

GOOD NEWS

ABOUT RCA RADIOTRONS

AUDITION
ROOMS



RUNDLE
21

NUMBER 3

MAY

VOLUME 2

Get *all* their sparkling pep with new radio tubes



Put in new RCA Radiotrons, the radio tubes used by more than 200 leading broadcasting stations!

Naturally, only the finest tubes can be used in the big broadcasting stations. That is why more than 200 of them select RCA Radiotrons to safeguard millions of dollars worth of programs. Leading radio manufacturers have for years recommended that you use RCA Radiotrons in the fine sets they make. When you buy one of the marvelous new radios now on the market, look inside the cabinet, and make sure it contains genuine RCA Radiotrons. When you renew your old tubes, be certain of getting RCA Radiotrons, the radio tubes *guaranteed* by RCA. Look for the red and black carton.

RCA Radiotron Co. Inc., Harrison, N. J.
A Radio Corporation of America Subsidiary

Tune in on the new RCA Radiotron Broadcast on N. B. C. coast-to-coast network every Wednesday and Saturday night at 8:15 p. m., E. S. time.

WORN-OUT TUBE



Beware of Worn-out Tubes!

Even a single worn-out tube in a set of new ones can cause hum, distortion and poor tone! Remember—the eye can't tell the difference between a good tube and a worn-out tube. So today . . . have your radio dealer test your tubes. Replace the old with new RCA Radiotrons. All at once is the best way.

B. A. Rolfe and his Lucky Strike Dance Orchestra have the perfect radio tempo . . . fast enough to havesnap and gusto . . . slow enough for perfect reception! Don't let worn-out tubes spoil their pep and sparkle. Get new RCA Radiotrons!

RCA RADIOTRONS

The heart of your radio



Appearance dates of this advertisement: April 11, Literary Digest; April 25, Collier's; May 2, Liberty; May 16, Saturday Evening Post

GOOD NEWS

About RCA Radiotrons

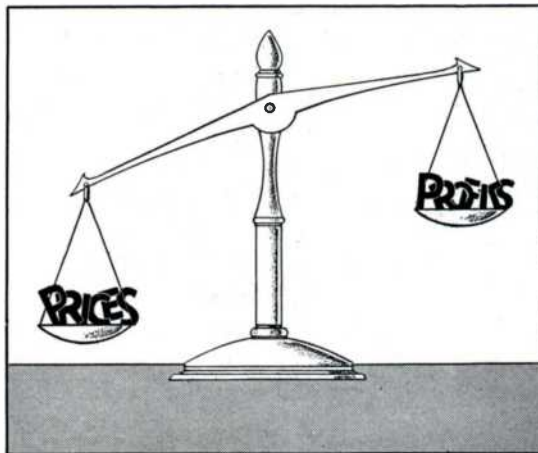
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VOLUME 2

25 Cents a Copy \$2.00 a Year

NUMBER 3

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Prices Down ♦ ♦ Profits Up

THE substantial reduction in the prices of twelve popular types of RCA Radiotrons which took effect on April 15, and the reduction on four types effective May 1, is no longer news to dealers. The question of how to get the most out of the reduction, however, should remain the concern of every dealer.

The story of the price reduction is contained in an article entitled "Meeting Today's Pocketbook," by G. C. Isham, in this issue. It tells how RCA Radiotrons at the new low prices may be used to stimulate over-the-counter sales, house-to-house sales and even set sales. Every dealer who is interested in profits should read it. He will realize what we mean by "Prices Down - Profits Up."

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A magazine of radio merchandising counsel to help distributors and dealers of RCA Radiotrons make more profit.

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What Can Business Learn

An Energetic Campaign Won Overseas; the Same Tactics Should Speed the Return of Business Prosperity

By T. J. Bernard

Sales Promotion Department, RCA Radiotron Company, Inc.

GENERAL Pershing as a captain of industry? Somehow our minds reject the idea. We think of him as essentially the military man, the outdoor type, the man of action. Yet we have his own word for it that up to the time of his appointment as Commander-in-Chief of the American Expeditionary Forces he felt the urge to retire from military life, while he was still in middle age, and devote himself to business or the law.

War Ends Business Urge

The war, or rather his appointment to the supreme command of the American forces, ended all that. For here was a chance for action, for adventure, for the full play of his executive powers that a man of his robust make-up could not refuse. Combined with the military opportunity, moreover, was a job made to order for the man who, having taken the laurels of soldiery, yearned to try his hand at business. Was not winning the World War a business as well as a fight? Was it not the biggest business ever undertaken by an American? No wonder the momentous assignment drove from his mind all thought of a private enterprise.

To read Pershing's vivid memoirs, recently issued in book form after running in the newspapers, is to wonder whether they do not constitute a challenge to modern business. In the face of discouragement amounting almost to demoralization on the part of the Allies and unpreparedness and initial inefficiency at home, Pershing defeated an enemy that held a distinct edge when America entered the war. He did it by standing out from the start for an independent American

army; by adopting open and vigorously offensive tactics of warfare; by



HARRIS & EWTING
General Pershing as he looks today

insisting on an attitude of confidence which did not preclude a fair estimate of the enemy's strength; and by refusing to send his men into action until they were adequately prepared. It is reasonable to ask whether similar tactics, assuming favorable developments as to uncontrollable economic factors, would not bring about the rout of a business depression.

I went to Washington to ask him. The reply I got, while entirely understandable, was not in the least satisfactory. General Pershing will not talk for publication about matters

which he considers outside his field. And business, while it has always interested him, while he long entertained the idea of making it a career, and while he conducted the gigantic business of winning a war with signal success, is outside his field—at least as far as his expressing an opinion about it is concerned. Undoubtedly, General Pershing believes that an active aggression, a well-founded confidence and preparedness might be applied as successfully in a campaign against an economic bugaboo as against an enemy on the battlefield. In fact, he told me so; but as to specific comparisons and detailed suggestions, the world will have to look to others to make them.

