RADIO TODAY

$1 Yearly | Caldwell-Clements, Inc., 480 Lexington Ave. | New York City

General Business

— Volume 25% above year ago
— Recovery reaches 96%
— Auto output 100%; steel 100%
— Electricity use, up 11%
— Employment index rises
— Consumer buying up 14%

Radio Trade

— Sales pick up after warm Fall
— Epidemic of "deals" and premium offers demoralize retailing in spots
— Silverware, cameras, china, theatre-tickets, boat-rides, given with sets
— Third-quarter receiver volume 46% ahead of same period of '34
— Excise-taxes collected on radio leap 129% ahead in Oct.; 26% for year
— 1935 sales est. 5,600,000 sets

Better Broadcasts; Better Radio-set Sales

— Total broadcast revenue up 25% over '34 (contrast with magazines, up 6%; newspapers, up 4%)
— For Dec. NBC approaches $3,000,000; CBS $1,800,000
— Television talk grows hotter; Sarnoff says commercial service still 4 years off
— Facsimile broadcasts to homes seen as next step

Farm-Radio Uprush

— Agricultural prosperity zooms
— Battery-set output triples; windmill generators factor
— Still 4 million farms without radios
— Farm sales may be lever to extend radio's seasonal peak

CONCENTRATION IN RADIO

130 mfrs. — Out of 140 radio-set manufacturers

10 mfrs. — **TEN DO 77%** of the radio-set business

9 mfrs. — Out of 13 tube manufacturers

4 mfrs. — **FOUR DO 84%** of the radio-tube business

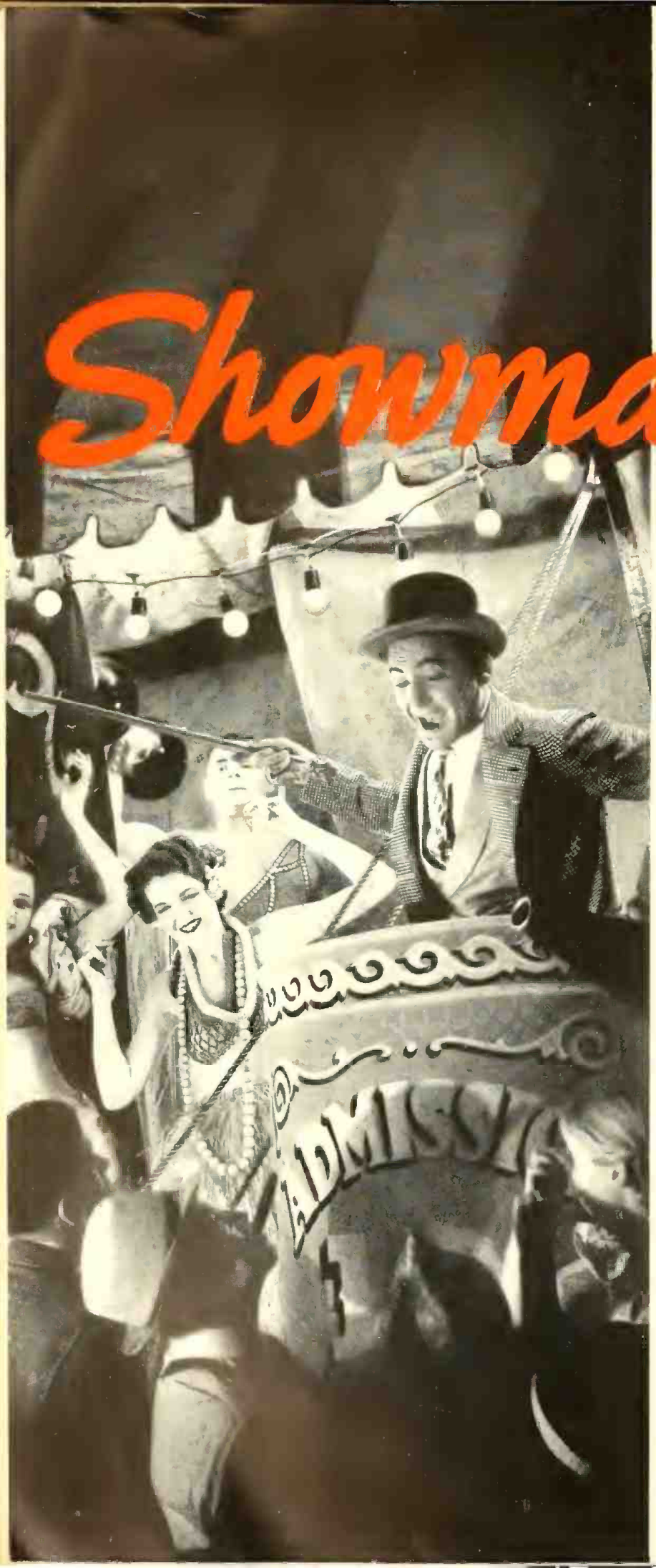
605 sta. — Of the 634 broadcast stations

29 sta. — **29 HAVE 76%** of the total station power

25,000 — Out of 40,000 radio dealers

15,000 — **15,000 DO 82%** of the retail radio business

In 1935, concentration in the radio industry reached its peak. Next year may witness greater changes in manufacturing lines, and probably wider diversity



On the Air, as on the Midway—

Showmanship

Brings 'Em In!

The sort of Showmanship that brings NBC Networks the largest radio audiences in the world—your prospects

Wherever crowds are caught and held, Showmanship does the job. This goes for every form of entertainment—from a Midway muscle dance to grand opera. And in the building of those radio programs which achieve their top on NBC Networks, Showmanship gains its greatest audience—*an audience which holds your most potent prospects for receiver set sales.*

The glamour, excitement, humor and romance which distinguish these nationally famous programs do not just *happen.* Their vast daily audience is won and held by the most adroit type of showmanship. *These programs are one of your greatest sales assets.* The interest they arouse provides a great incentive for better receiving sets. Increase your sales by dramatizing not only your fine instruments and the fine products you sell, *but also the great NBC programs.*

Tune in the RCA Magic Key Program every Sunday 2 to 3 P. M., E. S. T. on WJZ and associated NBC stations.

NATIONAL BROADCASTING COMPANY, INC.
A Radio Corporation of America Subsidiary
NEW YORK · CHICAGO · WASHINGTON · SAN FRANCISCO

PHENOMENAL DEMAND GREETS CROSLEY'S METAL TUBE MODELS

BUILT FOR METAL TUBES FROM THE GROUND UP . . . MANY ADVANTAGES

Few, if any, radio manufacturer has given more time and thought than has Crosley to the place of the metal tube in radio manufacturing. Naturally, the moment metal tubes had reached the practical stage, many manufacturers rushed into print announcing metal tube sets. While Crosley was early in the field with metal tube sets, it was with circuits *especially developed* for metal tubes. The result was that Crosley metal-tube-designed radios—by giving people this latest scientific development at prices they could afford to pay—swept the field. Crosley's fall volume, the greatest in Crosley's history, proves this to be a fact.

Crosley metal tube radio receivers have demonstrated a quality and a performance that have made them popular beyond belief. Due to their small size, metal tubes may be located closer to their ideal position; the shielding is closer to the elements, with greatly improved shielding effect; metal tubes give improved short wave performance; increase the power; they are non-microphonic; vibrationless; unbreakable; give greater selectivity; extreme quietness. In short, their advantages, as demonstrated in the Crosley metal-tube circuits, are tangible and sales-worthy. The models shown here represent the most advanced steps in metal tube practice. Their performance and value give undisputed local leadership to the dealer who is alert enough to see their possibilities.

The Crosley Radio Corporation - Cincinnati

POWEL CROSLEY, Jr., *President*

Home of *"the Nation's Station"*—WLW—500,000 watts—most powerful in the world—70 on your dial.

THE CROSLEY A. F. M.

(AMERICAN) (FOREIGN) (METAL TUBES)

Incomparably radio's greatest value today. A sensation wherever shown. Cabinet has figured walnut veneer front panel. Chassis is superheterodyne, specially designed for 5 metal tubes. Two tuning bands: American (540-1710 kc) and Foreign (2350-7500 kc). Illuminated airplane type dial. Full floating moving coil electro-dynamic speaker. Many other features.

The A. F. M. is also available in a handsome console, retailing for $47.50.

$29.95

CROSLEY CONSTITUTION CONSOLE

This marvelous radio receiver gives virtual control of whatever is on the air, wherever it may come from! In it are concentrated every one of Crosley's 1936 radio features. Ten metal tubes in a specially designed superheterodyne 5-band all-wave chassis. Among the features: 3-gang tuning condenser with many improvements; new 2-speed dial; new high-wattage metal-to-metal contact tone control; new triple-tuned i. f. transformer; new shadow tuning; new 5-color airplane dial; new color band designation.

$125.00

Prices in Florida, Rocky Mountain States and West, slightly higher.

OTHER CROSLEY METAL TUBE MODELS

OLYMPIA

Six metal tube superheterodyne; 3 tuning bands; American, police-amateur-aviation, and foreign broadcasts.
TABLE MODEL **$45.00**
CONSOLE **$59.95**

MERRIMAC

Eight metal tube superheterodyne: 3 tuning bands: American, police-amateur-aviation, and foreign broadcasts.
TABLE MODEL **$65.00**
CONSOLE **$89.95**

MONITOR

Eight metal tube all-wave superheterodyne Five tuning bands. Many extraordinary features.
TABLE MODEL **$77.50**
CONSOLE **$97.50**

CONSTITUTION

Console model is described above. This is the finest receiver—both as to chassis and cabinet—in the 1936 Crosley line. 10 tubes. 5 tuning bands.
TABLE MODEL **$99.95**

WHATEVER HAPPENS . . . YOU'RE *THERE* WITH A CROSLEY

CROSLEY RADIO

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Vol. I, No. 4

Improvement general

★ Pick-up in December is more marked in general business than in retail radio trade, which slowed down somewhat, despite Christmas shopping activity.

Index of general recovery, as compiled by N. Y. *Times*, now stands at about 96 per cent. Automobile activity around 100 per cent; steel same. Employment up, meaning more cash to spend.

Heavy consumer buying of Christmas goods reported from all general merchandise lines. Gain, over last year, 14 per cent.

Foreign inquiries 30 per cent ahead of '34.

Broadcast billings

★ CBS estimate for December is $1,800,000, as against $1,674,087 for the same month last year. NBC this month is due for a slight gain over the $2,776,436 chalked up for December 1934 on both nets.

Total revenue in the United States, including national nets, regional nets, national non-networks, and local is expected for the year to be about 25 per cent over 1934, when the total added up to $72,887,000. All of which brightly indicates that for the 12-month season beginning last fall, the totals may easily run to $100,000,000, as previously estimated by RADIO TODAY.

New stir in give-aways

★ Curious trend in radio trade traffic is the recent accent on premiums given outright with the purchase of sets. Now, of all times, with the radio business back to a handsome peak, far ahead of even '29—"deals" and premiums not natively identified with radio come back to stir up the retail scene with special lure.

On the list of items being offered to the public along with radio sets, one wearily notices such teasers as theatre tickets, watches, trays, cameras, mixers, china, silverware, clocks, lamps and, prospectively, bicycles!

Premium wrinkle also figures in jobber-manufacturer relations; there it takes the form of trips to South America, the Bahamas, Atlantic City and such assorted hot spots. Dealers are also premiumized with sets of china and silverware.

Sets up 46%, 3rd quarter

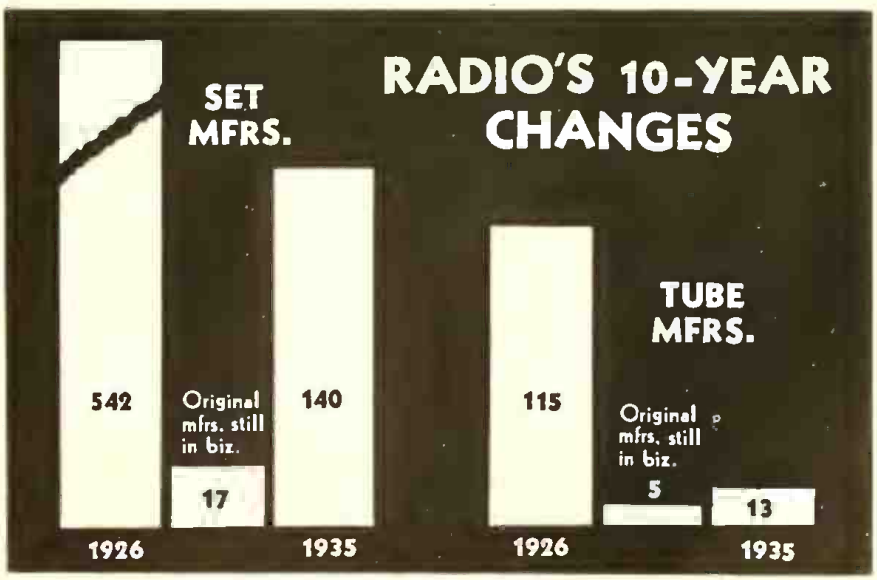
★ The third quarter of 1935 showed a 46 per cent increase in the dollar value of the radio sets manufactured, as compared with the corresponding quarter of 1934. The retail value of the average set built increased from $48 in 1934 to $54 in 1935, without tubes.

Tube sales for the third quarter increased 64 per cent over 1934, in both number of units and dollar totals, the average price per tube remaining practically unchanged.

3RD QUARTER	UNITS	VALUE
Sets, 1934...	1,166,443	$23,366,500
Sets, 1935...	1,521,684	34,288,500
Tubes, 1934..	12,200,577	4,472,389
Tubes, 1935..	20,559,634	7,365,897

Music first, comedy second

★ Droves of radio people have steadfastly watched the somewhat erratic direction of public preferences in radio programs, and the young but hard-working Radio Institute of Audible Arts always has an official eye open. The Institute's experience with researches in the matter prompts its report that music is first in average listener preference; comedy ranks second, drama third, and sports and news broadcasts fourth.



One-quarter new autos soon with radios

★ Interest of the automobile industry in equipping its new cars with radio sets is increasing rapidly as plans for 1936 mature. Practically all cars are now drilled and arranged for radio, and within 18 months, according to Detroit gossip, radio will be standard equipment, with one-third to one-quarter of all new cars fully fitted out with radio receivers as they go into owners' hands.

New types of antennas are being developed to supplement present under-running-board models. One new type employs a decorative scroll on top of the car-roof, adding both style and better reception.

BC up 21%; mags 6%; press 4%

★ Healthy ten-month totals just issued by the National Association of Broadcasters put radio in a brilliant lead in point of gains over last year, compared with other advertising media. Significant aspect of the summaries is that the newspapers are trailing the outfit in per cent of gain.

Broadcast advertising for the 10-month period 1935 jumped eagerly to 21 per cent above the same months of 1934, when the total was $70,626,000. Magazines gained 6 per cent, farm papers 5 per cent, and newspapers only 4 per cent.

Leslie Muter, president RMA, who sees new promotional possibilities for increasing radio-industry sales.

To smooth out radio seasonal sales

★ Right in the midst of radio's winter rush, foresighted R. H. G. Mathews of Ford, Browne & Mathews, Chicago, rises to point out that this present prosperity ought to be extended on into spring and summer. "It would be nice, wouldn't it, if so many factories, jobbers and dealers did not mentally go out of business Dec. 25!"

To smooth out the radio industry's sales curve over a period of 12 months, it will help, he observes, if all hands will start thinking up ways to even up sales, such as (1) advance jobber commitments, (2) stimulation of auto radio in summer, (3) farm radio, (4) pushing of summer broadcast programs. Everybody in radio will be better off if the whole industry can get behind such an all-year program.

Time out of mind

★ NBC has had a lively encounter, via the mails, with its newly affiliated station, WOOD, in Grand Rapids, Mich. Uproar was over Michigan's position in time zones; network advertisers on the air from 6:00 to 7:00 p.m., New York time, had to know whether they paid day rates or night rates.

Able NBC exec E. P. H. James faced the facts: WOOD is technically in the Central zone, along with the rest of the state of Michigan, excepting Detroit. But the people of the state do not admire the arrangement, so Mr. James decides "that the working facts are more important to radio advertisers than the archives . . . from now on, WOOD is listed under Eastern Standard Time."

Radio listening and kw-hr use

★ Recently the electric-companies have been breaking their own 1929 production records. A considerable factor in the increase of electricity used by residence customers has been the consumption of kw-hours by radio sets directly, and also incidentally through resulting late lighting. In 1929 the average dwelling used 500 kw-hrs annually; now the figure is 675.

An average radio set (operated 4 hours per day, consumes about 10 kw-hrs per month. With nearly 20,000,000 electric radios now in use, this means a monthly consumption of 200,000,000 kw-hrs for radio-set operation alone. The total consumption of these same dwellings is 1,180,000,000 kw-hrs per month. Thus over 14 per cent of present electricity consumption goes into long-hour operation of radios, while as much more is probably used for lighting attributable to radio-set listening.

Mr. and Mrs. Ely Culbertson play an international bridge game with South America over General Electric short-wave station W2XAF, Schenectady, and Transradio station LSX, Buenos Aires.

Chicago hot-bed of private-label sets

★ Field conditions in the Chicago territory at present do not differ in any important way from the generally handsome status of the industry nationally; optimism is uniform in the radio trade of the city itself, especially among the set and parts makers.

Chicago merchandising methods do, however, under current conditions, supply dramatic examples of the good and the bad. In some quarters the Windy City is a hot-bed of "private-label" set manufacturing, which has unfortunate adaptations at the hands of dealers who are volume-mad. Assorted name plates are offered on new cabinets, so that the dealer may advertise spectacular price cuts, developing a transient volume which wiser merchants would recognize as hopelessly temporary and artificial. Often distributors unsuspectingly handle the same chassis in different cabinets under different names.

Programs for the upper half

★ Highest-brow program building on the records to date may be credited to Carl Haverlin, sales manager of stations KECA and KFI, Los Angeles. Critical and class-conscious, Haverlin has worked out a fixed schedule of quality features, almost entirely recorded. These are announced in a monthly magazine, *KECA Concert Programs*, edited by Jose Rodriguez, in which the technical aspects of musical masterpieces are quietly taken up for the benefit of persons with advanced tastes.

Sponsors may buy time for spot announcements, but they are given no opportunity for serious commercial inroads upon the quality schedule already announced.

Millions that help sell radios

★ Vast expenditures being made by sponsors in order to keep top-notch artists on the air, is one reason why listeners may expect to get the genuinely sensational features. General Foods Corp. must pay a bill of $2,000,000 a season; Procter & Gamble spends an estimated $1,600,000. Ford Motor Co maintains air features costing some $1,500,000 so far this year, and Campbell Soup invests an amazing sum in

Arthur T. Murray, president United American Bosch, has just completed a big factory extension.

"Hollywood Hotel" and the Burns and Allen feature.

Standard Brands, Inc., recently spent $150,000 in a single month for four entertainment units including the gilt-edged Major Bowes program. Seasonal expenditures of Colgate-Palmolive-Peet run to an estimated $850,000. Meanwhile, Helen Hayes ditches an $85,000 movie contract to go on the air, and Paul Whiteman signs up at $10,000 a week!

Hoover pushes G station

★ National network operated by the Federal Bureau of Investigation, centered around a powerful short-wave station, is being urged past the experimental stage by the Bureau's famed director, J. Edgar Hoover. Web should help to trap criminals through nationwide hook-up with local police groups.

Bureau of Standard's one-kilowatt station at Beitsville, Md., is being used in a new series of tests for December. Director Hoover's version of it is that final plans will not be announced until another year of experimentation reveals the possibilities of a central super-power station.

Home movies stimulated by film magnates

★ Cold shivers have been chasing themselves up and down some distinguished spines in the motion-picture industry, now that television is being talked about as a reality. So a couple of weeks ago, some of the major movie magnates journeyed to Camden, and the clear, bright television pictures they saw there gave them fresh jitters!

When they recovered, most were ready to offer recent film features and current "trailers" as television material to boost present movie houses. Others urged immediate release of feature films on 16 mm. to promote home movies vigorously as an offset to television.

Heap much honor for Edgar Kobak (center), NBC vice-president, who went to Oklahoma City to address the A.F.A. convention and wound up by becoming a Pawnee Indian. The tribe dubbed him "Chief Air Talk."

THE TELEVISION BUGABOO

What to tell customers who want to delay buying radios until they can get both "sight and sound"

★ OUCH! A brand new pain-in-the-neck.

Sizable section of the radio industry thus refers to the coming of television But it's by no means as black as that. You don't have to do any fancy reasoning to see that the situation, menacing as it appears, has plenty of merry angles to it.

Naturally, television stories make good reading. In conversations among radio men, in articles in popular magazines, and in occasional newspaper stories, the subject strides importantly to the front.

With the British Broadcasting Corporation scheduled to put television on the air in London during March, the surmise has been made that similar television experimentation would follow in America about the same time, or a month or so later.

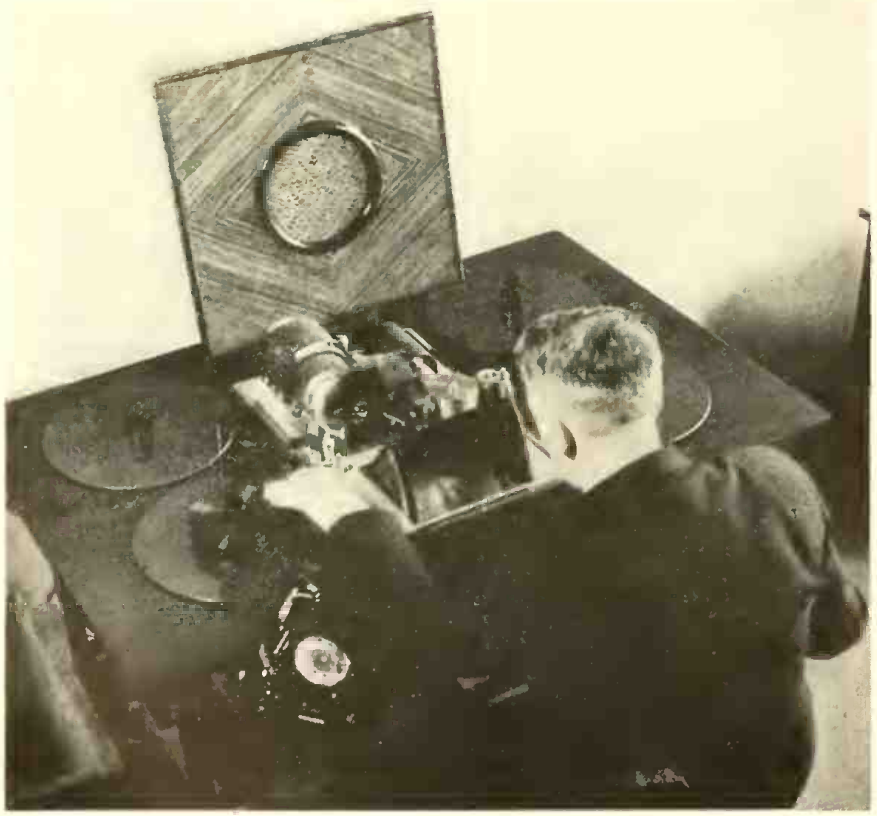
Now assuredly, the United States can hold up its end when it comes to television development, and undoubtedly next year will see the beginning of television tests in the metropolitan area around New York City.

Cover only 30-mile radius

But the radio industry and trade can "rest easy" in the knowledge that these television experiments soon to take form from the Empire State Building in New York, will be only of academic interest to the radio trade for the next year or two, and that such tests will be limited in their scope to the horizon distance from the lofty Empire State tower — 30 miles or so.

The coming experiments therefore need have no direct influence on radio sales in the country as a whole, at the beginning, and indeed for the next two to four years.

These television experiments will have to be made on a metropolitan scale, to find out how the present television system will act under practical operating conditions.



How movie films will be transmitted to homes by television. The station director at Berlin watches the picture as sent out by this film-scanning machine.

WORLD-TELEGRAM,

TELEVISION NEXT SPRING

Professor Webb, Minnesota University, Predicts General Service Then.

By the Associated Press.

MINNEAPOLIS, Dec. 5.—Television for the general public, Professor James Webb, of the University of Minnesota, said today would begin by spring.

He said manufacturers soon would place twenty or thirty television sets in Eastern hotel lobbies or railroad stations.

Professor Webb said programs would be sent from a central transmitting unit. The receiving sets would be small, he explained, with the picture screens about 18 by 24 inches.

Recent newspaper stories like this have upset radio buyers

For, so far, television is perfected only as a laboratory operation. In the laboratories, under ideal conditions, and with bulky experimental equipment, television pictures of surprising quality and clearness are already obtained. Brilliant pictures, 8 by 10 inches, now reproduce outdoor and studio scenes with commonplace regularity. So perfect are these pictures that, as in movies, the medium is now forgotten and one's interest focusses itself on the events being televised. In that sense, television is already perfected.

Swell pictures in lab

But next these laboratory processes will have to be tested in the field. So during 1936, according to gossip around New York, it is proposed to start sending out test programs from the Empire State tower. Meanwhile several hundred test television receivers (later to sell at $250 to $400) will be distributed around the New York metropolitan area, and with these the technique of television broadcasting will be studied,

There are still many problems. In order to transmit television of great

detail, wide bands of frequencies are required—a million cycles or so. Such bands are available only down in the ultra-short-wave region of the radio spectrum.

Unfortunately, these ultra short-waves necessary for television do not carry to great distances, but only to the horizon. They are cut off like light, by buildings, hills, etc. Sometimes the television waves are reflected by building fronts so that distortions are introduced—and "ghosts" float into the picture.

Unfortunately, too, these ultra-high frequencies needed for television cannot be transmitted over the same telephone cables which carry voice broadcasting, so that existing network systems will not suffice to distribute television over the whole country. Each television transmitter will send only to its own horizon, and little beyond.

Co-axial cable: open-wire

New developments indicate, however, the possibility of transmitting television signals over special forms of "co-axial cable"—hollow sheaths enclosing a central conductor. Application has been made by the A T & T Co. to lay such a cable from New York to Philadelphia for experimental use — primarily to conduct 200 telephone conversations simultaneously over a single wire. Over such a 1,000,000-cycle conductor a television picture would be transmitted easily. Experiments are also being made in transmitting television images successfully over open-wire telephone circuits, particularly over pairs of wires mounted at the ends of 9-ft. or 11-ft. cross arms. But the open-wire lines have the disadvantage of introducing external "interference" which may spot and blur the television picture.

The only other alternative for getting television images across the country would be by a series of radio relay stations which would rebroadcast the pictures from horizon to horizon. But thousands of such stations would be needed to duplicate the present wire networks.

"It is going to come."

"Obviously," declares David Sarnoff, president of the Radio Corporation of America, "what this means is that, for national coverage, television must, at a tremendous cost, construct a network of its own; or resort to the impractical method of setting up many thousand relay stations. But" —declares again Mr. Sarnoff—"we will do one or the other because we are going to have television. The people in this country are demanding it and, as you may have noticed, whenever the public demands anything in the way of a service it generally gets it."

And, again, before television can come to the nation as a whole, those behind it must be mighty sure that the best system has been adopted for future development. The number of "lines" in the picture must be settled upon, because once adopted and television receivers sold and in use, changes in picture characteristics ("lines," number of "frames" per second, method of synchronizing, etc.) will be almost impossible.

When Will We Really Have Television?

BBC Tests begin in England March 1 . . . New York City tests during 1936 . . . Limited to 30-mile radius . . . Experiments with cable for nets . . . "Lines," "frames" must be set . . . "Television will come."—Sarnoff.

But two to four years before television service ready for nation. Meanwhile—Don't worry. Sell radio.

