

# **RADIO** *and Television* **TODAY**

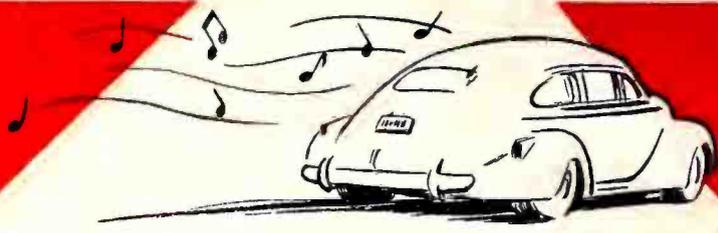
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MAY 20 1941  
PERIODICAL DIVISION

**MAKE IT A  
RADIO  
WEEKEND**

**Portables and Summer Profits**  
**More Signal-Path Circuits**

**MAY**



*Send Them Away Happy...  
and Keep Them Happy...with*

# **MALLORY VIBRATORS**

It's easy to send customers away happy when you have corrected a vibrator failure with the exact Mallory Vibrator required. But the important fact is that the long life and dependable performance of Mallory Vibrators is sure to keep your customer happy . . . and make you his first thought when his home receiver needs service.

Mallory has simplified vibrator replacement to its greatest practical extent. As the makers of vibrators for the great majority of all auto radios, Mallory has standardized vibrator application wherever possible. On the other hand . . . circuits requiring special design have not been ignored. The result is the most practical balance possible between the variety of types and the requirements of exact replacement.

Depend on Mallory for every vibrator replacement in auto radios or battery operated receivers. They cost no more!

**P. R. MALLORY & CO., Inc.**  
**INDIANAPOLIS, INDIANA**

Cable Address—PELMALLO



It's FREE  
only a few  
cents left  
see your  
distributor  
now for  
your 1941  
Vibrator  
Guide

More  
than ever  
—INSIST ON

**P. R. MALLORY & CO. Inc.**  
**MALLORY**  
APPROVED  
PRECISION PRODUCTS

VIBRATORS • VIBRAPACKS • CONDENSERS •  
VOLUME CONTROLS • ROTARY SWITCHES •  
SINGLE AND MULTIPLE PUSH BUTTON SWITCHES  
• RESISTORS • RADIO HARDWARE

# 5 REASONS WHY... CROSLY DEALERS CAN EXPECT THE GREATEST INCREASE IN THE RADIO INDUSTRY THIS YEAR

- 1 Sensational values—more tubes—bigger speakers—bigger chassis—3 gang condensers—superior performance.
- 2 Cabinets so beautiful . . . so BIG . . . that, standing by comparative models, they will make customers say, "I WANT THE CROSLY."
- 3 The most impressive dial in the industry.
- 4 Exclusive features that the customer can see, feel and hear—that don't have to be explained. The kind the retail salesman will use to close sales faster.
- 5 A NEW INVENTION (Patent applied for)—

THE GREATEST ADVANCE IN PHONOGRAPH COMBINATIONS  
 SINCE THE AUTOMATIC RECORD CHANGER  
 DON'T BUY UNTIL YOU SEE ~~CROSLY!~~

Crosley Refrigeration Gains beat the industry by 2½ times and now the stage is set for another Record in Radio. And an advertising theme for radio as powerful as "TWICE AS MUCH FOOD TO THE FRONT," the Crosley advertising theme for the Super Shelvador.

THE CROSLY CORPORATION  
 POWEL CROSLY, JR. PRES. . CINCINNATI, OHIO

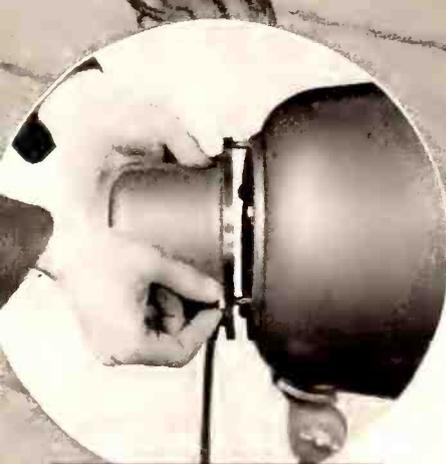
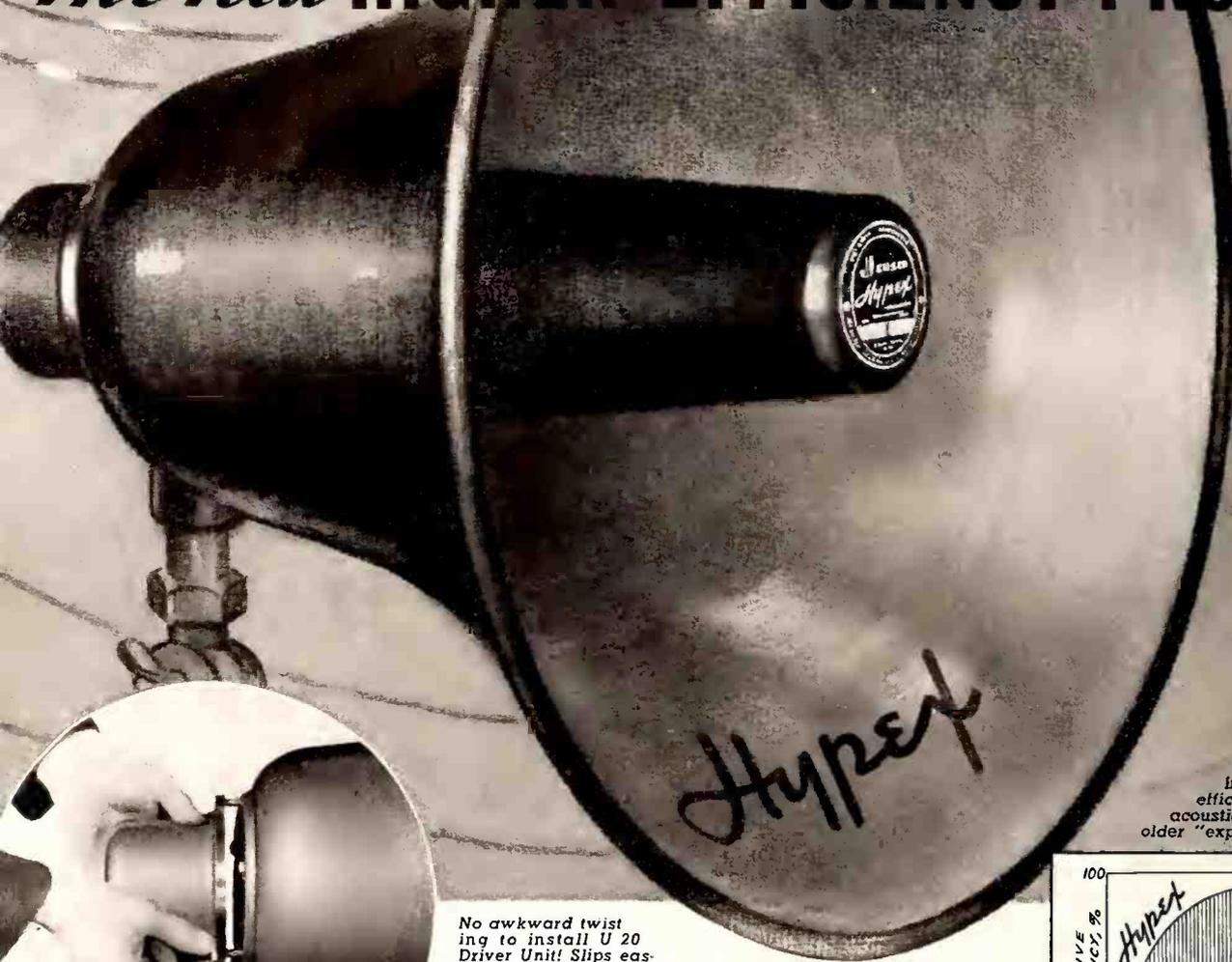
Not 1919  
"Exponential"...

Get 1941

Jensen

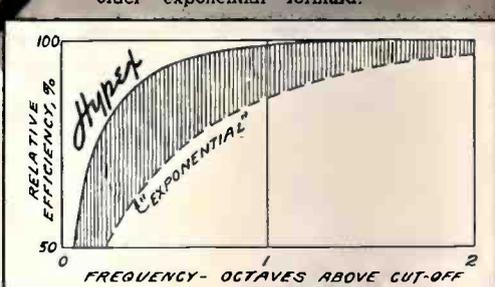
*Hyperex*

The New HIGHER EFFICIENCY PROJECTORS

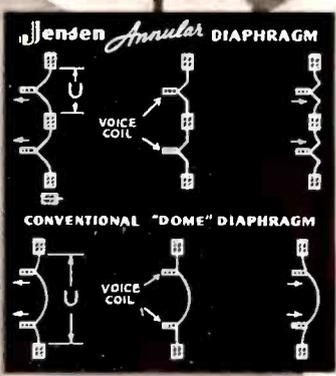


No awkward twisting to install U 20 Driver Unit! Slips easily into place rigidly held to bulkhead with three nuts

**JENSEN LEADS AGAIN WITH 2 GREAT SOUND CONTRIBUTIONS**



Jensen HYPEX (patents pending) brings you markedly higher efficiency because horn impedance acoustically matches driver better than older "exponential" formula.



Exclusive Jensen ANNULAR Diaphragm, supported at center as well as at periphery, is free from "break-up," smoother in response, more rugged mechanically. Note extremely short unsupported length "U" compared with conventional dome diaphragm.

Discarding 22-year-old "exponential" horn theory, Jensen Research discovered a new, better HYPEX<sup>1</sup> horn formula which gives improved projector performance. Then a new general-purpose ANNULAR<sup>2</sup> Driver Unit was designed with the exclusive annular principle long used by Jensen in the highest quality reproducing systems. Extra design features were incorporated for enhanced utility and dependability.

Either development alone would have made sound history. In combination in the new Type "UH" HYPEX Projectors, they logically become a preferred choice for high-efficiency voice and music reproduction in public-address, paging, mobile systems and all similar applications. Two Projector sizes (20" and 24" bell diameter) are now available, both Reflexed for compactness and weather exclusion, rated at 15-25 watts. List prices range from \$56.50 to \$64.50 in Field Coil and PM designs. (Complete Projector, less separately available adjustable stand.)

Write for Data Sheet 123—it gives complete details.

1. Patents Pending. 2. U.S. Pat. 1,845,768. Others Pend.



Weatherproof ANNULAR Driver Unit enclosed in sturdy 1/4" steel case... husky out-of-the-weather screw terminals... screen-protected dustproof sound chamber... to mention only a few of the designed-in improvements for more dependable service.

**Jensen**  
6601 SOUTH LARAMIE AVENUE, CHICAGO

# U. S. GEODETIC SURVEY

## USES **RAYTHEON** TUBES



Chart making by the United States Geodetic Survey is an exciting job! Sono-Radio-Buoys have been devised to obtain the Survey Ship's position when working beyond the sight of land. The buoys, containing radio transmitting apparatus, are anchored at specific positions—sound transmitted through the water at intervals reaches the buoys and is picked up by a submerged magnetophone—the amplified sound keys the transmitter—and the signal picked up by the ship is used to determine the distance from the ship to the buoy.

Tubes in the wave-tossed buoys must function at top efficiency at all times for absolute accuracy is required... that is why you will find RAYTHEON tubes on the job... just as you will find RAYTHEONS constantly doing a top notch job for servicemen and dealers everywhere in their replacement problems.

The most successful servicemen and dealers realize the advantage of RAYTHEON replacement tubes to protect their profits, turnover and the good will they have built up in their communities. With all their plus advantages, RAYTHEONS cost no more!

Insist on RAYTHEONS for your next tube order.

JUNE TRADE SHOW • BOOTH 617



**RAYTHEON**  
MAKES THEM ALL

NEWTON, MASS. NEW YORK CHICAGO  
SAN FRANCISCO ATLANTA

**WORLD'S LARGEST EXCLUSIVE RADIO TUBE MANUFACTURERS**



# Majestic

MIGHTY MONARCH OF THE AIR

**ANNOUNCES A COMPLETE CHANGE  
IN MANAGEMENT AND POLICIES OF  
GREAT IMPORTANCE to DEALERS**



### E. A. TRACEY

During his eight brilliant years as a Zenith executive, Mr. Tracey was responsible for design, performance and pricing of the line as well as selecting all cabinets. The ability he demonstrated so conclusively promises fully as impressive success for Majestic.

### H. A. GATES

For a number of years chief engineer for Colonial Radio, Mr. Gates served Zenith in the same capacity from 1928 until 1932 when he returned to Colonial. From 1936 until he assumed the presidency of Majestic November 30, 1940, he was Detrola's vice-president in charge of engineering.



## Distinguished Records of New Executives Assure a New Era of Bigger Sales and Higher Profits for Majestic Dealers Everywhere

Everyone who knows the records of E. A. Tracey and H. A. Gates will recognize their leadership as a virtual guarantee of immediate, substantial progress and increased prosperity for Majestic Radio & Television Corp. Not only are both noted as master builders of the best in radio but also as master merchandisers. Both feel that their job is not finished until the radios they produce are in the hands of satisfied owners. Both have decisively proved, moreover, that they know how to do that complete job.

As chairman of the Board and General Manager, Mr. Tracey will have even greater scope for the talents which changed losses into profits, in his former connection—the most spectacular success in recent radio history! Mr. Gates, as president in charge of engineering and production, will also have greatly increased opportunity for the abilities so brilliantly demonstrated with Colonial, Zenith and Detrola.

Substantial interests now identified with Majestic assure these two outstanding executives ample financial backing for all their plans. These plans not only include a smart new line of better-than-ever Majestic radios but also insurance of prompt deliveries and a new unusual type of dealer relationship plus a new vigor and effectiveness in advertising and merchandising that will make a Majestic franchise invaluable for any dealer in any community. Write today for full details.

## MAJESTIC

**RADIO & TELEVISION CORP.**  
2600 W. 50th St., Chicago, Illinois

# Majestic

MIGHTY MONARCH OF THE AIR

ANNOUNCES A UNIQUE  
**CONTROLLED DISTRIBUTION PLAN**  
 TO BOOST PROFIT ON NEW 1942 LINE



## Sensational New Plan Ends Abuses That Now Cut Retail Earnings—Gives Dealer Fair Share of Profits on Every Majestic Sold

There's everything you could ask for in the new 1942 Majestic line. Everything is new except the widely accepted name. But most important to you as a dealer is the revolutionary **CONTROLLED DISTRIBUTION** plan which assures you a really worthwhile profit on that new line. Excessive trade-in allowances, destructive neighborhood competition, unfair dealer discounts and other profit slashing abuses are reduced to the vanishing point by a sales policy which, in its planning, gives to retail profits equal importance with factory desire for volume.

To make this new plan still more profitable, a completely new line has been created. It includes a smartly styled, superbly engineered model for every purse and every taste.

### Combination Consoles • Compacts Recorders • Portables • Farm Sets

You'll find them all in the great new Majestic line—quality built—priced right—as pleasing to the eye as to the most critical of ears! And, with this great new line—**CONTROLLED DISTRIBUTION!** The most famous name in radio—*guaranteed* superiority—plus values—ideal cooperation—prompt deliveries—many reasons for writing today for full details.



Model 7C75—Automatic radiophonograph combination console; 7 tubes, two band receiver covering American, Police and Foreign broadcasts. Features—TUNED-R.F. STAGE ON ALL BANDS—PUSH-PULL OUTPUT—3 GANG TUNING CONDENSER—8 TUNED CIRCUITS—BUILT-IN ANTENNA. AUTOMATIC RECORD CHANGER—SELF STARTING CONSTANT SPEED MOTOR. Play 10 or 12 inch records. The cabinet is designed of walnut. The phonograph is completely hidden and slides out into view when necessary. Cabinet size 39" high, 27" wide, 16½" deep.

Model 7C40 is a full 7-tube, two band superheterodyne table automatic phono-combination. Automatically plays and changes 10 or 12 inch records with lid closed. The radio chassis features in addition to 7 tubes and two bands—EXTRA POWERFUL CIRCUIT—4 WATTS PUSH-PULL OUTPUT—TUNED-R.F. STAGE ON ALL BANDS—3 GANG CONDENSER—8 TUNED CIRCUITS—LOOP ANTENNA—AEROPLANE TYPE PILLOW DIAL. Hand rubbed, trimmed walnut cabinet, 17½" wide, 13¾" high, 17½" deep.

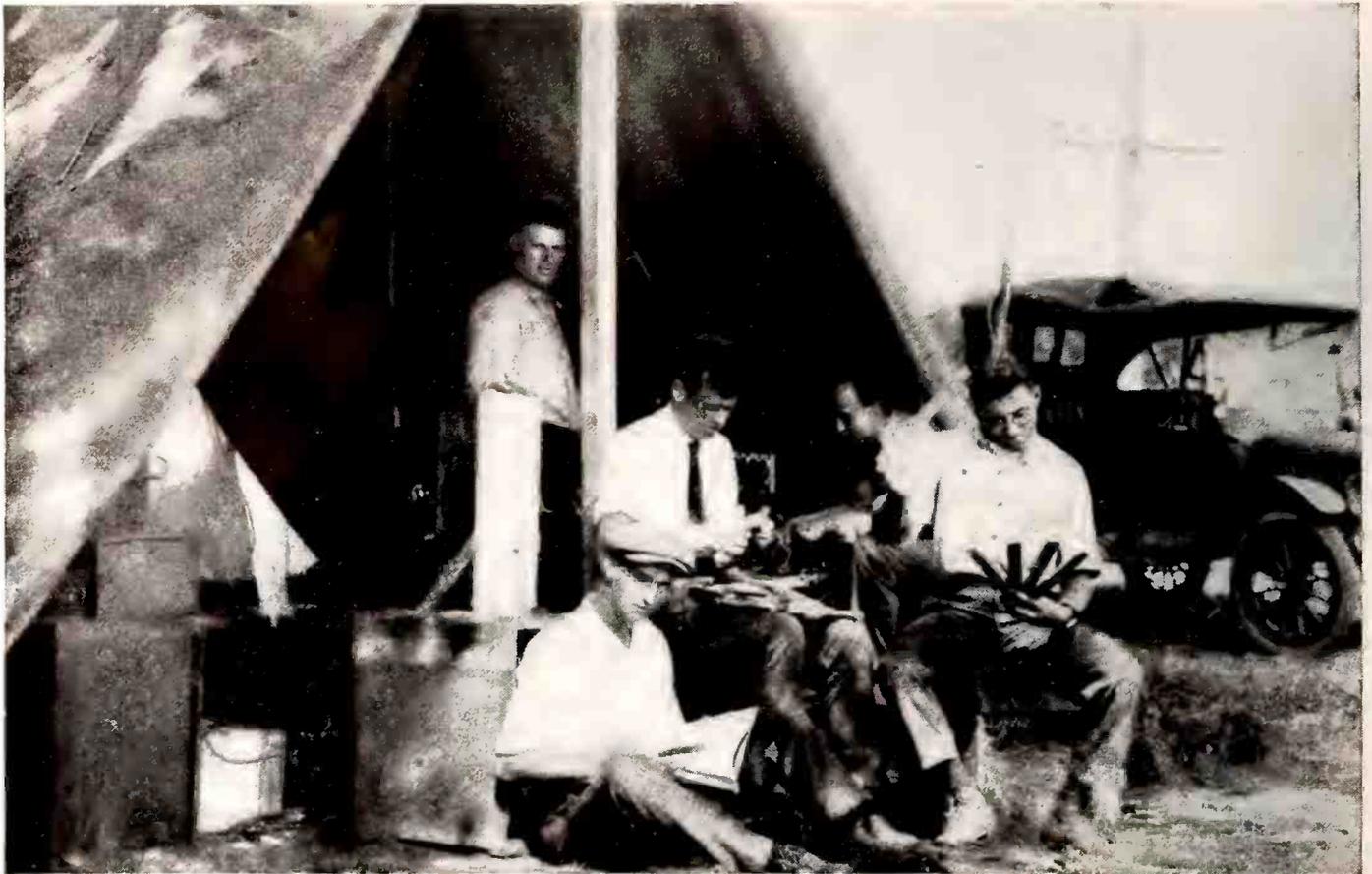
Model 7T11—RADIO'S BIGGEST VALUE. Never before, a 7-tube model at this price. It's a FULL 7-tube AC-DC, 1 band set covering standard and city police broadcasts. R.F. stage, lane control—5½" electro dynamic speaker—built-in loop, 2 watts of NEW DRIVER OUTPUT CIRCUIT—sensitivity under 10 microvolts—8 tuned circuits—large square aeroplane dial. The cabinet is an attractive design in plastic with plenty of size, 12" wide, 7 11 16" high, 6¾" deep. Comes in walnut or white colors.



Model 6P1AC-DC battery PORTABLE with spectacular REMOVABLE WAVE RANGE FINDER. Non-directional removable WAVE RANGE FINDER guarantees superior TUNED-performance on trains, aeroplanes, in steel buildings and other bad reception spots. The WAVE RANGE FINDER is exclusive on MAJESTIC portables. Other features: 6 tubes—3 gang condenser—Tuned-R.F. Stage—5" P.M. Dynamic Speaker—1 Watt output on AC-DC—combined rectifier and output tube for AC-DC. Separate output tube for battery gives maximum performance. Extreme selectivity and sensitivity. Attractive suitcase type cabinet covered with Hydrex. Closed front. Size 12¾" wide, 9½" high, 6½" deep.

## EVERY MAJESTIC GUARANTEED

Equal or Superior to Any Competing Model



## ***It all started in a tent...***

AGAINST the horizon of "the spires of Princeton," the world's largest radio research laboratories are to be built by the Radio Corporation of America at Princeton, New Jersey.

The new RCA Laboratories, to be completed before the year-end, are planned to promote the growth of radio as an art and industry, and to meet the expanding demands of national defense. Several

hundred research experts and engineers will coordinate their efforts to create new products and services, and improve existing ones, in all fields of radio and electronics.

The march of progress which has led to Princeton started back in 1919 when the first RCA laboratory was located in a tent, later to be augmented by a shack 15 feet square at Riverhead, L. I. From

that humble beginning, with public service as the watchword, RCA has pioneered in radio manufacturing, international communications, marine radio, broadcasting, sound reproduction and television. Through continuous research it has discovered keys that have unlocked new doors of radio science, and has extended the usefulness of radio into many realms of public service.

Now, RCA research experts on a united front at Princeton are to take another historic step to enhance America's preeminence in radio, and to increase the services of radio to the Government, to the people of the United States and to industry.



## **RCA LABORATORIES**

A SERVICE OF RADIO CORPORATION OF AMERICA  
Radio City, New York

RCA Manufacturing Co., Inc. • Radiomarine Corporation of America  
RCA Laboratories • National Broadcasting Company, Inc.  
R.C.A. Communications, Inc. • RCA Institutes, Inc.

# More ***NEW*** Models BY **FARNSWORTH**



**FARNSWORTH MODEL CT-43** . . . A two-way winner. Cabinet-enclosed battery. 4-tube Superheterodyne. Permanent magnet dynamic speaker. Standard and police broadcasts. Automatic volume control. Convertible to 5 tube AC-DC by adding 117Z6GT tube. Operates from any standard make power pack. Two-tone mahogany plastic cabinet with bronze finish grille. Size 12" long, 7 3/4" high and 7" deep.



**FARNSWORTH MODEL CT-42** . . . 4-tube Superheterodyne. 6" permanent magnet dynamic speaker. Automatic volume control. Cabinet takes any standard make battery pack. Standard and police broadcasts, high legibility slide rule dial with two-tone metal escutcheon. Beautiful walnut veneer cabinet size 18 1/2" long, 9 1/2" high and 10 3/4" deep.



**FARNSWORTH MODEL CT-41** . . . 4-tube Superheterodyne. Permanent magnet dynamic speaker. Standard and police broadcasts. Automatic volume control. Cabinet enclosed battery. Takes any standard power pack. Mahogany finish plastic cabinet size 12" long, 7 3/4" high and 7" deep.

Following right on the heels of our successful introduction of the sensational three-way "Tripleplay" camera-type portable Model CT-59 at \$19.95 and the style leader Model CT-60 luggage-type super performer, Farnsworth presents a further forecast of more to come—and right in line with the season. Here's the low-down on three new beauties just introduced into the Farnsworth line—and they'll be there in 1942.

Battery operated—though that winner at the top is convertible either to AC or DC by the addition of one tube. Looks that a Ziegfeld girl could envy—tone and performance that is demonstrably superior—priced to close sales on the spot.

### Opening Big New Markets For You

These new Farnsworth sets are built for the millions of un-wired homes. Farm homes. Country homes. Summer cottages. Hunting lodges. Fishing camps. The places your customers will be this summer. We are offering these to you now, in advance of our full line announcement, to give you the jump on this important market.

Low priced for quick sale and *many customers*. And still they show you a fine profit. Read the description accompanying each illustration—then be prepared to take the brakes off your order pencil. You can inspect these sensational new models at your Farnsworth distributor's, and get more money-making facts from him. Or phone, wire, or write to Farnsworth Television & Radio Corporation, Fort Wayne, Indiana.

## FARNSWORTH

MAKERS OF RADIO AND TELEVISION TRANSMITTERS AND RECEIVERS,  
THE CAPEHART, THE CAPEHART-PANAMUSE AND FARNSWORTH  
PHONOGRAPH-RADIO COMBINATIONS

**WENDY BARRIE**  
 too, enjoys the new  
**WESTINGHOUSE**  
*"Carryette"*



Featuring the exclusive Westinghouse "Stratoscope" antenna which gives clear reception at remote spots, a Westinghouse "Carryette" brings more programs better to all outdoors . . . beach parties . . . camping, fishing . . . boat trips . . . vacation tours, or home or office. Orders for these sets are breaking records. Cash in now!

PHONE OR WRITE YOUR NEAREST  
 WESTINGHOUSE DISTRIBUTOR

**WENDY BARRIE**  
**RKO RADIO-PICTURE STAR**

is shown with Westinghouse "Carryette" WR62K2. Operates on AC, DC or batteries. Brown pigskin leatherette makes it a truly handsome portable.



**WESTINGHOUSE**  
*"Carryette"*

The smartly styled WR62K1 operates on AC, DC or batteries. "Stratoscope" antenna gives clear programs at remote spots.

**Westinghouse** *Precision*  
**RADIO**

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# RADIO *and Television* TODAY

## AN FCC TORPEDO, AIMED

## AT YOUR BUSINESS, MR. RADIOMAN!

Network broadcasting has long been the backbone of radio.

Network programs bring the American public its up-to-the-minute news, overseas broadcasts, great music, great drama, and great programs of all kinds.

Radio listeners tune in to network programs five times as much as they listen to local programs.

\* \* \*

Yet, suddenly the FCC proposes to torpedo this invaluable factor in American life. It would impose requirements on the networks which will make the present great system of network broadcasting impossible to support or continue.

The Commission's new "Chain Broadcasting" regulations, issued May 3, would crush out the very vitality of present-day American network programs—universally agreed to be unequalled in all the world!

If the Commission's destructive orders are carried out, much of local broadcast-station service will return to the status of honky-tonk music, cheap phonograph records, advertising blurbs, dreary local programs, poor talent, uninteresting and interminable speeches!