Youthful and Vigorous at 70

Still retaining the idea that it is difficult to reconcile the ruddy hardihood of a war hero with the sedentary and comparatively uneventful life of a business leader, there is otherwise no obstacle to envisioning General Pershing in the executive's chair of a great industrial corporation. As he sits a part of each day in his office in the State Army and Navy Building in Washington, he suggests such a figure. You have to be on your toes when you see him. The interviewer who enters under the delusion that time has drained the vigor or deteriorated the steel-banded coordination revealed by the familiar photographs of the war era, is in for a shock. The General wastes no time. "Well? Well?" The voice is like the man, crisp, close-cropped. You are amazed at his youthful firmness, his youthful grip on himself. General Pershing, in spruce black-striped suit and stiff collar, is the War General we imagined—not the

from the A. E. F? . . .

War General twelve years later.

Yes, this man, if he chose, could cause a timorous business competitor to tremble with apprehension. But the show of interest, of warmth, that follows the habitually necessary formal greeting, convinces you that he would turn his strength rather to leading his less hardy colleagues out of the economic wilderness. General Pershing, at seventy, still has all the lean hardness of the soldier, but, reversing the order of the mailed fist covered with kid, that hard-

be an unshakable belief in victory. Not that Pershing would encourage empty optimism. In his "Experiences" he recites that in October, 1917, a Berlin dispatch to the *New York Times* purported to reveal a deep discouragement

grounds for his immediate removal.

We cannot picture such a man countenancing weak complaints about "hard times" from his business colleagues. He would insist upon the sturdiness of spirit that ignores temporary reverses in the knowledge that constructive action will lead to better things.

We can see him addressing his board of directors. Good times or bad times, he is the same—except that there is an added sharpness in his voice when he feels that his listeners may be slipping. Cut? Retrench? Cur-



KEYSTONE



KEYSTONE

A Company of American Engineers return from the St. Mihiel Sector in jubilant mood

Shelling the enemy from the shadow of a ruined cottage

Mud, mud and more mud. A doughboy stands guard



KEYSTONE

ness is without. Relaxed, he is the pleasant host, cordial, soft-spoken.

Pershing, Chairman of the Board, would insist first of all on men who were fit. In the war, he demanded in his leaders youth and the physical stamina to stand the gaff; in a peacetime endeavor he would probably modify this to men young in spirit and mental flexibility rather than in years. His disciples would need all the resourcefulness—a basic quality of Pershing himself—that they could muster. For here would be a program of aggressive action; a carrying of the battle to the enemy. No loitering in the trenches, no place for men content to hold the opponent on even terms.

A natural consequence of this attitude, or perhaps it is the cause, would

ment on the part of the American army. Pershing's answer was a vigorous message to the several American divisions and to the Allied commanders. The message opened by indorsing a recognition of the strength of the enemy. But this, he went on, did not preclude a firm faith in the ability



KEYSTONE

of the Allied armies to beat the enemy. He ended with the blunt statement that evidence of a lack of confidence in any American officer would constitute

tail our activities? No, nothing desperate. No panicky turning of tail. Pershing has all the facts. The company is prepared.

A wait, then, before further action? Perhaps. He had only patience while the Allies were frantically importuning him for troops—raw troops—to fill the gaps. He will have patience now. When his plans are laid and his men are ready, he will launch a new offensive. When he hits, he will hit hard. And he will win, even as he won in France.

General Pershing will talk pleasantly about his own field; he will not presume to talk about other fields. War is certainly his field. Business—according to his view—is not. But business can learn much from the study of a neighbor occupation.

MEETING TODAY'S POCKETBOOK

New Prices Mean Greater Profits for Dealers

By G. C. Isham

Sales Promotion Dept., RCA Radiotron Co., Inc.

NO BETTER time could the RCA Radiotron Company have chosen for a reduction in the retail prices of Radiotrons. Notwithstanding what has been said to the contrary, customers have not been spending money with great abandon during the last few months. People in all walks of life have been putting off buying the new things they wanted and would have purchased if they had felt they could afford it. Pocketbooks have been considerably smaller and considerably thinner lately than for a long, long time before. The great masses have been "sitting tight" until economic conditions take a turn for the better.

Means Much to American Public

As a result of the lower prices on Radiotrons, people who would have had to remain content with their reception, although it may have been very unsatisfactory, can now equip their radios with the best tubes on the market. A recent survey carried on in several typical marketing centers revealed that four out of every five radio sets need one or more (usually more) new radio tubes to allow the set to operate as it should. And that's not a toothpaste advertisement! In other words, there are some 12,000,000 radio sets in this country actually "squawking" for new tubes. By the same token, there are millions of radio set owners who would like to buy new tubes, who would like to get the best enjoyment

out of their sets, but who have felt that they could not spend the money. Now, the cost of equipping their

their Radiotron dealers and buy them. On the other hand, some people have not been using RCA Radiotrons in their sets because other tubes could be purchased for less money. Many of these people will now buy Radiotrons because they cost no more than other kinds. Dealers' sales volumes are bound to increase, which, together with decreased inventory investment as a result of lower prices, will result in increased profit.

Beginning January 1, 1931, RCA Radiotron Distributors were placed in a position which enabled them to give their dealers three weeks' price

protection on RCA Radiotrons purchased by RCA Radiotron Distributors direct from the RCA Radiotron Company. A thorough investigation of the condition of dealers' stocks indicated that those who made an effort to follow out the sales promotion plans of the



Like many other dealers, the Royal Electric Company, Miami, Fla., immediately capitalized on the price reduction

radios with the best tubes available has been substantially reduced, making easier what was desirable before. It is estimated that the greatly reduced prices on RCA Radiotrons alone will save the American public many millions of dollars during the remainder of the present year.