Guarantee against obsolescence

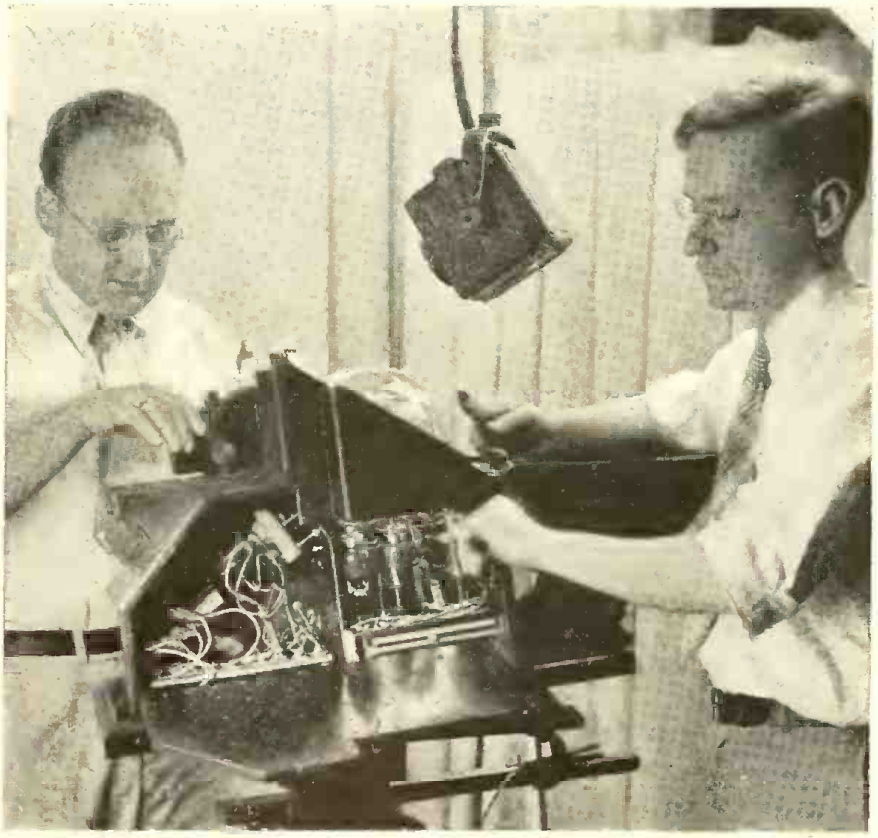
But as television experiments come more and more in the headlines and information about the New York field tests filters through to the public, radio purchasers are likely to become skeptical about buying ordinary radio sets at this time. Prospects for 1936 sets may feel that they should wait until they can buy a complete television receiver—for "sight and sound."

To offset this hurdle, it would be a smart move on the part of the radio industry if an "obsolescence guarantee" could be made to 1936 radio set buyers. Such a guarantee might cover the full amount paid by the purchaser for his radio receiver, offering to apply this on the purchase of a television receiver within a year or other period, at the option of the purchaser.

Such an obsolescence guarantee would instill confidence on the part of the public, and might secure many immediate sales of radio sets which would be otherwise delayed or lost.

Television is eventually going to come. Make no mistake about that.

But television is a needless bugaboo when it is regarded as frightening off sales of 1936 radio sets.



Studio engineers using the iconoscope television camera for direct pick-up of actual scenes. The image is focussed on a photo-electric mosaic scanned by a cathode-ray beam electromagnetically controlled.

REMOVE THE HEADACHE FROM INVENTORY

Practical plan for easy check-ups will keep you acquainted with your stock

By H. L. M. CAPRON*

★ IN the conduct of any retail business, the control of stock is one of the most important factors in the ultimate success of that business.

It is very desirable to maintain a stock large enough to offer a complete assortment of wanted merchandise for customer selection, and to provide immediate delivery from stock after sale—but it is also vitally important that the stock does not become too large, so as to impair working capital—or become composed of slow or non-moving units so as to freeze capital and incur serious losses in liquidation.

In radio, where the factor of obsolescence is more important than in most lines, and where seasonal models impose a penalty in big losses on large stocks at the end of the season, it is almost imperative that some real stock control and buying guide be easily available, and the information constautly used.

While it is impossible to prescribe a system in detail that will perfectly fit all stores' requirements, or will entirely replace judgment based on experience, the basic outline of a method that has been eminently successful in the control of both large and small radio stocks for a number of years will be presented.

Watch the ratio

The primary purpose is to maintain a predetermined ratio of stock to sales, except for the factors of current availability of merchandise, and the approaching release of new models, and to provide currently accurate information on the stock, and sales, by unit models and in total.

As total sales volume increases, the necessary stock does not increase in proportion, for once the needed assortment has been provided, additional sales require only an addition to reserve stock, to be provided for immediate delivery to customers.

The chart indicates the relatiouship of average dollar stock and annual dollar sales, based upon many years' actual experience.

If you select along the bottom scale the figure which represents your own dollar sales and then raise a vertical line until it intersects the average dollar stock line, you may then read on the right-hand scale what the model average stock is for your business.

Assume, for example, that your annual sales volume is $25,000. The indicated model stock is $6,500 and the annual turnover is calculated to be 3.85.

Abrupt change in the vicinity of $50,000 sales volume is due to the need for a greater assortment of receivers for that size business.

Weekly picture

But this is only an annual picture, and while it is the starting point in our method of control, this picture alone serves no useful purpose in current control.

To properly control your stock you must know what it should be and also what it is.

Let us first determine what it should be.

Take your sales of last year, week by week, and starting with January 1st, or any other logical date, add them, week by week, so that for each week in the year you have two figures:

1. Sales for this week.
2. Sales for all weeks to date.

Then take your total annual sales and, with the chart, determine your proper model average stock.

Now, divide your cumulative weekly sales to date, week by week, by your model average stock, and the result will be a "turnover to date" figure for each week in the year. *This is your control figure.*

Now take an actual inventory, at retail, and each week, add purchases at retail and subtract sales at retail. The result is your actual current stock.

Add these weekly stock figures together, and divide by the number of

*For the past 14 years manager of one of the largest retail radio businesses in the world.

Photo by Ewing Galloway

Check your stock according to what it is and what it should be and you'll have everything set for better control and more profit.

weeks. The result is average stock to date.

Set your weekly total sales alongside your similar figures for last year and total them, week by week. The result is sales to date. This gives you an excellent week to week and year to date comparison with last year, and lets you constantly know how you stand on sales.

Divide cumulative sales to date by average stock, week by week, as the year progresses, and the result is turnover to date, for direct comparison with your identical figure for last year.

If this turnover figure is less than last year, your stock is too large, and your current purchases must be less than current sales to bring your stock in line.

Remove the surprises

This turnover figure is the relationship between stock and sales and varies with changes in either, or both, so that if you maintain your planned figures, week by week, you will automatically adjust your stock to current sales, and at the end of the year there cannot be any surprises in your stock.

Once you have put your turnover on schedule, weekly buying is done on the basis of actual sales.

In a business of more than $25,000 per year it is desirable to keep a unit stock and sales record by model, so that you may always know current stock and current rate of sale by each model in stock.

When this unit control is used in conjunction with the dollar control method outlined above it is almost impossible for an intelligent operator to be confronted with the necessity of taking large markdown losses to move his stock, for he is constantly advised as to slow-moving models, and has cleared them from stock and ceased ordering long before they have become a menace to profits.

The operation of this method is quite simple, and entails almost no expense, for it can become a by-product of the normal business records, and can profitably be employed by the smallest dealers, where the profits of an entire year can be wiped out by losses in inventory value, and where such losses bulk much larger than with a large dealer, where greater volume can spread the losses thinner.

Fact or fancy?

It is impossible, within the limited space of this article, to provide all of the detail involved in the installation and operation of a system even so simple as this one, or the means of procuring the needed data without expense. But it is a fact that this information is vital to the intelligent direction of a business. It is also a fact that the needed data is available, whether you use it or not, and the problem is purely one of bringing the hidden information to the surface, and to your attention in such form as to make it useful.

This can usually be done by minor changes in your forms or account books, and when done, will replace the fancies of your business with facts, as well as provide an excellent gauge for the quick and accurate measurement of the effectiveness of any changes in policy, practice, or sales promotional efforts.

Given your specific problem, with the necessary data, RADIO TODAY will be glad to prescribe the details for you from the long practical experience of its staff and contributors.

In retailing, as in most other lines of endeavor, "Knowledge Is Power," and the knowledge in your own business should be used to its utmost.

Will take 7 years to replace antiquated sets

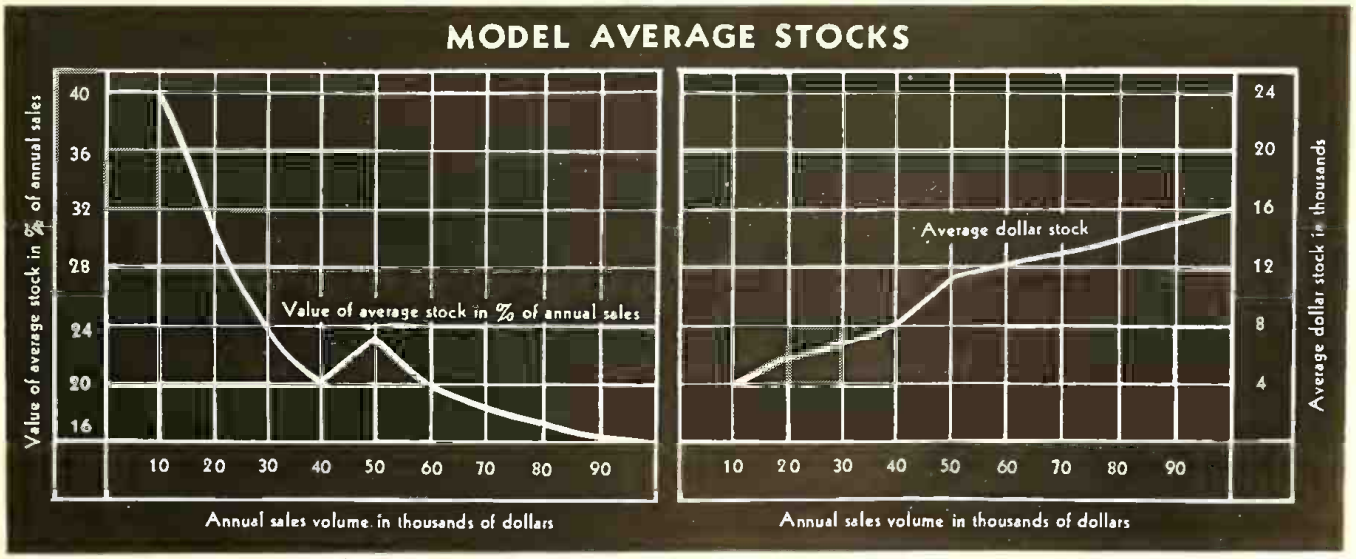
★ At the present rate of selling radio receivers to the public, it will take seven years to replace present antiquated sets, according to studies made by M. Clements, publisher of RADIO TODAY, who has written leading radio executives as follows:

"Take an estimate of 1935 gross sales—ours is 5.600,000 units. Deducting 1,100,000 auto radio sets, 600,000 exports and 550,000 battery sets, we have a total of approximately 3,300,000 receivers sold to homes having electricity service.

"This much is certain—if you divide this total into wired homes having radio, it follows that we are replacing present sets only once every 6 years!

"The replacement cycle is still longer (seven years or more) if you take a lower estimate for '35 sales; if you allow a percentage of sales for the "second set" market; or if you credit some sales to new families or homes not previously having radio.

"Even England is doing a relatively better job, with less than one-half our population. It will sell 1,750,000 sets this year at a better profit margin than American manufacturers."



If you will locate on the bottom scales the figure which represents your own annual sales volume in thousands of dollars, the figures at the sides of the charts will indicate what your average stocks should be. Both curves are based on many years of stock experience. The abrupt change at $50,000 is caused by need of a greater variety of models.

RECEIVERS TODAY

1,126 models now on market, according to Langley report before radio engineers

★ "THE complete radio show of 1935 would be a stupendous affair," commented Ralph Langley, consulting engineer and long-time analyst of the radio industry, in a report presented before the Dec. 4 New York meeting of the Institute of Radio Engineers by John V. L. Hogan in Mr. Langley's absence.

"For, so far this year, 1,126 different models of broadcast receivers have been offered on the market. Viewed as a vast radio show, and allowing a minute for the examination of each model, it would take a week of long evenings to see them all!"

While 1935's 1,126 receiver models represent a decrease below the 1,500 figures of 1934 and 1933, it is, however, an average of 11 models per manufacturer, and 3¾ new models per day, for every business day of the year.

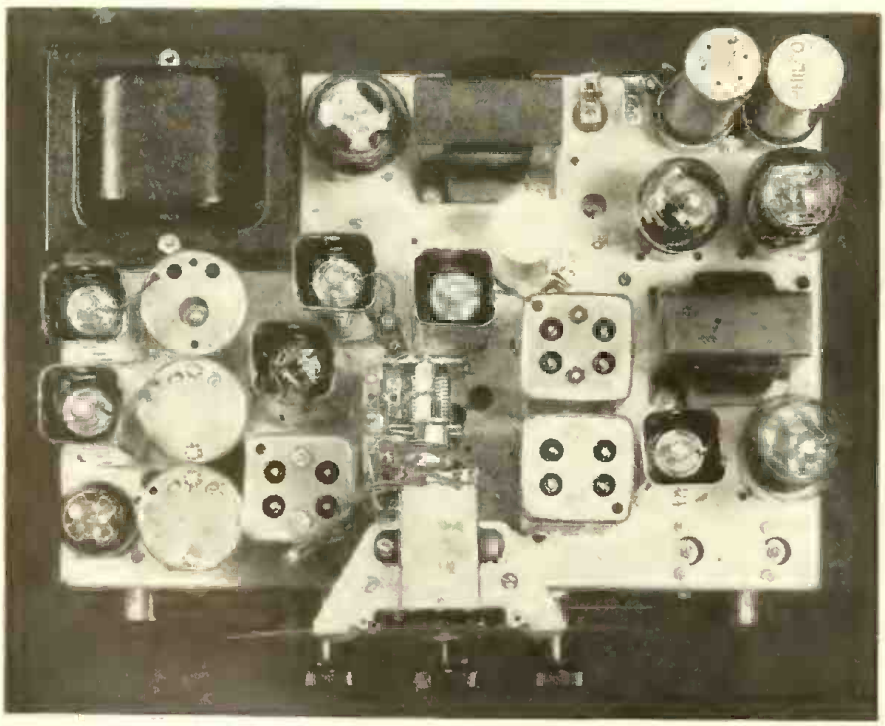
Mr. Langley sees evidence of stabilization of set design in this 1935 decrease in models. In preceding years there was uncertainty as to what a broadcast receiver should be. But no basic changes occurred in 1935, and this and other evidence indicates that we are rapidly approaching general agreement among the engineers on the fundamental elements of the design, so that the greater part of the effort can be spent in perfection of detail, and in completing the many lines of research that have been laid aside in the rush to build many models only slightly different from each other.

Average price $73.11

The price of broadcast receivers showed a healthy increase in 1934, and this increase stimulated, rather than retarded, sales; 1935 shows a further increase in average price, with every indication of a similar result.

The average advertised price of broadcast receivers in 1935, computed on November 21 from all information then available, was $73.11. This is to be compared with the 1934 average of $59.60 and the 1933 average of $48.28. The price increase from 1933 to 1934 was 22 per cent; the increase from 1934 to 1935 is slightly over 22 per cent.

At the close of each year, the total retail value of the receivers is divided by the total number to obtain the average price at which they were sold. This figure was $34.39 for 1933 and $45.50 for 1934, showing an increase of 32 per cent, and on this basis it may be confidently predicted that the average price at which 1935 receivers are being sold will be very close to $55.



Seventy-nine per cent of all the receiver models introduced in 1935, employed glass tubes exclusively, reports Analyst Langley. Forty-seven per cent of the manufacturers used metal tubes in one or more models.

5,500,000 sets in '35

Mr. Langley predicted a year ago that 15 per cent more units would be sold in 1934 than had been sold in 1933. When the figures were known, it turned out that the increase had been 19 per cent. It is more difficult to make a prediction for 1935, but the consensus of opinion at the time of writing seems to indicate an increase of about 17 per cent. This would give total sales of 5,500,000 units, and a retail value of $302,000,000, as against $200,390,000 for 1934. The record, of course, was made in 1929, when the total retail value was $592,000,000.

In the matter of cabinet design, there was noted last year the apparent decline of the console type from 62 per cent of all offerings in 1932 and 55 per cent in 1933 to 36 per cent in 1934. In the year just past this trend has been much less marked, the console amounting in 1935 to 33 per cent of all offerings. Much advertising emphasis, however, has been placed behind the console, and it is to be hoped that 1936 will see it again on the increase. The small chest or "cigar-box" type is passing out of the picture, declared Mr. Langley, only 15 per cent of the models offered falling in this category.

Cabinets conservative

Table models have increased in size and beauty as well as price and have more to recommend them than ever before. They account for 36 per cent of the offerings. The freak furniture models, with a few unimportant exceptions, have pretty well disappeared. As a suggestion of possible future trends, we note the reappearance of a table type not seen for many years, in which the loud speaker is placed beside the chassis, rather than above it, and in which the cabinet is of more generous proportions.

The design and finish of the cabinets themselves are now almost entirely in the modern style, and in general along much more conservative and pleasing lines than in 1934. The glaring "moderns" of 1934 and earlier

years, with their light-colored and strongly grain-marked veneers, are rapidly disappearing along with archaic Queen Anne and spool-leg styles. Some very striking and excellent examples of best modern style have appeared in 1935.

There has been a noticeable decline in the number of phonograph combinations. In 1934 25 per cent of the manufacturers included such models in their lines. In 1935 only 3.5 per cent of the offerings are combination models.

There has been an increase in farm receivers, with operation either from a 32-volt line or from a 6-volt battery arranged to be kept charged by a wind-driven generator. Farm sets of these types were included in practically all of the 1935 lines.

Automobile receivers account for almost 12 per cent of the offerings, and it is anticipated that over 1,000,000 of them will be sold, as against 780,000 in 1934.

The "great big dial" struck a popular note with the 1935 public, and the new style was followed by a number of designers.

AC-DC models up

The AC-DC model is still increasing, perhaps because it is not only a solution of the problem of giving radio service for the least money, but also because a demand for it continues in 85 large cities where irregular DC areas still exist. In 1935 20 per cent of the offerings were of this type.

The average number of tubes per receiver for all 1935 receivers is unchanged from the six of 1934. The average in 1933, it will be recalled, was eight.

The outstanding innovation in 1935 was the introduction of a series of all-metal tubes. Although widely publicized and heralded as a revolutionary improvement in releases intended for the general public and probably of great commercial importance, it is generally conceded, observes Mr. Langley, that they represent a relatively minor forward step from the engineering point of view, keeping in mind that their successful manufacture in quantity was an outstanding accomplishment. They undoubtedly indicate the direction in which radio-tube design will move in the next few years.

One in four fails

From an actuarial point of view, a radio manufacturing enterprise still seems to be a very poor risk. The death rate has never been less than 20 per hundred—that is to say, at least one-fifth of the manufacturers in business in any one year have succumbed to some fatal financial malady. This has been the sad fact year after year ever since 1923, and 1935 proves to be no exception. In fact, the death rate shows an increase. Of the 110 firms who listed in 1934, 27 did not reappear in 1935. Thus the death rate today stands at 25.4 per hundred.

The birth rate, on the other hand, has been on the decline since 1931, and the number of receiver manufacturers has been slowly shrinking. In 1935 only 19 new firms appeared. At the close of 1934 the population of the industry was 110. Today, at the close of 1935, the number has fallen to 102, according to Mr. Langley's records. [RADIO TODAY, however, finds 140 firms now in business making or supplying trade-marked sets, as listed on page 20.—EDITORS.]

FACSIMILE TODAY

Two methods of facsimile operation have been discussed with the newspaper publishers. Under one plan, the facsimile service would be put on the existing broadcasting channels, and the operation of stations continued during the early morning hours for delivering facsimile "morning newspapers." At present, millions of dollars' worth of transmitters, receivers, etc., stand idle from 1 a.m. to 6 a.m., and this plan would utilize this idle equipment, although it would largely limit the use of facsimile to a once-a-day service through existing receiving sets with facsimile attachments.

The second method contemplates putting facsimile service on separate short-wave channels of its own, so that facsimile transmission of printed pages, pictures, advertisements, maps, etc., could go on all day long. Advocates of this plan point out that with receiver chassis now available at factory costs of $15 or thereabouts, whether or not a separate receiver is used is of little importance, since a separate special receiver might cost even less than fixing up the householder's existing set. But all-day and all-night facsimile service on the short waves would make available a new and complete "home printing press" service, which could be developed commercially on a wider scale than the restricted early-morning service.

Experts who should know comment that facsimile is ready to spring as soon as the radio industry quits pussyfooting with the newspapers and makes up its mind that much can be gained and little lost by giving the public complete, fast, accurate and authoritative news service. It is coming—perhaps before television!

SELLING RADIO SETS ABROAD

1936 export market bitter, but beautiful to crash

★ WHEN and if the American makers of radio sets are able to locate a spot abroad where the squeamish nationalists are not standing on their borders waving a stop signal, they have a rich market. Foreigners like the simplicity, the eye-appeal, and the all-wave supremacy of American receivers.

American programs are devoured by the foreign public, particularly if they contain popular music. Europeans, for instance, have more interest in Hollywood than they have in Washington, D. C. (who hasn't?), and the broadcasts or the songs lifted from current cinemas have a huge pull for the continental radio fans. Features of the 1936 sets have stimulated this interest enormously, since the all-wave developments make the American hot-cha much less hard to get.

Customer count

After having waded wearily through the tangle of quotas, patent difficulties, and foreign exchange troubles, American manufacturers will manage to export this year an estimated total of nearly 600,000 sets —584,000, to be exact. Foreign fans bought more American-designed sets than that, of course, since many of the big-time companies make their sets abroad. As was the case last year, Europe was the chief customer, with South America second.

Grand total for receiver exports last year (1934) was 612,084, and it appears that the figure for 1935 will be below that. This does not mean that popular interest in our sets abroad is waning, since the activity of American radio factories abroad does not register in the export figures. However, the figure for Sept., 1934, was 41,877, and for Sept., 1935, the total was 50,275.

Europe

Africa

Dollar values

Here are the 15 countries leading in dollar value of sets alone imported from the United States during the first 9 months of 1935, according to figures from the Dept. of Commerce:

Union of South Africa	$1,076,428
United Kingdom	1,040,506
Mexico	873,223
Brazil	872,651
Spain	652,874
Colombia	498,554
Cuba	474,839
France	327,577
New Zealand	296,371
Chile	260,545
Portugal	245,862
Peru	202,065
Venezuela	181,623
China	147,899
Sweden	99,907

Notable shift in leading markets indicates that the leader continent, Europe, may lose her rank as a buyer of American radios in favor of aggressive states in South America, if present tendencies continue. It will be noted that as many South American states are listed in the accompanying table as European countries, although the latter continent maintains its lead in the number of sets imported.

Market intrigue

Romantic Spaniards are likely buyers and the Spanish government never talks about matters of quota; the only difficulty there is the exchange rate. France has an obsession on the quota business, and the number of receivers a distributor there may import often depends upon what the French big-shots had for breakfast. Amount of previous business enters in the situation, so that it is slow business for a fresh American importer to get a start there. In the Netherlands and in Sweden, the general market is tightened by patent rulings, and in Russia you can sell as many American sets as you like if you will take caviar in return.

Equator selling

South African market has its points. Set manufacturers are delighted with the discovery that in many parts of this area, the metal parts of a set cannot be kept from rusting due to the humid atmosphere, and the replacement business thrives. Average price of sets marketed in this area is about $35, and the natives are sure to buy the set with the niftiest cabinet.

In South America, the Brazilians are leading buyers, with Colombia and the Argentine also important. In all of these countries the big mission of the radio promoters is to break down the old-world class distinction, and convince the whole population that a receiver is not just a luxury meant for the upper half.

Unexpected angles

Aviation is being developed in all parts of the world and American radio makers are getting fat orders from foreign cities and governments

Asia

Mexico

who need a batch of receivers for planes and landing fields.

Direct selling to the consumer can stand developing in many of the foreign areas. In these districts, no organized attempts to go out and sell people are made by the radio representatives, and often sales are made to the consumer by the distributors themselves. Except in Europe, there are very few radio shows, and little promotional activity aimed at direct selling.

Development of educational facilities in other lands has been the signal for action on the part of makers of public address systems, and there is still a great deal of opportunity in this field. It should be remembered that foreign educators took to using motion pictures in their schools with very little encouragement, and that the use of amplifiers in the teaching of languages is not to be neglected.

Reports from exporters indicate that foreign broadcasters are doing very well for themselves in the matter of program building. Current broadcasts in darkest Africa are not as quaint as the Radio City gents might imagine, and local interest is gradually mounting.

Canadian treaty results

Results to the American radio industry from the new reciprocal trade treaty with Canada are not important, according to opinions received from both American and Canadian manufacturers by Bond Geddes, executive vice president-general manager of the RMA. American parts and accessory manufacturers and, to some extent, tube manufacturers, however, promise to be the principal beneficiaries. Control of radio patents in Canada prevent any substantial increase in receiving set sales by American manufacturers in Canada. American radio tubes may be sold in somewhat larger quantities although the tube patent situation in Canada also is a factor.

The treaty provides a reduction in Canadian import rates from 30 per cent to 25 per cent ad valorem, or about one-sixth, on "electric wireless or radio apparatus and parts."

This one-sixth reduction in the Canadian tariff on radio sets is not expected to materially increase American set sales in Canada. The Canadian set manufacturers are well protected by their radio patent license organization. Licenses of American manufacturers do not provide for sales in Canada, where set manufacturers must secure separate Canadian licenses. Several American manufacturers have virtually Canadian branch factories and these, together with Canadian set manufacturers, will be benefited by their ability, under the new treaty, to secure cheaper American parts and accessories. The reduced tariff on American radio parts and accessories, therefore, promises to be the principal result of the new treaty so far as the American industry is concerned.

56,000,000 sets in world

Over 56,000,000 radio sets, including 25,551,000 in the United States, are in use throughout the world, according to a world radio set census prepared by the Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce. Countries prominent in the use of radio include England with 7,055,000 sets, Germany with 6,516,000 sets, France with 2,763,000 sets, and Japan with 2,190,000. Other interesting details include the ownership of only twenty-five sets in Ethiopia and twenty-five in Greenland. Statistics on sales, exports and imports of foreign countries are also given in the report prepared by Andrew W. Cruse, Chief of the Electrical Division.

South America

Australia and New Zealand

Mother India tunes in

★ A bronzed gentleman in India who runs the state of Hyderabad and who has, in his way, got together one of the most dazzling bankrolls of our time, has made the impulsive decision to present 20,000 radio sets to as many of his villages, and has had an agent in New York buying same. Receivers will be installed, it is hoped, by February, so that the Hyderabad ruler may celebrate the 25th anniversary of his reign in Radio City style.

Hyderabad is the largest of 18 states of India, containing some 14,500,000 gaunt persons, who are thus to have their introduction to radio. Ambling about the rest of the empire are some 340,000,000 neighbors who may like the idea and start things.

International broadcasting binge

★ Important broadcasting organizations the world over have been notified of a meeting in Paris, Feb. 27, of the International Broadcasting Union, headquartered at Geneva, Switzerland. Union members are mostly European, but at this get-together the outsiders will be in on the negotiations aimed to stimulate worldwide exchange of programs.

Other matters to be considered are the complicated problems which definitely have only an international solution: authors' rights, exchange of advance programs, interference, transcriptions and the creation of mutual understanding among nations.

New U. S. station for Ababa

★ State Department at Washington wants to be sure of a hook-up with the American Legation at Addis Ababa, Ethiopia, in case an emergency cuts off the present communications. So four Navy experts have been sent to Ababa to erect a new short-wave station, which can relay messages through a battle ship or two, and through a commercial station at Madrid, Spain.

"ON THE AIR"—

Smashing progress during 1935 makes radio dealer the world's luckiest merchant

★ MAGNIFICENT manner in which the broadcasters entertained radio fans with thrill after thrill during the past year is reason enough why listeners may expect a richly varied spectacle on the air in 1936.

Cost what it may, the studio gentry has repeatedly put on the air such a luxurious collection of features during the past year that the world of merchandising looks again to the radio receiver as the most remarkable item that a consumer can buy.

Globe circlers

Each of the breath-taking stunts staged by the broadcasters is another reason why a dealer in sets is a dealer in a service which has millions behind it. For a few dollars required to invest in a good receiver, the radio listener during the past year got in on plenty; here's a list of smash events from NBC and CBS.

Premier Mussolini presented his version of the Italo-Ethiopian situation, heard here in October .

Speeches were broadcast from the U. S. Senate and House at the opening of the 74th Congress.

Pioneer broadcast direct from the Coliseum in Rome on Easter Sunday; high mass heard here.

First-in-America broadcasts came early in the year on one network from China, Egypt, Monte Carlo, Luxemburg, Pompeii, Poland, Bohemia, Yugoslavia, and Spain.

From action centers

Reichsführer Hitler explained from Berlin his stand on the Versailles Treaty at a time when the peace of the world appeared to depend on it.

Philharmonic orchestra of New York hooked up with Finland to celebrate the birthday of composer Sibelius.

Survivors of the disaster of the S.S. *Mohawk* were interviewed on the air.

Dramatic descriptive coverage of the violent dust storms in the Western States went on the air in a feature broadcast.

One network piled up a total of 72 broadcasts from England during the year.

Admiral Byrd's expedition was reported in detail from Little America, and the party was entertained at the outpost with special programs.

Grand salute

Marconi, the father of radio, was saluted on his 61st birthday via radio by ships at sea, by the *Graf Zeppelin* flying across the Atlantic, and by Admiral Byrd at the South Pole.

First broadcast of canonization ceremonies led by Pope Pius May 19.