Gone from the homes of America will be the great music, great dramas, great artists, overseas reports from European capitals, broadcasts of national events!

### **Radio Chaos—Radio Ruin!**

Indeed, the new FCC order will "create anarchy or a kind of business chaos in which the service of the public would suffer"—these are the words of Commissioners Case and Craven, the two best radio-qualified FCC members, in their protesting minority report.

The proposed new set-up will "ultimately destroy the freedom of the air," declares Niles Trammell of NBC.

The new regulations are "calculated to torpedo the existing broadcasting structure," states William Paley of CBS—adding that "the language of the order is designed to make the public believe it is promoting, what it is actually destroying!"

### **Whole Trade and Industry Will Suffer**

This FCC torpedo is not aimed at American broadcasting alone, Mr. Radio Man. It is aimed at the business of every radio dealer, every serviceman, every distributor, every manufacturer.

It is a ruthless move to destroy the great cultural service that has for 15 years enriched American homes.

In proposing this crushing blow, the FCC has stepped beyond any authority Congress ever gave it.

If you do not want to see American broadcasting torpedoed, and your own business sunk along with it—

Explain this situation to local leaders in your community, tell your customers about it, and protest to your congressman and senators at once!

# RADIO'S TRENDS

## Defense Priorities Curb Raw-Material Supplies

Radio and many other industries are facing sharp curtailment of aluminum and also such substitutes as nickel, zinc and copper in varying degrees. Involved are problems of reduced radio production, employment and merchandising. Putting radio in Class B7, OPM priority orders on April 18 restricted radio and all communications apparatus to a limitation of 30 per cent (on average 1940 deliveries) of aluminum for May requirements, providing aluminum is available for civilian purposes beyond mounting defense requirements. Immediately affected is production of radio condensers, tubes, speakers and other components, with wide industry resort already to metal substitutes.

No prospect of increased metal supplies for the radio or, in fact, other industries was given to the RMA Priorities Committee at its Washington conference April 22 with Dr. E. M. Hopkins, chairman, OPM Metals and Minerals Group, and his staff. This included Dr. S. S. Stratton, general division assistant; Arthur D. Whiteside, chairman of the OPM Commercial Aircraft Group, and the respective OPM Aluminum, Nickel and Zinc administrators, Messrs. Frank B. Cliffe, David A. Uebelacker and John A. Church. The RMA Committee consists of Paul V. Galvin of Chicago, chairman; Fred D. Williams of Philadelphia, vice chairman; and Messrs. F. R. Deakins of Camden, N. J.; Ray F. Sparrow of Indianapolis, and A. Bloom of Elizabeth, N. J.

## Radio Weekends, Portables, Summer Profits

On the front cover of this issue are a pair of smiles which are typical sights when a nation is off to the outdoors, to enjoy that great American institution, the Week End. This year, it's a great time for the radio dealer, too, because families have more money to spend, and they're very apt to spend it right in the U. S. This means more radio—portables, auto sets, personal jobs—so that the week-enders and vacationists can keep in every-hour contact with the big news events of the world today.

For this big sales job, RADIO TODAY reports in this issue the brand new portables, the sales trends, auto radio merchandising methods, etc., that go to make up an exceptional warm-weather season for radio.

## Radio Week at Chicago, June 10-13

With the 17th annual RMA convention and the Radio Parts National Trade Show scheduled for the Hotel Stevens, Chicago, June 10 to 13 will be Radio Week. The RMA convention and committees meet June 10 and 11, and the Trade Show continues through Friday, June 13, which will be Servicemen's Day. Meetings of the Sales Managers Club, the Radio Servicemen of America, the "Representatives," and other groups in the industry, will also be held during Chicago's Radio Week. On Friday, June



Fred D. Williams, of Philco, is active vice-chairman of RMA's important Priorities Committee, which Paul V. Galvin heads. All eyes are now turned on this committee's work.

13, at 6:15 p.m. CSDT. Editor Caldwell of RADIO TODAY will make a nationwide report on new things in radio, over the NBC Blue network.

The RMA convention will open Tuesday, June 10, with a general membership meeting, followed by committee sessions, and the industry banquet on Wednesday evening, June 11.

A number of manufacturers and distributing organizations will also hold their own get-togethers during Radio Week. RCA Manufacturing Company has scheduled a "Radio and Electronics Parade" for the Hotel Morrison, June 9.

## The Second Coming of Television

The radio industry finally got an affirmative nod from the FCC, and the full commercialization of television will start July 1. The Commission approved the standards which were, for the most part, recommended by the National Television System Committee, and said that stations may sell sponsored time on the picture service beginning with July.

The FCC is encouraging the idea of a 6-month testing period for the new art, during which stations do further experimental work, particularly with color. At the end of this period, further changes may be considered.



M. F. Balcom, vice-president, and P. S. Ellison, sales and advertising manager of Hygrade Sylvania Corp., outline some aggressive sales plans on radio tubes for the rest of 1941. Scene is a new building addition to Emporium, Pa., plant.

## More Money Passed Around

One of the mightiest factors affecting the new buying power of the U.S. public is the number of wage increases announced by factories employing thousands of workers. Radio itself contributes heavily to this trend, as three of the manufacturers are noted among the firms giving their employees a substantial hike in pay.

General Electric has just revealed a salary increase of \$4 per week, retroactive to April 7th, for all salaried employees getting up to and including \$4,000 yearly. Over 20,000 workers are involved.

Hygrade, Sylvania announced pay increases for about 4,000 in its six plants in Massachusetts and Pennsylvania. The boost amounts to about 7½ per cent.

Philco has signed a new agreement with a union, whereby the increased compensation to employees will amount to more than \$400,370 a year.

## Explaining Radio in Defense

With increasing interest on the part of both public and radio industry in the roles which radio and radio devices are playing in the present National Defense effort, the subject matter of the weekly Radio Magic programs which Editor Caldwell of RADIO TODAY conducts over the NBC Blue network is being given over in part to industrial electronic applications of radio tubes and radio devices.

At the same time each program gives helpful advice to the general public on matters of improving its own radio listening,—information on new sets, how to eliminate interference, how to increase the convenience of listening, when to replace tubes and worn-out parts, and how to utilize the services of nearby radio dealers and repairmen.

Radio Magic programs are heard every Friday at 7:15 p.m. EDST (6:15 CSDT) over NBC Blue network stations, and are repeated to South America and Europe on Sundays at 12:30 p.m. EDST, over WNBI (17.78 kc.) Schedule of current topics follows:

- May 9—"Black Light" in Industry. No. 73.
- May 16—Electricity from the Brain. No. 74.
- May 23—The New X-Rays in Defense. No. 75.
- May 30—How Press Uses Electronics. No. 76.
- June 6—Analyzing Color with Tubes. No. 77.
- June 13—What's New in Radio. From Chicago. No. 78.
- June 20—The Dance of the Molecules. No. 79.
- June 27—Detecting Subversive Activities. No. 80.



Radio notables in Chicago stage a surprise party for prominent distributor, the newly married Sam Poncher, second from left, Newark Electric Co. head. Presenting the portable bar as their wedding gift is W. J. Halligan of Hallicrafters. Others, left to right, W. S. Hartford, sales manager of Thordarson, Arthur Schmidt of American Phenolic, and Sid Shure of Shure Bros.

## Father's Day a Radio Sales Event

Though he may be battered and neglected, the head of the American family is important to the radio dealer, in more ways than one. Thus, Father's Day on June 15 is marked for store attention, quite aside from the fact that the event can mean a lot of extra sales of "radios for Dad."

This year, the day will be more heavily publicized via the networks, magazines, and newspapers. All the activity heads up at the National Father's Day Council, 9 E. 41st St., New York City, where Alvin Austin is executive director of the promotion committee; there are also co-chairmen

for each industry, and in radio, it's Tom Joyce of RCA.

A feature of the holiday promotion will be the release of the Paramount picture short, "The Forgotten Man," starring Robert Benchley. Mr. Benchley has been given a special trophy for his portrayal of the typical American Father, in the movie.

A colorful string of store materials are offered at small cost by the Council's service dept., 175 Varick St., New York City. Dealers can get display sets, consumer folders, stickers, banners, pins, etc., featuring the official Father's Day poster by McClelland Barclay, and so help the U.S. Father end up with a smart new radio for his own personal enjoyment.



Radio's big-league baseball man, Powel Crosley, Jr., center, confidently watches progress of his Cincinnati Reds. The president of the Crosley Corp. is shown here with the Reds' manager, Bill McKechnie, left and vice-pres. Warren C. Giles.

# FINDING



People are eyeing new homes—they'll listen to new sets.

## EARLY SUMMER SEASON PRESENTS UNUSUAL OPPORTUNITIES FOR RADIO MEN

Today the indexes of business have passed even the fabulous prosperity peaks of 1928 and 1929.

Men are trooping back to work in increasing numbers.

Late reports show that defense jobs have re-employed thousands of workers.

More people are earning more money than ever before in our nation's history. People have money to spend and are spending it.

But radio men who want their full share of this new spending splurge *must go after it*. This is more apparent now than it was in earlier stages of the Defense Program.

In open competition with automobile, furniture, appliance, clothing, housewares and other dealers, for this newly acquired buying power, the radio dealer who does not wholeheartedly, enthusiastically, and consistently

go after this cash, will certainly wind up behind the well-known "8-ball."

Yet no dealer is so well equipped, so advantageously located, to get into the customer's home and *sell*, as is the alert radio dealer with a service department. For everywhere are sets needing pushbutton resetting and circuit realignment. Hundreds of sets, also, need their tubes checked, their controls re-conditioned and their antennas re-constructed.

### RADIO'S BIG CHANCE

Use this service entree into the customer's home as an opportunity to demonstrate a new radio, or record player, or small combination.

None of your non-radio competitors has such an opportunity—do not fail to make the most of it.

Of course, this new-found prosper-

ity of ours may be but artificial and temporary.

But this is only a stronger reason why the smart radio dealer will win new friends, satisfy his customers and make certain that his name and reputation are indelibly impressed upon the community he serves.

### TIME TO SHOUT

For some years past, most dealers could not afford to advertise. Now they cannot afford *not* to advertise.

Small ads, even very small ads, with personality, if run constantly and frequently, must inevitably have their long time effect.

Alert dealers will use every means of advertising at their disposal, continuously, now.

New friends and customers will be found among the newly employed, the new residents of your community and the new home owners.

Many are the ways in which contact can be made with these people, with the way paved by your advertising.

A trick handout, the old "grabbag" prize contest, the "prize key" distributed as the shifts change at your local defense plant will bring a surprising number of people to your store.

True, they may come primarily for the "free prize"—but they will see your displays, be exposed to your selling effort, and leave their names for a future follow-up.

But those are people, whose names you know, with money in their pockets to spend who are buying new things for their homes, for their pleasure.

They are *radio's finest prospects*, and you know who, and where they are.

### NEW SPOTS FOR SETS

New homes by the tens of thousands are being built, and sold, in all sections of the country.

*New home owners want new radios.*

Call on those new home owners as soon as they move in. Offer to help them any way you may be able, especially if they are newcomers to your city.

As people go back to work, families which have been "doubling up" will be going into their own homes.

Real estate offices, and the "for rent" ads, in your paper are good indicators of where to look for such residents. Take the time to follow up these sources of information, and many a sale will be the result.

These are not "one-call" high pressure contacts, but rather the basis for a continual mail or phone follow-up which must some day produce sales results.

# CUSTOMERS WITH CASH

Being "on the job" in the home is an important factor in your competition with other retailers for these new dollars, and immediate business.

## WEDDING MARCH

Every year about two million men and women marry, and found a million new families, all of whom want and most of whom will buy a radio.

Engagement and wedding notices in the papers are still as prolific a source of "tips" as ever. Follow these up, with the young people themselves and with their parents, and a high percentage of sales will result. Some dealers report as high as 30 per cent of eventual sales in their "new family" sales promotion.

Making new friends, attracting new customers must always be an important factor in increasing sales, in building your business soundly for the future.

But there are other ways of building sales volume, too.

As lower prices have broadened the market, and more radios have been bought by more people, all too many dealers have thought that all people wanted low priced radios.

As dealers have fallen into the price trap, have lost their enthusiasm for radio, have seen their radio knowledge and selling ability wane, they have become "order takers" of the first water.

Most people *want* a low priced radio

but *will buy* a more expensive and better one.

In this simple truth lies the potential for a greatly increased sales volume.

## PROFIT WORTH GETTING

No customer should be permitted to buy a compact without seeing a table combination.

No prospect for a large table model should fail to get a demonstration, and an honest selling effort, of an automatic combination.

Successful "selling up" demands a lot more, however, than just the desire to sell higher priced radio.

A thorough knowledge of how and why the higher priced sets will better serve their owner, how and why they represent a "better buy" is a basic necessity.

Keen, sincere selling ability and an absence of mental laziness are vital ingredients in the formula for "selling up."



Extra shoppers are coming to town. One of the dealer's jobs is to get them next to bigger radios, like actress Lucile Fairbanks with GE Musaphonic at right.

## NOW IS THE TIME

1. For dealers to swing new advertising efforts.
2. To make careful use of contacts made thru service jobs.
3. To make friends with the newly employed workers.
4. To tell a vigorous sales story to the newlyweds and all the new home owners.
5. To demonstrate a higher-priced set to every small-set buyer.

MAY, 1941



# FINDING CUSTOMERS WITH CASH



People are eyeing new homes—they'll listen to new sets.

## EARLY SUMMER SEASON PRESENTS UNUSUAL OPPORTUNITIES FOR RADIO MEN

Today the indexes of business have passed even the fabulous prosperity peaks of 1928 and 1929.

Men are trooping back to work in increasing numbers. Late reports show that defense jobs have re-employed thousands of workers.

More people are earning more money than ever before in our nation's history. People have money to spend and are spending it.

But radio men who want their full share of this new spending spurge must go after it. This is more apparent now than it was in earlier stages of the Defense Program.

In open competition with automobile, furniture, appliance, clothing, housewares and other dealers, for this newly acquired buying power, the radio dealer who does not wholeheartedly, enthusiastically, and consistently

go after this cash, will certainly wind up behind the well-known "g-hall."

Yet no dealer is so well equipped, so advantageously located, to get into the customer's home and sell, as is the alert radio dealer with a service department. For everywhere are sets needing pushbutton resetting and circuit realignment. Hundreds of sets, also, need their tubes checked, their controls re-conditioned and their antennas re-constructed.

### RADIO'S BIG CHANCE

Use this service entree into the customer's home as an opportunity to demonstrate a new radio, or record player, or small combination.

None of your non-radio competitors has such an opportunity—do not fail to make the most of it.

Of course, this new-found prosper-

ity of ours may be but artificial and temporary.

But this is only a stronger reason why the smart radio dealer will win new friends, satisfy his customers and make certain that his name and reputation are indelibly impressed upon the community he serves.

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# DASH-BOARD DOLLARS



Into the doorway above rolls an auto radio job, with a "Minute Man" on hand to greet the driver. Below is the display section of this aggressive NY concern.

The Great American Week End is something that auto radio dealers should consider carefully in their selling of car sets, is the report from the sales floor of Minute Men Radio Service, Bronx, N. Y. This organization is an auto radio specialist and beginning this month will handle hundreds of sales and service jobs noticeably concentrated on Thursdays, Fridays and Saturdays.

To take care of the radio needs of the mobs of week-end drivers, the Minute Men will be on their toes in more ways than one. The shop will put up an alert, clean and dignified front to the public. It will be neatly decked out with newest auto radio displays and the whole set-up will bespeak prestige. Servicemen will be wearing clean uniforms and they'll be pleasant—nobody who is greasy or

disagreeable will ever work on the floor.

This radio dealer has drive-in facilities, and repair-bench equipment to handle seven different jobs. When a car is parked in one of the seven stalls, it is parallel to a small "individual" repair bench permanently built in at the front of the stall. The outfit has a look of "auto radio efficiency," and the customers can feel that they are in the hands of experts. So much for the installation and service aspect of the place.

#### MODEL EXHIBIT

Sales and demonstration rooms are at the front of the shop, where a good variety of sets are ready to show off. Lou Slavin, one of the execs on hand, at this big shop where Theodore Greenberg is manager, is thoroughly

convinced that "people get more enjoyment from car radios than from home radios" and he therefore sells his goods with considerable spirit. Mr. Slavin feels that most people are not used to being alone, and fundamentally don't like it. Once he gives a regular driver a real idea of the lively companionship offered by a car radio, the prospect is just naturally sold on "the friend in the dash-board."

However, most of the business that gravitates to the Minute Men comes from their contacts with garage men, filling stations, chain stores, and other outlets which have an automotive nature but which have not seen fit to make a specialty of auto radio. The

Minute Men keep a representative constantly circulating among these outfits; not only to keep installation and service work coming their way, but actually to help with the sale of more car receivers.

For instance, Mr. Slavin will go into an automotive store and pleasantly ask what seems to be hindering the sales of auto sets. The personnel tells him the local problems as to demonstration, display, technical dope, etc. Mr. Slavin tells them what he knows, and often will actually assist in handling a prospect.

#### SALES ADVICE

Or, the Minute Man will contact a filling station, and suggest that the attendants make a practice of wiping off the dashboard of the drivers who come in for gas. This can be done as one of the station's services, like wiping off the windshield, or checking the water. But when the attendant gets around to the dash, it's a good time to notice the auto radio equipment or lack of it, and suggest something. Mr. Slavin declares that "suggestion" sells 90 per cent of the

(Continued on page 50)

## THIS DEALER GETS AUTO RADIO BIZ

1. By keeping his shop ready for extra week-end jobs.
2. By contacting garage men, filling stations, etc., and helping them sell.
3. By merchandising the value of car receivers as "news reporters."
4. By providing parking and drive-in facilities.
5. By using auto set displays consistently in prominent spots.



A big movie made to order for record dealer tie-ins with local theater is the Columbia picture "Penny Serenade" in which Irene Dunne and Cary Grant are performing at left. Victor records are involved.

Robert Benchley, below, gets a trophy from Mrs. Howard Chandler Christy for being the American father in the movie short for Father's Day, "The Forgotten Man." June 15 is being marked by dealers as "time to sell extra personal sets for Dad."

# SELLING TIPS



Huge background of sea and mountains for portable display by Los Angeles dealer.



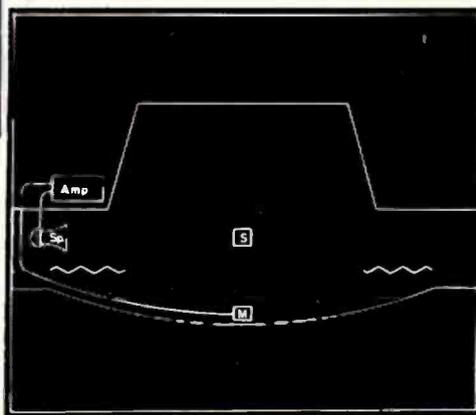
Aggressive radio station WBIG, Greensboro, N. C., cooperates in summer sales of sets with this window display stunt.



At the right, recruits at Ft. McClellan indicate how thousands of soldiers can employ a radio these days. Dealers note!



Acoustic "envelope" equipment shown above with singer, Paul Robeson. Actual set-up of equipment is drawn at right M is the mike, and S represents the singer's position. Picture at right shows Harold Burris-Meyer at controls of special sound equipment demonstrated at Metropolitan Opera House.



most large concert halls do not have the proper reverberant effects and thereby cause performers to strain their voices because they cannot tell just how it sounds.

#### ACOUSTIC ENVELOPE

It was noticed by Mr. Robeson that the effects of a small studio could be duplicated by standing in front of the speaker of a PA system through which he was singing. Dr. Harold Burris-Meyer, sound authority of Stevens Institute of Technology, worked out the present technique in connection with Mr. Robeson. Thus the idea of tailoring a sound "envelope" for the individual use of the performer was first tried.

The basic equipment used with the Robeson technique is a 10-15 watt amplifier, a regular mike, usually of the rubber-mounted foot-light type,



# SELLING SPECIAL SOUND JOBS

*Getting extra profits from the unusual PA installations.*

The special effects which can be created with sound equipment are unlimited. Theatres, stores, and a host of other businesses are using sound equipment for unusual effects and jobs. The special uses of standard PA amplifiers, speakers, microphones, etc., are perfect "extra" profit sources for sound and radio men.

One unusual type of sound application being used by singers and other artists is the Robeson technique, named after the well-known baritone Mr. Paul Robeson.

You have probably noticed singers hold their hand cupped over their ear while singing. The purpose of this is

to hear what they are singing and judge the quality of their own voice. The cupping of the hand over the ear simulates to some extent, the effect of singing in a large empty room which gives an echo effect. The method is not entirely satisfactory and cannot be used when the singer is performing in opera, and similar productions.

The prime requirement for enabling the singer to hear himself is a change in the original sound either in frequency, intensity, or phase (time delay). Some difference between the original and returned sound is the important thing. Small rooms and studios exhibit the desirable feature while

and a directional speaker. The mike is placed so that it is out of sight of the audience but still in position to pick up the voice. The speaker, a University Labs reflex model is shown in the photo, is placed at the side of the stage in the "wings" and is aimed at the spot where the artist will stand. See the layout diagram of a typical set-up.

#### TIME DELAY

Several factors are quite necessary to the complete usefulness of the system. First, it must be possible to isolate the sound "envelope" from the audience so that the necessary change

in the original sound will not be heard. Second, the equipment used should be portable, easy to install and put into operation.

One of the technical factors which had to be solved was that of the difference which was to be made in the original sound so that the artist could recognize the reproduction. Merely amplifying the sound to a greater intensity would be all right as far as the singer was concerned, but it would be also heard by the audience. A delay in the reproduced sound is the most valuable for this purpose. It enables the sound "envelope" to be less in intensity than the original sound and still satisfy the performer that he is hearing himself. This time delay is the same as the echo effect found in small reverberant rooms.

The delay in the reproduced sound is accomplished by locating the speaker

and only the high end of the spectrum is reproduced. The high end of the spectrum begins to drop off around 6000 cycles due only to the frequency range of the PA equipment used. A single speaker is the only reproducer used and it covers a sharply defined area of about 200 square feet.

The system is set up and the volume is adjusted with an empty theatre to a point well below the feed-back position.

Here is a sound application that is simple to install and operate. The market for such a unit is very broad. Practically every large auditorium will want to buy or at least rent such a system for singers, speakers, and similar performers. Many individual artists will want a system of their own to use at concerts and to practice with.

which is to act as the sounding board. By supplying the sound through a regular amplifier to the Penetron, the surface to which it is fastened is vibrated and reproduces the original sound.

Franklin Simon & Co., a large New York department store, recently used the Penetron with one of their Easter window displays. The device was attached to one corner of the large plate glass window and reproduced the sounds from a large number of baby chicks which were in the display. The entire glass window was made to "talk" and the exact origin of the sound was a puzzle to the passing crowds. Organ music and other recorded effects were reproduced over the system with very good effects. Approximately 5 watts of audio was supplied to the Penetron and this gave an audible sound the entire length of the window out to a distance of about five feet from the glass. The driver unit can be easily concealed back of a small sign pasted to the window. A photo of the crowd around the window shows the interest the device created.

(Continued on page 27)



Crowds attracted by "sound coming through the windows" at a New York department store, are shown at left. New Penetron speaker which vibrates the glass was used.

Traffic flows smoother in Salem, Mass. these days with the new call system donated by Hytron Corp.

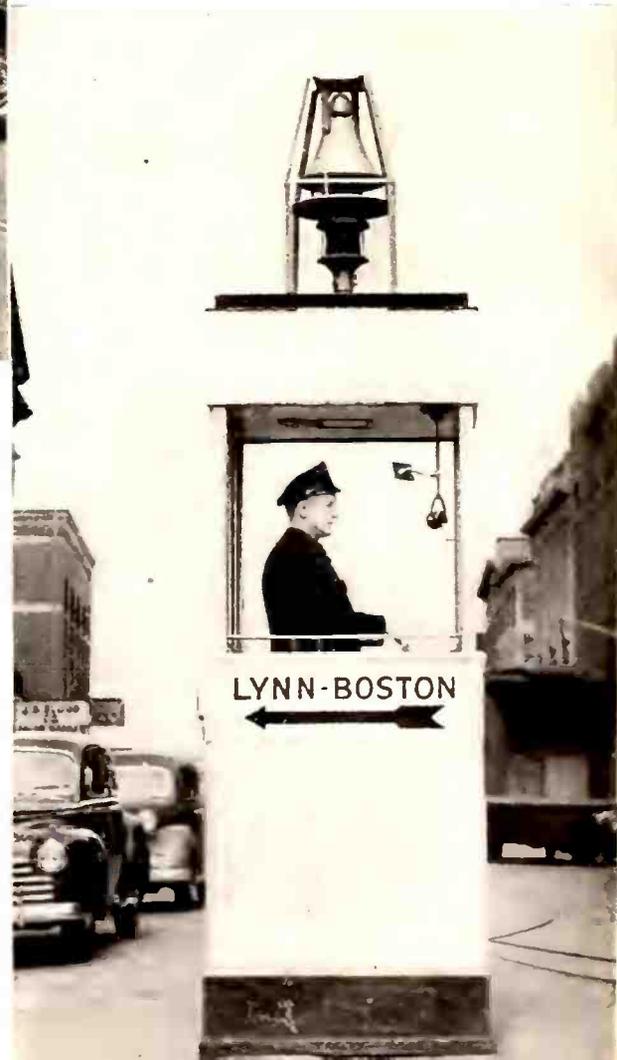
50 feet or more from the artist, or placing the speaker so that the sound will be reflected from some surface and travel a total distance of at least 50 feet. This distance will insure a time delay sufficient to be noticed by the singer. The usual position for the speaker is in the "wings" or space at either side of the stage.

#### CROP THE LOWS

The frequency range of the system was another problem which had to be solved. Because of the necessity of keeping the amplified sound from the audience, a highly directional sound beam was desired. Since the lows below about 500 cycles are almost impossible to beam, these are "cut-off"

#### TALKING WINDOWS

Walls that whisper, windows that talk to you as you pass along the street, your car talking back to you; these are just a few of the many uses for a new type of sound reproducer called the Penetron. The Penetron is a development of Mr. Glen Holland, industrial designer, Bronxville, N. Y. The new unit is a specially designed permanent magnetic electro-dynamic driver with no cone or diaphragm of any kind. The Penetron is attached to any rigid surface such as a glass window, wall, table top, car roof, etc., by means of suction cups or other device. A center contact ball which is attached to the special voice coil is held firmly against the surface



# SUMMER RECORDS



Here's how a dealer makes a window magnet from blow-ups of ads in national magazines. Lyon & Healy, Chicago, featured Columbia's Lotte Lehmann testimonial, from "Life."

Now it is the time of year when many records are bought to be played outdoors.

Fact is, the portable record player is expected to be the life of many an outdoor party this summer. Appropriate discs must be provided and dealers must be ready to suggest them.

Summer records will also be needed for all those events on the terrace, on the roof-top, and at the summer home, where the regular record-playing table model or console is used. Recorded music naturally gets a big hand among the folks who attend this kind of gathering. Particularly they turn to the platters in cases where the

Record men at Haynes-Griffin, N.Y.C., in the midst of a big stock-up on the Victor Album, White Cliffs of Dover, recorded by Lynn Fontanne, from best-selling book.



summer radio static proves to be an annoyance.

