training in TALKING PICTURES, a field paying as much as \$75 to \$200 a week to well-trained Radio men.



Now you can get SPECIAL training in AIRCRAFT RADIO, preparing you for a good job on the ground or in the air.

Now you can get SPECIAL training in BROADCASTING, Commercial and ship Radio stations continually need managers, engineers, operators.



Now you can get SPECIAL advanced training in SERVICING sets, fitting you for a good job with dealers, jobbers, or manufacturers, or a full-time or spare-time business of your own.

SERVICING SETS

Better Jobs Better Pay
in Radio's Newest Fields



J. E. SMITH, President, National Radio Institute, the man who has directed the Home Study Training of more men for the Radio Industry than any other man in America.

Earn the Higher Salaries This Specialized Training Fits You For. I'll Train You at Home in Your Spare Time for the Better Jobs in the Most Important Branches of Radio. Send for My Free Book.

Get This FREE Book

It tells all about the many new opportunities in Radio and how I give you Special Advanced training in the five branches pictured above. Mail coupon below.

THE well-trained specialists are the fellows who get the best jobs, men. And believe me the newer branches of Radio are in tremendous need of fellows with specialized training. Opportunities are growing greater every day! Talking Pictures and Public Address Systems, Television, Aviation and other new fields—offer untold success possibilities to highly trained Radio men. And NOW is the time to get in on the ground floor and grow up with these latest Radio developments.

Revised Free Book Points Out Good Pay Jobs

Every fellow who wants to get ahead and make real money in Radio should send for the latest edition of my new book—"Rich Rewards in Radio." It is chock full of facts on the money-

making opportunities in Radio, including up-to-date information on fascinating new developments. Moreover, my book tells how quickly and inexpensively you can become an expert in any field of Radio through my 50-50 method of practical home-study training. In addition, my course gives you extra specialized training in Television, Aircraft Radio, Broadcasting, Commercial and Ship Radio Stations, Sound Pictures and Public Address Systems, or Advanced Radio Merchandising and Servicing, *without extra charge.*

Many N. R. I. Men Make \$2,500 to \$5,000 a Year

Many of my graduates now earn \$50 to \$100 a week and more, and you may do even better, for Radio is invading so many industries that thousands of trained men will be needed to carry out this and future expansion. Talking Pictures already pay as much as \$75 to \$200 a week to the right men with Radio training. Aviation is needing more and more trained men for good jobs on the ground and in the air. Television any day now may call for hundreds of trained Radio men for development work leading to fame and fortune. And think of the opportunities today for well-trained men to earn, \$50, \$75 to \$100 a week with broadcasting stations, shipping companies, set manufacturers, jobbers, dealers and in a sales and service business of their own. With automobile radios and low-priced midget sets, sales and service, future opportunities should be greater than ever.

Many Men Earn \$200 to \$1000 in Spare Time While Learning

I teach you to begin earning almost at once. The day you enroll, I'll show you 28 ways to

make money on the side repairing, installing, selling Radio sets in your neighborhood. My 50-50 method makes learning at home easy, fascinating, practical. G. W. Page, 2210 Eighth Ave., S., Nashville, Tenn., writes: "I picked up \$935 in my spare time while studying." I send you eight laboratory outfits that make clear the basic principles of whatever branch of Radio you choose—and show you how to service practically every type of receiving set made. N. R. I. course is the only training that enables you to become a *Certified* RADIO-TRICIAN.

You Don't Risk A Penny

I back up my training with a signed agreement to refund every cent of your money if, after completion, you are not satisfied with the Lesson and Instruction Service I give you. That is why I urge you to send for my new free book, which tells all about my course, how little it costs, the good jobs it prepares you for and how my Employment Department helps you get a job after graduation. The cost is low and my terms are easy. Mail the coupon NOW!



FREE Information COUPON

J. E. SMITH, President
 National Radio Institute, Dept. 1Dk4
 Washington, D. C.

Dear Mr. Smith: Send me your Free Book, "Rich Rewards in Radio." I understand this places me under no obligation and that no salesman will call.

NAME.....
 ADDRESS.....
 CITY.....STATE.....

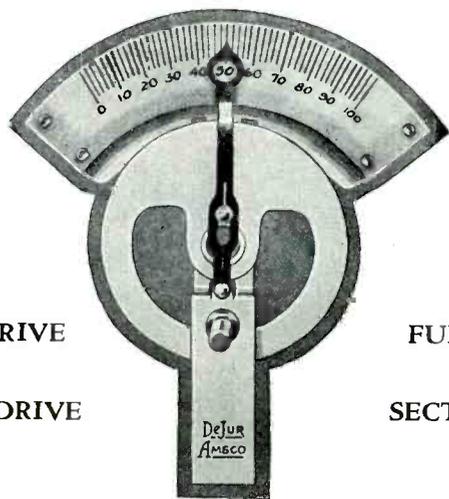
"N. R. I. is Best"

"I get more work than any other Radio man in this city. The N. R. I. course is by far the best. You may be interested to know that my friend, E. W. Nory, N. R. I. graduate, is with the Vitaphone people. Graduate S. F. Clark is with the Air Mail Service."—Lawrence J. Vanek, Box 91, Iowa City, Iowa.

