

RADIO RETAILING

INCLUDING
SERVICE
AND
INSTALLATION
SECTION

Home Entertainment Merchandising

NEW WORLD RADIO WINS MARKET WITH SENSATIONAL APPEAL TO TRADE AND PUBLIC!

Repeat Quantity Orders Quickly Follow Initial Demonstrations. Dealers Enthusiastic Over Public Interest in Revolutionary Design — and Substantial Profit on Each Sale.

Surpassing even the highest expectations, the "New World" AC-DC Dual Wave Receiver leaped to radio stardom overnight. The new revolving world globe design has gripped the public's imagination . . . the rich colors, with 22-karat gold-plated outside metal parts . . . the sturdy, compact, finely engineered chassis . . . the splendid performance and outstanding VALUE . . . the crowd-stopping attraction in stores and windows . . . all combine in a general appeal which has already given this remarkable set first place in radio merchandising wherever it has been shown.

Here is radio in its PROPER setting—"waves over the surface of



NEW WORLD RADIO

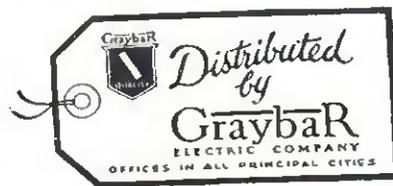
- Maroon and Gold \$59.50
 - Black and Gold 59.50
 - Ivory and Gold 62.50
- with Radiotrons

the earth"—here is design which fits into every type of home or office decoration—here is beauty in three different color combinations: maroon and gold, black and gold, ivory and gold—here is the small set at its best: 16 inches high, with an accurately mapped globe 8½

inches in diameter—here is a super-heterodyne circuit, firmly anchored in heavily moulded Bakelite, with such quality features as 3-gang condenser, automatic volume control, double-grille dynamic speaker base, chronological cap at the North Pole for determining the world's relative time.

The "New World" radio, covered by U. S. design patent 90,586—with other patents pending—is manufactured by the Colonial Radio Corporation, Buffalo, N. Y., and distributed solely by the 73 branch houses of Graybar Electric Company, Inc. Shipments are being made in the order that dealer commitments are received.

If you have not already done so, write, wire or telephone to your nearest branch for demonstration models and dealer proposition—or address Graybar Electric Company, 420 Lexington Ave., New York, N. Y.

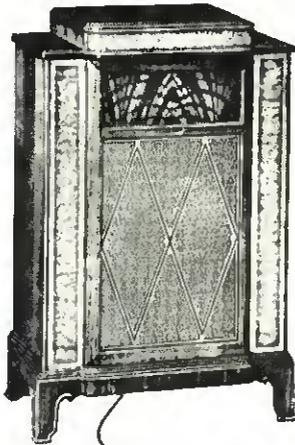


The entire line of Colonial Radios are Distributed Exclusively by the 73 Branch Houses of GRAYBAR ELECTRIC COMPANY, INC., Graybar Building, NEW YORK, N. Y.

You can make Real and Thrilling
Demonstrations with a

Grunow Radio

that you cannot make with
any other set in America!

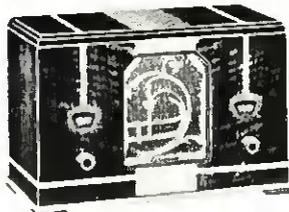


The Si-loc-trol makes it possible for a child blindfolded to tune a Grunow. All Grunow consoles but one have Si-loc-trol. There is a Grunow model to fit every home and every pocketbook. Get a franchise now—you must if you want to sell the radio that everyone will soon be demanding!

GENERAL HOUSEHOLD UTILITIES COMPANY
2638 North Crawford Avenue Chicago, Illinois

(Illustrated Above)

GRUNOW MODEL 1101—Ten years ahead with Grunow Jewel Box Remote Control and Si-loc-trol, 12-inch Synchro-dynamic Speaker and extra-powerful 11-tube circuit. Rare imported woods give cabinet and Jewel Box new and unmatched beauty.



GRUNOW MODEL 501—A 5-tube AC-DC receiver with exceptional sensitivity and tone. Includes automatic volume control, illuminated volume control and vernier dial, and Grunow dynamic speaker in compact cabinet of walnut and satinwood.

A Personal Message from Mr. Grunow

There are no better radio sets available today than these new Grunows. I say that unhesitatingly because we engineered them from the ground up, to out-perform anything and everything on the market today. But, after all, it isn't what YOU think or I think that counts. It's what the public thinks. And, the public is buying and talking about these sets in a way that hasn't happened in the radio business for years. Why? Because we have put really NEW features, NEW accomplishments and OUTSTANDING VALUE into every Grunow set. I merely say—try them, play with them. If they themselves can't sell you, don't buy them.

W. M. Grunow

NO! NO OTHER RADIO HAS ALL OF THESE FEATURES

Beautiful Cabinets.

Automatic Volume Control.

Tone Compensated Volume Control.

Tone Control for High and Low Register.

Visual Indication of Volume Setting.

Visual Indication of Tone Setting.

Gets Regular Broadcast and Police Bands.

Power Tubes Connected in Parallel Push-Pull.

Synchro-dynamic Speaker.

Four Range Tuning.

Heavy Duty, Monitor Type Chassis.

True Remote Control.

Amazing Si-loc-trol.

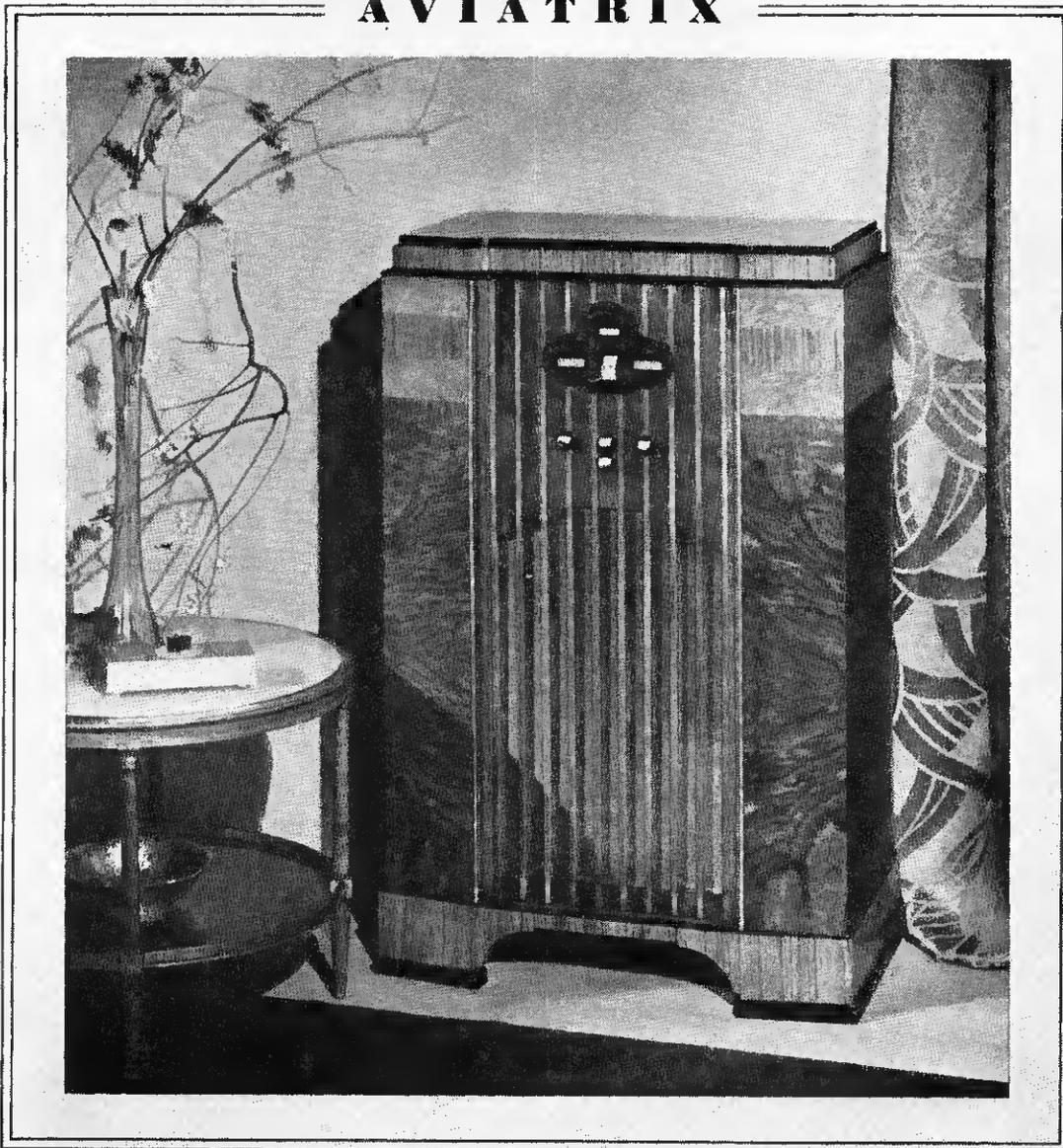
Sets Covering all Waves for AC or DC Operation.



GRUNOW MODEL 801—New Grunow Si-loc-trol in powerful 8-tube receiver with 10-inch Synchro-dynamic Speaker, new shut-off automatic volume control and many other features, in console of matched walnut and burr maple with tulipwood inlays.



AVIATRIX



AGAIN! ZENITH ROCKS THE INDUSTRY

WITH the whole world going modern, Zenith again sweeps to the front of popular fancy with a sensational new model—Aviatrice! As smart, as last minute, as daring and beautiful as the name itself implies.

The richly styled modern cabinet blends the beautiful striped rosewood of East India with the Madrone Burl of California. Bright, figured American Walnut forms the body of the

cabinet, whose severely simple lines make it a harmonious piece with either modern or period setting.

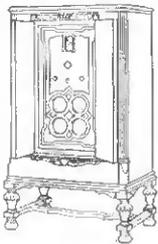
Other Zenith features making this the sensation of the season—9-tube super-heterodyne chassis; automobile (dash-type) escutcheon. Advanced type automatic volume control. Twin 8" dynamic speakers. New type tubes. Size 40½" high, 25¼" wide; 15½" deep.

Get in touch with your Zenith Distributor!



ATTRACTIVE

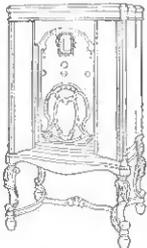
*In Appearance -
In Performance -
In Profit !*



No. 49 Standard Radio



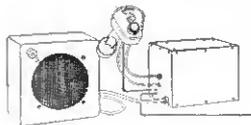
No. 51 Radio and
Automatic Phonograph



No. 52 Te-lek-tor Radio

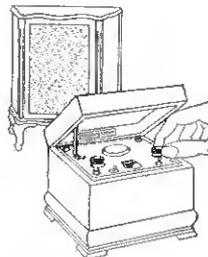


No. 54 Te-lek-tor Radio
and Automatic Phonograph

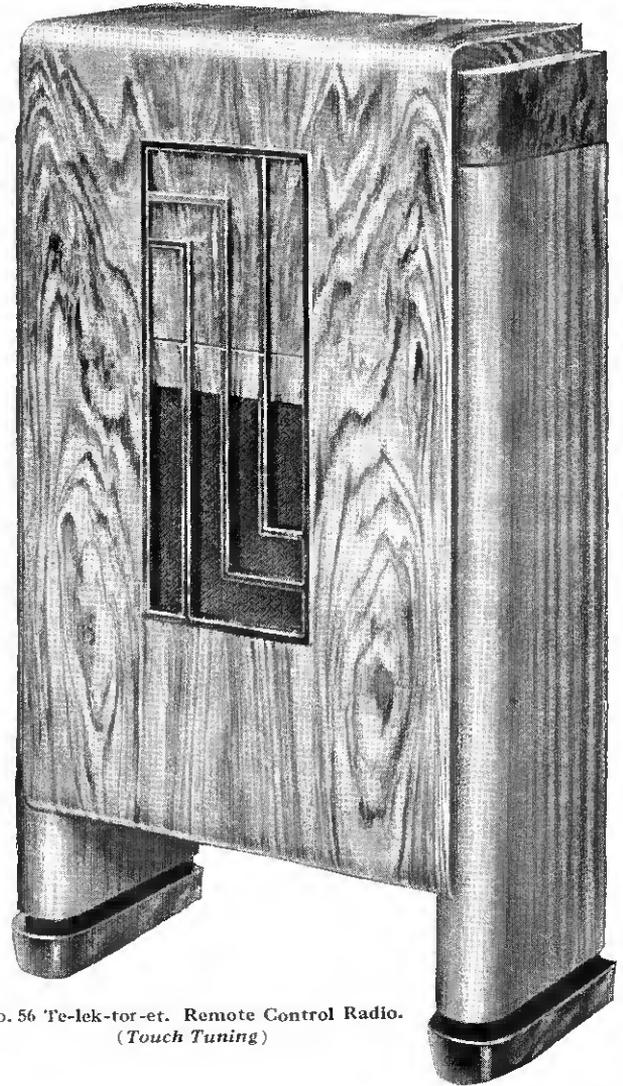


No. 33 Automobile Radio

*"There is nothing finer
than a Stromberg-Carlson"*



No. 55 Te-lek-tor-et.
(Touch Tuning)



No. 56 Te-lek-tor-et. Remote Control Radio.
(Touch Tuning)

THIS attractiveness applies not only to the strikingly beautiful and fast-selling No. 56 (pictured above) but to the entire line.

- Original cabinet designs by the internationally known artist, Everett Worthington; built in our own wood-working plant from the choicest woods.
- Co-ordinated design of chassis, speaker and cabinet for finest over-all tone faithfulness.
- Wide range of prices; sufficient to insure volume, but with no dangerously low-priced models.

Prices range from \$79.50 (automobile radio) to \$592.50, East of Rockies

STROMBERG-CARLSON TELEPHONE MANUFACTURING CO., ROCHESTER, N. Y.



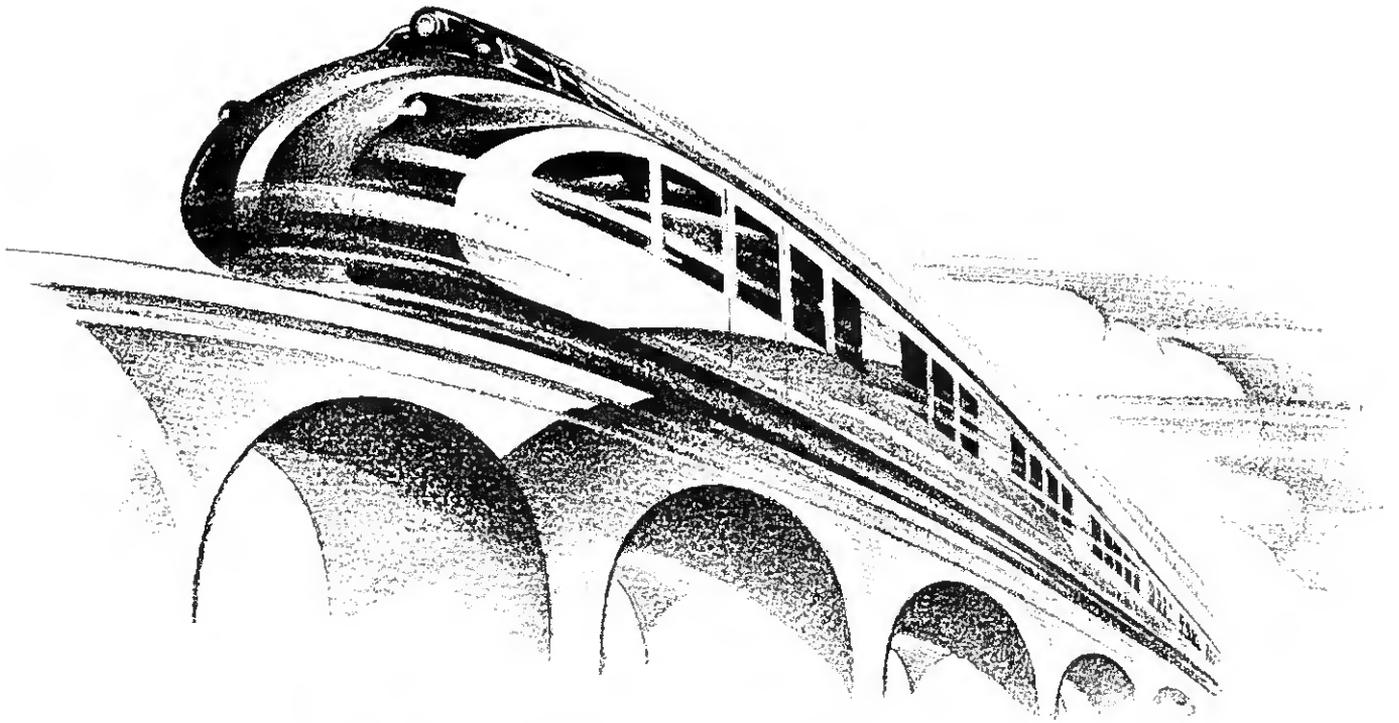
1894

Stromberg-Carlson



1933

MAKERS OF VOICE TRANSMISSION AND VOICE RECEPTION APPARATUS FOR MORE THAN THIRTY-FIVE YEARS



PROGRESSIVE

AS THE NEW STREAMLINED TRAINS!

TODAY, the forerunners of a new era in transportation are being installed in actual service. Tomorrow, these lighter, faster streamlined trains will completely supplant the present type! Science has anticipated needs of the future!

With equal progressiveness Hygrade Sylvania pushes research and development in the radio tube field. It was Hygrade Sylvania who pioneered in the development of the new 6.3 volt tubes that made automobile radios practical . . . and later in the complete 6.3 volt group of tubes!

By cooperating with leading set manufacturers in solving circuit and design problems also, Hygrade



Sylvania has been enabled to make numerous other contributions to the radio industry. Requests for service of this type are welcome. Our engineers stand ready to work with manufacturers in their own plants or in Hygrade Sylvania's modern laboratories. No obligation is incurred.

Dealers and jobbers who handle Sylvania Tubes realize substantial advantages in a line that always offers highest, up-to-the-minute engineering. They are assured, as well, sound merchandising support, fair price policies, and the backing of an organization whose credit rating has remained AaA1 throughout all business booms and depressions! Hygrade Sylvania Corp., Emporium, Pa.

Sylvania

THE SET-TESTED  RADIO TUBE

MAJESTIC

THE PACE-MAKER

During 1933 Majestic "Smart Set" radios have set the *style-pace*, enabling dealers to cash in on the new and insistent demand for modern styling in all home furnishings.

During 1933 Majestic has set the pace in *radio engineering*—with far-reaching chassis improvements; with the development of Majestic Duo-Valve (2-in-1) Self-Shielded tubes.

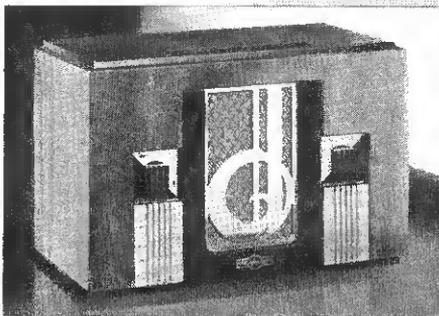
During 1933 Majestic has set the pace in auto radio design and construction; and in farm radio. Majestic aggressiveness and progressiveness have put new life in the industry. . . .

For 1934 Majestic promises to *hold* the pace of leadership—in engineering, in design, and in forward-looking sales policies that will continue to give Majestic dealers an advantage over all competition.

For 1934, in refrigeration, Majestic is now ready to announce new models that are revolutionary in beauty and efficiency—as outstanding as Majestic's recent contributions to radio styling.

In 1934 Majestic dealers are going to find their sales and profits *stepped up* by the sure, swift pace that has carried Majestic to the forefront of the industry.

MAJESTIC . . . 5801 Dickens Avenue, Chicago



A MAJESTIC pace-maker! A new *de luxe* AC-DC model, the *Mayfair*, in a sumptuous mahogany cabinet. Full 8-tube performance; has automatic volume control; illuminated dials; self-contained aerial. The finest AC-DC set ever produced.

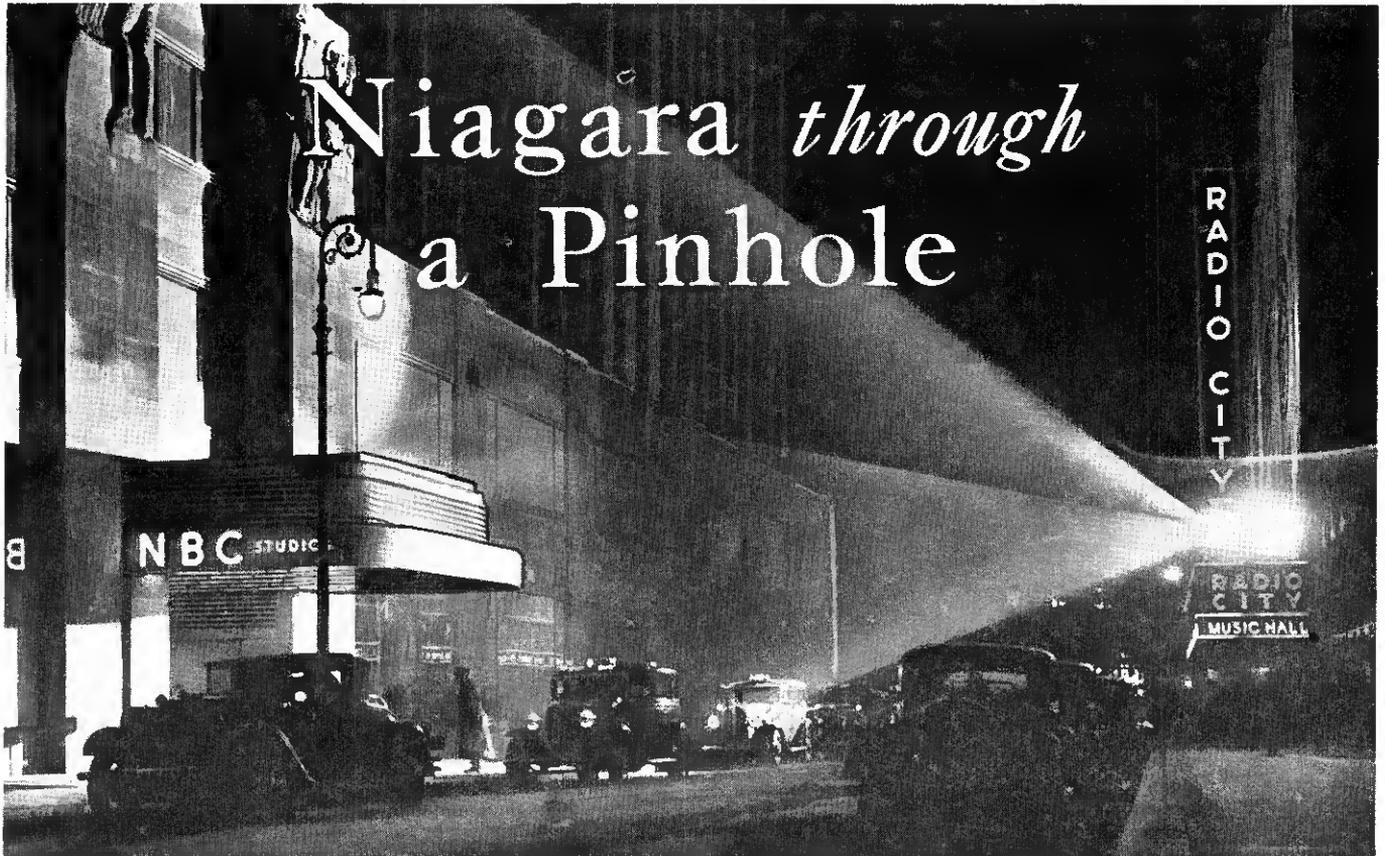


Majestic
RADIO REFRIGERATION

O. H. CALDWELL, *Editor*

RAY V. SUTLIFFE, *Managing Editor*
W. W. MACDONALD, *Technical Editor*
T. H. PURINTON, *Assistant Editor*

M. E. HERRING, *Publishing Director*
HARRY PHILLIPS, *Art Director*
P. WOOTON, *Washington*



Thoughts After Inspecting Radio City

THE broadcasters now have their palaces of studios, combining architectural magnificence with technical perfection. They have searched out the talent of the world, to bring new attractions and new thrills before the microphone, with money seemingly no object.

Their great transmitters pour perfection of musical quality across the land.

Yet what is the final destination of all this rare combination of the world's best genius?

In millions of homes it is a flimsy antenna, ignorantly and carelessly stuck up in some position where it collects more interference than program.

And too often this miserable antenna feeds a cheap, low quality radio set which brings the listener only a raucous remnant of the rare har-

monies which the broadcasters have "delivered to the premises"—but can send no further than the listener's own equipment.

To listen to modern broadcasting through many of the sets the public now uses is like viewing Niagara through a pinhole.