Record retailers say that when people plan to "rough it" a little for a week-end, they want to take records along, but not the most valuable ones that might get lost or damaged. Yet they do not want to drag along the kind of music which may lose its charm with repeated playing.

## SUMMER SELLERS

With the help of a number of merchandising experts who face the public across the record counter, plus recommendations from the record manufacturers, a number of specific suggestions can be made as to which discs will move well during the summer months.

Albums are good sellers because of their carrying convenience. Those with the Viennese waltzes are okay—Columbia has a pair of them—"Strauss Waltzes" (C-13) and "Waltz Time in Vienna" (C-17). Or, if the "Pops" Orchestra treatment is wanted, Victor has the Strauss works in Album M-445. Victor also has a good single record by Stokowski with "Blue Danube" and "Tales from Vienna Woods," No. 15425. Decca's Strauss Waltzes come in Album No. 5.

There are a number of composers whose works are featured in albums, which are very suitable for summer enjoyment. For instance the Victor Herbert collections—the Victor album C-33, the Columbia M-415, and the Decca 82. Then there's the Columbia "Music of Stephen Foster" (M-442), and the Victor albums on Rudolf Friml (C-9), Sigmund Romberg operettas (C-24), and the Gilbert & Sullivan collection (C-23).

A number of albums starring a single orchestra leader have been named for the summer classification. They include the Columbia ones with Eddy Duchin, C-32, with favorite tunes, and C-52, featuring Gershwin music. Also, Decca has a pair of albums by Carmen Cavallaro, numbers 122 and 177.

## MORE FAVORITES

It has been reported that many of the week-enders are apt to want records with favorite tunes from the musical comedies. Often these numbers are fondly tied up with the time the performance was attended; scenes are remembered and the records are vigorously demanded.

On this list would be the Victor album "Lady in the Dark" (P-60) and the Columbia "Musical Comedy Fa-

vorites" (M-430). Also the Decca "Panama Hattie" group, No. 203.

Other records of seasonal importance would be the Victor "Indian Love Call," Jeanette MacDonald and Nelson Eddy, (4323); "Trees" and "Home on the Range," John Charles Thomas, (1525); and an album on the William Tell Overture (M-456). Likewise the two Columbia albums "Aloha Hawaii" and "Square Dances," C-39 and C-47 respectively. Also the Columbia single records Bolero (X-174), and Rhapsody in Blue (X-196). And Decca has the album 191 of favorite Hawaiian songs, the "Drummer Boy" collection (216), plus "Irish Jigs and Reels" (205).

## Why Your Local Bands Need Recorders and Blanks

Within sales reach of most radio dealers are a number of ambitious band leaders and organizers, amateur and professionals. These people have an exceptional number of uses for home recorders and hundreds of blanks, and if they haven't thought about it, the radio man can suggest it. And his sales of this equipment may then take a leap.

What a budding band needs are (1) a record of every arrangement of every piece played publicly by the outfit, (2) a special series of discs cut for the band's agent to use in booking the organization, (3) off-the-air recordings of the top bands who use the same style, (4) a library of popular music classified by arrangements, to  
(Continued on page 35)

## Good Sales Bets Among the New Records

FOUR KING SISTERS singing My Sister and I—Bluebird B11122.

MILLS BROTHERS singing Georgia on My Mind—Decca 3688.

BING CROSBY and CONNIE BOSWELL with Bob Crosby's Bob Cats singing Yes Indeed—Decca 3689.

TOMMY DORSEY and his orchestra playing Let's Get Away from It All with VR by Connie Haines, Frank Sinatra and The Pied Pipers—Victor 27377.

DECCA SALON ORCHESTRA playing Intermezzo—Decca 3696.

VAUGHN MONROE and his orchestra playing G'Bye Now with VR by Marilyn Duke—Bluebird B1114.

RAYMOND SCOTT and his orchestra playing Let's Get Away from It All with VC by Gloria Hart (other side, The Band Played On with VC by Clyde Burke)—Columbia 36090.

FRANKIE MASTERS and his orchestra playing Dolores with VC by Mr. Masters—Okeh 6142.

HARRY JAMES and his orchestra playing Walkin' by the River with VC by Dick Haynes—Columbia 36069.

**HERE'S THE COMBINATION  
PORTABLE THAT'S GOING PLACES THIS SUMMER**



★ RECORDER ★ RADIO ★ PHONOGRAPH

**RECORDIO JR.**

SKYROCKETS SUMMER SALES



**ATTENTION DEALERS**—It's not too late! You can still add Recordio Junior to your present display line and get your share of the great summer business. But you must act immediately! Contact your nearest Wilcox-Gay distributor. Or write direct to factory. But do it **TODAY!**

Yes, Recordio Junior *is going places*—with thousands of summer vacationists everywhere. That's why dealers are finding to their joy that Recordio Junior is boosting summer sales—and summer profits—right to the sky. It's understandable. There's nothing on the market like this portable combination recorder-radio-phonograph. And the public *knows* it! Here are its greatest features: Attractive, Sturdy Airplane Luggage Style Covering; Easy to Carry—Weights Less than Twenty Pounds; Easy to Demonstrate Convincingly—Built-In Loop Antenna; Makes Radio and Microphone Recordings; Plays All 10" and 12" Records; Convenient Size—12¼" x 12½" x 9⅜"; Snap-On Cover, Strong Handle. Why not get in on the **BIG SUMMER PROFITS?** Recordio Junior points the easiest way!

Built by Makers of America's Most Versatile Radio

**RECORDIO**

RECORDER • RADIO • PHONOGRAPH COMBINATION

WRITE • WIRE • PHONE • TODAY

**WILCOX-GAY CORP.**

CHARLOTTE, MICHIGAN



Big-scale display of refrigerators at Cincinnati Gas & Electric Co., centers around dummy model. At the sides are heaps of food that will go into Crosley Shelvadors.

# REFRIGERATOR VOLUME

## Box Sales Wreck All Records

The sharp gains in refrigerator sales which continue to pile up throughout the industry, are still the talk of the trade. NEMA lists the sales for March (reports from 12 companies) as 393,425 this year; last year the figure was 277,379. The March sales bring the 1941 3-month total to 1,076,661; last year it was only 756,957.

A report from Robert I. Petrie of Crosley Corp. says that nearly three times as many Crosley refrigerators were shipped during last March as in the same month last year. Mr. Petrie revealed that his company's gains were more than twice the average industry increase, during the first two months of this year.

From Kelvinator comes the news that 1st-quarter business has smashed all existing records; refrigerator sales for the three months already amount to half the total volume done in 1940. Frank R. Pierce of this firm says that "80 per cent of the volume is averaging over \$160 per unit and this trend is becoming more pronounced all the time . . . excepting the medium-priced S-6, the most popular model in the entire Kelvinator line is the Moist-Master M-6, at \$179.95."

## REA to Sell \$90 Boxes

A 6.5 cu. ft. refrigerator to sell at less than \$90, and a 8.4 cu. ft. unit tagged at less than \$110 will now be marketed by REA-financed power systems throughout the U. S. These jobs

will be available only to farm users of Rural Electrification Administration power. They are designed especially for farm use.

A program of financing the purchases of these models was also announced by REA. Loans will be made to the co-operatives or power districts and these funds will then be used to offer time payments to the farm purchasers. They may take 5 years to pay; interest no higher than 6 per cent.

REA had submitted its specifications to refrigerator manufacturers, estimating that the 700 operating REA-financed electric systems would require a minimum of 25,000 units within 6 months. The offer of the Stewart Warner company was approved and SW is now going into production on the farm models.

## National Refrig. Week Starts May 19

An attractive new give-away for dealers to use in stirring up refrigerator business, is the oiled-silk bowl cover announced by Hotpoint as part of "National Hotpoint Refrigerator Week," May 19 to 31. This "Week" highlight of the firm's Spring sales campaign, according to Hotpoint refrigerator manager, F. B. Williams, is based on the general theme of "Mobilization for Better Refrigeration." During the period, retailers who sell the quota set by their distributors will be awarded a framed, engraved scroll as a special recognition.

Sales promotion materials for dealers during the "Week," offered "at extremely low cost" include red-white-and-blue store banners, newspaper-

type broadsides, mats, and 100 of the oiled silk bowl covers. A second promotion kit for retailers includes direct mail materials, door visualizer, wall charts, etc.

## Room Coolers in the Big Time Sales

What to expect in the air conditioning business this summer is outlined in a review of the industry given by James T. Buckley, president of Philco Corp., who says that "the experimental work in this industry has largely been done . . . prices of air conditioning equipment are now so low that the average family can purchase and use it."

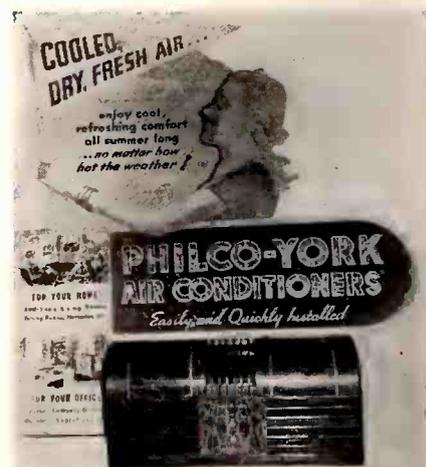
Mr. Buckley points out that between 1931 and 1939 sales of all types of AC equipment grew from about \$16,000,000 to \$57,000,000, and he says that sales will very likely amount to as much as \$150,000,000 by 1945. He declares that the portable or single-room AC unit today is further advanced than the early refrigerators when there were only about 10,000 in use. Last year the refrigerator sales amounted to about 2,600,000, and "there is no reason why this achievement cannot be duplicated in air conditioning."

## MARKETS OPEN UP

Philco expects sharply increased AC business among hotels this season, with emphasis on the portable units. Arthur Nodine, national AC supervisor for the company says that hotel business will flourish because of the great public interest in "Seeing America First." Reports are that hotelmen like the low operating costs, the portability, and the quick installation features of the new window units.

Harry Boyd Brown, Philco's AC manager, declares that one big market for the portable jobs is among the millions of amateur and professional photographers who want the units for their darkrooms.

One of Philco's big sales drives in this field, according to Mr. Brown, will be an unprecedented use of Western Union telegrams giving the features of the new 1941 Philco-York AC jobs. He reports that "virtually every physician, lawyer, dentist, executive and professional person in the U. S. will get one of these telegrams."



This new display is part of Philco's hearty promotion of '41 air conditioners.



# NEW BIZ FOR JOBBERS

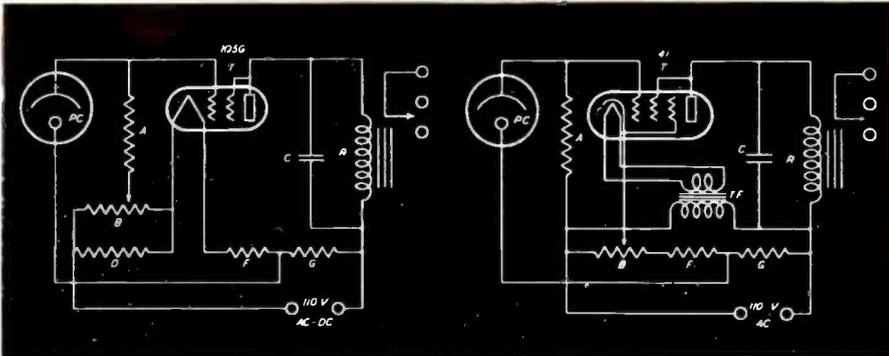
## How to sell radio and electronic equipment to the expanding industrial markets

That the progressive radio distributor needs additional products to merchandise has been recognized by discerning jobber managements over a long period. Due to increased operating expenses, it has become necessary for the jobber to be constantly on the lookout for new markets to increase his dollar volume; thus reducing the unit cost per sale.

demonstration, securing a simple photo-electric operated relay and light source for this purpose. Such equipment now on the market uses either visible or "invisible" light.

Inasmuch as the majority of applications are controlled by an abrupt change of light, a simple device will be sufficient to explain to the prospective customer just what you can

4. Give size of the objects that are to intercept the beam as well as the speed at which they are traveling.
5. How far from the light source is the intercepting object?
6. What is the room temperature range?
7. Is the equipment to be used out of doors? Plans and position should be given.
8. How many complete operations per minute are desired?
9. Give characteristics of circuit to be opened in volts, amperes, etc.
10. Is the load highly inductive?
11. Is the contactor to be closed or open with light on phototube?
12. Line voltage—actual maximum and minimum, if possible.
13. What is the nature of the proposed application:
  - A. Protection?
  - B. Safety?
  - C. Supervision?
  - D. Counting?
  - E. Door operating?
  - F. Industrial?



Typical phototube circuits for use on either AC-DC or straight AC. Continental Electric Co., Geneva, Ill. supplies the phototube CE-1-E. See page 34 for circuit constants.

"Yet, knocking at the jobber's door is a comparatively unexplored market," declares L. L. Worner, President of Worner Products Corp., Chicago. "This new market relates to the application of electronic devices and photoelectric cells to the industrial trade. This business of industrial sales, if properly cultivated, will level out the valleys in many a jobber's sales-curve and, in certain instances, cause that curve to rise."

### FIVE KEYS TO NEW SALES

Cataloging, contacting, understanding the principles of photonic devices, demonstrating, and hard work—these are the five tools which must be used by the radio jobber to secure this business. The initial cost of getting electronic sales by the jobber will not be high if he will place one of the devices on demonstration to show customers who call at his place of business that he is selling photo-electric and electronic equipment. This method has been proven very successful in the past by various jobbers of electronic and photocell equipment. Each such sale of electronic apparatus is then a "plus" sale. In fact, the industrial buyer will be truly grateful as he is seeking ways and means of producing his merchandise at a lower cost. Enormous savings can be made by electronic equipment, and the jobber and serviceman are the people best equipped to make local sales and installations.

The best way to make any sale of photonic equipment is by actual

accomplish. Great care should be exercised to secure the following data to be forwarded to the manufacturer of the equipment:

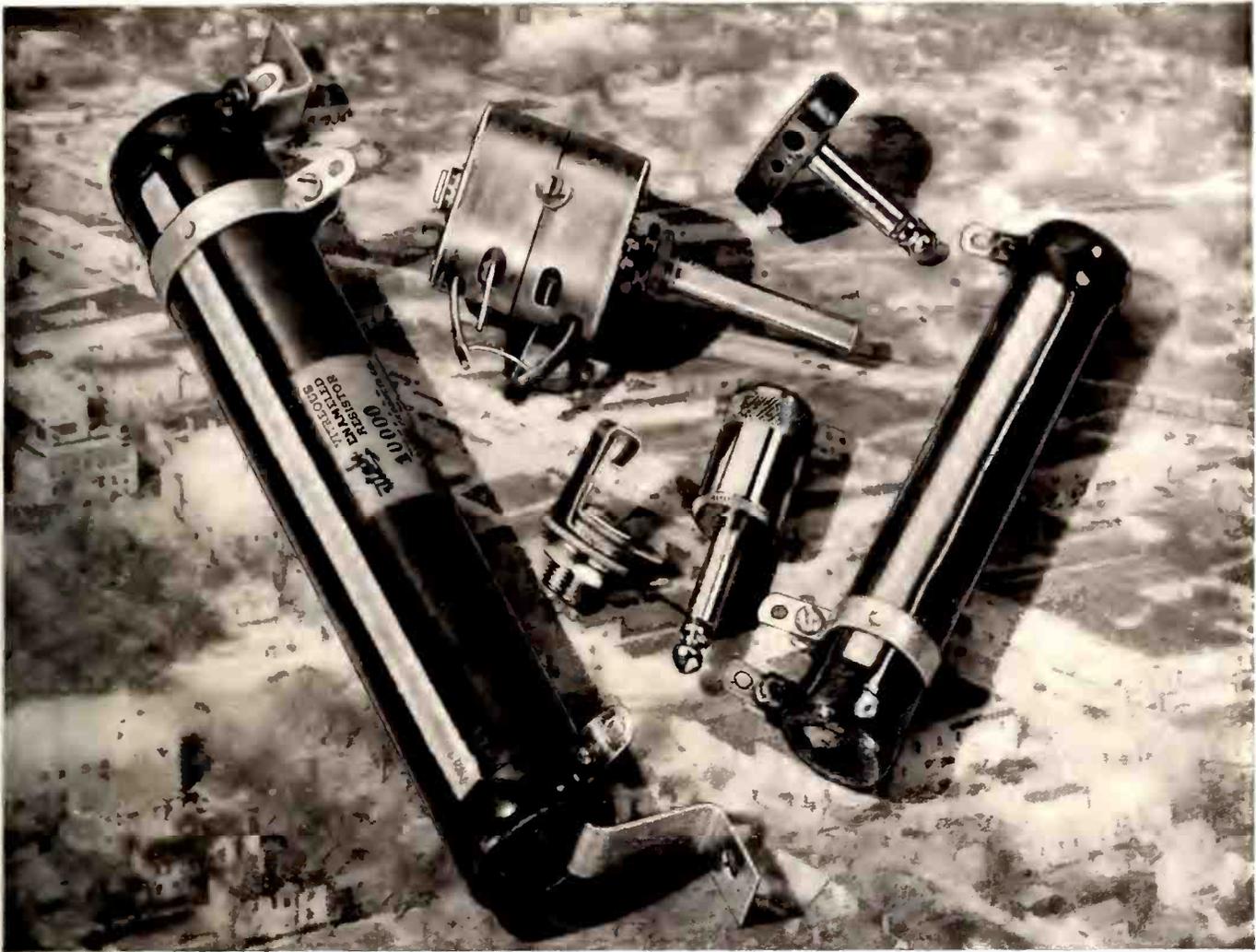
1. Will ordinary visible light be used or should it be invisible?
2. Will the light beam be sent directly from the source to the phototube and, if not, how many mirrors are necessary?
3. What is the total length of the light beam?

Various uses to which light-controlled apparatus is now put number up into the hundreds, and additional applications are constantly being made. In every case, the fundamental principles are the same—operation of some electrical or mechanical apparatus is brought about by varying the light intensity to which a special type of light-sensitive cell is exposed. Research and development have resulted in the production of devices which can be operated on commercial voltages and remain on closed-circuit continuously for an indefinite period.

(Continued on page 34)



"I wish those guys at the shop would remember to turn off the radios before they ask me to deliver them!"



## Why Utah-Carter Parts Keep Millions of Users Satisfied . . .

● In offices, factories, homes and experimental laboratories, the country over, Utah-Carter parts are keeping the users of numerous types of equipment satisfied. Because dependable performance is assured at every Utah-point, the proper functioning of the entire unit is protected. The dangers of failure because of "the loss of a horse-shoe nail" are eliminated.

You, too, can be sure that your work and your reputation are protected when you insist on the use of Utah-Carter parts. Utah engineering keeps abreast of all industry developments. Utah precision manufacturing assures maximum dependability and economy.

Utah-Carter parts are distributed nationally through recognized jobbers and dealers. Be sure the Utah trademark is on the carton. If your supplier can't furnish Utah-Carter, write us direct. Utah Radio Products Company, 814 Orleans Street, Chicago, Illinois. Canadian Office: 560 King Street West, Toronto. In Argentine: Ucoa Radio Products Co., SRL Buenos Aires. Cable Address: Utaradio, Chicago.

### IT PAYS TO INSIST ON THESE HIGH-VALUE UTAH-CARTER PARTS

VITREOUS ENAMEL RESISTORS

VOLUME CONTROLS  
Wire-Wound Type

Improved Carbon Type  
POTENTIOMETERS

RHEOSTATS • PLUGS • "T" and  
"L" PADS • LONG and SHORT  
JACKS • IMPJACKS • JACK-  
SWITCHES • PUSH-BUTTON  
SWITCHES • PLUG-IN TYPE  
D. C. RELAYS

*Be sure to stop at Nos. 1016 and 1018 in the Exhibition Hall, or Demonstration Room 505A—National Radio Parts Trade Show, Stevens Hotel, Chicago, June 1941.*



**UTAH-CARTER PARTS**  
SPEAKERS • VIBRATORS • TRANSFORMERS

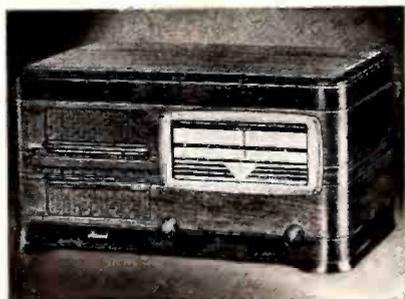
# SEASONAL SELLERS

## Westinghouse WR-42X1



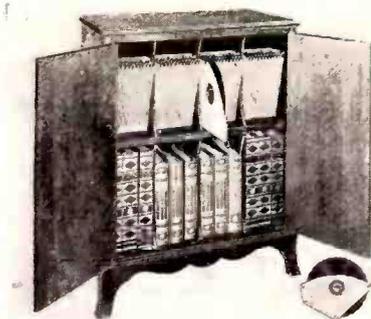
★ Housed in a solid wood cabinet the new table radio-phonograph combination is an AC superhet with 5 tubes. 5 in. dustproof dynamic speaker, inclosed loop antenna. 2-position tone control. A.V.C. Self-starting motor; plays 10 or 12 in. records with lid closed; crystal pickup in plastic arm. Westinghouse Elec. Supply Co., 150 Varick St., New York, N. Y.—RADIO TODAY.

## Admiral farm set



★ A 4-tube 1½ v. AB battery superhet, model 81-F4, is one of the 4 new 1942 farm models announced by Admiral. 6 in. P.M. dynamic speaker, 535 to 1730 kc. Iron core antenna coil, iron core I.F. transformer. Economizer switch and tube "Life Guard." Walnut wood cabinet. \$24.95. Continental Radio & Telev. Corp., 3800 Cortland St., Chicago, Ill.—RADIO TODAY.

## Linguaphone Classophone



★ An indexed, convenient cabinet for phonograph records. The Classophone makes each record available instantly in indexed mov-

able record holders, by a flick of the finger. Protects each disc from scratching, rubbing or chipping. Each record is classified with the aid of a Classophone index book and gummed sticker on the holders. Mahogany or walnut cabinet. Linguaphone Institute, 27 RCA Bldg., New York, N. Y.—RADIO TODAY.

## "Collegiate" portable combo



★ One of 4 models is Port-O-Matic No. 61-A phono-radio, a 6-tube superhet covering 550-1600 kc. High-fidelity 6½ in. dynamic speaker. Built-in Port-O-Loop antenna. Low-pressure pickup with permanent jewelled stylus; no needles required. Automatic stop electric motor. Plays 10 or 12 in. records with top closed. Built-in record carrier. Aero-tweed covering. AC only. \$59.50. The Port-O-Matic Corp., 50 E. 77th St., N. Y. C.—RADIO TODAY.

## Record O Vox model 70



★ The "Symphony" model of Record O Vox phonograph has an automatic changer. Two-tube wireless or wired player. Walnut and mahogany combination wood with inlay piano finish. 10 x 15¼ x 16 in. Wired, listed at \$32.50; wireless at \$37.50. Record O Vox, Inc., 248 W. 23rd St., New York, N. Y.—RADIO TODAY.

## Delco portables



★ Two new Delco portables of luggage type construction are powered for 3-way operation—battery, 110 v. AC or DC. 540-1720 kc. Built-in Magnascope and p.m. dynamic 5 in. speaker. Model R-1407 (shown) with closed style cabinet and removable front cover has 6 tubes and RF stage. Model R-1406 has 5 tubes. United Motors Service, 3044 W. Grand Blvd., Detroit, Mich.—RADIO TODAY.

## Emerson Phonoradio

★ Automatic table model Phonoradio No. 412 has 5 tubes, AC superheterodyne circuit, inclosed superloop. 6½ in. P.M. dynamic speaker. Standard broadcasts and police. Phonoradio changeover switch. Automatic record changer for 10 and 12 in. mixed records. Crystal pickup. Walnut cabinet. \$49.95. Emerson Radio & Phonograph Corp., 111 8th Ave., New York, N. Y.—RADIO TODAY.

## Sonora "Jewel-Eox"



★ A personal radio model presented in a solid walnut wood chest with marquetry inlay trim. Includes a 5-tube superhet with built-in Sonorascope loop, AVC, P.M. speaker. Tunes 535-1650 kc. Measures 8⅞ x 5¼ x 4 in. Weighs only 4 lbs. \$29.95. Sonora Radio & Telev. Corp., 2626 W. Washington, Chicago, Ill.—RADIO TODAY.

**LITTLE THINGS**

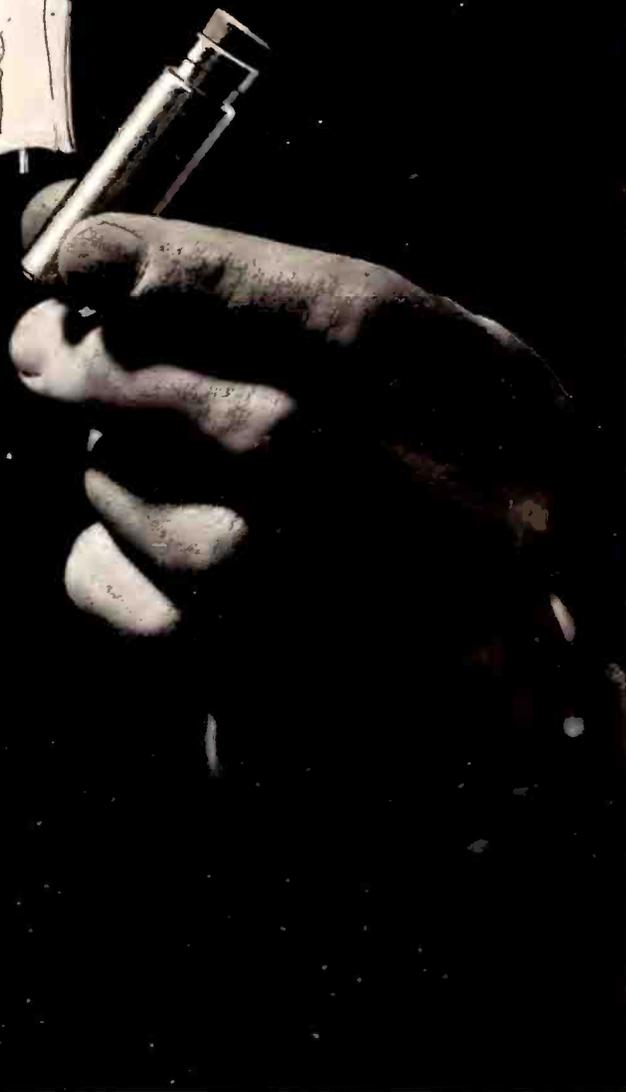
**THAT COUNT**



**T**HE PARTICLES of diamond dust in this capsule are considerably smaller than the dot of an "i" . . . and considerably more valuable in preserving the high quality of Sylvania tube grids than all the jewels our "model" is wearing.

They are especially valuable to you and to us because diamond dust is the means whereby each mandril, on which Sylvania Tube Grids are wound, is rubbed and buffed to a perfect cylinder. Thus, each grid is exact and all are uniform.

It is such Sylvania attention to the little things that maintain consistent high quality and assures satisfied dealers for us by assuring satisfied customers for you.