"Thanks To N. R. I."

"I made more money through taking your course than I ever did before—over \$3,000 since starting the course about a year ago. At present I am employed as Service Man by R. C. A. Photophone, Inc., inspecting their Talking Motion Picture equipment installed in theatres. To get and hold such a job a man has to 'know his onions,' and I do thank the N. R. I."—S. L. Mahaffey, 268 S. Niuth St., Salt Lake City, Utah.

Tell them you saw it in RADIO



DIRECT DRIVE
AND
FRICTION DRIVE

FULL VISION
AND
SECTOR VISION

DIALS Meeting the manufacturer's predominant requirements of excellence, economy and standardization, these new Full Vision Dials combine the economical requirements of midget receiver design with the luxury and refinement of console types in kc and metric scales.

Write for literature describing our complete line of dials, dial lights, escutcheons and tuning accessories.

DeJUR-AMSCO CORP

Varitors, Variable Condensers, Power Rheostats, Dials

95 Morton Street

New York City



A New

**HAMMARLUND
CONDENSER**

*For Tuning Intermediate
Frequency Transformers*

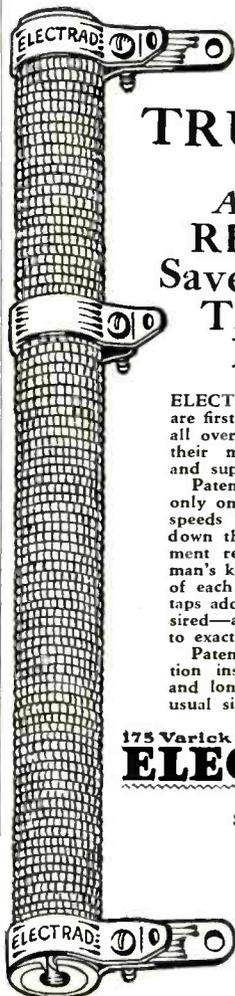
STRONG Isolantite base, designed for mounting inside of the intermediate transformer shield. Adjustment screws for precise tuning of both transformer circuits.

Self-aligning, phosphor bronze, adjustable spring plates, and the highest grade mica insulation. Plates firmly anchored by double rivets with shock-absorbing guard. Condenser will not change its resistance or capacity under any condition of humidity, temperature or vibration. Slotted gripper solder-dipped terminals.

Efficiency of design proved in actual service. Materials the best obtainable. Thoroughly tested for break down.

Three ranges obtainable in single (code ICS) or dual (code ICD) models.
10 to 70 mmf.—70 to 140 mmf.
140 to 220 mmf.

Write Dept. DS-3 for Data
Hammarlund Mfg. Co.
424-438 W. 33rd
St., New York



TRUVOLT
*The
Adjustable*
RESISTOR
Saves Service,
Time and
Money

ELECTRAD Truvolt Resistors are first choice of service men all over the world because of their many unique features and superior performance.

Patented sliding clip, found only on TRUVOLT resistors, speeds service work and cuts down the number of replacement resistors in the service man's kit. The resistance value of each unit can be changed, taps added or removed, as desired—and speedily adjusted to exact values.

Patented air-cooled construction insures stable operation and longer life. Made in all usual sizes and wattage ratings.

175 Varick St. New York, N.Y.

ELECTRAD
INC.

Send 10c (stamps or coin) to Dept. DS-3 for New, Complete Electrad Catalog

U. S. Pat. 1676869
and Pats. Pending

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A Classified Advertising Section Read by Better Buyers

Discontinued Merchandise and Job Lot Advertising Must Be Plainly Indicated as Such

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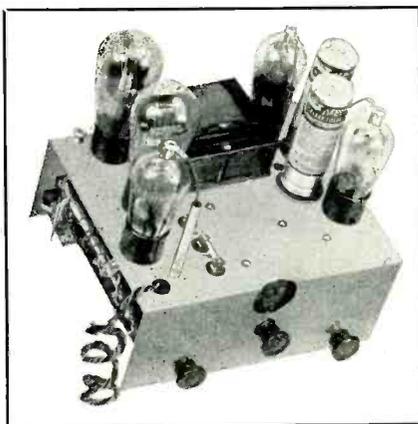
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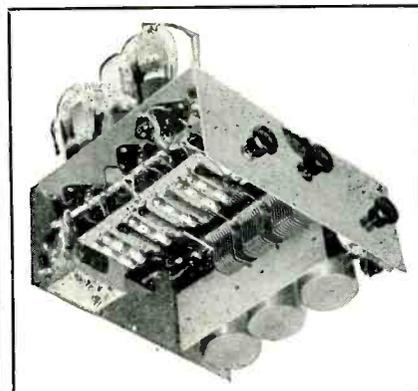
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(TUBE SHORTS)