Lower Prices Stimulate Sales

This great saving to the public is of vital interest to RCA Radiotron dealers. It can mean increased sales—it will mean increased sales—if increased sales are wanted. Millions of satisfied radio listeners have been demanding RCA Radiotrons for years. Of these millions, many who need tubes will now be stimulated to go to



Auten's, Charlotte, N. C., made haste to cash in on the new RCA Radiotron prices

RCA Radiotron Company moved Radiotrons in such volume that their entire stocks were well within the three weeks' limit set for protection.

With prices at the lowest point in history, with radio programs getting better and better every day, with more public interest being shown in radio than ever before, now is the time for dealers to "step on the gas" and go out after the Radiotron business they have been missing. Using Radiotrons as a leader, the path to greater profits is clearly marked for the dealer who is willing to work.

Merchandising Assistance

As was the case on July 17, 1930, the present price reduction was the signal for sending a complete set of display and merchandising material to every HEADLINER and HEADLINER STAR DEALER. This kit of material, including 14 pieces, all colorful and attractive, furnished ample material for displays in the window, on the door, on the counter, on the shelves, by the cash register, and elsewhere. These displays were produced at great expense for the purpose of giving HEADLINER and STAR DEALERS an opportunity to tell every passerby that now RCA Radiotrons are available at the lowest prices in history, to remind people to buy and to stimulate them to buy. Obviously, these displays will sell no Radiotrons if they remain in the back-room or down in the cellar. If yours are there, take them out and put them to work today. That is the first thing to do—but by no means is it all.

Outside Selling

Approximately one house in two is a prospect for new Radiotrons—and we don't mean suspects. As has been pointed out, four out of every five radios need new tubes, and nearly

50 per cent of the homes in an average community have radios. Get out your letters to prospects now and follow up



So anxious were James Brothers, Kirkllyn, Pa., to obtain a supply of RCA Radiotrons at the new low prices that they drove their midget roadster right up to the counter of Elliott-Lewis Electrical Company, Philadelphia

with a salesman's call. It will mean increased sales and profits.

Set Selling

Sets equipped with Radiotrons have always sold more easily than sets equipped with other tubes. Now, with an almost negligible differential in cost, the selling advantage of Radiotrons

tube equipments was given and the customers were allowed to choose which tubes were desired. Over 90 per cent of the customers picked Radiotrons, notwithstanding a price differential of from \$6.50 to over \$10.00, depending on the set model. Now, with that price difference reduced to almost nothing, the selling value of Radiotrons is even greater.

Concentrate Your Efforts

There was a time when the radio tube dealer could justify two or more brands

of tubes. With considerable differences in price, it was quite often that a customer came in and chose an inferior make of tube because it meant less cash outlay. Today, the price difference between the best tubes and others is so small, so really insignificant, that it does not warrant duplication of stocks and duplication of investment.

To any dealer, wherever his location, whatever his size, concentration on the fastest selling brands of merchandise means much. Today the merchandising of radio tubes is not the simple matter of keeping a flock of tubes on the shelves and waiting for people to come in after them. Dealers who are following that practice are not getting their share of the business, because their competitors are going out after tube sales and making it easy for customers to buy. Such dealers are working closely with distributors' salesmen and with manufacturers and are concentrating their efforts on the fastest selling brand—RCA Radiotrons.

New RCA Radiotron Prices

	Old Price	New Price	Reduction
UX-112-A	\$ 2.25	\$1.50	\$0.75
UX-171-A	2.25	1.40	.85
UX-201-A	1.25	1.10	.15
UX-210	9.00	7.00	2.00
UY-224	3.30	2.00	1.30
UX-226	1.75	1.25	.50
UY-227	2.20	1.25	.95
RCA-230	2.20	1.60	.60
RCA-231	2.20	1.60	.60
RCA-232	3.30	2.30	1.00
RCA-235	3.50	2.20	1.30
UX-245	2.00	1.40	.60
RCA-247	3.00	1.90	1.10
UX-250	11.00	6.00	5.00
UX-280	1.90	1.40	.50
UX-281	7.25	5.00	2.25

over other tubes is greater than ever before.

In a recent test, radios equipped with Radiotrons outsold the same sets not so equipped by over nine to one, and no high pressure selling methods were used! A demonstration of the two

The "Why" of Lower Prices

Lower prices on RCA Radiotrons were established with two ends in view, first to meet today's pocket-book and second to help you increase your sales. Make the most of your opportunity.

1931 Radio Reception Best

*Sunspot Cycle Brings Phenomenal DX Results —
But Also Local Fading and "Mushing" Troubles*

By O. H. Caldwell, Editor, "Electronics" and "Radio Retailing"
Formerly Member of the Federal Radio Commission

THE months of 1931, so far, have been periods of exceptional radio reception, confirming the prediction made last year that with the coming "minimum" of the eleven-year sunspot cycle, radio conditions would return to the halcyon situation of 1920 and 1921, when a little 50-watt station could be heard 3000 miles!

Now, from all parts of the North American continent come reports that long-distance reception, compared month for month, is at the best it has ever been in the history of modern receiving sets, and is continually improving. Indeed recent tests have shown radio reception to be two to five times as good as it was a year ago at the same time. Stations are being heard clear across the continent with ease, during the late evening hours. Distant programs now come rolling in with power and clarity which surprises many listeners.

An unexpected consequence of this improved reception, however, has been the increased fading and "mushing" of nearby stations after nightfall, to listeners located within 50 to 100 miles or so, as a larger proportion of the stations' sky-wave energy is reflected down again from the Heaviside Layer to conflict with the direct ground wave (which was the only component usually heard heretofore). Fading is caused by the interaction of this night "sky-wave," and the "direct-wave," and with more energy being reflected from the Heaviside Layer at points close up to the station, the night-time ring of "fading area" is now brought in much closer than before. This accounts for the complaints of rapid fading and "mushing" of nearby stations which have been frequently heard of late.