**S Y L V A N I A**

**SET-TESTED**

**RADIO TUBES**

Sylvania Radio Tube Division  
HYGRADE SYLVANIA CORPORATION

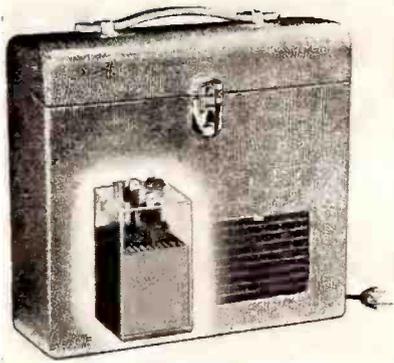
Factories at — Emporium, Pa.; St.  
Mary's, Pa.; Salem & Ipswich, Mass.



*Also makers of Hygrade Lamp Bulbs, Hygrade Fluorescent Lamps and Miralume Fluorescent Light Fixtures*

# SPRING PORTABLES

## GE rechargeable battery set



★ Luggage-type, 5-tube portable receiver (LB-530) operates on a rechargeable 2-v. storage battery, plastic encased and non-spillable. 90 v. vibrator and built-in automatic charger. Operates on battery alone, AC current, or is recharged on AC. Automatic charge indicators. Two antennas—1 beamescope located in the lid and one for window mounting. 5 in. Dynapower speaker, superhet circuit, 2 I.F. stages. 550 to 1750 kc. Tan simulated leather case. Weighs approximately 17 lbs. General Elec. Co., 1285 Boston Ave., Bridgeport, Conn.—RADIO TODAY.

## Admiral '42 line



★ Two of the new 1941-42 line of portable sets are Models 76-P5 (\$19.95) and 79-P6 (\$29.95). No. 76-P5 is a 5-tube, AC-DC, 1½ v. superhet while 79-P6 has 6 tubes. P.M. dynamic speakers and super aeroscope. The 5-tube set tunes 535 to 1550 kc. and is housed in a mahogany bakelite case. Model 79-P6 has a tuned stage R.F., choke-type filter, and tunes 540 to 1600 kc. It has a 2-tone leatheroid case and Lucite escutcheon. Continental Radio & Telev. Corp., 3800 Cortland St., Chicago, Ill.—RADIO TODAY.

## Motorola "Playmate"



★ A 1942 3-power portable features a detachable "X-Tenna" airplane loop built in the lid. Has 6-tubes, 3-gang condenser, tuned R.F. amplifier stage, P.M. dynamic speaker. This AC-DC-battery operated set is 11½ x 8¾ x 5½ in. and comes in 2-tone leather effect or airplane fabric case. Weighs 15 lbs. Galvin Mfg. Corp., 4545 Augusta Blvd., Chicago, Ill.—RADIO TODAY.

## Westinghouse Carryette WR-62K2



★ One of 7 models in the new 1942 Westinghouse line is a 3-way portable with superhet circuit, Stratoscope antenna, untuned R.F. amplification, 5 in. P.M. dynamic speaker, 540-1600 kc. Removable panel door. Power supply indicator, brown pigskin leatherette case. 6 tubes on line power, 5 tubes on battery power. Westinghouse Elec. Supply Co., 150 Varick St., New York, N. Y.—RADIO TODAY.

## Zenith portables



★ Five new 1942 Zenith portables with built-in movable Wave-magnet, offer a choice of 5 color

combinations and finishes—brown and blue-gray airplane fabric, brown and ivory, brown alligator, and cowhide. 6-tube superhet circuit, 3-way operation, on-off indicators, battery guardian reminder and provision for earphones are features. \$29.95 for airplane cloth and alligator coverings and \$39.95 for cowhide version. Zenith Radio Corp., 6001 Dickens Ave., Chicago, Ill.—RADIO TODAY.

## Philco 7-tube set



★ Model 854T another of Philco's spring and summer portables, features the new noise-reducing converter tube, and two I.F. stages, has a 7-tube circuit and shortwave broadcast reception, foreign stations named by countries and cities. Solid walnut case with beaver-graining roll top panel, simulated cork dial. Philco Corp., Tioga & C Sts., Philadelphia, Pa.—RADIO TODAY.

## Emerson model 424



★ 3-way, 6-tube superheterodyne portable with tuning range of 540 to 1630 kc. Standard American broadcasts and police. Features, like other 2 models in this line, a 3-gang tuning condenser, R.F. noise-reducing amplifier. P.M. dynamic speaker, inclosed super loop. Automatic power shift. Simulated leather cabinet, russet tan with dark tan banding at base. \$24.95, complete. Emerson Radio & Phono. Corp., 111 8th Ave., New York, N. Y.—RADIO TODAY.

## SPECIAL SOUND JOBS

(Continued from page 17)

The possible uses of this device are almost unlimited. Talking tables can be used in restaurants to replace the high sound level systems now required. Drive in movies may feed the sound to each car through such a device rather than radiate high level sound through the air from conventional speakers. Talking window displays may be used to attract your attention as you pass nearby.

These and many more effects are all done with low intensity sound that is largely confined to the surface which is set into vibration. The Penetron is not yet available commercially.

### THEATRE SOUND TRICKS

The realism of sound is being used to enhance many of the modern plays.

Some of the effects used in the film *Fantasia* (see December issue of *RADIO TODAY*) are employed in the play *Native Son* now appearing on Broadway. The audience is, during certain parts of the play, surrounded by the same sounds which are "closing in" on the actors on the stage. This effect calls for speakers around the walls of the theatre and the necessary recorded sounds which can be fed into the correct groups of speakers.

Another combination of radio and sound equipment was used in a recent play to give the actor a greater freedom of action on the stage. A miniature transmitter complete with batteries and lapel mike was worn by the actor and his words were "broadcast" to a receiver off stage which fed into the main PA amplifier.

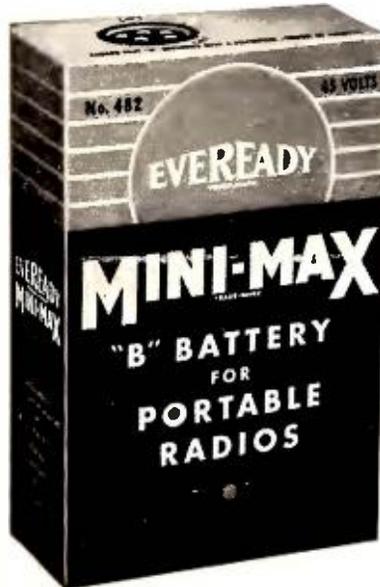
### TRAFFIC CONTROL

An unusual traffic control sound system was recently installed for the Salem, Mass. police department. This particular installation, shown in the traffic action photo, was a civic project gift of the Hytron Corporation of that city. The complete unit consists of a 12-watt amplifier located at the bottom of the booth, a Turner crystal mike mounted in an inverted position, and a "chandelier" type speaker (University Labs) mounted on top of the booth.

Both pedestrians and drivers can be cautioned by the officer with this amplifying system. Jay-walking, double parking and other traffic problems are easily smoothed out with a considerable saving of time. Other communities near Salem have been much impressed with the success of the new system.

Sound men have great opportunities to devise and install special PA and sound effects equipment. The number of uses to which regular sound equipment can be put, and the consequent markets are unlimited. Now is the time to concentrate on special sound jobs.

# HERE'S THE BIGGEST-SELLING BATTERY IN THE PORTABLE FIELD TODAY!



### AND HERE'S WHY:

1. "Eveready" "Mini-Max" "B" Battery No. 482 FITS MORE THAN 90% OF THE 2,000,000 PORTABLE SETS NOW IN USE!
2. IT LASTS ALMOST TWICE AS LONG AS ANY OTHER BATTERY OF EQUAL SIZE!
3. IT COSTS NO MORE THAN ORDINARY PORTABLE RADIO BATTERIES!

### GET IN ON THIS PROFIT OPPORTUNITY NOW!

FREE PREMIUM OFFER!  
ASK YOUR DISTRIBUTOR ABOUT IT!

### Here's the battery for "personal" or "camera-type" radios!



"Personal" or "camera-type" sets were designed around "Eveready" "Mini-Max" Radio "B" Battery No. 467. It packs 67½ volts in a space 3⅞" x 2¼" x 1⅛". Folks in your neighborhood will ask you if you have it. Order now!

"EVEREADY"  
**"MINI-MAX"**  
RADIO "B" BATTERIES

NATIONAL CARBON COMPANY, INC.

Unit of Union Carbide and Carbon Corporation



The words "Eveready" and "Mini-Max" are registered trade-marks of National Carbon Company, Inc.

**FREE!** Replacement Guide for portable receivers. Tells the proper batteries for portable sets. Accurate! Up to the minute! Write Dept. B-1, National Carbon Company, Inc., P. O. Box 635, New York, N. Y.

# THE NEW



# SELF



## USES NO DRY CELLS



## NO OTHER PORTABLE HAS ANY OF THESE SALES ADVANTAGES

1. No battery replacement worries.
2. Has built-in non-spillable airplane-type Willard storage battery and General Electric battery charger.
3. Plays anywhere on its storage battery.
4. Self-charges while playing on AC house current.
5. Charges on AC without playing, if desired.
6. Has provision for charging from auto battery.

**MODEL LB-530**—Operates on AC or on its own Rechargeable Storage Battery. Built-in Beam-a-Scope located in lid—away from metal chassis—for finer reception. Additional Window Antenna provided. De Luxe Luggage Case finished in brown simulated leather. Complete with self-contained storage battery and battery charger. Retail for \$39.95.\*

### AND A NEW G-E PORTABLE IN EVERY POPULAR PRICE BRACKET



**MODEL LB-412**—Camera-Type Carryabout. Light brown with dark brown trim. Complete with dry batteries—\$16.95.\*



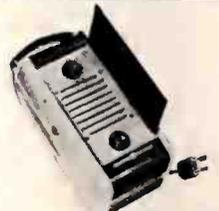
**MODEL LB-700**—Three-Way Luggage-Type Carryabout. Tan basket-weave fabric. Complete with dry batteries—\$29.95.\*



**MODEL LB-603**—Plays on AC or DC house current or on its batteries. Two tones of brown. Complete with dry batteries—\$26.50.\*



**MODEL LB-702**—De Luxe Luggage-Type Carryabout. Tan fabric with brown and ivory stripes. Complete with dry batteries—\$34.95.\*



**MODEL LB-502**—Plays on AC or DC house current or on its batteries. Dark blue and gray. Complete with dry batteries—\$22.95.\*

\*All prices subject to change without notice and may vary in different localities.

# CHARGING PORTABLE

BACKED BY AN "ALL-OUT"  
**ADVERTISING PROGRAM**  
 IN 7 NATIONAL MAGAZINES

**KEY YOUR LOCAL ADVERTISING  
 WITH THIS NATIONAL SCHEDULE**

Magazine      May      June      July      August

Saturday Evening Post	24th	7th, 21st	5th	
Life	19th	16th	7th, 21st	
Look	20th	17th	14th	
Field & Stream	May	June	July	August
Yachting	May	June	July	August
Motor Boating	May	June	July	August
Boy's Life	May	June	July	August

ASK YOUR G-E RADIO  
 DISTRIBUTOR FOR  
 READY-MADE NEWS-  
 PAPER AD MATS SO  
 THAT YOU CAN TIE  
 IN AND CASH IN ON  
 THIS NATIONAL AD-  
 VERTISING.



See your G-E Radio Dis-  
 tributor for this Colorful  
 Sales-making Display.



**GENERAL  ELECTRIC**

# THE NEW



# SELF-CHARGING PORTABLE



## USES NO DRY CELLS



## NO OTHER PORTABLE HAS ANY OF THESE SALES ADVANTAGES

1. No battery replacement worries.
2. Has built-in non-spillable airplane-type Willard storage battery and General Electric battery charger.
3. Plays anywhere on its storage battery.
4. Self-charges while playing on AC house current.
5. Charges on AC without playing, if desired.
6. Has provision for charging from auto battery.

MODEL LB-530—Operates on AC or on its own Rechargeable Storage Battery. Built-in Beam-a-Scope located in lid—away from metal chassis—for finer reception. Additional Window Antenna provided. De Luxe Luggage Case finished in brown simulated leather. Complete with self-contained storage battery and battery charger. Retail for \$39.95.

AND A NEW G-E PORTABLE IN EVERY POPULAR PRICE BRACKET



MODEL LB-412—Cameo-Type Carryabout. Eight tubes with dark housing skin. Complete with dry batteries—\$18.95.

MODEL LB-702—Three-Way Luggage-Type Carryabout. Two on AC house current or on its built-in storage battery. Complete with dry batteries—\$29.95.

MODEL LB-603—Plays on AC house current or on its built-in storage battery. Complete with dry batteries—\$25.50.

MODEL LB-702—De Luxe Luggage-Type Carryabout. Ten tubes with brown and gray rugged carrying case. Complete with dry batteries—\$34.95.

MODEL LB-502—Plays on AC house current or on its own Rechargeable Storage Battery. Dark blue and gray. Complete with dry battery—\$25.95.

\*All prices subject to change without notice and may vary in different localities.

BACKED BY AN "ALL-OUT" ADVERTISING PROGRAM IN ALL NATIONAL MAGAZINES

KEY YOUR LOCAL ADVERTISING WITH THIS NATIONAL SCHEDULE

Magazine	May	June	July	August
Saturday Evening Post	24th	7th, 21st	5th	
Life	19th	16th	7th, 21st	
Look	20th	17th	14th	
Field & Stream	May	June	July	August
Yachting	May	June	July	August
Motor Boating	May	June	July	August
Boy's Life	May	June	July	August

ASK YOUR G-E RADIO DISTRIBUTOR FOR READY-MADE NEWS-PAPER AD MATS SO THAT YOU CAN TIE IN AND CASH IN ON THIS NATIONAL ADVERTISING.



See your G-E Radio Distributor for this Colorful Sales-making Display.



# GENERAL ELECTRIC

# INTERFERENCE INCOME

**Extra dollars on every service call when you "clear the air" of interfering noise**

"I have found that a routine service call can often be used to net me an extra \$10 in noise-elimination work, if I give the 'noise' a little extra attention," states I. C. Davey, serviceman who runs the New Haven Radio Electric Shop, in New Haven, Conn. Mr. Davey can cite plenty of instances in which he has picked up ten to fifteen bucks by offering to analyze the noises in the customer's set—noises which were thought by the listener to be incurable. He sells condensers, chokes, and extra aerials, and leaves the customer in a very happy condition.

known to be in a noisy district. Thus equipped, he can often prove to the customer that the trouble is not *inside* the set but outside it.

## ADVERTISING DOES IT

As for advertising his noise elimination equipment and talents, Mr. Davey says that "if I could spend \$100 on an advertising campaign on this subject, I'm sure that it would pay out promptly." And there are no more diathermy machines, light blinkers, heating pads, faulty refrigerators, or trolley lines in New Haven than anywhere else; profits in other cities may be made to equal the profits here.

Further facts on the "noisy" situation in this area are offered by the prominent parts distributor, Thomas H. Brown, who has taken a special interest in the subject, and has been aggressively watching the situation for the last 13 years. Mr. Brown points out that new factors are showing up in the business.

In the first place, the public is now better educated to the fact that they have to pay for noise elimination work. They realize that this is an electrical age, and that it creates new problems which demand scientific solutions.

Also, Mr. Brown notes that many of the devices which cause radio interference are now used much more widely—the sun-lamps, the heating pads, electric razors, fluorescent lights and oil burners are in this group.

## SERVICEMAN'S FIELD

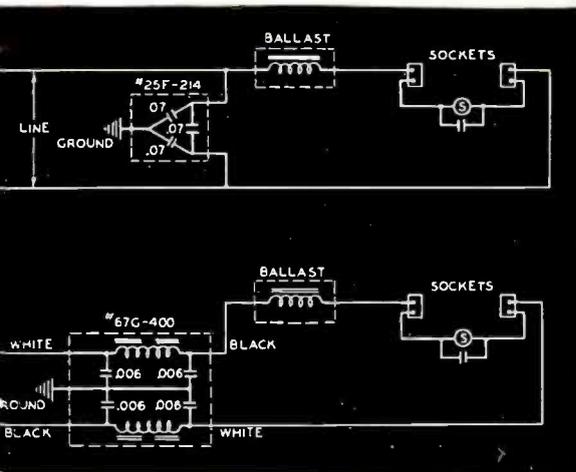
This distributor certainly thinks that more servicemen ought to get into this business. He says that the first qualification is just "common sense" and a reasonable application of the radio principles already known to the average serviceman. It is pointed out that servicemen should not get impatient and fed up, if they fail to locate the noise on their earliest jobs. They should realize that a part of their first experiences is certainly education, and that it takes a while to get into the swing of local noise conditions. Besides, there are plenty of mysterious noises which baffle and continue to bewilder the top experts.

## WHAT YOU NEED

Some equipment is needed at the outset—locators and analyzers—as well as chokes, condensers appropriate for the local conditions. Servicemen will find, too, Mr. Brown points out, that a portable radio will be very useful in this connection. Other suggested steps are (1) read the technical magazines and the manufacturers' manuals carefully and thoughtfully, and (2) regard your local jobber as an advisor and an interested aide in the matter.

Prospects of special interest these days, says Mr. Brown, are the big homes where wealthy families live and have all the work done by electric ap-

*(Continued on page 33)*



Circuits for filtering line noise created by fluorescent lamps. Filters shown are made by General Electric Co.

## \$15 EXTRA

In cases where the customer contacted him for the express purpose of getting rid of the noise, Mr. Davey has also made a good thing out of charging a flat rate of \$15. He was able to do this for several reasons: (1) the customer was thoroughly fed up with the noisy set; otherwise he never would have contacted the radio man, (2) the set-owner can be made to understand by an intelligent serviceman, how elusive and tricky the noise-elimination process can be, and (3) the serviceman had somewhat established himself as an expert on the subject by ads in newspapers, posters, and some direct mail.

This serviceman reports plenty of \$35 jobs, too, from real estate offices and apartment house owners whose tenants dislike the uproar in their sets. Also, extra jobs come from the neighbors of a single customer; if one family was troubled by noise, and Mr. Davey fixed it, he went around to the neighbors and got more work to do.

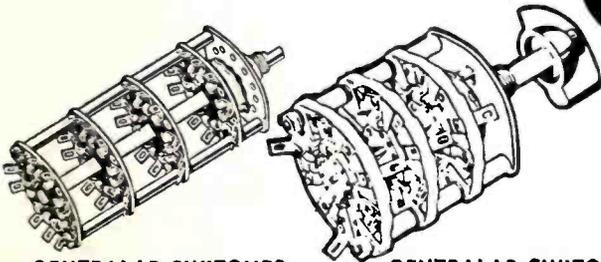
This radio man likes the idea of taking a noise locator along with him on service calls, when the address is



"But honey, even Jack Benny's jokes haven't been so funny over our old radio!"



# *There's a* **BIG" Swing"to** **Centralab** **SWITCHES**



**CENTRALAB SWITCHES  
 WITH BAKELITE  
 INSULATION**

Centralab Selector and Tone Switches in single or multi-section types with Bakelite insulation available for numerous electronic applications. The double bite control has a resistance of less than .002 ohm and is completely self-cleaning Positive index, with each rotating position 30° apart. Adjustable stop on each switch permits selecting any number of positions from 2 to 11.

*Send for catalog giving detailed description.*

**CENTRALAB SWITCHES  
 WITH ISOLANTITE  
 INSULATION**

Similar to the popular Bakelite selector switches. Isolantite is preferred in high frequency circuits because it has lower losses and less moisture absorption. Isolantite transmitter switches for Amateurs will operate in transmitters rated up to 100 watts and at potentials up to 1000 volts D.C. Contacts spaced 90° apart, adjustable stop to limit rotation to 2 to 3 positions if required.

*Send for catalog giving detailed description.*

More and more radio receivers and electronic devices call for complicated switch assemblies . . . and more and more set builders . . . experimenters, amateurs and servicemen swing to CENTRALAB Bakelite and Isolantite Switches.

These switches singly and in gangs have an almost infinite variety of adaptations. Whatever your SWITCH need may be . . . for original use or replacement . . . be sure to ALWAYS SPECIFY CENTRALAB.

**CENTRALAB** — Division of Globe Union Inc., Milwaukee, Wis.

# NEW SOUND PRODUCTS

## RCA portable recorder



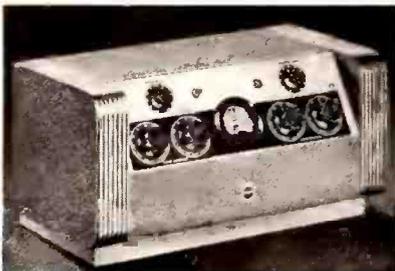
★ Deluxe portable disc recording equipment, type OR-1, for use both in the radio studio and on remote locations is inclosed in 2 handy carrying cases. Consists of 16 in. aluminum turntable, rim-driven by synchronous motor; record cutting attachment; 12 w. amplifier with gain of 105 db, built in AC power supply; and 2 loudspeakers mounted in the removable lid. RCA Mfg. Co., Camden, N. J.—RADIO TODAY.

## Meck Audiograph amplifier



★ A 25-w. amplifier lists at \$39.95. Three input channels for phono and 2 mikes. Individual volume control. Also available with 2 speakers in carrying case for use as a portable system. 2, 4, 8, 166, 250 and 500 ohm output impedance. John Meck Industries, 1313 W. Randolph St., Chicago, Ill.—RADIO TODAY.

## Lafayette amplifier



★ Model 451-T amplifier provides 32 w. output. Inputs for 2 microphones and 2 pickups. Provision for mixing 2 mikes and either of the phono inputs. Universal out-

put transformer. Field supply for two 2500-ohm speakers. Optional feature is volume indicator meter. Lafayette Radio Corp., 100 6th Ave., New York, N. Y.—RADIO TODAY.

## Speak-O-Phone model 9MA



★ Two-speed recording mechanism with 12 in. diameter, cast aluminum turntable. 78 and 33 1/3 r.p.m. speed. Tangent, crystal pickup. Mounted on steel panel, 15 x 15 in. Easy spring adjustment for cutting head pressure on different types of discs. May be connected with any good amplifier or radio for direct or off-the-air recording. Speak-O-Phone Rec. & Equip. Co., 23 W. 60th St., New York, N. Y.—RADIO TODAY.



## University MD8 driver

★ Medium power driver unit for use with all University reflex horns. Uniform response—90 to 5000 cycles. Rating is 12 w. continuous. Waterproof. Connections are made by means of a standard screw connector. Impedance 8 ohms. \$19.50 list. University Labs., 195 Chrystie St., New York, N. Y.—RADIO TODAY.

## Dunco ratchet relay

★ Type CX2600 relay has 2 independent poles. By factory adjustment of cams it may be made into a variety of contact arrangements. Contact rating is 110 v., 6 amps. Coils are available from 6 to 220 AC v. at approximately 4 w. or 2 to 230 DC v. at approximately 2 w. Struthers Dunn, Inc., 1335 Cherry St., Philadelphia, Pa.—RADIO TODAY.

## Atlas "Organette" speaker

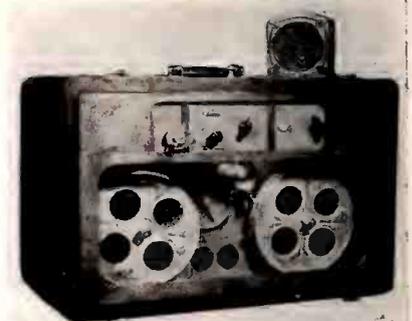


★ "Organette" has illumination on the front, sides and bottom from the light rays penetrating the translucent colored plastic which is part of walnut cabinet. Organ "pipes" are finished in gold lacquer. Uses a high fidelity 12 in. cone unit rated at 16 w. peak. 17 in. wide, 13 1/2 in., 8 in. deep. Model OR-12LT is recommended for use as an extension unit with coin-operated phonographs. Atlas Sound Corp., 1449 39th St., Brooklyn, N. Y.—RADIO TODAY.

## Knight paging system

★ An industrial paging system for hotels, offices, etc., 110 v. AC. Amplifier delivers 30 w. System consists of amplifier, V.I. meter, mike, mike stand and 4 speakers. Allied Radio Corp., 833 W. Jackson Blvd., Chicago, Ill.—RADIO TODAY.

## Filmgraph model ADB



★ Electric dictating and transcribing machine has 40 sound tracks across the film. Single sound track on 500 ft. of film will give 35 minutes of recording. 20 hours of recording and reproduction on a single 500 ft. film. 10 x 12 x 12 in. Walnut cabinet. \$450 list. Miles Reproducer Co., Inc., 812 Broadway, New York, N. Y.—RADIO TODAY.

## INTERFERENCE INCOME

(Continued from page 30)

pliances. The food mixers, fruit-juice extractors, vacuum cleaners, razors, and buzzers create radio-noise problems; these are the families who can pay the radio man a decent fee for his elimination work. Also, the apartment-house owners and managers, whose rentals are seriously affected if the tenants are not able to get satisfactory radio reception.

For more information on this subject re-read the articles published in **RADIO TODAY**.

January, 1940, page 24—"Radio Today's 'Clear the Air' Campaign."

February, 1940, page 30—"Clear the Air."

March, 1940, page 30—Chart "Clear the Air Systematically."

April, 1940, page 22—"To Clear the Air"; page 50—Radio Noise from House Fuses; page 51, Reducing Fluorescent Lamp Radio Interference.

June, 1940, page 66—"Clear the Air"—How noise-reducing antennas improve reception.

October, 1940, page 11—"Clear the Air" of Annoying Interference.

## Manufacturers Sales Meetings at Chicago

At the request of numerous representatives, steps have been taken to formulate a program for manufacturers sales meetings during the Chicago Trade Show to minimize conflicts.

A committee of the Sales Managers Club, working in conjunction with offices of the Trade Show and with the cooperation of the exhibitors themselves, worked out a comprehensive program approved by the Eastern and Western Groups of the Sales Managers Club for Saturday, June 7, Sunday, June 8, through Wednesday, June 11.

- AEROVOX—Mon., 7 to 11 P.M.
- ALPHA—Tues., 9 to 11 A.M.
- AM. RADIO HARDWARE—Mon., 9:30 to 11:30 A.M.
- AMPHENOL—Sun., 10 A.M.
- AMPERITE—Sun., 12 to 3 P.M.
- AUDIO DEVICES—Mon., 8 to 10 P.M.
- BOGEN—Mon., 9:30 to Noon
- CINAUDAGRAPH—Mon., 3:30 to 4:30 P.M.
- CORNELL DUBILIER—Mon., 7 to 10 P.M.
- CROWE—Mon., 3 to 6 P.M.
- DEJUR—Mon., Noon to 3 P.M.
- ELECTROVOX—Mon., 3 to 6 P.M.
- HALLICRAFTERS—Mon., 3:30 to 6 P.M.
- HICKCOCK—Mon., 9:30 A.M. to Noon
- HYTRON—Wed., 7 to 10 P.M.
- INSULINE CORP.—Sun., Noon to 3 P.M.
- INT'L RESISTANCE—Mon., 8 A.M. to 1 P.M.
- MEISSNER—Mon., 9 A.M. to 2 P.M.
- MILLEN—Mon., 9:30 to 11:30 A.M.
- MILLION—Mon., 7 to 9 P.M.
- OPERADIO—Mon., 3:30 to 6 P.M.
- PARK METALWARE—Sun., 9 A.M. to Noon
- PERMO—Tues., 10:30 A.M. to 2 P.M.
- PRESTO—Tues., 10 A.M. to Noon
- QUAM—Mon., 1 P.M. to 3 P.M.
- RADIART—Sun., 1 P.M. to 3 P.M.
- RADIO CITY PROD.—Wed., 6:30 to 11 P.M.
- RAYTHEON—Mon., 10 A.M. to 2 P.M.
- RECORDISC—Sun., 12:30 to 3 P.M.
- SCHOTT—Mon., 8:30 to 9:30 A.M.
- SHURE—Sat., 9 A.M. to 1 P.M.
- SPRAGUE—Sun., 3 to 6 P.M.
- STANCOR—Sun., 3 to 9 P.M.
- VACO—Tues., 9 A.M. to Noon
- WARD—Mon., 6:30 to 10 P.M.
- WEBSTER-CHICAGO—Mon., 5 to 10 P.M.
- WIRT—Mon., 2 to 3:30 P.M.
- WORNER—Mon., 9:30 to 11:30 A.M.