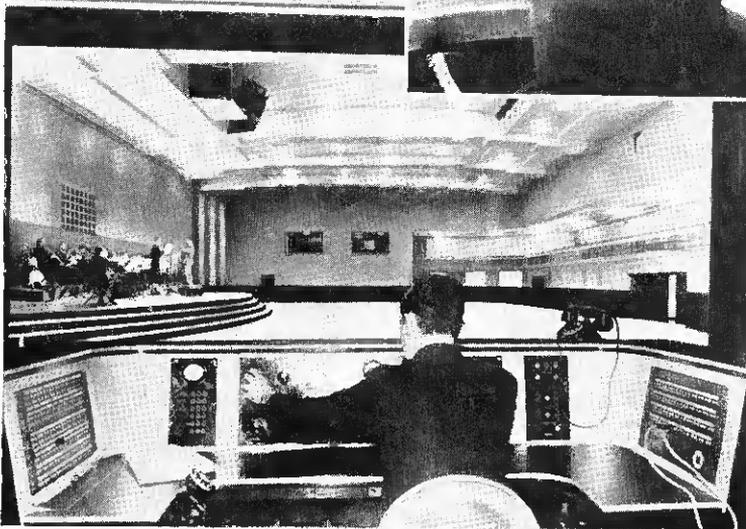
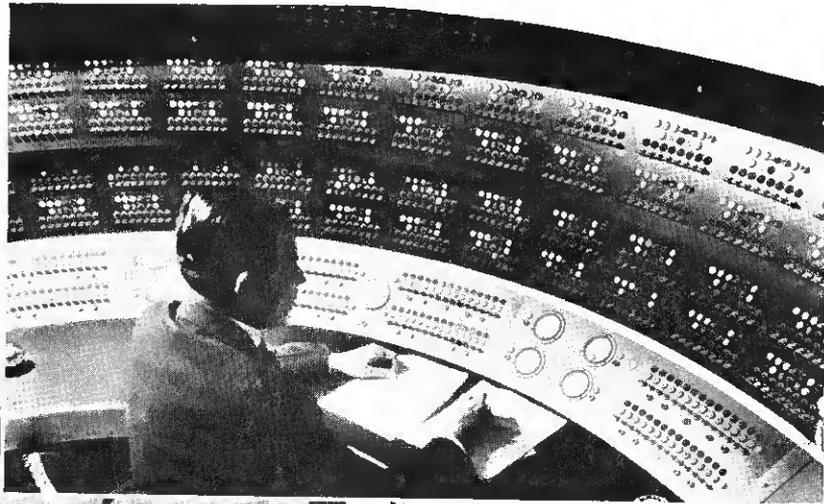
Certainly this condition puts a great responsibility up to the radio retailer and servicer in every community—to see that home installations, generally, are raised to approximate the standard of quality which the broadcasters have so lavishly established.

To awaken the public to the things it is missing through inadequate reception equipment, is the big job ahead—and the next great commercial opportunity for the radio trade.

New and Novel

NERVE CENTER

Section of the main control desk in NBC's new headquarters. The lights represent the different studios and the 85 stations on coast-to-coast networks.



"STAND BY!"

"Five seconds!" And then another feature program's on the air. This is NBC's huge auditorium studio in Radio City. Did you tune in on the series of marvelous and original Dedication Week programs, November 12-18, which originated from this room? And did you 'sell' them to your customers?

"Nothing good on the air these days." . . . Stuff and nonsense!

EVERY TIME I tune in I get crooners or cheap dance music." "I don't use my radio any more. There's nothing but blah on the air." "The advertising announcements are terrible."

These criticisms still persist, in spite of an array of fascinating programs whose lure I find it impossible to resist. The air, these days, is full of wonderful programs, yet the public complains.

Why?

Because it hasn't learned the fine art of picking programs, of studying and scheduling its evening's entertainment. The stuff is there, but the dial twister hasn't been told in the right way, how to get it. The radio industry needs a more intelligent presentation of program offerings. Display ads in the local newspapers, by stations, by sponsors, by radio manufacturers and by radio dealers designed to *sell* these stellar events to Mr. and Mrs. Jones. In this connection, an orchid to the International Radio Corporation, who plans to distribute, with current shipments of its merchandise, a series of timely window streamers keyed with radio

WORLD FAMOUS MUSIC

By the immortal composers—opera, operettas, symphonies, folk songs, patriotic and religious themes

POLITICAL AND ECONOMIC DISCUSSIONS

By statesmen of this country and from all over the world

MYSTERY AND THRILLERS

LIGHT MUSIC

The latest songs from current movie and theatrical productions

SECTIONAL PROGRAMS

Such as hill billy and westerns

BOOK AND ART REVIEWS

broadcasts of national importance. This "hot" program news will be obtained through special arrangement with the chains and chain program sponsors.

Yes, progress is being made by the first three of these groups—witness the exhibits on these pages—but the retailer of radio can do more than he now does to popularize listening. How?

By constantly calling to the attention of his customers and prospects special and serial programs that are worth listening to. It's good business to do this. Use your windows, your newspaper, telephone key prospects, tell all your friends about the programs that you find especially attractive—and champion your calling every time someone says, "There's nothing worth listening to."

Here is how I answer these birds, and quite frankly: "The real trouble is that you do not know how to use your radio. Give a little time to selecting your programs in advance. You're suffering from 'indiscriminate dialitis,' a very common complaint.

"Now, just to sharpen your appreciation of the good
(Please turn to page 8)

Broadcasts

By
Ray V. Sutcliffe

Chains answer criticism of listeners with variety of unusual programs for every taste—Dealers should “sell” this wealth of entertainment now on the air

TALKS

Educational, household, health, beauty
RELIGIOUS SERVICES

SPORT TALKS

By experts in each field

CHILDREN'S PROGRAMS

CHORAL MUSIC

College, church, negro, European

NEWS COMMENTATORS

PERSONAL PRESENTATIONS

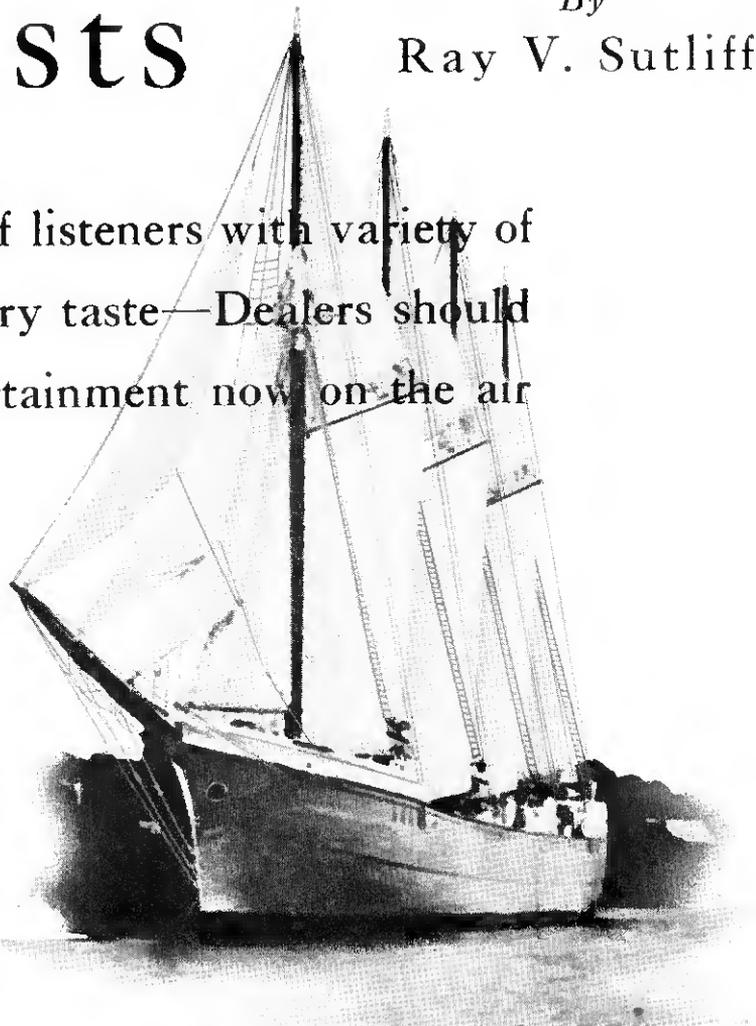
Wit and drama by the best artists of screen and stage

SPECIAL FEATURES

Such as the Byrd Expedition and the 'Around the World in a Windjammer'

SPECIAL 'SPOT' NEWS

Reported from the scene



SALES AMMUNITION

“There's nothing new on the air.” Bah! Tell your prospects and your customers about “The Cruise of the Seth Parker”—to be broadcast from the after cabin of this four-masted windjammer by Captain Phillips Lord, the beloved “Seth Parker” of Jonesport's Sunday night 'githerins fame.

Who hasn't thrilled to the thought of a trip to foreign lands on a sailing vessel? This broadcast will be the *real thing*. The “Seth Parker” sails from Portland, Maine, December 5,—when the first broadcast starts. She's bound down the coast to Miami and thence 'round the world.

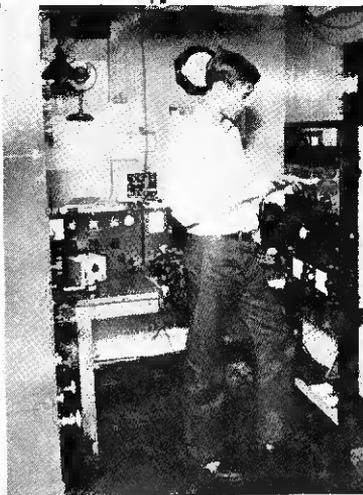
Actual atmosphere! Living sea tales! . . . by short wave to the land pick-up station.

Scheduled for every Tuesday night over NBC national hook-up of 57 stations. Follows Ben Bernie and Ed Wynn. Frigidaire is the sponsor.

THE MAGIC OF SHORT WAVE

It will keep America in touch with Admiral Byrd's Antarctic expedition now en route to the South Pole. Beginning Nov. 18, these stirring radio programs can be picked up from Columbia chain stations every Saturday night. Sponsor: General Foods, Grape Nuts. To help radio dealers merchandise its Antarctic broadcasts, General Foods Corporation has supplied all local stations, Columbia chain, with this poster, also with a map of the South Pole region. You should receive a special letter from your local station manager explaining this radio dealer tie-in and citing four ways to create more interest in radio. Ask your Columbia contact for this material.

Radio Retailing, December, 1933



BYRD BROADCASTS FROM SOUTH POLE!



Grape-Nuts
invites you to listen
to this thrilling drama
DIRECT
from the Antarctic!

Every Saturday Night
Columbia Network



Jimmie Wallington and Eddie Cantor who appear with Rubinoff's orchestra every Sunday evening at 8 o'clock, WVEA:



William Adams as President Roosevelt and Ted DiCorsia as General Johnson on "March of Time," Fridays, 8:30, WABC



Joe (Wanna Buy a Duck) Penner conducts negotiations with Monroe Purcell, his straight man. Sundays, 7:30, WJZ



(Left) Gabriel Heatter has begun a new program for Grumow. Styled news comments in a humorous, interesting manner are his "line." Monday to Friday, 7:15, WOR

(Right)

William Lyon Phelps, America's beloved man of letters, whose lectures are a tradition to three generations of Yale men, appears in the new "Voice of America," Thursdays, 8:30, WABC



(Left) Boake Carter is starting his second year of news commenting for Philco. Monday to Friday, 7:45, WABC



things knocking for admission to your home, suppose you check on this list the types of radio offerings that you like; that you would listen to if you could get them."

Boxed on the preceding spread is such a list of program subjects suggested for this purpose. Note the psychology of this sales approach. There surely will be at least four subjects he must admit he likes—and you can then quickly call his attention to a number of specific programs that meet his requirements.

Get your Doubting Thomases to itemize just what they would like to hear—and then call at their home the night such a program is on and dial it in for them. Or list the programs, during the coming week, that they

favor. Then pin these people down to the facts of the situation.

Complaints of this nature provide the best possible lead for future business, because, if properly handled, the conversation should lead to the thought that possibly your customer's set isn't doing justice to the quality of the incoming signals. That he is being bored by poor reproduction as well as by tuning in the wrong programs. Offer to make a free check-up. You know the rest.

Last Thursday, I tuned in on the first "Seth Parker" broadcast. Did you? What thrills! The real thing. The old four-master was moored to the dock in Portland Harbor. There were songs of the sea by the Bowdoin Glee Club. An extempore "heart interest" incident. Program concluded by the singing of "Blow the Man Down" by the real crew and the actual weighing of the anchor for its trip around the world.

"Radio programs are slipping." This remark gives me a pain. I never know whether to feel sorry for those who think this way or to hand it out straight from the shoulder. But I've found this out: It's easy to convert these backsliders to radio if you use the brass tacks method. And it's gratifying to receive this reward for salesmanship: "Well, I guess maybe you're right. After all, there does seem to be a lot of good entertainment floating around the ether these days, if a fellow only knows how to pull it out."

At Last — Display Ads for Radio Programs

Not only are this winter's programs infinitely more alluring than ever before but they're being sold to the public, occasionally, through newspaper display space.

This advertisement by the lighting companies of Greater New York is an excellent example of what can be done along these lines

SEE THE INTERESTING DISPLAYS AND CIRCULARS OF THESE PROGRAMS IN THE STORES OF THE SALES AND SERVICE COMPANIES OF GREATER NEW YORK CITY AND VICINITY.

BIGGEST SHOW IN THE WORLD!

ADMISSION $1\frac{1}{2}$ ¢ A NIGHT

MARCH OF TIME •• LEE WILEY •• FRED ALLEN
FIRST NIGHTER •• PHIL BAKER •• OLSEN AND JOHNSON •• ETHEL SHUTTA •• LUM AND ABNER
JESSICA DRAGONETTE •• TALK OF THE TOWN
ALL AMERICA FOOTBALL
AND SCORES OF OTHER HOUSEHOLD FAVORITES

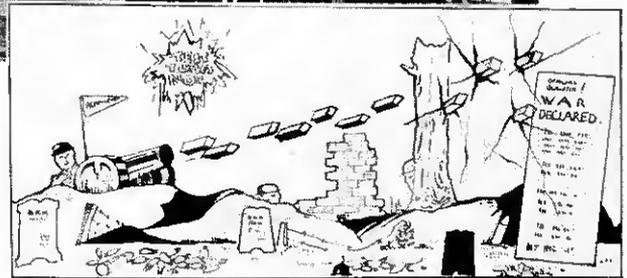
SEE THE INTERESTING DISPLAYS AND CIRCULARS OF THESE PROGRAMS IN THE STORES OF THE SALES AND SERVICE COMPANIES OF GREATER NEW YORK CITY AND VICINITY.

THE NEW YORK LIGHTING COMPANY 150 BROADWAY, NEW YORK, N. Y.

THE J. P. COOPER COMPANY 150 BROADWAY, NEW YORK, N. Y.

WAR DECLARED!

on ALL R. D. R. T.'s



HERE'S a "fighting" tube testing window trim that ran a month in Toronto, Canada, and "created more attention and sold more tubes than any window we have ever run," according to L. R. V. Lofts, of Aikenhead Hardware, Limited. Mr. Lofts describes the construction as follows:

"The first step is to cut from wallboard a war-time background. Make the cannon pretty conspicuous. Use earth for the trenches and a few real bricks. Everything should look well worn, with barbed wire and soldiers' heads here and there. A red cloth background will heighten the effect. On the floor lay grass mats, sprinkled with sand and war effects scattered about.

"The next step is to prepare the big sign—which gives the clue to the idea. Here is the way we worded ours:

WAR DECLARED

General Acrometer, the famous tube tester, has declared War on all R.D.R.T.s (Reception Destroying Radio Tubes).

Already hundreds of these pests have been eliminated. Radio fans everywhere now enjoy greatly improved radio reception.

NOTICE TO CITIZENS

Bring your tubes to Gen. Acrometer. They will be accurately tested and all Reception Destroyers exposed.

This Service is FREE

"Other cards will be needed, telling of the effects of faulty tubes on reception, etc., and inviting people to come in for a free tube carrier, if you give this service.

"Now to prepare the window. Procure some cigar box

glue (this can be used on plate glass without damaging it as ordinary glue does). Have handy some bottles of black and white showcard color. Cut about 6 empty tube cartons and, at the farthest end of the window, stick on the inside of the glass one half of the carton. Then on the outside of the window stick a corresponding half, thus making it look as if the box is halfway through the window.

"When all the cartons have been stuck, with a fine brush paint with black paint, underlining with white, streaks representing cracks. There is no trick in this, it is quite easy to get the appearance of cracked glass. Paint the black lines on the outside of the window and the white ones on the inside. Run them right down to the window edge and put a fair amount of paint around the edges of the carton.

"Now run several strands of black stovepipe wire from the mouth of the cannon and stretch them across the window to the spot where the cartons are stuck on and fix them up there. I looped them right onto the carton itself.

"Now thread some empty tube cartons onto the wires so that they have the appearance of being shot right up to the glass from the cannon's mouth.

"Now go outside and have a look at your handiwork. You will find that it looks as if the cartons have been shot from the cannon and gone right through the window.

"Throw a lot of dud tubes around the floor with a few war souvenirs such as shells, helmets, etc., to give a little war-time color to the show.

"This is really quite an inexpensive window to install and well repays you for your time and effort. A couple of wall-board cutouts of tubes with doleful faces helps the effect, as does a flag with your tube tester's name on it sticking up from the trenches."

Guiding

Window and store decoration . . . floor traffic-building stunts . . . locating gift prospects . . . outdoor advertising. Here are some of the best Yultide sales ideas we've heard about



CAROLS 1933 STYLE A New Jersey dealer rented a p.a. system to the town for use in the public square last year, will repeat this month

+

TISSUE PAPER TENT Ed Dublin of Chicago makes a colorful tent out of his store by decorating walls and ceiling with tissue

THE Christmas Season means extra business for every dealer. And experience teaches that those who make some special effort to get it wind up the year with more than their share. Here are some examples of what live merchants are doing to swell holiday sales:

In Shelbina, Missouri, the editor of the "Democrat" has discovered an excellent source of Christmas sales leads and passes these along to advertisers through his columns. Around this time of the year kids in the lower school grades are induced to write letters to "Santa," by way of teacher, telling the Patron Saint of their gift desires. The editor arranges to intercept these before they are consigned to the waste basket. So he knows just what kids want and places dealers in an excellent position to sell these things to parents. Dealers could easily make similar arrangements with schools in their town.

THE "gift package" idea is not new but it still works. Bill Hinske of Enterprise Electric's Shaker Heights (Ohio) branch packs midgets in flashy boxes, cuts holes in these so that the dials show through. This year he has liberally sprinkled his radio window with model airplanes. "It attracts boys, who often drop a hint to parents that a

radio would be nice for their room. This taps the 'second set' market. In addition I am making something on the sale of the airplane models," says this manager.

Louise Soule of Lyon & Healy, Cleveland, also finds the packaging idea effective. She wraps sets and even tubes in special paper, ties them up with "gifty" ribbons. Such displays are scattered throughout the store as well as the display windows. (See photos.)

ED DUBLIN of Chicago is another firm believer in Christmas decoration. He has covered the walls and ceiling of his store with gay stripes of tissue paper in preparation for holiday store traffic, paying a professional \$65 for the work. "You can do it cheaper yourself if time's no object," says Ed.

The tissue decoration makes the store look like a big tent and people passing are immediately conscious that something unusual is going on. Then too, Dublin's store is the local agency for light and gas bill payments, 5,000 customers per year coming in for this purpose. On the way to the cashier during the Christmas season they pass tables filled with book-ends, ash-trays, lamps, tree lights, toasters and other small items not exactly indigenous to the radio business. For Ed

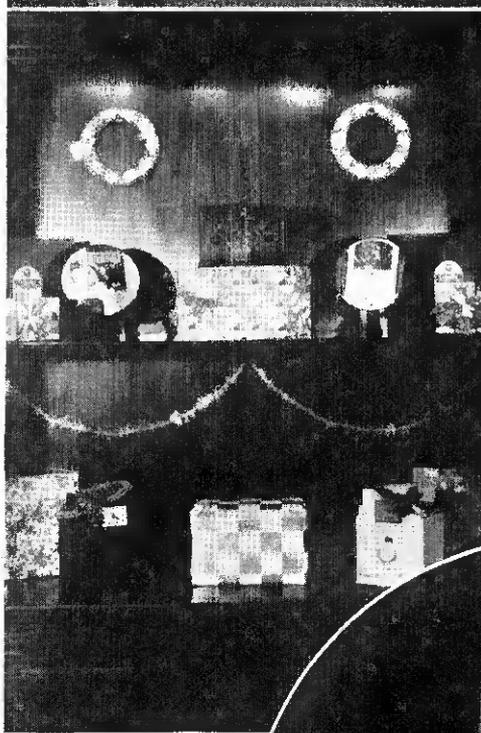
t h e XMAS SPIRIT

WRITE TO HEADQUARTERS

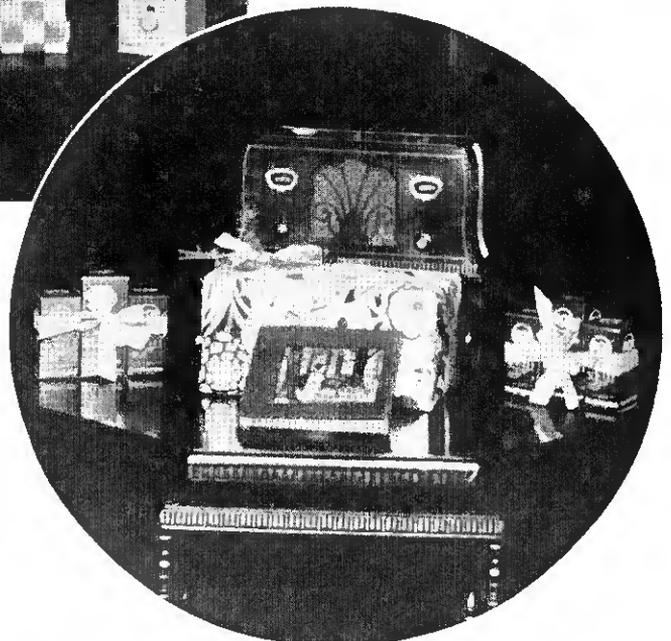
When children in Shelbina, Missouri, schools write to Santa for gifts the Patron Saint usually hears. For local dealers see the letters and talk to pa and ma about them



BOOSTS "SECOND SETS" Bill Hinske of Shaker Heights attracts boys to his windows by including airplane models, sells parents sets for the kids' rooms



SNAPPY PACKAGING Louise Soule of Cleveland carries out the gift box idea in the store as well as in the window. Here are her suggestions for tables and shelves during the holidays



believes in diversifying at this season in order to get all the gift business available.

Console radios are displayed on "islands" in the front of the store without benefit of trim other than holly price tags.

THEN there is the New Jersey dealer who induced civic moguls to rent a public address system for a part in the outdoor song ceremonies held last year. Speakers were wired up all around the public square and were concealed behind the stand. When the Christmas Carol service was held in the square, everybody in town heard it.

The dealer was careful to secure permission for the placing of advertising signs at the speakers and thus attracted attention to his store. Inasmuch as the equipment was installed in advance of the celebration he attributes some Christmas business to the signs.

SERVICE Kept Them Going

*Snow Brothers' repair department keeps pot boiling—Local "House of Magic" helps—
All-wave prospects are bright in Illinois town of 1,200*



Illinois is filled with decrepit battery sets. This farmer owns one. Expert service has held his good will for six years. Some day in the near future he will buy a modern receiver—equipped for all-wave reception.

KING SOLOMON, brandishing a snickersnee over a plump infant, was able to wring out the truth as to which woman was the mother of the child. Trouble with creaking old radios, in these times of slim purses, has been the deciding factor as to the type of radio dealer the citizens of Sheldon, Illinois, like best.

"You can pin the orchids on the shop with a real service department," states Harold Snow, veteran radio dealer. "Here in central Illinois, in a town of 1,200, we're tied hand and foot to the farm situation. With the nightmare of 30c. wheat, mortgages in default, we've seen sales go down, down, down. The years 1926-27 when we did \$24,000 gross is just a golden dream compared with \$6,500 last year. Most of this recent business was service and tube sales. It's been service, Mister, just plain service, that has kept the pot boiling these last three years."

In Sheldon, it is a common sight to see an automobile streak down the main street and stop by the big white

house, whose basement is occupied by Sheldon Air Lines. Out comes the set and in a few minutes it is receiving attention that people consider worth going miles to get. There are many outlets where radios may be purchased, but when something is wrong, Snow Brothers get the business.

"We used to have outside men selling radio," Mr. Snow philosophizes, looking back over the five past years. "Last year we sold 150 sets, most of them midgets."

A "HOUSE OF MAGIC"

"We've made this place of ours a House of Magic, borrowing General Electric's idea. There's a drinking fountain which comes on when you bend over. There's an electric light that pops on and off when the dog barks. We have a shortwave set which is kept busy picking up stratosphere balloon signals, European stations, aviators in flight, police calls, wireless telephone

talk. In a small community such things are the gossip of the town and we continually improve on them. People come a long ways to see them. It's our way of advertising."

Less than a third of the farms in a twenty-mile radius around Sheldon own radios. Most of these sets are hangover battery outfits from pre-dynamic days. In summer they are usually silent for months during the busy season. With autumn, in come the batteries for recharging, and audio transformers for repair. Peak of the farm buying season is in February, when the last of the crops are sold. Right now, with 45c. corn, and a rising grain market in sight, conditions are rosier. Given decent times, the modern battery set can cut a big swathe in the country, in the opinion of the Snows.

A COOKIE TO GOOD LITTLE BOYS

Like the youngster who received a cookie for being brave and letting the dentist work on him, the Snow Brothers believe that radio dealers who have stuck by their guns during the last five years are due for a reward.

"It's been the times that were out of joint and not radio," says Harold. "We created a business here out of thin air. Radio is something fundamental. If Gutenberg, after inventing the printing press to turn out Bibles, had tossed the machine away as soon as that market was saturated, he would be in the same situation as radio dealers who cannot see the future.

"With a lot of other things we could turn to if discouraged, we've kept going on radio. There are two factors which make us optimistic. One is the knowledge that the farm market is as bare as a hound's tooth, and first-class battery sets are now perfected. The second is the inevitability of the allwave set which will sweep previous models into obsolescence, just as the dynamic speaker did. Men and boys particularly are charmed with the idea of having the whole world as a sounding board.

"Mark this. The time will come shortly when we again will be working outside salesmen, when again we will find it profitable to keep books to the last decimal on the business. But we won't forget, ever—tried by fire as we have been—that the radio dealer's best friend is his service department."



"Keep the town talking. Spring a new radio trick every once in a while. An electronic tube device or a public demonstration of distant reception on a wave length that the average set owner can't get." Harold Snow, radio showman.

Churchill Practices Intelligent "Switching"

MOST dealers who have several demonstration booths arrange radios by trade-marks, all of one make being placed in each booth. This, in the estimation of T. A. Churchill, Jr., of Barker Brothers, Denver, is dead wrong. Churchill arranges his by price range, all sets selling for about the same money being placed in the same booth.