Reflections from the Heaviside Layer

Astronomers who study radio conditions and sunspot phenomena had all



O. H. Caldwell standing beside world's largest vacuum tube, the Westinghouse AW220, a 200,000 watt transmitting tube whose grid and plate are water-cooled. Five tons of water are required for this purpose hourly

predicted greatly improved radio reception during 1931 and 1932, in line with the reduction of sunspot activity, recently witnessed, following the usual eleven-year period.

Distance reception of radio apparently depends upon the height and smoothness of the Kennelly-Heaviside reflecting layer above the ground. It is

this layer which reflects the radio waves and keeps them tied down to earth, so that they progress around the globe by a series of "bounces," first hitting the Layer and being reflected down to earth, and then bounding from the earth's surface again. The so-called "short waves" proceed entirely by such a "bouncing" process.

The height of this reflecting layer of electrons affects the length and condition of the bounces. And the smoothness and average height of the layer in turn seems to be controlled by the number of sunspots present on our orb of light.

The Sun a Huge Magnet

Spectrum photographs show that these sunspots are tremendous electromagnetic fields, thousands of miles across, and with magnetic intensities about 10,000 times our earth's field.

As the sun rotates, such spots usually parade around the sun in pairs. North of the Equator, each leading spot of the pairs is at present "north" in polarity, while each follower is a "south pole." On the south side of the sun's equator this order is reversed, the "south-pole" spots leading. And about every eleven years, when the sunspot minimums come, these spots reappear but reverse their polarity, and for the next eleven years faithfully observe the new order.

Now these intense magnetic storms of whirling electrons on the sun's surface—storms sometimes a hundred thousand miles from edge to edge—exert, as may be expected, a powerful effect on everything magnetic and electronic on the earth. So, when the sunspots are at their maximum, their bombardment of electrons lowers the

in Broadcasting's History . . .

earth's Kennelly-Heaviside Layer and distance radio is poorer. When the sunspot activity falls off, the earth's layer has a chance to rise and long-distance radio gets better. Although radio broadcasting is not yet old enough to have undergone a complete cycle of these sunspots, reception has apparently been following the sunspot cycle, and now that we are approaching a pacific period of few spots, radio may be expected to be at its best during the next two or three years. Already we have excellent evidence that the halcyon days of 1920 and 1921 are again with us.

Long-Time Radio Echoes

Radio and astronomy are linked up in many other ways. Recent "long-time" radio echoes are believed by some to be echo-waves reflected from out in inter-stellar space. These echoes have appeared five seconds, ten seconds, and even up to five minutes after the original signal was sent. Had they been echoes of signals that merely went completely around the world, they would have returned in one-seventh of a second, or if twice around, they would have appeared in two-sevenths

second. But for these longer radio echoes, which have been definitely observed in both Europe and America, there are two theories. According to one, the reflecting medium from which these echoes return is perhaps

are merely due to retarded transmission in the earth's own vicinity, perhaps beneath the Kennelly-Heaviside Layer.

Diligent attempts have been made to detect radio echoes from the moon. With our satellite 240,000 miles away, radio signals from earth should make the round trip in about three seconds. But so far there has been no authenticated case of such moon echoes.

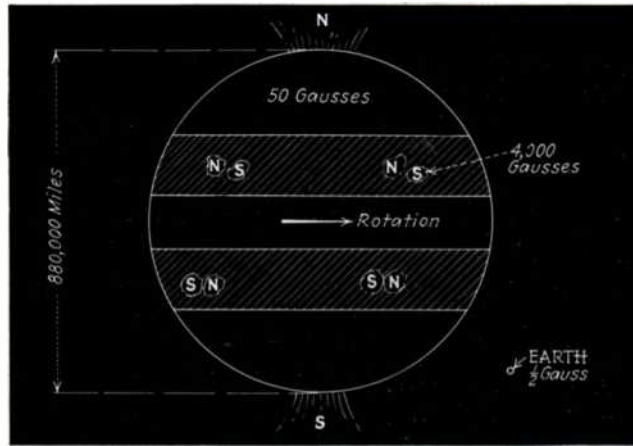
Extraordinary Reflections Produce Nearby "Fading"

Along with the reports of extraordinary long-distance reception, there have been some unexpected troubles developed in the wake of the sun spot lull.

From all parts of the country radio men have been receiving complaints that, after nightfall this season,

strong stations near the listener suddenly fade badly or cut new capers in distorting or "mushing" every few minutes.

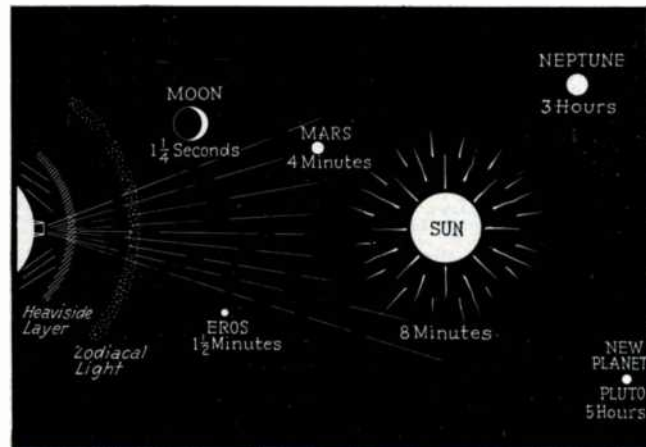
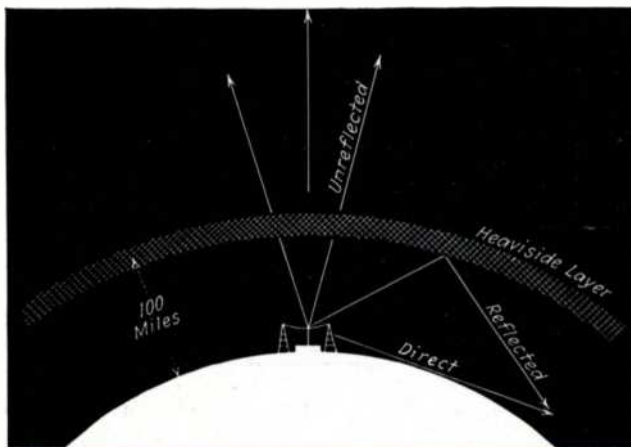
In "mushing," the station signal, while still heard, suddenly becomes unintelligible. The voice sounds as if the performer had a mouthful of hot mush. A few seconds later the conversation is as clear as ever. Thousands