## Ole Miss Supply in Baton Rouge

L. T. Holland, owner of the Houston Radio Supply Co., Inc., at 910 Calhoun, Houston, Texas, has opened a branch in Baton Rouge, La., to be known as 'Ole Miss Supply, 448 No. 17th St., Baton Rouge, La. It will be supervised by Leonard C. "Len" Phillips. Mr. Holland reports that his men will cover the territory ranging from the Texas-Louisiana border as far East as Gulf Port, Miss., going as far North as Natchez, Miss. and Alexander, La.

Besides distributing National Union radio products, the 'Ole Miss Supply

will handle Halldorsen, Jensen, Clarostat, Solar, Meissner, Jackson, Evcready and Triplett Instruments.

## Sentinel Exec to South

George Russell, who has been general sales manager of Sentinel Radio Corp., 2020 Ridge Ave., Evanston, Ill., and who has desired for a long time to locate permanently in the South, is establishing headquarters at Birmingham, Ala., where he will continue to be associated with Sentinel as sales representative in the Southwestern section of the country.

# DESIGNED FOR THE FUTURE



"PRECISION" Test Equipment is designed TODAY for TOMORROW'S servicing problems.

Design and Engineering effort concentrated EXCLUSIVELY in the development of BETTER BASIC TEST EQUIPMENT has produced an unmatched selection of apparatus truly magical in accuracy, performance, quality, workmanship and VALUE.

● FOR EXAMPLE — PRECISION SERIES 954 Combination Dynamic Mutual Conductance Type Tube Tester and 20,000 OHMS PER VOLT multi-range AC-DC Set Tester. Ranges to 6,000 volts, 60 Microamperes, 12 Amperes, 60 Megohms, 70DB, etc. . . . and the exclusive "PRECISION" anti-obsolescent tube analyzer circuit . . . a complete, compact, AM-FM-Television-Service laboratory.

ASK or WRITE for the PRECISION 1941 catalog describing Series 954 and more than 40 other instrument models. Prices start as low as \$14.95 . . . See them at your local distributor . . . INQUIRE ABOUT "Servicing by Signal Substitution".

**PRECISION TEST EQUIPMENT**  
Standard of Accuracy SEE THEM AT YOUR JOBBER  
PRECISION APPARATUS COMPANY • 647 KENT AVENUE • BROOKLYN, N. Y.  
Export Division: 458 Broadway, New York City, U. S. A. Cable Address: Morhanex



## CAP SAYS:—

H. L. M. CAPRON  
Merchandising  
Editor

### A Concession Is a Confession!

A salesman who always offers a price concession, makes his own confession that his merchandise don't sell,—or he won't.

Though each dealer when he makes his confession, whispers it low, the sum of the whispers of the multitude has reached such a roar it deafens the ears of the industry.

Does that characterize our radio industry?

WHY?

Is it lack of selling skill, or training?

Is it because our merchandise is ill conceived, and out of step with the times?

*Definitely not.*

It is poor vision, lack of courage, plain laziness.

It's the outward sign of a state of mind.

It's the end result of warped viewpoints, the product of sick minds prodded by discouragement and desperation.

It is taking the very vitality of our once most progressive infant industry and blowing it to the winds.

There is yet time for manufacturers and dealers together, who have the vision, the courage, and the desire, to unite their efforts to save their common interests.

And the *doing* is just as simple as that.

If you WANT to.

And have the VISION—

AND THE COURAGE!

### NEW BIZ FOR JOBBERS

*(Continued from page 22)*

One of the most important applications of light control is the automatic turning on and off of street, window, bridge, safety, or beacon lights. Illumination is automatically switched on or off at the proper daylight intensity, irrespective of the hour. In the event of premature darkness or a dark fog occurring during the daytime, the lamps are automatically lighted, and when normal daylight returns, they are automatically extinguished.

#### BURGLAR ALARMS

An obvious use of light-actuated apparatus is for the protection of valuables against theft. The scheme essentially comprises a ray of invisible infra-red light. This ray to the light-sensitive cell and alarm relay must remain unbroken if the alarm is not to be given. When this invisible barrier is broken by the intruder, relays are set into motion to give an audible or visible alarm at

any chosen place, which continues until re-set. The infra-red should be invisible even in the dark, thus giving ample protection to the property which is covered by the device.

#### SMOKE INDICATOR

Smoke has no defense. It wastes tons of fuel, poisons the air, destroys property, spreads disease, and creates discomfort. Therefore, smoke control is a necessity precedent to obtaining correct combustion. The photo-electric cell is an efficient and up-to-date method of warning of smoke as well as giving valuable information regarding the running of a plant. The smoke density is made evident before the smoke reaches the top of a stack; that is, in the breeching, and prompt operation of the controls is thus greatly facilitated. The alarm device can be made to give a signal at any regulated density of smoke.

A very useful light-control application is that of counting objects without contact with them, by passing them through a beam of light, either

visible or invisible. The interrupting of this beam of light to the photo-sensitive cell actuates the counting operation. This method is especially applicable to counting articles or cases coming down a conveyor. With properly designed equipment, objects may be counted when traveling in one direction and not another, and also may be segregated by respective counters, according to their size.

Parts for circuits on page 22 are as follows: Left hand circuit; A, 5 meg; B, 4000 ohms 2-watt; C, 16 mfd.; D, 250 ohms; F, 400 ohms; G, 500 ohms. The relay has a 2000 ohm coil. Right hand circuit; A, 5 meg; B, 2000 ohms 2-watt; C, 16 mfd.; F, 3000 ohms; G, 4000 ohms.

### New Sales of Intercommunications

A brand new uptrend in the demand for intercommunicating systems is now noted in the trade, because of "increasing business activity and the present need for greater efficiency in business establishment of all kinds," according to a report by C. E. Gerhard, manager of parts sales for Philco. A previous statement by Robert F. Herr, parts and service division manager for Philco, had pointed out that sales of the new Philco Phone had already far exceeded the expected quotas.

Lower prices, simplified installation, adaptability for home use, and a new feature permitting remote stations to initiate calls to the master unit, are all cited as factors in the new market.

Reports further advise that, "Unlike many other forms of radio merchandise, intercommunicating systems are not "bought"—they must be sold through aggressive educational and merchandising effort. Dealers and servicemen who have been most successful in selling Philcophones have started out by installing one in their own stores or shops, where casual demonstrations could be made.

"As the first step, the dealer or serviceman circularizes his complete mailing list with a descriptive leaflet accompanied by a letter outlining the specific application to the customer's needs. Following up such mailings by telephone calls and personal calls, for the purpose of making actual demonstrations, pays tremendous dividends to the dealer and serviceman.

### Special Train to Chicago Show

The 1941 Radio Industries Special Train, sponsored by "The Representatives," will leave Grand Central Station in New York at 4:20 P. M., Sunday, June 8th, according to Perry Saftler, the rep in charge of arrangements. It will arrive in Chicago on Monday, June 9th—the day before the big radio Trade Show opens.

A car from Boston, carrying more radio men, will be picked up at Albany, N. Y., and the Special will also stop at Schenectady, Utica, Syracuse, Rochester and Buffalo. Passengers will de-train at Engelwood and proceed by taxi to the Hotel Stevens.

All plans and information clear through Mr. Saftler's office, 53 Park Place, N. Y. C.

# RECORDS AND RECORDERS



A new chromium needle that plays 50 records, ideal for record-changers, 5 for 25c, from Duotone Co., Inc., 799 Broadway, New York City. Duotone also has brand new cutting needle for home recording fans.

## LOCAL BANDS NEED RECORDERS AND BLANKS

(Continued from page 18)

suggest ideas when the band must appear with new music on short notice, (5) a collection of on-the-air recordings of new songs with "hit" possibilities, and (6) a library of recordings which show the progress of the band and suggest ways to improve it.

Armed with all these suggestions, the man who has recorders and blanks to sell will be able to approach the local musicians with ideas that will have a very tangible appeal.

## New Releases from Columbia

A pair of announcements of immediate record sales importance have been made by Columbia Recording Corp., Bridgeport, Conn.

To start a completely new series of albums, CRC is releasing the first volume of "Masterpieces of Literature." containing notable selections of

American, English and world poetry. It has six 12" discs recorded by Norman Corwin, for \$3.50.

Records by the internationally famous Westminster Choir are forthcoming from Columbia, too, following the news that this group of artists has been signed to record exclusively for CRC.

## Record Girl Specialists Can Help You Sell

Reports from record dealers are that sales have increased strongly since the "Record Girl Specialists" have appeared in the field, to help dealers and distributor with all of their sales and merchandising problems. The Specialists are a carefully selected and highly trained group of young women from RCA Victor, traveling throughout the U. S., making friendly calls on record men to give them the benefit of profit ideas that have been tried, tested and proven by experience.

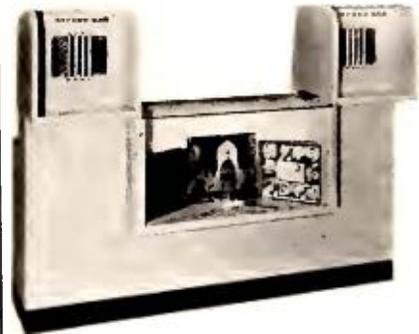
RCA Victor organized the group several months ago to offer the dealer a service of organized sales stimulation. They are musicians who have a thorough knowledge of such matters as stock control, display, ease of record handling, sales resistance, and all the ways to use Victor sales helps to advantage.

## Discs for Father's Day

National Recording Supply Co., Hollywood, has started dealer distribution of a package deal for Father's Day. The set includes two 6½ inch double faced blanks with special composition base, and with disc and package decorations carried out with the holiday motif.

It is expected that sales on this novelty will be heavy, and advance orders have already been logged from dealers adjacent to army cantonments, where a tremendous volume of business can be secured from boys in the service.

# ARE YOU GETTING YOUR SHARE OF TODAY'S RECORD PROFITS?



\*Reg. U.S. Pat. Off.

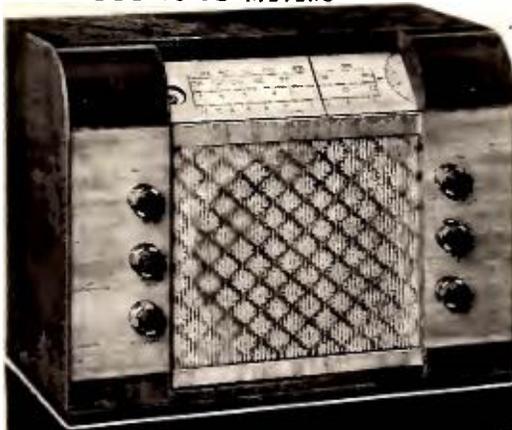
## THIS IS THE FAMOUS BITTER RECORD BAR\*

— and modern merchandisers point to it as the record retailer's most potent profit builder. With the Bitter Record Bar in your shop all demonstrations are made in public, where more people can hear the records—the result: more sales—greater profits! Another important point: our Record Bar insures faster sales turnover right at the counter; no waiting for booth demonstrations on lower-priced records.

WRITE TODAY for our helpful Record Merchandising Booklet —No Obligation

**A. BITTER CONSTRUCTION CORP.**  
Brewster Bldg. Long Island City, N. Y.

TUNES THREE BANDS FROM 555 TO 13 METERS



# HOWARD 2-Way FARM RADIO

6 Volt Storage Battery—110 Volt AC Current

One of the Howard International Models, famous around the world for long distance reception. Has Band S-p-r-e-a-d on all bands, identical to the dual tuning control system used on Howard Communication Receivers. Has inverse feed-back, tone control, A.V.C. and electric tuning eye. Attractive continental cabinet is finished in two tone walnut, 12½" high, 15½" wide, 9" deep

Ideal for rural areas where electric current is available only part of the day or where power lines are to be installed at a later date. Operates from a 6 volt storage battery or 105-125 volt, 50-60 cycle AC current.

Also available for 6 volt DC, 220 volt AC operation

America's Oldest Radio Manufacturer

**HOWARD RADIO COMPANY**  
1731-35 Belmont Av., Chicago, Ill.—Cable Address: HOWARDCO, USA

# COUPLING SYSTEMS

**Servicing the five basic audio coupling methods.  
How dynamic audio coupling circuits operate.**

Many coupling methods and systems are used in the modern receiver audio amplifier and PA amplifier and these, with their individual characteristics of operation, are well known to servicemen. However, the newer types of direct coupled amplifiers, such as the dynamic coupled circuits being used in some receivers, are more unusual in their method of operation. These dynamic coupled amplifiers are being used in smaller sets, and some of the large ones too, for extra audio power, and simplicity of construction.

## TYPES OF COUPLING

Just to keep the picture straight, let's take a look at the common types of coupling systems used in audio amplifiers. A grouping of these methods here will help to show where dynamic coupling fits in.

The old receivers with triodes in the audio section used transformers to step-up the voltage gain lacking in the low mu tubes. With the coming of pentodes, beam tetrodes, and hi-mu triodes, transformers were no longer needed to secure the gain and other systems replaced them. Transformers are still very necessary to couple the low impedance dynamic speaker voice coil to the high impedance plate circuit of the output tube or tubes. Fig. 1A shows a typical push-pull interstage transformer.

The coupling between vacuum tube stages has for its principal job, the maximum transfer of energy. In some cases, it is maximum transfer of voltage, and in others, it is a maximum transfer of power. Peak voltage transfer being desired when the coupling is between a plate circuit and the following grid circuit. The maximum power transfer is wanted when the plate circuit is feeding a speaker, or a transmission line in the case of a PA amplifier.

Transformers are designed to match

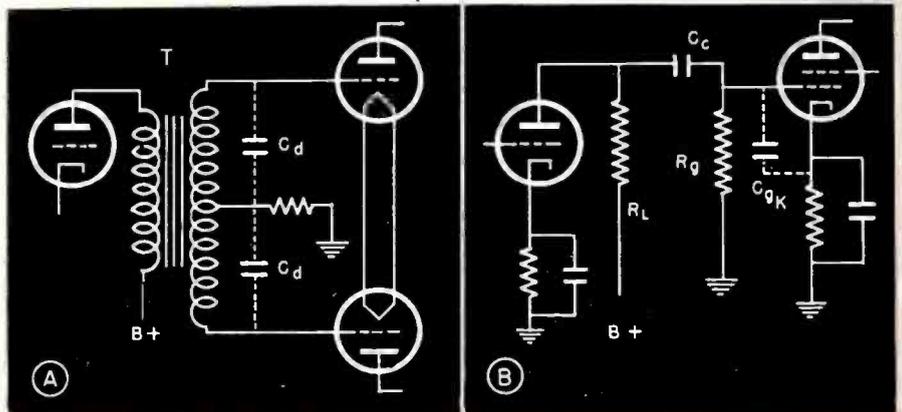


Fig. 1—Typical interstage push-pull transformer and resistance-capacity coupled stages.  $C_d$  is lumped secondary capacity and  $C_{gk}$  is grid-cathode capacity.

the impedances of the two circuits they couple. That is, the ratio of primary to secondary turns is equal to the square root of the ratio of the primary to secondary load impedances. Expressed as a formula,  $N_p^2/N_s^2 = R_p/R_s$ . Where  $N$  stands for the number of turns on the winding, and  $R$  for the resistance or impedance across the winding.  $S$  and  $P$  stand for secondary and primary respectively. Thus, an output transformer feeding a 5-ohm voice coil from a single 6V6 (5000-ohm plate load) has a turn ratio from primary to secondary of  $\sqrt{5000/5} = 31.6$  to 1.

## VOLTAGE GAIN

Interstage coupling transformers are designed to step up the voltage about 2 or 3 times. The actual gain of a transformer coupled audio stage is a function of the turn ratio of the transformer, the  $\mu$  of the tube, and the ratio of the load resistance across the secondary of the transformer to the plate resistance of the tube.

The maximum amplification or gain results when the turn ratio of the transformer is equal to  $\sqrt{R_L/R_p}$ ; where  $R_L$  is the load resistance on the secondary (usually the grid to cathode impedance of the driven stage) and  $R_p$  is the plate resistance of the driver tube. The maximum voltage gain from grid of driver to grid of second tube is then  $\mu \times N/2$ ; where  $N$  is the turn ratio of the transformer. For maximum voltage gain therefore, the ratio of load resistance on the secondary side to the plate resistance should be kept as high as possible.

The transformer troubles that will be found most often in old sets are noise, and poor frequency response (compared with present day sets). Noise is usually due to the gradual absorption of moisture into the windings and a deterioration of the insulation. This noise will almost always be due to the input or interstage transformer. Lots of tests have been suggested for spotting this trouble, but the substitution method is usually best. When you hear the characteristic "frying" sound, replace the interstage transformer with one you know is ok.

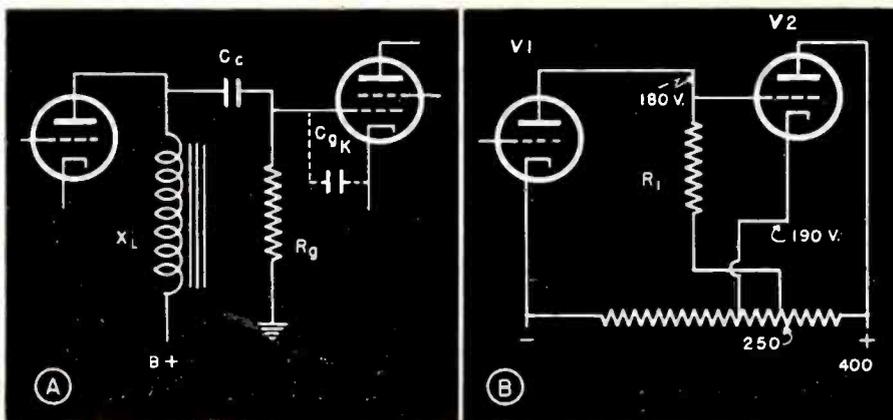
## R-C COUPLING

The problem of poor frequency response in the transformer can usually be taken care of by installing a modern unit.

The most common type of coupling is resistance-capacity. A resistance load in the plate circuit has the disadvantage of dropping the effective plate voltage, but the compactness, low cost and very good frequency response have dictated its present use. Servicing problems are few in this type of circuit, and the parts are easily tested. Watch especially for low insulation resistance in the coupling condenser. This coupling capacitor should have about 5000 megohms for capacitors under 0.1 mfd.

The frequency discrimination in a resistance capacity coupled stage is

Fig. 2—Impedance coupled stage (A), and direct coupled amplifier at (B). Changing reactance of  $X_L$ , and  $C_c$ , and  $C_{gk}$  affect the frequency response of circuit (A).



due to the increasing impedance of the coupling capacitor at low frequencies, and to the shunting of the high frequencies by the grid to cathode capacity of the following tube. See Fig. 1B, for the effective circuit of a typical resistance-capacity coupling. By studying the circuit it will be apparent that the audio signal voltage developed across the load resistor,  $R_L$ , will be divided across the series combination of  $C_c$  and  $R_g$  in proportion to their impedances at different frequencies. For example, if  $R_g$  is 1 meg. and  $C_c$  is 0.01 mfd., the reactance of  $C_c$  at 100 cycles is 159,000 ohms. The effective load in parallel across  $R_L$  is then 1,013,000 ohms at 100 cycles. If for example, a 10-volt signal is developed in the plate circuit, the voltage drop across  $C_c$  will be  $159,000/1,013,000 \times 10 \text{ volts} = 1.58 \text{ volts}$ . The effective signal voltage across  $R_g$  is then 9.88 volts. At 50 cycles, the drop across  $C_c$  will be increased to about 3.02 volts. The by-passing of high audio frequen-

cut. The principle of operation is that of operating the electrodes of the successive tubes at higher potentials but still retaining the correct relationship of grid and cathode voltages. From the diagram it will be noted that the plate circuit of tube  $V_1$  is connected to a tap which is 250 volts above ground. The drop across the load resistor  $R_L$  is 70 volts which makes the plate of tube  $V_1$  and the grid of tube  $V_2$ , 180 volts above ground. The cathode of tube  $V_2$  is connected to the voltage divider at 190 volts above ground in order to have the grid bias a -10 volts with respect to the cathode. This type of circuit is usually unstable since plate current of the last tube affects those preceding it, and oscillation usually results. Various means of preventing instability are used. Some present day high fidelity audio amplifiers use a push-pull version of this direct coupled circuit which has the virtue of automatically taking care of any unbalance.

The response of a good direct coupled

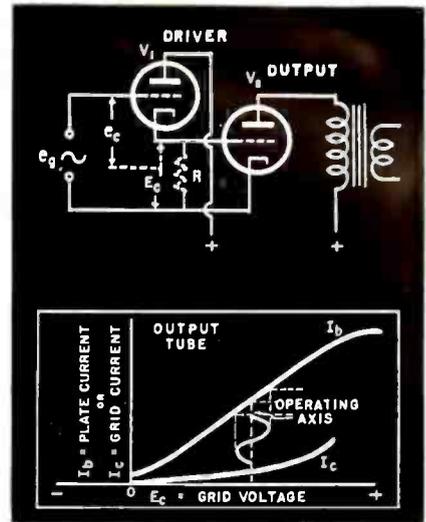


Fig. 3—Basic circuit of dynamic coupling and operating curves for the output tube. See text.

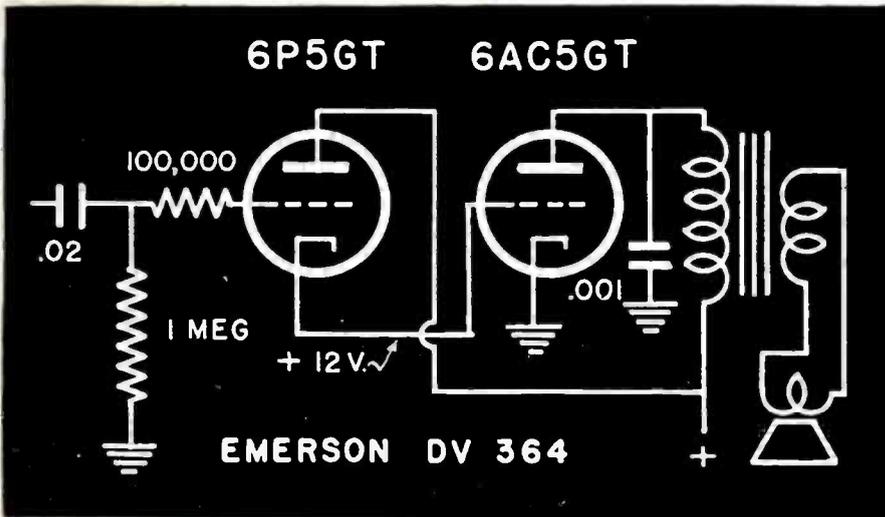


Fig. 4—Single-ended dynamic coupled circuit which develops the 12 volts bias for the 6P5GT by the DC grid current of 6AC5GT through its grid-cathode impedance

cies by the grid to cathode capacity,  $C_{gk}$ , is usually less serious. A 5 micro-micro mike tube input capacity at 5000 cycles has a reactance of about  $6\frac{1}{4}$  megs. The parallel combination of  $R_g$  and the 6.25 megs is 990,000 ohms. Thus the value of the shunt load across  $R_L$  is decreased and less voltage will be developed for application to the grid.

#### IMPEDANCE COUPLING

Impedance coupling is similar to both transformer and resistance-capacity coupling. The choke used as a plate load has the same advantage as transformer coupling in that the voltage drop across the winding is quite low. The inductance of the choke should be quite high for good reproduction of the low frequencies. For high plate resistance tubes values of 100 to 800 henries are common. This type of coupling is shown in Fig. 2A.

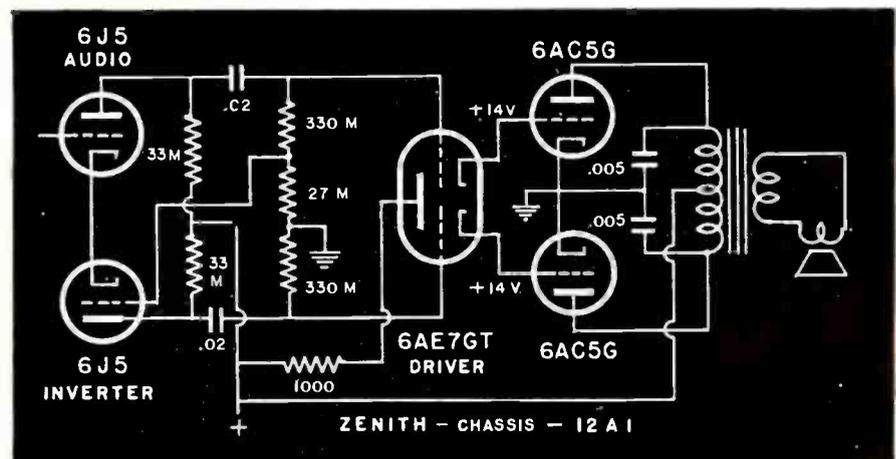
#### DYNAMIC COUPLING

Another type of coupling used for special amplifiers such as those used for some audio amplifiers and oscilloscope amplifiers is shown in Fig. 2B. This is one type of Loftin-White cir-

cuit. The principle of operation is that of operating the electrodes of the successive tubes at higher potentials but still retaining the correct relationship of grid and cathode voltages.

Dynamic coupling, the type recently introduced in several different sets is

Fig. 5—Push-pull circuit for dynamic coupling using special driver tube, 6AE7GT. A regular phase inverter feeds the driver. Driver output is between cathode and ground.



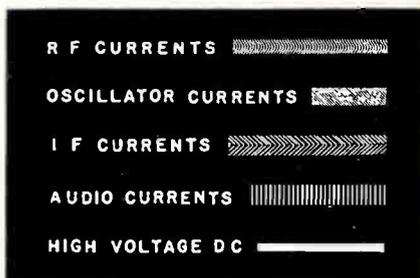
# SIGNAL-PATH DIAGRAM

## Auto Short Wave Converter

This is another RADIO TODAY Signal-Path circuit, the diagram system which enables you to apply your signal servicing equipment to the correct point in the circuit for checking of a particular frequency. It also shows what points in the circuit should be normally *without* any signal component. See the complete description of the system as it appeared for the first time, page 38 of the April issue of RT.