"This greatly aids our selling-up activity," states the radio department manager. "People who see the wide variety of lines offered can have no illusion that we are simply trying to switch to some make carrying a better margin, or attempting to clear out slow moving makes.

"We always show customers the set for which they ask when entering the store as it is an insult to their intelligence to try switching immediately, as well as an insult to ours in selecting even low-priced merchandise that will not stand the light of day. But we always point out the superior performance to be expected from consoles, where the prospect asks first for a midget. It has been our experience that most people who come in for small sets should really buy the larger models."

Contacts 50 Newcomers a Week

THE first firm a person buys from after moving into a new town is usually the one he continues to trade with during his period of residence there, providing he gets the desired merchandise and service. Managers of the radio department at Knight-Campbell's, Denver, have taken advantage of this fact to bring in extra business. Through a novel contact plan, this firm gets in touch with about 50 new residents each week, resulting in many immediate sales and a large amount of service work, which leads to future sales in many cases.

The contacts are made by a woman who represents a number of firms engaged in various businesses. Knight-Campbell has exclusive coverage in the radio field. The representative secures the names of all new residents through the express companies and similar sources. She makes personal calls and presents them with letters written in a personal vein describing the Knight-Campbell service and merchandise. She gains the good will of the housewife by offering free advisory service.

The representative also furnishes the radio department with lists of all the people called on in order that they can be followed up by direct mail or in person by a salesman if no business results within a reasonable time.

Sell Him His Own Trade-In

THE radio trade has been given good advice recently on "trading up" and "trading in." Both points are well taken. We would add one suggestion:

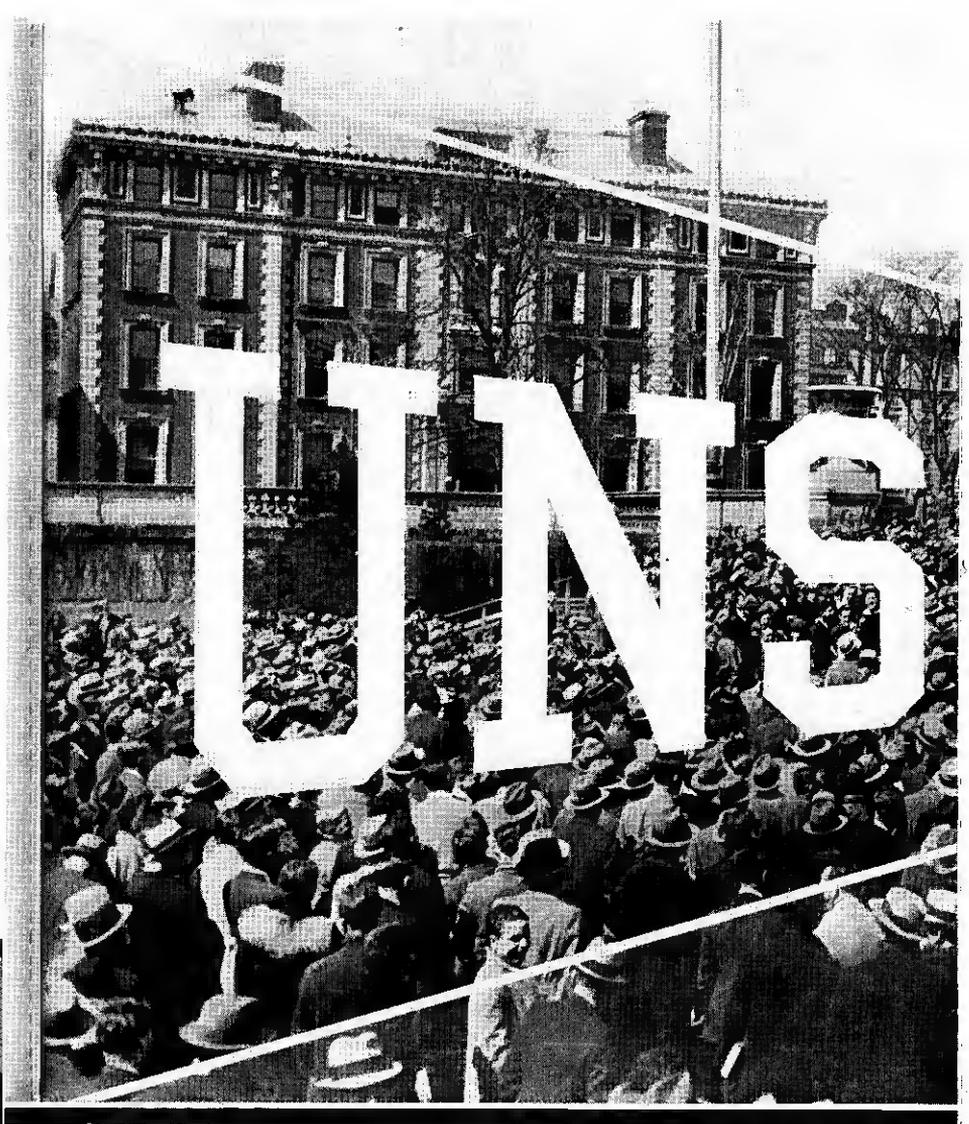
After the customer has been sold the new set and has his trade-in credit, remind him that he had better keep his old set for second-purpose use—for the children, the maid, for upstairs or for the game room. Tell him that his old set is a splendid buy at the trade-in price allowed, that it is worth more to him than to anybody else.

▼

7,560,925 SINGLE WOMEN GAINFULLY OCCUPIED...

There were 7,560,925 unmarried, widowed or divorced women earning their own living in the United States in 1930, according to the Government Census. A major market, all by itself, for radio receivers. Managers of women's clubs and apartments hold one of the keys to this sales opportunity

▲



OVER 1,000,000 STUDENTS IN
and 368,000 women in senior colleges

They Like

all building superintendents own a radio set. Give him a few new tubes also.

There are two services such a man can render, according to W. A. Sturdevant, who sells a lot of sets to bachelors and students in New Haven, Connecticut. "I secure permission to play a good table model in the lobby of the apartment house for three mornings, 8 to 10, and three nights, 5 to 9," he says. "The set, for special attention purposes, is placed on a pedestal about five feet high. Of course, I have a large card which states its price—installed, terms and number of tubes. Also gives my address and telephone number."

This stunt captures inquiries from married, as well as unmarried, prospects. Some of the former may have a boy or girl of college years, who could use a little set.

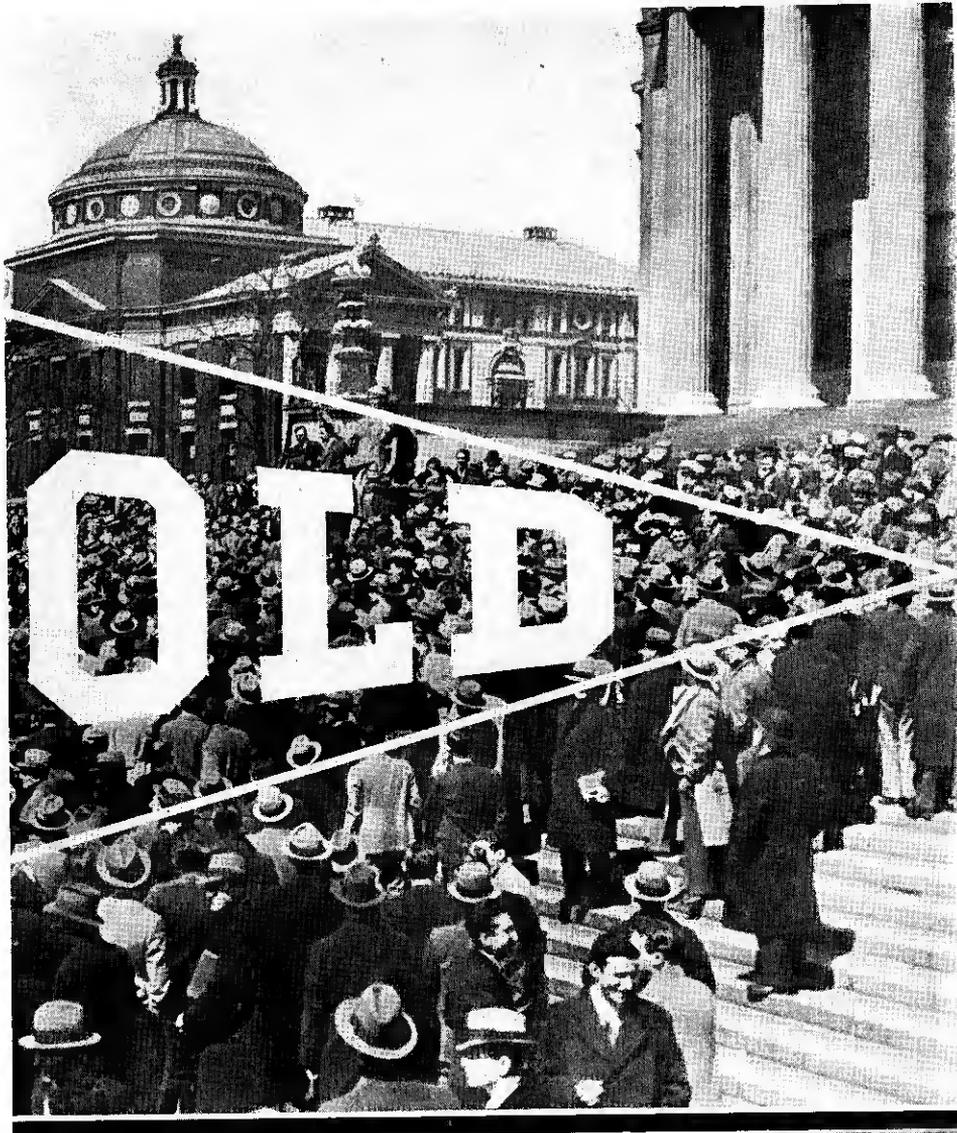
Secondly, the janitor will furnish the names of all likely prospects for a new set. No one like a janitor knows the real low down about the social and economic status of people.

Yes, bachelor apartments pretty generally exist. The movement is growing and offers a market for something more than cracked ice and whoopee. From two to five employed men or women club together, rent an

UNMARRIED persons buy sets too. Young people, students, workers, crave radio entertainment just as much as their parents. In fact, because many bachelor men and women live lonely lives, they are easier to sell than ma and pa. The problem is to reach them. Yet many dealers are overlooking this large and worthwhile market in that they are making no special effort to sell these types of prospects.

Read the "opportunity" figures presented in this article and then give the college boys and girls and the unmarried working men and women in your town serious attention by trying out one or more of the following "starters":

List all the apartment and boarding houses in your city. The *modus operandi* is through the janitor. State your proposition to him frankly. His good will and support is secured by offering to service his set free—



GAINFULLY OCCUPIED DURING WORKING HOURS

. . . and able, therefore, to enjoy their leisure moments. A large majority of this younger generation, prime purchasers of "entertainment" merchandise, are unmarried. The figures here cited are from the United States Census Survey

COLLEGE . . . There were 604,000 men throughout the United States as of 1930.

Radio Too!

apartment, and proceed to provide it with all the comforts of home. Then there are the larger groups of fraternity men and sorority women who live in special clubs, housing from 30 to 150.

RESIDENT SUB-AGENTS

Another dealer, in Kansas City, cracks this market by appointing resident sub-agents on a 15 per cent commission basis—10 per cent has been found insufficient.

This latter idea also works out well in the senior colleges. Bailey Music Rooms, Inc., Burlington, Vermont (University of Vermont) finds it takes a college man to get "coverage" in this special field. "The student agent knows the credit rating of his associates, or rather the financial standing of their parents. He also is familiar with the college rules. In this connection some colleges protect the tradesmen by refusing to graduate a man or woman whose local debts remain unpaid. Other institutions permit only phonographs in rooms or base musical privileges on scholarship.

Naturally, the dealer cooperates closely with his student aide and generally sees that the set is installed properly.



While the unit of sale, to students and the younger unmarried workers, seldom tops \$40 there are enough exceptions to this rule, and the ratio of cash business is high enough, to make this market well worth cultivating, according to the dealers interviewed. Note that it totals approximately 10,000,000 prospects—a much higher ratio to the "family" market than is realized.

This month is an especially fine time to increase volume by *promoting* the sale of sets to single persons. A radio receiver is an ideal gift to such as these. Sub-agents in factories and offices will help locate these prospects. The residence places of single people are not always easy to find.

Also get after the parents of children in college. The High School principal or registrar can help here with your address list. "Give him or her a radio for Christmas to take back to college," should be the key slogan.

NEWS of the month

December, 1933

New York, N. Y.

GRIGSBY-GRUNOW IN RECEIVERSHIP

*Le Roi Williams and Thomas Marshall Appointed Equity Operators—
Company Will Continue Radio and Refrigerator Business
Aggressively—New Models in January*

On November 24 Federal Judge John P. Barnes placed the Grigsby-Grunow Company of Chicago in equity receivership in response to a friendly petition requesting such action filed by the P. R. Malory Company of Indianapolis on a \$14,785 claim for radio parts. A petition for involuntary bankruptcy, filed almost simultaneously by Joseph H. Tigerman, inventor, for \$26,350 in back royalties and dividends, Dwight Brothers (paper) for \$204 and Lambert & Mann, \$20, was set aside by this ruling.

Lawyers Le Roi Williams (former general manager) and Thomas Marshall were appointed equity operators and have announced that the company will continue to manufacture and sell radio and refrigeration without interruption and without change in managerial personnel. In a press statement, president B. J. Grigsby, attributed his concern's financial trouble to the difficulty of carrying the burden of fixed investment in plant and equipment on the reduced volume and profit now obtainable. Popularity of low-priced midgets, which largely nullified the value of the Grigsby-Grunow cabinet plant, was given as a contributing cause.

Further amplifying this statement Sales Manager John Ditzell, on November 25, sent the following telegram to all "Majestic" distributors:

"Through a petition filed in equity in the U. S. District Court, Chicago, and to which we consented, Le Roi J. Williams and Thomas L. Marshall were appointed operating receivers for the Grigsby-Grunow Company. It should be made clear that this is not bankruptcy but a proceeding in equity. This was occasioned solely by the tremendous increase in our sales volume which in fact has placed us in a leading position in the industry.

"Continued operations of this company are assured on sound business policies. It will permit a prompt reorganization of our finances, also a definite program of permanent financing which will be consistent with the increased business Majestic is now enjoying. Majestic will be in a better position to serve you and the action will make possible increased manufacturing operations and more effective advertising and selling plans. . . ."

Grigsby-Grunow is not in bankruptcy, in the sense that its affairs are to be wound up by enforced liquidation of its assets to satisfy its creditors. On the

contrary, according to B. J. Grigsby, this equity receivership is for the express purpose of keeping the company in business so that the value of the name "Majestic" will not be lost.

A statement by I. B. Lipson, attorney for the company, asserts that total claims and debts amount to \$2,907,305 and that there are \$2,340,500 in bonds outstanding, while the book value assets is \$14,584,030, with current assets of \$4,152,378.

Advertising Appropriation Granted

Indicative of the attitude of the Court is the fact that, on December 1, Judge Barnes authorized the receivers to expend "for further advertising during the month of December, the sum of \$35,000," and "To continue replacements and performance of other obligations under the warranties of such company which have been given in connection with the sale of Majestic refrigerators."

New models, sets and refrigerators, will, it is understood, be introduced, in accordance with previous plans, during the fore part of next year.

Special Statement from Receiver Williams

In a special statement for the trade, given to a representative of *Radio Retailing*, Dec. 4, Receiver Williams explained that the purpose of the receivership was to find a way of relief from the obligations, on present business, of the investment charges on plant and equipment undertaken at a time when the general business outlook looked very much better than they do today. "I do not believe," continued Mr. Williams, "that anything worse can be said of Majestic than that it is the victim of forces beyond its control—and the same can be said of many other companies in other lines."

Showed Operating Profit

"It is not only the hope but the confident expectation of the receivers," concluded Mr. Williams, "that the creditors will appreciate that their own interests will be served best by moderation and by foregoing or lessening their claims, temporarily, until the company has improved its condition. That such improvement is almost immediately realizable is indicated by three things: The general bettering of business, now apparent; the improved efficiency in organization and operation of the Company since last



George Bryant Advanced

George T. Bryant, Majestic's director of distributor relations, has been advanced to the post of assistant general sales manager, succeeding Harry Alter, who has left the Grigsby-Grunow Company. Floyd Masters gets Bryant's old berth

March, and, third, the enthusiastic reception that has been accorded by dealers and the public to the present Majestic line—and that will undoubtedly greet the new models of radios and refrigerators scheduled for presentation in January."

Following the low level in the early months of '33, the company has made rapid progress. At the end of September, Majestic employed 6,400 persons. Since then business has dropped off and now somewhat over 1,000 persons are on its payroll.

For the nine months ending Sept. 9, 1933, total sales were \$6,408,898. The loss for these nine months was \$2,215,530. This loss is not in any sense an operating deficit but is the difference between an actual operating profit and the cost of an extremely heavy capital investment. It includes a book depreciation of \$720,000 for nine months. It is understood that the last month of operation, prior to the receivership, showed a profit after all charges.

B. J. Grigsby to Retire

It is the announced intention of B. J. Grigsby to retire from active participation in the present reorganization of the concern which bears his name. He has consented, however, to remain, for a period, in his present capacity on the Board and to assist Mr. Williams in every possible way.

Sparton on the Air

The Sparks-Withington Company, Jackson, Mich., maker of "Sparton" radio receivers, has contracted with Columbia for eight Saturday night programs over a CBS network of 25 stations. Programs will be of half-hour duration and will be in the nature of "variety shows." Seymour Simons and his orchestra will be the feature.

Flocken New C. E. at R. K. Labs

R. K. Laboratories, Chicago, has appointed Linton H. Flocken, former Cornell-Dubilier man, as its chief engineer.

RMA Planning 1934 Shows Coit, Skinner and Geddes Head Arrangement Committee

The RMA will definitely sponsor public radio and electrical household appliance shows in Chicago and New York some time in the fall of 1934. This was decided at the association's last meeting.

J. Clarke Coit, of General Household, James M. Skinner, Philco, and Bond Geddes, executive vice-president and general manager of RMA, head the committee on arrangements. It is expected that these east-west activities will do much to promote season sales. Coincidental meetings are to be arranged for retail and wholesale associations, as well as for members of the manufacturers' organization.

It is understood that an option has been taken on Grand Central Palace at New York City for the same week as the National Radio-Electrical Exposition already scheduled for the Madison Square Garden by the Electrical Association of New York, which sponsored the 1933 show. Efforts are being made to bring about a consolidation of the two 1934 show plans, as it is felt locally that the radio and electrical industries will certainly not be able to support two competing shows at the same time.

Condenser Manufacturers Form New NEMA Section

NEMA has a new section for manufacturers of fixed capacitors. This includes parts made for industrial and commercial use as well as for radio applications. Matters relating to the administration of the NEMA-Radio Code, affecting the condenser group, will be administered by a special representative of this section.

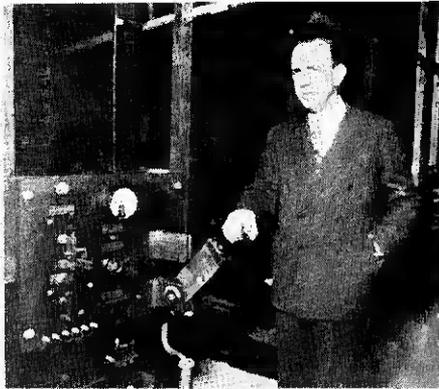
Webster Co. at New Address

The Webster Co., manufacturers of amplifier equipment and the newly announced "Amplical" intercommunication system, has moved from the 850 Blackhawk Street address, where it has been located for many years, to 3825 W. Lake Street, Chicago.

Back Off the Road



GE's Showboat exhibit of new models and new advertising plans, presented in 30 cities, is in from the circuit. Captains Hadlock, Wandres and Bowe, mates Wichelns, Roche and Griffin piloted the three-section expedition. Producer: B. C. Bowe (center)



"Contact!"

Powel Crosley, Jr., founder of the Crosley Radio Corp., throws the switch on one of the three filament machines, part of the new 500,000 watt transmitter now under construction for WLW. Mr. Crosley has consistently advocated the use of super-power as a practical means of eliminating fading, interference and static. WLW will be the first commercial station to use 500,000 watt power.

JOBBER APPOINTMENTS

ZENITH has 9 new jobbers: Wholesale Radio works out of Newark; Pittsburgh Auto has offices in the city of the same name, Altoona, Fairmont, Shannon, Wheeling; also service stores in Carnegie, McKeesport, Cumberland, New Castle, Pittsburgh, Warren, Monessen and Wilkinsburg and will cover a tri-state area; H. E. Sorenson will handle Des Moines and vicinity, Bay View Furniture, Holland, Mich., and Fones Brothers, Little Rock; Fey & Krause have Los Angeles; North Coast Electric, Portland; and Inland Radio, Spokane.

BOSCH will be distributed in the Philadelphia area by Dickel Distributing.

MAJESTIC adds the Crawford Company of Shreveport to its list.

A-K now has White Hardware, St. Louis, giving this concern eastern Missouri, southern Illinois. Julian E. Sampson runs the outfit.

RCA's Albany distributor, Capital City Distributing, has increased its sales staff, taking on Irving V. Dale of Springfield, Mass., Ralph M. Barker of Poughkeepsie, Roy W. Pennell of Glens Falls and Thomas Gray of Rensselaer.

SPARTON will be handled in and around St. Paul, Minn., by Farwell, Ozum, Kirk & Co. This outfit was fourth in Sparton sales during the peak production years.

PHILCO has a new Pacific coast sales manager in Cliff Bettinger, formerly Los Angeles man. He will work out of the San Francisco office.

KINGSTON has Combined Sales, 1140 Broadway, New York and Trade Contact, 25 Huntington Ave., Boston, as new factory representatives. The newcomers will contact distributors in their respective territories.

WURLITZER appoints Continental Sales Company, Hartford, to distribute its line throughout Connecticut.

Urge Repeal of Excise Tax Produces Little Revenue, Seriously Burdens Industry, Is Claim

Repeal or modification of the 5 per cent excise tax now applied to radio and phonograph apparatus is to be urged upon the next Congress by the RMA. Thus radio joins other industries in protesting "nuisance" taxes which, it is contended, produce comparatively little revenue for the Government and seriously burden business.

Paul B. Klugh, chairman of the legislative committee, will conduct the effort for repeal or modification at Washington, assisted by secretary Bond Geddes. A small but general manufacturers' sales tax, applicable to all industries, will be recommended in place of special discriminatory taxes.

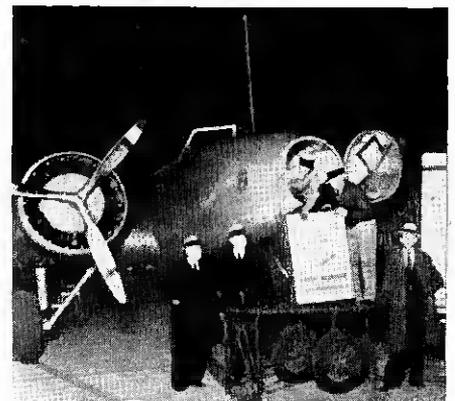
A hearing has been assured.

Engineers to Study Television Bands

RMA has formed a special engineering committee to confer with the Federal Radio Commission on future broadcast facilities for television, facsimile and other special services. Walter E. Holland, of Philco, former association director of engineering, is chairman. Other members are: J. Chambers of Cincinnati, official of the NAB; Ray H. Manson of Stromberg-Carlson and Dr. W. R. G. Baker of RCA-Victor.

These men will confer with Dr. C. B. Jolliffe, Chief Engineer of the FRC, and associated experts regarding frequency assignments.

Careful, Boys



Salt Lake Hardware wanted to flash Grunow's new model 801 console on Utah dealers; couldn't wait for rail delivery. Air Express came to the rescue with a hurry-up sample

GENERAL HOUSEHOLD'S latest distributor appointments are: Anthracite Radio, Scranton; Cedar Rapids Auto, Cedar Rapids, Iowa; Electrical Appliance Distributing, Altoona; Flat Top Supply, Bluefield, W. Va.; James Supply, Chattanooga; Morris Distributing, Albany; Peaslee-Gaulbert, Louisville and Atlanta; Philadelphia Distributing; Salt Lake City Hardware; Shapiro Sporting Goods, Newburgh, N. Y.; Sidies-Duda-Meyers, Des Moines; Southwest Distributors, Wichita.



STOP PRESS—Via. telegram from Chicago—Harry Alter, pioneer radio jobber, launches own company to distribute Grunow (General Household) products. Takes over Grunow Illinois Corporation. Harry to be president and brother Arthur v-p, in charge of sales.

Distributors are at it hammer and tongs introducing new models through dealer mass meetings. Hamburg Brothers pulled over 1,000 into Pittsburgh late in November for a "Majestic" shindig. Messrs. Ditzell and Blackburn represented the factory. In upstate N. Y., Albany Hardware slipped dealers the needle in behalf of the Wur-litzer line. Factoryman E. S. Palmer did the honors. And out in Altoona, Pa., Hollenback Radio arranged an educational meeting for coal-region servicemen, feeding them liberal doses of Hi Cohn, Ohio Carbon; John Olson of Burges, and M. F. Taylor of National Union.

Even the factories are doing it. Leonard Refrigerator splurged by inviting 150 distributors and members of their organizations to the 53rd annual convention held at Detroit. The new line of boxes was introduced and H. W. Burrit, v.p., bragged that the company's sales, in units, finished 51 per cent ahead of last year.

Over in gay Patee the "Kadette, Jr." has found new usefulness. Sidewalk café owners stick one on each table. Hence individual entertainment with individual drinks.

Hygrade-Sylvania says the NRA has boosted its employee list from 2,511 to 4,750, an increase of 89 per cent. This from June 17 to October 14. Payrolls used to total \$57,000. Now they hit \$88,000. General Household also reports payroll increased. Bill Grunow says that his employees have jumped from 2,000 to 3,000 in the last three weeks, the company producing about a set per day per employee. Incidentally, the whole gang of GH executives are out in the field pushing the "Big Round Up" campaign.