By J. EDWARD JONES

MUCH HAS BEEN written of tube testers and tube testing. There is much still to be written, for this vital arm of the radio industry is in a chaotic state. Imagine constructual engineering with each builder and designer using his own pet dimensions in place of the standard inch. Impossible

Fig. 1 shows the circuit in detail. The elements of four different tubes and their proximity to each other are plainly shown. Also symbols representing three small neon lamps. The lamps are a product of the G. E. Vapor Lamp Company, are rated at one-half watt, 110 volts, with standard lamp bases. It will be seen

minimals on all the sockets. Due to the number of elements in the UY and UX screen grid sockets, it is necessary to have two elements common. These common elements, however, cannot short without coming in contact with one or the other of the elements and a defect would therefore be shown. For instance, in the 227 socket the cathode and plate are common, but as it is impossible for the plate to lay over on the cathode without touching the grid, neon No. 3 would not light up.

In tracing the diagram it will be found that a short between heater and cathode of 224's and 227's and between filament and grid of all UX tubes will light neon No. 1, a short between screen and plate of a 224 will show up on neon No. 2, and a short between grid and plate of all ordinary UX tubes, between grid and cathode or screen of 224's, between grid and cathode or plate of 227's, and between screen and grid or plate in the UX screen grid types will show up on neon No. 3.

An intermittent short causes the light to flicker when the tube is tapped. This can never occur on account of poor socket contact, on the other hand, a variation of meter readings in ordinary tube testers under like conditions may be caused by poor contact and not be caused by intermittent shorting of tube elements. If a heater type tube is placed in the socket with cathode still hot, one or more neons will glow for a few seconds due to the fact that some emission still exists although all operating voltages

(Continued from Page 55)

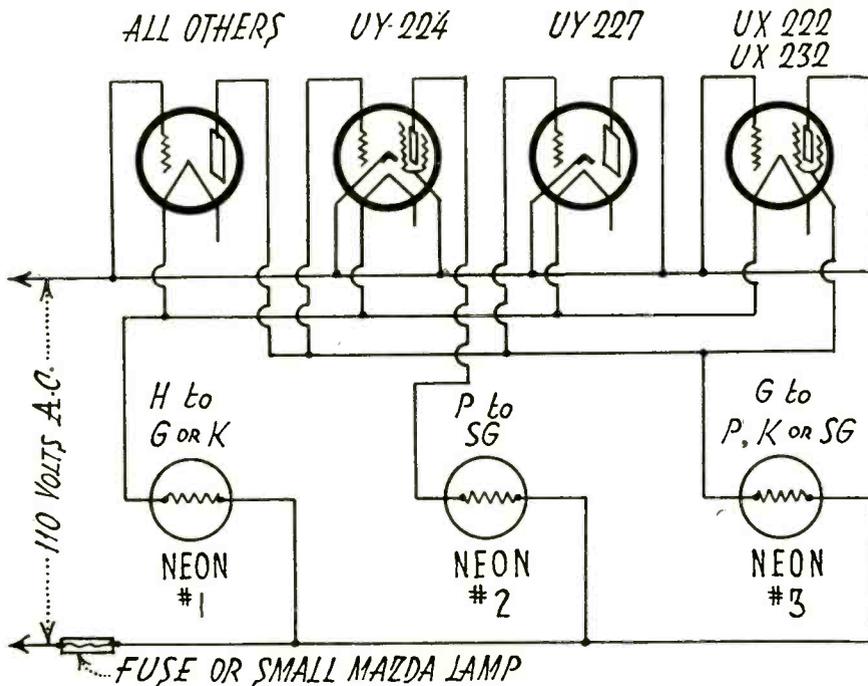


Fig. 1. Circuit Diagram of Short Tester

of conception, and yet such a condition exists in the general practice of tube testing.

The object of this article, however, is not to make any attempt to deprive the art of its arbitrary units but to describe a useful, inexpensive little accessory to all tube testing and tube testers.

One of the many defects that can render a tube inoperative is an inter-element short. In most cases this may be due to rough handling or other abuse entirely beyond the control of the manufacturer. However, it is nevertheless detrimental and must be located. Some inter-element shorts one up in some way or another on some "tube checkers" on the market, but often at the expense of a meter. The device described herein will show every short likely to occur between the elements themselves, and almost all the shorts likely to occur within the base.