### UNTUNED CIRCUIT

The Philco model SW-1 short-wave converter shown in the Signal-Path diagram uses a very unique tuning system. The converter consists of a triode mixer and a triode oscillator, both of which are tuned to a one fixed

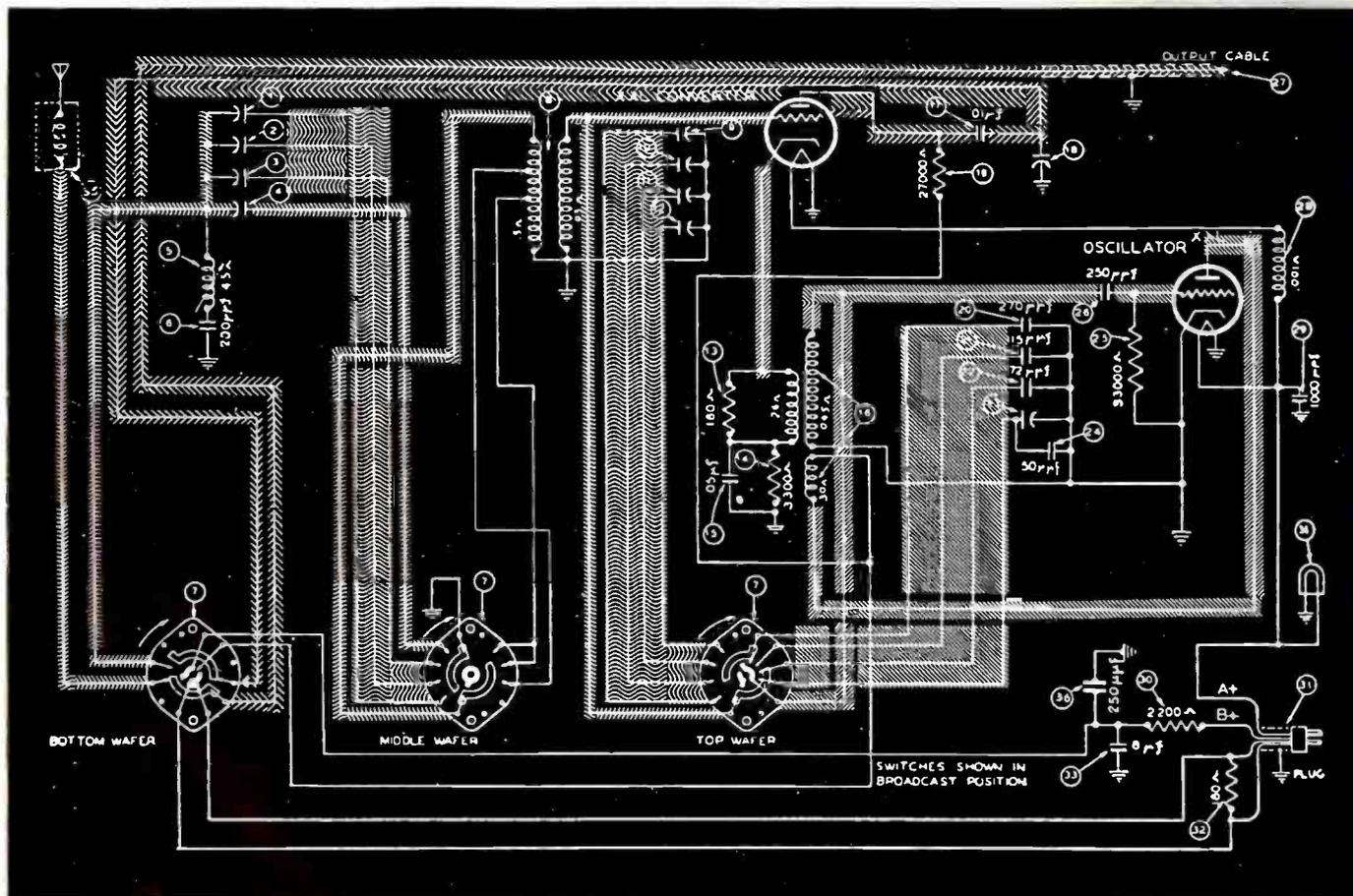


This is the code diagram to be used with all Radio Today Signal-Path diagrams. See example below.

frequency in each of the four bands, 6.0 to 6.2 mc., 9.5 to 9.7 mc., 11.7 to 11.9, and 15.1 to 15.35 mc. No variable tuning condenser is used in the converter and the only control is a wave-band switch.

The principle of operation is that the untuned converter supplies a group of converted signals to the input circuit of the regular broadcast band auto set which acts as a variable frequency IF amplifier. In other words, every short-wave signal picked up by the converter is mixed with the fixed oscillator frequency. Therefore, in the plate circuit of the converter tube, a number of intermediate frequencies are present, each representing some particular SW station. By having the range of intermediate frequencies fall within the BC band, it is possible to separate them with the tuning of the regular auto set. The short-wave stations are tuned in between approximately 1150 kc. and 1600 kc.

The Signal-Path diagram shows the radio current distribution for use on the short-wave bands. The rotary switches are shown in the broadcast position where the converter is not used.



Current path through short-wave converter when it is used on any of four bands. In top wafer circuit, RF will be found only on trimmer connected to coil for each band.



## WESTON TUBE AND BATTERY TESTER (MODEL 777)

An impressive looking instrument for the counter, and one which provides utmost in convenience, utility and long dependability. Tests over 430 commercial tubes, including bantams and high filament voltage types . . . tests for shorts, for noise, for open elements, etc., etc. Also provides for testing all radio batteries under load. Has special self-wiping, knife edge toggle switches. Large WESTON Meter with "good-replace" scale, and separate arc for batteries. Counter type has convenient, quick reference rotator type tube chart. Portable model (illustrated below) has all the above features except the rotator chart. Both models supplied in handsome polished-wood carrying cases.



## "When Buying TUBE CHECKERS AND OTHER TEST EQUIPMENT we look at the Record!"



"We find ourselves many dollars ahead at the end of each year," says this successful serviceman, "by applying the same basic thinking to the purchase of test equipment as, for example, our own customers apply when they repeatedly call on us for sales and service. Our record with these customers has been dependable and satisfactory in every way."

"That's why we are now sticking to WESTONS, regardless of any small difference in first cost. Our experience proves that WESTON instruments have far longer useful life, and thus cost far less per year. And you have the satisfaction of always being able to depend on your measurements. If, on the other hand, you try to stretch your test equipment dollars too far, something must break. You usually wind up with headaches, and high maintenance and replacement costs. We'll stick to our policy of spending sound dollars, for sound and proved test equipment."

Complete literature on all WESTON test instruments for servicing radio, television and other electronic devices, will gladly be sent on request. Write to Weston Electrical Instrument Corporation, 597 Frelinghuysen Avenue, Newark, New Jersey.

## WESTON Radio Instruments

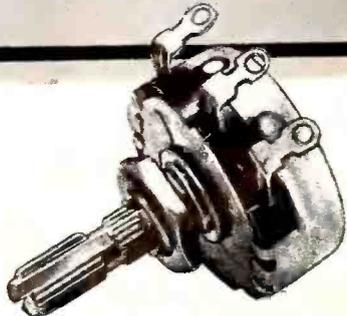
A Portable Tube Checker with Complete Analyzer Ranges



## WESTON (MODEL 774) CHECKMASTER

Has all the features of the Model 777 Tube Checker, plus 23 circuit testing ranges for trouble-shooting. Furnished in sturdy and compact carrying case, with spare tube compartment. Ideal for bench and field servicing. Inexpensively priced!

Just try a  
**CLAROSTAT  
CONTROL!**



★ That's all we ask of you—Just try a Clarostat Control! Try one—for initial resistance value; for maintenance of that value over months of use; for noise; for humidity effect; for smooth mechanical operation. Honestly, you'll never know how good a control can be until you've tried a present-day Clarostat.

Whether of the composition-element or the wire-wound type, the Clarostat is a perfected control. We've spent a fortune these past 20 years developing the ideal design. We have introduced constant refinements and improvements.

And now the goal is attained. We are finally satisfied with the results. The present-day Clarostat control tells its own story. We invite you to get that story for yourself.

**Get Your Copy . . .**



Latest Clarostat Service Manual is yours for the asking. Contains up-to-date listings of all set-control replacements. Ask jobber for copy—or write direct. Dept. RT3.

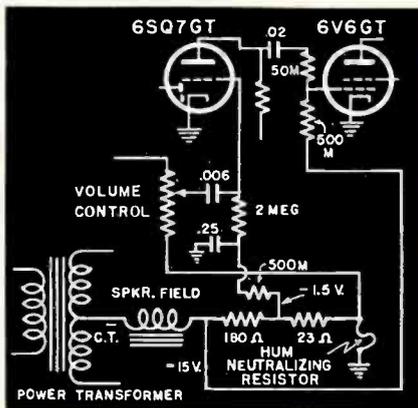
**CLAROSTAT MFG. CO., Inc.**  
281 N. 6th St., Brooklyn, N. Y.



**SERVICE NOTES**

**Hum Neutralizing in Audio Circuit**

Fixed grid bias is used on Emerson models ES-374 and ES-397 for chassis with serial numbers below 3,923,600. The grid of the 6V6GT is connected to a point 15 volts negative to ground. The slight AC ripple across the string of bias resistors would be amplified by the sensitive beam power tube and cause serious hum. By returning the bottom end of the volume control to a point slightly negative with respect to ground, but in the same bias network, a small amount of the same hum voltage is amplified by the 6SQ7GT and due to the 180 degree phase difference between the grid and plate circuit, the amplified hum voltage cancels that picked up by the grid of the 6V6GT.



Note also the division of the audio signal applied to the output tube. Approximately 1/10 of the signal is dropped across the 50M resistor.

**COUPLING SYSTEMS**

(Continued from page 37)

that the grid resistance or impedance,  $E_c/I_c$  is not a constant value over the range of grid voltage encountered in normal operation. This varying impedance, which is in series with the cathode circuit of the driver tube (see Fig. 3 circuit), has a peculiar effect on the performance of the system. This varying input impedance might be thought to give rise to considerable distortion, but actually the distortion is less with this varying input load than with a fixed value of load. This will be shown later. In actual practice, this variation in impedance is about eight to one over the grid voltage swing.

**GRID IMPEDANCE**

Because this grid impedance is relatively low, it is not practical to use this impedance as the plate load for a driver tube. A driver with the necessary low plate resistance to match the grid impedance of the output tube would have excessive physical dimensions and current consumption, while the ordinary triode connected directly

to a low impedance load in its plate circuit is subject to considerable distortion. The solution lies in putting the low impedance load in the cathode circuit of the driver and making the amplification degenerative, since the load (output grid impedance) cannot be by-passed.

Let's see why the varying input impedance does not cause serious distortion in the dynamic coupled circuit.

**IMPEDANCE RATIO**

The important factor is the ratio of this output grid impedance to the plate resistance of the driver tube. It will be remembered that the plate resistance of a triode is far from being constant over the normal range of operation. Since a constant ratio between the load impedance and the plate impedance are necessary for low distortion, it is obvious that if the load impedance were to vary in a manner similar to the plate impedance, a constant or near constant ratio could be obtained. Look again at Fig. 3 and notice the grid current-grid voltage curve. At low values of grid voltage, the input impedance is very high,—so is the plate impedance of the driver. As the grid voltage is increased, the grid current rises at a more rapid rate and the input resistance of the output tube decreases. Actually the variation in the input resistance of the output tube and the plate resistance of the driver are quite similar, and a more constant ratio between the two is possible than if a fixed load were used. This similar variation in plate resistance and load impedance give rise to the term, Dynamic Coupling.

**TYPICAL CIRCUITS**

In Fig. 4 and Fig. 5 are shown two representative circuits being used in current models of receivers. The single ended type of dynamic coupled audio system is shown in Emerson DV 364 circuit. The cathode-grid potential developed by the DC current through the grid-cathode impedance of the 6AC5GT is 12 volts.

A push-pull circuit is used for the Zenith 12A1 chassis. A special push-pull driver tube, the 6AE7GT has one plate, two grids, and two separate cathodes. The grids are driven 180 degrees out of phase by the phase inverter circuit. The cathodes of the driver are directly connected to the grids of the 6AC5GT P.P. output tubes. The 14 volts on the driver cathodes is obtained of course by the DC current through the input impedance of the output tube.

Any of the several servicing procedures apply to the testing of the dynamic coupled audio systems.

**RCA Recorder and Phono Notes**

Radio break-through on phonograph reproduction may occur due to capacity coupling between 6SK7 plate lead and 6F6G grid leads. Keep the grid leads away from the plate circuit and dressed down near the chassis. This applies to V-205, 405, VHR-207, 407.

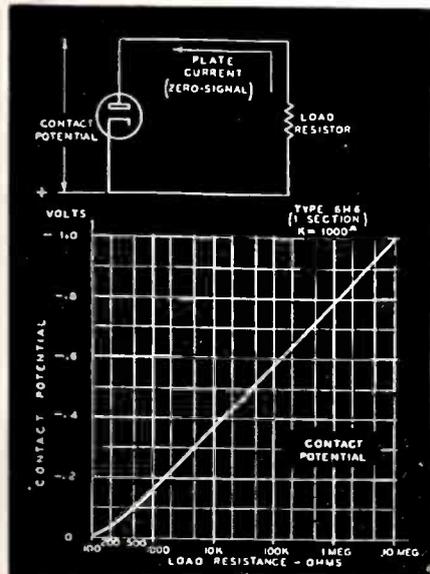
## Special Uses for Radio Cement

The special types of cements made for radio purposes are often very useful to the serviceman in unusual ways. Besides the common job of cementing cones and voice coil spiders into position, radio cement comes in handy for securing those loose tube bases and top grid connections, especially on the '24, '57, and similar glass tubes. A thin ring of cement around the cleaned surface will do a first rate job. Many times there are parts, especially by-pass and coupling condensers which are supported only by their leads and due to vibration, etc., may cause oscillation, hum, or other trouble. The easiest way to secure these parts is with a spot of cement.

Occasionally trimmer screws change adjustment through natural causes or by some over enthusiastic owner (who also has a screwdriver). A drop of radio cement around the screw will practically insure its remaining in that position.

A list of uses for various radio chemical products will be found in the new catalog 141-C of the General Cement Co., Rockford, Ill.

## VTVM Characteristics



Electron current through diode rectifier without external plate voltage. "Contact potential" developed across resistor. From Rider's book, Vacuum Tube Voltmeters.

## Book Review

### Simplified Radio Servicing by Comparison Method

Author, M. N. Beitman  
Supreme Publications  
3727 W. 13th St., Chicago

This new 108-page text features the servicing principle of repairing a set by referring to typical circuit diagrams

and notes. The characteristic elements and part values for TRF, AC/DC mid-gets, large supers, etc., along with specific suggestions for finding the trouble in these various types form the basis of the comparison system. Tables of socket voltages, test procedure charts and similar tabular material form the background of typical information needed in servicing. The book is 8½ x 11 inches and is paper covered.

## How to Make Good Recordings

Audio Devices, Inc.  
1600 Broadway, New York  
Price, \$1.25

This handbook for all home recording enthusiasts covers the many phases

of equipment and techniques used to make good records. In the 128 pages are suggestions in pictures for the placement of microphones, musical instruments and performers for producing a good recording. Mike technique, speech recording, off-the-air recording, recording at special events, talking letters, recording for home movies, and dozens of other subjects are included in this well illustrated volume.

## Typical Troubles; RCA Q24

Parasitic oscillation of the set oscillator may cause the receiver to be "dead" on certain short wave bands. This trouble can be cured by adding a 10-ohm resistor in series with oscillator grid lead at the socket.

# FOR YOUR BASIC INSTRUMENTS *only the best are good enough*

IT may be difficult to avoid some obsolescence in tube testing equipment—**BUT**—a set tester represents an investment as basic and permanent as any tool in your shop or kit!

Over the years you must have discovered that it just doesn't pay to buy anything but the best in basic and permanent tools—and right there you have the reason for acquiring one of these **BASIC Simpson Testers**.

Just make the acquaintance of one of these finely built Simpson Testers, and you will thank the day

that it became your trusted helper on every service job. The instruments illustrated cover a wide range of individual needs, but they have two great attributes in common—the life-time accuracy that is based squarely on the superlative Simpson Meter, and the precision craftsmanship that is reflected in every detail of assembly.

Thanks to advanced design, modern facilities and streamlined production methods you can acquire one of these finer instruments at the moderate prices listed.

**SIMPSON ELECTRIC CO., 5216-18 Kinzie St., Chicago, Ill.**



**MODEL 320** (below)—Giant tester with 9-inch illuminated meter. Has 50 ranges—nine A.C. and nine D.C. voltage ranges; six milliamperage ranges; five resistance ranges; four capacity ranges; seven decibel ranges. Entirely A.C. operated. All voltage ranges have resistance of 1000 ohms per volt. Test leads included. Rack mountings available. Dealers net price..... **\$37.50**



**MODEL 260**—The outstanding value in a high sensitivity set tester for television and general servicing. Ranges to 5000 volts, both A.C. and D.C.—at 20,000 ohms per volt D.C. and 1000 ohms per volt A.C. Resistance readings from 10 megohms down to ½ ohm and five decibel ranges from —10 to +52 D.B. Also 3 milliamperage and 1 microampere range. Dealers net price **\$27.50**



**MODEL 215**—Incorporates all essential ranges for modern servicing. Offers large, 4½ inch, easy to read dial, at low price. Five A.C. and D.C. voltage ranges; five decibel ranges; 0-10-100-500 milliamps; 0-250 microamps; 0-4000-400,000 ohms; 0-4 megohms. Dealers net price..... **\$22.85**



**MODEL 240**—A remarkable value in a pocket size (5¼ x 2⅞ x 1¾") 3000 volt, self-contained tester. Four A.C. and five D.C. voltage ranges at 1000 ohms per volt; 0-15, 150, 750 milliamps; 0-3000, 300,000 ohms. Dealers net price..... **\$14.75**

**MODEL 230**—Smallest A.C.-D.C. instrument on the market, yet has ranges of 0-10, 250, 1000 volts A.C.; 0-10, 50, 250, 1000 volts D.C.; 0-10, 50, 250 D.C. milliamps; 0-1000, 100,000 ohms. Dealers net price..... **\$14.25**



# SIMPSON INSTRUMENTS THAT Stay ACCURATE

# LEOTONE

Nationally known as the House of a Million Parts. The following are a few samples of the outstanding buys we offer. Quantities are huge, but limited, so place your order at once to secure your needs.

- 12" Turntable Felts; Brown Felt or Green Push 10c each
- Astatic Crystal Cartridges; Model S-8... \$1.25 each
- Pearl Push Buttons; 3/4" dia., 5/8" height... 8c each
- Grille Cloth; Gold, Silver or Black; special sizes slight add. cutting charge... 75c sq. yd.
- Phono Pickup Screws; Popular assortment of 12 \$1.00 for 12
- 3" Bakelite Tubing, 1/16" wall; Black... 4c per inch
- Switch Points and Stops, 6/32; length 3/8"; incl. nuts... 75c Gross
- Federal Anti-Capacity Switches, D.P.S.T. 69c each
- Airplane Dials, 5" diameter; clockwise or counter-clock \$1.00 each
- 1/3 Watt Resistors, assorted; color coded; Box of 100 49c per 100
- Bakelite Molded Fixed Condensers; specify capacities desired... \$1.50 per 100
- No. 32 Double Silk Wire; 175 ft. spools... 10c per spl.
- 3/16" Tinned Braiding; 100 ft. spools... 35c per spl.
- Mferron Switches; 10 Amps AC... 39c each
- Earphone Headband Sots; cloth covered... 19c each
- Record Carrying Cases; black leatherette; for 12" Records—
- For 12 Records—For 25 Records—For 50 Records
- \$1.25 each \$1.50 each \$1.75 each
- Polished Bakelite Panels; black or brown; 3/16" thick... 1/2c sq. in.
- 3/16" thick... 3/4c sq. in.
- Atwater Kent and RCA Rubber Grommets for dial shafts 3c each
- No. 82 Mercury Vapor Rectifier Tubes... 25c each
- No. 19 Push Back Wire; Double Braided Tinned; 100 ft. rolls 39c roll
- No. 16 Stranded Rubber Covered Lead in Wire; Flexible, easy to work; 100 ft. spools 32c spl.
- No. 17 3-Wire Cable; rubber covered, cream silk braided outside... \$1.25 per 100 ft.
- Black Braided Silk Dial Cord; medium thickness; 22" lengths 3c 1gth.
- No. 24 Double Cotton Covered Wire, 35 ft. spools 8c spl.
- Twin-Rod Topper Auto Antennas; used when front shield window does not open; length 47"; used in G.M. 39, 40, etc. 69c each
- 2-Section Disappearing Topper Auto Antennas; includes shielded lead-in cable to set, standard plug; used in Ford, Buick, etc. 49c each

## LEOTONE RADIO CO.

63 DEY ST. Dept. RT1 NEW YORK, N. Y.  
Leading for 20 years as mfrs. of cones and field coils

## "Service Up Front" Is Profitable

"What can you advertise in the radio business that will attract the public's attention? What can you make stick as a picture in the individual's mind?"

Vern L. Wenger, of the Vern L. Wenger Co., Portland, Ore., said he had long figured on that problem. "You can't say much about your set that the other fellow can't say," he continued. "Tone, finish, price, style—we have all hashed these things over and over.

### SERVICE TALKS

"One thing you can talk about, if you have the right kind of a department, is service in all its phases. Put the service department up front in the store, in the most desirable space, and you'll find that business is pepped up, not only in service and tube sales but in sets as well.

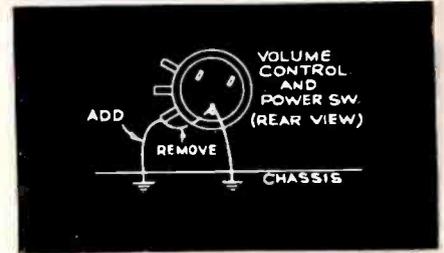
"I know," says Mr. Wenger, "because I have experimented in previous places of business, having it out of sight part of the time in the back or in the basement, and then moving it up front.

"In this new store, when we opened a few months ago, the service department started in the front position and it will stay there. It is a sort of a show that attracts people and interests them. It is also something that we can talk about in our radio programs and in the newspaper advertising. It's a first class 'puller' in more ways than one."

Wenger must be sold on this idea, when it is considered that his store is only 16 feet wide by 60 feet long. The service department and counter take up eight feet of the width and 25 feet of the length, including the front window. He pays \$75.00 a month rent, with the service department occupying the most choice space in the store. He could have used space for it elsewhere in the building at no more than 20 per

cent of the square foot rental rate that it now pays.

## Hum in RCA 15X, 16X Series



Some instruments of this series have a common ground lead for both the AC and audio currents from the lug on the volume control to the chassis. Sufficient voltage is developed across this mutual lead to introduce a hum in the first audio stage. To correct, connect the lead from the power switch directly to ground. See the accompanying diagram.

## More Money for Radio Men

Door chimes are becoming more popular each year as new and replacement equipment for older style bells and buzzers. Servicemen are in the best position to sell and install door chimes. The flat bar types can be easily carried around for demonstration while making service calls. Carry illustrated folders on the more elaborate tubular types and have some working in your shop.

Extra products that fit in with your servicework are extra profit items too. They're easy to sell during your service call contacts and for that reason will make each call pay larger dividends.

# LATEST DATA



It's now **FREE!**

Yes, you too can now get the Aerovox Research Worker month after month, absolutely free, if you qualify as a practical radio worker.

This well-known engineering bulletin, just chockful of latest radio and electronic data fresh from the Aerovox Engineering Department, is simply indispensable in your work. Contains applicable data, charts, formulae, diagrams, suggestions—data of permanent reference value.

### Ask for it...

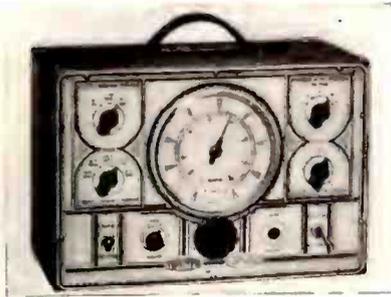
See the local Aerovox jobber about a free subscription. Or write us for sample copy and subscription blank. Also ask for latest Aerovox Catalog.



"Put your service department up front where people can see it" is the motto of V. L. Wenger, Portland, Ore. The neat shop pulls both service and sales business. Note the convenient flexible lamps.

## NEW THINGS

### Triumph model 131



★ Signal generator calibrated  $\frac{1}{2}$  of 1 per cent from 100 kc to 96 mc. Variable percentage modulation at 400 cycles or any other external frequency. Ivory, green and black panel or brown wrinkle case. Triumph Mfg. Co., 4017-19 W. Lake St., Chicago, Ill.—RADIO TODAY.

### Clarostat line regulator

★ Line-voltage regulator, handy plug-in unit, costing but a dollar list, is being used as a lightning protection fuse. Overhead power lines receive heavy induced charges which get into the radio set. The automatic line-voltage regulator stops the induced charge. Clarostat Mfg. Co., Inc., 285 N. 6th St., Brooklyn, N. Y.—RADIO TODAY.

### Radex impedance matching bridge

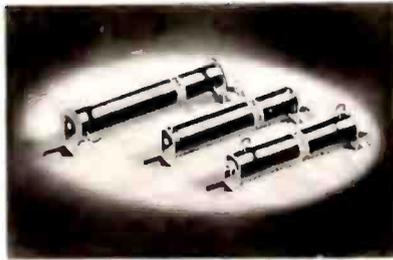


★ Impedance matching bridge consists of an oscillator, amplifier, cathode ray indicator and bridge proper. Coils between one microhenry and 10 millihenries may be compared to a standard within 1/100 of 1 per cent. Other elements such as condensers having impedances between  $\frac{1}{2}$  ohm and 5000 ohms at 100 kc. may be similarly compared. \$325. Radex Corp., 1733 Milwaukee Ave., Chicago, Ill.—RADIO TODAY.

### RCA tubes

★ Two new RCA receiving tubes. 45Z3 miniature, half-wave high-vacuum rectifier, cathode type, 0.075 ampere. 3Q4, miniature type, power amplifier pentode, 90 v. on plate and screen. Power output of 270 milliwatts. Filament has center tap. RCA Mfg. Co., Inc., Harrison, N. J.—RADIO TODAY.

### Ohmite resistors



★ Wire-wound vitreous-enameled resistors are available in "live" and "dead" bracket types. Live bracket type has leads connected to tin-plated brass brackets while the dead

bracket type has connections made to lugs. Ohmite Mfg. Co., 4835 W. Flournoy St., Chicago, Ill. RADIO TODAY.

### DuMont cathode-ray tube

★ High vacuum cathode-ray tube designed for applications of low deflection-plate capacitances. These teletron tubes (type 2529 series) have 4 different screen phosphors. The deflection-plate leads are short and direct, ending in caps on the glass walls of the tube. An intensifier electrode is used. Allen B. DuMont Labs., Inc., 2 Main Ave., Passaic, N. J.—RADIO TODAY.

# New!



## EASY-TO-INSTALL DOUBLE-FLATTED Type A SHAFTS

IRC never rests on the oars no matter how far out in front it may be. That's why IRC engineers have been working to make "the easiest shafts to install" even easier to use on an even wider variety of installations.

### Eliminate Inserts and Filing!



Shaft position knob requiring  $\frac{1}{2}$ " flat.



Shaft position knob requiring  $\frac{1}{4}$ " flat.