King George V of England and Prime Minister MacDonald went on the air to celebrate the 25th anniversary of the King's reign, as greetings were heard from all parts of the British Empire.

Nothing too intricate

Maiden voyage of the S.S. *Normandie* was described on the air during the crossing and at her arrival in New York.

World's first broadcast of Mt. Vesuvius in action, broadcast from the crater itself, July 2.

Haile Selassie, Ethiopian Emperor, went on the air with a special plea from Addis Ababa Sept. 13.

At the center of Jack Benny Week.

Radio salutes from naval vessels scattered around the world were broadcast to celebrate the 90th anniversary of the U. S. Naval Academy Oct. 10.

Sky adventure

Record-smashing flight of the stratosphere balloon went on the air Nov. 11, linked with the *China Clipper* on the Pacific coast and a London editor at his desk.

Thirty-one different countries heard in one broadcast, "Youth Sings Across Borders" Oct. 27.

WIP invades schools

★ Philadelphia Station WIP has worked up a couple of lively answers to educators who argue for further co-operation on the air waves. First is "Leisure Hour," a series of illustrated radio lectures for Monday afternoons, which co-operates with high schools in the Philadelphia district and was worked out with help from the Pennsylvania Arts and Sciences Society. Experts are engaged to speak on topics ranging from art to aviation, while their voices are synchronized with lantern slides.

Other feature is the weekly broadcast of assembly exercises from the Philadelphia schools, which proves to be interesting to parents, and to the assembly program builders.

WBT eases epidemic

★ We-all must give due credit to William Schudt, Jr., president of Station WBT, Charlotte, N. C., for his part in relief measures which became necessary during the infantile paralysis epidemic which swept the two Carolinas.

Many cities in the territory passed emergency ordinances to keep all children out of all public gatherings. Mr. Schudt's view: "It has become the mission of radio to take music, drama, and fun to these people at their firesides." WBT is the most powerful station in the two states, and thus became leading factor in entertainment relief.

Chart of Ethiopia, gratis

★ A romantically colored giveaway item, called "Congo Bartlett's Explorers' Map and Big Game Chart of Ethiopia" has been developed as a plus merchandising feature for a quarter-hour electrically transcribed program by the Olesen Sound Studios of Hollywood.

HURRY, TELEVISION!

Studio beauties—now heard but not seen—may get a real break when television turns the corner. Top row (left) is Gale Page, who graces the Climalene Carnival on NBC, and Dorothy Lamour, dreamer-of-songs.

Shown below are Alice Frost (left), a hit beauty singing with Bob Crosby; Betty Lou Gerson (center), a striking artist from "The First Nighters"; and the go-getter, Loretta Lee, on CBS networks.

THE BUSINESS SIDE OF SERVICING

John Rider points out importance of modern methods, up-to-date equipment

By JOHN F. RIDER
Service Editor, RADIO TODAY

★ WE do not think it will be "telling tales out of school" if we speak about some of the items we hear discussed among groups of service men at service association meetings. Naturally, those things which are classified as "confidential" will not find space here — but there are certain things which justify reflection in the public mirror.

It is seldom that a meeting ends without a discussion of service equipment. Invariably, one man in a group will be a believer in the value of modern equipment. His opponents are numerous. They say: "Why buy new equipment—if what is now on hand can be made to do?"—Maybe the equipment on hand is somewhat outdated—but it can be used. So think the non-believers.

Time is money

Many service men rebel against the purchasing of new equipment because they feel that the expenditure is actually forced upon them, as a result of circumstances normally beyond their control — as, for example, changes in receiver design and changes in tube design or the addition of new tubes.

All of this is true, and it is one of the hazards of business, or at least is one of the hazards of every enterprise where mechanical apparatus is used, and which mechanical apparatus must keep in step with technical advancement in the industry. Increasing operating speed and efficiency is a paramount issue in every business.

Geared to the times

Instead of typing these lines, we could write them in longhand, but it would take much longer. — The speed would be missing — and time is money. The typesetter employed by the printer would also require more time to set type from longhand than from typewritten copy. Increasing operating speed and efficiency reduces the cost of operations. Tens of millions are spent each year with this one thought in mind. Concerns handling a large volume of business buy bookkeeping machines because the operation is faster than hand-written entries and, in general, results in more accurate operation. Inter-office communication systems are installed because they save wear and tear on the office staff and save the time and effort which would otherwise be required for the men to go from one office to the other to ascertain information they wish to know.

The servicing business, like any other business, has its own problems, and it is really difficult to find one piece of service apparatus which is not of definite utility to the servicing industry and which — if given sufficient time — will not pay for itself. Recognizing cost and that many men operate with greatly limited finances, the fact remains that, funds permitting, the acquisition of modern apparatus to replace obsolete equipment will be justified by increased efficiency. Do not for one moment believe that these statements are made with total disregard of all facts pertaining to existing conditions. Outmoded apparatus must be replaced by modern equipment. The set tester five years old and used in conjunction with a multiplicity of adaptors is not geared to modern times. The same is true of the tube checker.

Fast-acting devices

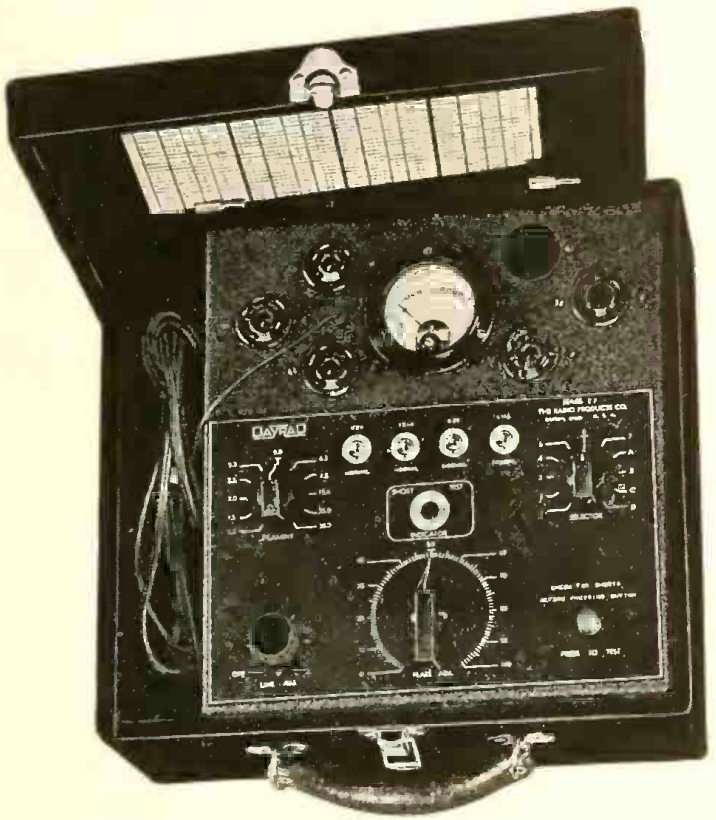
Sure — it is possible to improvise something to accommodate special tubes, but that is not the most practical method of operation. The oscillator designed years ago and operative over the intermediate frequency band is still usable for the checking of all wave receivers, but it is neither as practical — as efficient — or profitable as a modern oscillator which supplies fundamental frequencies extending from the intermediate band to the ultra-high-frequency band. The single-band oscillator will supply the required harmonics, at least most of them do . . . but there are numerous limitations . . . the adjustment of many receivers requires a fairly strong signal. The higher order of harmonics of some of the older oscillators are low in intensity, and it is difficult to secure the level required for proper operation — if a signal at all. . . . Then, again, time is required to establish the order of the harmonic being used. To juggle frequencies and to establish harmonics takes time, and, most certainly, is not as rapid or as efficient as the selection of the correct fundamental frequency within whatever band is required.

Many men still operate with old and obsolete types of output meters, many of which are improvised. To-

(*To page* 18)

Nothing's wrong with this picture—Frank's Radio Service Dept., at Wallace, Idaho, is trim, pleasant, and complete. Chromium-plated instrument panel, parts cabinet, tube checker, and set tester are features.

★ 9 FEATURES make this your "BEST BUY" in a PORTABLE TUBE TESTER . . . it's the . . .



DAYRAD
PORTABLE TUBE TESTER
SERIES 27

What do you demand of a tester? Flexibility? Engineering for future tube developments? Accuracy? Simplified Procedure? Compact size? Moderate price?

Here's a DayraD "Portable" Series 27 that has them all—plus the all-around reliability and sturdiness that you expect in any Radio Instruments bearing the DayraD trade name.

As you read the 9 outstanding features listed below remember that this is the ONLY tester offering ALL of these features at anywhere near this low price.

DESIGNED TO PROVIDE COMPLETE TUBE CHECK AND QUICK POINT-TO-POINT ANALYSIS

* 1. DAYRAD Micro Leak—shorts and leakage tests, actually picks out noisy and leaky tubes that you previously could not find.
* 2. Shorts test between all elements that will prove to your customer why his set has been noisy and distorted.
* 3. Only three controls, simplifying test procedure, not necessary to make the numerous tests as previously to show your customer a defective tube.
* 4. Calibrated to show a wide difference between good and bad tubes—a DAYRAD feature.
* 5. Meter designed with strong bridge construction—high torque—jewel bearing—D'arsonval movement, no more worry about pivots loosening due to jarring.
* 6. Will test all the METAL tubes plus the newly announced "G" tubes.
* 7. A complete service unit in itself and can't be beat at the price.
* 8. Enclosed in leatherette carrying case.
* 9. Remember — DAYRAD — flexibility provides for further types.

SERIES 27

NET TO DEALER **$24.75**

Size 12x11x5½"
Weight 9 lbs.

Write for complete catalogue and give Jobber's name

THE RADIO PRODUCTS COMPANY

123 Sunrise Place • Subsidiary of Bendix Aviation Corp. • Dayton, Ohio

BUSINESS OF SERVICING

(*From page* 16)

day's receivers require modern, fast-acting equipment. The adjustment of trimmer units is oftentimes so critical that peak adjustment positions for maximum efficiency operation are actually passed without having noted any change upon the indicating instrument. In this connection, the cathode-ray oscillograph is the most modern piece of equipment.

Perhaps you feel that we think of nothing but work — work, every minute of the day! . . . If so, we do not agree. Up-to-date equipment will, by providing the station operator with more efficient means of handling his jobs, enable more work to be done in a shorter period of time — increase operating capacity, and will provide more *leisure* — a vital necessity to every man.

It is not a matter of time alone. Accuracy of the test being made is also important. After all is said and done, the conclusions reached are based upon the information gleaned as a result of the test. Equipment improvised on the spot is invariably full of faults. The time required to improvise testing systems in order to make certain tests occasioned by the more advanced design of radio receivers is seldom, if ever, productive of the required accuracy. . . . There is real value in modern equipment.

WANTED—A PHOBIA CHASER

★ WE are all creatures of habit. Witness the plight of the charming gentleman with whom we lunched today . . . he is a suburbanite . . . his income is in the upper brackets. He drives a Pierce-Arrow car. . . . You will find out why we mention this point.

When this gentleman calls and suggests that we lunch together we get suspicious — for without fail, he is seeking clinical advice about his sick radio. We were right in our assumption — sure enough, our friend had a problem. He has five radios in his home — yes, five. . . . The cook must have one in the kitchen, Daughter must do her "Bing Crosbying" in the seclusion of her boudoir, Mother must have a receiver for her cultural programs, and Son is a Short-Wave Bug. Father is content to listen to the large receiver which is in the living room — BUT — it is an extremely sensitive receiver, and there isn't much use in

"No, Lady, I don't know what makes the oil-burner squeak."

trying to get the thing to give satisfactory results without a proper antenna system. So, between the sandwich and the coffee, he dumped his problem in our lap — and we told him to get a competent service man to install the latest type of aerial. . . . Then he asked us this poser — "How do I know that my local man is competent?"

Now for the reason why we mention the gentleman's Pierce-Arrow car.

Local service man

For years, our friend has been bringing his car to the local service station for the various jobs which a car needs every once in a while. He has been charged small sums each time . . . however, satisfaction was seldom obtained. — After each such local service he was forced to bring his car into the Pierce-Arrow service station in New York for a properly completed job . . . and had been charged sums commensurate with the eminently satisfactory services performed.

Living about sixty miles from New York, he continued visiting his local auto repair man in sheer desperation and the hope that he could avoid the trip to New York. . . . The result — a phobia, that impugned the ability of the auto repair man in his vicinity, and developed confidence only in those service stations which were under the direct supervision of the automobile manufacturer.

Now he needs radio service. . . . Whom should he call? . . . He has no confidence in the local radio talent — for, according to him, all local independent repair men are brothers under the skin. . . . Can you blame him? After all, he has learned from years of experience.

Here is a potential customer for at least $15 to $20 worth of service work immediately and for at least $50 more during 1936 — who comes to New York to ask the address of a competent service man. . . . He even thinks of importing a recommended service man to do his work, and this means paying for 120 miles of traveling time.

This case must be duplicated many thousand times each year. . . . What's the answer — you Knights of the Soldering Iron?

HOW MUCH MONEY?

★ There is a story rampant in the middle West that servicing has boomed. The reason seems pretty logical. Maybe some of the readers of this column can verify or dispute the statements. Jobbers and manufacturers seem to concur in the opinion that there was a boom. It seems as if there has been a boom in the sale of electrolytic condensers during the past summer. . . . This by no means casts any reflections upon the products of any of the electrolytic condenser manufactures, because all have done well. Men intimately acquainted with what has been taking place, claim that an excessive amount of sustained high humidity was responsible for the high degree of replacement. Such an occurrence is not beyond the realm of possibility. After all, no one has ever claimed that their electrolytic condenser was perfect and guaranteed for a definite life under ANY and ALL conditions. . . .

"Profitably busy"

The important question remains to be answered. . . . How much money was made during this activity? . . . Is it possible that large quantities of such condensers were sold by the manufacturer to the jobber and by the jobber to the serviceman — and by the serviceman to the set owner — with profit only at two points — namely the manufacturer to jobber and jobber to serviceman. . . . Being busy and being profitably busy are two different things. . . . The latter should be the greatest concern of the industry. . . . Let us hope that such an opportunity did not go by the board. . . . After all the real honest to goodness, condenser-wrecking humidity does not come weekly!

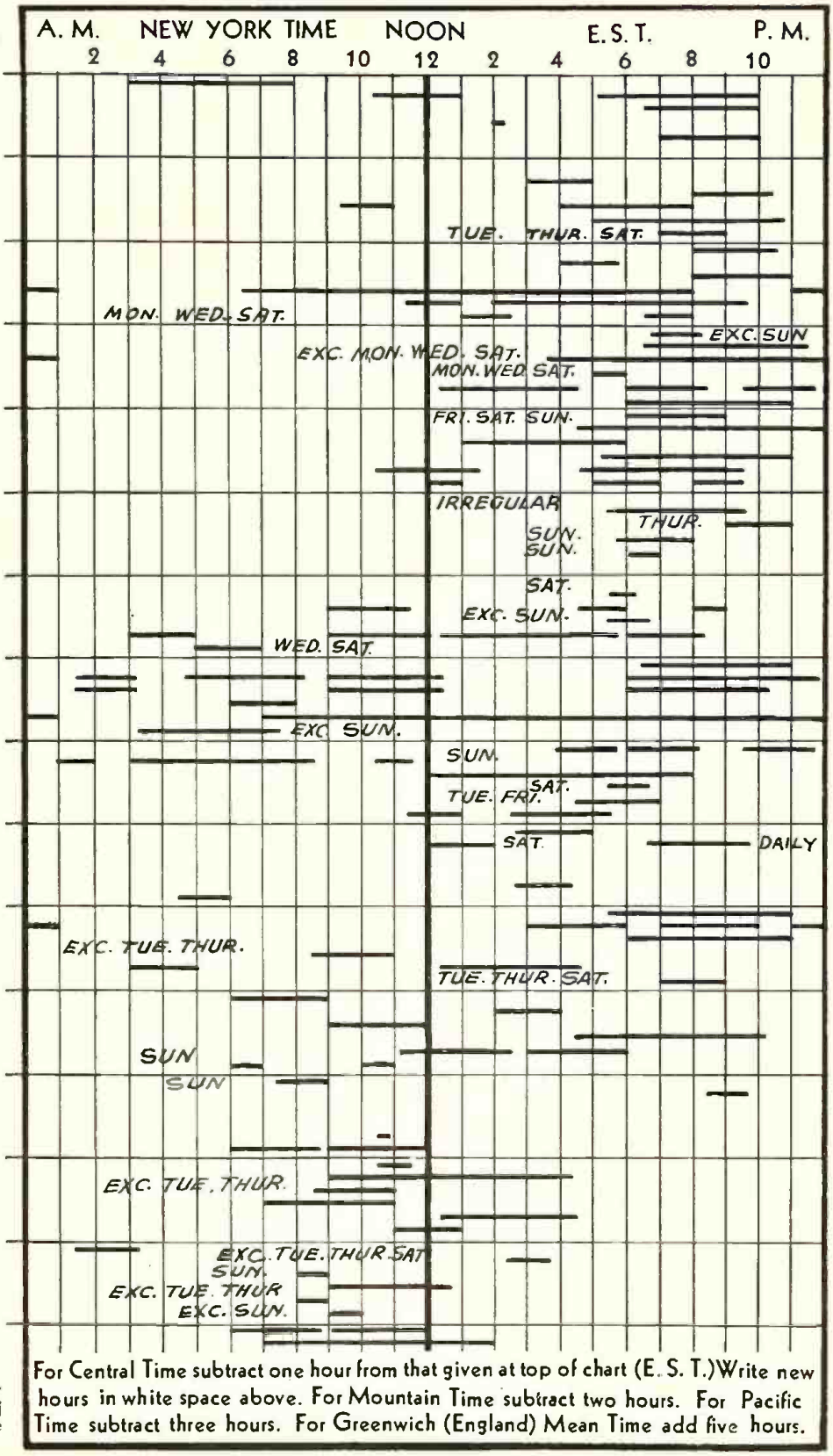
SHORT-WAVE BROADCASTS

Compiled by "Radio Today" to help sell all-wave sets

World-wide winter schedule 1935-1936

Country or City	Call letters	Wavelength in meters	Frequency in kilocycles
50 to 80 meters			
Russia	RW15	70.2	4,270
Venezuela	YV2RC	51.7	5,800
Venezuela	YV5RMO	51.3	5,850
Vatican City	HVJ	50.2	5,970
Mexico	XECW	50.1	5,990
40 to 50 meters			
Russia	RW59	50.0	6,000
Mexico	XEBT	50.0	6,000
Cuba	COCO	49.9	6,010
Germany	DJC	49.8	6,030
Boston	W1XAL	49.7	6,040
Panama	HP5B	49.7	6,040
England	GSA	49.5	6,050
Philadelphia	W3XAU	49.5	6,060
Cincinnati	W8XAL	49.5	6,060
Chicago	W9XAA	49.3	6,080
Italy	I2RO	49.3	6,080
Bolivia	CP5	49.3	6,080
Canada	CRCX	49.0	6,090
Chicago	W9XF	49.2	6,100
New York	W3XAL	49.2	6,100
England	GSL	49.1	6,110
New York	W2XE	49.0	6,120
Java	YDA	49.0	6,120
Pittsburgh	W8XK	48.9	6,140
Portugal	CSL	48.8	6,150
Canada	CJRO	48.8	6,150
Venezuela	YV3RC	48.8	6,150
Colombia	HJ1ABB	46.5	6,450
New York	W3XAL	46.3	6,430
Venezuela	YV6RV	46.1	6,520
Ecuador	PRADO	45.3	6,630
Ecuador	HC2RL	45.0	6,670
Mexico	XECR	40.6	7,380
30 to 40 meters			
Switzerland	HBP	38.5	7,800
Cuba	COCH	31.8	9,430
Brazil	PRF5	31.6	9,500
England	GSB	31.5	9,510
Australia	VK3ME	31.5	9,510
Schenectady	W2XAF	31.5	9,530
Germany	DJN	31.4	9,540
Germany	DJA	31.4	9,560
India	VUB	31.4	9,560
Springfield	W1XAZ	31.4	9,570
Australia	VK3LR	31.3	9,580
England	GSC	31.3	9,580
Australia	VK2ME	31.3	9,590
Philadelphia	W3XAU	31.3	9,590
Switzerland	HBL	31.3	9,590
Portugal	CT1AA	31.2	9,600
Italy	I2RO	31.1	9,630
Italy	IRU	30.5	9,830
Spain	EAQ	30.4	9,860
20 to 30 meters			
Belgium	ORK	29.0	10,330
Japan	JVM	27.9	10,740
Canada	CJRX	25.6	11,720
France	FYA	25.6	11,720
Colombia	HJ4ABA	25.6	11,710
Holland	PHI	25.6	11,730
England	GSD	25.5	11,750
Boston	WX1AL	25.4	11,790
Italy	I2RO	25.4	11,810
New York	W2XE	25.4	11,830
England	GSE	25.3	11,860
Pittsburgh	W8XK	25.3	11,870
France	FYA	25.2	11,880
Russia	RW59	25.0	12,000
Africa	CNR	23.4	12,830
Japan	JVH	20.5	14,600
10 to 20 meters			
Vatican City	HVJ	19.8	15,120
England	GSF	19.8	15,140
Germany	DJB	19.7	15,200
Pittsburgh	W8XK	19.7	15,210
Holland	PCJ	19.7	15,220
France	FYA	19.7	15,240
England	GSI	19.6	15,260
New York	W2XE	19.6	15,270
Germany	DJQ	19.6	15,280
Schenectady	W2XAD	19.6	15,330
Hungary	HAS3	19.5	15,370
Germany	DJE	16.8	17,760
Holland	PHI	16.9	17,770
New York	W3XAL	16.9	17,780
England	GSG	16.9	17,790
Pittsburgh	W8XK	13.9	21,540

Stations compiled from the lists of Service Bureau, Radio Manufacturers Association, 1317 F. St., N.W., Washington, D. C. Detailed program lists issued weekly for newspaper publication (free) by the RMA Service Bureau.



For Central Time subtract one hour from that given at top of chart (E. S. T.) Write new hours in white space above. For Mountain Time subtract two hours. For Pacific Time subtract three hours. For Greenwich (England) Mean Time add five hours.

WHO'S WHO, AND WHERE TO BUY

Radio Today's directory of radio products—the first complete buying guide to be made available for the radio trade in eight years*

RECEIVING SETS

Amateur—AM
Commercial—COM
Farm and battery—F
Home—H
Radio-phonograph combination—RP
Auto—A

ACRATONE—Federated Purchasers, Inc.

ADMIRAL—Continental Radio & Television Corp.

ADMIRAL—Radio Products Corp.

AERONAUTIC—Mission Bell Radio Mfg. Co., Inc.

AIRCRAFT RADIO CORP., Boonton, N. J.—COM

AIR KING PRODUCTS CO., INC., 27 Hooper St., Brooklyn, N. Y., "Air King"—H

AIR LINE—Montgomery Ward & Co.

ALLIED RADIO CORP., 833 W. Jackson Blvd., Chicago, Ill., "Knight"—A, F, H—See adv. p. 38

AMERICAN—General Television & Radio Corp.

AMERICAN SALES CO., 44 W. 18th St., New York City—AM, H

AMERICAN-BOSCH—United American Bosch Corp.

AMPLEX RADIO CORP., 240 W. 23rd St., New York City—H

F. A. D. ANDREA, INC., 48-02 48th Ave., Woodside, N. Y., "Andrea"—A, H—Export only

ANSLEY RADIO CORP., 240 W. 23rd St., New York City, "Ansley Dynaphone"—RP

ARCADIA—Wells-Gardner & Co.

ARVIN—Noblitt-Sparks Industries

ATWATER KENT MFG. CO., 4700 Wissahickon Ave., Philadelphia, Penna., "Atwater Kent"—A, F, H, RP—See adv. back cover

AUTOCRAT RADIO CO., 3855 N. Hamilton Ave., Chicago, Ill., "Autocrat," "Meritone"—A, F, H, RP

AUTOMATIC RADIO MFG. CO., 112 Canal St., Boston, Mass., "Automatic," "Tom Thumb"—A, H

BALKEIT RADIO CORP., 549 W. Randolph St., Chicago, Ill., "Balkeit"—A, F, H

BELMONT RADIO CORP., 1257 Fullerton Ave., Chicago, Ill., "Belmont," "Freshman Masterpiece"—A, F, H

BERKSHIRE CO., 130 N. Wells St., Chicago, Ill.—A, H

BRETING RADIO MFG. CO., 2177 Venice Blvd., Los Angeles, Calif., "Breting"—H

BROWNING 35—Tobe Deutschmann Corp.

CAPEHART CORP., E. Pontiac St., Fort Wayne, Ind., "Capehart"—RP

CAPITOL RADIO CO., 43 E. Ohio St., Chicago, Ill., "Capitol," "Mayfair"—A, H

CASE ELECTRIC CORP., 1307 S. Michigan Ave., Chicago, Ill., "Case," "Radiovogue," "Tell-Time"—H—See adv. p. 26

CAVALCADE CO., 271 7th St., San Francisco, Calif., "Cavalcade"—A, H

CAVALCADE RADIO CO., 2341 Wolfram St., Chicago, Ill., "Cavalcade"

CHAMPION RADIO LABORATORIES, 14553 Madison Ave., Cleveland, Ohio, "Champion," "Victory"—A, H

CHAMPLAIN—Lincoln International Instrument Co.

CHANTICLEER RADIO CO., 1728 Venice Blvd., Los Angeles, Calif., "Chanticleer"—H

CLARION—Transformer Corp. of America

CLINTON MFG. CO., 1217 W. Washington Blvd., Chicago, Ill.

COLONIAL RADIO CORP., 254 Rano St., Buffalo, N. Y.

COM-RAD—Commonwealth Radio Mfg. Co.

COMMONWEALTH RADIO MFG. CO., 4848 Lincoln Ave., Chicago, Ill., "Com-Rad"—H

CONSOLIDATED RADIO PRODUCTS CO., Box 23, Nothwestern Station, Detroit, Mich., "Royal"—A, F, H

CONTINENTAL RADIO & TELEVISION CORP., 325 W. Huron St., Chicago, Ill., "Admiral"—F, H

CORONA RADIO & TELEVISION CORP., 402 Sacramento Blvd., Chicago, Ill., "Corona,"—A, H

CROSLEY RADIO CORP., 1329 Arlington St., Cincinnati, Ohio, "Crosley"—A, F, H—See adv, p. 1

DELCO—United Motors Service

DETROLA RADIO CORP., 3630 W. Fort St., Detroit, Mich., "Detrola"—A, F, H

TOBE DEUTSCHMANN CORP., Canton, Mass., "Browning 35," "Tobe Tuner"—AM, H—Kits only

DE WALD—Pierce Airo, Inc.

DOERLE—Radio Trading Co.

EAGLE RADIO CO., 84 Cortlandt St., New York City, "Eagle"—AM

EASTERN RADIO SPECIALTY CO., 1845 Broadway, New York City, "Peak"—AM

ECHOPHONE RADIO CORP., 2611 S. Indiana Ave., Chicago, Ill., "Echophone"—A, H

ELECTRICAL RESEARCH LABORATORIES, INC., 2222 Diversey Pky., Chicago, Ill., "Erla," "Sentinel"—A, F, H, RP

EL RAY RADIO MFG. CO., 8406½ S. Broadway, Los Angeles, Calif., "El Ray"—H

EMERSON RADIO & PHONOGRAPH CORP., 111 8th Ave., New York City, "Emerson"—A, F, H

EMPIRE RADIO CORP., 1217 W. Washington Blvd., Chicago, Ill., "Empire," "General," "Royal"—A, H

ENSIGN—Espey Mfg. Co.

ERLA—Electrical Research Laboratories, Inc.

ESPEY MFG. CO., 124 E. 25th St., New York City, "Ensign," "Espey," "Yorker"—F, H, RP

FADA RADIO & ELECTRIC CO., 30-20 Thompson Ave., Long Island City, N. Y., "Fada"—A, H

FAIRBANKS-MORSE HOME APPLIANCES, INC., 430 S. Green St., Chicago, Ill., "Fairbanks-Morse"—A, F, H

FEDERATED PURCHASERS, INC., 25 Park Place, New York, N. Y., "Acratone"—A, F, H, RP

FERGUSON RADIO CORP., 745 Broadway, New York City

FISCHER-SMITH, 162 State St., W. Englewood, N. J., "Fischer-Smith"—A

FORDSON RADIO EXPORT CO., 8780 Grand River, Detroit, Mich.—A, H

FREED-EISEMANN—Freed Mfg. Co.

FREED MFG. CO., 44 W. 18th St., New York City, "Freed-Eisemann"—H—See adv. p. 39

FRESHMAN MASTERPIECE—Belmont Radio Corp.

GALVIN MFG. CORP., 847 W. Harrison St., Chicago, Ill., "Motorola"—A

GAROD RADIO CORP., 34 E. 12th St., New York City, "Garod"—H, RP

GAYLORD MFG. CO., 1227 Washington Blvd., Chicago, Ill., "Gaylord"—A, COM, H, RP

GENERAL—Ross Distributing Co.