WHAM—Stromberg-Carlson—is going to WHAM out stronger signals. The FRC has just granted this Rochester station permission to snap up power to 50,000 watts.

The wild scramble for possession of the famous Silver-Marshall name is all over. Silver-Marshall Mfg., of 417 N. State, Chicago, gets it and g.s.m. Bill Halligan says anyone caught fooling around with the monicker henceforward will get it where the turkey got the axe.

Hudson-Ross Now Making Sets

Hudson-Ross, Inc., for many years a Chicago radio distributor, has entered the ranks of the set manufacturers. One of its first models will be the "Three Little Pigs" midget. Bob Himmel, widely known for his retail and wholesale association work, directs the activities of this company.

**We're
Reproducing
This Ad—**

Because it's interesting. Shows how the service men of La Porte are working together, and gives their schedule of flat rates. Here's hoping they can maintain them.

Ten firms signed this advertisement.

THE RADIO SERVICE ASSOCIATION OF LA PORTE, IND.

Has been organized in the interest of better radio reception, to promote better and more reliable service work and repairs and to establish uniform rates for labor. The undersigned radio service men and radio dealers pledge themselves to use quality parts, to give honest value in every job and guarantee every repair for 90 days.

FLAT RATES FOR REPAIR WORK

Labor only. Prices of parts used additional.

Replace resistor, by-pass condenser or other small part where it is necessary to remove set from cabinet	\$2.00
Replace Filter Condenser Block or section of Condenser	2.50
Replace Voltage Divider	1.75
Replace Dial Cable—Cable included	2.25
Align Condensers Tuned Radio Frequency Sets	1.50
Align Condensers Superheterodyne Sets	2.25
Replace Audio Transformer—Old battery models	1.50
Replace Audio Transformer—Other sets	2.50
Replace Power Transformer	3.00
Replace Volume Control	1.75
Replace Field Coil or Cono	1.75
Check Auto Set and Tubes	\$1.00 to 3.00
Hook-Up and Try Out Electric Set	.50
Hook-Up and Try Out Battery Set	.75
Install Auto Radio—Antenna extra	\$5.25 to 6.00
Aerial on house under eaves	2.00
Service call inside city limits	1.00
Per mile additional one way out of city	.10
Repair or Replace Radio Frequency Transformer	2.00
Additional Charge where it is necessary for us to go out and pick up and return set	1.00
Hourly rate for labor and equipment	1.00

We believe that the above rates are fair and just, both to the radio public and the service men.

CHICAGO ELECTRIC & MACHINE CO., 608 Chicago St., Phone 724K
THE FOSTER SHOP, 810 Lincoln Way, Phone 727.

Kasson with Stewart Mfg. Corp.

F. W. Stewart Mfg. Corp., Chicago, has appointed David M. Kasson, 139 Fifth Ave., New York City, as its metropolitan representative for a complete new line of auto-radio remote controls which has just been introduced. In addition to the remote control a complete line of accessories to facilitate the mounting and manufacturing of auto-radios is also offered.

Emerson in New Quarters

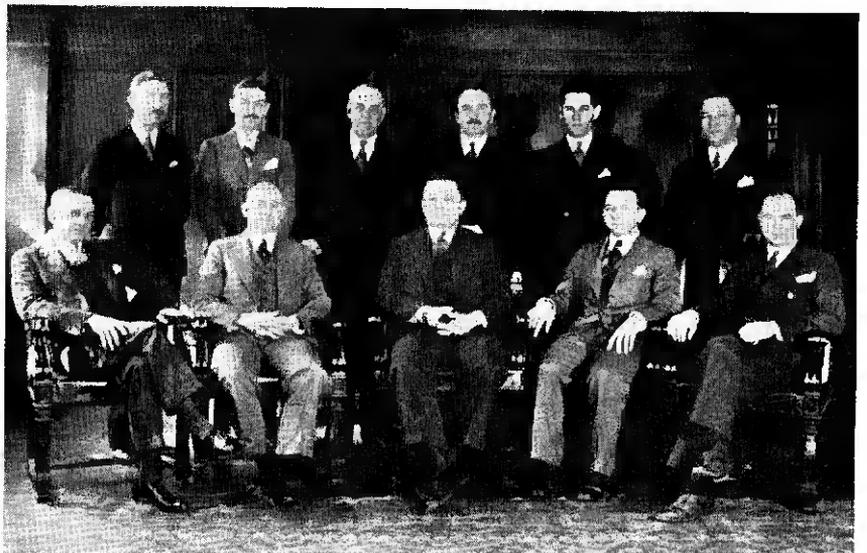
Due to expansion of business, the Emerson Radio & Phonograph Corp., has acquired 40,000 square feet of space in the Port Authority-Commerce Building at 111 Eighth Ave., New York. Engineering, research, manufacturing and sales and executive direction are to be housed under this one roof.

New Service Course

F. L. Sprayberry, of 132 Bryant St., N. W., Washington, D. C., is now enrolling students for a new, low cost correspondence course on the "Practical Mechanics of Radio Service." The course includes: set testing by the analyzer, voltage, point-to-point, stage-by-stage, oscillator and hand observation methods; repairing of superhets, a.v.c., public address, auto-radio, battery receivers and 32 and 110 volt d.c. sets; testing of condensers, resistors, transformers, tubes, speakers and antenna and input circuits; location and elimination of hum, internal noise, intermittent reception, poor quality and poor sensitivity and selectivity. In addition there is a special section describing the latest tube types and another on analyzers, including modernization data.

Correction and grading of lessons, consultation service, is available if desired.

Stewart-Warner's Allstar Eleven



Here's Stewart-Warner's refrigeration sales crew for 1934. Left to right: (standing) H. A. D'Arcy, P. C. Crowen, R. J. Lawrence, R. S. Frunhouse, H. A. Pollack and Wm. A. Biel; (seated) R. S. Christy, J. E. Saun, C. R. D'Olive (sales manager), G. Treffelsen and L. W. Enos.

How to Keep Modern Service Records

By Russell B. Rich

SERVICE RECORD				
Call at 2:30 P.M. - Date <u>June 11, 1933</u>				
Date <u>June 10, 1933</u>	No. <u>235</u>			
Name <u>F. G. Smith</u>				
Address <u>147 Main Street</u> Phone <u>Pinecliff 6-2493</u>				
Make <u>Finetone</u> Model <u>43</u> Serial No. <u>146,243</u>				
Nature of Trouble <u>Fading and static interference</u>				
Labor	Hrs. Amount			
Replaced 2-225 tubes				
" 1-transformer type 41	1/4 25			
Checked and repaired aerial and ground	1/4 50			
Testing	1/4 50			
Total Labor 1/4 1.25				
Materials	Cost Amount			
2-225 tubes Goldtone	@ .85 1.70			
1-4-1 M. P. C. Transformer	1.75 2.50			
3-Aerial insulators type 16	.45 .75			
50-foot aerial wire	.30 .25			
1 ground clamp	.# -1.0			
Total Materials 3.74 5.40				
The above service work has been completed				
Date	Total Labor 1.25			
Signature	Total Charge 6.65			
Account	Charge	Account	Cost	Credit
Accounts receivable	6.65	Labor Sales	1.25	1.25
Cash Sales		Parts Sales	1.75	2.50
Used Set No.		Accessory Sales	.69	1.20
		Tube Sales	1.20	1.70
Total	6.65	Total	3.74	6.65

SERVICE INVOICE				
Call at 2:30 P.M. - Date <u>June 11, 1933</u>				
Date <u>June 10, 1933</u>	No. <u>235</u>			
Name <u>F. G. Smith</u>				
Address <u>147 Main Street</u> Phone <u>Pinecliff 6-2493</u>				
Make <u>Finetone</u> Model <u>43</u> Serial No. <u>146,243</u>				
Nature of Trouble <u>Fading and static interference</u>				
Labor	Hrs. Amount			
Replaced 2-225 tubes				
" 1-transformer type 17	1/4 25			
Checked and repaired aerial and ground	1/4 50			
Testing	1/4 50			
Total Labor 1/4 1.25				
Materials	Amount			
2-225 tubes Goldtone	@ .85 1.70			
1-4-1 M. P. C. Transformer	1.75 2.50			
3-Aerial insulators type 16	.45 .75			
50-foot aerial wire	.30 .25			
1 ground clamp	.# -1.0			
Total Materials 3.74 5.40				
The above service work has been completed				
Date	Total Labor 1.25			
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Account	Charge	Account	Cost	Credit
Accounts receivable	6.65	Labor Sales	1.25	1.25
Cash Sales		Parts Sales	1.75	2.50
Used Set No.		Accessory Sales	.69	1.20
		Tube Sales	1.20	1.70
Total	6.65	Total	3.74	6.65

THE RADIO SERVICE COMPANY
CUSTOMER'S RECEIPT

Service Order No. _____
Received of _____ Date _____
Signature _____ \$ _____

OF ALL the records that go to make up the accounting and operating history of the radio distributor, probably none covers a more important and more varied scope than the well designed service form. When properly devised, it can do a multiplicity of jobs, thirteen of which are enumerated below. Here illustrated is such a form that can be made up by any local printer at small cost.

The forms are padded in sets, each composed of two copies, the original a "Service Invoice" and the duplicate a "Service Record" for use with a short carbon sheet extending down to the perforated line on the service invoice. The sets are prenumbered, consecutively, and the Service Record is punched for post binding by the printer before padding.

Let us take a typical service call and follow it through: Mrs. F. G. Smith phones for service. Upon the next service invoice, No. 235, is entered her name, address and phone number and the date. She is asked to give the make and model of her set and the nature of the trouble. Both invoice and record are torn from the pad with the carbon paper remaining in place and are put on the service man's work file.

Each morning the service man examines his work file, scheduling his day accordingly. On this day, at 2:30, he arrives at Mrs. Smith's and goes over the set, testing tubes, current supply, etc. He finds two tubes and a transformer in need of replacement. Knowing before hand the kind of set he has to work with and having some idea of the trouble, he has the necessary parts and tubes in his car. Going over the aerial and ground connections shows the need of a new ground clamp and a properly constructed lead in. After having consumed one hour and a quarter on this work he records this information in detail under labor charged at the rate of \$1 per hour. Under "materials" he lists all of the items used, together with the selling price of each. He adds the material prices, carries down his total labor charge and arrives at the total charge of \$6.65. He also records the serial number of the set in the heading and secures Mrs. Smith's signature.

Up to this point the service invoice and service record have stayed together and, with the use of the carbon sheet, are identical. Here, however, the two records are separated, each to serve a definite purpose.

Suppose Mrs. Smith desires to pay cash. The service man fills in and signs the receipt at the bottom of the invoice, and leaves the whole sheet with her. But, very likely, Mrs. Smith is a charge customer. In this case the receipt is torn off along the perforated line and retained by the service man, the invoice alone given to Mrs. Smith. A statement should be mailed promptly at the end of the month.

The service record as it stands is turned over to the accountant for checking, further filling in and final recording. Costs of materials are entered and footed. In the bookkeeping block at the bottom Accounts Receivable or Cash Sales are charged, the material sales analyzed and credited to the proper sales accounts. Costs of each classification of materials figured, brought down, charged to proper Cost of Sales Accounts and credited out of inventories. Records are filed according to number and the file watched for open numbers representing incomplete or untouched work.

At the close of each day the accountant also receives from the service man total cash collected together with the unused receipts torn from service invoices of charge customers. These are reconciled immediately and each service assignment covered must be evidenced either by cash or the unused receipt.

When properly executed the plan completely and very simply covers the following operations:

Accounting

1. A medium of recording transactions and a detailed record of the source of customer indebtedness.
2. An invoice for work finished.
3. Control of the cash collected by the service man.
4. Record of job costs, material and labor.
5. Record and control of the disposition of inventories.
6. Customer's acknowledgement of indebtedness.
7. Receipt by service man to the customer, for cash collected.

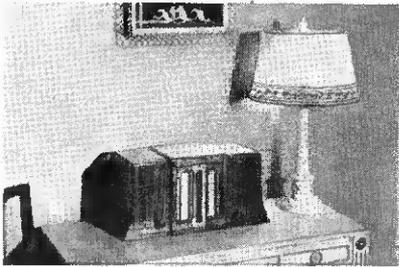
Statistical

8. Sales prospects—record of sets in use and condition.
9. Aid in the apportionment of overhead and other costs between sales and servicing activities.
10. Reflects the particular weaknesses of various makes and models for determining sales policies.
11. Records results of tests, repairs and adjustments made to remedy specific troubles.

Administrative

12. A control of jobs unfinished, the efficiency with which service calls are handled by the organization.
13. A check on the individual efficiency of members of the service organization, the profit or loss derived from each man.

NEW MERCHANTISE



Howard Model X2

Howard Radio

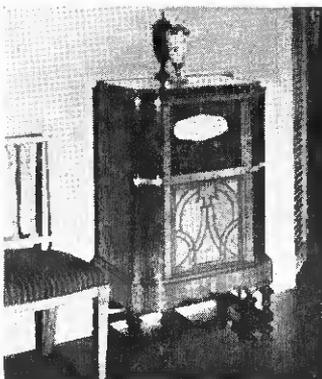
Model W6 of the Howard Radio Co., South Haven, Mich., is a 16-tube receiver with world-wide range on both the broadcast band and short wave. This set has the airplane type dial with the three full vision dials placed behind glass in an attractive panel setting. A few of the technical features are: 530 to 20,000 kc. range, two unit construction, nine tuned circuits, push-pull Class A input and output, Catenary volume control, amplified a.v.c., 12-in. Jensen ortho-dynamic speaker. The tubes used are 4-58, 4-56, 2A7, 3-57, 6B7, 2-2A3, 1-5Z3. \$189.50. Also available as a 15-tube broadcast set at \$174.50 and as a 12-tube receiver at \$149.50.

Model X2, illustrated, is an attractive table model taking seven tubes. This set has Class A audio amplification, delayed a.v.c., 6-in. speaker. The dial is the new Howard vertical with station indicator. Tubes used are 2-78, 6A7, 6B7, 12A6, 77, and 80. \$49.50.

Model Z4 is a 10-tube console taking 3-78, 6A7, 6B7, 2-77, 2-2A5, and an 80. This set has push-pull class A output, a.v.c., 10-in. speaker and vertical dial. \$109.50.

Model Y3 is an 8 tube superheterodyne console with 6 tuned circuits, class A audio amplification and 9-in. speaker. The tube line up consists of 2-78, 6A7, 6B7, 12A5, 2-77 and an 80. \$89.50.

Model X8 is a 7-tube console with the same chassis as the Model X2 except for the addition of a full size speaker.—*Radio Retailing*, December, 1933.



Howard Model W6

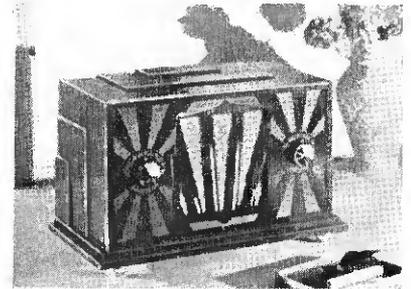
Rubber Capped Plugs

H. H. Eby Mfg. Co., Inc., 21st St. and Hunting Park Ave., Philadelphia, announces a line of heavy duty rubber capped plugs which when used with the newer rubber covered cables making a combination which will stand severe usage. They are especially useful for public address and sound recording equipment and for auto radio power supply connection.—*Radio Retailing*, December, 1933.

"Three Little Pigs" Radio

The famous "Three Little Pigs" have decided to have a radio of their own and it may be obtained from Hudson-Ross, Inc., 111 N. Canal St., Chicago, Ill. Designed expressly for children's rooms with the three little pigs cavorting on the grille.

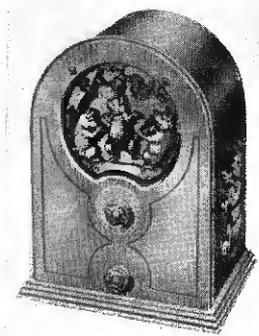
It is a t.r.f. set using a 6C6, 6D6, 38 and 12Z3. Housed in a wood cabinet in ivory or green with the pigs hand painted and tinted with a silver background. The price to dealers, depending upon the quantity, ranges from \$8.50 net to \$9.75. A large New York department store has priced this set at \$16.50.—*Radio Retailing*, December, 1933.



Tom Thumb, Jr.

A lustrous black Durez, futuristic design cabinet houses the new Tom Thumb, Jr., radio of the Automatic Mfg. Co., 112 Canal St., Boston, Mass. It is a 5 tube a.c.-d.c. set.

This company also offers Model B-5 table set in a wood cabinet with the same chassis. \$30.—*Radio Retailing*, December, 1933.



Sparton Auto Radios

Two new Sparton automobile radios, both all-electric models, are being produced by the Sparks-Withington Co., Jackson, Mich.

Model 333 is a five-tube, self-contained receiver, the first of its type to be built by Sparton. It uses a 6F7, 78, 75, 41 and 84. The case measures 9½x7½x6¼ in.

Model 36 has seven tubes (36, 2-78, 85, 37, 89 and 79). This set measures 9½x7½x5¼ in.

Both sets are superheterodynes and have the new airplane type, emerald green illuminated dial, with "Spot o' lite" tuning. A spearhead of orange light follows the indicator when tuning is in progress. Both have a.v.c. and full size dynamic speakers. They are easily installed with only three bolts to account for.—*Radio Retailing*, December, 1933.

Majestic Air Cell Sets

Two sets for air cell operation are announced by the Grigsby-Grunow Co., 5801 Dickens Ave., Chicago. Each is a 5 tube model taking 1A6, 34, 25, 33 and 34. The speaker is a permanent magnet dynamic. These sets have a.v.c. and receive police calls.

Model 105, "Estate," is a table model. \$42.50.

Model 95, "Plainsman," is a console. \$56.50.—*Radio Retailing*, December, 1933.

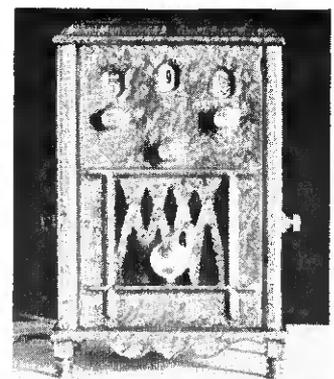


Majestic Model 105

"Little Giant" Crystal Console

Although the illustrated radio looks like a full size console, it is actually only five inches high. It is crystal set and is especially popular at Christmas time for youngsters but can also be used by travelers, and for the office. A perpetual calendar which shows the day, date and month decorates the front panel. The list price of the "Little Giant" is \$2.25. The headphones are \$1.50; additional crystals, 35c each.

This company also makes the Transifier installation system for the reduction and elimination of man-made static; the Transifier power line filter; an auto-radio noise suppressor, signal booster or antenna; and several kinds of aerial eliminators. In addition, a complete line of auto-radio antennas is offered.—*Radio Retailing*, December, 1933.



Centralab Spark Suppressors

Centralab Radio Labs., Milwaukee, Wis., have added auto radio spark suppressors which "suppress the noise—not the spark," to their line. They are furnished with a resistance of 5,000, 15,000, 25,000 or 50,000 ohms. The four cylinder kit lists at \$2.00, six cylinder kit, \$2.75, and eight cylinder kit, \$3.50. Singly they list for 40c. each.

Each kit contains a plug type suppressor for each of the cylinders and one distributor type suppressor.—*Radio Retailing*, December, 1933.

Philco Line

The line of the Philco Radio & Television Co., Philadelphia, Pa., covers ten chassis and ten cabinet models.

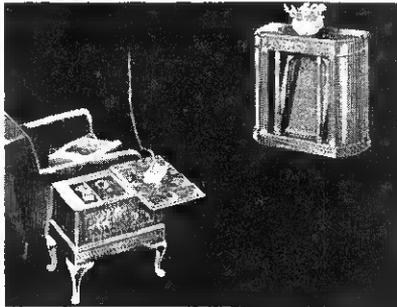
Models 16RX and 14RX, illustrated, list at \$195 and \$150.

Models 16X and 17X come in the inclined sounding board type of console. \$175 and \$150.

Models 17D and 18D are housed in a six legged highboy with doors. \$150 and \$100.

Models 16L, 17L and 14L are encased in a lowboy console with concealed inclined sounding board. \$150, \$125 and \$100.

Models 16B, 89B, 18B, 60B, 14B, 19B and 43B are Gothic table models and list at



Philco Model 16 RX and 14RX

\$85, \$39.50, \$60, \$29.50, \$69.50 and \$50. Price of 43B not given.

Models 54C and 57C are also table models but with the flat top cabinet. \$33 and \$22.50.

Models 14X and 18X are inclined sounding board consoles. \$125 and \$100.

Model 18H is an open face highboy. \$89.50.

Models 19H and 43H are also highboys. 19H is \$65. No price given on 43H.

Models 18L, 89L and 60L are open face lowboys. \$75, \$52.50 and \$42.50.

Chassis specifications are as follows:

- 14—2-44, 36, 3-37, 80, 2-42.
- 16—2-77, 3-78, 37, 3-42, 76, 5Z3.
- 17—3-78, 6A7, 2-37, 2-77, 3-42, 5Z3.
- 18—2-78, 6A7, 75, 3-42, 80.
- 19—2-44, 42, 36, 75, 80.
- 89—Same as 19.
- 43—4-44, 42, 2-37, 80.
- 60—6A7, 78, 75, 42, 80.
- 54 ac-dc—6A7, 78, 75, 43, 25Z5.
- 57—2-77, 42, 80.

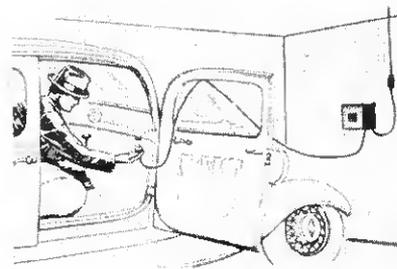
All models but 57 have a.v.c. Shortwaves including foreign are a feature of Models 16 and 43. All get police calls.—*Radio Retailing*, December, 1933.

Fansteel "Bakelite"

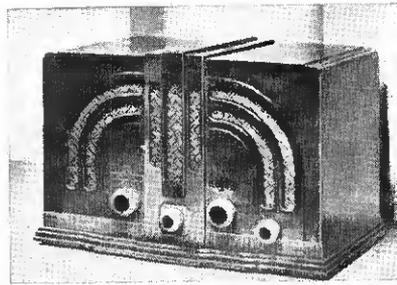
Automotive Battery Charger

To supply the extra juice needed by radio, heater, lighter, parking lights, etc., that run down the battery, as well as to facilitate starting in cold weather, Fansteel Products Co., North Chicago, Ill., offers an automotive battery charger. The charging rate of 2½ amps. tapers off as the battery comes up.

It takes only a few minutes to mount the charging connector permanently in the car, connecting one end to the ammeter and the other end to the car body. It is usually placed under the dash as shown in picture. \$12.50.—*Radio Retailing*, December, 1933.



Radio Retailing, December, 1933



GE Model K-53M

GE Models K-53M and K-66M

Two new moderne radio models—one a console and the other a table model—are announced by the General Electric Co., Bridgeport, Conn.

Model K-53M comes in a table cabinet of two-tone blended finish. It is a 5 tube superhet listing at \$35.95. Police call range—1400-2800 kc.

Model K-66M console is a 6 tube super with illuminated airplane-type dial. Police call switch gives additional range of from 1600-3500 kc. \$77.95.—*Radio Retailing*, December, 1933.

Super Multidapter 205

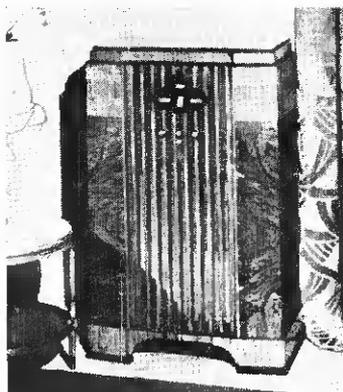
All new filament voltages, which present obsolete testers do not supply, are provided by the new Super Multidapter 205 of the Radio City Products Co., 48 W. Broadway, New York City.

It is simple to operate as the entire panel is self-explanatory and will not become obsolete as it provides for any multiplicity of circuit connections for any tube on the market as well as those which may be brought out.

This Multidapter is so flexible that every connection of inter element arrangement involving plates, grids, screens and cathodes can be made easily. Size 7x9½x2½ in. List, \$15; price to dealer, \$7.50.—*Radio Retailing*, December, 1933.

Burgess A Battery

No. 1040 A battery of the Burgess Battery Co., Freeport, Ill., is especially designed for 2 volt radios. This new "A" pack embodies a "close pak" construction which makes it light, portable and economical. Will give 400 hours service at a cost of less than 1c per hour, the statement reads. Weight, 15 lb.; size, 12½x4½x6½ in. It is 100% dry, hermetically sealed. List price, \$3.20.—*Radio Retailing*, December, 1933.



Zenith Model 767

A modernistic cabinet has been designed for the Model 767 nine tube superheterodyne just brought out by the Zenith Radio Corp., 3620 Iron St., Chicago. By blending three kinds of wood and making the trimmings of satin finished chromium, Zenith has created a cabinet, modernistic in design but sufficiently conservative to be used in any home. This set has twin dynamic speakers.—*Radio Retailing*, December, 1933.

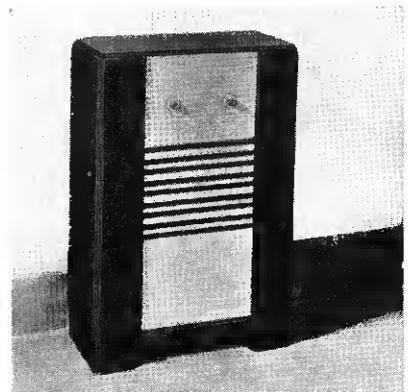
Lyric Consoles

Four new console model Lyric radios have been added to the recently announced line of the Rudolph Wurlitzer Co., N. Tonawanda, N. Y. Three are of ultra-modern design and the fourth is in the Queen Anne style.

Model M-405, illustrated, has metal grille bars for effective contrast.

The Queen Anne model is a 6 tube superhet while the others are 5, 9 and 12 tube models. Model 409 is also available with an 8 tube combination short wave and standard chassis at the same list.