The sun as a vast electro-magnet. Compare its 880,000-mile diameter with that of earth at right. Sun's field (50 gauss) is about 100 times earth's field intensity. Sunspot intensity 4000 gauss. Spots travel in pairs, of definite polarity relation

the collection of cosmic particles out in the region of diminished gravitational field which form a sort of incipient Saturn's ring around the earth, and which is visible to us as the Zodiacal Light, seen after sunset and before sunrise as a faint band in the twilight sky. Some radio men have felt that reflections from this "ring" cause the echoes.

Others feel that the delayed echoes



Left—Showing how broadcasting wave reaches listener by ground path, and by sky path. At distances when one is much stronger than other, reception is clear, but at point of nearly equal intensity, fading and "mushing" occurs. Right—Diagram showing time taken by broadcasting waves to reach planets of the solar system, traveling at 186,000 miles per second

have ascribed such symptoms to faults in their own sets. Countless complaints to dealers and service men have resulted.

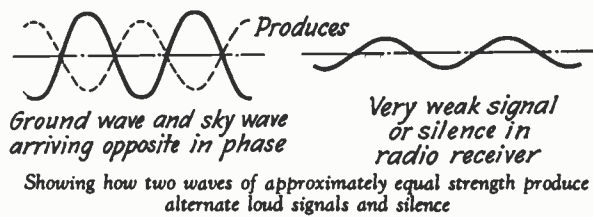
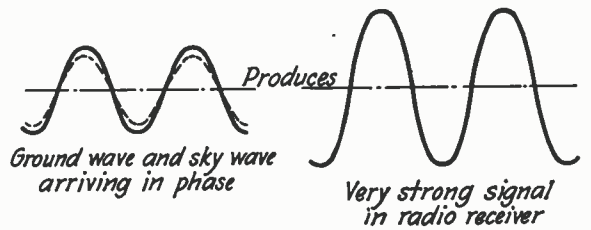
This difficulty, however, is not in the receiver but is due to the same conditions in the upper atmosphere which have been giving us such

seconds later, if the sky-waves and ground-waves arrive out of phase so that one cancels the other, the listener gets only silence and the station appears to have "faded away." As the reflecting layer of electrons drifts higher or lower, the two sets of waves alternately reinforce, then cancel each other, so that the stations sound first loud, then soft.

Formerly this fading, for most stations, took place at distances from 100 to 150 miles from the broadcast transmitter. But during the present winter season, the reflected waves sent down by the quiescent Heaviside Layer have been so strong as to interfere with the ground-wave at points within 30 to 50 miles of the

which have been so exasperating to 50-mile listeners.

It should be noted that none of these fading effects occur in daytime when the reflecting power of the Heaviside Layer is temporarily broken up by the ionization of the lower atmosphere by the sun's rays. During such daylight hours only the direct waves from the broadcast station reach the listener. There is then no sky-wave to cause interference with the ground-wave, and so the latter comes through undisturbed. Many have commented on this fact that a nearby station is received clearly by day, only to be badly garbled after nightfall.



exceptional long-distance reception this winter. During the past few months the great horizontal radio reflecting plane of electrons—the Heaviside Layer, 100 miles above the earth's surface—has been comparatively quiescent and smooth, owing to the absence of magnetic disturbances from spots on the sun. As the result, this layer reflects back the "sky-waves" from broadcasting stations near and far. In the case of stations nearby, the waves at the present time strike the ground in much greater strength than heretofore, with the result that they interfere with the waves coming directly from the station, and this interference now occurs at locations much nearer than before.

Ground-Wave and Reflected Sky-Wave Clash

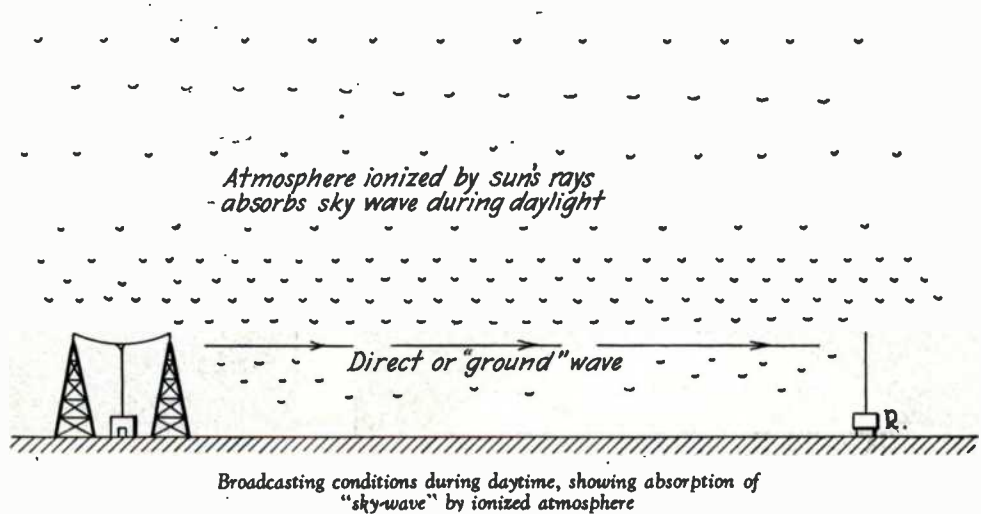
The radio waves which have made the longer journey, even though traveling at 186,000 miles per second, arrive a few thousandths of a second behind those coming direct. If the impulses coincide "in phase," the sound in the radio is increased. But a few

transmitter.