GENERAL—Empire Radio Corp.

GENERAL—General Television & Radio Corp.

GENERAL ELECTRIC CO., 1285 Boston Ave., Bridgeport, Conn., "General Electric"—A, H, RP

GENERAL HOUSEHOLD UTILITIES CORP., 2638 N. Crawford Ave., Chicago, Ill., "Grunow"—F, H

GENERAL MOTORS—United Motors Service

GENERAL TELEVISION & RADIO CORP., 267 W. 17th St., New York City, "American," "General," "Greeley"—H

GILFILLAN BROS., INC., 1815 Venice Blvd., Los Angeles, Calif., "Gilfillan"—A, AM, F, H, RP

GOLDENTONE RADIO MFG. CORP., 4181 Oakman Blvd., Detroit, Mich., "Goldentone"—A, H

GREBE RADIO & TELEVISION CO., 55 W. 42nd St., New York City, "Grebe"—H, RP

GREELEY—General Television & Radio Corp.

GRIGSBY-GRUNOW CO., c/o Frank M. McKey, 5801 Dickens Ave., Chicago, Ill., "Majestic"—Replacement parts only—See adv. p. 40

GROSS RADIO, INC., 51 Vesey St., New York City—AM

GRUNOW—General Household Utilities Corp.

HALLICRAFTERS, INC., 1735 Belmont Ave., Chicago, Ill., "Skyrider"—AM

HALSON RADIO MFG. CORP., 120 E. 16th St., New York City, "Halson"—H

HAMMARLUND MFG. CO., 424-438 W. 33rd St., New York City, AM, COM

HARVEY RADIO LABORATORIES, 12 Boylston St., Brookline, Mass., "Harvey transceiver"—AM

HI-LO RADIO CO., 4611 N. Clark St., Chicago, Ill., "Hi-Lo"—H

HERBERT H. HORN, 1201 Olive St., Los Angeles, Calif., "Tiffany Tone"—A, H, RP

HOWARD RADIO CO., 1731 Belmont Ave., Chicago, Ill., "Howard"—A, H—See adv. p. 44

ICA EXPORT CO., 154 Nassau St., New York City, "ICA"—A, H

INTERNATIONAL KADETTE—International Radio Corp.

INTERNATIONAL RADIO CORP., 4th & William Sts., Ann Arbor, Mich., "International Kadette," "Kadette"—A, F, H—See adv. p. 2

IRWIN RADIO CO., 4617 Corliss Ave., Los Angeles, Calif.

JACKSON BELL—Peter Pan Radio Mfg. Co.

KADETTE—International Radio Corp.

KARADIO CORP., 50 11th Ave., N.E., Minneapolis, Minn., "Karadio"—A

KINGSTON RADIO CO., Kokomo, Ind., "Kingston"—H

KING TRADING CO., 51 Vesey St., New York City—H

KNIGHT—Allied Radio Corp.

LAFAYETTE RADIO MFG. CO., INC., 100 Sixth Ave., New York City, "Lafayette"—A, AM, F, H, RP

LA SALLE—Stuyvesant Electric Co.

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LA SALLE PRODUCTS CO., 140 Washington St., New York City, "La Salle"—H, RP

LAUREHK RADIO MFG. CO., Adrian, Mich., "Laurehk"—A, F, H

LEAR DEVELOPMENT CO., 121 W. 17th St., New York City, "Lear-O-Scope"—COM

LEAR-O-SCOPE — Lear Development Co.

LEHMAN RADIO SALON, INC., 1013 Madison Ave., New York City, "Port-O-Matic"—RP

LEOTONE RADIO CO., 63 Dey St., New York City, "Leotone"—AM

LINCOLN INTERNATIONAL INSTRUMENT CO., 47-02 5th St., Long Island City, N. Y., "Champlain"—A, H, RP

LIONEL RADIO CORP., 431 E. 104th St., New York City—A, H

L'TATRO PRODUCTS CORP., 417 W. Water St., Decorah, Iowa. "L'Tatro"—F

LUXOR RADIO CORP., 521 W. 23rd St., New York City, H

MAJESTIC—Grigsby-Grunow Co.

MASTERPIECE—McMurdo Silver Corp.

MAYFAIR—Capitol Radio Co.

MERCEDES PRODUCTION CO., 2235 Irving Pk., Chicago, Ill., "Mercedes"—A, H, RP

MERITONE—Autocart Radio Co.

MIDWEST RADIO CORP., 909 Broadway, Cincinnati, Ohio, "Midwest"

MISSION BELL RADIO MFG. CO., INC., 833 Venice Blvd., Los Angeles, Calif., "Aeronautic," "Mission," "Silvertone," "Trudial"—A, H

MONTGOMERY WARD & CO., Chicago, Ill., "Air Line"—A, F, H

MOTOROLA—Galvin Mfg. Corp.

MOTORVOX CO., 920 Broadway, New York City—H

NAMCO MFG. CO., INC., 142 W. 26th St., New York City

NATIONAL CO., 61 Sherman St., Malden, Mass., "National"—AM, COM

NOBLITT-SPARKS INDUSTRIES, Columbus, Ind., "Arvin"—A, H

PACIFIC RADIO CORP., 844 W. Adams St., Chicago, Ill., "Pacific"—F, H

PACIFIC RADIO CORP., 1479 W. Adams Blvd., Los Angeles, Calif., "Jackson Bell," "Westone"—A, H, RP

PACKARD BELL RADIO CO., 1320 S. Grand Ave., Los Angeles, Calif., "Packard Bell,"—H

PARAMOUNT—Try-Mo Radio Co.

PATHE RADIO & TELEVISION CO., 1401 W. 11th St., Los Angeles, Calif., "Pathe"—H, RP

PATTERSON RADIO CO., 1320 S. Los Angeles Ave., Los Angeles, Calif., "Patterson"—AM, H

PEAK—Eastern Radio Specialty Co.

PETER PAN RADIO MFG. CO., 1487 W. Adams St., Los Angeles, Calif., "Jackson Bell," "Peter Pan"—H

PHILCO RADIO & TELEVISION CORP., Tioga & C Sts., Philadelphia, Pa., "Philco"—A, F, H—See adv. inside back cover

PHILMORE MFG. CO., 113 University Place, New York City, "Philmore"—AM, H

PIERCE AIRO, INC., 510 6th Ave., New York City, "De Wald"—A, H

PILOT RADIO CORP., 37-06 36th St., Long Island City, N. Y., "Pilot"—F, H, RP

PLAZA RADIO CO., 260 5th Ave., New York City

PORTO-O-MATIC—Lehman Radio Salon, Inc.

POWERTONE—Try-Mo Radio Co.

PROMPT RADIO SERVICE—see Try-Mo Radio

RADIOBAR CO. OF AMERICA, 7100 McKinley St., Los Angeles, Calif., "Radiobar"—H

RADIO MFG. ENGINEERS, 306 First Ave., Peoria, Ill., "RME"—AM

RADIO PRODUCTS CORP., 618 W. Elm St., Chicago, Ill., "Admiral"—H

RADIOTONE RECORDING CO., 6109 Melrose St., Los Angeles, Calif.—RP

RADIO TRADING CO., 99 Hudson St., New York City, "Doerle," "Twinplex"—H, AM

RADIO TRANSCEIVER LABORATORIES, 86-27 115th St., Richmond Hill, N. Y., "Radio Transceiver Laboratories"—AM, COM

RADIOVOGUE—Case Electric Corp.

RADOLEK CO., 601 W. Randolph St., Chicago, Ill., "Radolek"—A, F, H—See adv. p. 40

RCA MFG. CO., INC., Front & Cooper Sts., Camden, N. J., "RCA Victor"—A, COM, F, H, RP—See adv. p. 22

RAWLINGS RADIO MFG. CO., 721 S. Broadway, Los Angeles, Calif., "Rawlings"—H

RCA VICTOR—RCA Mfg. Co., Inc.

REMINGTON RADIO & TELEVISION CORP., 1477 W. Adams Blvd., Los Angeles, Calif., "Remington"—H

REMLER CO., LTD., 2101 Bryant St., San Francisco, Calif., "Remler"—A, H

REPUBLIC INDUSTRIES, 75 West St., New York City, "Sky Hawk"—H

REXTRON RADIO CORP., 1217 W. Washington Blvd., Chicago, Ill., "Rextron"—H

RME—Radio Mfg. Engineers

A. H. ROSS & CO., Keswick Ave. & Waverly Rd., Glenside, Pa., "Ross"—AM

ROSS DISTRIBUTING CO., 2020 Chancellor St., Philadelphia, Pa., "General," "Sterling"—A, H

ROYAL—Consolidated Radio Products Co.

ROYAL—Empire Radio Corp.

ROYALE RADIO MFG. CO., 1417 W. Pico Blvd., Los Angeles, Calif., "Royale"—H

SAVIL RADIO ENGINEERING CORP., 71-73 Grand St., New York City

E. H. SCOTT RADIO LABORATORIES, 4450 Ravenswood Ave., Chicago, Ill., "Scott"—H

SEARS ROEBUCK & CO., Philadelphia, Pa., "Silvertone"—A, F, H

SENTINEL—Electrical Research Laboratories

SETCHELL-CARLSON MFG. CO., 2233 University St., St. Paul, Minn.—F

McMURDO SILVER CORP., 3354 N. Paulina St., Chicago, Ill., "Silver," "Masterpiece"—AM, COM, H, RP

SILVER MARSHALL MFG. CO., 3001 Southport Ave., Chicago, Ill., "Silver Marshall"—H

SILVERTONE—Mission Bell Radio Mfg. Co.

SILVERTONE—Sears Roebuck & Co.

SIMPLEX RADIO CO., Sandusky, Ohio, "Simplex"—A, AM, H

SKY HAWK—Republic Industries

SKYRIDER—Hallicrafters, Inc.

SPARKS-WITHINGTON CO., E. Ganson Ave., Jackson, Mich., "Sparton"—H

SPARTON—Sparks-Withington Co.

STEINBERG-CARLTON RADIO CO., 413 Knickerbocker Ave., Brooklyn, N. Y., "Steinberg's Carlton"—H, RP

STERLING—Ross Distributing Corp.

STEWART-WARNER CORP., 1826 Diversey Parkway, Chicago, Ill., "Stewart-Warner"—A, H, F

STROMBERG-CARLSON TELEPHONE MFG. CO., 100 Carlson Rd., Rochester, N. Y.—H, COM, RP

STUYVESANT ELECTRIC CO., 140 Washington St., New York City, "La Salle"—H, RP

TATRO—See L'Tatro

TELL-TIME—Case Electric Corp.

TIFFANY TONE—Herbert H. Horn

TOBE TUNER—Tobe Deutchmann Corp.

TOM THUMB—Automatic Radio Mfg. Co.

TRANSFORMER CORP. OF AMERICA, 100 Sixth Ave., New York City, "Clarion"—A, H, RP

TRAVLER RADIO & TELEVISION CORP., 1028 W. Van Buren St., Chicago, Ill., "Trav-Ler"—H

TROY RADIO MFG. CO., 1142 S. Olive St., Los Angeles, Calif., "Troy"—A, AM, F, H, RP

TRUDIAL—Mission Bell Radio Mfg. Co.

TRY-MO RADIO CO., 85 Cortlandt St., New York City, "Paramount," "Powertone"—AM, H

TWINPLEX—Radio Trading Co.

ULTRAMAR MFG. CORP., 1160 Chatham Ct., Chicago, Ill., "Ultramar"—A, H, RP

UNITED AMERICAN BOSCH CORP., 3664 Main St., Springfield, Mass., "American-Bosch"—A, F, H, RP

UNITED MOTORS SERVICE, 3044 Grand Blvd., Detroit, Mich., "Delco," "General Motors"—A, H

VICTORY—Champion Radio Laboratories

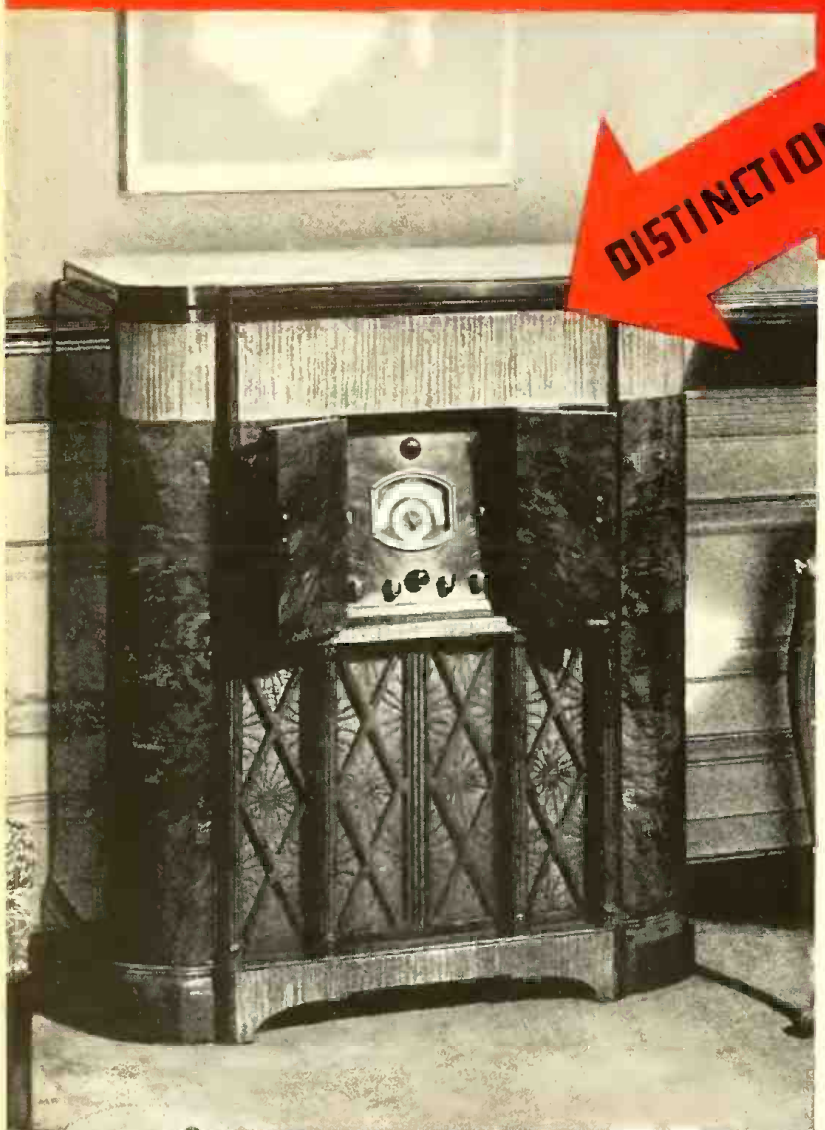
WARWICK MFG. CO., 1700 W. Washington Blvd., Chicago, Ill., "Warwick"—A, F, H

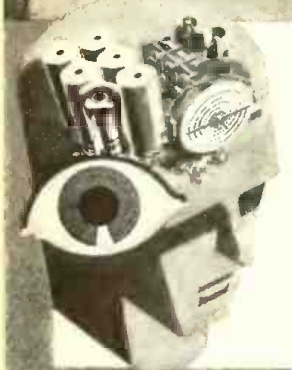
(*To page* 25)

INDEX OF PRODUCTS LISTED

RCA Victor is a dou

DISTINCTION give 'em BI





IT'S THE TOP. The great RCA Victor D-22, with 22 tubes, five band radio, automatic phonograph, with the magical Dynamic Amplifier, home and radio recording. Record reproduction was never so thrilling as this. $600.

ONE BARREL is the portion of the line over $100 and running up to the great, unrivaled D-22 at $600. It is the irresistible attractiveness of the finer models that has sent the RCA Victor average console sale this season to date well over last year's RCA Victor average of $102.

THE OTHER BARREL is under $100, and here there is a lot of money to be made, too.

Look at Packard! It has great acceptance as a quality product (so has RCA) and it brought out a new Packard in the $1000 class. What happened? Packard, since introducing it last March, has smashed all its own sales records into little bits. Why? Because the public transferred to the new car the glory of the great Packard name. They had always wanted to own a Packard, and here at last was a Packard they could afford to buy. Of course, they went for it in a big way.

And then there's Lincoln. Last month it announced its medium-priced Zephyr, and practically overnight received its most amazing flood of orders, from people who have "always wanted a Lincoln."

RCA MANUFACTURING CO., INC., CAMDEN, N. J

RCA HIS MASTER'S VOICE

RC

ble-barreled line

TH barrels

PRICE

What has happened with Packard and Lincoln has also happened in the case of the famous Cadillac V-8.

Exactly the same thing is occurring with RCA Victor. Sales figures demonstrate that the public chooses RCA Victor when buying quality radio. Now that RCA Victor is featuring sets under $100, the public is transferring to the low-priced line the prestige of the luxury models. They want RCA Victor sets. We give you models at prices that mean you can sell anybody a set with the RCA Victor magic name. You not only have the prices, but you have the powerful leverage of the C. I. T. partial payment plan. You can trade up from what the prospect thinks he can afford, or trade down from what you think he ought to buy, and in any case sell as fine a piece of new RCA Victor merchandise as is available at the price. So we say . . .

FEATURE BOTH SIDES of the $100 middle price. Get your share of the profits in the volume line as well as in the de luxe. It is this opportunity to do double-barreled selling that makes the RCA Victor line mean much more money for you.

PRICE PLUS PERFORMANCE. Model C7-6 has 7 RCA Metal Tubes, the Junior "Magic Brain," a 12-inch speaker, reception 540 to 18,000 kilocycles. A great popular model at $84.95. All prices f. o. b. Camden, subject to change without notice.

ubsidiary of RADIO CORPORATION OF AMERICA

A Victor

RCA Victor is a double-barreled line

give 'em BOTH barrels

DISTINCTION

PRICE

IT'S THE TOP. The great RCA Victor D-22, with 22 tubes, five band radio, automatic phonograph, with the magical Dynamic Amplifier, home and radio recording. Record reproduction was never so thrilling as this. $600.

ONE BARREL is the portion of the line over $100 and running up to the great, unrivaled D-22 at $600. It is the irresistible attractiveness of the finer models that has sent the RCA Victor average console sale this season to date well over last year's RCA Victor average of $102.

THE OTHER BARREL is under $100, and here there is a lot of money to be made, too.

Look at Packard! It has great acceptance as a quality product (so has RCA) and it brought out a new Packard in the $1000 class. What happened? Packard, since introducing it last March, has smashed all its own sales records into little bits. Why? Because the public transferred to the new car the glory of the great Packard name. They had always wanted to own a Packard, and here at last was a Packard they could afford to buy. Of course, they went for it in a big way.

And then there's Lincoln. Last month it announced its medium-priced Zephyr, and practically overnight received its most amazing flood of orders, from people who have "always wanted a Lincoln."

What has happened with Packard and Lincoln has also happened in the case of the famous Cadillac V-8.

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RCA MANUFACTURING CO., INC., CAMDEN, N.J. a subsidiary of RADIO CORPORATION OF AMERICA

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RCA Victor

BROADCASTING STATIONS OF THE UNITED STATES

(Revised to December, 1935, from official records of the Federal Communications Commission)