To enumerate its advantages: it can do no harm, there are no meters to burn out, it is simplicity itself, it is extremely inexpensive, and it will pick out intermittent shorts where most other means would fail to respond.

that one side of the AC line passes through a small fuse or current limiting device such as a small Mazda lamp to one side of each of the neons. The other side of the AC line goes direct to certain ter-

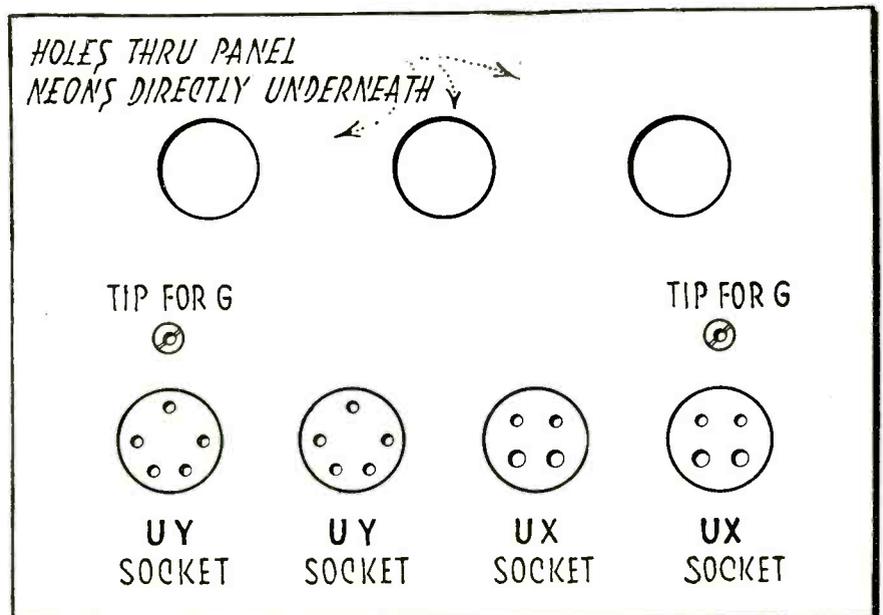


Fig. 2. Suggested Layout

TAKING the JOKER Out of Servicing

You Can Guarantee Sets for a Year Under Normal Use and Service by Eliminating the Uncertain Factors That Spell Trouble

By AUSTIN C. LESCARBOURA

SERVICING is too often looked upon as the curse of the radio dealer's existence. Just because the problems of servicing are misunderstood, or usually because servicing is mishandled, or again because the dealer lets servicing take care of itself, a fair share of the merchandising profits is thrown away in the service branch of the business. Servicing, of course, is a necessary evil. It will always be with us. Any product as intricate as a radio set requires servicing. Hence right now, without further delay, is the time to make up your mind, if you haven't already done so, that your service activities are at least going to break even, and, better still, contribute their quota to the business profits. After all, it's mainly a state of mind, this matter of losing money on servicing. Let's snap out of it!

With the highly competitive merchandising existing in the radio trade, the radio warranty and service policy has become an established sales practice. Most dealers, and particularly the larger ones, are issuing service policies covering free service for 90 days from date of purchase of any radio set and the replacement of all tubes found to be defective within that period, as well as a guarantee both by manufacturer and dealer against mechanical and electrical defects for a period of a year.

So far, so good. But is such a service policy a safe one to issue? Absolutely not. Such a policy leaves the dealer, and indirectly the manufacturer, wide open for all kinds of unexpected trouble. Questionable tubes may be substituted for the original tubes, causing uncertain results and, in the case of defective rectifiers, severe strain on the set itself. The set may be tampered with by the set owner or by an unauthorized service man, only to have the mess thrown back on the dealer. Lastly, the set may be operated on widely fluctuating line voltage, resulting in uncertain radio results, premature tube failure, and even a broken down power pack.

There is a mistaken idea abroad that the chain radio shops do not render service. That this is entirely erroneous is

soon proved by the magnitude of the service departments of the chain radio shops. Indeed, during the past few years the chains have built up their service departments to the point where their guarantee of radio satisfaction becomes one of their strongest sales appeals and a model for would-be successful dealers.

Take, for example, one of the country's largest radio chains operating 78 stores in Greater New York. Its service department numbers over one hundred service men. Radio set purchasers are covered by a Radio Warranty and Service Policy which, in its main essentials, reads as follows:

"We guarantee to render free service for ninety (90) days from date of purchase of any radio set and to replace all tubes found to be defective within this period.

"Every radio set sold is fully guaranteed both by the manufacturer and by us against mechanical and electrical defects for a period of one year under normal use and service, and we will make repairs without charge during this period unless said repair is made necessary by misuse or neglect.

"If our examination of your set discloses a defect of manufacture, there will be no charge for the service. If, however, our radio technician finds that your set is not operating properly, due to burnt-out tubes or fluctuation in your line voltage, etc., or has been repaired or altered outside of OUR SERVICE DEPARTMENT in any way, so as in our judgment to affect its stability or reliability, or has been subject to misuse, negligence or accident, a nominal service charge will be made. Unhooking of sets when changing residence and re-installation will also be subject to a service charge."