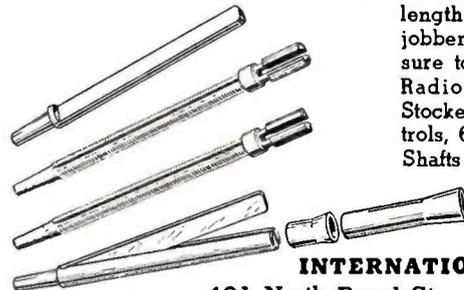
Shaft positioned for set-screw knob.



Only edges of shaft filed for odd types.

Now—in the new double-flatted Type "A" Tap-in Shaft for Type D Universal Controls—you have IRC's answer to simplified fitting for *all* knobs. Here's the end to bothersome metal inserts and shaft filing

for all  $\frac{1}{32}$ " and  $\frac{3}{32}$ " standard flats. Even the occasional odd type knob requires little more than a brush of your file on the edges of the shaft to make it fit. Moreover, Type "A" Shafts are easier to cut to length. See them today at your jobbers... and, at the same time, be sure to ask about the IRC Master Radiotician's Control Cabinet. Stocked with only 18 Type D Controls, 6 switches and 5 extra Tap-in Shafts of special design, it covers 60% to 75% of all control replacement needs.



**INTERNATIONAL RESISTANCE CO.**  
401 North Broad St. Philadelphia, Pa.

## Columbia Recounts Sales Success

In a review of Columbia Recording Corp.'s achievements since January, 1939, James W. Murray, the CRC vice-president and general manager, told 250 Southern California record dealers and clerks that "improved dealer aids and sales promotion methods and an aggressive national advertising campaign had boosted Columbia's sales in 1940 73 per cent over 1939, while sales figures for January and February of this year showed a 65 per cent increase over the corresponding period last year."

Mr. Murray stated that "Columbia has built up a first-class catalog of Masterworks and Popular records, and acquired an outstanding list of artists and musical organizations. They include seven of the ten leading symphony orchestras in the United States, and some of the country's leading concert and opera stars."

## Radio Man to Signal Corps Post

News from Washington, D. C., is that Lieut. M. B. McCullough, S. C., who was previously a well known retail radio man in New York City, has completed his training at the Army Industrial College, and has been assigned to duty in the Signal Corp Procurement Dist. at Brooklyn, N. Y.

Lieut. McCullough was formerly with the MacAdams Equipment Co., Inc., prominent auto radio dealer, before he went to the Washington college. This organization trains selected officers of the Army, Navy and Marine Corps in the solution of problems peculiar to the procurement of munitions.

## Representatives at Texas Table



A meeting of one of the regional groups of "The Representatives" of Radio Parts Manufacturers, in Dallas, Tex. These Southwestern reps are, left to right around the table, Ed Aymond, B. G. Paylor, M. B. Patterson, George Anderson, Jim Schoonmaker, Bob Campion, A. L. Berthold, G. G. Willison, Hal Corry and Earl Smith.

## Howard v. p. in Central States

Joseph M. Muniz, general sales manager of Howard Radio Co., has announced that Howard C. Briggs, one of the firm's vice-presidents, will take over the sale of communication receivers, replacement chassis, household receivers and recording discs in the states of Illinois, Indiana, Kentucky, Michigan, Ohio, Wisconsin and the city of St. Louis, Mo. Mr. Briggs will be assisted in the sale of recording discs and replacement chassis by Russ Diethert, well known sales representatives in Indiana, Michigan, part of Wisconsin and the city of Chicago.

## New Rep Bids for Lines

The sales manager for a nationally known radio manufacturer has indicated that he will open sales representative offices in southern California about June 1, and will offer strong representation on quality lines that justify an aggressive sales program. This radio man has been with his present company for the last 12 years, working with leading jobbers from coast to coast; previous experience includes 8 years as a radio and electrical distributor. Wide acquaintance among California jobbers. Write to Box 514, RADIO TODAY, 480 Lexington Ave., New York City.

## Hytron Ballast Tubes in New List

A new complete replacement ballast tube list with type numbers and list prices, includes approximately 1000 stock types made by the Hytron Corporation, Salem, Mass. The Hytron line includes both metal and glass types with either ballast or non-ballast action windings. The exact duplicate tubes list at \$.60, \$.75, \$.95, and \$1.20. Special tubes will be supplied at \$1.50 list when complete information on the characteristics are sent with the order.



# QUIET, PLEASE! GENIUS AT WORK!

If you were to peek in Burgess' Replacement Laboratory most any day, you'd see Homer G. Snoopshaw, B. R. S., (Battery Replacement Specialist), happily solving problems for our friends and dealers. He is trying to catch up on his correspondence by June—as he hopes to attend the Radio Parts Show in Chicago, and meet you in person at booths 925-927.

Homer says that he didn't realize, prior to his connection with Burgess, that there were so many dealers needing his help. As an indication, look at all those letters on (and around and under) Homer's desk. They are from dealers everywhere, wanting to know what battery fits what radio—and Homer tells 'em—and sends each dealer a copy of the "Burgess Replacement Guide to Portable Radios"—including the new Burgess "Quick Reference Price List".

They're both free for the asking. See your distributor or write to Homer G. Snoopshaw, B. R. S., c/o Burgess Battery Company, Freeport, Illinois.

**BURGESS**  
*The Complete Replacement Line*

## Service Schools in Profit Meetings

New sessions of the Hygrade Sylvania schools for radio servicemen have been held in the southeastern areas of the U. S., with Sylvania commercial engineers George C. Connor of New York and Frank D. Langstroth of Emporium, Pa., conducting. Topics included service profits, the "Lock-In" tube, and fluorescent lighting.

Sponsoring Sylvania jobbers were respectively: Radio Parts Co., Radio Supply and Equipment Co., Radio Accessories Co., Thurrow Radio, Teague Hardware Co., Gulf Electric Supply Co., Radio Parts Co., Inter-State Electric Co., Shuler Supply Co., and Nelson Radio and Supply Co.

## Solar Steps Up Plant Facilities

Expansion activity at Solar Mfg. Corp., Bayonne, N. J., includes the construction of a warehouse adjoining the factory, and the leasing of additional factory quarters in nearby Jersey City. The latter plant will produce mica transmitting condensers exclusively.

Solar now has the largest backlog of orders in its history, including a number of Defense contracts which get preferential treatment. Production of oil condensers has been greatly increased.

The firm recently announced the return of Sylvan A. Wolin to the organization as sales promotion manager.

## Turner Has Two New Reps

Two new representatives for the push-pull vibrators made by The Turner Co., Cedar Rapids, Iowa, have been announced by the firm. In the northwest, it's Vernon O. Jensen of General Sales Co., 2607 Second Ave., Seattle, Wash.; his area includes Idaho, Montana, Oregon, Washington, Alaska, Alberta, Canada, and Vancouver, B. C. In the southeast, it's Herb Erickson, 14 Biltmore Ave., Asheville, N. C.; his territory covers Alabama, Florida, Georgia, North Carolina, South Carolina and Tennessee.

## Comfort Depends Upon Dehumidification

Comfort from a room-cooler depends not only upon temperature reduction but also upon removal of humidity from the air of the room being cooled, points out Robert Herr, manager of Philco parts division, in a new instruction book on room-coolers.

The ability of air to hold water vapor is determined by the temperature of the air. Therefore, as room air is circulated over the evaporator, and cooled by it, it gives up water vapor and this vapor is deposited on the evaporator tubes and fins. As the amount of accumulated water increases on the evaporator, drops are formed in the same manner that they form on a cold beverage glass on a warm day.

## Pair of Salesmen



Ready for the big portable season is this pair of store displays, 5 ft. high, in life colors. The figures hold actual radios and they're free, from Continental Radio & Television Corp., 3800 W. Cortlandt St., Chicago.

This condensate water is drained from the evaporator for disposal.

This removal of water vapor from the room air reduces the humidity of the air and adds greatly to the comfort of the room occupants. A lowering of the humidity of room air assists the human body in its natural function of maintaining an even temperature by means of evaporation of perspiration on the skin surfaces. For this reason it is more desirable to have lowered the humidity in a room during warm, humid weather than it is to lower only the temperature.

The removal of moisture from the room air imposes a definite load on

the unit since heat must be removed from the water vapor in order to condense it on the evaporator. In actual operation the heat-removal load consists of both a latent or "moisture-removal" load and a sensible or actual "temperature-reduction" load. The latent-heat removal lowers the humidity, and the sensible heat removal lowers the temperature of the room.

The result is that the total performance of an air-conditioner must be judged on comfort obtained and not based on temperature reduction alone.

## LOAD ON MACHINE

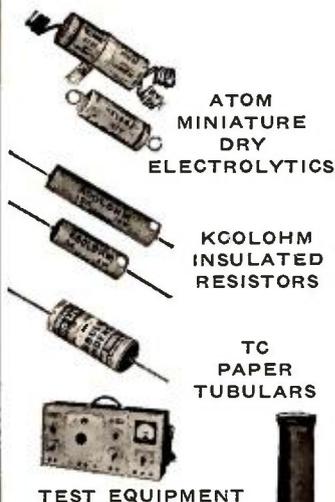
Actually, the higher the humidity of the room air the less actual temperature drop there will be, because of additional load in reducing humidity.

When the outside temperature is not particularly high but it is still uncomfortable because of the high humidity—this is particularly true during summer rains and on summer nights in territories where the temperature drops late at night—it is essential to remove all of the moisture possible from the room air, with comparatively little necessity for actual temperature drop to attain comfort conditions.

## Duotone in Hollywood

Duotone Co., Inc., 799 Broadway, New York City, has appointed the National Recording Supply Co., Hollywood, as Southern California distributors for its line of phonograph and home recording playback and cutting needles.

## SPRAGUE and NATIONAL DEFENSE



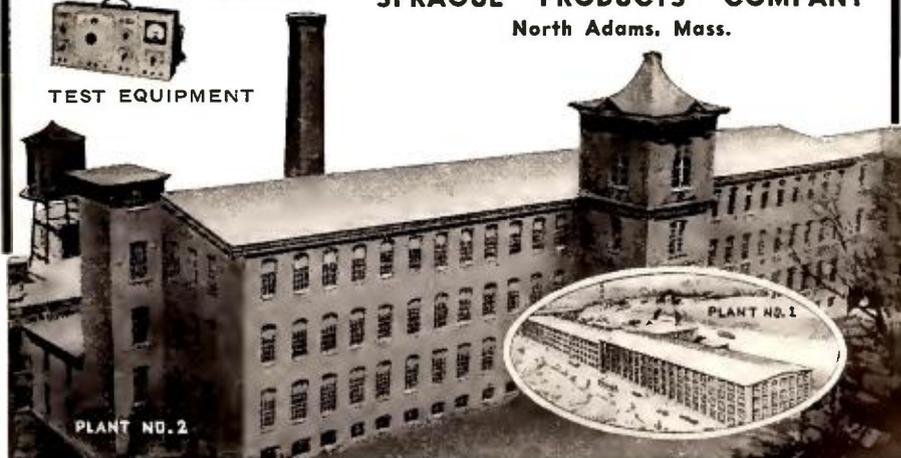
National defense needs come first!

Sprague is putting them first—fully and wholeheartedly. One of our two big factories in North Adams, Mass., is now devoted almost solely to defense work.

Meanwhile, our other factory is turning out more Sprague Condensers, Koolohm Resistors and Test Equipment for the Radio trade than ever before. Deliveries are prompt. Full Sprague quality is being rigidly maintained. Development work continues as in the past.

Thus, thanks to Sprague's size and unique facilities, we are able to put defense first—and still not neglect our long-time-friends of the Radio profession.

**SPRAGUE PRODUCTS COMPANY**  
North Adams, Mass.





**CUTTING NEEDLES • PLAYBACK and LONG-PLAYING NEEDLES**

• Make sure of customers getting the true tone-fidelity that helps you sell recorders—use, sell and specify General TRUETONE Cutting Needles. Precision-made by the shadow-graph process and highly finished. Right for both professional and amateur recording. . . Just as important to recorder sales is tone-production in playing back. Make sure of clarity and minimum surface noise with General OUR OWN steel playback needles.

For a trade-building "permanent-point" needle, sell General FUTUR-IS-TIC Long-Playing Needles. Play 2060-3000 sides.

General's complete phono-needle service includes a choice of 39 other types. All microscopically inspected and tested against service specifications. Attractive packaging. Write today for prices.

**GENERAL PHONOGRAPH MFG. CO.**

Box 152

Putnam, Conn.

**SUMMER SUPER-SELLERS**



TALK-A-PHONE has the Phonograph Super-Sellers for Summer! For example, here's the G-44 Portable Complete Electric Phonograph that's in demand right now! Has built-in 3-tube Inverse-Feedback amplifier; 2 watts output; P.M. Speaker; Tone Control; rim-drive motor; 1 ounce pickup with life-time needle; record storage compartment. Beautiful luggage-type portable case; plays all 10" and 12" records with lid closed; 14½" x 14" x 9". Quality-built—priced right to sell! Send for literature on this and other TALK-A-PHONE Summer Sellers!



**A Complete PHONO LINE—20 Models! COMPLETE INTERCOM SYSTEM LINE!**

Profit—Builders all! Wired and Wireless Players, Player-Amplifiers, Changer Players, etc. Also fast-moving Intercommunication Systems, priced to sell. Take on these profitable lines! Distributors—a few choice territories still open. Dealers—see nearest distributor or write us direct. Prices, discounts, literature sent on request.

**Talk-A-Phone Mfg. Co.**  
1219 W. VAN BUREN ST.—CHICAGO

**Car Set Sales Are Doubled**

Sales of auto radios have doubled for the first quarter period of 1941, according to word from C. E. Carpenter, manager of Philco's auto radio division.

"A very healthy increase of 7 per cent, over last year in the average unit sale price of our auto radios, car sets," was also noted by Mr. Carpenter.

"The unsettled foreign situation," he declared, "has put the American public in a 'See America First' frame of mind. More people are making plans for spring and summer automobile travel at home than ever before and the car has really become a second home for millions. This is one of the factors in the increase cited by Mr. Carpenter.

**Turner Adds to Promotion Staff**

New executive departments have been created by The Turner Co., Cedar Rapids, Iowa, makers of microphones and vibrators, following the opening of the export market to Turner push-pull vibrators.

W. D. Lyon becomes head of the advertising dept., and Miss Garnet L. Ramsey will manage the vibrator export activity. Mr. Lyon will supervise ads on both microphones and vibrators. Export of Turner mikes remains under the direction of Ad Auriema.

**Rados Heads Crosley Refrig. Promotion**

"Increased service to dealers and distributors" is further emphasized by Crosley Corp., in the appointment of C. William Rados as sales promotion manager for the company. The news comes from L. Martin Krautter, Crosley manager of advertising and sales promotion.

Mr. Rados, previously of Detroit, has been a specialist in sales training work with a number of important firms and in 1938 was named manager of the National Salesman's Institute.

**W. J. Halligan to Chicago National Defense**

William J. Halligan, president of The Hallicrafters Co., has been appointed to the Chicago Commission on National Defense by Chicago's Mayor, Edward J. Kelly. Mr. Halligan served in the communications division of the Navy during the last world war and was assigned to a mine-layer operating in the North Sea. At the close of the war he attended West Point and is an active member of the West Point Club of Chicago.

**Haugh in Calif.**

Arthur T. Haugh, former president of the Radio Manufacturers Association, is now vice-president of Edgin & Co., 1416 S. Flower St., Los Angeles, Calif.

**Audiograph Gets New Sales Manager**



Wm. H. Montgomery

Announcement from Chicago is that Wm. W. Montgomery has been named sales manager for the Audiograph Sound Systems division of John Meck Industries, 1313 W. Randolph St., Chicago. A long-time sound sales expert, Mr. Montgomery had previously operated a public address laboratory in the South, and he became well known in the sound business. Later, he was engaged in sales work on sound movie equipment in the Chicago area.

**RCA in Okla.**

Dulaney Distributing Co., Oklahoma City, are now the distributors of products of the RCA Mfg. Co. in that territory. Dulaney replaces W. C. Dance, Inc., which is retiring from business.

**Department Stores Show Goods Via Tele**

Some indication of how television stations may be sponsored and used by department stores, is seen in the activity of Bloomingdale Bros., Inc., New York City. The store has joined another big retailer, Abraham & Straus, to form a firm, Metropolitan Television, Inc., to own and operate a tele station atop the nearby Hotel Pierre.

Vice president I. A. Hirschmann of Bloomingdale's takes the view that television is the future means of effectively presenting merchandise to the public. The store has, from the beginning of tele interest, been active in demonstrating and selling television receiving sets.

Pending the delivery of the necessary equipment, the Metropolitan station will experimentally broadcast "public activities and information, merchandise presentations, and educational features."

## Jensen Shows New Hypex Speaker



Here it is, with its improved "rate of flare"—the Hypex loud speaker developed by Jensen Radio Mfg. Co., Inc., 6601 S. Laramie, Chicago, following a new theory originated by Dr. Vincent Salmon. Jensen engineers, left to right, H. E. Allen and Karl Kramer, project engineers; Dr. Salmon, mathematical physicist; and Hugh S. Knowles, vice-president and chief engineer.

## Philco Dates Set for Showing '42 Radios

As we go to press, announcements are made by Philco that its 1942 line of radios will be introduced at two conventions—at Atlantic City May 29-31, and at Del Monte, Calif., June 9-11.

Eastern distributors totalling 850 are expected at Atlantic City, and about 550 from the Northwest, Southwest, West Central and Pacific Coast divisions will attend the Del Monte meet.

The Philco vice president Sayre Ramsdell promises "startlingly new features" for the new radios.

## New Du Mont Jobber Franchise Contract

May 15 is the date for the new jobber franchise contracts of the Allen B. Du Mont Laboratories, Inc., to go into effect. It is said that the new contracts will "definitely strengthen the jobber position on Du Mont cathode-ray tubes and instruments . . . and will insure preferential discounts to those who are willing to demonstrate and sell the Du Mont products."

## Bowman for Crosley

Louis O. Bowman, Inc., 301-303 North First St., Richmond, are now distributors of Crosley products, including refrigerators, radios, ranges, washers and ironers.

## Laird Heads Ohmite Sales

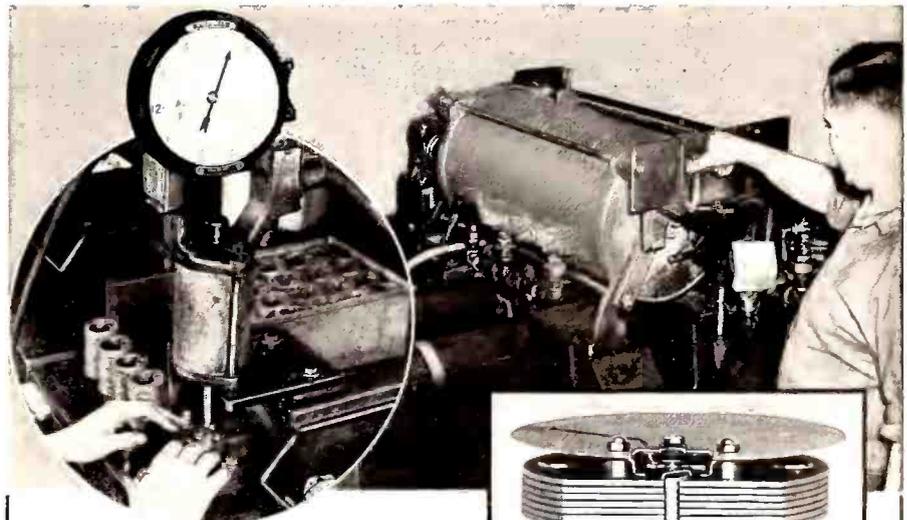
The new sales manager for the Ohmite Mfg. Co., Chicago, is Roy S. Laird, who has been a sales engineer for the firm for 5 years and is a familiar figure among jobbers and industrial accounts. His training and experience make him a specialist in serving users of resistors, rheostats, chokes and tap switches. Mr. Laird is an active amateur, call letters—W9CAZ.

## Janette Appoints Robinson Sales Manager

Max L. Robinson, whose sales experience in the electrical business dates from 1915, has been named sales manager for the Janette Mfg. Co., 556 W. Monroe St., Chicago. He has been promoting the sale of Janette motorized speed reducers for the past 5 years, and was formerly sales manager for Roth Bros. & Co., division of Century Electric Co.

## Cubans Buy Carload of Motorolas

As a result of the largest order ever placed by the Cuban government for one single radio model, Galvin Mfg. Corp. is now shipping 1,300 battery operated Motorola sets to Cuba, for use in schools there. A. Laredo, Cuban Consul in Chicago, was a guest at the Motorola plant when the full carload of sets was dispatched to the Board of Education, Havana.



**It's got to be right**

TO BE **TRIPLET**

Interior View of D.C. Movement . . . Double truss bridge protects against any vibration—insures permanent perfect alignment of bearing supports, and provides correct scale readings.

IN every phase of manufacture, Triplett exercises rigid control over the quality of every part. In instrument manufacture, for example, heat-treating magnets the Triplett way, plus careful aging, insures permanency. Following heat-treating, processing by special electric hammers insures initial uniformity and freedom against change. Triplett instruments have perfect alignment magnetically and mechanically, with the result that scale readings are linear and free from "curve error." That is why Triplett instruments have been recognized internationally for their precision, long life, and reasonable prices. That is why more and more people are standardizing on Triplett instruments, because they know—"it's got to be RIGHT to be Triplett."

Write for Catalog—Section 195 Harmon Avenue

**THE TRIPLET ELECTRICAL INSTRUMENT COMPANY**  
Bluffton, Ohio

## Juviler to Head Hamilton Expansion

As a part of a new expansion program at Hamilton Radio Corp., 142 W. 26th St., New York City. A. A. Juviler has been elected president of the firm. Mr. Juviler was formerly distributor for, and later the owner of the Belmont radio interests in England.

Hamilton will now widen its production and sales efforts on its radio line, with special emphasis on automatic combinations, and 3-way portables. P. L. Schoenen, vice-president and secretary, continues in that post; Maurice and Paul Fabricant have resigned as officials of the company.

## Columbia Jobber Host at Recording Session



Dealers and salesmen were invited to hear Horace Heidt make his newest record, when Times Appliance Co., NY distributors for Columbia discs, played host. Left to right: Mr. Heidt; Paul Southard, Columbia sales manager; Manie Sacks, director of popular repertoire; and O. W. Ray, vice-pres. of Times Appliance.

for **FM**  
**A NEW CINAXIAL SPEAKER SYSTEM**  
 for absolute fidelity of response. Model FM-12 will fit any standard 12 inch baffle. Complete with accurately calibrated network. **\$42.50**  
 Lists at only.....  
 Write for Special Bulletin  
 SEE us at the CHICAGO SHOW  
 JUNE 10th to 13th . . .  
 Booths 623-625  
**CINAUDAGRAPH SPEAKERS, INC.**  
 921 W. VAN BUREN ST.  
 CHICAGO, ILL.

## Radio Mourns Death of Joseph D. R. Freed, Pioneer

The radio industry felt a real loss last month in the death of one of its best known pioneers, Joseph D. R. Freed, who succumbed April 18 after a brief illness. The highly regarded head of the Freed Radio Corp., 39 W. 19th St., New York City, was 43 at the time of his death, and had been active in radio for some 20 years.

Mr. Freed started his radio work with the U. S. Navy and there made many important contributions to receiver design. In 1921, he became a partner in the pioneer radio firm of Freed-Eisemann Radio Corp., and was identified with early neodyne developments. Later he was an executive with Brunswick Radio Corp., and then with Muzak Corp.

Back to the radio set field last year as president of Freed Radio Corp., he became a vigorous proponent of FM, and was aggressively marketing the new Freed-Eisemann sets, when he died.

## Ken-Rad Engineer Speaks

The Ken-Rad Tube & Lamp Corp. engineer, C. R. Wexler, was the guest speaker at the last meeting of the Amateur Radio Transmitting Society,

Louisville, Ky. His subject was "Radio Aids to Aviation"; the scheduled 45-minute talk extended to a 3-hour discussion due to intense interest in the subject.

## Jobber on Cruise

Edd N. Watkins, owner of Electric Supply Co., Admiral jobbers of Oakland, Calif., is now completing with Mrs. Watkins a month-long tour including a boat trip on the S.S. America from San Francisco to New York. On the homeward trek, the prominent jobber visited eastern trade centers, and Chicago.

## Butler at Magnavox

The new district manager for the Magnavox Co., Ft. Wayne, Ind., in the Southeast territory is J. Warren Butler, according to news from Magnavox sales manager L. M. Sandwick. Mr. Butler combines technical training with a wide knowledge of dealers and manufacturers' problems.

## Acme Rep in Mass.

News from Acme Battery Corp., 59 Pearl St., Brooklyn, N. Y., is that it has named a representative for its products in New England—Max Alberts, 66 Glenway St., Dorchester, Mass.

*Why* SOUND



ENGINEERS  
*Prefer*

## THORDARSON AMPLIFIERS

● Analyze the model T-30W20—a typical Thordarson Amplifier. Frequency response flat within 1 db. from 30 to 15,000 c.p.s. with a deliberate bass boost of 7 db. below 100 cycles on the phono channel. This extended audio range assures natural voice amplification and life-like record playing. Output 20 watts with less than 5% distortion.

Two high impedance microphone inputs and one high impedance phono channel have separate gain controls for mixing. Two tone

controls, one for bass and one for treble, facilitate adjusting for acoustical conditions. Model T-30W20 incorporates many quality features such as choice of impedances for speakers, high gain mike inputs and hum level 70 db. below rated power output. Model T-30W20 with selected tubes, \$82.50 list.

Thordarson amplifiers will meet your sound requirements up to 900 watts and include rack panel and cabinet models with and without phono turntable.

Consult Thordarson sound engineers about your special sound installations. Thordarson amplifiers are sold by leading parts and sound equipment distributors everywhere. Ask for Catalog No. 600.

**THORDARSON**

ELEC. MFG. CO.

500 West Huron St., Chicago, Ill., U. S. A.

TRANSFORMER SPECIALISTS SINCE 1895

## Schub Announces Acme Battery Expansion



I. Schub of Acme Battery Corp.

Announcement has been made by I. Schub, president of the Acme Battery Corp., 59 Pearl St., Brooklyn, N. Y., that Acme has acquired the name and the good will of the Advance Battery Co., also in Brooklyn. The expansion move climaxes the long experience of Mr. Schub in the battery business; he started in 1916 with a leading firm and during World War 1, built units for the U. S. Signal Corps.

Mr. Schub pioneered in designing batteries of various voltages and also in building radio blocks with replaceable cells. While he was in Washington as a member of the Battery Committee, he helped in standardizing the number of cells from 35 down to 8. Mr. Schub became well known as a writer on radio subjects, and worked with Advance Battery until it was reorganized in 1935. He started the Acme company later that year.

## New Display, New Recording Blank

A classy new easel in colors, with sample recording disc attached, now comes from Howard Radio Co., 1735 Belmont Ave., Chicago.

Howard has also announced a new

"Economy" recording blank, 6½" size, described as having "the same superior black coating used on our metal-base records." Features A1 reproduction of both high and low frequencies and lists at 10c.