Not only is there complete "in-and-out" fading, but also often the "mushing" already mentioned. This "mushing" may be caused in either of two ways: (1) by "in-and-out" fading so rapid that it actually reaches an audio frequency and so introduces a flutter which breaks up the speech or music, or (2) by the unequal fading of different frequencies in the voice signal, so that the central carrier wave may be faded out and missing momentarily while the "side bands" continue, producing the garbled voice sounds

Rainfall, Trees, Furs Also Affected by Sunspots

Although radio has not been studied long enough to connect its cyclic vagaries fully with the sunspot cycle, the effect of the sunspot period on many other things, such as weather, rainfall, etc., is well established. Records of the Hudson Bay Company going back hundreds of years, have shown that the seasons of heavy pelts and furs have recurred regularly every eleven years, as the animals protected themselves against the severe winters of those seasons. Trees also show this eleven-year cycle in their rings. A big oak cut down near my home in Connecticut last year revealed strikingly heavier rings every eighth to thirteenth year, indicating exceptional moisture or growing conditions during those years. Now radio may be added to this list of phenomena under sunspot control.



E. T. Cunningham Heads RCA Radiotron Company

*A Pioneer Radio Retailer Becomes Chief of
World's Largest Tube Business*



E. T. Cunningham

BACK in 1911, E. T. Cunningham was a dealer in electrical appliances and wireless apparatus in San Francisco. It took courage and vision to be a radio dealer in those days. To the public, the communication of messages without the aid of wires was a miraculous thing—but a dabbler in wireless telegraphy was either a boy consumed with scientific curiosity or a fanatic.

Knows Dealers' Problems

It seems fitting that a man who made a success of merchandising radio in the difficult days of its infancy should eventually become the head of one of the industry's largest concerns. The selection of E. T. Cunningham to lead the RCA Radiotron Company should be cause for rejoicing on the part of every radio retailer—every retailer, at least, who values first hand knowledge of his problems in the man who makes and sells to him the product from which he derives part of his living.

Mr. Cunningham was born in San Francisco in 1889—which, incidentally, makes him a remarkably young man for the position of great responsibility he has assumed. Following a public school education in his native city, he enrolled for a course in engineering at the University of California. College life, however, did not appeal to him. He longed for a wider field of action, for the opportunity to put his practical ideas to work.

The electrical and wireless store was among his earliest commercial ventures. This was in 1911. In 1915, however, his first love—radio experimenting—apparently got the better of him, for he turned to the manufacture and sale of vacuum tubes, the trade name of which was "Audiotron." Thus Mr. Cunningham, who had been one of our pioneer retailers, became one of our pioneer radio tube manufacturers.

Foreseeing that radio would before long reach the status of a household necessity, Mr. Cunningham formed, in 1919, the Remler Radio Manufacturing Company. This company made quality radio parts. There is evidence of a resourceful and inventive mind at work in the fact that several notable improvements in manufacturing

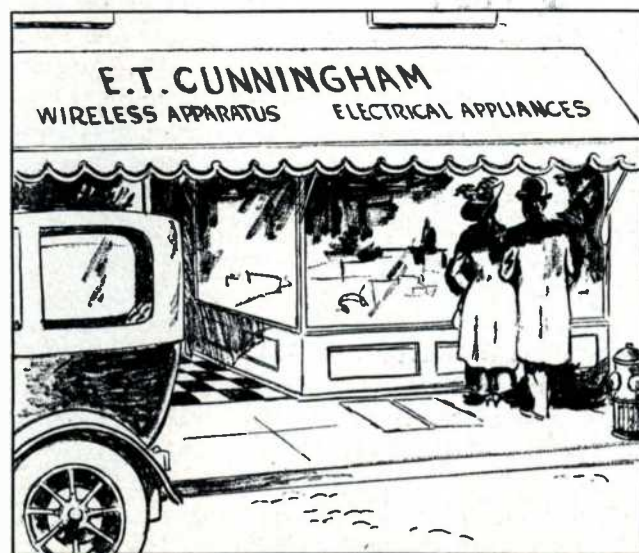
processes including certain uses of bakelite had their inception in this plant.

In 1920, he received a license to manufacture radio tubes and in that year negotiated a contract with the Radio Corporation of America for the purchase of radio tubes bearing his brand. The trade name "Cunningham" was adopted in 1921.

Enjoys Helping Others

From then on, things moved fast. In 1926, Mr. Cunningham sold an interest in E. T. Cunningham, Inc., to the Radio Corporation of America and on November 1, 1930, the Cunningham organization became a wholly owned subsidiary of the Radio Corporation of America.

By virtue of his wide experience, E. T. Cunningham is in a position to help practically anyone associated with the industry. And, because he is a man who enjoys helping others, that is



In 1911—a radio and electrical dealer in San Francisco

just what he intends to do as President of the RCA Radiotron Company.

Stops Traffic by Broadcasting from Show Window

Loveman, Joseph & Loeb Boosts Radiotron Sales with Unusual Window-Studio Program

By F. P. Stevens and J. B. Minnick
Southern Sales Division, RCA Radiotron Company, Inc.

IT ALL happened in the usually peaceful city of Birmingham, Alabama. Loveman, Joseph & Loeb, the largest department store in Birmingham, had never seriously considered the remarkable possibilities of the RCA Radiotron renewal market. Certainly, they had carried tubes, but only as an accommodation to their many customers.

It was just before Christmas, however, when the mice began to stir. Erle E. Hyde, Branch Manager and City Salesman for the Braid Electric Company, RCA Radiotron distributors, realized that RCA Radiotrons could be made a profit-making item for this large store. He visited the manager and presented his story. The manager wasn't quite convinced. That was evident! But he did consent to try out Mr. Hyde's idea.

Just before Christmas the only available display space in the store was the top of a radiator between two elevators. This, of course, was hardly to be considered an ideal situation to test the selling ability of RCA Radiotrons. Nevertheless, the display was arranged and here Radiotrons were to radiate. The results thoroughly justified Mr. Hyde's faith in RCA Radiotrons. From then on, Loveman, Joseph & Loeb took an active interest in the RCA Radiotron renewal market.