The joker in such servicing contracts is uncertain line voltage. The use of questionable tubes, tampering by set owner or unauthorized service man, and general mechanical abuse are readily taken care of by the radio dealer. Uncertain line voltage, however, is the nigger in the wood pile, for the reason that the so-called 110-volt current is taken too literally.

However, this organization takes no chances with fluctuating line voltage as a source of service troubles. Wherever possible, a bulb type line voltage regulator is included at the time the radio set is being installed, so as to insure uniform results and protect the radio set.

Line voltage fluctuation is the first thing the service man of that firm looks for as the underlying reason for a service call. Each service man carries four or five assorted amperites or line voltage regulator bulbs in his kit, together with the mounting sockets. The seriousness of uncertain line voltage is explained to the set owner, who, faced with the thought of future service calls, is in a highly receptive mood to consider preventive measures, and generally a sale is made.

In this particular case the service man also benefits from the installation of the line voltage regulator, receiving 50 cents for each sale, and averaging three or four sales a day, in addition to his usual compensation. The service department nets on an average of \$3.25 per service man through the sale of line voltage regulators, which sum helps cover the regular wages of each service man, leaving the service charges and such tubes as may be sold to carry the department and to show a fair profit.

And so one of the biggest jokers in all radio servicing, uncertain line voltage, can be turned into a sure profit-maker. The radio dealer can insist on eliminating this gamble from his merchandising efforts, by guaranteeing sets only when the line voltage is accurately maintained between the narrow limits for which set components and tubes are designed. Such a guarantee virtually means the installation of a suitable line voltage regulator either at the time of the original installation or during a service call.

Until such future time when set manufacturers will include the line voltage regulator feature in their offerings, the radio dealer can ill afford to overlook the losses he sustains through line voltage fluctuations, and the profits he is overlooking by not pushing line voltage regulators through his service department.

Dealers' Specification Sheet for the Service Department



Trouble Shooting the Stromberg-Carlson Models 12 and 14

IF THERE is no signal look for a defective or poorly adjusted pickup switch, the antenna adjustment pin not plugged into jack, the silent tuning key mechanism jammed or out of order, defective antenna connections, tubes, or tube sockets. If the trouble is not in any of these it will be necessary to resort to a general continuity test.

Weak signals may be caused by the antenna pin being in the wrong jack, a poor antenna installation, insufficient line voltage, defective tubes, open speaker field circuit, grounded voice coil, damaged r-f coil or a-f transformer, poorly adjusted pickup switch, loose control grid clip, or an open or short circuit in the wiring.

If the set tunes too broadly test the tubes, check the setting of the antenna pin and the efficiency of the antenna. Fading will usually be caused by defective tubes or by the antenna touching some foreign object. Thermostatic and other make-and-break connections will sometimes give similar results.

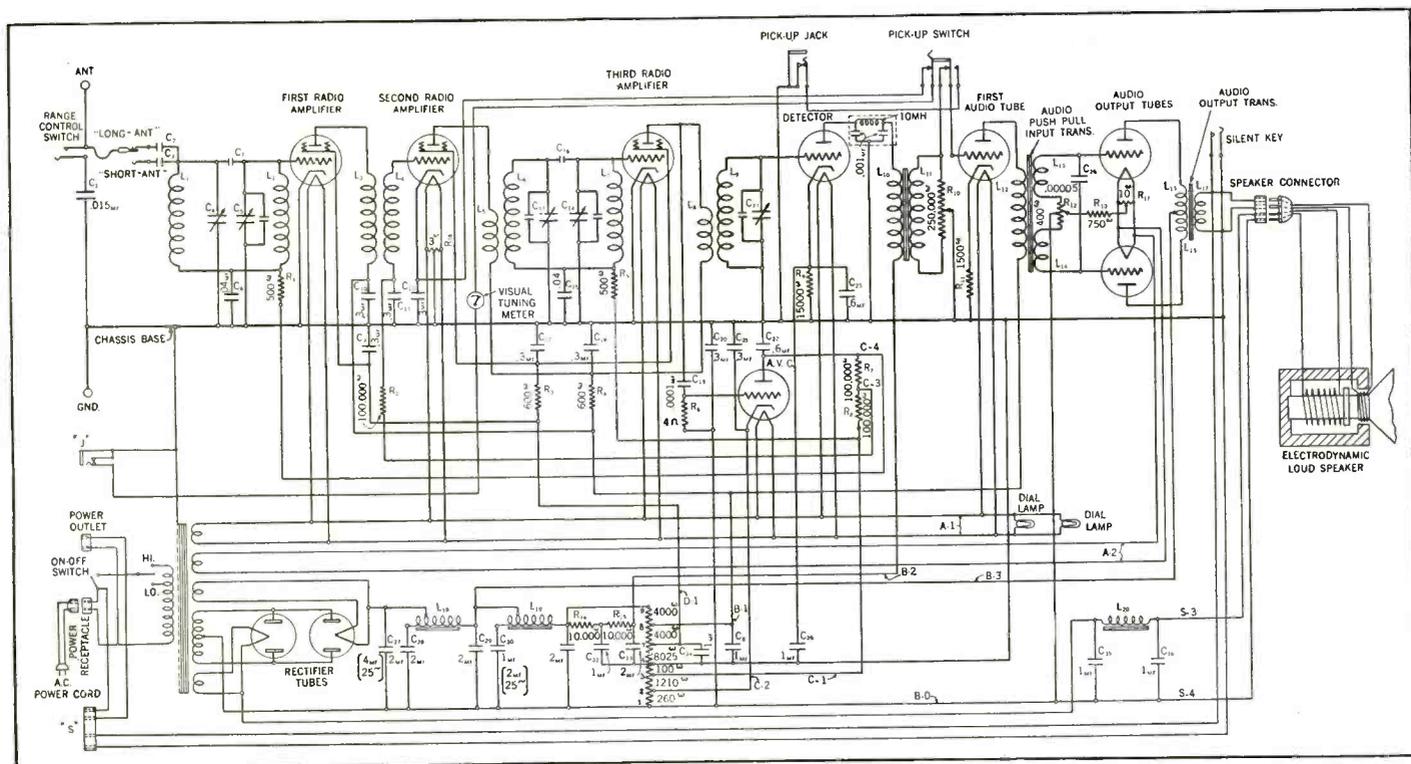
When the complaint is poor audio quality see that the speaker cone is not off center and that the voice coil is not grounded. The poor quality may be in the receiver itself, due to defective tubes, a-f transformers, improper voltages or discrepancies in the automatic volume control circuit.