The complete Wurlitzer line now includes 30 superheterodynes with a price range of from \$19.75 to \$119.50.—*Radio Retailing*, December, 1933.

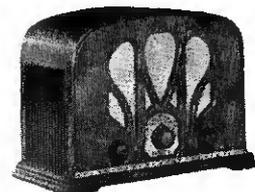


Lyric Model M405

International Midget

An increasing demand for 5 tube superhets has prompted the International Corp., Ann Arbor, Mich., to add a new 5 tube set in walnut. The chassis is similar to preceding 5 tube "Kadette" radios and has a.v.c. and full dynamic speaker.

The walnut cabinet has marquetry inlay and beaded pilasters at either end.—*Radio Retailing*, December, 1933.

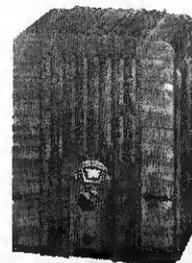


Audiola Receivers

Two new sets are announced by the Audiola Radio Co., 430 S. Green St., Chicago, Ill.

Model 508 is a 5 tube a.c. superheterodyne in an attractive wood cabinet designed along modernistic lines but conservatively so. Uses 2-58, 57, 2A5, 80. Covers a range of from 540 to 1750 kc.

Model 516-2V is a 2 volt d.c. superhet battery set in a table cabinet. Incorporates B amplification and takes the following tubes: 19, 30, 32, 2-34. Same wave range.—*Radio Retailing*, December, 1933.



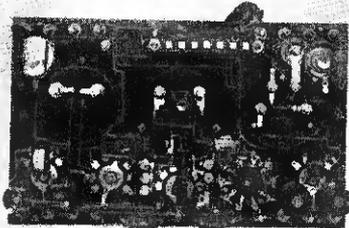
Audiola Model 508



Freed Portable Radio-Phonograph

A 5 tube a.c. compact type superhet set with a.c. synchronous induction motor and phonograph pick up unit built into a Dupont Fabricoid covered portable carrying case may be obtained from the Freed Radio & Television Co., Long Island City, N. Y. The speaker is a 5 in. full floating moving coil electro-dynamic. The circuit is a combined oscillator and first detector, i.f. stage tuned to 456 kc., a second detector, output tube and rectifier. A 2-gang variable condenser with cut plate, 456 kc. oscillator section is used.

The tubes used are: 6A7, 78, 75, 42, 80. Tuning range covers from 176-560 meters (1700-540 kc.) This combination measures 11 in. high by 11 in. deep by 10 in. wide. Weight 18½ lb.—*Radio Retailing*, December, 1933.



Set Analyzer

A set analyzer, which will test a.c. and d.c. voltage, d.c. mils., ohms (3 scales) output and capacity (3 ranges) and which also makes point-to-point tests using voltage or ohmmeter circuits may be constructed of basic instruments incorporated in the Jewell 408 and 409, Weston 565 and Supreme 400 series analyzers by following circuit, part and panel diagrams offered by Sun Radio, 227 Fulton St., New York City, at \$1.50. All 4, 5, 6 and 7 prong tubes are provided for.

Revamping involves the inclusion of additional parts such as new panel, cable and plug, rectifier, switches and multipliers, requirements depending upon the completeness of the instrument desired. Wiring service is available at an extra charge.—*Radio Retailing*, December, 1933.

Tungar Battery Charger

With the advent of cold weather and with the extra drain on the battery caused by auto radios, the General Electric Co., Schenectady, N. Y., has announced a new simplified Tungar battery charger to take care of this extra load.

With this charger, no switches, adjustments or lifting of floorboards is necessary. A receptacle is permanently attached to the terminals of the battery with a convenient outlet to the floorboard of the car. Once installed, it is necessary only to plug in to this receptacle with one lead

from the charger and into a light socket with the other lead.

Charges at the rate of five amps. but tapers off when the battery is full charged.—*Radio Retailing*, December, 1933.

Modernized Jewell 214 Tube Checker

A modernized Model 214 Jewell tube checker is offered by the Precision Apparatus Corp., 321 E. New York Ave., Brooklyn, N. Y. It provides the testing of all standard tubes as well as 42 other types. Double test on dual purpose tubes is possible. Other features include 7 preheater sockets, easy reading meter scale, short test for all tubes, no extra controls, ample provision for future releases, individual replaceable sockets.

The modernized Jewell 538 is also available on the same plan in its original cabinet.—*Radio Retailing*, December, 1933.

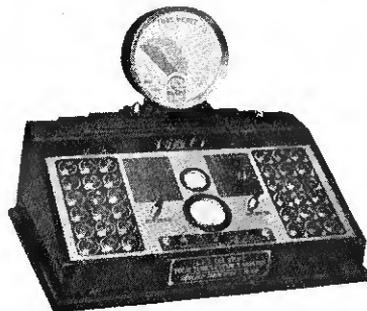
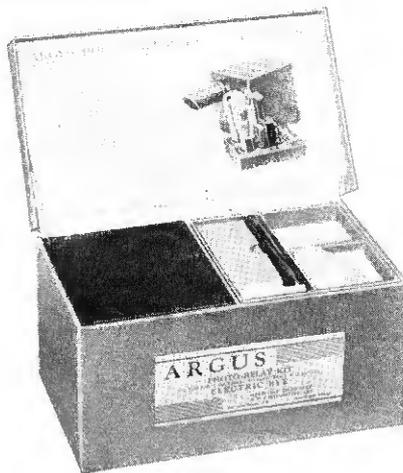


Photo-electric Relay Switch

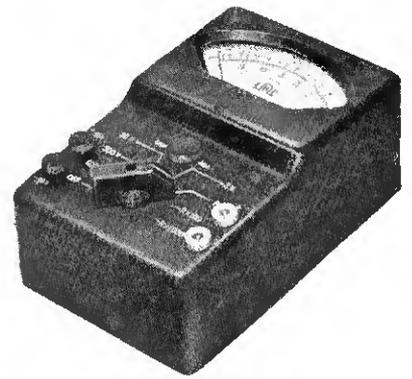
When assembled the Argus photo-electric relay, in kit form, can be used for all photo-sensitive controls, including door openers, signs, lighting, counting, alarms, etc. It is supplied by the Electronics Division of the A. M. I. Distributing Co., 1500 Union Ave., S.E., Grand Rapids, Mich. The list price is \$39.50.

Other accessory apparatus includes a light source (110 volt a.c.) with focusing lens, priced at \$13.50, and an infra-red filter of imported Jena solid-color filter glass, one blue, one red, assembled in barrel-type holder listing at \$10.50.—*Radio Retailing*, December, 1933.



Recording Feed Screw Device

The latest release from the laboratory of the Universal Microphone Co., Inglewood, Calif., is a recording feed screw device which moves any recording cutting head across the face of the recording disc and grooves the record at the time of making the recording. The instrument will fit any phonograph turntable and records up to 12 in. in diameter can be accommodated. The thread is cut at the rate of 80 grooves an inch.—*Radio Retailing*, December, 1933.



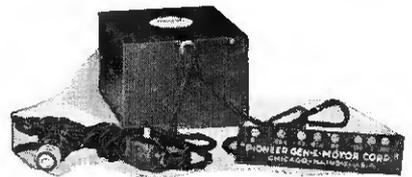
IRC Volt-Ohmmeter and "Elbow" Suppressor

To meet the growing need resulting from increased use of point-to-point radio service methods, the International Resistance Co., Philadelphia, Pa. has brought out a volt ohmmeter.

A feature is the automatic vacuum relay which prevents burnouts of the meters or circuits.

Voltage ranges are 3, 30, 300 and 600. Resistance ranges are 0 to 1,000; 0 to 100,000 and 0 to 1 megohm. With minor wiring changes and the addition of IRC precision wire-wound resistors, various d.c. current readings can be made. The basic meter used is an 0-1 milliammeter. This instrument lists at \$42.50 with a net price to dealers and service men of \$25.50.

A new "elbow type" motor radio suppressor for cable installations on cars having recessed spark plugs is also ready. Net to dealers, 21c. each.—*Radio Retailing*, December, 1933.



Pioneer 32 Volt Gen-E-Motor

A new "Gen-E-Motor" which provides 180 volts d.c. of 32 volt input is announced by the Pioneer Gen-E-Motor Corp., 1160 Chatham Court, Chicago, Ill. This new addition to their line of "Gen-E-Motors" supplies "B" power from 32 volt farm light systems. Two models are available. One is complete with filter and intermediate voltage taps, which may be connected direct to any battery operated receiver and thereby eliminating all B batteries. The other model is supplied stripped of filter and intermediate voltage taps to meet the needs of set manufacturers who are producing sets that operate direct from 32 volt farm light circuits.

This company also manufactures a special replacement model 6 volt d.c. input 180 volt d.c. output Gen-E-Motor which may be slipped into the compartment of an automobile receiver from which the old vibrator type B eliminator unit has been removed.—*Radio Retailing*, December, 1933.

Flat Type Carbon Resistor

A flat type carbon radio resistor of the same length and breadth as the round type, but ⅛ in. thick, permitting more pressure in the manufacture and giving one watt resistors a five-times overload carrying capacity, it is claimed, can be obtained from Chaco Radio, 1130 Main St., Richmond, Ind.

These resistors may be mounted in one-third the usual space. The intended price is 35 cents net for a kit of 12 of any assortment with tinned pigtails, color-coded and size stamped.—*Radio Retailing*, December, 1933.

Dealers wishing to obtain complete copy on these full page ads should communicate with the Editor of "Radio Retailing"

Don't Isolate Yourself!



**Great Artists are knocking at your door!
Does your radio let them in?**

To families who own a radio:

You say, "Of course my radio brings me the music of the great artists."

But does it? You may be getting what seems to you very fair results and yet measured by present-day standards, they may be exceedingly poor.

You will realize the difference instantly. Once you actually tune a modern radio you will thrill to the click, click, click of one station after another, barely a hair's breadth apart on the dial, yet each as sharp, clear and distinct as if cut with a knife!

Does your radio get such results? Has it automatic volume control to overcome "fading" of stations, tune control to give you exactly the shade of music desired? Is its appearance such that you can honestly say you are proud to have it in your home?

To families without a radio:

Maybe you have been putting off the purchase of that radio for no good reason at all.

Here's a very good reason for deciding to get a modern radio for your home at once!

Canada's "Radio Celebration" will take place November 4-11. Free broadcasting will be at its peak in commemoration of ten years of radio progress. You will want to share in the festival of brilliant entertainments on the air!

Every radio merchant is dedicating his facilities during Canada's "Radio Celebration" to spread the news of Radio's greatest achievements. Everyone of them is ready for the thousands of new buyers, with displays of the very latest models.

Call your nearest dealer and arrange for a demonstration. There is no obligation and if you have never given serious consideration to the matter of a radio for your home, you will marvel at the perfection of the latest models. Remember this—other people are buying, but without you in the world's history has...



ears. Its wealth of entertainment has been magnified many times. With a modern set you can select tunes with ease and certainty, tune with hair-raising accuracy, absolutely control tone volume, tone character or "colour," the range, power, tone and quality. You can enjoy all these advantages in a radio of modern design.

"Radio Celebration" is at hand. Radio is dedicating their entire facilities to commemorate ten years of progress in Canadian Radio—the most complete ever shown. Everything has been done to make it convenient for you to see Radio's latest features and the low prices.

Programs for November 4-11 program news.

Look what has happened to Radio performance in the past five years!

IN MUSICAL RANGE
IN SELECTIVITY

CANADA'S RADIO CELEBRATION NOV. 4-11

CANADA has just emerged from the throes of its own continent-wide radio celebration. Following closely upon the heels of the American "Prosperity Campaign," our northern brethren formed a Radio Celebration Committee, organized the trade and set out to stimulate set and accessory sales. Canada's campaign ran from Oct. 27 to Nov. 11.

Broadcast stations were persuaded to make spot announcements and the aid

of manufacturers and distributors was enlisted, just as in this country. But, unlike our effort, the Committee itself placed national newspaper ads (and very good ones they were, too) and awarded prizes for special retail window displays.

Here is the schedule of events:

On October 27, dealers throughout the Dominion held meetings of their own sales staffs, acquainting them with the details of the campaign plan. A local newspaper representative was present in many cases to hear specific selling ideas outlined. On October 28, window displays advertising the national "Radio Show" were installed in many stores, and broadcast stations began making spot announcements.

On October 30, stores were thrown open, without obligation, to the public. Sets were equipped with special Show price tags. National advertising started. Publicity was obtained in leading newspapers. And dealers called upon all prospects, personally or by phone, calling attention to the mammoth broadcasts scheduled for November. On October 31, dealers concentrated on local newspaper advertising. November 1, and again on the 7th, committee-sponsored, full-page advertisements were run nationally. It was suggested that dealer

window trims be changed November 3 and again on the ninth. Also that the retailers give the special programs a prominent position in the reading columns of their local papers.

The feature broadcasts took the air over the entire Canadian network, from November 4 to 11. Program pamphlets were distributed to the trade in advance. The campaign concluded with a gala broadcast on Armistice Day.

Look what has happened to Radio performance in the past five years!

Increase in MUSICAL RANGE



Improvement in SELECTIVITY



Increase in undistorted VOLUME



Improvement in SENSITIVITY



These "yardsticks of performance," carried in the Canadian campaign ads, are excellent copy and could be used to advantage by American dealers.

If your radio is **6** years old—
it lacks a **Dynamic Speaker**

If your radio is **5** years old—
it lacks **"Screen-Grid"**

If your radio is **4** years old—
it lacks **Automatic Volume Control**

If your radio is **3** years old—
it lacks **Tone Control**

If your radio is **2** years old—
it is not a modern **Superheterodyne**

Another way of presenting tangible proof of radio design progress. Should stimulate the replacement business and be used again and again.

TUBE TIDINGS

December, 1933

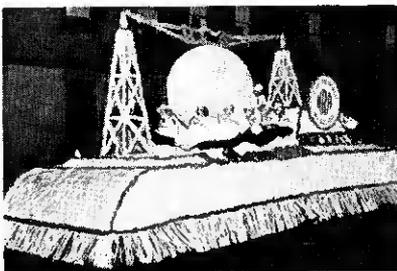
E. T. Cunningham, Inc.—RCA Radiotron Co., Inc.

Camden, N. J.

NRA Parade Shows C-R Payroll Gains

Tube Workers Form Large Unit of Parade

Several thousand employees of RCA Radiotron and Cunningham tube companies took part in the NRA parade and employment demonstration held in Harrison, N. J., November 10th. Workers from the great tube laboratories and factory formed the largest unit of the parade. Between 12,000 and 15,000 persons, representing 48 industries, formed an impressive calvalcade.



RCA Radiotron Float in NRA Parade

Color was lent to the huge gathering by the many decorated floats. Both RCA Radiotron and Cunningham were represented by floats symbolic of the radio industry and embellished with some of the prettiest young ladies of the plant.

7,500 Dealers Join "3 Sales Opportunities" Activity All Types of Dealers Eligible

Enrollments continue at a rapid rate in the "3 Sales Opportunities" activity, the latest dealer cooperative effort of RCA Radiotron and Cunningham. Over 7,500 dealers had joined the campaign on November 29.

Two features of the activity remove all reason for hesitation on the part of dealers. First, dealers are convinced by the unselfishness of the plan. Many sales promotional programs designed by manufacturers place undue emphasis on the particular product sold by the manufacturer. "3 Sales Opportunities," however, definitely creates opportunities for sales in all branches of the radio business, sets, tubes, and service. It is so flexible that any type of dealer or service man can adapt the plan to his own situation.

Secondly, the dealer takes no risk in trying out the plan, since material for a test campaign is furnished free by Cunningham-Radiotron. There are no strings to the offer whatsoever.

"Despite the fact that the dealer is not required to buy either tubes or material to try the plan, most dealers are so certain the plan will produce that they accompany their requisition for free material with an order for additional material," stated W. J. Flannely, manager of the Chicago warehouse of RCA Cunningham-Radiotron.

C-R Sales Plan Material in Big Demand by Dealers Everywhere

SKYSCRAPER COULDN'T CHANGE HIM NOW

"Just a few lines to let you know some of my experiences with radio tubes.

"About two years ago, I decided to try another brand of tubes, just because they allowed a larger discount, but, much to my surprise, my sales started to drop off immediately. But, I laid it to the depression. After about eight months I decided to try R. C. A's and Cunninghams again, and within a few weeks my business started to pick up again, and also the amount of complaints on defective tubes decreased.

"I wouldn't change from them now if they offered me the Chrysler Tower. I also think it is pretty swell the way you are backing the radio industry and dealers."

—Part of a letter from John W. Zipoy, 2300 E. 26th Street, Minneapolis, Minnesota.

Tiny Tubes Attract Attention

Interest in the new "shoe-button" tubes for experimental, ultra-short-wave use, which were developed in the Cunningham-Radiotron Research Laboratory and recently presented before the Institute of Radio Engineers, has been widespread. The tiny tubes, measuring a little over one-half inch in diameter, have been the subject of articles in *Popular Mechanics* and elsewhere. These tubes, designed for use at wave-lengths of less than one meter, actually work in the same manner as ordinary tubes. Engineers believe they may have great future possibilities in the short-wave field. They are not available commercially.

HOW MUCH WILL IT COST ME TO TRY THE 3 SALES OPPORTUNITIES PLAN?

NOTHING! GET A REQUISITION FOR FREE MATERIAL FROM YOUR CUNNINGHAM OR RADIOTRON DISTRIBUTOR.

Free Sample Material Proves Merit of Plan; Dealers Continue Activity

After testing out the "3 Sales Opportunities" Plan with the free material given to all dealers requesting it through their distributors, several thousand dealers have ordered additional supplies of Radio Tours Maps and Patented Action Postcards in order to continue with the activity on a larger scale.

"I don't know so much about 'the proof of the pudding being in the eating,' but from my experience I do know that the proof of a sales plan is the way dealers invest their hard-earned dollars in it," said D. J. Finn, who handles sales promotional material for Cunningham-Radiotron in Chicago.

"Never before have dealers responded so promptly with such large orders for material as they have for this '3 Sales Opportunities' campaign. Some of the letters accompanying the orders show clearly, I think, the trend of the times in the tube business."

Excerpts from several letters follow:

S. R. MONTCALM
Consulting Engineer
Chatham, New Jersey

Nov. 7, 1933.

RCA Radiotron Co., Inc.
Camden, N. J.

I have your letter of Nov. 6, and am ordering a supply of advertising material . . . I am running short of tubes, am handling another brand, and by ordering your material am definitely committing myself to Radiotrons, which I am sure will be to my advantage. Please make up and ship as soon as possible the following: (Here follows an order for \$24.35 worth of sales promotional material, including 600 Radio Tours Maps and 1200 Patented Action Postcards.)

From the looks of things we are going to need sales helps.—tips, pep, inspiration, and what have you—before things get back to abnormal again . . . My check for \$24.35 is enclosed . . . for Heaven's sake don't hold up the entire shipment until it is all quadruple checked. I want to get some of this in the mail as soon as it arrives.

(Signed) S. R. Montcalm

Crispo's Auto, Radio
and Electric Store
Buffalo, New York

Nov. 15, 1933.

RCA Radiotron Co., Inc.
Camden, N. J.

I have this day received your Radio Sales Opportunities Book, and I am well pleased with it. I have been selling RCA tubes for eight years and have very few comebacks . . . I wish that you would send me the window display and the following other material shown in the book . . .

I want to thank RCA for trying to help me sell tubes.

Yours very truly,
A. R. Crispo

The following is taken from a letter to the Cunningham-Radiotron Sales Promotional Department from H. I. VanDuzer, C-R representative in Pittsburgh:

"Mr. John Henk, of Columbia Music Store, did not like it at all when you wrote him that we had no more of the old logs and suggested he take Radio Tours Maps instead. He had already written you to return his check when I called on him. When I showed him the Maps he changed his mind however. Enclosed is his check in larger amount. Please send him 500 Maps instead of the 100 of the old log books."

50% of Passers-by Stopped; 20% Entered Store for Map

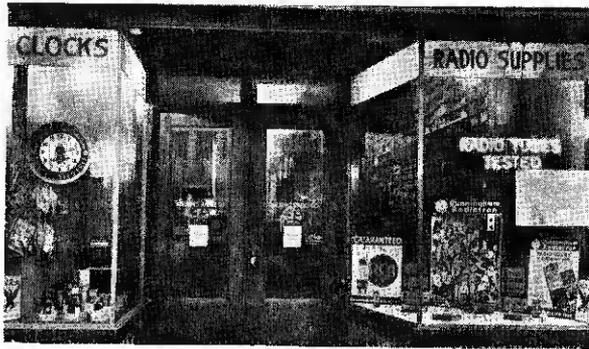
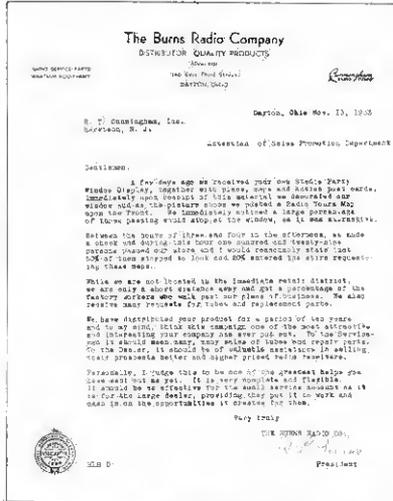
C-R Window Display Is Big Success for Dayton Store

That sound merchandising principles are cleverly utilized in the "3 Sales Opportunities Plan" and are responsible for the remarkable results obtained from the window display which is given free to participating dealers, was the gist of a statement made recently by C. R. King, Sales Manager for RCA Cunningham-Radiotron.

As proof, he cited the case of the Burns Radio Store, of Dayton, Ohio, whose display and statement regarding the effectiveness of the display are shown here.

"It is a good display that people notice as they pass," said Mr. King. "It is an even better display that people stop to examine. But it is a rare display that brings people into the store the way this one does."

"Furthermore, our Fall sales activity does not stop with bringing people into the store. The perfectly natural procedure is to demonstrate a late model set while explaining the Map. The Plan also makes it easy to get prospect information from casual visitors to the store. In short, the Plan earns its title; it creates '3 Sales Opportunities'—sets, tubes, or service."



Short-Wave Sets Revive Installation Business

E. T. Cunningham Points Out Plus Sales Opportunities

The growing popularity of short-wave and all-wave radios points to a big revival in professional aerial installations, in the opinion of E. T. Cunningham, President of RCA Radiotron Company and founder of E. T. Cunningham, Inc.

"A good aerial is an important factor in all-wave performance," said Mr. Cunningham. "In many cases dealers find it advisable to install shielded lead-ins, and in some cases noise suppressors are desirable. In other words, the interest in all-wave reception presents a real opportunity for aggressive service merchandising. All this ties in perfectly with Opportunity No. 2 of '3 Radio Sales Opportunities'."

Chicago World's Fair to Reopen in 1934

Plans to reopen Chicago's Century of Progress Exposition for the 1934 season are now definitely under way.

At the 1933 Fair, more than 4,000,000 persons visited RCA Hall, which was widely acclaimed as one of the most interesting exhibits of the show. Next year RCA Hall will again welcome visitors and again they will be impressed with the outstanding leadership of RCA Radiotrons and Cunningham Radio Tubes.

Higher Prices Expand Air Cell Market

"With the rise in prices of farm products, the tremendous undeveloped market for battery-operated radio sets—and battery tubes—represents still another radio sales opportunity in addition to those we are stressing in our Fall campaign," comments T. F. Joyce, C-R Sales Promotion Manager. "Dealers should bear in mind that 10,000,000 of the nation's homes—one out of three—are unwired. People in these homes can listen to today's splendid broadcasts only through battery-powered receivers."

Air Cell Drive Under Way

"Air Cell Radio News," a 36-page tabloid-style newspaper recently issued by National Carbon Company, makers of Eveready Air Cells, is a veritable encyclopedia of the battery-operated radio industry. Twenty brands of Air Cell receivers are represented by advertisements and news stories. Manufacturers, distributors, editors of farm and trade papers, and leaders in political life are quoted as to the new possibilities of the farm radio set business.

C-R Battery Tubes Stressed

A full line of 2-volt tubes suitable for use with Air Cells is available to dealers in the RCA Radiotron and Cunningham Radio Tube lines. The C-R advertisement in Air Cell Radio News points out that the dealer who equips his battery sets with RCA Radiotrons or Cunningham Radio Tubes and Eveready Air Cell batteries has the selling advantage of an unbeatable combination of brand names—names that eliminate sales resistance.

Short-Wave Tours Maps Welcomed by DX Fans

Maps Have Unusual Accuracy

That long-suffering short-wave radio listeners have hailed the World-Wide Short-Wave Radio Tours Maps with delight is indicated by the comments received at the Cunningham-Radiotron offices.

Data from Original Sources

No trouble or expense was spared to make the Short-Wave Radio Tours Maps both accurate and interesting. At the start of the preparation of the Maps it was discovered that no wholly reliable information on short-wave stations and programs was available. It was necessary to develop all data from original sources.

To make the next edition of World-Wide Short-Wave Radio Tours Maps still more valuable, a questionnaire has been sent to all known short-wave stations throughout the world that broadcast on a regular schedule. Thus the next edition will be even more complete and interesting than the present one.

Approved by Engineers

"We have yours of November 17, together with Short-Wave Radio Tours Map for which we thank you. In our opinion this map is the best yet," is the opening paragraph of the reply to the questionnaire from W. A. Shane, Chief Engineer Station VE9GW, operated by the Canadian Radio Broadcasting Commission.

"We have just received a copy of the Short-Wave World-Wide Radio Tours Map and in our opinion it is the best map of its kind we have seen to date, and we are unable to make any suggestions which might improve it," writes D. A. Myer, Plant Manager of Westinghouse Stations KDKA-W8XK.

Short-Wave World-Wide Radio Tours Maps are one of the featured sales promotional items of the "3 Radio Sales Opportunities" activity sponsored by RCA Cunningham-Radiotron.