Call	Location	Freq. in kc.	Power
KABC	San Antonio..Tex	1420	H
KABR	Aberdeen ...S.D.	1420	H
KAOA	Ada .....Okla	1200	H
KALB	Alexandria ...La	1420	H
KALE	Portland ....Ore	1300	M
KARK	Little Rock ..Ark	890	K
KASA	Elk City ....Okl	1210	H
KAST	Astoria .....Ore	1370	H
KBPS	Portland ....Ore	1320	H
KBTM	Paragould ...Ark	1200	H
KCMC	Texarkana ...Ark	1420	H
KCRC	Enid .....Okla	1370	K
KCRJ	Jerome .....Ari	1310	H
KOB	Santa Barb ..Cal	1500	H
KOFN	Casper .....Wyo	1440	M
KQKA	Pittsburgh ....Pa	980	W
KQLR	Devils Lake N.D.	1210	H
KOON	Del Monte ...Cal	1210	H
KDYL	Salt Lake City.U.	1290	O
KECA	Los Angeles ..Cal	1430	O
KEHE	Los Angeles ..Cal	780	M
KELO	Eldorado ....Ark	1370	H
KELW	Burbank .....Cal	780	M
KERN	Bakersfield ...Cal	1370	H
KEX	Portland .....Ore	1180	S
KFAB	Lincoln .....Nebr	770	T
KFAC	Los Angeles ..Cal	1300	O
KFBB	Great Falls .Mont	1280	O
KFBI	Abilene .....Kan	1050	S
KFBK	Sacramento ...Cal	1310	H
KFDM	Beaumont .....Tex	560	M
KFOY	Brookings ...S.D.	780	O
KFEL	Denver .....Col	920	M
KFEQ	St. Joseph ....Mo	680	R
KFGQ	Boone .....Iowa	1370	H
KFH	Wichita .....Kan	1300	O
KFI	Los Angeles ..Cal	640	W
KFIO	Spokane ...Wash	1120	H
KFIZ	Fond du Lac.Wis	1420	H
KFJB	Marshalltown .Ia	1200	H
KFJI	Klameth Falls.Ore	1210	H
KFJM	Grand Forks.N.D.	1370	H
KFJR	Portland .....Ore	1300	M
KFJZ	Fort Worth ..Tex	1370	H
KFKA	Greeley .....Col	880	M
KFKU	Lawrence ....Kan	1220	O
KFNF	Shenandoah ....Ia	890	M
KFOR	Lincoln .....Nebr	1210	H
KFOX	Long Beach ..Cal	1250	F
KFPL	Dublin .....Tex	1310	H
KFPM	Greenville ...Tex	1310	F
KFPW	Fort Smith ..Ark	1210	H
KFPY	Spokena .....Wash	890	O
KFQD	Anchorage .Alaska	780	K
KFRC	San Francisco .Cal	610	O
KFRO	Longview ....Tex	1370	H
KFRU	Columbia .....Mo	630	M
KFSD	San Diego ....Cal	600	O
KFSG	Los Angeles ..Cal	1120	M
KFUO	Clayton .....Mo	550	M
KFVO	Los Angeles ..Cal	1000	K
KFVS	Cape Girardeau.Mo	1210	H
KFWB	Los Angeles ..Cal	950	O
KFXO	Nampa .....Idaho	1200	H
KFXJ	Grand Junc ..Col	1200	H
KFXM	San Bernardino ..	1210	H
KFXR	Okla. City ...Okl	1310	H
KFYO	Lubbock .....Tex	1310	H
KFYR	Bismarck ....N.D.	550	O
KGA	Spokana ....Wash	1470	S
KGAR	Tucson .....Ari	1370	H
KGB	San Diego ....Cal	1330	O
KGBU	Ketchikan .Alaska	900	M
KGBX	Springfield ...Mo	1310	H
KGBZ	York .....Neb	930	O
KGCA	Decorah ....Iowa	1270	H
KGCU	Mandan ....N.D.	1240	K
KGCX	Wolf Point .Mont	1310	H
KGOE	Ferrus Fall Minn	1200	H
KGOM	Stockton .....Cal	1100	K
KGOY	Huron .....S.D.	1340	K
KGEK	Sterling .....Col	1200	H
KGER	Long Beach ..Cal	1360	O
KGEZ	Kallispell ...Mont	1310	H
KGFF	Shawnee .....Okl	1420	H
KGFG	Okla. City ...Okl	1370	H
KGFI	Corpus Christi Tex	1500	H
KGFJ	Los Angeles ..Cal	1200	H
KGFK	Moorhead ....Minn	1500	H
KGFL	Roswell .....N.M.	1370	H
KGFW	Kearney .....Neb	1310	H
KGFX	Pierre .....S.D.	630	J
KGGC	San Francisco Cal	1420	H
KGGF	Coffeyville ...Kan	1010	O
KGGM	Albuquerque N.M.	1230	K
KGHF	Pueblo .....Col	1320	M
KGHI	Little Rock ...Ark	1200	H
KGHL	Billings .....Mont	950	O
KGIR	Butte .....Mont	1340	O
KGIW	Alamosa .....Colo	1420	H
KGKB	Tyler .....Tex	1500	H
KGKL	San Angelo ...Tex	1370	H
KGKO	Wichita Falls .Tex	570	K
KGKY	Scottsbuff ...Neb	1500	H
KGMB	Honolulu .Hawaii	1320	K
KGNC	Amarillo .....Tex	1410	O
KGNF	N. Platte ....Neb	1430	O
KGNO	Dodge City ..Kan	1340	K
KGO	San Francisco .Cal	790	S
KGU	Honolulu ...Hawaii	750	R
KGVO	Missoula ...Mont	1200	H
KGW	Portland .....Ore	620	O
KGY	Olympie ...Wash	1210	H
KHBC	Hilo .....Hawaii	1420	H
KHJ	Los Angeles ...Cal	900	O
KHQ	Spokane .....Wash	590	K
KHSL	Chico .....Cal	950	K
KICA	Clovis .....N.M.	1370	H
KID	Idaho Falls Idaho	1320	K
KIDO	Boise .....Idaho	1350	O
KIDW	Lamar .....Col	1420	H
KIEM	Eureka .....Cal	1210	H
KIEV	Glendale .....Cal	850	H
KINY	Juneau ...Alaska	1310	H
KIRO	Seattle .....Wash	650	K
KIT	Yekima ....Wash	1310	H
KIUJ	Sante Fe ...N.M	1310	H
KIUL	Garden City .Kan	1210	H
KIUN	Pecos .....Tex	1420	H
KIUP	Durango .....Col	1370	H
KJBS	San Francisco ..	1070	M
KJR	Seattle .....Wash	970	S
KLCN	Blytheville ...Ark	1290	H
KLO	Ogden .....Utah	1400	M
KLPM	Minot .....N.D.	1240	K
KLRA	Little Rock ...Ark	1390	O
KLS	Oakland .....Cal	1440	K
KLUF	Galveston ....Tex	1370	H
KLX	Oakland .....Cal	880	O
KLZ	Denver .....Col	560	O
KMA	Shenandoah ....Ia	930	O
KMAC	San Antonio .Tex	1370	H
KMBC	Kansas City ...Mo	950	O
KMED	Medford .....Ore	1310	H
KMJ	Fresno .....Cal	580	M
KMLB	Monroe .....La	1200	H
KMMJ	Clay Center ...Neb	740	O
KMO	Tacoma ....Wash	1330	K
KMOX	St. Louis ....Mo	1090	W
KMPC	Beverly Hills ..Cal	710	M
KMTR	Los Angeles ...Cal	570	O
KNEL	Brady .....Tex	1500	H
KNET	Palestine ....Tex	1420	H
KNOW	Austin .....Tex	1500	H
KNX	Los Angeles .Cal	1050	W
KOA	Denver .....Col	830	W
KOAC	Corvallis ....Ore	550	O
KOB	Albuquerque N.M.	1180	T
KOH	Reno .....Nev	1380	M
KOIL	Council Bluffs .Ia	1260	O
KOIN	Portland .....Ore	940	O
KOL	Seattle .....Wash	1270	O
KOMA	Okla. City ...Okl	1480	S
KOMO	Seattle .....Wash	920	O
KONO	San Antonio ..Tex	1370	H
KOOS	Marshfield ...Ore	1200	K
KORE	Eugene .....Ore	1420	H
KOTN	Pine Bluff ...Ark	1500	H
KOY	Phoenix .....Ariz	1390	M
KPAC	Port Arthur .Tex	1260	M
KPIM	Prescott ....Ariz	1500	H
KPLC	Lake Charles ...La	1500	H
KPO	San Francisco .Cel	680	W
KPOF	Denver .....Col	880	M
KPPC	Pasadena .....Cal	1210	F
KPQ	Wenatchee ...Wash	1500	H
KPRC	Houston .....Tex	920	O
KQV	Pittsburgh ....Pa	1380	M
KQW	San Jose .....Cal	1010	O
KRE	Berkeley .....Cal	1370	H
KREG	Sante Ana ....Cal	1500	H
KRGV	Weslaco .....Tex	1260	M
KRKD	Los Angeles ...Cal	1120	M
KRKO	Everett .....Wash	1370	F
KRLC	Lewiston ...Idaho	1420	H
KRLD	Dallas .....Tex	1040	T
KRLH	Midland .....Tex	1420	H
KRMO	Shreveport ....La	1310	H
KRNR	Roseburg ....Ore	1500	H
KRNT	Des Moines ....Ia	1320	M
KROC	Rochester ...Minn	1310	H
KROW	Oakland .....Cal	930	O
KRSC	Seattle .....Wash	1120	H
KSAC	Manhattan ....Kan	580	M
KSCJ	Sioux City ....Ia	1330	O
KSD	St. Louis .....Mo	550	M
KSEI	Pocatello .....Ida	900	K
KSFO	San Francisco .Cal	560	O
KSL	Salt Lake City. U	1130	W
KSLM	Salem .....Ore	1370	H
KSO	Des Moines ...Ia	1430	M
KSOO	Sioux Falls .S.D.	1110	R
KSTP	St. Paul ....Minn	1460	T
KSUN	Lowell .....Ariz	1200	H
KTAR	Phoenix .....Ariz	620	O
KTAT	Ft. Worth ....Tex	1240	O
KTBS	Shreveport ....La	1450	O
KTFI	Twin Falls ...Ida	1240	M
KTHS	Hot Springs ..Ark	1040	T
KTRB	Modesto .....Cal	740	K
KTRH	Houston .....Tex	1290	O
KTSA	San Antonio ..Tex	550	O
KTSM	El Paso .....Tex	1310	H
KTUL	Tulsa .....Okla	1400	M
KTW	Seattle .....Wash	1220	O
KUJ	Walla Walla Wash	1370	H
KUMA	Yuma .....Ariz	1420	H
KUOA	Fayetteville ...Ark	1260	O
KUSO	Vermillion ...S.D.	890	M
KVI	Tacoma .....Wash	570	O
KVL	Seattle .....Wash	1370	H
KVOA	Tucson .....Ariz	1260	M
KVDD	Denver .....Col	920	M
KVOL	Lafayette .....La	1310	H
KVOO	Tulse .....Okla	1140	V
KVOR	Colo. Springs .Col	1270	O
KVDS	Bellingham .Wash	1200	H
KVSO	Ardmore ....Okla	1210	H
KWBG	Hutchinson .Kans	1420	H
KWEA	Shreveport ....La	1210	H
KWG	Stockton .....Cal	1200	H
KWJJ	Portland .....Ore	1060	M
KWK	St. Louis .....Mo	1350	O
KWKC	Kansas City ...Mo	1370	H
KWKH	Shreveport .....La	850	T
KWLC	Decorah .....Ia	1270	H
KWSC	Pullman ....Wash	1220	O
KWTN	Watertown ...S.D.	1210	H
KWTO	Springfield ....Mo	560	O
KWYO	Sheridan ....Wyo	1370	H
KXA	Seattle .....Wash	760	K
KXL	Portland .....Ore	1420	H
KXO	El Centro ....Cal	1500	H
KXRO	Aberdeen ...Wash	1310	H
KXYZ	Houston .....Tex	1440	O
KYA	San Francisco .Cal	1230	O
KYW	Philadelphie ...Pe	1020	T
WAAB	Boston .....Mass	1410	M
WAAF	Chicago Ill	920	M
WAAT	Jersey City ....N.J.	940	M
WAAW	Omaha .....Neb	660	M
WABC	New York ...N.Y.	860	W
WABI	Bangor .....Me	1200	H
WABY	Albany .....N.Y.	1370	H
WACO	Waco .....Tex	1420	H
WAOC	Akron .....Ohio	1320	O
WAGF	Dothan .....Ala	1370	H
WAGM	Presque Isle .Me	1420	H
WAIM	Anderson ....S.C.	1200	H
WAIU	Columbus ....Ohio	640	M
WALA	Mobile .....Ala	1380	M
WALR	Zanesville ...Ohio	1210	H
WAML	Laurel .....Miss	1310	H
WAPI	Birmingham ...Ale	1140	S
WARD	Brooklyn .....N.Y.	1400	M
WASH	Grand Rapids .M	1270	M
WATR	Weterbury ..Conn	1190	H
WAVE	Louisville .....Ky	940	O
WAWZ	Zarephath ....N.J.	1350	M
WAZL	Hazleton .....Pa	1420	H
WBAA	West Lafayetta Ind	890	M
WBAL	Baltimore (760) .	1060	T
WBAP	Fort Worth ...Tex	800	W
WBAX	Wilkes-Barre ..Pa	1210	H
WBBC	Brooklyn ....N.Y.	1400	M
WBBL	Richmond ....Va	1210	H
WBBM	Chicago Ill	770	W
WBBR	Brooklyn ....N.Y.	1300	O
WBBZ	Ponca City ..Okla	1200	H
WBCM	Bay City ...Mich	1410	M
WBEN	Buffalo .....N.Y.	900	O
WBEO	Marquette ...Mich	1310	H
WBHS	Huntsville ...Ala	1200	H
WBIG	Greensboro ..N.C.	1440	M
WBNO	New Orleans ..Le	1200	H
WBNS	Columbus ...Ohio	1430	M
WBNX	New York ....N.Y.	1350	K
WBNY	Buffalo .....N.Y.	1370	H
WBOQ	New York ....N.Y.	860	W
WBOW	Terra Haute .Ind	1310	H
WBRB	Red Bank ....N.J.	1210	H
WBRC	Birmingham ..Ala	930	O
WBRE	Wilkes-Barre .Pa	1310	H
WBSO	Needham ....Mass	920	M
WBT	Charlotte ....N.C.	1080	W
WBTM	Danville .....Va	1370	H
WBZ	Springfield ...Mass	990	W
WBZA	Boston .....Mess	990	O
WCAC	Storrs .....Conn	600	M
WCAD	Canton .....N.Y.	1220	M
WCAE	Pittsburgh ...Pa	1220	O
WCAL	Northfield ..Minn	1250	O
WCAM	Camden .....N.J.	1280	M
WCAO	Baltimore .....Md	600	M
WCAP	Asbury Park..N.J.	1280	M
WCAT	Rapid City ..S.D.	1200	H
WCAU	Philadelphia ...Pa	1170	W
WCAX	Burlington ....Vt	1200	H
WCAZ	Carthage Ill	1070	H
WCBA	Allentown ....Pa	1440	M
WCBO	Waukegan Ill	1080	S
WCBM	Baltimora ....Md	1370	H
WCBS	Springfield Ill	1420	H
WCCO	Minneapolis .Minn	810	W
WCFL	Chicago Ill	970	S
WCHS	Charleston ...W.V.	580	M
WCKY	Covington .....Ky	1490	S
WCLO	Janasville ....Wis	1200	H
WCLS	Joliet Ill	1310	H
WCMI	Ashland .....Ky	1310	H
WCNW	Brooklyn ....N.Y.	1500	H
WCOA	Pensacola ....Fla	1340	M
WCOC	Meridian ....Miss	880	M
WCOL	Columbus ...Ohio	1210	H
WCOP	Boston .....Mess	1120	M
WCPO	Cincinnati ...Ohio	1200	H
WCRW	Chicago Ill	1210	H
WCSC	Charleston ...S.C.	1360	M
WCSH	Portland .....Me	940	O
WDAE	Tampa .....Fle	1220	O
WDAF	Kansas City ...Mo	610	O
WDAH	El Paso .....Tex	1310	H
WDAS	Philadelphia ...Pe	1370	H
WDAY	Fargo .....N.D.	940	O
WDBJ	Roanoke .....Va	930	O
WDBO	Orlando .....Fla	580	K
WDEL	Wilmington ...Del	1120	K
WDEV	Waterbury ....Vt	550	M
WDGY	Minneapolis .Minn	1180	O
WDNC	Durham .....N.C.	1500	H
WDOD	Chattanooga ..Tenn	1280	O
WDRC	Hartford ....Conn	1330	O
WDSU	New Orleans ..Le	1250	O
WDZ	Tuscola Ill	1070	H
WEAF	New York ....N.Y.	660	W
WEAN	Providence ...R.I.	780	M
WEBC	Superior .....Wis	1290	O
WEBQ	Harrisburg Ill	1210	H
WEBR	Buffalo .....N.Y.	1310	H
WEOC	Chicago Ill	1210	H
WEEO	Rocky Mt. ...N.C.	1420	H
WEEI	Boston .....Mass	590	O
WEEU	Reading .....Pe	830	O
WEHC	Charlotteville ..Va	1420	H
WEHS	Chicago Ill	1420	H
WELI	New Haven ..Conn	900	M
WELL	Battle Ck ...Mich	1420	H
WEMP	Milwaukee ...Wis	1310	H
WENR	Chicago Ill	870	W
WESG	Elmira .....N.Y.	1040	O
WEST	Lancester .....Pa	1200	H
WEVD	New York ....N.Y.	1300	O
WEW	St. Louis .....Mo	760	O
WEXL	Royal Oak ...Mich	1310	F
WFAA	Dallas .....Tex	800	W
WFAB	New York ....N.Y.	1300	O
WFAM	South Bend ...Ind	1200	H
WFAS	White Plains N.Y	1210	H
WFBC	Greenville ....S.C.	1300	O
WFBG	Altoona .....Pe	1310	H
WFBL	Syracuse ....N.Y.	1350	O
WFBM	Indianapolis ...Ind	1230	O
WFBR	Baltimore .....Md	1270	M
WFDF	Flint .....Mich	1310	H
WFEA	Manchester .N.H.	1340	M
WFIL	Philadelphie ....Pa	560	M
WFLA	Clearwater ....Fle	620	O
WFMD	Frederick ....Md	900	M
WGAL	Lancaster .....Pa	1500	H
WGAR	Cleveland .....O	1450	M
WGBB	Freeport ....N.Y.	1210	H
WGBF	Evansville ....Ind	630	M
WGBI	Scranton .....Pa	880	M
WGCM	Gulfport ....Miss	1210	H
WGES	Cbleago .....Ill.	1360	M
WGH	Newport News Va	1310	H
WGL	Ft. Wayne ...Ind	1370	H
WGN	Chicago Ill	720	W
WGNY	ChesterTwp ..N.Y.	1210	H
WGPC	Albany .....Ga	1420	H
WGR	Buffalo .....N.Y.	550	O
WGST	Atlanta .....Ga	890	M
WGY	Schenectady ....N.Y.	790	W
WHA	Madison .....Wis	940	R
WHAM	Rochester ..N.Y.	1150	W
WHAS	Louisvilla .....Ky	820	W
WHAT	Philadelphie ..Pa	1310	H
WHAZ	Troy .....N.Y.	1300	M
WHB	Kansas City ...Mo	860	O
WHBB	Selma .....Ala	1500	H
WHBC	Canton .....Ohio	1200	H
WHBF	Rock Island ...Ill	1210	H
WHBI	Newark .....N.J.	1250	O
WHBL	Sheboygan ...Wis	1410	M
WHBQ	Memphis ...Tann	1370	H
WHBU	Anderson .....Ind	1210	H
WHBY	Green Bay ...Wis	1200	H
WHDF	Calumet ....Mich	1370	H
WHOH	Boston .....Mass	830	O
WHDL	Olean .....N.Y.	1420	H
WHEC	Rochester ...N.Y.	1430	M
WHEB	Portsmouth ...N.H.	740	K
WHEF	Kosciusko ....Miss	1500	H
WHFC	Cicero Ill	1420	H
WHIO	Dayton .....O	1260	O
WHIS	Bluefield ...W.V.	1410	K
WHJB	Greensburg ....Pe	620	K
WHK	Cleveland ....Ohio	1390	D
WHN	New York ...N.Y.	1010	O
WHO	Dea Moines ...Ia	1000	W
WHOM	Jersey City .N.J.	1450	K
WHP	Harrisburg ....Pa	1430	M
WIBA	Madison .....Wis	1280	O
WIBG	Glenside .....Pa	970	O
WIBM	Jackson ....Mich	1370	H
WIBU	Poynette .....Wis	1210	H
WIBW	Topeka .....Kan	580	O
WIBX	Utica .....N.Y.	1200	H
WICC	Bridgeport ...Conn.	600	M
WIL	St. Louis .....Mo	1200	H
WILL	Urbana Ill	890	K
WILM	Wilmington ...Del	1420	H
WINO	Gary .....Ind	560	O
WINS	New York ....N.Y.	1180	O
WIOO	Miami .....Fla	1300	O
WIP	Philadelphia ...Pa	610	M
WIRE	Indianapolis .Ind.	1400	M
WIS	Columbia ....S.C.	1010	M
WISN	Milwaukee ....Wis	1120	K
WJAC	Johnstown ....Pa	1310	H
WJAG	Norfolk .....Neb	1060	O
WJAR	Providence ...R.I.	890	K
WJAS	Pittsburgh ....Pa	1290	O
WJAX	Jacksonville ...Fla	900	O
WJAY	Cleveland ....Ohio	610	M
WJBC	Bloomington ..Ill	1200	H
WJBK	Detroit ....Mich	1500	H
WJBL	Decatur Ill	1200	H
WJBO	Baton Rouge ...La	1420	H
WJBR	Gastonia ....N.C.	1420	H
WJBW	New Orleans ...La	1200	H
WJBY	Gadsden .....Ala	1210	H
WJDX	Jackson .....Miss	1270	O
WJEJ	Hagerstown ....Md	1210	H
WJIM	Lansing ....Mich	1210	H
WJJD	Chicago Ill	1130	U
WJMS	Ironwood ....Mich	1420	H
WJR	Detroit .....Mich	750	W
WJSV	Alexandria ....Va	1460	T
WJTL	Atlanta .....Ga	1370	H
WJW	Akron .....Ohio	1210	H
WJZ	New York ....N.Y.	760	W
WKAQ	San Juan ...P.R.	1240	O
WKAR	E. Lansing .Mich	1040	O
WKBB	E. Dubuque ...Ill	1500	H
WKBH	LaCrosse .....Wis	1380	O
WKBI	Chicago Ill	1420	H
WKBN	Youngstown ....O	570	M
WKBO	Herrisburg ....Pa	1200	H
WKBV	Richmond ....Ind	1500	H
WKBW	Buffalo .....N.Y.	1480	S
WKBZ	Muskegon ....Mich	1500	H
WKEU	Griffin .....Ga	1500	H
WKOK	Sunbury .....Pa	1210	H
WKRC	Cincinnati ....Ohio	550	M
WKY	Okla. City ....Okl	900	O
WKZO	Kalamazoo ....Mich	590	O
WLAC	Nashville ....Tenn	1470	S
WLAP	Lexington ....Ky	1420	H
WLB	Minneapolis ..Min	1250	O
WLBC	Muncie .....Ind	1310	W
WLBF	Kan. City ...Kan	1420	H
WLBL	Stevens Pt .....Wis	900	R
WLBZ	Bangor .....Me	620	M
WLEU	Erie .....Pe	1420	H
WLLH	Lowell .....Mass	1370	H
WLNH	Laconia ....N.H.	1310	H
WLS	Chicago Ill	870	W
WLTH	Brooklyn ....N.Y.	1400	M
WLVA	Lynchburg .....Va	1200	H
WLW	Cincinnati ...Ohio	700	X
WLWL	New York ....N.Y.	1100	S
WMAL	Washington ...D.C.	630	K
WMAQ	Chicago Ill	670	W
WMAS	Springfield .Mass	1420	H
WMAZ	Macon .....Ga	1180	O
WMBC	Detroit .....Mich	1420	H
WMBD	Peoria Ill	1440	M
WMBG	Richmond .....Va	1210	H
WMBH	Joplin .....Mo	1420	H
WMBI	Chicago Ill	1080	S
WMBO	Auburn .....N.Y.	1310	H
WMBQ	Brooklyn ....N.Y.	1500	H
WMBR	Jacksonville ..Fla	1370	H
WMC	Memphis .....Tenn	780	O
WMCA	New York ....N.Y.	570	M
WMEX	Chelsea .....Mass	1500	H
WMFD	Wilmington ...N.C.	1370	H
WMFF	Plattsburg ....N.Y.	1310	H
WMFG	Hibbing .....Minn	1210	H
WMFJ	Daytona Bch ..Fla	1420	H
WMFN	Clarksdala ...Miss	1210	H
WMFO	Decatur .....Ala	1370	H
WMFR	High Point ...N.C.	1200	H
WMMN	Fairmont ...W.Va	890	K
WMPC	Lapeer .....Mich	1200	H
WMT	Cedar Rapids ...Ia	600	M
WNAC	Boston .....Mass	1230	O
WNAD	Norman .....Okl	1010	O
WNAX	Yankton .....S.D.	570	O
WNBC	New Britain Conn	1380	K
WNBF	Binghamton .N.Y.	1500	H
WNBH	New Bedford Mess	1310	K
WNBR	Memphis ...Tenn	1430	M
WNBX	Springfield ....Vt	1260	O
WNBZ	Saranac Lake N.Y.	1290	F
WNEL	San Juan ...P.R.	1290	M
WNEW	Newark .....N.J.	1250	O
WNOX	Knoxville ...Tenn	1010	Q
WNRA	Muscle Sh'ls .Ala	1420	H
WNRI	Newport .....R.I.	1200	H
WNYC	New York ....N.Y.	810	O
WOAI	San Antonio .Tex	1190	W
WOC	Davenport .....Ia	1370	H
WOCL	Jamestown ....N.Y.	1210	F
WOI	Ames .....Ie	640	S
WOKO	Albany .....N.Y.	1430	M
WOL	Washington .D.C.	1310	H
WOMT	Manitowoc ...Wis	1210	H
WOOD	Gd Rpds ...Mich	1270	M
WOPI	Bristol .....Tenn	1500	H
WOR	Newark .....N.J.	710	W
WORC	Worcester ...Mass	1280	M
WORK	York .....Pe	1320	D
WOS	Jefferson City .Mo	630	M
WOSU	Columbus ....Ohio	570	N
WOV	New York ....N.Y.	1130	O
WOW	Omaha .....Neb	590	O
WOWO	Ft. Wayne ...Ind	1160	T
WPAD	Paducah .....Ky	1420	H
WPAR	Parkersburg W.Ve	1420	H
WPAX	Thomasville ...Ga	1210	H
WPAY	Portsmouth ..Ohio	1370	H
WPEN	Philadelphia ...Pe	920	K
WPFB	Hattlesburg .Miss	1370	H
WPG	Atlantic City .N.J.	1100	S
WPHR	Petersburg ....Ve	880	M
WPRO	Providence ...R.I.	630	K
WPRP	Ponce .....P.R.	1420	H
WPTF	Raleigh .....N.C.	680	S
WQAM	Miami .....Fle	560	O
WQAN	Scranton .....Pa	880	K
WQBC	Vicksburg ....Miss	1360	O
WQDM	St. Albans ....Vt	1370	H
WRAK	Williamsport ...Pe	1370	H
WRAW	Reading .....Pa	1340	H
WRAX	Philadelphie ...Pa	920	K
WRBL	Columbus .....Ge	1200	H
WRC	Washington ...D.C.	950	M
WRDO	Augusta .....Me	1370	H
WRDW	Augusta .....Ga	1500	H
WREC	Memphis ....Tenn	600	M
WREN	Lawrence ....Ken	1220	O
WRGA	Rome .....Ga	1500	H
WRJN	Racine .....Wis	1370	H
WROK	Rockford Ill	1410	M
WROL	Knoxville ...Tenn	1310	H
WRR	Dallas .....Tex	1280	M
WRUF	Gainesville ....Fla	830	S
WRVA	Richmond .....Va	1110	S
WSAI	Cincinnati ...Ohio	1330	O
WSAJ	Grove City ....Pa	1310	H
WSAN	Allentown .....Pa	1440	M
WSAR	Fall River ...Mass	1450	K
WSAY	Rochester ...N.Y.	1210	H
WSAZ	Huntington .W.Ve	1190	O
WSB	Atlanta .....Ga	740	W
WSBC	Chicago Ill	1210	H
WSBT	South Bend ...Ind	1360	M
WSFA	Montgomery ..Ala	1410	M
WSGN	Birmingham ...Ala	1310	H
WSIX	Springfield ..Tenn	1210	H
WSJS	Winston-Salem NC	1310	H
WSM	Nashville ....Tenn	650	W
WSMB	New Orleans ...La	1320	O
WSMK	Dayton .....Ohio	1380	J
WSOC	Charlotte ....N.C.	1210	H
WSPA	Spartanburg ...S.C.	920	O
WSPD	Toledo .....Ohio	1340	O
WSUI	Iowe City .....Ie	880	M
WSVA	Harrisonburg .Ve	550	M
WSVS	Buffalo .....N.Y.	1370	F
WSYB	Rutland .....Vt	1500	H
WSYR	Syracuse .....N.Y.	570	K
WSYU	Syracusa .....N.Y.	570	K
WTAO	Quincy Ill	900	M
WTAG	Worcester ...Mass	580	M
WTAL	Tallahassee ...Fla	1310	H
WTAM	Cleveland ...Ohio	1070	W
WTAQ	Eau Claire ...Wis	1330	O
WTAR	Norfolk .....Va	780	M
WTAW	College Sta ...Tex	1120	M
WTAX	Springfield Ill	1210	H
WTBO	Cumberland ...Md	800	K
WTCN	Minneapolis ..Min	1250	O
WTEL	Philadelphia ...Pa	1310	H
WTFI	Athens .....Ga	1450	M
WTIC	Hartford ...Conn	1060	W
WTJS	Jackson .....Tenn	1310	H
WTMJ	Milwaukee ....Wis	620	O
WTMV	E. St. Louis..Mo	1500	H
WTNJ	Trenton .....N.J.	1280	M
WTOC	Savannab .....Ga	1260	O
WTRC	Elkhart .....Ind	1310	F
WVFW	Brooklyn ....N.Y.	1400	M
WWAE	Hammond ....Ind	1200	H
WWJ	Detroit .....Mich	920	O
WWL	New Orleans ...Le	850	T
WWNC	Asheville ....N.C.	570	O
WWRL	Woodside ....N.Y.	1500	H
WWSW	Pittsburgh ....Pa	1500	H
WWVA	Wheeling ...W.Va	1160	S
WXYZ	Detroit .....Mich	1240	O

High Fidelity (20 kc.)

W1XBS	Weterbury ..Conn	1530	O
W2XR	New York ...N.Y.	1550	O
W6XAI	Bakersfield ...Cal	1550	O
W9XBY	Kansas City ...Mo	1530	O

POWER CODE	50 F	75 G	100 H	150 I	200 J	250 K	300 L	500 M	750 N	1000 D	1500 P	2000 Q	2500 R	5000 S	10000 T	15000 U	25000 V	50000 W	500.000 X

(*From page 21*)

WATTERSON RADIO MFG. CO., 507 S. Akard St., Dallas, Tex., "Watterson"

WELLS-GARDNER & CO., 2701 N. Kildare Ave., Chicago, Ill., "Arcadia," "Wells-Gardner"—A, F, H

WESTERN ELECTRIC CO., 195 Broadway, New York City, "Western Electric"—COM

WESTINGHOUSE ELECTRIC SUPPLY CO., 150 Varick St., New York City, "Westinghouse"—A, F, H

WILCO RADIO CO., 1472 Broadway, New York City, "Wilco"—A, AM, COM, H, RP

WILCOX-GAY CORP., Charlotte, Mich., "Wilcox-Gay"—A, F, H

WORLD RADIO, 1072 Atlantic Ave., Brooklyn, N. Y., "World Radio"—A, H

YORKER—Espey Mfg. Co.

ZENITH RADIO CORP., 3620 Iron St., Chicago, Ill., "Zenith Long Distance Radio"—A, F, H, RP

ANTENNAS & ACCESSORIES

Auto antennas—AA
Home antennas—HA
Accessories—ACC

AIR QUEEN—Knox Porcelain Corp.

BELDEN MFG. CO., 4647 W. Van Buren St., Chicago, Ill., "Belden"—ACC, HA

BIRNBACK RADIO CO., 145 Hudson St., New York City, "Birnback"—ACC, HA

L. S. BRACH & CO., 80 Duryea St., Newark N. J., "Brach"—ACC

BROWNIE—Porcelain Products, Inc.

BUD RADIO, INC., 1937 E. 55th St., Cleveland, Ohio, "Bud"—ACC

BURCH PRESTEEL PRODUCTS, Chattanooga, Tenn.—ACC

CONSOLIDATED WIRE & ASSOCIATED CORPS., Peoria St., Chicago, Ill., "Consolidated," "Sta-Put"—AA, ACC, HA

CONTINENTAL WIRE CO., 110 Lafayette St., New York City, "Continental"—ACC, HA

CORNISH WIRE CO., INC., 30 Church St., New York City, "Corwico Noise Master"—ACC, HA

CORWICO NOISE MASTER—Cornish Wire Co., Inc.

TOBE DEUTSCHMANN CORP., Canton, Mass., "Tobe"—HA

DU-WA—Palmer Electric Mfg. Co.

EFFARSEE—Fishwick Radio Co.

FISHWICK RADIO CO., 407 E. 8th St., Cincinnati, Ohio, "Effarsee"—AA, HA

F & H RADIO LABORATORIES, Fargo, N. Dak., "F & H"—HA

M. M. FLERON & SONS, 113 N. Broad St., Trenton, N. J., "Fleron"—AA, ACC, HA

GENERAL CABLE CORP., 420 Lexington Ave., New York City—ACC

ICA—Insuline Corp. of America

INSULINE CORP. OF AMERICA, 25 Park Pl., New York City, "ICA"—AA, ACC, HA

E. F. JOHNSON CO., Waseca, Minn. —ACC

KNOX PORCELAIN CORP., Knoxville, Tenn., "Air Queen"—ACC, HA

ARTHUR H. LYNCH, INC., 227 Fulton St., New York City, "Lynch"—ACC, HA

McMURDO SILVER CORP., 3354 N. Paulina St., Chicago, Ill., "Silver" —HA

PALMER ELECTRIC & MFG. CO., 23 S. St. Clair St., Toledo, Ohio, "Du-Wa" —HA

PHILMORE MFG. CO., 113 University Pl., New York City, "Philmore"—ACC, HA

PORCELAIN PRODUCTS, INC., 124 W. Front St., Findlay, Ohio, "Brownie" —ACC, HA

PREMAX SALES DIV., Chisholm-Ryder Co., Niagara Falls, N. Y., "Premax"—ACC

STA-PUT—Consolidated Wire & Asso Corps.

TACO—Technical Appliance Corp.

TECHNICAL APPLIANCE CORP., 17 E. 16th St., New York City, "Taco"—HA

TOBE—Tobe Deutschmann Corp.

QUAM-NICHOLS CO., 1615 W. 74th St., Chicago, Ill., "Quam"—HA

ULTRAMAR MFG. CORP., 1160 Chatham Ct., Chicago, Ill., "Ultramar"—HA

WARD PRODUCTS CORP., 2135 Superior Ave., Cleveland, Ohio, "Ward"—ACC, HA

BATTERIES, "B" & "C"

BOND ELECTRIC CO., Jersey City, N. J., "Bond"

BRIGHT STAR BATTERY CO., Clifton, N. J., "Bright Star"

BURGESS BATTERY CO., Freeport, Ill., "Burgess"

EVEREADY—National Carbon Co.

GENERAL DRY BATTERY CO., Cleveland, Ohio

MARATHON BATTERY CO., Wausau, Wis., "Marathon"

NATIONAL CARBON CO., 30 E. 42nd St., New York City, "Eveready," also air cell

RAY-O-VAC CO., Madison, Wis., "Ray-o-vac"

WINCHESTER REPEATING ARMS CO., Bridgeport, Conn.

WHO'S WHO AND WHERE TO BUY

COILS

Intermediate—IF
Radio frequency—RF

ALADDIN RADIO INDUSTRIES, 466 W. Superior St., Chicago, Ill., "Aladdin"—IF,RF

ALDEN PRODUCTS CO., 715 Center St., Brockton, Mass., "Na-Ald"—RF

AUTOMATIC WINDING CO., 96 Devon St., Newark, N. J.—IF, RF

BOND RADIO CO., 11702 Livernois St., Detroit, Mich., "Bonrad"—IF, RF

BONRAD—Bond Radio Co.

BUD RADIO, INC., 1937 E. 55 St., Cleveland, Ohio, "Bud"—IF, RF

CARRON MFG. CO., 415 S. Aberdeen St., Chicago, Ill., "Carron"—IF,RF

FEDERAL ENGINEERING CORP., 286 Mercer St., New York City—IF

FERROCART CORP. OF AMERICA, 30 Rockefeller Center, New York City, "Ferrocart"—IF

FREED TRANSFORMER CO., 100 6th Ave., New York City, "Freed"—IF

EDWIN I. GUTHMAN & CO., INC., 1-36 W. Van Buren St., Chicago, Ill., "Guthman"—IF,RF

HAMMARLUND MFG. CO., 424 W. 33rd St., New York City, "Hammarlund"—IF, RF

INSULINE CORP. OF AMERICA, 25 Park Place, New York City, "ICA"—RF

MEISSNER MFG. CO., 2815 W. 19th St., Chicago, Ill., "Meisnrcoil"—IF, RF

MEISNRCOIL—Meisner Mfg. Co.

J. W. MILLER CO., 5917 S. Main St., Los Angeles, Calif., "Miller"—IF, RF

NATIONAL CO., 61 Sherman St., Malden, Mass., "National"—IF, RF

NA-ALD—Alden Products Co.

J. & L. SARA CO., 123 Liberty St., New York City, "Sara"—IF, RF

THE F. W. SICKLES CO., 300 Main St., Springfield, Mass., "Sickles"—IF, RF

TELRADIO ENGINEERING CORP., 484 Broome St., New York City.