Trouble with hum can usually be traced to defective tubes, an open heater circuit resistance R_{10} , a poorly adjusted or defective hum control resistor, R_{12} , or coupling from lighting circuit or electrical accessories. Noise may be due to a loose connection in the set or in the aerial and ground, or to defective tubes, undesired contacts in tuning capacitor section, or grounding of the voice coil.

Oscillation should lead to a check of the tubes, the ground connections, loose tube covers, defective by-pass condensers, poor ground connections or incorrect plate or shield voltages.

Due to the rarity of automatic volume controls a few words about its operation might not be amiss.

The automatic volume control in the Stromberg-Carlson receiver employs a '27 tube in a circuit which supplies variable control grid biases to the first two radio amplifier tubes. The biases are varied in proportion to the strength of the received signal, thus changing the gain of the receiver inversely as the strength of this signal. This results in a substantially uniform signal at the detector. The signal voltage which is applied to the automatic volume control circuit is tapped off from the output of the third radio amplifier.



Circuit Diagram of the Stromberg-Carlson Models 12 and 14

Questions and Answers

— concerning practical service problems

By J. EDWARD JONES

Q. If the primary of a power transformer opened between the 110-volt and the 120-volt tap, how would you make satisfactory repairs and eliminate indefinitely the cost of a new transformer? Give values of material you would use, granting the set in question was rated at 180 watts.

A. The transformer could be used on the 110-volt tap indefinitely providing the proper input voltage is applied. Assuming line was or had been cut to 120

$$\text{volts previously. Amperes} = \frac{\text{Watts}}{\text{Volts}}$$

$$I = \frac{180}{120} = 1.5 \text{ amperes. Line is to be}$$

dropped. 10 volts resistance required,

$$R = \frac{E}{I} = \frac{10}{1.5} = 6.7 \text{ ohms approximately,}$$

the resistance wire itself being capable of carrying the 1.5 amperes without heating.

Q. What should be the resistance of the field of a dynamic speaker where the field is used as a choke in the power supply? Give hypothetical case.

A. Assuming set with 75 ma drain, and assuming 10-watt field required for good results, to find voltage drop:

$$\text{Volts} = \frac{\text{Watts}}{\text{Amperes}} = \frac{10}{.075} = 133.3 \text{ volts.}$$

Resistance that would drop 133.3 volts

$$\text{with 75 ma flowing } R = \frac{E}{I} = \frac{133.73}{.075} = 1777.3 \text{ ohms.}$$

Q. In preceding question, if only speaker available had 1350 ohm field, what would you do to approximate a 10-watt field?

A. Lower voltage divider or bleeder resistor, or install additional variable bleeder, varying this resistance until the product of the current flowing and the voltage drop equaled 10. It being assumed that the load being the same as previous question the correct voltages on all tubes would be maintained.

Q. What is the general effect of an

open choke in the filter system of a power supply?

A. There will be no voltage on any tubes in the set, unless, as is sometimes the case, the supply for power tubes is taken off ahead of one of the chokes. Then if first choke was open, there would be no voltage on all the tubes, and if second choke was open there would be voltage on the power tubes only. A variation of this is the neutralized feed back filter system using tapped choke. One section can be open and normal voltage will be on all tubes and set will operate but with excessive hum.