Lighted Electric Clock Has Great Display Value



For window or interior display, an accurate clock has few equals in attention value. The clock illustrated, with a 20 inch glass face brilliantly illuminated from the rear, is an unusual bargain at \$5. It is available for either RCA Radiotron or Cunningham Radio Tube dealers.

Merchandising



By Richard Gilbert

THIS month's releases contain some extremely excellent material for use in demonstrating the powers and refinements of the new model phonograph combinations. Mediocre recordings will not show off the electrical phonograph to its best advantage no matter how fine the instrument's qualities, and it never pays to demonstrate with any record at hand.

Demonstration Records

Victor engineers have obtained what we consider the finest tone quality ever to be recorded on a lateral cut disc in the superb playing of the Philadelphia Orchestra of excerpts from Wagner's great music drama, *Götterdämmerung* (Twilight of the Gods), under the direction of Dr. Leopold Stokowski, a radio favorite. The frequency characteristics of this marvelous recording are unsurpassed. You will surprise many of your customers, regardless of their taste for Wagner, with the superb string tone available from the last inch of part 3 (first side of the second record) and the first few inches of part 4 (B side of the second record). Also, show off the bass trumpet, clarinet and cellos at the beginning of part 1. As a matter of fact, almost any place on any of the five discs in this album (Victor Masterpiece set No. 188) provides amazing orchestral realism. Play these records for yourself and see that your clerks become acquainted with their astounding felicities. The familiar *Siegfried's Journey to the Rhine* and *Funeral March* are included. The long-playing set is in no way inferior to the 78 r.p.m. recording. By all means cease demonstrating the early long-players of a year or two ago (many of which are flops) and show your clients that the recent marathon discs are quality records and here to stay.

A fine dance band recording is Ray Noble's *Roll Up the Carpet* (Victor No. 24420), a captivating tune, and a crystal-clear recording. Keep the above discs near your best combination and instruct your salespeople to use them for demonstration. If the customer shies at Wagner, play the string passage mentioned, and then switch over to the Ray Noble discs. Listen to these records yourself, and you'll see the value of this recommendation.

Too many dealers continue to choose ordinary recordings for demonstrations, when records such as these provide a

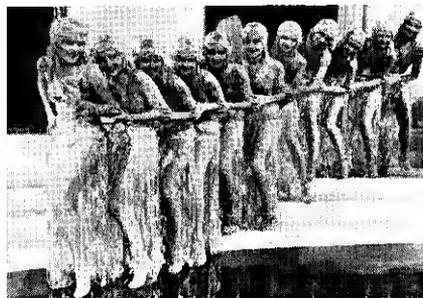
sock calculated to amaze the prospect with the power and reality of present-day phonography.

How to Merchandise Movie Song Hits

About fifty per cent of the best popular hits today emanate from studios at Hollywood. Nearly every entertaining picture has a theme song. The biggest box-office attractions are pictures featuring musical numbers. The success of *Forty-Second Street*, *Gold Diggers*, *College Humor* and *Footlight Parade* (not to fail mentioning Mae West's musical moments) signify that the public is interested in well-presented tunes. Even the fascinating short, *The Three Little Pigs*, set the whole country singing *Who's Afraid of the Big, Bad Wolf*.

The disc manufacturers are releasing these movie hits as fast as the picture producers say the word. It's up to the dealer to cash in on a tie-up which has been proven to net results. Get in touch with your local picture exhibitor.

On the next page we have listed records of songs from the most important current musical pictures. A footnote gives the titles of future musical movie releases. If you live in a first or second class city, look up the producer's name in your phone book (there's bound to be a local exchange), and call this office to ascertain when the pictures listed here, if they haven't already appeared in your locality, are due and where. Dealers in smaller cities and towns will do well to contact local exhibitors directly at their theatre offices. With this information at hand, make a bargain with the theatre manager to exchange displays. Put his cards in your windows and record



Production scene from United Artists picture "Roman Scandals" starring Eddie Cantor

booths and make a large cardboard display, mounting copies of the records, showing the hits recorded and YOUR STORE, where they may be procured, to be placed in the theatre lobby. Also make a deal to use the theatre programs. In short, contact these movie customers and get them on your mailing list. Many up and going record dealers are using these methods to get customers into their store. See if your local picture exhibitor is willing to exchange mailing lists. One California store distributes thousands of disc leaflets and folders in the weekly programs of four theatres; many other shops are doing likewise and finding it profitable.

Display "stills" from the pictures in town in your windows. A large picture of Mae West, for example, in the middle of your window, with the title of her songs printed around it, and ribbons leading from them to displayed records, will tell a graphic recorded music story. The disc distributors are supplied with such display material and will pass it along to you for the asking.

Meanwhile, in beginning such a campaign to stimulate record sales, check list on page 28. Then use it for quick ready-reference at the sales counter. A number of these recordings may not be available immediately (we checked all the recording studios for information).

Watch particularly for the local appearance of *Roman Scandals*, featuring Eddie Cantor; *Going Hollywood*, featuring Bing Crosby, and *Sitting Pretty*, featuring Jack Oakie, Ginger Rogers, and Jack Haley. There's some especially tuneful numbers in these pictures. The music for *Roman Scandals* is by Warren & Dubin, of *Forty-Second Street* and *Gold Diggers* fame. The songs from *Sitting Pretty* are by Gordon & Revel.

As this department has pointed out again and again, phonograph records will sell—but they've got to be pushed. The more you push this item the more remunerative it is bound to become. Getting the phonograph prospects into your store is the first step. Giving them adequate service and demonstration is the second. The mailing list is the chief factor in the promotion of a healthy disc business. The movie house tie up, properly dispatched, will take care of the popular music trade.

For check list of latest musical movie song hits see page 28.

Smashing new hits



on **VICTOR** **RECORDS** for the **HOLIDAY TRADE**



A Great Children's Market . . . RCA Victor again leads the parade with **PICTURE RECORDS** of The Big, Bad Wolf . . . Mickey Mouse . . . Silly Symphonies—in addition to the newest Red Seal and popular records

You've been waiting for 'em—and here they are! Three Walt Disney records . . . in an attractive holiday package. On each record are *pictures in color* of the famous Walt Disney characters: The Three Little Pigs, The Big, Bad Wolf, Mickey and Minnie Mouse and the Silly Symphony animals. The songs are: "Who's Afraid of the Big, Bad Wolf", "Mickey Mouse and Minnie's in Town", "Silly Symphonies", "Lullaby Land of Nowhere", "Dance of the Bogey Man". They'll all sell like fur mittens in Alaska—so get your order in *today!* List price for the package, \$1.75.

Then, of course, with the way records are selling nowadays, everyone wants Victor's popular records, with cream of the artists—Rudy Vallée, Paul Whiteman, Cab Calloway, Duke Ellington, Eddy Duchin, Ray Noble, Ramona, Conrad Thibault, Don Bestor, Louis Armstrong, Jan Garber, Hoagy Carmichael and many others. In Red Seal, Victor leads too, with Stokowski and the Philadelphia Orchestra, Lawrence Tibbett, Yehudi Menuhin and all the best of the operatic and concert world.

Get ready for the holidays with Victor Records. There's extra money in them for you—because people ask for them. See your Victor distributor immediately.



Stokowski



Tibbett



Menuhin



Vallée



Duchin



Calloway



RCA VICTOR

RCA VICTOR CO., Inc.
Dept. RR, Camden, N. J.
Please give us information about the Victor Record proposition.

Name.....
Address.....
City..... State.....

MUSICAL MOVIE HITS



ONE OF THE NEW "PICTURE RECORDS"

Note: The preceding page tells how to use this list to the greatest advantage. "O" denotes "orchestra"—"V" signifies "vocal" recordings.

AFTER TONIGHT (RKO Radio Picture)
Buy a Kiss
Henry King—O (Victor)

BROADWAY THROUGH A KEYHOLE
(United Artists)
Featuring Constance Cummins, Russ Columbo, Frances Williams Eddie Foy, Jr.

Do in the Uptown Lowdown
Joe Venuti—O (Columbia 2834)
Mildred Bailey—V (Brunswick 6680)
Isham Jones—O (Victor 24409)
Abe Lyman—O (Brunswick 6674)
You're My Past, Present and Future
Ruth Etting—V (Brunswick 6671)
Isham Jones—O (Victor 24409)
Abe Lyman—O (Brunswick 6672)
When You Were the Girl on the Scooter
Abe Lyman—O (Brunswick 6674)
Peggy Healy, Al Dary and Roy Bargy—V (Victor 24452)
Harry Reser—O (Columbia 2832)

BRIEF MOMENT (Columbia Picture)
Featuring Carole Lombard and Gene Raymond
Say What You Mean
Jan Garber—O (Victor 24446)

COLLEGE COACH (Warner Bros.)
Featuring Dick Powell and Ann Dvorak
Lonely Lane
Eddy Duchin—O (Victor 24441)
Dick Powell—V (Brunswick 6685)

DANCING LADY (Metro-Goldwyn-Mayer)
Featuring Joan Crawford and Clark Gable
My Dancing Lady
Rudy Vallée—O (Victor 24453)
Freddie Martin—O (Brunswick 6677)
Ben Selvin—O (Columbia 2844)
Everything I Have Is Yours
George Olsen—O (Columbia 2842)
Rudy Vallée—O (Victor 24453)
Freddie Martin—O (Brunswick 6677)
Ted Weems—O (Victor)
Let's Go Bavarian
George Olsen—O (Columbia 2842)

FLYING DOWN TO RIO
(RKO Radio Picture)
Featuring Ginger Rogers, Dolores Del Rio, Fred Astaire, Raoul Roulien
Flying Down to Rio
Rudy Vallée—O (Victor)
Orchids in the Moonlight
Rudy Vallée—O (Victor)

GOING HOLLYWOOD (Paramount Picture)
Featuring Marion Davies, Bing Crosby
After Sundown
Bing Crosby—V (Brunswick 6694)
Eddy Duchin—O (Victor)
Eric Madriguera—O (Columbia 2849)
Beautiful Girl
Bing Crosby—V (Brunswick 6694)
Cinderella's Fella
Ferde Grofé—O (Columbia 2851)
Ted Fio Rito—O (Brunswick 6705)
Sammy Robins—O (Victor)
Our Big Love Scene
Bing Crosby—V (Brunswick 6696)
Leo Reisman—O (Victor)
Bernie Cummins—O (Columbia 2848)
Wayne King—O (Brunswick 6712)

Temptation
Ferde Grofé—O (Columbia 2851)
Bing Crosby—V (Brunswick 6695)
Ted Fio Rito—O (Brunswick 6705)
We'll Make Hay While the Sun Shines
Bing Crosby—V (Brunswick 6695)
Eric Madriguera—O (Columbia 2849)
Leo Reisman—O (Victor)
Ted Fio Rito—O (Brunswick 6706)

HIPS HIPS HURRAY (RKO Radio Picture)
Featuring Wheeler and Woolsey, Ruth Etting, Dorothy Lee
Tired of It All
Casa Loma—O (Brunswick)

I'M NO ANGEL (Paramount Picture)
Featuring Mae West and Gary Grant
I'm No Angel
Mae West—V (Brunswick 6675)
Romona with Roy Bargy—V (Victor 24440)
Gus Arnheim—O (Brunswick 6683)
I've Found a New Way to Go to Town
Mae West—V (Brunswick 6675)
Ramona with Roy Bargy—V (Victor 24440)
Don Redman—O (Brunswick 6684)
I Want You—I Need You
Mae West—V (Brunswick 6676)
Gus Arnheim—O (Brunswick 6683)
Harry Reser—O (Columbia 2832)
Isham Jones—O (Victor)
That Dallas Man
Don Redman—O (Brunswick 6684)
Isham Jones—O (Victor)
They Call Me Sister Honky Tonk
Mae West—V (Brunswick 6676)

JIMMY AND SALLY (Fox Film)
You're My Thrill
Joe Haymes—O (Victor)
It's the Irish in Me
Joe Haymes—O (Victor)

JOE PALOOKA (United Artists)
Featuring Jimmy "Schnozzle" Durante, Lupe Velez and others
Count Your Blessings
Ferde Grofé—O (Columbia)
Guy Lombardo—O (Brunswick)
Inka Dinka Doo
Guy Lombardo—O (Brunswick)
Ferde Grofé—O (Columbia)

LET'S FALL IN LOVE (Columbia Picture)
Featuring Harold Arlen
Let's Fall in Love
Harold Arlen—V (Victor)
This Is Only the Beginning
Harold Arlen—V (Victor)

MEET THE BARON
(Metro-Goldwyn-Mayer)
Featuring Jack Pearl
Clean as a Whistle
Tom Coakley—O (Brunswick 6702)

MOULIN ROUGE (United Artists)
Featuring Constance Bennett, Franchot Tone and others
Boulevard of Broken Dreams
Hal Kemp—O (Brunswick)
Coffee in the Morning
Boswell Sisters—V (Brunswick)
Song of Surrender
Wayne King—O (Brunswick)
Boswell Sisters—V (Brunswick)

MY LIPS BETRAY (Fox Films)
Featuring Lilian Harvey and John Boles
Why Am I Happy
Ted Weems—O (Victor)

MYRT AND MARGE (Universat)
What Is Sweeter
Ruth Etting—V (Brunswick 6671)

THE PRIZEFIGHTER AND THE LADY
(Metro-Goldwyn-Mayer)
Featuring Myrna Loy and Max Baer
Lucky Fella
Tom Coakley—O (Brunswick 6702)

THE ROAD IS OPEN AGAIN
(NRA Short)
The Road Is Open Again
Dick Powell—V (Brunswick 6685)

ROMAN SCANDALS (United Artists)
Featuring Eddie Cantor, Ruth Etting and others. Music by Dubin and Warren.
Build a Little Home
Abe Lyman—O (Brunswick 6699)
Eddy Duchin—O (Victor 24447)
Ruth Etting—V (Brunswick 6697)
Barney Rapp—O (Victor)

Keep Young and Beautiful
Meyer Davis—O (Columbia)
Abe Lyman—O (Brunswick 6698)
No More Love
Eddy Duchin—O (Victor 24447)
Ruth Etting—V (Brunswick 6697)
Abe Lyman—O (Brunswick 6698)
Barney Rapp—O (Victor)
Rome Wasn't Built in a Day
Abe Lyman—O (Brunswick 6699)

STATE MOTHER (Metro-Goldwyn-Mayer)
Featuring Alice Brady, Maureen O'Sullivan, Ted Healy and others
Beautiful Girl
Don Bestor—O (Victor 24432)
Bernie Cummins—O (Columbia 2828)
Freddie Martin—O (Brunswick 6659)
I'm Dancing on a Rainbow
Don Bestor—O (Victor 24432)
Freddie Martin—O (Brunswick 6659)
Bernie Cummins—O (Columbia 2828)

TAKE A CHANCE (Paramount Picture)
Featuring James Dunn, June Knight, Lillian Roth, Cliff Edwards and Charles "Buddy" Rogers
Night Owl
George Olsen—O (Columbia 2811)
Hal Kemp—O (Brunswick 6648)
Paul Whiteman—O (Victor)
It's Only a Paper Moon
Conrad Thibault—V (Victor 24424)
George Olsen—O (Columbia 2811)
Hal Kemp—O (Brunswick 6648)
Paul Whiteman—O (Victor)

SITTING PRETTY (Paramount Picture)
Featuring Jack Oakey, Ginger Rogers, Jack Haley, Pickens Sisters and others. Music by Gordon and Revel.
Did You Ever See a Dream Walking
Pickens Sisters—V (Victor)
Guy Lombardo—O (Brunswick 6713)
Lee Sims—Piano (Brunswick)
Reggie Childs—O (Victor)
Meyer Davis—O (Columbia 2852)
Good Morning Glory
Pickens Sisters—V (Victor)
Jay Whidden—O (Brunswick 6688)
I Wanna Meander with Miranda
Jay Whidden—O (Brunswick 6688)
Many Moons Ago
Pickens Sisters—V (Victor)
Jay Whidden—O (Brunswick 6689)
Meyer Davis—O (Columbia 2852)
You're Such a Comfort to Me
Pickens Sisters—V (Victor)
Jay Whidden—O (Brunswick 6689)



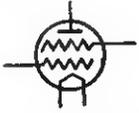
"Sitting Pretty" with Jack Oakey, Jack Haley and Ginger Rogers (Paramount)

TORCH SINGER (Paramount Picture)
Featuring Claudette Colbert
Give Me Liberty or Give Me Love
Mildred Bailey—V (Brunswick 6680)

THE WAY TO LOVE (Paramount Picture)
Featuring Maurice Chevalier, Ann Dvorak
It's Oh, It's Ah
Freddie Martin—O (Brunswick 6690)
Bernie Cummins—O (Columbia 2838)
I'm a Lover of Paece
Ted Weems—O (Victor)
In a One Room Flat
Bernie Cummins—O (Columbia 2838)
Ted Weems—O (Victor)
Freddie Martin—O (Brunswick 6690)

THE WORST WOMAN IN PARIS
(Fox Film)
Featuring Adolf Menjou and Benita Hume
Love Passes Me By
Gus Arnheim—O (Brunswick 6693)

SERVICE AND INSTALLATION SECTION



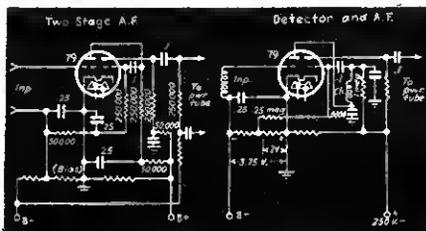
CIRCUITS of the MONTH

Resistance Coupled TRF

Resistance coupled trf., something we have not seen in many years, is again employed in Bosch's model 140A auto superhet. A 78 is thus fed into a 6A7 detector-oscillator, the plate load being 20,000 ohms, blocking capacity .0001 mfd. and 6A7 gridleak 100,000 ohms. The trf. input circuit is, of course, tuned.

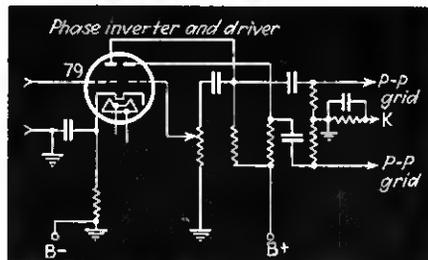
79 As Detector, Phase Inverter Cascade A.F. Tube

The 79, while designed primarily for use as a Class B amplifier, can, according to Radiotron engineers, be used with both triodes in parallel, as a two stage cascade a.f. amplifier, biased detector and a.f. tube or as driver and phase inverter for resistance coupled push-pull amplifiers.



When used as a two stage amplifier the circuit shown is used, requiring plate supply with low ripple content. By putting 50,000 to 100,000 ohms in the grid return of the first unit and changing the .25 input condenser to 10 or 15 mfd. the circuit is rendered less critical with respect to hum input. When used as biased detector and amplifier the two triodes of the 79 are resistance coupled, as shown in the second schematic.

Driver, phase reverser action is obtained by using the circuit shown in the third diagram. Here one triode amplifies incoming signal and the grid of a power tube is fed from its plate load. The other triode is driven from the output of the first unit and its output is in turn used to drive the grid of the second power tube, voltage being 180 degrees out of phase in these two circuits. The variable

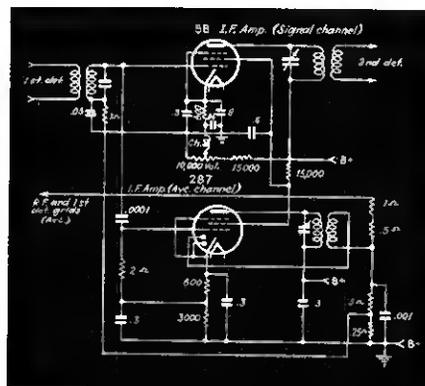


resistor in the grid circuit of the second unit permits plate loads to be perfectly balanced and is essential to correct operation.

2B7 As AVC Tube. A.C. Remote Control Relay

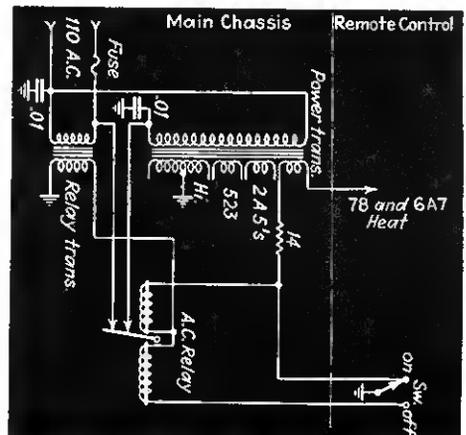
The use of separate tubes for a.v.c. is not new but in Stromberg-Carlson's Telektor-et models 55 and 56 a 2B7 duodiode pentode used for this purpose produces an unusual circuit. A 58 is used as i.f. amplifier and signals pass through this channel to the 2nd detector. I.f. is also applied to the control grid of the 2B7 through a .0001 condenser and, amplified, carried back to a diode by the secondary of a sharply tuned transformer in the pentode's plate circuit.

Amplified i.f. is thus rectified in the diode circuit, producing a d.c. voltage which varies in proportion to incoming signal voltage. This is applied to r.f. and 1st detector control grids, automatically controlling their gain. Also, part



of the a.v.c. voltage is applied to the 58 control grid through a .1 megohm filter resistor, providing additional automatic control in the signal i.f. stage. Manual volume control is achieved by varying the position of the 58 cathode tap on a 10,000 ohm potentiometer connected, in series with a 16,000 ohm fixed resistor, across the plate supply. (Noise suppression system not shown in diagram.)

There are several other innovations in these two-unit receivers having separate r.f. amplifier, first detector and oscillator units for remote control. The antenna post is connected at the speaker-amplifier but in model 56 simply passes from there to the r.f. amplifier via a



shielded lead in the flat connector cable while in model 55 a balanced transmission line with matched transformers at each end is used.

The line switch of both the 55 and 56 is at the remote unit but in the 56 the 110 a.c. passes through the connector tape to the switch while in the 55 high voltage a.c. is excluded from the cable by using an a.c. relay. The transformer used to energize the s.p.d.t. relay windings is a small, low voltage type and its primary "floats" on the line in much the same manner as that of a bell-ringing transformer. Only one separate wire is required in the connector cable for the 3-wire relay system as the common ground connection (chassis) is used for the switch arm lead while a wire carrying 12 volts a.c. to the series operated 78 and 6A7 heaters of the remote unit serves double-duty as a second.



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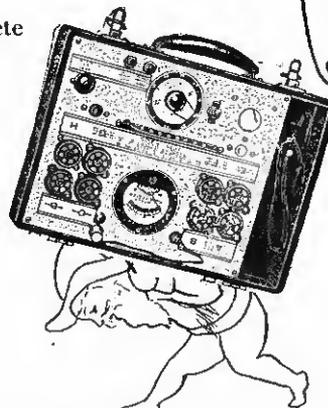
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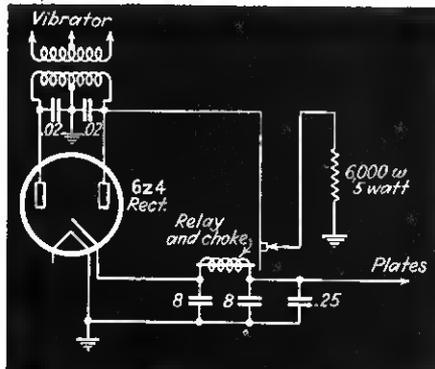
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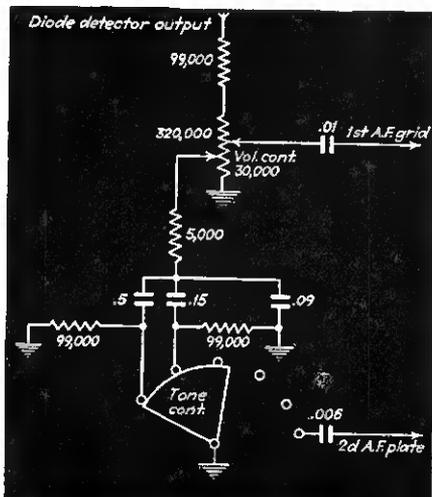


"dummy" 6,000 ohm load across half the power transformer secondary. When tubes heat and draw plate current through the relay winding the dummy load is disconnected, the winding serving also as a filter choke.

Volume Compensated Tone Control

Philco models 14 and 91 employ somewhat unusual volume and tone control circuits. Tone may be varied in four distinct steps by rotating a "fan" switch and, in three of these, bass response is apparently increased at minimum volume control settings.

Considering the volume control first, note that it is tapped 30,000 ohms from the minimum position and that a.f. is bypassed to ground from this tap through a 5,000 ohm resistor, and any tone control capacitors which may be in the circuit. This circuit is responsible for bass compensation. Now, with reference to the tone control, note that in the position shown in the diagram the three bypass condensers are in parallel, that in the next position two are in parallel and that in the next only the .09 bypasses a portion of the diode load re-

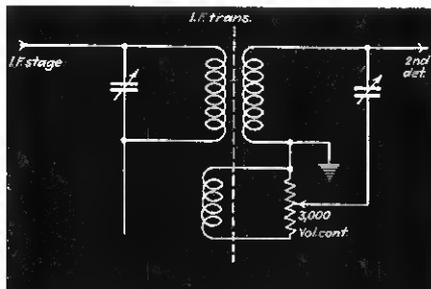


sistor. These settings give "mellow," "bright" and "brilliant" response.

When the switch is set in the fourth position a .006 condenser shunts the primary of the second a.f. transformer, reducing high frequency response for operation through static or background noise or reducing needle scratch where a pickup is used.

Volume Control Varies I. F. Coupling

In certain of the older Colonial models the i.f. transformer windings were spaced rather widely. A "slip ring," or closed loop of wire, over both coils was used as manual volume control, varying the coupling. The same stunt is used in models 128A, 128B, 250AC, 279AC and 300 AC only a separate winding, in the i.f. transformer inductive field, and a 3,000 ohm potentiometer turn the trick.