ULTRAMAR MFG. CORP., 1160 Chatham Court, Chicago, Ill., "Ultramar"

WESTERN RADIO PRODUCTS CO., 3044 W. Main St., Alhambra, Calif., "Air-Wound"—RF

CONDENSERS, FIXED

Electrolytic—E
Mica—M
Paper—P

ACRACON—Condenser Corp. of America

AEROVOX CORP., 70 Washington St., Brooklyn, N. Y., "Aerovox," "Hi-Farad"—E, M, P—See adv. p. 40

ARISTON LABORATORY, Ariston Mfg. Corp., 4045 Diversey Ave., Chicago, Ill.—E, P

BOND ELECTRIC CORP., 257 Cornelison Ave., Jersey City, N. J., "Bond"—E, P

BOND RADIO CO., 11702 Livernois Ave., Detroit, Mich., "Bonrad"—E, P

BONRAD—Bond Radio Co.

C-D—Cornell-Dubilier Corp.

CONCOURSE COND. CO., 387 Wales Ave., New York City, "Concourse"—E, P

CONDENSER CORP. OF AMERICA, 259 Cornelison Ave., Jersey City, N. J., "Acracon"—E, P

CONSOLIDATED RADIO PRODUCTS CO., 363 W. Superior St., Chicago, Ill.—P

CONTINENTAL CARBON, INC., 13900 Lorain Ave., Cleveland, Ohio, "Continental"—E, P

CORNELL-DUBILIER CORP., 4377 Bronx Blvd., New York City, "C-D," "Cornell-Dubilier"—E, M, P—See adv. p. 39

COSMIC RADIO CORP., 699 E. 135th St., New York City, "Cosmic"—E, P

CURTIS CONDENSER CORP., 3088 W. 106th St., Cleveland, Ohio, "Curtis Blue Ribbon"—F—See adv. p. 41

TOBE DEUTSCHMANN CORP., Canton, Mass., "Tobe"—E, P

DUCO—Dumont Electric Co., Inc.

DUMONT ELECTRIC CO., INC., 514 Broadway, New York City, "Duco"—E, M, P

DURAVOLT—Solar Mfg. Corp.

ECONOMY—Polymet Mfg. Corp.

ELECTRO MOTIVE MFG. CO., INC., 707 E. 140th St., New York City, "El Menco"—M

ELECTRONIC LABORATORIES, INC., 122 E. New York Ave., Indianapolis, Ind.—P

EL MENCO—Electro Motive Mfg. Co.

FEDERAL ENGINEERING CORP., 286 Mercer St., New York City—P

A. M. FLECHTHEIM & CO., INC., 136 Liberty St., New York City, "Flechtheim"—P

FREED TRANSFORMER CO., 100 6th Ave., New York City, "Freed"—P

GENERAL RADIO CO., 30 State St., Cambridge, Mass., "G-R"—A—Special purpose

G-H—Girard-Hopkins

GIRARD CONTINENTAL CONDENSER CORP., 2341 Wolfram St., Chicago, Ill., "Super Seal"—P

G-R—General Radio Co.

HI-FARAD—Aerovox Corp.

GIRARD HOPKINS, 1437 23rd Ave., Oakland, Calif., "G-H"—E, P

ICA—Insuline Corp. of America

INSULINE CORP. OF AMERICA, 25 Park Place, New York City, "ICA"—P

ILLINI—Sangamo Electric Co.

LEICHNER ELECTRIC CO., 2026 Fairfield Ave., Fort Wayne, Ind., "Leichner Capacitors"—M-Glass

LITTLE GIANT—Solar Mfg. Co.

MAGNAVOX CO., 21231 Bueter Road, Fort Wayne, Ind., "Magnavox"—E

P. R. MALLORY & CO., INC., 3029 E. Washington St., Indianapolis, Ind., "Mallory"—E

MICAMOLD RADIO CORP., 1087 Flushing Ave., Brooklyn, N. Y., "Micamold"—E, M, P

PHILMORE MFG. CO., 113 University Place, New York City, "Philmore"—E, M, P

POLYMET MFG. CORP., 829 E. 134th St., New York City, "Economy," "Polymet"—E, M, P

SANGAMO ELECTRIC CO., Springfield, Ill., "Illini," "Sangamo"—M

SEALDTITE—Solar Mfg. Corp.

SEVISON MAGNETO ENGINEERING CO., 379-401 Phillips Ave., Toledo, Ohio—P

SOLAR MFG. CORP., 599-601 Broadway, New York City, "Duravolt," "Little Giant," "Sealdtite," "Star Midget"—E, M, P—See adv. p. 38

SPRACO—Sprague Products Co.

SPRAGUE PRODUCTS CO., North Adams, Mass., "Spraco," "Sprague '600' Line"—E, P

STAR MIDGET—Solar Mfg. Co.

SUPER SEAL—Girard Continental Condenser Corp.

TOBE—Tobe Deutschmann Corp.

CONDENSERS, VARIABLE

Tuning—TU
Trimming or equalizing—EQ

ALADDIN RADIO INDUSTRIES, 466 W. Superior St., Chicago, Ill., "Aladdin"—EQ

AMERICAN STEEL PACKAGE CO., Squire Ave., Defiance, Ohio, "Defiance"—TU

BOND RADIO CO., 11702 Livernois Ave., Detroit, Mich., "Bonrad"—TU

BONRAD—Bond Radio Co.

BUD RADIO, INC., 1937 E. 55 St., Cleveland, Ohio, "Bud"—TU

DE ADCO PRODUCTS, 9 W. Illinois St., Chicago, Ill.

DEFIANCE—American Steel Package Co.

ALLEN D. CARDWELL MFG. CO., 81 Prospect St., Brooklyn, N. Y., "Cardwell"—TU

DE JUR-AMSCO CORP., 90 Morton St., New York City, "De Jur-Amsco"—EQ, TU

GENERAL INSTRUMENT CORP., 829 Newark Ave., Elizabeth, N. J., "G-I"—TU

GENERAL RADIO CO., 30 State St., Cambridge, Mass., "G-R"—Special purpose

G-I—General Instrument Corp.

G-R—General Radio Co.

HAMMARLUND MFG. CO., 424 W. 33 St., New York City, "Hammarlund"—EQ, TU

ICA—Insuline Corp. of America

INSULINE CORP. OF AMERICA, 25 Park Place, New York City, "ICA"—TU

E. F. JOHNSON CO., Waseca, Minn., TU

MEISSNER MFG. CO., 2815 W. 19 St., Chicago, Ill., "Meissner"—EQ

MICAMOLD RADIO CORP., 1087 Flushing Ave., Brooklyn, N. Y., "Micamold"—EQ

J. W. MILLER CO., 5917 S. Main St., Los Angeles, Calif., "Miller"—EQ

NATIONAL CO., 61 Sherman St., Malden, Mass., "National"—EQ, TU

PHILMORE MFG. CO., 113 University Place, New York City, "Philmore"—EQ, TU

RADIO CONDENSER CO., Davis St., Camden, N. J., "Radio Condenser Co."—TU

RADIO ENGINEERING LABORATORIES, 100 William Ave., Long Island City, N. Y., "Rel"—TU

REL—Radio Engineering Laboratories

RELIANCE DIE AND STAMPING CO., 1260 Claybourn Ave., Chicago, Ill., "Reliance"—TU

F. W. SICKLES CO., 300 Main St., Springfield, Mass., "Sickles"—EQ

TELRADIO ENGINEERING CORP., 484 Broome St., New York City—EQ

GENERATORS & CONVERTERS

Genemotors—G
Converters—CON
Windchargers—W

AIR FLO—Pioneer Gen-E-Motor Corp.

AMERICAN TELEVISION & RADIO CORP., 128 E. 10th St., St. Paul, Minn., "ATR"—CON

ATR—American Television & Radio Corp.

AUTONATOR LABORATORIES, INC., 8440 S. Chicago Ave., Chicago, Ill., "Autonator"—AC gen for autos

CARTER MOTOR CO., 365 W. Superior St., Chicago, Ill., "Carter Genemotor"—G

GEN-E-ROTOR—Wind Gen-e-Rotor

KATO ENGINEERING CO., Mankato, Minn., "Kato"—CON, W

PIONEER GEN-E-MOTOR CORP., 466 W. Superior St., Chicago, Ill., "Pioneer," "Air Flo"—CON, G, W—See adv. p. 31

WINCHARGER CORP., 2700 Hawkeye Drive, Sioux City, Iowa, "Wincharger"—W

WIND GEN-E-ROTOR, Des Moines, Iowa, "Gen-e-rotor"—W

LINE FILTERS

AUTOMATIC ELECTRICAL DEVICES CO., 324 E. 3rd St., Cincinnati, Ohio, "Filterad"

C-D—Cornell-Dubilier Corp.

CONSOLIDATED WIRE & ASSOCIATED CORPS., Peoria & Harrison Sts., Chicago, Ill., "Consolidated"

CONTINENTAL CARBON, INC., 13900 Lorain Ave., Cleveland, Ohio, "Continental"

WHO'S WHO AND WHERE TO BUY

CORNELL-DUBILIER CORP., 4377 Bronx Blvd., New York City, "C-D," "Cornell- Dubilier"

TOBE DEUTSCHMANN CORP., Canton, Mass., "Tobe"

DUCO—Dumont Electric Co., Inc.

DUMONT ELECTRIC CO., INC., 514 Broadway, New York City, "Duco"

ELIM-O-STAT—Solar Mfg. Co.

FEDERAL ENGINEERING CORP., 286 Mercer St., New York City

FILTERAD—Automatic Electrical Devices Co.

ICA—Insuline Corp. of America

INSULINE CORP. OF AMERICA., 25 Park Place, New York City, "ICA"

ARTHUR H. LYNCH, INC., 227 Fulton St., New York City, "Lynch"

J. W. MILLER CO., 5917 S. Main St., Los Angeles, Calif., "Miller"

MUTER CO., 1255 S. Michigan Ave., Chicago, Ill., "Muter"

PHILMORE MFG. CO., 113 University Place, New York City, "Philmore"

SOLAR MFG. CO., 599 Broadway, New York City, "Elim-O-Stat"

SPRACO—Sprague Products Co.

SPRAGUE PRODUCTS CO., North Adams, Mass., "Spraco"

TACO—Technical Appliance Corp.

TECHNICAL APPLIANCE CORP., 17 E. 16th St., New York City, "Taco"

TOBE—Tobe Deutschmann Corp.

MICROPHONES

Dynamic—D
Carbon—CAR
Condenser—CON
Crystal—CRY
Velocity—V

AMERICAN MICROPHONE CO., INC., 1915 S. Western Ave., Los Angeles, Calif., "American"—CAR, CON, CRY

AMPERITE CORP., 361 Broadway, New York City, "Amperite"—V

AMPLION PROD. CORP., 38 W. 21st St., New York City, "Amplion"

ASTATIC MICROPHONE LABORATORY, Box 1312, Yougstown, Ohio, "Astatic"—CRY

AUDIO RESEARCH, INC., 105 E. 16th St., New York City, "Audio Research"—D

BELL SOUND SYSTEM, 61 E. Goodale St., Columbus, Ohio, "Bell Sound Systems"

BRUNO LABORATORIES, 20 W. 22nd St., New York City, "Bruno Laboratories"—V

BRUSH DEVELOPMENT CO., 1893 E. 40th St., Cleveland, Ohio, "Brush Sound Cell Microphones"—CRY

COLLINS RADIO CO., Cedar Rapids, Iowa, "Collins Radio"

ELECTRICAL LABORATORIES, INC., 59 E. 21st St., New York City, "Walco"

ELECTRO-VOICE MFG. CO., 324 E. Colfax Ave., South Bend, Ind—CAR, V

GATES RADIO & SUPPLY CO., 115 North St., Quincy, Ill., "Gates"

LIFE TIME CORP.,1010 Madison Ave., Toledo, Ohio, "Life Time"—CAR, CON, CRY, V—See adv. p. 35

MILES REPRODUCER CO., INC., 112 W. 14th St., New York City, "Miles"—CAR

RADIO AMPLIFIERS LABORATORIES, 291 E. 137th St., New York City

RADIO RECEPTOR CO., INC., 110 7th Ave., New York City, "Radio Receptor Co."—D

RCA MFG. CO., Front and Cooper St., Camden, N. J.—CAR, V

SHURE BROS. CO., 215 W. Huron St., Chicago, Ill., "Spheroid," "Wave Equallized"—CAR, CON, CRY

SPHEROID—Shure Bros. Co.

TOLEDO SOUND EQUIPMENT LABORATORIES, 1147 Jackson St., Toledo, Ohio, "Toledo"

THE TURNER CO., Cedar Rapids, Iowa, "Turner"—CRY

UNIVERSAL MICROPHONES CO., 424 Warren Lane, Inglewood, Calif., "Universial"—CAR, CON, CRY, V

WALCO—Electrical Laboratories, Inc.

WAVE-EQUALLIZED—Shure Bros. Co.

WESTERN ELECTRIC CO., 195 Broadway, New York City, "Western Electric"—D, CAR, CON, V

PUBLIC ADDRESS & AMPLIFIERS

Amplifiers—AMP
Preamplifiers—PRE
Public address systems--PA

ALLIED RADIO CORP., 832 W. Jackson Blvd., Chicago, Ill., "Knight"—PA—See adv. p. 38

AMERICAN MICROPHONE CO., INC., 1915 S. Western Ave., Los Angeles, Calif., "American"—PRE

AMERICAN SALES CO., 44 W. 18th St., New York City—PA

AMERICAN TRANSFORMER CO., 174 Emmet St., Newark, N. J., "Amertran"—AMP

AMERTRAN — American Transformer Co.

A.M.I. DISTRIBUTING CO., 450 E. Ohio St., Chicago, Ill.—PA

AMPERITE CORP., 361 Broadway, New York City, "Amperite"—PRE

AMPLION PROD. CO., 38 W. 21st St., New York City, "Amplion"—AMP

ANSLEY RADIO CORP., 240 W. 23rd St., New York City, "Ansley Dynaphone"—AMP

AUDIO DEVELOPMENT CO., 4941 Ewing Ave., S., Minneapolis, Minn.—PA

BELL SOUND SYSTEMS, INC., 61 E. Goodale St., Columbus, Ohio, "Bell Sound Systems"—PA

DAVID BOGEN CO., 626 Broadway, New York City—PA

W. C. BRAUN CO., 601 W. Austin Chicago, Ill., "Radolek"—AMP—See adv. p. 40

BRUNO LABORATORIES, 20 W. 22nd St., New York City, "Bruno Laboratories"—PRE

CHICAGO MUSICAL INSTRUMENT Co., 309 S. Wabash Ave., Chicago, Ill.—PA

COAST-TO-COAST RADIO CORP., 599 Sixth Ave., New York City—PA

COLUMBIA SOUND CO., 135 Liberty St., New York City—PA

THE DAVEN CO., 158 Summit St., Newark, N. J., "Daven"—AMP

HERMAN A. DE VRY, INC., 1111 Center St., Chicago, Ill.—PA

ELECTRUX SOUND SYSTEMS, 616 Fifth St. N., Minneapolis, Minn., "Electrux"—PA

FEDERAL ENGINEERING CORP., 286 Mercer St., New York City—AMP

FISCHER-SMITH, 162 State St., W. Englewood, N. J., "Fischer-Smith" AMP

FOX SOUND EQUIPMENT CO., 3120 Munroe St., Toledo, Ohio, "Ohio"—AMP

FREEMAN RADIO ENGINEERING SERVICE, 248 E. 57th St., New York City—PA

GATES RADIO & SUPPLY CO., 115 North St., Quincy, Ill., "Gates"—AMP, PA, PRE

GAYLORD MFG. CO., 1227 Washington Blvd., Chicago, Ill., "Gaylord"—PA

GENERAL RADIO CO., 30 State St., Cambridge A, Mass., "G-R"—Special

GENERAL SOUND SYSTEM CO., 35 34th St., Long Island City, N. Y.

GENERAL TELEVISION & RADIO CORP., 267 W. 17th St., New York City—PA

G-R—General Radio Co.

JACK HOLLOWAY, 72 Spring St., New York City, "Jack Holloway"—PA

KNIGHT—Allied Radio Corp.

LAFAYETTE RADIO MFG. CO., INC., 100 6th Ave., New York City, "Lafayette"—PA

LA SALLE PRODUCTS CO., 140 Washington St., New York City, "LaSalle"—PA

LAUREHK RADIO MFG. CO., Adrian, Mich., "Laurehk"—PA

LEOTONE RADIO CO., 63 Dey St., New York City, "Leotone"—PA

LIFE TIME CORP., 1010 Madison Ave., Toledo, Ohio, "Life Time"—PRE, PA —See adv. p. 35

LINCOLN INTERNATIONAL INSTRUMENT CORP., 47 Fifth St., Long Island City, N. Y.—AMP

MACY ENGINEERING CO., 1451 39th St., Brooklyn, N. Y., "Macy"—AMP

MERCEDES PRODUCTION CO., 2235 Irving Park Blvd., Chicago, Ill.—PA

MILES REPRODUCER CO., INC., 112 W. 14th St., New York City, "Miles"—AMP, PA

OPERADIO MFG. CO., 13th & Ind. Sts., St. Charles, Ill., "Operadio"—PA

PACENT ENGINEERING CORP., 79 Madison Ave., New York City, "Pacent"—PA

PHILCO RADIO & TELEVISION CORP., Tioga & C Sts., Philadelphia, Pa., "Philco"—PA

PICTUR-FONE CORP., 212 W. North St., Lima, Ohio, "Pictur-Fone"—PA

PUBLIC-AD, INC., 2015 East 65th St., Cleveland, Ohio, "Public-Ad"—AMP, PA

RACON ELECTRIC CO., INC., 52 E. 19th St., New York City, "Racon"—PA

RADIO AMPLIFIERS LABORATORIES, 291 E. 137th St., New York City—AMP

RADIO RECEPTOR CO., INC., 110 7th Ave., New York City, "Radio Receptor Co."—AM, PA

RADIOTONE RECORDING CO., 6103 Melrose Ave., Hollywood, Calif., "Radiotone"—AMP

RADIO & SOUND APPLICATIONS CO., 2024 S. Wabash Ave., Chicago, Ill.

RADOLEK—W. C. Braun Co.

RCA MFG. CO., Camden, N. J.—AMP, PA, PRE

REMLER CO., LTD., 2101 Bryant St., San Francisco, Calif., "Remler"—PA

SARA—J & L Sara Co.

J & L SARA CO., 123 Liberty St., New York City, "Sara"

SEGELSOUND, INC., 235 Pine St., Gardiner, Mass., "Segelsound"—PA

McMURDO SILVER CORP., 3354 N. Paulina St., Chicago, Ill., "Silver"—PA

SIMPLEX RADIO CO., Sandusky, Ohio, "Simplex"—PA

SOUND SYSTEMS, INC., 1311 Terminal Tower, Cleveland, Ohio—PA

STROMBERG-CARLSON, 100 Carlson Road, Rochester, N. Y., "Stromberg-Carlson"—PA

STUYVESANT ELECTRIC CO., 140 Washington St., New York City—PA

TOLEDO SOUND EQUIPMENT LABORATORIES, 1147 Jackson St., Toledo, Ohio, "Toledo"—AMP, PA

TROY RADIO MFG. CO., 1142 S. Olive St., Los Angeles, Calif., "Troy"—PA

THE TURNER CO., Cedar Rapids, Iowa, "Turner"—PA

WARD PRODUCTS CORP., 2135 Superior Ave., Cleveland, Ohio, "Ward"

WEBSTER CO., 3825 W. Lake St., Chicago, Ill., "Webster Chicago"—AMP, PA

WEBSTER ELECTRIC CO., Racine, Wis., "Webster Electric"—AMP

WESTERN ELECTRIC CO., 195 Broadway, New York City, "Western Electric"—AMP, PA, PRE

WILCO RADIO CO., 1472 Broadway, New York City, "Wilco"—PA

RECORDS

BLUEBIRD—RCA Mfg. Co.

BRUNSWICK RECORD CORP., 1776 Broadway, New York City, "Brunswick," "Melotone," "Vocallon"

COLUMBIA PHONOGRAPH CO., 1776 Broadway, New York City, "Columbia"

DECCA DISTRIBUTING CO., 799 Seventh Ave., New York City, "Decca"

MELOTONE—Brunswick Record Corp.

RED SEAL—RCA Mfg. Co.

RCA MFG. CO., Camden, N. J., "Blue-Bird," "Victor"

VICTOR—RCA Mfg. Co.

VOCALION—Brunswick Record Corp.

RECORD PLAYING & RECORDING EQUIPMENT

Automatic record changers—ARC
Pick-ups—PU
Players and reproducers—PLA
Recorders—REC
Turntables—TT

A.M.I. DISTRIBUTING CO., 450 E. Ohio St., Chicago, Ill., "A.M.I."—ARC, PLA

AMPLION PRODUCTS CORP., 38 W. 21st St., New York City, "Amplion"—REC

ANSLEY DYNAPHONE—Ansley Radio Corp.

ANSLEY RADIO CORP., 240 W. 23rd St., New York City, "Ansley Dynaphone"—PLA

ASTATIC MICROPHONE LABORATORY, Box 1312, Youngstown, Ohio, "Astatic"—PU

AUDAK CO., 500 Fifth Ave., New York City, "Audax"—PU

AUDAX—Audak Co.

BELL SOUND SYSTEM, 61 E. Goodale St., Columbus, Ohio, "Bell Sound Systems," PLA

COLUMBIA PHONOGRAPH CO., INC., 1776 Broadway, New York City, "Columbia"—PLA

ELECTRICAL LABORATORIES, INC., 49 E. 21st St., New York City, "Walco"—REC, PU

ELECTRICAL RESEARCH PRODUCTS, INC., 250 W. 57th St., New York City—REC

FILMAVOX—Public-Ad, Inc.

GENERAL INDUSTRIES, 3537 Taylor St., Elyria, Ohio—ARC, TT

GRAMAPHONE INSTRUMENTS, INC., 18 E. 48th St., New York City, "Gramaphone"—PLA

JACK HOLLOWAY, 72 Spring St., New York City, "Jack Holloway"—REC

MILES REPRODUCER CO., INC., 112 W. 14th St., New York City, "Miles"—PLA, REC

PACENT ENGINEERING CORP., 79 Madison Ave., New York City, "Pacent"—PU

PHILMORE MFG. CO., 113 University Place, New York City, "Philmore"—PU

PRESTO RECORDING CORP., 139 W. 19th St., New York City, "Presto"—REC

B. A. PROCTOR CO., INC., 17 W. 60th St., New York City, "Proctor"—PU, REC

PUBLIC-AD, INC., 2015 E. 65th St., Cleveland, Ohio. "Filmavox," "Public-Ad"—REC

RADIOTONE RECORDING CO., 6109 Melrose St., Los Angeles, Calif., "Radiotone"—REC, PLA

RANGERTONE, INC., 201 Verona Ave., Newark, N. J., "Rangertone"—PLA, REC—See adv. p. 44

RCA MFG. CO., Camden, N. J., "RCA Victor"—PLA, PU, REC

RCA VICTOR—RCA Mfg. Co.

UNIVERSAL MICROPHONE CO., 424 Warren Lane, Inglewood, Calif., "Universal"—REC

WALCO—Electrical Laboratories, Inc.

WEBSTER COMPANY, 3825 W. Lake St., Chicago, Ill., "Webster Chicago"—PL, PU, TT

WEBSTER ELECTRIC CO., Racine, Wis., "Webster Electric"—PU

RUDOLPH WURLITZER MFG. CO., North Tonawanda, N. Y.—ARC

WHO'S WHO AND WHERE TO BUY

RESISTORS

Composition—C
Precision—PREC
Specialties—SP
Variable—VAR
Volume controls—VC
Wire—W

AEROVOX CORP., 70 Washington St., Brooklyn, N. Y., "Aerovox," "Pyrohms," "Slideohm"—C, W—See adv. p. 40

ALLEN-BRADLEY CO., 1326 S. Second St., Milwaukee, Wis., "Bradley"—VAR, VC

ATLAS RESISTOR CO., 423 Broome St., New York City, "Atlas"—W

BLUEJACKET—Lynch Mfg. Co.

BOND RADIO CO., 11702 Livernois Ave., Detroit, Mich., "Bonrad"—C, VC, W

BONRAD—The Bond Radio Co.

BRADLEY—The Allen-Bradley Co.

BROWN DEVIL—Ohmite Mfg. Co.

CANDOHMS—Muter Co.

CARTER—Utah Radio Products Co.

CENTRALAB, 900 E. Keefe Ave., Milwaukee, Wis., "Centralab"—C, VC—See adv. p. 33

CHICAGO TELEPHONE SUPPLY CO., 1142-1228 W. Beardsley Ave., Elkhart, Ind., "CTS Co.," "Frost Radio"—SP, VAR, VC

CLAROSTAT MFG. CO., 285 N. Sixth Ave., Brooklyn, N. Y.—PREC, SP, VC, VAR, W—See adv. p. 29

CONTINENTAL CARBON, INC., 13900 Lorain Ave., Cleveland, Ohio, "Continental"—C

CROHM—Lynch Mfg .Co.

CTS—Chicago Telephone Supply Co.

THE DAVEN CO., 158-60 Summit St., Newark, N. J., "Daven"—SP, VAR

DE JUR-AMSCO CORP., 95 Morton St., New York City, "De Jur-Amsco"—VAR

DYNOHMIC—Lynch Mfg. Co.

ELECTRAD, INC., 175 Varick St., New York City, "Electrad," "Truvolt"—PREC, VC, W

ELECTRO MOTIVE MFG. CO., INC., 707 E. 140th St., New York City, "El Menco"—C, W

EL MENCO—Electro Motive Mfg. Co., Inc.

ERIE RESISTOR CORP., 644 W. 12th St., Erie, Pa., "Erie"—C

FROST RADIO—Chicago Telephone Supply Co.

GENERAL RADIO CO., 30 State St., Cambridge, Mass., "GR"—SP, VAR

G-H—Girard-Hopkins

GIRARD HOPKINS, 1437 23rd Ave., Oakland, Calif., "G-H"—C

GLOBAR CORP., Niagara Falls, N. Y., "Globar"—C—Mfrs. only

GOLD STANDARD—Lynch Mfg. Co.

HARDWICK & HINDLE, INC., 40 Herman St., Newark, N. J., "H & H"—VAR, W

H & H—Hardwick & Hindle, Inc.

INTERNATIONAL RESISTANCE CO., 401 N. Broad St., Philadelphia, Pa., "IRC," "Metallized," "IRC Power"—C, PREC, VC, W—See adv. p. 37

LYNCH MFG. CO., 23 North Ave., Cranford, N. J., "Bluejacket," "Crohm," "Dyohmic," "Lynch," "Gold Standard"—C, PREC, W

METALLIZED—International Resistance Co.

MICAMOLD RADIO CORP., 1087 Flushing Ave., Brooklyn, N. Y.—C, W

MICROHM—Precision Resistor Co.

MORRILL & MORRILL, 30 Church St., New York City, "Morrill"—C, PREC

MUTER CO., 1255 S. Michigan Ave., Chicago, Ill., "Candohms"—W—See adv. p. 35

OHIO CARBON CO., 12508 Berea Road, Lakewood, Ohio, "Ohiohm"—C

OHIOHM—Ohio Carbon Co.

OHMITE MFG. CO., 4835 W. Flournoy St., Chicago, Ill., "Ohmite," "Brown-devil," "Red Devil"—VAR

PACENT ENGINEERING CORP., 79 Madison Ave., New York City, "Pacent"—VAR

PHILMORE MFG. CO., 113 University Place, New York City, "Philmore"—VC, W

PRECISION APPARATUS CORP., 821 E. New York Ave., Brooklyn, N. Y.—PREC

PRECISION RESISTOR CO., 334 Badger Ave., Newark, N. J., "Microhm"—PREC, SP, W

PYROHM—Aerovox Corp.

READRITE METER WORKS, 136 E. College Ave., Bluffton, Ohio, "Readrite"—PREC

RED DEVIL—Ohmite Co.

SHALLCROSS MFG. CO., 700 MacDade Blvd., Collingsdale, Pa., "Shallcross"—PREC

SLIDEOHM—Aerovox Corp.

SPEER CARBON CO., St. Marys, Pa., "Speer"—C

STACKPOLE CARBON CO., Tannery St., St. Marys, Pa., "Stackpole"—C, VC

SUPREME INSTRUMENTS CO., Howard St., Greenwood, Miss., "Supreme"—PREC

TECH LABORATORIES, 703 Newark Ave., Jersey City, N. J., SP, VAR

TRIPLETT ELECTRICAL INSTRUMENT CO., 122 Main St., Bluffton, Ohio, "Triplett"—PREC

TRUVOLT—Electrad, Inc.