Q. What is the "getter," and why and how is it used in a vacuum tube?

A. The "getter" is a small piece of volatile metal such as magnesium, sodium, caesium, etc., placed in the tube, usually in a small cup fastened near the stem. After the tube has been evacuated as much as possible by the pumping process it is sealed and then a high frequency coil is placed around the tube. The elements are heated excessively by induction which forces out the gas molecules, and at the same time the "getter" material vaporizes. Upon removal of the high frequency influence the vaporized "getter" condenses on the inner walls of the tube where it soaks up or "gets" the remaining molecules of gas.

Q. In receiving voices over a radio receiver what frequencies are most important? In other words, what is the effect upon the voice, of an amplifier having poor frequency response?

A. The energy contained in speech is carried almost completely by frequencies below 500 cycles per second, yet the intelligibility of speech is determined chiefly by the frequencies above 500 cycles. On the other hand the human ear is more sensitive to frequencies above 500 cycles, so it stands to reason that an amplifier attenuating the higher frequencies would cause the most distortion of transmitted speech.

Q. Upon what does the resistance of a circuit depend?

A. It depends upon the material the circuit is composed of, the length of the circuit and the cross section of the material used.

Q. Why is Tungsten frequently used as the filament or heater element of vacuum tubes?

A. Chiefly because it does not melt or evaporate appreciably at the high temperatures required for the proper functioning of the tube.

Q. Name a convenient calculation with respect to copper wire, using the B & S gauge.

A. Every third size smaller has half the circular mils, or double the resistance. Example: B & S 22 has 640 circular mils while B & S 25 has 320 circular mils. No. 22 has 16.14 ohms per thousand feet while No. 25 has 32.28 ohms for the same length.

Q. What is the unit of inductance, and how is this unit used in r-f circuits?

A. The unit of inductance is called the Henry. This unit is too large for r-f circuits, therefore the millihenry and the microhenry are used.

Q. What is the principle cause and the effect if the grid of a tube draws current?

A. The grid will draw current if the signal imposed upon it causes the grid to swing positive with respect to the emitter. This causes distorted reproduction.

Tube Shorts

(Continued from Page 51)

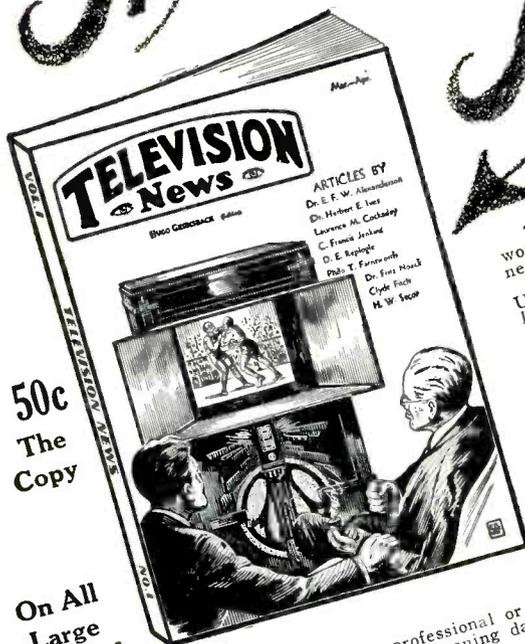
have been removed. This must not be confused as a short.

Parts required—One panel, any price; three G. E. vapor lamps $\frac{1}{2}$ watt 110 volt at 60c each; two UX and two UY sockets at 50c each, approximately; three ordinary standard porcelain sockets, a few cents; a pair of Pup jacks at 25c per pair; plus a little wire and a little labor.

Fig. 2 shows a suggested layout. No dimensions are given as no amount of accuracy is required and the panel can be made to conform with present equipment. It is suggested that a piece of frosted glass be placed over the holes over the neons with the symbols for the various shorts painted on the under side. This painting would of course have to be backwards, and could only be read when that particular light glowed.

This procedure makes an impressive test in addition to the regular testing—and, remember, *impressive tube testing is increasing tube sales.*

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Television Images in Natural Colors, by Dr. Herbert E. Ives, of the Bell Telephone Laboratories
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Humidity the Arch Enemy of Resistors

According to Frances R. Ehle, President of the International Resistance Company, the arch enemy of resistors, condensers and transformers is humidity. Humidity, he says, particularly if accompanied by heat, is detrimental to the accuracy of resistors unless due consideration has been given to this troublesome factor.

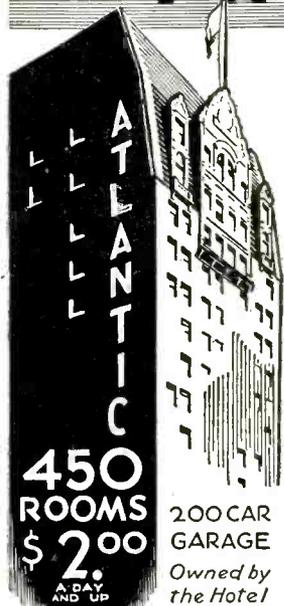
The current-conducting medium of any resistor must be protected against humidity. In the case of carbon rod resistors, such protection takes the form of paint or lacquer. In the case of metallized resistors, the current-conducting medium is encased in a ceramic tubing that is practically impervious to moisture, and hermetically sealed by cast metal ends or ferrules. It is impossible for moisture to affect the current-conducting medium proper, while the ceramic surface is such that no appreciable change in resistance value takes place with the deposit of moisture thereon.