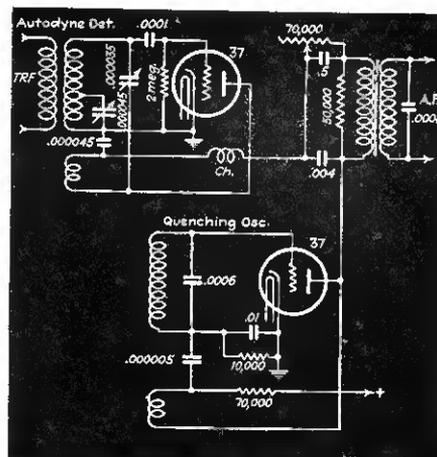
Super-Regenerative Police Receiver

Servicemen may not run across super-regenerative rigs for a blue moon but ultra high frequencies are coming along with such a rush that it'd be a good idea to bone up on the subject "just in case" . . . Here's the detector-quench oscillator schematic of RCA's new 29-36 megacycle receiver for police cars (78 trf., 37 det., 37 quench osc., 37 first a.f., 89 p.a. and vibrator type eliminator.)

Oldtimers will remember that regenerative detectors adjusted near the spill-over point sometimes exhibited a spurt in volume an instant after the switch was turned off. Non-technically speaking, this occurred because the shock of interrupted voltage pushed the tube just beyond the critical point and then was completely cut off before sustained oscillation started. Major Armstrong discovered that a regenerative detector could be held at an extremely sensitive point by interrupting plate or grid voltage automatically with a "quenching" oscillator working at or near audio frequency.

In the set partially diagrammed the detector is a simple Colpitts autodyne. It receives plate voltage through a 70,000 ohm resistor which is also common to the quench oscillator plate circuit. The quench oscillator draws plate current each half cycle, the drop across the resistor increasing at such times, hence detector plate voltage is varied at a rate dependent upon quench oscillator frequency.

The .5 and .004 mfd. condensers, plus the 5,000 ohm a.f. transformer primary



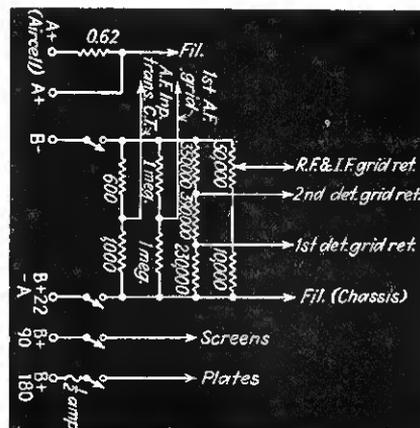
shunt and .0008 mfd. secondary shunt, filter the quench oscillator signal out of the a.f. amplifier. The .00035 mfd. variable, and another like it in the trf. circuit, control frequency while the 70,000 ohm variable resistor serves as manual regeneration adjustment. These are screwdriver adjusted. Volume is controlled by means of a potentiometer in the second a.f. input.

The super-regenerative circuit, incidentally, is quite broad, a useful defect at high frequencies, where the necessity for critical tuning would be extremely bothersome. It is, furthermore, peculiarly insensitive to extraneous noise.

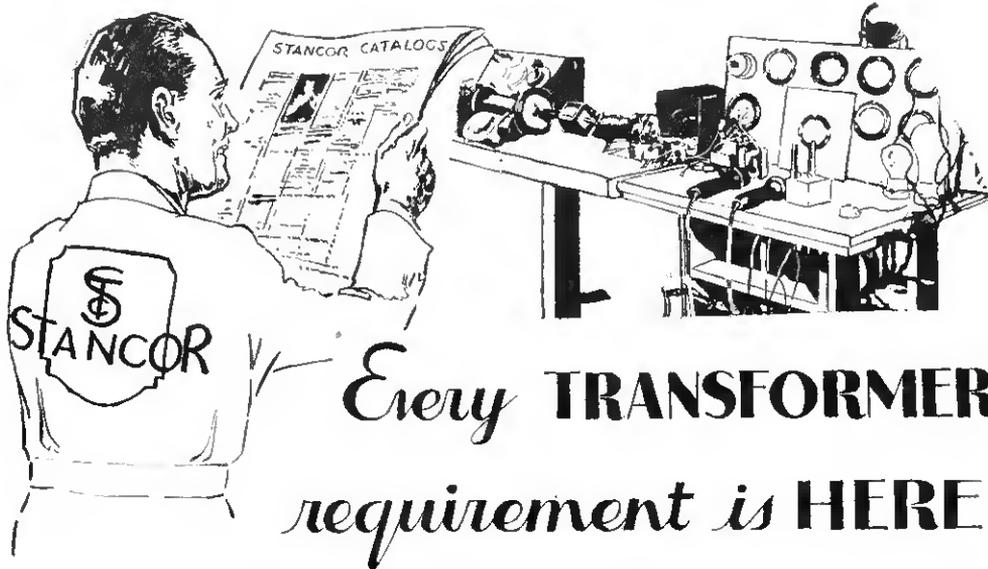
External Bias for Battery Super

GE battery models B81 and B86 have somewhat unique tone control and local-dx switch circuits. The final, push-pull 30 stage is wired along usual lines but a .025 mfd. condenser may be switched across half the input transformer secondary to reduce highs. When receiving locals another switch simply disconnects the antenna to prevent overload.

The negative to 22½ plus section of the B-block is used for external bias in this super, potentiometer resistors breaking the voltage available in this section down to proper values for application to the various grids. The 22½ plus tap is connected to filaments, hence plate current flows only in the 22½ plus



to 180 plus portion of the B-block. So don't misinterpret the resistors as self-bias gadgets. Plate current does not flow in them.



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Tube Checker Design

Fundamental circuits of d.c. and a.c. grid-shift and emission testers. How to locate shorts, measure cathode leakage, gas content, noise. Rectifier, diode and double Class B readings

By O. J. MORELOCK, JR.

Radio Engineering Div.,
Weston Electrical Instrument Corp.

WITH so many types of radio tubes now in commercial use the subject of tube testing becomes one of primary importance to serviceman and dealer. A general discussion of tube checking covering all methods of testing with particular emphasis on the fundamental circuits involved should therefore be of general interest.

Let us first consider those checkers employing a shift or change in grid bias with resultant plate current change. This general type of tester may belong to one of two groups, namely "static" or d.c. bias shift, and "dynamic" or a.c. grid shift.

Grid-Shift

The general circuit of a tester employing direct current grid shift is shown in Fig. 1. In this diagram the

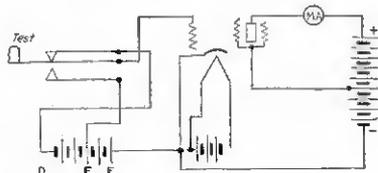


Fig. 1—D.C. grid-shift

tube is normally biased by the grid voltage DF. By pressing the test key, the grid bias is reduced to EF, shifting the control grid bias DE volts. The milliammeter in the plate circuit, which showed a relatively low current reading with the high bias voltage DF, will indicate a proportionately higher reading when the grid bias is shifted to the lower value EF. If the plate, screen and other potentials have remained constant then the change in plate current resulting from a shift of DE volts grid bias is proportional to the efficiency of the tube and is, therefore, a measurement of its worth.

The general circuit of a checker employing an a.c. grid shift is shown in Fig. 2. Here the circuit is identical with that of Fig. 1 except for the fact that the applied voltages are raw a.c. Consider the point F at ground or reference potential. Then, if the complete transformer winding DG is wound in the same direction, the potential FG will have opposite instantaneous polarity to

the voltage DF. Therefore, at the instant when FG is positive, DF will be applying grid voltage of the correct

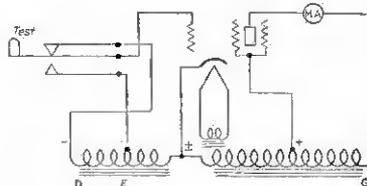


Fig. 2—A.C. grid-shift

negative polarity. The question is then asked, "What happens during the other half cycle?" Simply this: the grid voltage DF now becomes positive, but, at the same time, the plate voltage FG becomes negative, and, as we all know, a vacuum tube will not pass current with an applied negative plate potential. Thus, no current flows during this half of the cycle, and the d.c. meter in the plate circuit reads the average value of the current while the tube does its own half wave rectifying. (Plus and minus signs on all a.c. diagrams indicate instantaneous polarities.)

By pressing the test key the grid voltage is shifted from DF to EF, causing a definite increase in plate current over the positive half cycle of FG. With DE a fixed value and EF and FG constant this ΔI_p is a measure of the tube worth. A.c. potentials having peak values equal to the d.c. values that would be used in Fig. 1 should be assumed for equivalent a.c. tests.

An interesting point should be mentioned here in connection with the grid shift key. As the circuit is shown in Fig. 2, the grid circuit would be open during the interval after the center leaf on this switch had left the upper contact until it engaged the lower contact.

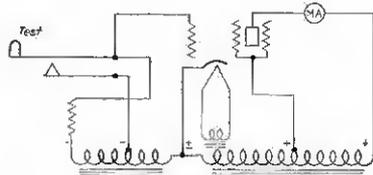


Fig. 3—Avoiding "free" grid condition

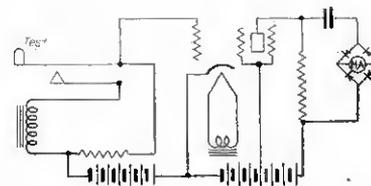


Fig. 4—D.C. plate and fixed bias with a.c. grid-shift

During this brief interval the grid circuit would be open and the grid would assume a space charge, causing a sudden fluctuation in plate current. This is prevented by using the circuit shown in Fig. 3. Here the resistor is used to protect the transformer from short circuit when the test key is pressed. Its value is not important as it is merely in series with the grid. At no time is the grid circuit opened.

The circuit of another type of tester employing a grid shift is shown in Fig. 4. Here d.c. potentials are applied to all elements of the tube with the exception of the heater. When the test button is pressed a one volt a.c. grid signal is added to the normal d.c. grid voltage. A resultant a.c. current will appear superimposed on the normal d.c. current flowing in the plate circuit. This superimposed a.c. current will take the low resistance path through the condenser and rectifier meter with a resultant instrument deflection which will, as before, be proportional to the efficiency of the tube. The d.c. current will be blocked from passing through the rectifier meter by the condenser.

All of the above types of testers give a measure of the control that the grid has on the plate. This is a true measure

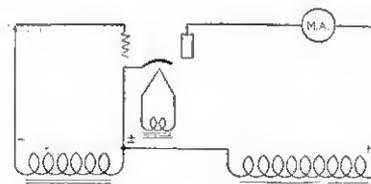


Fig. 5—Emission test

of the tube efficiency in terms similar to the mutual conductance of the tube. This mutual conductance expressed in terms of the microamperes change in plate current per volt shift in grid potential at rated voltage is undoubtedly the best ratio expressing tube efficiency in terms of ability to amplify in all circuits.

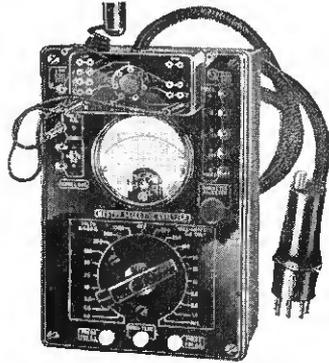
Emission

Next we come to those testers reading plate current only. In this general type a meter in the plate circuit indicates the current flowing from plate to cathode when definite potentials are applied to the electrodes. A typical circuit illustrating such a test is shown in Fig. 5. Here the grid and plate voltages have fixed values, and the milliammeter reading is dependent only on the emission of the cathode or filament. As in the case of the grid shift testers the voltages may be either d.c. or a.c. If a.c. potentials are applied directly to the



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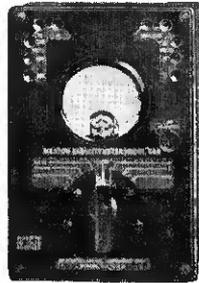
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tube electrodes, the grid and plate voltages must have opposite instantaneous polarity so that the tube will pass plate current only when the grid is negative.

The bearing that a plate current test has on the tube's ability to amplify is rather remote. It is true that a single plate current reading at known potential gives a direct measurement of the electron emission of the filament, but it does not give any indication of the control that the grid has on the plate circuit.

Shorts

A test to determine whether or not a given tube has one or more shorts between electrodes is of importance, more as a protection against damage that the tube might cause when placed in the tube checker than as a test of tube efficiency. This is true because a tube will not test properly in a grid shift or mutual conductance tester when all of its elements are not at proper potential.

A circuit illustrating a good short test on a four element tube is shown in Fig. 6. If the grid is shorted to the cathode, lamp No. 1 will glow. If a plate to cathode short exists lamp No. 2 will indicate, and if the tube is shorted from grid to plate both lamps will glow. Neon lamps are used in short testing to show up high resistance shorts between elements. The current drawn by these lamps is almost negligible. When using them one fact should be remembered, namely that a normal tube heated to its operating temperature has a definite high resistance path from plate to cathode caused by the electron flow normally occurring within the tube. If a heated tube is placed in a short test circuit equipped with neon lamps, a definite plate to cathode short will be indicated. The plate lamp will indicate a short until the tube cools off sufficiently to cause a cessation in the flow of electrons. However, if the tube is free from shorts the plate lamp will soon fade out entirely.

Cathode Leakage

Quite a number of receivers which embody high impedance circuits between the cathode and ground in one or more of the tube circuits have appeared on the market. These conditions are usually found in the oscillator or a.v.c. sections of superheterodynes and it is obvious that the tubes used in these positions must have high resistance between the heater and cathode to function correctly. A measurement of this resistance is, therefore, very important and should be made on all tubes that could possibly be used in these receiver positions. A simple circuit illustrating a method of measuring cathode leakage is shown in Fig. 7. A meter or neon lamp in the plate circuit indicates current flowing from plate to heater through the cathode insulation. Any indication of current flowing in this circuit denotes a leaky tube and, therefore, segregates it as one that should not be used in circuits of the general type mentioned above.

A typical diagram of one socket illustrating how the cathode leakage and grid tests can be interconnected is shown in Fig. 10. Here the normal grid shift circuit is connected permanently to the

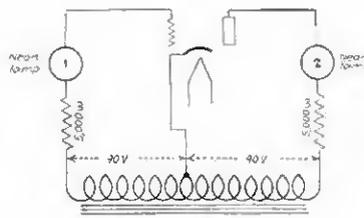


Fig. 6—Short test

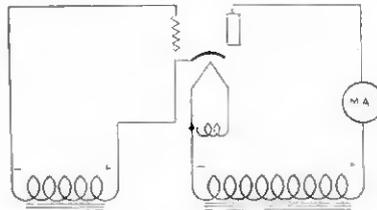


Fig. 7—Cathode leakage measurement

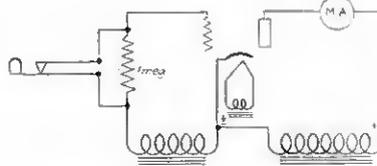


Fig. 8—Gas content determination

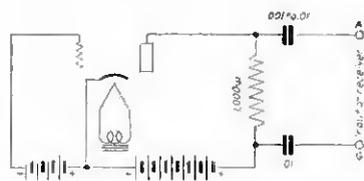


Fig. 9—Noise-check circuit

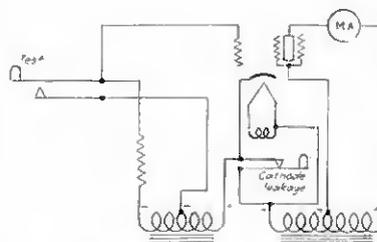


Fig. 10—Combined grid-shift and cathode leakage

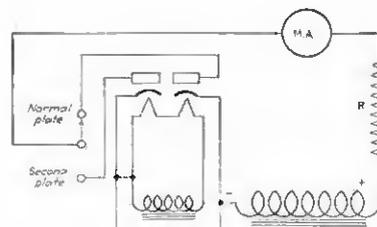


Fig. 11—Rectifier emission and resistance

cathode. This is necessary to prevent high self-biasing which would occur if the grid return was connected with the plate return to the heater, and the cathode disconnected from all circuits. The plate return is connected directly to the heater circuit, and through a push button switch to the cathode. Thus, when the cathode leakage switch is opened, normal bias is still applied to the control grid, but any current indicated by the milliammeter must flow from plate to heater through the cathode insulation. By making use of this circuit the tube can be placed in the socket and both grid test and cathode leakage measured separately by merely pushing the required button.

Ga

Tube manufacturers have improved their products greatly during the past few years with the result that gassy tubes are very seldom found today. They are, however, occasionally encountered and a simple test circuit for segregating such a tube is shown in Fig. 8. Normal grid, plate and heater voltages are applied to the electrodes of the tube so that the meter in the plate circuit will show a definite current indication. A switch is provided for inserting 1 megohm resistance in the grid circuit without opening the grid return path. If a particular tube is gassy then an abnormal number of gas molecules are at liberty within the tube. These gas molecules ionize under plate flow potential and create a path for current flow from cathode or plate to grid, thus causing a slight flow of current in the grid return circuit through the test key. When the gas test key is pressed a 1 megohm resistor is inserted in the grid circuit. If current is flowing in this circuit due to the presence of gas in the tube an IR drop will add or subtract from the former bias voltage causing a resultant change in the plate current reading. A good tube that is free from gas should show no change in plate current when the grid circuit resistance is altered in this manner.

Noise

A noise test is sometimes mentioned in connection with tube testing. An occasional tube may be either microphonic or may be noisy due to thermal disturbances occurring within the heater. Tubes having defects of this nature are very seldom found. However, a noisy tube can usually be spotted by using the circuit arrangement shown in Fig. 9. Correct potentials should be applied to the tube electrodes. Any high frequency disturbances such as "frying" and "hissing" noise will be picked up by the receiver, the input terminals of which are shown in the diagram.

Rectifiers

Rectifier tubes require a plate current load measurement. A simplified circuit for testing a rectifier tube such as the 25Z5 is shown in Fig. 11. Here a potential is applied through a low resistance and a milliammeter to the plate, the meter rejecting or passing the tube depending upon whether the current reading is below or above a definite limit. The value of the resistor R should be kept as low as possible yet



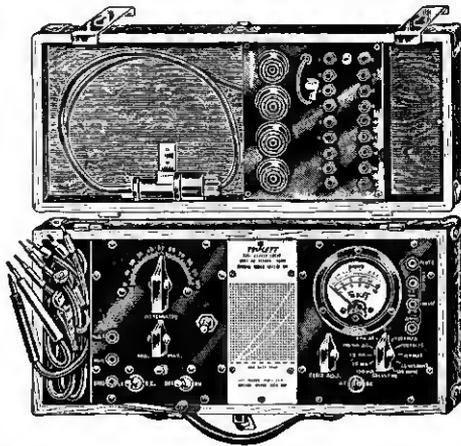
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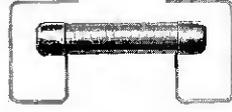
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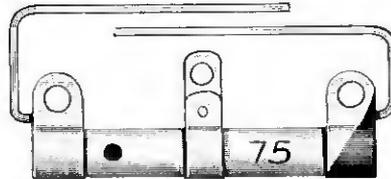
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still be sufficient to protect the meter against overloading. It is important to keep the total circuit impedance low so that the plate to cathode resistance of the tube itself will be as large a percentage of the total as possible. Thus, any change in plate to cathode resistance within the tube will have the greatest effect on the meter reading, and, conversely, the meter deflection will give the best indication of the tube efficiency. A toggle switch in the plate circuit makes separate readings on each plate available without removing the tube from the socket.

The diode portions of such tubes as the 85, 2A6, 2B7, etc., are tested using the same type of circuit. In this case, however, a lower voltage is applied to the plates so that no harm can be caused by excessive diode currents. The same

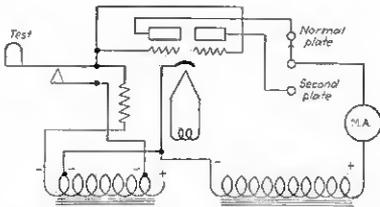


Fig. 12—Double Class B test

toggle switch is used to test each of the diode plates separately so that comparisons can be made to assure balanced full-wave detection in a receiver.

Double Class B

Double Class B tubes, such as the 19, 53, 79, etc., normally operate at zero bias. These tubes are designed so that they draw little or no plate current at zero bias. Only when a signal appears on the grid does the tube draw plate current and then only during the positive half cycle of the grid swing. To properly test these tubes a positive grid shift is required to give a resultant change in plate current. This is handled as shown in Fig. 12, which illustrates a method of testing separately each half of the Type 53 tube. Note that the grid is biased slightly negative before the

test button is pressed, but is shifted positive. To alter the circuit of Fig. 3 to test Class B tubes it is merely necessary to tie the cathode connection to a different point on the grid winding.

Commercial Design

A consideration of the test methods outlined above should indicate the combination giving the simplest and best measure of the tube worth. First, a grid shift measurement proportional to mutual conductance is of primary importance in determining a tube's ability to amplify and, therefore, should most definitely be included. Second, if the tube in question is a rectifier, then an emission test indicating plate current at known plate potential should be made. Third, a cathode leakage test on all amplifier tubes should be made to make certain that the cathode to heater resistance is sufficiently high for use in all types of circuits. If these three tests are carefully carried out then the tube has undergone sufficient dealer tests to function in any receiver.

What, then, about the short test? We check a tube for shorts primarily to protect the checker. If, however, we design the tester with protective resistors in all high potential circuits then no excessive currents such as would normally flow at short circuit can occur. The shorted tube will be detected by an erratic grid shift test as either or both the potentials within the tube itself and in the tester will be thrown off balance. Thus the need for a short test may be eliminated by careful tester design. The noise and gas tests are very seldom required. They can, however, be added to almost any tube tester by following the circuits shown in Figs. 8 and 9.

Many of the features discussed in the latter portion of this article are incorporated in a typical commercial checker (New Weston 674), the circuit diagram appearing in Fig. 13. In this instrument an optimum number of sockets is used with the circuit connections controlled by one single and one four-deck rotary switch. Dynamic grid shift, cathode leakage and separate tests on each portion of all double and triple tubes are controlled by three panel switches. Thus each tube can be submitted to a thorough overall test with maximum simplicity and minimum elapsed time.

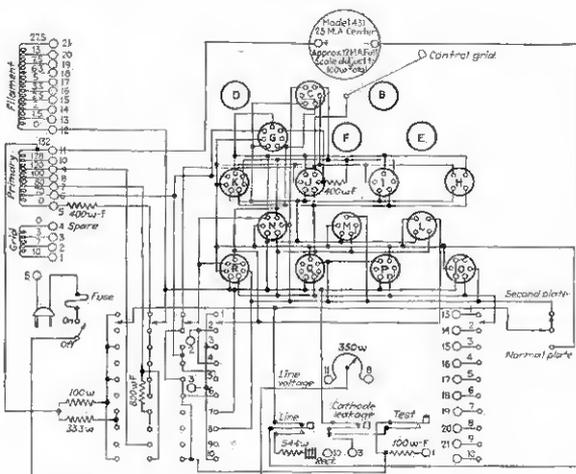


Fig. 13—
Typical
commercial checker
(Weston 674)



R. A. Cross of Burlington, Vermont, has a swell idea. Like many of our readers he types "Radio Retailing's" TRICKS of the TRADE items on index cards each month. But when he completes one of the jobs described in the labor and materials cost is noted on the same card. Thus, when another call of the same nature comes along he can quote a flat rate with comparative safety.

"TRICKS of the TRADE"

AK 40, 42, 44, 46, 53. To check or replace filter condenser sections . . . Looking from front, panel-side of set, block is at extreme right, next to choke assembly. Three leads connect from block to chokes, blue, yellow and white. Stick a pin into each lead so that it contacts the wire and with an ohmmeter check from pins to ground for short. After locating defective section clip its associated lead close to block, leaving remainder of lead attached to choke assembly. Attach positive side of replacement cartridge type electrolytic to lead and ground negative to chassis.

CROSLEY 7, 10. Tube hiss . . . Connect 2 or 3 meg. resistor in series with screen of first detector 58, bypassing with 400 volt, .01 condenser. For better high-frequency audio response . . . Clip one lead of dual condenser used in tone control circuit. On dual 10 clip tinned wire coming out of end of condenser nearest tone control. On dual 7 clip tinned bare wire from end of condenser to plate of 2A5. This does not affect tone control operation.

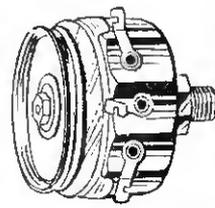
CROSLEY 160. Poor tone and lack of volume . . . See if 59's are matched. If trouble is experienced in matching push-pull stage plate currents connect a 100 ohm, ½ watt resistor, preferably non-inductive, in series with each control-grid right at the sockets.

KENNEDY 20. Oscillation . . . Usually traceable to defective bypass in detector plate output filter. If present at only a few points on the dial test all bypass units and if none are defective wind a few turns of bare copper wire around the flexible control grid cap of the second r.f. tube, terminating one end of

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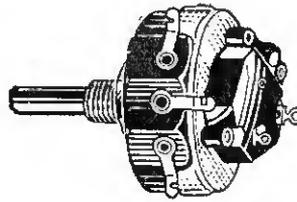
Write for new replacement control guide.



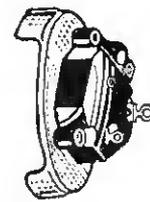
Left—Illustrating Clarostat "X" 123, replacement for Bosch 28, 29; Eveready 1, 2, 3



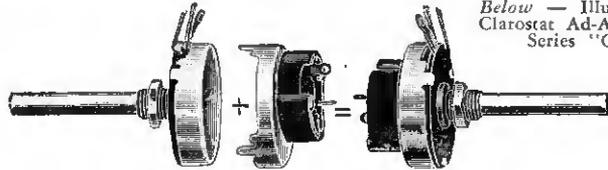
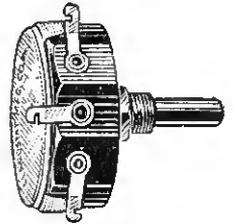
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Below—Illustrating Clarostat Ad-A-Switch Series "W"

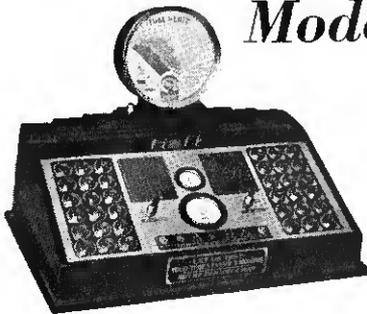


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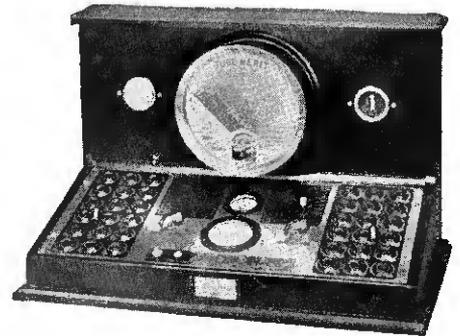


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the wire just within the coil shield. Or, lower screen voltages by unsoldering supply lead and re-soldering it to the unused tap next to the original tap on the divider.