Mr. Hyde Gets Serious

To show what could be done with RCA Radiotron sales, Mr. Hyde suggested that Loveman, Joseph & Loeb put some real action behind them. Mr. Hyde's idea was a window broadcast—



Erle E. Hyde, Branch Manager and City Salesman, the Braid Electric Company, Birmingham, Ala.

something that would unquestionably attract the public—something startlingly new and informative.

Mr. Marx Max, Radio Manager of Loveman, Joseph & Loeb, being an aggressive merchandiser and interested in the success of his business, immediately saw the wisdom of such a plan. In conjunction with the Braid Electric Company and the local broadcasting station, WKBC, Loveman, Joseph & Loeb arranged the window and installed the necessary apparatus.

Programs were broadcast from the window between 12:30 and 2:30 p.m. on Thursday and Friday, January 29 and 30, and at 12:30, 2:00, 3:00 and 4:00 p.m. on Saturday, January 31.

The news of the novel and educational window spread rapidly. Crowds began to gather. Police were necessary to control the crowds. WKBC, the local broadcasting station, became in-

terested and supplied talent and announcers.

Children's Broadcast Attracts Talent, Crowds

Then, on Saturday, there was a special children's broadcast. This detail of the plan was an important one. The idea was to give local child geniuses an opportunity to "strut their stuff." And there were plenty of them! Fond parents lugged their children into the store window, where they performed for a curious audience outside the window and the several thousands who listen regularly to WKBC's broadcasts.

The outstanding feature of this "Tiny Tots" broadcast was the appearance of Mildred Evelyn Hyde, 14-year-old daughter of Mr. Erle Hyde, who started Loveman, Joseph & Loeb on their path to the successful merchandising of RCA Radiotrons. Little Mildred, stretching high upon her toes in order to reach the "mike," presented the audience with a song, the music and words of which she had written herself. Unfortunately, Mildred did nothing more than memorize the tune for the song, and, as a result, we are unable to reproduce the music here. It is said that the song was catchy and exceedingly well received by the milling multitude who were "outside, looking in." Little Mildred, it is reported, had labored incessantly in the perfection of her selection, but the enthusiastic reception tendered her rendition on the air thoroughly justified her faith in her "daddy's Radiotrons."

Thus, everything went well. That is, until one Saturday afternoon when

traffic was blocked and the police found it necessary to intervene. There were hot words and threats of arrest, but eventually everything was straightened out. Things again assumed their normal course.

Mention of RCA Radiotrons was worked out in an interesting manner. The window-studio was attractively decorated with Radiotron cartons, decalcomanias, and other material. Announcement continuities stressed the fact that tubes should be renewed regularly and that Loveman's radio department stood ready to test tubes free of charge. The station announcer did his bit by mentioning that WKBC was equipped with Radiotrons.

All parties concerned are naturally enthusiastic about the results of the plan. In addition to the number of people reached by the broadcast, the Birmingham newspapers commented most favorably on the program. Needless to say, all this publicity resulted in substantially increased tube sales for Loveman, Joseph & Loeb.

Erle Hyde Formerly Retail Merchant

Mr. Hyde has had considerable retail experience. He has studied people



Miss Mildred Evelyn Hyde, who composed and sang the Radiotron Song, the lyric of which follows:
 Listen to my little song,
 If you do you won't go wrong,
 'Cause I'm telling you about
 The RCA RADIOTRONS.
 Folks, here's your chance
 To buy some RCA Radiotrons, and
 You'll wanna have a dance,
 'Cause they're the tubes that
 Make our radio SHO NUFF play!
 RADIOTRONS are going over the top—
 Believe it or not—
 We're never gonna be stopped,
 'Cause the others have already been
 dropped.

and knows what will attract them. There is an interesting story told of Mr. Hyde's experiments when he was a retail music and phonograph merchant in Nashville, Tennessee. From his small music store he did a remarkably large volume of record business. This was attributa-

ble to his excellent merchandising ability.

He once set out to see if it were possible to sell a not very popular record. He gave away free records of "Whistle Your Blues Away" to every public place using phonographs to entertain customers. As a result, the record became very popular in and about Nashville, and Mr. Hyde's sales for "Whistle Your Blues Away" mounted rapidly.

Sell—Don't Wait!

This idea of Mr. Hyde's is merely cited to illustrate that selling a thing is not such a difficult matter after all. The one thing to remember is that "selling" and "waiting" are not synonymous. When questioned concerning the tube business, Mr. Hyde said, "The tube business is very much like the record business. But there is a difference. Everyone knows when he wants a new record, but the manufacturer and dealer must tell the customer that he needs new tubes. The RCA Radiotron Company is doing its share of this work in great style. It remains for the dealer to use some ingenuity in doing his part. The dealer that does so will have no time to complain of business conditions."

Mr. Hyde knows!

The success of Loveman, Joseph & Loeb should encourage other dealers to try this unusual sales stimulator.



Crowd watching Radiotron broadcast



The window-studio—largest window in largest department store in Birmingham

TUNING IN

With J. W. McIver

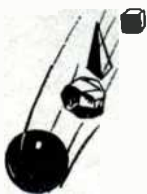
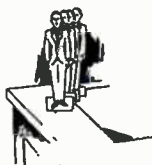
Manager, Sales Promotion Department

JUST as the stirring of a "Stooge," on a stage, can spoil the great moment of a star, so can the poor arrangement of a store spoil the great moments of profit in the sale of merchandise.

Magicians say that the hand is not quicker than the eye. The magician makes you look where he wants you to look while he does things where you are not looking.

There must be some showmanship in all selling. It isn't necessary that the grand entrance of the customer be prefaced by a twinkling display of Tiller Girls. Nor is it entirely necessary that the owner of the store put up the painted canvases and shout the old "Lay-y-d-eeez and Gen-tul-men" ballyhoo. It is necessary that considerable thought be given to making the prospective customers look at what you want them to look at and to make it easy for them to get your point.