In the laboratory of the International Resistance Company in Philadelphia, many tests are constantly conducted on the effects of moisture on metallized resistors. The most severe test is to place a batch of resistor units in a chest containing a hot, moist atmosphere. The resistors are measured from time to time, to detect whatever changes may take place in resistance value, if any. Moisture has been found to have practically no effect on the present ceramic encased units, as contrasted with the havoc caused to the old-style paper grid-leaks in glass tubes of several years ago.

Antenna-Ground Installation in Wall-Plate Form

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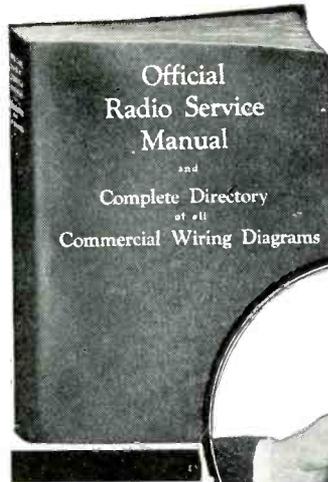
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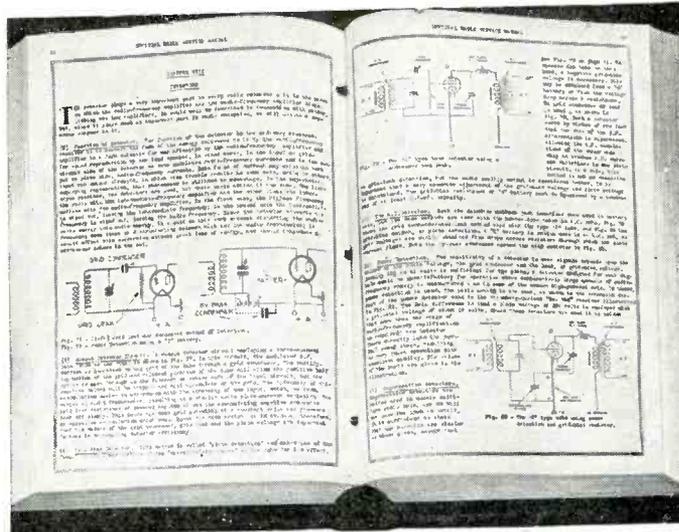
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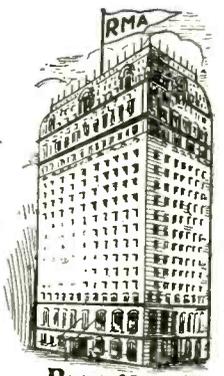
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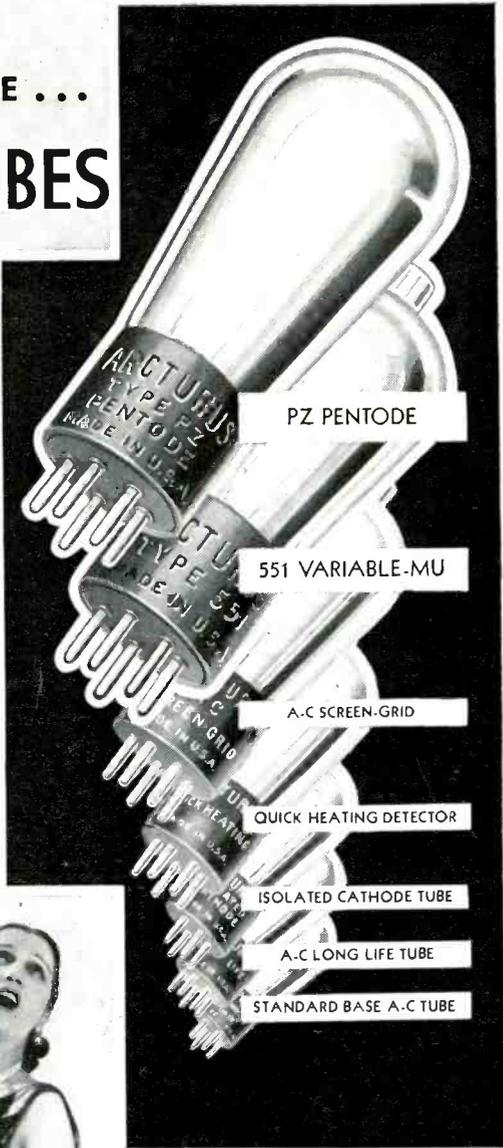
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