KENNEDY 52. Microphonics . . . Not due to tubes, as might be expected but to r.f. currents being picked up by speaker leads. Run the leads in grounded braid, or, cut the string holding these leads together and wind the ground lead around them.

MAJESTIC. No signal or signal produced when set is jarred, types having speaker mounted on chassis. Look for broken lead to voice-coil. Vibration frequently breaks these.

PHILCO 89. Voltages check ok but set refuses to operate over entire dial . . . Try reversing primary leads of the first i.f. transformer.

SM R, T. Low volume, fading, distortion, volume control does not work . . . Due to partially shorted bypass condenser C11 located at resistor terminal strip, connected from ground to one terminal of tone control. Replace with .5 mfd., 250 volt unit. Distortion, meter does not swing high enough . . . Test a.v.c. 27, or switch it with oscillator 27.

SM Q25. I.f. trouble sounding like oscillation or motorboating . . . Moisture is a common cause. Cover back of set with blanket and let it run for 8 or 10 hours.

SPARTON 69, 79, 79A, 89. (Number terminal strip posts 1 to 9, from front to back.) Detector plate voltage, terminals 1 to 2, should be 180 with pickup inserted in jack . . . If 90 to 135 check 20,000 ohm resistor and its bypass between a.f. transformer primary and filter choke. Detector bias, terminals 2 to 9, should be 14 to 20 . . . If not check 1,200 ohm resistor from phono jack to terminal 2. With pickup in use voltage should be from 3 to 5 . . . If not check 1,000 ohm resistor between jack and terminal 2. R.F. plate voltage, terminals 5 to 6, normally 90 to 135 . . . Check 3,000 ohm resistor or its bypass between filter choke and terminal 6, in filter block. R.F. bias voltage, terminals 5 to 9, voltage normal between 3 and 5 . . . When otherwise check 110 ohm resistor between terminals 5 and 7. A.F. plate voltage, normal between 145 and 185. A.F. bias, normal between 27 and 41 . . . Trouble sometimes develops in 1,700 ohm resistor between ground and c.t. of filament winding. Lack of voltage at any terminal that can be restored by removing cable wire is caused by shorted bypass condenser in associated circuit of r.f. amplifier. Adjust screw on top of tuner, left side, for best response between 1,250 and 1,500 kc.

STROMBERG-CARLSON 25, 26. No reception . . . Examine chassis bolts. Frequently one of these extends too far and touches voltage divider.

SHOP SHORTCUTS

Cheap Method of Reading High A.C. Voltage

By J. P. Kennedy

Low range a.c. voltmeters can be used in series with capacity multipliers to measure high voltage. The meter found in Jewell's model 199 tester, for example, has a resistance of 2,250 ohms on its 160 volt scale. This indicates that 10 times this resistance, less 2,250 ohms, would multiply the range to 1,600 volts. This would mean 20,250 ohms capable of handling 11 watts.

As the meter is normally used on 60 cycles the formula for capacity reactance can be used to determine the value of the multiplier:

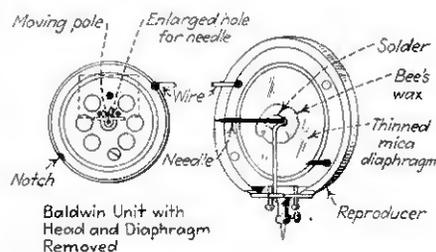
$$X_c = \frac{2\pi f C_{mfd}}{1,000,000} = \frac{2668}{C_{mfd}}$$

Substituting for X_c the value 20,250 and solving for C_{mfd} , we find that .1315 mfd. will do the trick. I tested two 450 volt a.c. so-called $\frac{1}{4}$ mfd. units, discovered that in series they had the required value. The resulting meter compares favorably with rectifier types having carbon multipliers.

Baldwin Unit Plus Old Phonograph Motor and Reproducer Makes Good Pickup

By B. O. Bass

To make a good pickup at low cost for shop use secure an indirect-drive Baldwin or Utah unit, preferably one with a mica diaphragm and a phonograph motor and reproducer (any type with the exception of Edison or Orthophonic models). Clip



out the driving pin of the unit and remove its diaphragm.

Remove the bolts of the reproducer diaphragm, trim down the unit diaphragm and fit it to the reproducer. If the unit diaphragm is of the thick, metal-ribbed variety thin it down with sandpaper. Now solder a $\frac{1}{4}$ in. needle to the bolt in the center of the new diaphragm and place a $\frac{1}{2}$ in. gob of beeswax around the joint.

Remove two cater-cornered bolts holding the reproducer together (there are usually four for this purpose) and drill the holes clear through. Thread a piece of heavy bus-bar through these holes and to the unit, to hold the two together, being careful that the unit does not touch the

reproducer arm. The needle should extend centrally through the unit and pass through an enlarged hole in the edge of its actuating pole piece.

Center the pole piece in the armature coil by inserting two flattened pins. While in this position solder the driving pin at the junction with the moving pole. Remove the flattened pins.

Loosen the front wood screws holding the reproducer down and wedge a small piece of wood between base and cabinet to hold the arm higher. If weight on record is still too great put a counterweight on the other end of the arm. Stuff a wad of cloth in the horn back of the grill to shut out sound and carry the unit wires to the set amplifier.

Magnetizing With A.C.

By Paul E. Grivet

Tools can be magnetized, or de-magnetized, with a.c. but the polarity cannot be controlled. Secure a piece of insulating tubing about $3\frac{1}{2}$ in. in diameter and 5 in. long. Wind about four pounds of No. 18 bell-wire on the form, starting about $\frac{1}{2}$ in. from the end and securing the end turn with several thicknesses of tape held in place by succeeding turns. Dope the wire from time to time with paraffin or beeswax to hold layers in place and wrap the finished coil with tape. Mount it on a wooden base and provide an appliance cord and plug, with an on-off toggle switch in one of the leads.

To magnetize a tool plug the coil into the 110, 60 cycle line, insert the tool in the coil and snap the toggle switch "On." Then turn the current off and remove the tool. To de-magnetize insert the tool within the coil, turn the current on, remove the tool from the coil while it is still on.

Quick Auto Radio Removal

By Arthur Hill

Most servicemen pull the battery cable off the battery when removing an auto-radio from a car for shop service. In most cases it is simpler to unscrew the fuse and cut the flat portion of the braid where it passes alongside the fuse. When replacing, solder the braid together again and screw the fuse in place. This saves time and makes a cleaner job.

Restoring Electrolytic Capacity

By Ben South

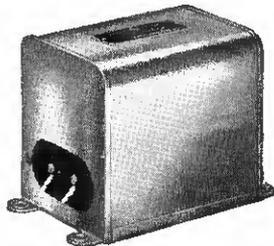
Electrolytic condensers of the cylindrical aluminum case type sometimes lose their capacity due to the accumulation of a pasty sludge at the bottom. Capacity may often be restored by making several indentations in the bottom with a blunt riveting punch.

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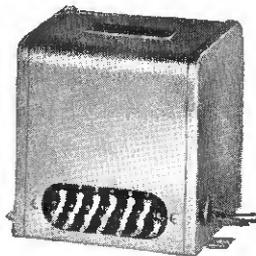


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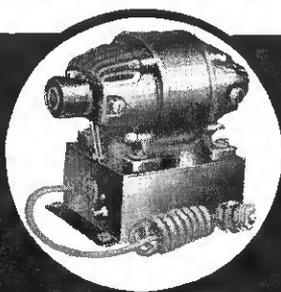
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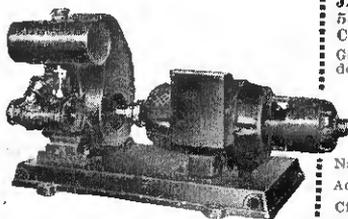
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Take *Radio Retailing*, for instance. With our January 1934 issue, we will commence our tenth year of history! And yet it seems only yesterday that we published, in January 1925, the first issue of what has since become the industry's leading business magazine.

NATURALLY, we're going to celebrate our birthday—our entrance into our Tenth Year of Publishing service to the Radio Industry. The celebration takes place in our January 1934 issue. And, while it's *our* birthday, you readers will like our festivities, we feel sure. The editors are going to give us a progress report of the radio industry in that issue.

Here's what they're planning to put in our January 1934 Birthday Issue:

- *Merchandising Policies of 1934 Contrasted with those of 1924*
- *Radio's Wares Ten Years Ago and Today*
- *The Progress of Radio Circuits—Cycles in Engineering*
- *“I grew with Radio Retailing”—the story of a dealer and his merchandising progress from 1924 to 1934*

OLD ORDER GIVING WAY NEW"

In addition, of course there will be articles on shortwave radio, refrigeration, auto radio, battery sets, recorded music, new merchandise, service and technical articles, news and all the other regular features of the magazine.

WE think, too, that the manufacturers of radio sets, tubes, accessories and parts are going to have some interesting stories for you, in the advertising pages of *Radio Retailing's* January 1934 Birthday Issue. Did you know, for instance, that such companies as National Carbon, Yaxley, Philco, Grigsby-Grunow, Fada, Radio Corporation, Exide, General Radio, Dubilier, Mohawk, National, Pacent and Acme Wire were not only already in the radio business back in January 1925, but also advertised in the first issue of *Radio Retailing*?

Many of those pioneer radio manufacturers who were doing business back in 1925 and who are still big factors in radio today will have advertising messages in *Radio Retailing's* January 1934 Birthday Issue. They'll present to you a progress report—an account of their stewardship. Many other manufacturers, not perhaps so old, but with experience and success behind them, will give you a similar story.

BIRTHDAYS have their advantages to people, to magazines and to manufacturers. They offer a logical pause in humdrum activities of the day. They offer a chance to look back and to look forward—a chance to evaluate progress—a chance to study the past—a chance to plan for the future.

You'll like *Radio Retailing's* January 1934 Birthday Issue, we feel sure.

RADIO RETAILING

THE RADIO INDUSTRY'S BUSINESS MAGAZINE SINCE 1925
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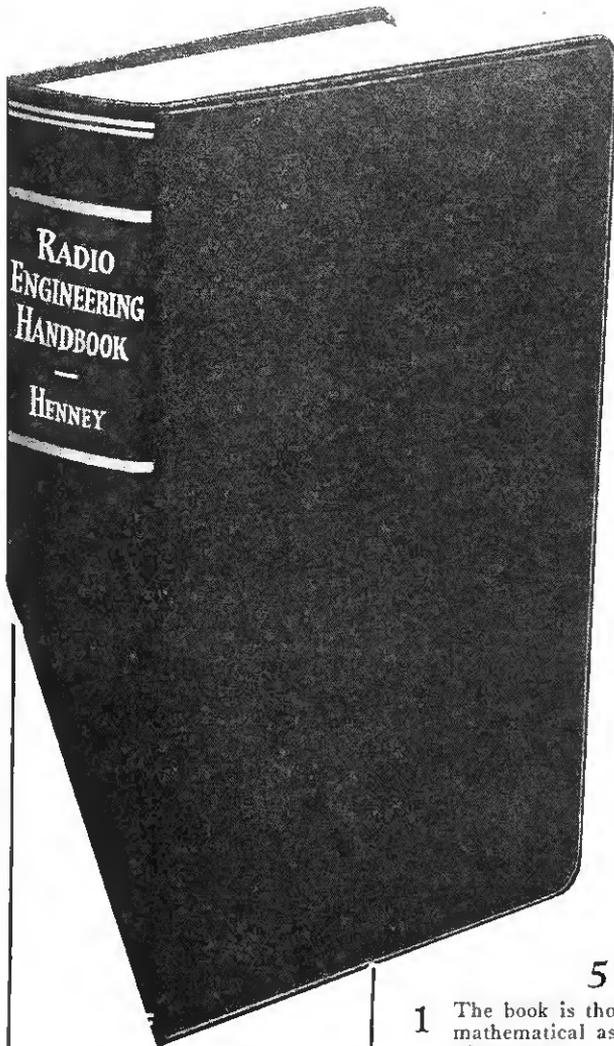
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A Special P. S. for Radio Manufacturers

PERHAPS you have been in business since 1925. Perhaps you antedate *Radio Retailing*. Perhaps your history is not as long. But at any rate you've probably made progress, not only in your products, but in your merchandising policies as well. Ordinarily you might feel reticent about bragging of those achievements. But in *Radio Retailing's* January 1934 Birthday Issue, you can, with due modesty, tell your story of progress and achievement to the radio industry.

YOU can tell your story to the 20,000 men who are your customers and prospects. You can tell, to advantage, your sales story to the 20,000 readers of *Radio Retailing*. These readers, larger numerically today than ten years ago, are still the men you have to sell. In 1934, as in 1925, they constitute the volume sellers of radio merchandise. Those readers include radio distributors and wholesalers, radio retailers of all types and in all trades, and radio service managers and men. Our January 1934 Birthday Issue gives you an unusually interested audience, waiting to hear not only our story and the industry's story of achievement but yours as well. Advertising forms close in New York on January 5th—your advertisement should be in our hands by that date.

FOR THE SERVICE MAN WHO MUST KEEP UP-TO-DATE



a comprehensive, and authoritative handbook of radio principles, and circuit practice

Henney's RADIO ENGINEERING HANDBOOK

Prepared by a staff of 22 specialists

Editor-in-Chief, **KEITH HENNEY**, Associate Editor, *Electronics*

Author, *Principles of Radio*

583 pages, 4½x7, 507 illustrations, \$5.00

NEVER has the radio art moved so fast. Never has it been so important for the service man to keep abreast of this art. Introduction of new circuits and tubes has completely changed the tactics a technician must employ. Receivers are built on circuits never heard of two years—one year ago. The service man must keep up-to-date.

This radio book does just that—it equips the reader for present-day practice. It is more than a handy compendium of formulas, curves, characteristics, graphs, tables, etc.; it is a complete treatise on modern radio engineering practice.

5 important features of this book

- 1 The book is thoroughly technical, it has hundreds of circuit diagrams, and is not so mathematical as to be unreadable or impractical. It emphasizes design; not pictures of apparatus.
- 2 Every section has been written by an expert, chosen for his knowledge of the subject. In many cases the authors are daily engaged in the design, manufacture or operation of the apparatus they describe.
- 3 The scope is broad, it covers fundamentals but is not a text book, it is a workman's book in which all manner of practical information is put in usable form. Material found in no other book will be found here in concise form.
- 4 It is up to the minute. It discusses class B amplifiers, variable-mu tubes, composition resistors, design of scratch filters, tone control circuits, tank circuits, transmission lines, copper-oxide meters, vacuum tube voltmeters, tuning axes for cathode ray tubes, magnetrons, dynatrons, autodynes, compensating audio amplifiers, aircraft radio, television and facsimile, etc., etc.
- 5 The book is convenient in size—another proof that it is made for the practical man. It's 583 pages, 507 illustrations, many tables and "short-cuts" are in such form that little time will be required to find the desired information.

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5. Capacity
6. Combined Circuits of L, C, and R.
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Advertising in connection with legitimate offers of surplus stocks and discontinued models of radio merchandise is acceptable in this section of "Radio Retailing."

Extreme care will be exercised by the publishers to prevent the use of advertising in the Searchlight Section to encourage price cutting on current models of merchandise or equipment. Nor will advertising which invites violation of the dealer's contract with the manufacturer be acceptable.

All merchandise offered in the Searchlight Section must be accurately and fully described and must be available on order.

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Genuine Grebe factory made parts in stock for all model Grebe receivers manufactured prior to 1933. Power transformers for sets using from 4 to 12 tubes. Also audio transformers and filter chokes. Write for descriptive data and parts price list.
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The new Burgess No. 1040 Dry "A" battery is scientifically designed for 2-volt battery-operated radio receivers. Less than 1c per hour is the surprising low service cost of the new Burgess No. 1040.

The No. 1040 Dry "A" embodies a revolutionary "Close Pak" construction. Research brings this "A" battery of outstanding performance as a companion to Burgess radio "B" batteries, long recognized as leaders in quality.

Under intermittent service "Chrome the Preservative" gives this new "A" pak remarkable recuperative powers.

Convenient

Easy to handle, attractive in appearance. Can be used in any position.

Safe

100% Dry, i.e. Hermetically sealed. No dangerous chemicals to fear.

Portable

Weight: 15 pounds—easy to carry. Size: $12\frac{3}{16}$ " x $4\frac{1}{2}$ " x $6\frac{1}{16}$ ". Ready for immediate use. Will operate in damp weather.

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Cost less than 1c per hour to operate. 400 hours service ($\frac{1}{2}$ ampere, 3 hours per day).

At an estimated 400 hours service, you can normally expect two replacements a year. Quick turnover, plus a liberal profit margin, offers you an incentive to secure more battery business.

The list price of \$3.20 fits the consumer's pocketbook. Service is reliable and economical.

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Engineers and Manufacturers of Electric and Acoustic Products

Battery Division

FREEMONT, ILLINOIS

Acoustic Division

MADISON, WISCONSIN

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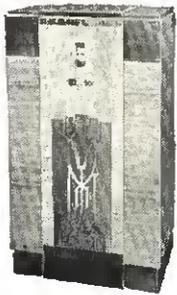
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Beauty that reaches into the future

CROSLLEY has added to the regular Crosley line of radio receivers—already famed for their smartness—a new line of models that touch the very peak of all that makes for beauty in the modern sense. The models shown here are daring in their conception; they express, brilliantly and boldly, today's and tomorrow's ideas of beauty. Crosley dealers will welcome

them as giving the entire Crosley line a definite "style-lift." With all their smartness, they emphasize more than ever, the Crosley dictum of "more for your money."



The CROSLLEY DUAL FIVER Lowboy

This cabinet is finished in choice figured Nyssa. Overlays of satinwood on sides of speaker grille. Overlays of rosewood at top and bottom of front panel. Edges of top and the base are finished in black. Employs the same type chassis and speaker as described in the Crosley Dual Fiver. Dimensions: 36 $\frac{3}{4}$ " high, 21" wide, 11 $\frac{3}{8}$ " deep. Complete with Tubes

\$39.50



The CROSLLEY DUAL SIXTY Lowboy

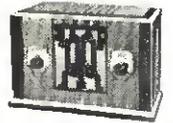
The beautiful veneers on the front panel are of V-matched pin stripe walnut veneer in center with stump walnut veneer stiles. Zebra wood overlays at top and bottom of grille opening. Pilasters are of satinwood. Top is walnut veneer. The 6 tube superheterodyne chassis and speaker are same as in the Crosley SIXTY and employing same type tubes. Dimensions: 33" high, 23" wide, 11" deep. Complete with Tubes

\$50.00

The Crosley TRAVO DeLuxe

This 4-tube superheterodyne operates on 110-volts D. C. or any cycle A. C. Has satinwood overlay front, with zebra wood overlays above and below the grille. The base is black and silver. Has pilot light, attached antenna, full floating moving coil electro-dynamic speaker. Requires no ground. The tubes are: One type 7B, one type 6F7, one type 3B, and one type 12Z3. Dimensions: 3" high, 10 $\frac{3}{8}$ " wide, 5" deep. Complete with Tubes

\$19.95



The CROSLLEY FORTY

The front of this cabinet is of pin stripe V-matched walnut veneer with a burled maple overlay above the grille and with decorative pilasters. This 4 tube superheterodyne has illuminated dial, combined volume control and on-off switch, full floating moving coil electro-dynamic speaker. Tubes are: one type 5B, one type 6F7, one type 2A5, and one type 80. Dimensions: 12 $\frac{1}{4}$ " high, 10 $\frac{1}{2}$ " wide, 8" deep. Complete with Tubes

\$19.99



The CROSLLEY NEW FIVER

The front panel of this beautiful cabinet is of Prima Vera with decorative pilasters. There is a zebra wood overlay above the grille and a base of modernistic fluting. It is a 5-tube superheterodyne with a full floating moving coil electro dynamic speaker. Has illuminated dial. Chassis completely stabilized. Employs the following tubes: Two type 5B, one type 57, one type 2A5, and one type 80. Dimensions: 13 $\frac{5}{8}$ " high, 11 $\frac{1}{4}$ " wide, 7 $\frac{1}{2}$ " deep. Complete with Tubes

\$23.50

The Crosley TRAVETTE MODERNE

The grille of this cabinet is of chromium plated metal, with zebra wood overlay above and below. The front panel has a satinwood overlay. Has pilot light, attached antenna, full floating moving coil electro-dynamic speaker. Requires no ground. Operates on 110 volts D.C. or any cycle A.C. The superheterodyne circuit employs 5 tubes as follows: One type 6A7, one type 7B, one type 6B7, one type 43 and one type 25Z5. Dimensions: 3" high, 10 $\frac{3}{8}$ " wide, 5" deep. Complete with Tubes

\$26.00



The CROSLLEY DUAL FIVER

The front of this cabinet is of V-matched Prima Vera, having decorative pilasters, zebra wood overlay above the grille and base of modernistic fluting. A 5-tube superheterodyne with dual range... completely stabilized. Has illuminated dial and full floating moving coil electro-dynamic speaker. The tubes are: Two type 5B, one type 57, one type 2A5, and one type 80. Dimensions: 13 $\frac{5}{8}$ " high, 11 $\frac{1}{4}$ " wide, 7 $\frac{1}{2}$ " deep. Complete with Tubes

\$26.00



The CROSLLEY DUAL SIXTY

There are beautiful satinwood veneers on the front panel. The pilasters are finished with pin stripe walnut veneer. The grille is outlined with a black border. A 6-tube superheterodyne with dual range, automatic volume control, tone control, and full floating moving coil electro-dynamic speaker. Tubes are as follows: One type 2A7, two type 5B, one type 56, one type 2A5, and one type 80. Dimensions: 13 $\frac{5}{8}$ " high, 13 $\frac{3}{4}$ " wide, 8 $\frac{1}{4}$ " deep. Complete with Tubes

\$35.00

The Crosley Dual 10 Moderne

The recessed front panels of V-matched pin stripe walnut veneer above which is an overlay satinwood veneer. Pilasters of stump walnut. Top and end panels are of walnut veneer. Incorporates a superheterodyne 10-tube chassis with dual range, automatic volume control, push-pull output, continuous (stepless) tone and static control, full floating moving coil electro-dynamic speaker. Tubes are: Three type 5B, four type 56, two type 2A5, and one type 80. Dimensions: 38 $\frac{1}{2}$ " high, 23 $\frac{3}{4}$ " wide, 12 $\frac{1}{2}$ " deep. Complete with Tubes

\$69.50



The Crosley Dual 12 Moderne

The front panel is of walnut veneer arched with Carpathian Elm. The rounded pilasters are of walnut veneer with stump walnut veneer caps. Has walnut veneer top and ends. A 12-tube superheterodyne employing dual range static control, automatic volume control, continuous (stepless) tone control, full floating moving coil electro-dynamic speaker. Tubes as follows: Three type 5B, one type 2B7, five type 56, two type 2A5, one type 80. Dimensions: 38 $\frac{1}{4}$ " high, 23" wide, 11 $\frac{3}{4}$ " deep. Complete with Tubes

\$85.00



— Western Prices Slightly Higher —

THE CROSLLEY RADIO CORPORATION

POWEL CROSLLEY, Jr., President

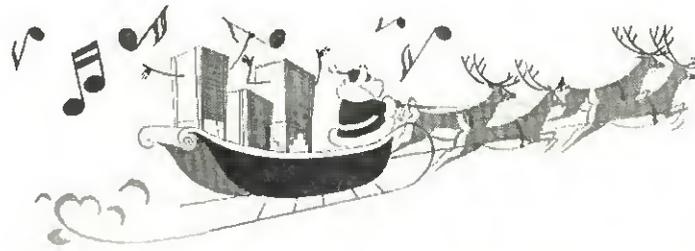
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Home of "the Nation's Station"—WLW.

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CROSLLEY RADIO

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STOCK the new General Electric line—the finest in all G-E history—and you'll have everything the public wants, at any price the individual buyer chooses to pay.

You'll have all-wave, dual-wave, standard range sets and radio-phonograph combinations . . . table models and smartly styled consoles in classic designs or *modern* motifs . . . priced from \$24.95 to \$179.

You'll have the sweetest-toned sets on the market . . . the best all-round performers . . . the radios that are setting the sales pace for 1933-34.

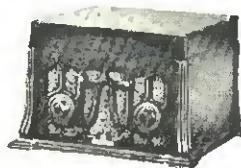
Below are illustrated a few of the many smartly styled sets in the new G-E line. See your nearest G-E distributor. Or write for complete information. General Electric Co., Section R-412, Merchandise Dept., Bridgeport, Conn.



MODEL K-64—Dual-wave table model. American and foreign broadcasts. Lists at \$54.50



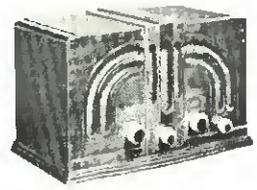
MODEL K-80—All-wave table model. Covers four broadcasting bands. Lists at \$92.50



MODEL K-48—Radio-phonograph humidor chest model TRP-A-c circuit. Lists at \$39.75



MODEL K-43—18th Century table model. Standard range. Police calls. Lists at \$24.95



MODEL K-53M—Standard-range set, with police calls, in *modern* cabinet. Lists at \$35.95



MODEL K-66—Standard-range console with distinctive airplane-type dial. Lists at \$72.50



MODEL K-79—Automatic radio-phonograph combination. De luxe model. Lists at \$179



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