UTAH RADIO PRODUCTS CO., 820 Orleans St., Chicago, Ill., "Carter"—C, VC, W

VAN—D. L. Van Leuven

D. L. VAN LEUVEN, 410 E. 15th St., New York City, "VAN"—PREC

WARD LEONARD ELECTRIC CO., Mt. Vernon, N. Y., "Ward Leonard"—W

S. S. WHITE DENTAL MFG. CO., Industrial Division, 10 East 40th St., New York City—Moulded

WIRT CO., 5221 Green St., Philadelphia, Pa., "Wirtco"—C, VC, W

WIRTCO—Wirt Co.

YAXLEY MFG. CO., 3029 E. Washington St., Indianapolis, Ind., "Yaxley"—VAR, VC

SPEAKERS & PARTS

AMERICAN REPRODUCER CO., 3115 Carroll Ave., Chicago, Ill.

AMPLION PRODUCTS CORP., 38 W. 21st St., New York City, "Amplion"

ARISTON MFG. CORP., 4045 Diversey Ave., Chicago, Ill.

ARLAB MFG. CO., 1250 N. Paulina St., Chicago, Ill., "Arlab"

BALDWIN—Consolidated Radio Products Co.

BOND RADIO CO., 11702 Livernois Ave., Detroit, Mich., "Bonrad"

BONRAD—Bond Radio Co.

BRUSH DEVELOPMENT CO., 1893 E. 40th St., Cleveland, Ohio

C. F. CANNON CO., Springwater, N. Y., "Cannonball"—headphones only

CARRON MFG. CO., 415 S. Aberdeen St., Chicago, Ill., "Carron"—Cones and field only

CONSOLIDATED RADIO PRODUCTS CO., 363 W. Superior St., Chicago, Ill., "Baldwin"—See adv. p. 41

FOX SOUND EQUIPMENT CO., 3120 Munroe St., Toledo, Ohio, "Fox"

HAWLEY PRODUCTS CO., St. Charles, Ill.—Cones only

HOPE MFG. CO., 401 Broadway, New York City, "Hope"

JENSEN RADIO MFG. CO., 6601 S. Laramie Ave., Chicago, Ill., "Jensen"

LEOTONE RADIO CO., 63 Dey St., New York City, "Leotone"—Cones & field only

LIFE TIME CORP., 1010 Madison Ave., Toledo, Ohio, "Lifetime"—See adv. p. 35

MACY ENGINEERING CO., 1451 39th St., Brooklyn, N. Y., "Macy"

MAGNAVOX CO., 2131 Bueter Road, Fort Wayne, Ind., "Magnavox"

MILES REPRODUCER CO., INC., 112 W. 14th St., New York City, "Miles"

MULTIPLEX RADIO SERVICE, INC., 88 Fourth St., Brooklyn, N. Y.—Fields & cones only—See adv. p. 40

OPERADIO MFG. CO., 13th & Ind. Sts., St. Charles, Ill., "Operadio"

OXFORD TARTAK RADIO CORP., 350 W. Huron St., Chicago, Ill., "Oxford"—See adv. p. 41

PACENT ENGINEERING CORP., 79 Madison Ave., New York City, "Pacent"

PHILMORE MFG. CO., 113 University Place, New York City, "Philmore"

PREMIER PRODUCTS, INC., Grace & Ravenswood Ave. S., Chicago, Ill., "Premier"

QUAM-NICHOLS CO., 1615-35 W. 74th St., Chicago, Ill., "Quam"—See adv. p. 39

RACON ELECTRIC CO., INC., 52 E. 19th St., New York City, "Racon"

RADIO RECEPTOR CO., INC., 110 7th Ave., New York City

ROLA CO., 2530 Superior Ave., Cleveland, Ohio, "Rola"

SONOCHORDE SALES CO., 200 Boston Ave., Medford, Mass., "Sonochorde"

TOLEDO SOUND EQUIPMENT LABORATORIES, 1147 Jackson St., Toledo, Ohio, "Toledo"

UNITED PRESSED PRODUCTS CO., 407 S. Aberdeen St., Chicago, Ill.—Cones only

UTAH RADIO PRODUCTS CO., 820 Orleans St., Chicago, Ill., "Utah"

VITAVOX SALES CO., 557 W. Jackson Blvd., Chicago Ill., "Vitavox"

WESTERN ELECTRIC CO., 195 Broadway, New York City, "Western Electric"

WILLIAM WELCH CO., Chicago, Ill.—Cones only

WRIGHT-DE COSTER, INC., 2235 University Ave., St. Paul, Minn., "Wright-De Coster"

TEST EQUIPMENT

Adapters—AD
Cathode-ray oscillographs—CRS
Condenser testers—CT
Meters—M
Multi-meters—MM
Oscillators (sig. gen.)—OSC
Set analyzers and testers—SA
Tube testers—TT
Vibrator testers—VT
Vacuum tube voltmeters—VTV

ALDEN PRODUCTS CO., 715 Center St., Brockton, Mass., "Na-Ald"—AD—See adv. p. 34

APPARATUS DESIGN CO., Little Rock, Ark., "Confidence"—CT, Res. Bridge, TT

BOONTON RADIO CORP., Boonton, N. J. —"Q Meter" Factory & Lab. Equip.

BUDD RADIO, INC., 1937 E. 55th St., Cleveland, Ohio, "Bud"—AD

BURTON-ROGERS CO., 755 Boylston St., Boston, Mass., "Burton"—SA, TT, OSC

CHEKATUBE—J-M-P Mfg. Co.

CLOUGH-BRENGLE CO., 1134 W. Austin Ave., Chicago, Ill., "Clough-Brengle"—CRS, MM, OSC

CONFIDENCE—Apparatus Design Co.

THE DAVEN CO., 158 Summit St., Newark, N. J., "Daven"—M

TOBE DEUTSCHMAN CORP., Canton, Mass., "Tobe"—CT

ALLEN B. DUMONT LABORATORIES, 542 Valley Road, Upper Montclair, N. J., "Dumont"—CRO

DAYRAD—Radio Products Co.

DEPENDABLE—Radio City Products Co.

ELECTRICAL WINDING CORP., 22 Wooster St., New York City—CRO, OSC

ELECTRONOMETER—Precision Apparatus Corp.

FERRANTI ELECTRIC, INC., 130 W. 42nd St., New York City, "Ferranti"—M

FERRIS INSTRUMENT CORP., Boonton, N. J., Factory & Lab. Equip.

GENERAL ELECTRIC CO., 1285 Boston Ave., Bridgeport, Conn., "General Electric"—CRO, M

GENERAL RADIO CO., 20 State St., Cambridge A, Mass., "GR"—Factory & Lab. Equip.

GR—General Radio Co.

HICKOK ELECTRICAL INSTRUMENT CO., 10516 Dupont Ave., Cleveland, Ohio, "Hickok"—M, OSC, SA, TT

ICA—Insuline Corp. of America

INSULINE CORP. OF AMERICA, 25 Park Place, New York City, "ICA"—AD, VTV

JACKSON ELECTRICAL INSTRUMENT CO., 430 Kiser St., Dayton, Ohio, "Jackson"—OSC, SA, TT

J-M-P MFG. CO., 3048 N. 34th St., Milwaukee, Wis., "Chekatube"—TT

LINCOLN INTERNATIONAL INSTRUMENT CORP., 47 Fifth St., Long Island City, N. Y.—VTV

LITTLEFUSE LABORATORIES, 4244 Lincoln Ave., Chicago, Ill., "Littlefuse"—Instrument Fuses

J. W. MILLER CO., 5917 S. Main St., Los Angeles, Calif., "Miller"—OSC

MILLION RADIO & TELEVISION LABORATORIES, 361 W. Superior St., Chicago, Ill., "Million"—TT, VT

MUTER CO., 1255 S. Michigan Ave., Chicago, Ill., "Muter"—Res. Bridge, Decade Res.

NA-ALD—Alden Products Co.—AD

OHMITE MFG. CO., 4835 W. Flournoy St., Chicago, Ill., "Determohm"—Decade Res.

PHILCO RADIO & TELEVISION CORP., Philadelphia, Pa., "Philco"—OSC

PRECISION APPARATUS CORP., 821 E. New York Ave., Brooklyn, N. Y., "Electronometer"—SA—See adv. p. 41

Q-METER—Boonton Radio Corp.

RACO—Radio Construction Labs.

RADIO CITY PRODUCTS CO., INC., 88 Park Place, New York City, "Dependable"—MM, TT

WHO'S WHO AND WHERE TO BUY

RADIO CONSTRUCTION LABS., 136 Liberty St., New York City, "Raco"—OSC

RADIO PRODUCTS CO., 125 Sunrise Place, Dayton, Ohio, "Dayrad"—MM, OSC, SA, TT, VT—See adv. p. 17

RCA MFG. CO., Camden, N. J.—CRS, OSC

READRITE METER WORKS, 126 E. College Ave., Bluffton, Ohio, "Readrite,"—M, OSC, SA, TT—See adv. p. 36

SHALLCROSS MFG. CO., 700 MacDade Blvd., Collingdale, Pa., "Shallcross"—MM, SA

SOLAR MFG. CORP., 559 Broadway, New York City, "Solar"—CT

SPRAGUE PRODUCTS CO., North Adams, Mass., "Spaco"—CT, Interference Analyzer

SUPREME INSTRUMENTS CO., Howard St., Greenwood, Miss., "Supreme"—M, OSC, SA, TT

TECH LABORATORIES, 703 Newark Ave., Jersey City, N. J.—M

THE TEFFT RADIO CO., Plymouth, Mich., "Tefft"—SA, TT

TOBE—The Tobe Deutschman Corp.

TRIPLETT ELECTRICAL INSTRUMENT CORP., 122 Main St., Bluffton, Ohio, "Triplett"—M, OSC, SA, TC—See adv. p. 30

TRIUMPH MFG. CO., 4017 W. Lake St., Chicago, Ill., "Triumph"—CRO, MM, OSC, TT

ULTRAMAR MFG. CORP., 1160 Chatham Court, Chicago, Ill., "Ultramar"—OSC

VAN—D. L. Van Leuven

D. L. VAN LEUVEN, 410 E. 15th St., New York City, "Van"—Meter Dials

EARL WEBBER CO., 1217 Washington Blvd., Chicago, Ill., "Webber"—OSC, SA, TT

WESTINGHOUSE ELECTRIC CO., Pittsburgh, Pa., "Westinghouse"—MM

WESTON ELECTRICAL INSTRUMENT CORP., 614 Frelinghuysen Ave., Newark, N. J., "Weston"—M, OSC, SA, TT

WRIGHT-DE COSTER, INC., 2235 University Ave., St. Paul, Minn., "Wright-De Coster"—Multi-Test Speaker

TRANSFORMERS

Audio—A
Chokes—C
Power—P

AALLOY TRANSFORMER CO., INC., 135 Liberty St., New York City, "Aalloy"—A, C, P

ACME ELECTRIC & MFG. CO., 1447 Hamilton Ave., Cleveland, Ohio, "Acme"—A, C, P

AMERICAN TRANSFORMER CO., 178 Emmet St., Newark, N. J., "Amertran" A, C, P

AMERTRAN—American Transformer Co.

BOND RADIO CO., 11702 Livernois Ave., Detroit, Mich., "Bonrad"—A, C, P

BONRAD—Bond Radio Co.

CHICAGO TRANSFORMER CO., 2626 W. Washington Blvd., Chicago, Ill.—A, C, P

COLLINS RADIO CO., Cedar Rapids, Iowa, "Collins Radio"—A, C, P

DONGAN ELECTRIC MFG. CO., 2985 Franklin St., Detroit, Mich., "Dongan"—A, C, P

FERRANTI ELECTRIC, INC., 130 W. 42nd St., New York City, "Ferranti"—A, C, P

FREED TRANSFORMER CO., 100 6th Ave., New York City, "Freed"—A, C, P

GENERAL RADIO CO., 30 State St., Cambridge, Mass., "G-R"—Special purpose

GENERAL TRANSFORMER CORP., 500 S. Throop St., Chicago, Ill., "General"—A, C, P

G-R—General Radio Co.

HALLDORSON CO., 4500 Ravenswood Ave., Chicago, Ill., "Halldorson"—A, C, P

JEFFERSON ELECTRIC CO., 900 25th Ave., Bellwood, Ill., "Jefferson"—A, C, P

KENYON TRANSFORMER CO., INC., 840 Barry St., New York City, "Kenyon"—A, C, P

LIFE TIME CORP., 1010 Madison Ave., Toledo, Ohio, "Life Time"—A, P

NATIONAL CO., 61 Sherman St., Malden, Mass.—A, P

NATIONAL MILL SUPPLY CO., 207 E. Columbia St., Fort Wayne, Ind., "National"—A, C, P

NORDENDALE MFG. CO., 2100 Fulton St., Chicago, Ill.—A, C

OXFORD TARTAK RADIO CORP., 350 W. Huron St., Chicago, Ill., "Oxford"—A, C

PACENT ENGINEERING CORP., 79 Madison Ave., New York City, "Pacent"—A, C, P

PHILMORE MFG. CO., 113 University Place, New York City, "Philmore"—A

RAYTHEON MFG. CO., 190 Willow St., Waltham, Mass., "Raytheon"—A, C, P

STANCOR—Standard Transformer Corp.

STANDARD TRANSFORMER CORP., 850 Blackhawk St., Chicago, Ill., "Stancor"—A, C, P

THORDARDSON ELECTRIC MFG. CO., 500 W. Huron St., Chicago, Ill., "Thordardson"—A, C, P

TRANS-LAB, INC., Canton, Mass., "Trans-Lab"

UNITED TRANSFORMER CORP., 72 Spring St., New York City, "UTC", "United"—A, C, P

UTAH RADIO PRODUCTS, 820 Orleans St., Chicago, Ill., "Utah"—A, C, P

UTC—United Transformer Corp.

TRANSMITTERS, COMMERCIAL

AIRCRAFT RADIO CORP., Boonton, N. J.

COLLINS RADIO CO., Cedar Rapids, Iowa, "Collins Radio"

DOOLITTLE & FALKNOR, INC., 7415 Loomis Blvd., Chicago, Ill., "Doolittle & Falknor"

FRED M. LINK, 125 W. 17th St., New York City

GENERAL ELECTRIC CO., Schenectady, N. Y., "General Electric"

LEAR DEVELOPMENT CO., 121 W. 17th St., New York City

MARINE RADIO CO., 124 101st Ave., Richmond Hill, Long Island, N. Y., "Marine"

RADIO TRANSCEIVER LABORATORIES, 86 115th St., Richmond Hill, Long Island, N. Y., "Radio Transceiver Laboratories" — Ultra-high freq. only

RCA MFG. CO., Front & Cooper Sts., Camden, N. J.

WESTERN ELECTRIC CO., 195 Broadway, New York City, "Western Electric"

WESTINGHOUSE ELECTRIC CO., Chicopee Falls, Mass., "Westinghouse"

TUBES, RECEIVING

ARCTURUS RADIO TUBE CO., 720 Frelinghuysen Ave., Newark, N. J., "Arcturus," "Coronet"—See adv. p. 25

CHAMPION RADIO WORKS, Lynn, Mass., "Champion"

CORONET—Arcturus Radio Tube Co.

CROSLEY RADIO CORP., Cincinnati, Ohio, "Crosley"

GOLD SEAL MFG. CO., INC., Grant Ave., East Newark, N. J., "Gold Seal"

HYGRADE SYLVANIA CORP., 500 Fifth Ave., New York City, "Sylvania"—See adv. p. 27

HYTRON CORP., 23 New Derby St., Salem, Mass., "Hytron"

KEN-RAD CORP., Owensboro, Ky., "Ken-Rad"—See adv. p. 28

NATIONAL UNION RADIO CORP., 570 Lexington Ave., New York City, National Union"—See adv. p. 32

PHILCO RADIO & TELEVISION CORP., Tioga & C Sts., Philadelphia, Pa., "Philco"

RAYTHEON PRODUCTION CORP., 30 East 42nd St., New York City, "Raytheon"

RCA MFG. CO.—RCA Radiotron Div., Camden, N. J., "RCA Radiotron"

RCA RADIOTRON—RCA Mfg. Co.

REPUBLIC RADIO MFG. CO., 76 Coit St., Irvington, N. J.

SPARKS-WITHINGTON CO., E. Ganson Ave., Jackson, Mich., "Sparton"

SPARTON—Sparks-Withington Co.

SYLVANIA—Hygrade Sylvania Corp.

TRIAD MFG. CO., INC., Blackstone & Fountain Sts., Pawtucket, R. I., "Triad"

TUNG-SOL LAMP WORKS, INC., Radio Tube Div., Newark, N. J., "Tung-Sol"

ZENITH RADIO CORP., 3620 Iron St., Chicago, Ill., "Zenith"

TUBES, TRANSMITTING & SPECIAL PURPOSE

Cathode-ray—CRT
Photo-cells—PC
Special tubes—SP
Transmitting—TT

AMPEREX ELECTRONICS PRODUCTS CORP., 79 Washington St., Brooklyn, N. Y., "Amperex"—SP, TT

CETRON—Continental Electric Co.

CONTINENTAL ELECTRIC CO., St. Charles, Ill., "Cetron," "Economy"—PC, SP

ALLEN B. DUMONT LABORATORIES, 542 Valley Road, Upper Montclair, N. J., "Dumont"—CRT

HUGH H. EBY, INC., 2006 Hunting Park Ave., Philadelphia, Pa., "Eby"—PE

ECONOMY—Continental Electric Co.

EIMAC—Eitel-McCullough, Inc.

EITEL-McCULLOUGH, INC., San Bruno, Calif., "Eimac"—TT

FEDERAL RADIO & TELEGRAPH CO., Mt. Pleasant Ave., Newark, N. J., "Federal"—TT

GENERAL ELECTRIC CO., 1285 Boston Ave., Bridgeport, Conn., "General Electric"—CRT, SP

HEINTZ & KAUFMAN, San Bruno, Calif.—TT

NATIONAL RADIO TUBE CO., 3420 18th St., San Francisco, Calif.—TT

RAYTHEON PRODUCTION CORP., 30 E. 42nd St., New York City, "Raytheon"—TT

ROA MFG. CO., Front & Cooper Sts., Camden, N. J.—CRT, PG, SP, TT

TAYLOR TUBE CO., 2607 W. Cermak Road, Chicago, Ill., "Taylor"—SP, TT

UNITED ELECTRONICS CORP., 42 Spring St., Newark, N. J., "United"—TT

WESTERN ELECTRIC CO., 195 Broadway, New York City, "Western Electric"—CRT, SP, TT

WESTINGHOUSE ELECTRIC CO., Pittsburgh, Pa., "Westinghouse"—TT, SP

VIBRATORS

AMERICAN TELEVISION AND RADIO CORP., 128 E. 10th St., St. Paul, Minn., "ATR"

ATR—American Television & Radio Corp.

ELECTRONIC LABORATORIES, INC., 122 E. New York Ave., Indianapolis, Ind.

P. R. MALLORY & CO., INC., "Mallory"

OAK MFG. CO., 711 W. Lake St., Chicago, Ill., "Oak"

THE RADIART CORP., Shaw Ave. at 133rd St., Cleveland, Ohio, "Radiart"

UTAH RADIO PRODUCTS CO., 820 Orleans St., Chicago, Ill., "Utah"—See adv. p. 27

WAVE-CHANGING SWITCHES

BEST MFG. CO., 1200 Grove St., Irvington, N. J., "Best"

HUGH H. EBY, INC., 2066 Hunting Park Ave., Philadelphia, Pa., "Eby"

INSULINE CORP. OF AMERICA, 25 Park Place, New York City, "ICA"

OAK MFG. CO., 711 W. Lake St., Chicago, Ill., "Oak"

OHMITE MFG. CO., 4835 W. Flournoy St., Chicago, Ill., "Ohmite"

PHILMORE MFG. CO., 113 University Place, New York City, "Philmore"

YAXLEY MFG. CO., 3029 E. Washington St., Indianapolis, Ind., "Yaxley"

SERVICE NOTES—JOHN RIDER

Visual Alignment at 600 kc.

★ There has been some confusion concerning the proper procedure to be followed in checking the alignment of the series oscillator trimmer at the low frequency end of a band, as for example, at 600 kc. To clear up this matter, we shall go over this procedure in some detail.

When working with a normal output meter type of indicator, it is necessary to rock the gang condenser on the receiver. However, when working with a visual alignment arrangement as, for example, an oscillograph, it is not necessary to rock the tuning condenser inasmuch as the frequency modulator unit supplies a signal of a pre-determined band of frequencies. This is, in effect, equivalent of rocking. In view of the difference in the pattern which appears on the cathode-ray oscillograph screen for adjustment of the various trimmers, and that which is the correct pattern to indicate the correct adjustment of the oscillator padder at 600 kc., the following explanation is necessary.

To take a concrete illustration, an intermediate frequency of 260 kc. is assumed and we shall illustrate the type of patterns which appear upon the oscillograph screen for single trace and double trace images when adjusting the oscillator padder at 600 kc. The first step after aligning the i-f. amplifier is to align the first detector and oscillator shunt trimmers in the conventional way at the high-frequency end of the broadcast band, say at 1,400 kc. With this completed, the test oscillator is set at the proper

SERVICE NOTES—JOHN RIDER

point so that when frequency modulated, it is producing a mean frequency of 600 kc. Output of this oscillator then is connected across the antenna and ground posts of the receiver under test. Let us assume that as a result of the frequency modulation, the output signal covers a band of from 585 to 615 kc. The receiver is tuned to 600 kc. and the resonance curve appears on the screen. From this point on we shall consider first, the procedure when the single-image system of frequency modulation is used.

Single image alignment

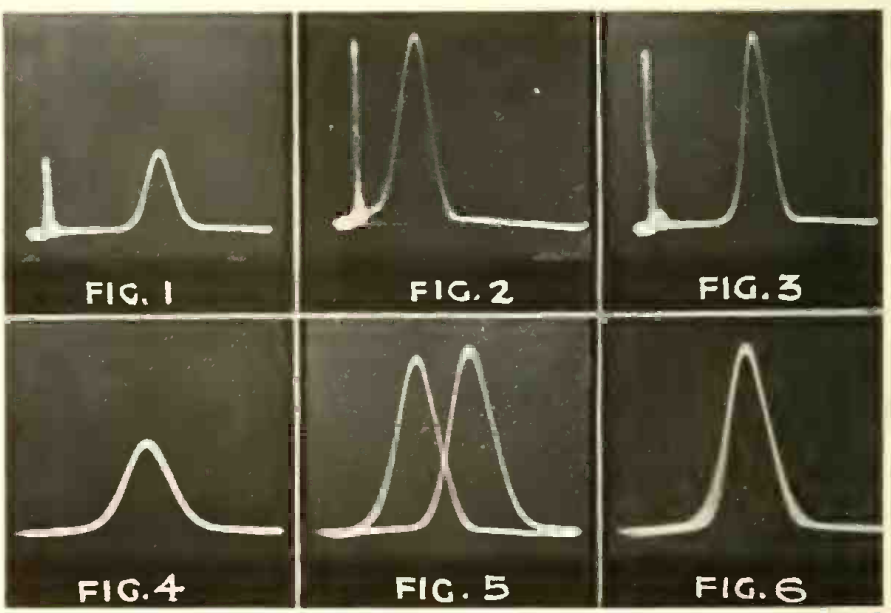
In this case there will be just a single trace, the peak of which may or may not be in the center of the base of the resonance curve. The adjustment of the series oscillator padder should then be made so that that resonance curve has the greatest height regardless of the position of this peak with respect to the center or middle of the base line of the trace. This is highly important and even though it may be necessary to change the receiver tuning slightly, the procedure is to adjust the trimmer for the greatest peak amplitude. An off-center peak indicates that the calibration of the receiver is incorrect at 600 kc. If the oscillator trimmer is adjusted so that the peak is in the center of the trace when the receiver and signal generator are set to 600 kc., then the sensitivity and selectivity of the receiver are sacrificed for the sake of an improvement in the calibration of the receiver. This most certainly is the undesired condition.

Fig. 1 shows the incorrect adjustment which results when the peak is centered. Note the low amplitude. Fig. 2 shows the improvement in response when the series oscillator padder was adjusted for maximum height, in spite of the fact that the peak is not in the center of the trace. To bring the peak back to the center of the trace, the receiver tuning can be changed and the amount by which it must be changed to bring it back to the center, indicates how far off the receiver calibration is at that setting. As an example, Fig. 3 was obtained by changing the receiver tuning from 600 kc. to 595 kc., thus establishing that the receiver calibration at 600 kc. is off by 5 kc.

The optimum adjustment is obtained when the r-f. and detector stages are tuned to the input signal and the receiver oscillator frequency is higher than the signal frequency by the numerical value of the intermediate frequency. In this case, the r-f. and detector stages are tuned to 600 kc., and the receiver oscillator frequency is tuned to 860 kc. There is no rocking of the tuning condenser during alignment.

Double image system

The procedure to be followed when the double image system is used requires further explanation. In general, proper alignment is assumed



The cathode-ray oscillograph provides a means of seeing the alignment of the receiver. The oscillograms shown illustrate alignment of the oscillator at 600 kc.

when the two traces coincide. However, when working from 600 kc., a double trace will appear on the screen. The important point is this: In contrast to the usual procedure, wherein the trimmer adjustments are made, so as to bring the two curves to a coincidence; in this case the series oscillator padder is adjusted maximum amplitude of the peaks, regardless of whether this may or may not bring the two curves together. Fig. 4 illustrates the incorrect adjustment made by bringing the two curves into coincidence. Note the amplitude. The improvement in sensitivity, when the series oscillator padder is adjusted so that the peak height of the curves is a maximum, is shown in Fig. 5. Note that while the curves no longer coincide, at the same time the gain and selectivity of the receiver have been appreciably increased. The curves can be brought into coincidence by retuning the receiver. Again, the measure of the discrepancy of the dial calibration is the amount by which it is necessary to change the receiver tuning in bringing the two curves together. The appearance of the trace when the curves are brought together by changing the receiver tuning is shown in Fig. 6.

Collecting Small Claims

★ There has been a sudden interest in the matter of possible methods of collecting small amounts of money which are due service men for work done. This subject is of sufficient importance to justify its appearance in every radio magazine published in America which circulates among radio men.

Small establishments of various kinds at different times find themselves in the position where they have no redress against customers who do not pay small sums they owe for servicing. Usually, these sums, ranging from $5.00 to $10.00 or even $25.00, do not justify normal processes of collection through agencies or lawyers, because of the amount of money it is necessary to spend in effecting collection. Consequently, the best course is to charge off the amount as a loss.

It might be well if service men made an effort to find out if their town has what is known in New York City as a "Small Claims Court." It is likely that such a hall of judgment is found in other towns and perhaps known by another name. Some towns and cities maintain what may be classified as being a "public defender," in other words, a lawyer maintained by the city to present the case of those people who cannot afford to spend the money required for legal prosecution of small amounts.

In small claims courts of the type existing in New York City, the plaintiff presents his case and it is not necessary that he have a lawyer to do so. The referee or judge sitting on the bench determines the merits of the case and the decision rendered is final.

"HOW TO CHOOSE A RADIO SET FOR XMAS"

Feature broadcast on WABC and the entire Columbia network, by Dr. Orestes Caldwell, Editor of "Radio Today," Thurs., Dec. 19, 5:45 p.m., E.S.T.

★ Further help in the selling of quality receivers will he extended by RADIO TODAY in a special hroadcast Thursday when Editor Caldwell goes on the air again at the invitation of the Columbia Broadcasting System. Feature will have a Yuletide note and will include new tips on the ultimate in radio reception.

SERVICE NOTES—JOHN RIDER

A. S. C.

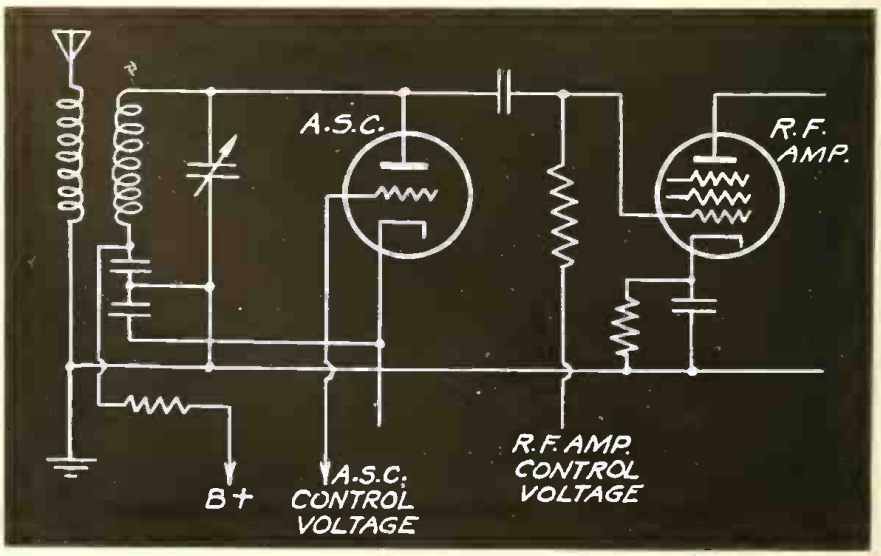
★ A. S. C. is not a Federal bureau. . . . It means automatic sensitivity control, one of the very latest developments in radio receiver design, although not yet in receivers. What is said here is based upon a paper delivered by G. L. Beers and which appeared in the December, 1935, issue of *The Proceedings of the Institute of Radio Engineers.* With A. S. C., A. V. C., Q. A. V. C. there is plenty studying to be done by the servicing industry. The basic circuit of this automatic sensitivity control system is shown below. As is evident, a triode is used and its plate impedance, that is, the impedance existing between the plate and the cathode of the tube, is in shunt with the tuned circuit and acts as a variable load upon this tuned circuit. By varying the control voltage applied to the grid, the plate impedance of the triode is changed over a range of from 10,000 ohms to 1 megohm. As the negative grid bias is increased, the plate impedance becomes higher and the load upon the tuned circuit is lowered. The effect of this variable load is to increase or decrease the selectivity factor of the complete circuit. The greater the load, the lower the degree of selectivity available with the system.