## Philco Refrigs. Win American Design Award

Special honors were given to Philco Corp. last week when the firm was presented the Lord & Taylor American Design award for its new refrigerators. A check for \$1,000 went to Harold Van Doren, Philco's refrigerator designer, and the new units were called a "distinguished contribution to industrial design."

The Lord & Taylor president, Walter Hoving, one of the nation's first merchandising authorities, cited Philco for its radical re-arrangement of box interiors; the Conservador, the horizontal evaporator, increased production of ice cubes and many other features called unique.

The award was made at a big event at the Waldorf-Astoria Hotel in New York City, where 2,000 guests applauded the Philco winner along with selections in other fields.

## Carolina Jobber to Bigger Store

Wilson Radio Co., Columbia, S. C., distributors, who for the past five years have been operating at 1819 Main St., have moved to larger quarters at 1835 Main St., in the same block. Increased business is the reason.

R. P. Wilson, owner-manager, announces improved facilities for quick service. The firm recently opened a branch at Augusta, Ga., now doing a nice business.

## Chicago Rep Wants Another Line

A manufacturer's agent in Chicago has reported to RADIO TODAY that he now desires an additional radio line. He has had 14 years of experience in the area but can still describe himself as young and aggressive. Interested parties should write to Box 720, RADIO TODAY, 480 Lexington Ave., New York City.

## New Farnsworth Auto Manager

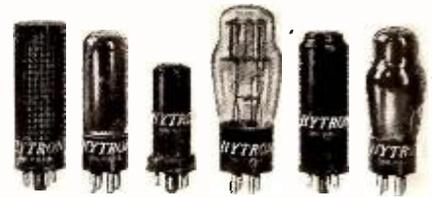
Sam H. Kehoe has been appointed manager of the automotive division of the Farnsworth Television & Radio Corp., and in this capacity will operate out of newly established offices at 514 Boulevard Building, Detroit. William H. Myers joins Mr. Kehoe as automotive radio engineer.

## Motorola Distrib

Galvin Mfg. Corp., makers of Motorola radios, has just put on a new distributor in Amarillo, Tex., to cover Western Texas—the McDonald Auto Supply Co., 2nd & Polk Sts., which will distribute both Motorola home and car radios.

**FOR THOSE WHO WANT THE BEST**

**You take no chances**



**With Hytron EXACT-DUPLICATE ballast tubes (plug-in resistors).**

There's no danger of burning out tubes or otherwise damaging or impairing the performance of the set for Hytron ballasts are designed for the particular circuit. And you can't make the error of cutting the wrong pins or taps since each Hytron ballast is an EXACT-DUPLICATE. Furthermore, you actually PAY LESS for them.

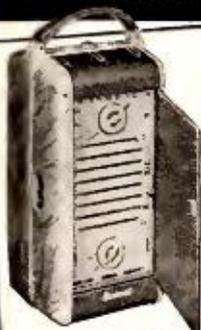
Then, too, Hytron, as a manufacturer of radio tubes fully understands the correlation between the ballasts and the radio tubes used in the set. Don't forget Hytron is the only manufacturer of radio tubes also making a complete line of ballasts.

Get your complete list of Hytron ballasts from your jobber or write direct.

Since 1921

**HYTRON CORP. SALEM, MASS.**

# SMASH HITS FOR LIGHTNING-FAST VACATION SELLING



**NEW 3-WAY "Lightweight CHAMPION" PLUS SEN-TENNA**

This camera-type portable is selling like wildfire! Amazing "SEN-TENNA" extra loop antenna permits reception anywhere—in cars, planes, trains. 3-way operation—AC, DC, Battery. Model 247-P.

For record-breaking sales this summer—for bigger profits—stock these two immensely popular models. Both are top-notch values. Both feature stunning appearance, stepped-up performance, sensible prices. Order now in time for big-volume vacation sales!

**SENTINEL RADIO CORPORATION**  
2020 Ridge Ave. Dept. RT-5 Evanston, Ill.

**Sentinel**  
QUALITY RADIO SINCE 1920



The "CHAMPION" in any Class! WITH SEN-TENNA

A punch-packed performer that stands out against all competition. A real sales-getter! 6 Tube set with tuned R-F stage. 3-way operation—AC, DC, Battery. Stunning luggage case. Model 262-P.

## DASH-BOARD DOLLARS

(Continued from page 14)

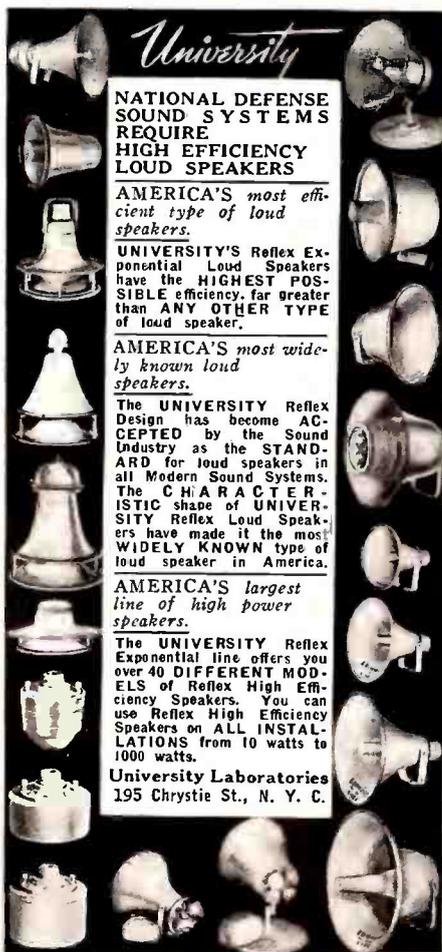
car radios, and that one of the best possible places to do this is at an automotive service outlet.

As for radio retailers, Mr. Slavin believes that they're missing a good bet, if they neglect the merchandising of car radios. He points out that it is a very simple matter to set up one of the new display boards in the store and to encourage the customers to start dialing. "If you're any kind of a salesman," he says, "and you get a man to walk over to an auto radio display board, the only thing left is the matter of price."

"Salesmen should certainly remember the intense interest in news broadcasts, and how extremely important they are to everybody who drives around, whether it's a week-end spin to the country, or the regular run to business."

## Suggestions for Selling Your Personal Portables

One of the most seasonal ideas to turn up, for displaying these little sets, has to do with spring sports. The display includes such equipment as tennis and golf outfits plus luggage. The set appears to be the least bulky of all the items and shows itself to be very easy to carry around.



*University*

**NATIONAL DEFENSE SOUND SYSTEMS REQUIRE HIGH EFFICIENCY LOUD SPEAKERS**

AMERICA'S most efficient type of loud speakers.

UNIVERSITY'S Reflex Exponential Loud Speakers have the HIGHEST POSSIBLE efficiency far greater than ANY OTHER TYPE of loud speaker.

AMERICA'S most widely known loud speakers.

The UNIVERSITY Reflex Design has become ACCEPTED by the Sound Industry as the STANDARD for loud speakers in all Modern Sound Systems.

The C H A R A C T E R - I S T I C shape of UNIVERSITY Reflex Loud Speakers have made it the most WIDELY KNOWN type of loud speaker in America.

AMERICA'S largest line of high power speakers.

The UNIVERSITY Reflex Exponential line offers you over 40 DIFFERENT MODELS of Reflex High Efficiency Speakers. You can use Reflex High Efficiency Speakers on ALL INSTALLATIONS from 10 watts to 1000 watts.

University Laboratories  
195 Chrystie St., N. Y. C.

## Introducing an Innovation for Portable Season



The mysterious box with the padlock is GE's novel way of introducing its new portable with rechargeable battery. Left to right, A. A. Brandt, radio sales mgr.; L. G. Moore, Jr.; C. R. Prichard and John Busey, president, all of GE Supply Corp.; P. A. Tilley, ass't. mgr., GE radio; Ralph Brown, GE Supply, and Perry Hadlock, who recently left his GE post to engage in promotion of RCA products in Latin America.

In spite of doubts that prospects may have about the life of the batteries, it has been found that many of the small portables are being used in homes. The listeners use them in their dens, kitchens and bedrooms, for private listening. One dealer advises that "when you find that the customer has this in mind, you should try to sell them up to a bigger set . . . in this way the novelty appeal of the personals starts you on your way to higher-unit sales."

Possibly it should be reported that in some areas where radio prices take a regular beating, the \$19 and \$20 personals are being shown in windows with cut-price tags. It will be found that these offers do not include batteries, however.

Some stores promote the sets for \$1 down and \$1 weekly, and others say "small down payment and as little as 50c weekly." Many dealers have declared, though, that some trouble is likely to result from a time payment plan, because the owners must keep buying batteries as well as making the payments.

## Rural Run on Radios

The popularity of socket-power radios among farmers whose homes have been electrified is seen in a new survey by the Rural Electrification Administration in southwestern Minnesota. Just about a year after the farms there had been electrified by REA, 384 farmers were asked what equipment

they had acquired. Electric irons got the most votes, but among the higher priced items, radio was first.

In detail, the survey showed appliance ownership as follows: Electric irons, 367; radios, 361; washing machines, 348; refrigerators, 168; vacuum cleaners, 137; electric hot plates, 110; water pumps, 102; separators, 55; brooders, 14; and electric fences, 12. Electric ranges, meat storage, lawn mowers, milk coolers and tank heaters were also mentioned.

## Fifty-cent Fumble

When there is only one prize, and a lot of rough hands are reaching for it, very often there's a crash and the prize goes to the ash can.

Same thing takes place in some communities where radio men cannot agree on how to handle the business "prize" offered them at push-button re-setting time.

In one area, RT scouts found that most servicemen were burned up plenty because one radio man advertised the fact that he would do the job for 50c per set. Others were charging \$1 or \$1.50, and they soon doped out a way to teach the fellow a lesson. They dug up a friendly customer with a suburban address and instructed him to phone the price cutter, for button service.

The set was miles away and it was an old Grunow with a telephone dial. The job took two hours. Total loss, \$3. Other radio men are still chuckling.



**ALLIANCE**  
*Even-Speed*  
**PHONO-MOTORS**

*are packed in individual cartons for your convenience*

Mail a postcard today for prices and complete details on the various "Even-Speed" Phono-motor Models. Address Department RT.

**ALLIANCE MFG. CO.**  
ALLIANCE, OHIO

**COMPARE** **Fidelitone**  
*Floating Point*  
**NEEDLES**

Compare FIDELITONE FLOATING POINT with any long life phonograph needle on the market—give it a good test yourself—see the floating point construction that filters record scratch, maintains the tone quality and protects the records for more than 1000 plays—3 to 6 months' average use. Then you will see why FIDELITONE floating point is daily replacing the ordinary steel needle and has become the best selling long-life needle. Ask your local jobber or write direct for the new FIDELITONE Counter Sales Card—contains 12 FIDELITONE Floating Point Needles—you invest \$3.25—you make \$2.75. Put this counter sales card to work for you now! Build your needle sales with FIDELITONE floating point, the nationally advertised phonograph needle.

**PERMO PRODUCTS CORP.**  
6415 Ravenswood Ave. Chicago, Ill.

MANUFACTURING METALLURGISTS.



**Mr. Serviceman!**  
**Get your RSA Membership**



**FREE!**

Now Without One Cent of Cost to You, you can have a membership in the RSA, the only national organization that has the sponsorship of the RMA, the NAB, the Sales Managers Clubs, and the Trade Journals.

This includes the RSA Membership Certificate, the RSA Pocket Membership Card, the House Organ, access to the RSA Technical Helps Bureau, and participation in all the functions and benefits RSA offers!

**Act now! Take advantage of this special offer!**

**RADIO SERVICEMEN OF AMERICA, INC.**

*"Reliable Service Assured"*

**JOE MARTY, JR., EXECUTIVE SECRETARY**  
304 S. DEARBORN ST. CHICAGO, ILLINOIS

*It's Simple! . . . Easy!* All you have to do is send in 5 memberships of your fellow Servicemen with a \$5.00 bill (that's \$1.00 for each) for 1941 National RSA Dues, and you get *your* membership *Free* of charge. Applicants in present chapter areas will be referred to the local chapter.

**RADIO SERVICEMEN OF AMERICA, INC.**  
304 S. Dearborn Street, Chicago, Illinois.

- \$5.00 enclosed for 1941 National Dues for 5 memberships in RSA. Names and addresses attached herewith.
- \$1.00 enclosed for 1941 National RSA Dues for single membership.

Name .....

Address .....

City..... State.....

Radio Today—May, '41

# NEW SERVICE PRODUCTS

## Triplett signal generator



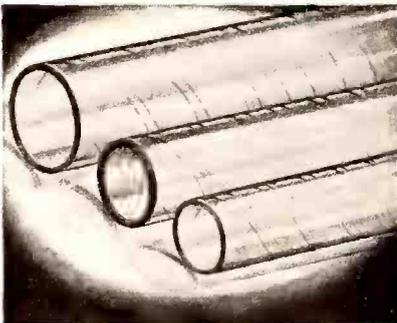
★ Model 1232-A direct reading signal generator for 110 v., 60 cycles operation; model 12-31-A has self-contained standard batteries. Triple-shielding. 6 bands cover from 115 kc to 30.5 mc. All fundamentals. 400 cycle audio note. 1232-A, \$29.84; 1231-A, \$27.50. The Triplett Elecl. Instr. Co., Bluffton, Ohio.—RADIO TODAY.

## R.C.P. appliance tester



★ Model 417 appliance tester has 18 ranges. AC-DC line voltage up to 250; 4 AC and DC ampere ranges up to 25 amps., 4 AC-DC watts ranges up to 3000 w. Watt ranges are direct reading at 120 v. and unity power factor. Radio City Products Co., 88 Park Pl., New York, N. Y.—RADIO TODAY.

## Precision acetate tube



★ Self-supporting spirally wound transparent acetate tube. Will not shrink. Supplied in continuous

lengths of any wall thickness with any I.D. and O.D. Recommended for high frequency and electronic applications of the radio and electrical industry. Precision Paper Tube Co., 2033 Charleston St., Chicago, Ill.—RADIO TODAY.

## United Cinephone Sun-Switch

★ A photo-electric relay used to control electrical circuits in accordance with the rise and fall of natural illumination. User chooses the 2 lighting levels at which he wishes the load switched on and off. Current capacity is 6 amps. Dimensions  $10\frac{3}{4} \times 5\frac{3}{8} \times 3\frac{1}{2}$  in. 110 v., 50 or 60 cycles. \$28.50 each. United Cinephone Corp., Torrington, Conn.—RADIO TODAY.

## Triumph meter



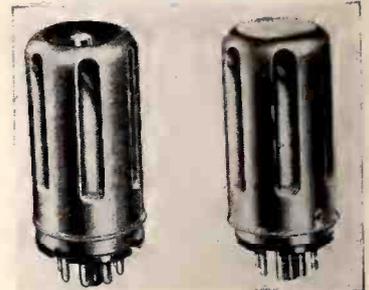
★ Model 323 test set is a high sensitivity AC-DC instrument  $2\frac{7}{8} \times 5\frac{1}{2} \times 1\frac{1}{8}$  in. DC volts to 1500, AC volts to 150, ohms to 300,000. Triumph Mfg. Co., 4017 W. Lake St., Chicago, Ill.—RADIO TODAY.

## Walsco Recordene



★ Recordene will remove dirt, dust or grease accumulated in the grooves, and will leave a plastic film which will reduce surface noise and prolong the life of the record. Lists at 35c for 2 oz. bottle with wool-felt dauber. Walter L. Schott Co., 5264 W. Pico Blvd., Los Angeles, Calif.—RADIO TODAY.

## Goat tube shields



★ "1330 Series" one-piece Form-Fit tube shields for GT/G, GT and Loktal tubes. Fits tube snug and positive. Assures efficient shielding. Easily attached and automatically grounded to metal base of the tube. Four types available. Goat Metal Stampings, Inc., 314 Dean St., Brooklyn, N. Y.—RADIO TODAY.

## Ray-O-Vac "B" battery



★ P-78301, a new 45-volt "B" battery for portables. Delivers the long life of the standard size portable battery but is about  $\frac{1}{2}$  the size of the standard V30B type. Ray-O-Vac Co., 2317 Winnebago St., Madison, Wis.—RADIO TODAY.

## Betts & Betts switch

★ Time delay switch to provide a predetermined delay in control for lab and industrial applications. Four terminals. Available in immediately or not immediately recycling types, normally open or closed models. Betts & Betts Corp., 551 W. 52nd St., N. Y. C.—RADIO TODAY.

## C-D capacitors



★ Moulded bakelite capacitor, type and, is addition to Cornell-Dubilier line of mica dielectric capacitors. Standard units in brown bakelite are available in capacities from .00005 mfd. to .03 for 600 v., .01 for 1200 v., .003 for 2500 v. Capacitors can be supplied in low-loss bakelite (insulation resistance 40,000 megohms). Cornell-Dubilier Elec. Corp., So. Plainfield, N. J.—RADIO TODAY.



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--IN RADIO & TELEVISION TODAY

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NEW LINES AND NEW SELLING OPPORTUNITIES  
—THEY ARE BACKBONE OF RADIO TODAY'S  
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POWER—SHOW NUMBER, JUNE ISSUE, CLOSES  
TIGHT MAY 31—SPECIAL DISTRIBUTION AT  
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While every precaution is taken to insure accuracy, we cannot guarantee against the possibility of an occasional change or omission in the preparation of this index.

## NEW BOOKLETS

The Crowe Name Plate & Mfg. Co., 3701 Ravenswood Ave., Chicago, Ill., have just issued a free bulletin, No. 237, covering remote controls and kits for automobile radios.

Howard announces 2 new folders No. 105 listing complete line of replacement chassis including FM and home recorders, and No. 106 listing metal and paper base recording discs and needles. Available to servicemen and dealers without charge. Howard Radio Co., 1735 Belmont Ave., Chicago, Ill.

Supplement No. 102A of Sun Radio Co., 212 Fulton St., N. Y. C., gives specifications, illustrations and prices of different high fidelity sound amplifiers, tuners and accessories.

A volume of instruction and service information for Emerson radio receivers and phonograph combinations bearing chassis designations from BA to BY has been prepared by Emerson Radio & Phono. Corp., 111 8th Ave., New York City.

A "30th Anniversary Catalog" for general and commercial use includes the entire line (bins, counters, cabinets, etc.) of the Aurora Equip. Co., Aurora, Ill., apart from display fixtures which are described in separate literature.

Two new pamphlets from Sonora, one describing the new "Streamliner" auto radio and the other the new 3-way Candid personal radios and portables. Sonora Radio & Telev. Corp., 2626 W. Washington St., Chicago, Ill.

A complete catalog of the entire line of electrolytic and paper condensers manufactured by Illinois Condenser Co., 1160 N. Howe St., Chicago, Ill., has just been released.

A new folder from General Electric, Schenectady, N. Y., gives specifications and prices of its line of radio transmitting tubes.

Ideal Commutator Dresser Co., 1270 Park Ave., Sycamore, Ill., has just released a new 25th Anniversary catalog containing information and pictures of its complete line of products.

The prices and specifications of Garrard record playing equipment is given in its new catalog No. 41 now available. Garrard Sales Corp., 296 Broadway, New York City.

A 32-page RCA log book listing the latest FM and television assignments, all the standard U. S. and Canadian broadcasting and foreign shortwave stations and much non-technical information for the shortwave enthusiast, is being released through RCA tube and equipment distributors.

National Recording Supply Co., 1065 Vine St., Hollywood, Calif., have just issued their 1941 catalog of recorders, needles and accessories and communication receivers.

A special catalog (No. 180X) describing high-voltage capacitors for heavy duty X-ray, impulse or surge-generator applications. Write Cornell-Dubilier Elec. Corp., South Plainfield, N. J.

Thousands of radio parts products are illustrated in the latest spiral bound catalog of Radio Supply Co., 711 Granby St., Norfolk, Va. Copies will be sent to those in the trade on request.

A copy of the 1941 industrial capacitor's manual of the Aerovox Corp., New Bedford, Mass., is available on request. It contains practical application data in addition to listings of electrolytic and oil motor-starting capacitors.

A new 180-page 1941 Spring radio catalog of the Allied Radio Corp., may be had free of charge from 833 W. Jackson Blvd., Chicago, Ill. It contains classifications of radio models, sound systems, test equipment, amateur equipment and kits for builders and experimenters.



# KEN-RAD



## DEPENDABLE RADIO TUBES

You are cordially invited to visit Ken-Rad Headquarters at the Radio Manufacturers Association Convention and the Radio Parts National Trade Show at Chicago, June 10th to 13th.

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## Tips on Selecting Phono Needles

A number of practical suggestions as to how dealers may do their best job in selecting good phonograph needles for various types of customers are offered by Richard S. Levy, of W. Bergman Co., Inc., record distributors of Buffalo, N. Y. Mr. Levy and associates have done special research on the subject, and presents his findings as a part of the discussion of quality needles started by RADIO TODAY in its February issue.

Mr. Levy says that in selecting a needle to satisfy a given music lover that four characteristics must be considered, (1) the type of tone arm holding the needle; (2) the quality demanded of the needle; (3) the convenience in using it, and (4) the record wear tolerated. He reviews the advantages of the needles on the market today and why certain types of record fans buy each. He concludes that "conditions and demands differ just as widely as the tastes in music of the owners of the phonographs in question." Mr. Levy explains as follows:

### BUYING TYPES

"Just as Joe College may like his 'pop' tunes sweet or hot, and his dignified father may choose symphonic and operatic records, so may they pick the needle they find easiest, quietest, loudest or sweetest. The 'old-school' individual, perhaps with a hand-wind phonograph or portable, will still prefer steel needles, the same type he has used since Caruso first released records.

"The modern youngster, with inexpensive instrument, is likely to use a well-worn specimen of the chrome variety, particularly if he may be classed as a Jitterbug, or Hot Discographer. In general, the slightly serious-minded youth may like both "pop" and classical music, and use the popular taper-point needle for brilliant reproduction, fairly economical record wear, and a minimum of surface scratch.

### SIZE 'EM UP

"The 'fussbudget' who lives in mortal fear of ruination of his recordings, will insist on cactus, which he sharpens laboriously often in the middle of a symphonic movement. The same type of person, who has the proper faith, will rely on sapphire to protect his large investment.

"There is, then, no solution to all evils. The happy medium will present itself to the record owner only after personal research. Conditions, claims and beliefs vary widely.

"What's that? Oh, about ourselves. Why, we've even played 'em with a sewing machine needle!"

## ★ RAULAND ★ AT BAT FOR UNCLE SAM!

The engineering skill, the experience, the manufacturing resources of RAULAND—pioneer builder of quality products in the field of Sound and Radio Communications—are today devoted largely to an important phase of the national defense program. Today, RAULAND equipment is doing dependable duty in the service of the armed forces of America.

### RAULAND TOMORROW...

Once the present emergency is over, all of RAULAND'S rich experience (twenty years of it) and resources will be yours—to help you fight and win tomorrow's big commercial battles in the fields of sound amplification and radio communications. RAULAND will be ready to "go to bat" for you!

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## Summer Jobs for Radio

Actually, the radio families of the U.S. are genuinely interested in summer broadcasts, and the alleged lag in warm-weather listening is getting to be a plain myth.

Radio's seasonal listening is one of the matters investigated in the big survey of NAB, CBS and NBC and it is reported that among urban radio families nearly 90 per cent tune in at home during each summer day. Their average daily listening period is 4 hours and 49 minutes.

While the above facts may be of special interest to radio servicemen, here is more data from the survey which might impress radio salesmen: of the total 18,113,000 radio families in cities, only 19.6 per cent have auto radios and only 29.2 per cent have two or more home receivers.

## Radio Excise Tax to Go to 10%

A 10-per cent excise tax rate on radio, phonograph records, refrigerators, furs, jewelry, etc., together with sharp increases in corporation and individual income rates, are included in the \$3½ billion national defense revenue program presented to Congress by the Treasury Department. Generally the corporation rate would be increased from 24 to 30 per cent, including a surtax plan.

The 10 per cent tax is an increase of 4½ per cent from the present rate of 5½ per cent and involves a percentage increase of 81.81 per cent, with an estimated increased levy on the radio industry of \$6,300,000. "Last year the government's radio tax collections were \$6,860,000, and the Treasury estimate of the \$6,300,000 increase apparently did not include consideration of probable reduced radio production under the national defense restriction, nor reduced sales because of consumer resistance to the higher tax rate and probable higher prices," according to Bond Geddes, executive director of RMA.

That the record-breaking national



"Aren't these new radios grand! . . . you can control them from any point in the house!"

defense tax program was temporary and for the emergency was stated by Secretary Morgenthau of the Treasury Department and Assistant Secretary Sullivan in presenting the huge tax increase program. With specific reference to the sharply increased excise or sales taxes, Mr. Sullivan stated that "certain luxury articles which, though widely used, are not necessities" were selected. A significant statement of Secretary Morgenthau was that the enormous tax increases would "mobilize our resources for defense by reducing the amount of money that the public can spend for comparatively less important things."

## Radio Service License

The City Council at Madison, Wis., on the recommendation of its ordinance committee, passed an ordinance April 25, establishing a five-man board to license radio and electrical servicemen.

Under the ordinance, four members of the board are to be appointed by the Mayor, while Ray Groenier, radio technician with the police department, is to be the other member. The measure provides for a \$5 license fee to be granted to servicemen with five years experience in their field. The board will have charge of supervising apprenticeship in the field.

## DO YOU MAKE THIS \$396 MISTAKE IN SENDING TELEGRAMS?

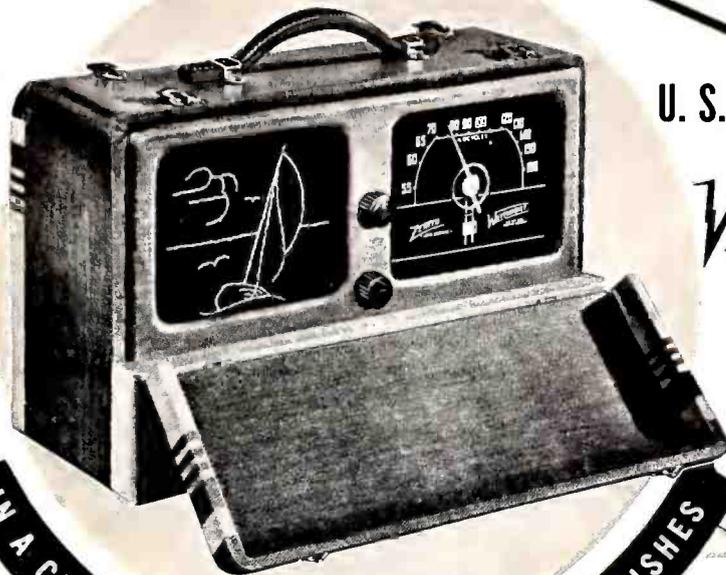
Up until last year, a certain firm (name on request) paid \$396 too much for telegrams! Then Postal Telegraph surveyed telegraph costs and provided an easy-to-follow plan that saved this amount! Why not let this free cost analysis save money for you?

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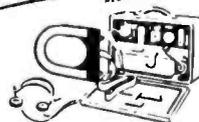
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THE ONLY  
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OPERATES THREE WAYS-  
BATTERY or AC or DC

1942

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*who displays this sign!"*

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93 BIG CITY NEWSPAPERS

JOIN THIS  
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*Demonstration  
Drive*

WRITE OR WIRE FOR  
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