Normally a load across a tuned circuit will not only vary the selectivity response of the circuit, but will also vary the amplitude of the signal voltage developed across the circuit. However, by arranging for automatically controlled bias voltage, in other words A. V. C. upon the amplifier tube, a combination of increased sensitivity and increased selectivity is secured when weak signals are being received. On the other hand, when a strong signal is received, such as would enable proper reception of all of the modulation frequencies which constitute the side bands, the combination of automatic sensitivity and automatic selectivity controls act in such manner as to keep the amplitude of the signal at the proper level, yet broaden the frequency response of the circuit, so that the side bands are properly passed through the system.

The r-f. amplifier tube shown on the schematic is coupled in the tuned circuit through the blocking condenser. The grid leak is used as a path for the a-v-c voltage. A similar application of automatic selectivity control is to vary the degree of selectivity of intermediate-frequency amplifiers, whereby it is made possible to shift automatically the response of such a system from what would be the equivalent of a high-fidelity adjustment to what represents normal selectivity.

R.M.A. color codes

★ The R.M.A. color codes tabulated on the following page will be extremely helpful in servicing these receivers which follow the suggested code.



Automatic selectivity control as applied to the antenna stage of a receiver. The plate impedance of the triode varies the selectivity.

RADIO MANUFACTURERS ASSOCIATION COLOR CODES

The following information should be on file in every radio service shop as being the color codes as recommended by the R.M.A.

Speaker output transformers

GREEN —outside lead of primary winding
BROWN —inside lead of primary winding
RED —primary center tap if one is used

WHITE —outside lead of secondary winding
MAROON—inside lead of secondary winding

Speaker field coils

YELLOW—outside lead of winding
BLACK —inside lead of winding
GRAY —center tap if one is used

If two separate fields are employed
YELLOW—outside lead of winding No. 1
BLACK —inside lead of winding No. 1

GRAY —outside lead of winding No. 2
BLUE —inside lead of winding No. 2

Voice coils

WHITE —outside lead of winding
MAROON—inside lead of winding
These color codings correspond with codes of speaker transformer secondary winding.

Power transformers

BLACK	—primary leads
BLACK	—common of tapped primary
BLACK & YELLOW	50/50 stripes—tap of primary
BLACK & RED	50/50 stripes—finish of primary
RED	—plate leads of hi voltage secondary
RED & YELLOW	50/50 stripes—hi voltage center tap
YELLOW	—rectifier filament leads
YELLOW & BLUE	50/50 stripes—rectifier center tap
GREEN	—filament winding No. 1
GREEN & YELLOW	50/50 stripes—No. 1 filament center tap
BROWN	—filament winding No. 2
BROWN & YELLOW	50/50 stripes—No. 2 filament center tap
SLATE	—filament winding No. 3
SLATE & YELLOW	50/50 stripes—No. 3 filament center tap

Intermediate-frequency coils

BLUE	—plate lead
RED	—B+ lead
GREEN	—grid (or diode) lead
BLACK	—grid return

With full-wave transformer

GREEN	—diode lead
GREEN-BLACK	—diode lead
BLACK	—center tap (diode return)

SALES STIMULATORS

Leading manufacturers present valuable promotion material

NEW TRANSMITTER GUIDE

★ Thordarson Electric Mfg. Co., Chicago, Ill., has just issued a 32-page low-down on transmitters, elaborately illustrated and complete with tables and charts. With one exception, points out the company, the circuits shown have not been previously published.

Booklet includes a section on bias methods for r-f amplifiers, and a number of new high gain speech amplifiers are shown. Parts lists this time include "specifications on all parts essential for best operation." The price is 15c.

TUBE TESTING PROGRESS

★ Dealers who are interested in the design and development of test instruments, or who use such apparatus in their service shops, will welcome the publication of the booklet "The Evolution of Tube Testing." Supreme Instruments Corp., Greenwood, Miss., makers of radio test gadgets, has published the 16-page affair, which is gratis to dealers.

Booklet covers the laboratory development of a commercially OK test instrument, and is complete with diagrams and technical data. Material of this character is rarely published.

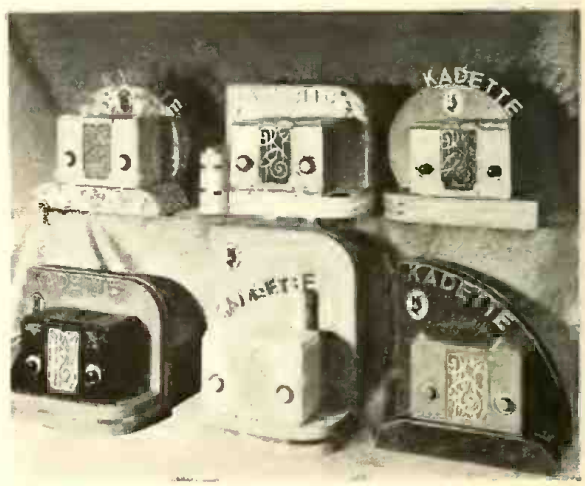
STRICTLY NEW CATALOGUE

★ Just off the press, revised and up-to-the-minute, is a new catalogue of condensers and resistors by Aerovox Corp., 70 Washington St., Brooklyn, N. Y. Volume presents a complete assortment of exact duplicate replacement condensers for standard sets, wire-wound vitreous-enamel resistors, and a new type carbon resistor.

VARIETY IN SPECIALLY STYLED FIXTURES

★ Specific styling of radio display fixtures, so that sets may be effectively displayed in various backgrounds in department stores particularly, has been deftly accomplished by Intertional Radio Corp. of Ann Arbor, Mich., makers of Kadette sets.

Designed with taste and discernment, the fixtures are adaptable to gift shops and drug or jewelry stores, as well as sundry sections in department stores.



GRAPHIC PLUG FOR LINE FILTERS

★ Special window display featuring a dramatic caption, "Eliminates Noise!" is being offered by J. W.

Miller Co., Los Angeles, with their $4 line filter. Exhibit is a catchy cardboard affair dramatizing noiseless reception, appropriately elementary rather than technical in its appeal.

L. THOMAS GOES SHORT-WAVE

★ Lowell Thomas, famed commentator and man-about-the-world, has written a radio travelogue which makes foreign broadcasts more intimately interesting, and includes the low-down on broadcast schedules abroad. Volume has been published by Crosley for distribution through the company's dealers.

Mr. Thomas gives pleasant and useful suggestions on how to dial distant stations, where to look for police, weather, aviation, amateur, and ship broadcasts in addition to the American and foreign features. The World's leading stations are listed, and time variations are clarified on a map.

WHOLESALERS

★ Louis Buehn Co., Philadelphia, veteran Atwater Kent distributor, have announced their retirement from business, and AK has issued notice that the **Ramsey Electric Co.**, 1007 Arch St., will be the company's distribution headquarters in Philadelphia and surrounding area beginning next month.

★ **F. B. Connelly Co.**, Seattle, have made three important appointments: **Frank T. Parker** as the new credit manager of the Connelly branch at Portland, Oregon; **S. W. Leach** as new credit manager of the Seattle branch, and **Frank Porter** as purchasing agent at Seattle. Entire Connelly Co. sales organization recently had a two-day general convention at Seattle, with 14 manufacturers exhibiting.

★ New and exclusive distributor of Fairbanks-Morse radios, refrigerators, and home laundry equipment is the **Sam Horne Co.**, Knoxville, Tenn. Horne Co. plans to service the territory from offices at Knoxville and Bristol, Tenn., and Middleboro, Ky.

★ Troy Radio Manufacturing Co. has announced **Henry Wolff**, of the **Henry Wolff Co.**, 154 Eighth St., San Francisco, as the exclusive representative for Troy in northern California.

★ **Dale Radio Co.** and **Dale Parts Inc.**, New York City, have issued a list of recently appointed dealers: Standard Radio Service, Brooklyn, N. Y.; Robert Steiger, Lawrence, Long Island, N. Y., and New Deal Radio Shop, Passaic, N. J.

New products added to the Dale Co. lines are Eveready batteries, Webster amplifiers, and Knapp-Monarch appliances.

★ **K. McInnis**, southeastern district sales manager for Fairbanks-Morse Home Appliances, Inc., has issued notice that the **General Auto Supply Co.**, Tampa, Florida, is now distributor of the company's radios, refrigerators, and ironers. Appointment of **Bailey-Milam, Inc.**, Miami, Fla., as exclusive distributor in southern Florida was also announced by Fairbanks-Morse.

★ **Fada Radio and Electric Co.**, Long Island City, N. Y., has OK'd the appointment of the **Kronson Radio and Parts Co.**, Buffalo, as exclusive distributor of Western New York for both household and auto receivers. Kronson Co. has branches in Niagara Falls and Rochester. Ernest Kronson heads the main office at Buffalo and W. C. Moore is manager of the Rochester branch.

Fada has also announced a new distributor for the Trenton, N. J., area, the **Warren Balderston Co.**, of which Harry Stover is president and R. L. Hutchinson manager of the electrical department.

★ **From Zenith Radio France**, Paris, exclusive distributors for Zenith in France and her colonies, came the report late last month that since Monsieur Arles and Monsieur Audibert have again taken over the agency, the firm has noted a substantial improvement in business. Report described the new models as "impeccable."

★ **Carl Hartman**, of the **C. L. Hartman Corp.**, Rochester, N. Y., died suddenly on Nov. 30. Hartman Co. distributes Atwater Kent radios.

★ **Greer & Co.**, 223 Canal St., Stapleton, Staten Island, N. Y., who were recently appointed Ken-Rad jobbers, report the signing of a large number of dealer accounts throughout their territory for Ken-Rad tubes. "Doc" Greer and Al Motz are personally visiting the dealers and service men all along the road, believing that these are the days when personal cooperation brings business.

★ **The Sparks-Withington Co.** is sponsoring the thirty-sixth gathering of Sparton jobbers on January 7th and 8th at the Hayes Hotel, Jackson. The 1936 line of Sparton refrigerators will be shown together with several new radio models.

TRADE NEWS

★ **Parker H. Ericksen,** for the past three years advertising manager of Zenith Radio Corp., Chicago, has been advanced to the position of sales promotion manager and will devote his time to the analysis and solution of sales problems of distributors' territories. Zenith also announces apointment of **Edgar C. Herrmann** as advertising manager. Hermann has had 16 years' ad and merchandising experience with the Federal Advertising Agency of New York, Victor Talking Machine Co., and RCA Victor.

★ **Lee McCanne,** secretary of the Stromberg-Carlson Telephone Mfg. Co., Rochester, N. Y., made a visit to Chicago early this month to work on the company's early 1936 plans. **Kenneth Gillespie,** sales manager of Stromberg's Kansas City branch, and several important dealers in the area were in on the conferences.

★ Move to augment the personnel of the exec staff of Echophone Radio Corp., Chicago, has resulted in the appointment of **Douglas C. Smith** as vice-president in charge of sales, and **Joseph Webber** as chief engineer, according to the announcement of **Clem F. Wade,** Echophone president. Smith has had extended radio experience with Wanamaker's stores, and Webber has emerged from the U. S. air service and four years in the engineering dept. at the University of Illinois.

★ Orders from abroad for Majestic radio or refrigerator parts are being handled by **Harry J. Scheel,** 330 South Wells St., Chicago.

★ **Fada Radio and Electric Co.** has appointed **W. R. McAllister** as direct sales manager covering the territory of upper New York State, Pennsylvania, Ohio, West Virginia, Delaware, Maryland, and the District of Columbia. McAllister, who has been busy in radio since the beginning of broadcasting, rejoins the Fada organization after an absence of 16 months.

★ **W. W. Cone,** until recently a special New York representative of the RCA Radiotron division, has a new position as aide to Thomas F. Joyce, sales promotion and advertising manager of RCA Manufacturing Co.

★ **H. L. Boar,** eastern district manager for Fairbanks-Morse Home Appliances, Inc., reports a strong gain in radio sales, mainly in higher priced models. Company 3rd Dimensional Tone feature fits the popular interest in high fidelity.

Witkop & Holmes, who now handle Fairbanks-Morse radios in Buffalo exclusively, have reported good results from a big tie-in with a local movie house.

★ **Hart Lehman**, ad agency, has been appointed by Pierce Airo, Inc., to handle its account. Pierce Airo makes De Wald radios.

★ **Harry J. Scheel**, widely known abroad as former export manager for the Grigsby-Grunow Corp., is now associated in the same capacity with the Case Electric Corp., with factories at Marion, Ind., and export offices at 330 S. Wells St., Chicago.

★ Open house is the order of the day at the new home of **Ford, Browne & Mathews**, well-known Chicago advertising agency, handling the advertising of many radio manufacturing organizations. In its new quarters at 100 East Ohio Street, Chicago, the agency has greatly increased facilities. Some of the color schemes introduced in these new offices would do justice to the most ardent disciples of futuristic art.

★ **H. A. Hutchins**, for many years a radio-tube executive and now connected with the Western Advertising Agency in Chicago, is responsible for a unique idea in the shape of a composite house organ, which is being issued monthly for his various clients in the radio industry. The house organ is mailed monthly and, according to Mr. Hutchins, was conceived with the idea of coordinating the sales, advertising and sales promotion divisions of the various manufacturing organizations. Among the companies whose activities are set forth are National Union Radio Corp., New York, N. Y.; Triplett Electrical Instrument Company, Bluffton, Ohio; Halldorson Company, Chicago, and the Girard-Continental Corp., Chicago.

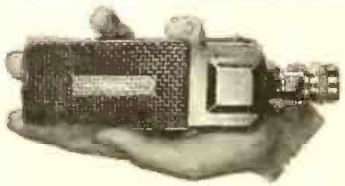
In old Algiers, R.A. Picard, the ad agency exec. He's just back from a globe-circler on which he very seriously eyed conditions in the foreign radio market.

NEW THINGS FROM THE MANUFACTURERS

MODERNIZATION CHASSIS

★ All-wave speaker and chassis outfits for modernizing that old cabinet. Numerous models using from 6 to 10 tubes available—some with metal tubes. Incorporates features found in regular Crosley models. Attractive panel furnished with each chassis. List prices from $34.20 to $84.70. Crosley Radio Corp., Cincinnati, Ohio—RADIO TODAY

HI IMPEDANCE VELOCITY MIKES



★ High impedance velocity microphones for direct coupling to grid of amplifier tubes—increases gain and reduces hum. Models with impedances of 100,000 or 5,000 ohms available. High fidelity—flat response within one decibel from 50 to 12,000 cycles. Permanent magnet type employing field pieces of Nicalum high-permeability alloy. Bruno Laboratories, 22 W. 22nd St., New York City —RADIO TODAY

REPLACEMENT CONES AND FIELD COILS

★ Complete line of replacement field coils and speaker cones for Majestic receivers. Conform with maufacturer's specifications, electrically and physically. Multiplex Radio Service, Inc., 88 Fourth Ave., Brooklyn, N. Y.—RADIO TODAY

ATTRACTIVE TUBE TESTER

★ Tube analyzer with free point analysis—possibility of obsolescence eliminated—accommodates over 300 types. Line voltage checked on meter—instrument fused. Provides hot inter-electrode short and cathode leakage tests—each portion of multi-section tubes checked separated. Tubes tested under load—condition indicated on direct reading scale. Available in portable, panel, or counter types. Electronometer Model 500—net $39.50. Precision Apparatus Corp., Brooklyn, N. Y.—RADIO TODAY

ANTENNA ELIMINATOR

★ Substitute designed for use where conventional antenna is impractical. Used as test aerial by servicemen and demonstrators. Operates down to 80 meters. Signals diverted from power line to receiver by choke and condenser arrangement. Used with good ground connection and depends only upon the signals picked up by power line. Continental Carbon, Inc., 13900 Lorain Ave., Cleveland, Ohio—RADIO TODAY

ALLOY-CORE I.F. TRANSFORMERS

★ High-gain intermediate frequency transformer using Crolite, a magnesium alloy core imbedded in ceramic body. Mica compression tuning condensers—aluminum shield can 1½ in. square by 3½ in. Single-stage amplifier with these transformers has gain equal to two-stage air-core type and with lower noise level. Available in standard frequencies. List $2. J. W. Miller Co., 5917 South Main St., Los Angeles, Calif.—RADIO TODAY

SOUND TRUCK OUTFIT

★ Combination amplifier for sound truck with radio, dual-speed turntable, and microphone. Power output of 7 watts feeds two 8-inch dynamic speakers. Superheterodyne receiver with AVC. Entire outfit powered by 6-volt battery. Pick-up arm operates successfully while under way, even over rough pavements. Size —17¾ x 18⅞ in. x 15⅝ in. high. Model PG-79. RCA Mfg. Co., Camden, N. J.—RADIO TODAY

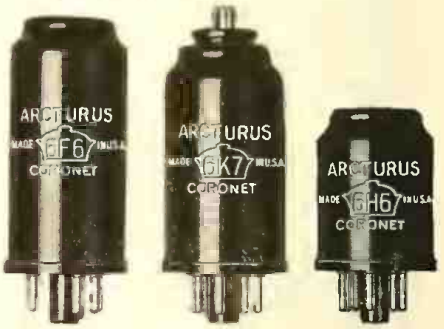
MOULDED RESISTORS

★ Non-inductive carbon resistors of the moulded type—noiseless, permanent, and unaffected by humidity changes. Slight positive temperature coefficient compensates minimum voltage coefficient and protects against heavy short-period overloads. Pigtails soldered to resistor element. Available in 1/3, ½, 1 watt sizes—100 to 10,000,000 ohms. Aerovox Corp., 70 Washington St., Brooklyn, N. Y.—RADIO TODAY

AUTOMATIC PHONO-COMBINATION

★ Automatic phonograph combination and 8-tube radio—covers 140-410 and 540-19,500 kc. Features slide-rule tuning scale and sentry box with permaliners. Record reproduction handled through audio system—record changer accommodates nine 10-inch or eight 12-inch records—intermission of 4½ seconds between records. Power output of 8.1 watts—8 metal tubes. Model A-88. General Electric Co., Bridgeport, Conn.—RADIO TODAY

METAL TUBE LINE



★ Arcturus Radio Tube Company, Newark, N. J., announces its "Coronet" metal-tube line, utilizing a new and exclusive principle in receiving-tube structure. It is claimed that the "Coronet" seal in these tubes enables the application of manufacturing technique perfected over past 28 years.

This special construction also results in material reduction of input and output capacities and makes possible uniformity in inter-element capacities. Special process has been developed to permit proper bombardment of the inner elements to the temperature necessary to dispense

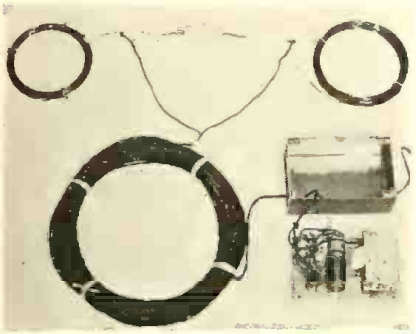
with residual-gas troubles. New seal precludes possibility of shorts between wires and ground.

Manufacturer also claims more dependable vacuum; lower operating temperatures permitting closer arrangement of chassis components; rugged structure eliminating metallic sleighbells and resulting in quiet operation. Types already in production are 5Z4, 6A8, 6C5, 6F5, 6F6, 6H6, 6J7, 6K7, and 6L7—RADIO TODAY

CO-AXIAL TRANSMISSION LINE

★ Untuned concentric transmission line for broadcast and ultra-high frequency transmitters—nitrogen filled for dependable performance. Weather-proof line may be buried or bent as desired—shipped in coils. Available in sizes for powers up to 50 kw. with terminating equipment—single lengths up to 500 feet. Doolittle & Falknor, Inc., 1306 W. 74th St., Chicago, Ill.—RADIO TODAY

TUNED S-W ANTENNA



★ A tuned antenna for the short-wave fan. Doublet 49½ feet long with 134-foot twisted-pair transmission line terminating in tuning box. It is claimed that four- to five-fold increase in volume is obtained over ordinary all-wave antennas, with equal gain in noise elimination. Non-critical in operation and easy to tune. List $14.75. McMurdo Silver Corp., 3354 N. Paulin St., Chicago, Ill.—RADIO TODAY

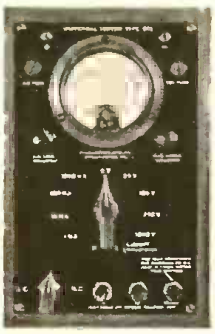
CLOCK DIAL RECEIVER

★ Line of all-wave receivers using 8-inch tuning dial with phantom illumination for ease of tuning and calibration-dual ratio vernier. Table and console models with six to ten tubes — combination of metal and glass. Superhet circuit with variable selectivity — automatic volume control and bass compensator. Modernistic streamline cabinets. "Tell-Time" receivers — list $47.50 to $119.50. Case Electric Corporation, 1307 S. Michigan Ave., Chicago, Ill.—RADIO TODAY

MODERNISTIC METER

★ DS meter of D'Arsonval type with unusually long scale (4¼ in.)—jewelled pivots. Semi-flush type mounting—bakelite case. Accuracy within 2 per cent—made in all popular current and voltage ranges. Mounts through 2¾ in. diameter hole. Hoyt type 573—10 milliampere movement—list $8.50. Burton-Rogers Co., 755 Boylston St., Boston, Mass.—RADIO TODAY

UNIVERSAL TESTER



★ AC-DC multi-meter designed for radio servicing—provides for measurement of AC-DC voltages and resistances, DC currents, and inductance and capacitance. Foundation of outfit is DC meter with rectifier. Range of meter controlled by rotary selector switch. Will test electrolytic condensers for capacitance and leakage. Model 611 Tester—list $50.00. Shallcross Mfg. Co., 700 Mac-Dade Blvd., Collingdale, Pa.—RADIO TODAY

RESISTOR TUBE

★ Resistor for dropping line voltage in AC-DC receivers — enclosed in perforated metal housing fitting in octal socket. Offers low operating temperatures, excellent insulation between element and ground, keeps "live" leads under chassis with resistor above. Will take care of tubes and pilot lights. Satisfies Underwriter's requirements. Clarostat Mfg. Co., 285 N. Sixth St., Brooklyn, N. Y.—RADIO TODAY

6X5 25A6, 25Z6 TUBES

★ Metal tubes for auto and AC-DC receivers. Type 6X5 is rectifier for auto use — will handle greater power than type 84. Types 25A6 and 25Z6 are similar to glass types 43 and 25Z5 respectively. The three types employ octal bases. Raytheon Production Corp., 30 E. 42nd St., New York City — RADIO TODAY

PERMANENT MAGNET DYNAMIC SPEAKER

★ Line of permanent magnet speakers employing a newly discovered alloy in the magnetic structure — equal to energized type used in AC receivers. More compact than previous types and lower in cost. Available in 6, 8, 10, and 12-inch sizes. Jensen Radio Mfg. Co., 6601 S. Laramie Ave., Chicago, Ill.—RADIO TODAY

AUTOMATIC CHIMES

★ Automatic chimes for broadcast stations have been developed by Rangertone, Inc., Newark, N. J., utilizing the oscillations of vacuum-tube circuits, thus producing definite, dependable volume and sequence. These chimes are heard regularly over NBC networks. Available in various series and can be applied in numerous ways. —RADIO TODAY.

12-TUBE SUPER

★ Metal-tube superheterodyne with 12 tubes featuring cathode-ray tuning indicator. Four band tuning with selective dial lighting — bass accentuator and static reducing control. Triode power detection and automatic volume control. Designed for export and tropic use as well as domestic. Pilot Radio Corp., 37-06 36th St., Long Island City, N. Y.—RADIO TODAY

SELLING RECORDS

Dealers string along with show producers

★ Currently important on the list of movie and musical productions whose vogue gives the record dealer some special opportunities for sales promotion are:

Sunny
Top Hat
Collegiate
Porgy and Bess
Two for Tonight
We're in the Money
Stars Over Broadway
Here Comes the Band
Broadway Melody of 1936
George White's Scandals of 1936
A Night at the Opera
I Dream Too Much
Here's to Romance
On With the Show
To Beat the Band
Sweet Surrender
In Person
Coronado
Jubilee

Live-wire and aggressive retailers find a tie-up with motion pictures of distinct help in building record sales. They follow carefully the scheduled dates for the presentation of the different pictures and use window streamers, window displays, mailing lists and other sales-promotion ideas to sell records of the featured hits in the motion pictures playing in their neighborhood theaters.

The progress made by the record industry in the past year or so is fittingly illustrated in the attitude shown by one of the foremost motion picture producers recently. Heretofore, the motion-picture producers have placed motion pictures on the screen with the idea in mind that the picture would help to sell records and sheet music. With the introducing of the Fred Astaire picture, "Top Hat," this policy was reversed and the records were placed on sale several weeks before the premiere of the picture, the producer believing that the music would help exploit the picture.

Reisman of Brunswick's top ork.

Ads on programs

★ With the beginning of the concert and opera seasons, plenty of dealers are buying ad space on programs. A prominent jobber reminded RADIO TODAY of several successful stunts of this type, where new records were adroitly listed on program booklets and the fall values in recorded music got across to the right prospects.

Best sellers as we go to press

BRUNSWICK

I Got Plenty o' Nuttin'—Fox trot. **It Ain't Necessarily So**—Fox trot. (Both from "Porgy and Bess") VC by Edward Matthews, with Leo Reisman and his Orchestra—7562.

One Night in Monte Carlo—Fox trot. VC by Elmer Feldkamp. **A Little Bit Independent** (But Easy on the Eyes)—Fox trot. VC by trio. Both with Freddy Martin and his Orchestra—7559

If You Were Mine—Fox trot. **Eeny Meeny, Miney, Mo**—Fox trot. (Both from RKO picture, "To Beat the Band"). Both with VC by Billie Holiday with Teddy Wilson and his Orchestra—7554.

DECCA

Red Sails in the Sunset—Fox trot. **Madonna Mia**—Fox trot. Vocal by Carmen Lombardo, with Guy Lombardo and Orchestra—585.

I'm in the Mood for Love—Fox trot. **Got a Brand New Suit**—Fox trot. VC by Louis Armstrong. Both by Louis Armstrong and Orchestra—579.

Cheek to Cheek—Fox trot. **Top Hat, White Tie and Tails**—Fox trot. (Both from "Top Hat") with Boswell Sisters vocal trio and Orchestra—574.

VICTOR

Take Me Back to My Boots and Saddle—Fox trot. **On Treasure Island**—Fox trot. Both by Tommy Dorsey and his Orchestra—25144.

Red Sails in the Sunset—Fox trot. **Turn Your Face to the Sun**—Fox trot. Both by Jack Jackson and his Orchestra—25152.

Georgia Rockin' Chair—Fox trot. **Brother Seek and Ye Shall Find**—Fox trot. Both by "Fats" Waller and his Orchestra—25175.

1936 PHILCO

Making Radio History

The combination of the best brains of the radio engineers and the artistry of the designers has placed the 1936 PHILCO at the top of the radio industry.
Perfect reception from near or far—the doings of the whole world are yours by the turn of the new PHILCO precision dial.
Model illustrated: Philco 116X—High Fidelity—15 watts undistorted output—11 tubes—A. C.—13.4 to 2000 meters.

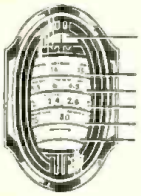
PHILCO RADIO AND TELEVISION CORP.

Export Department

AMERICAN STEEL EXPORT COMPANY

347 MADISON AVENUE, NEW YORK, N. Y., U. S. A.

NEW 1936 PHILCO PRECISION RADIO DIAL



SHADOW TUNING

1. Daytime Foreign
2. Night time Foreign
3. Police, Aircraft, Amateur
4. Standard Broadcast
5. Long wave

Five wave bands covering every broadcast service.