THE manager of a store who wished to impress his prospective customers with the fact that his clientele was of the highest type, induced a great number of his regular customers to permit him to use their full length photographs. He mounted these on cardboard and cut them out into silhouettes. To these little ten-inch-high figures he attached cardboard easels. Massed together, they made an imposing display. He would also build up, piece by piece, a fashion show using these figures to impress his point.



Frequently, in our discussions with our dealers we emphasize a number of points they must bear in mind if they are to conduct a profitable tube business. These include such subjects as: Know Your Product, Window Display, Store Display, Asking Customers to Buy, Showmanship and so on.

It is very difficult for any man—especially a busy man—to remember, handle, and do all of the things he knows he must do in a haphazard or "When-I-Get-Around-To-It" manner. It is important that these things be scheduled into a regular plan.

To visualize how to do this, we have prepared a large wooden bead—about one foot long—to represent each of the subjects. Selecting a willing victim, we pile these beads on to him. It is practically impossible to handle them. But, if we string them on a rope (The Plan) it is easy to carry, handle and use them all.

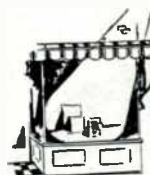
SOME years ago the Coca Cola Company gave to each of its salesmen four small, colored wooden blocks. There was a tiny pyramid to represent "Soft Drink No. 1." A cube for "Drink No. 2;" a polyhedron for "Drink No. 3" and a red sphere for Coca Cola.

The salesman would point out that exhaustive tests on four leading drinks had shown that Coca Cola had by far the greatest turnover. He would then introduce the wooden

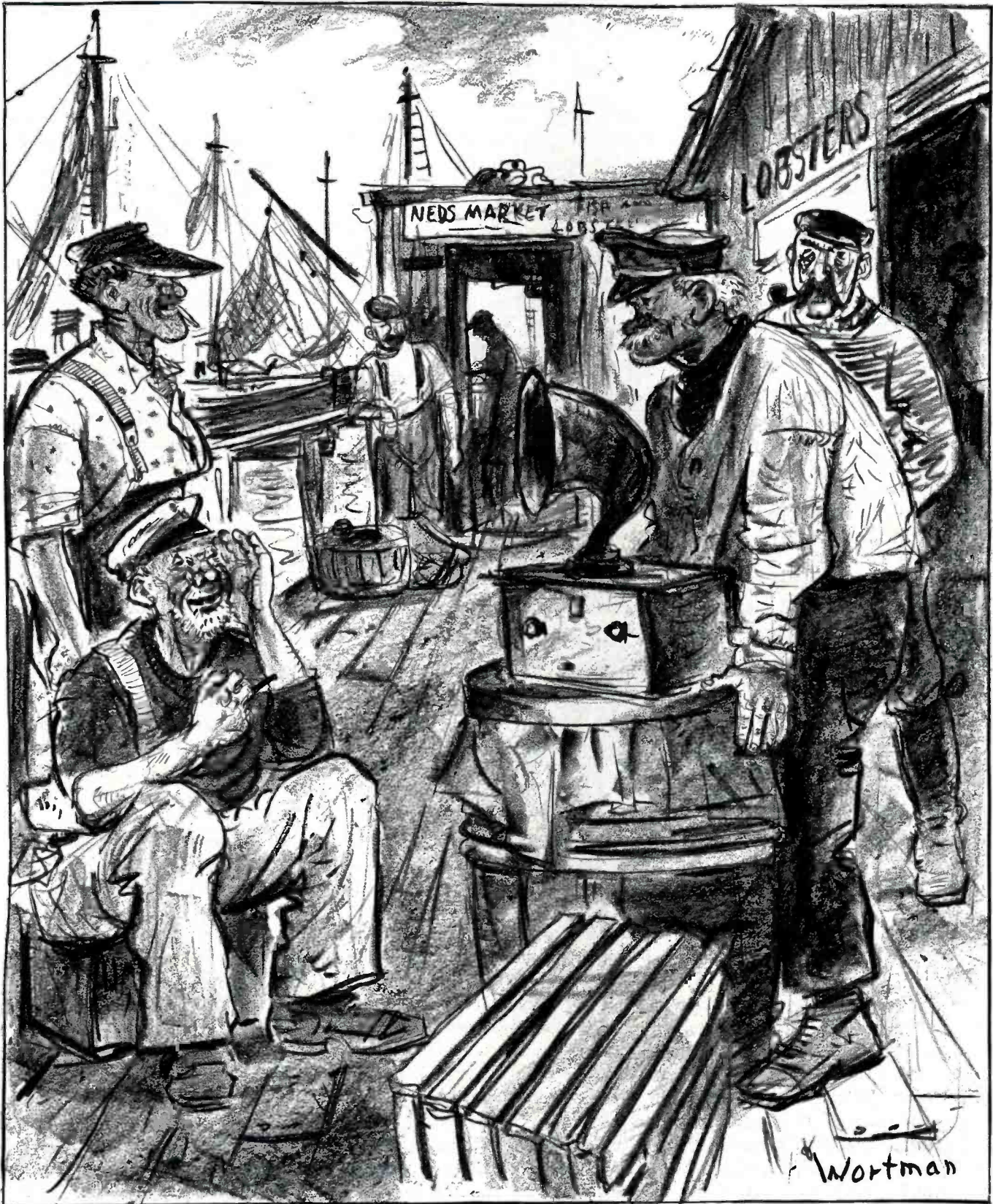
blocks and begin to roll them. This would arouse the curiosity of the prospect. The salesman would point out the obvious fact that the way to make money was to push the product with a profit which gave the highest turnover of the investment—the fast mover. He would then toss out the blocks, after identifying them by number. The pyramid would flop and stay there. The square would turn a couple of times. The polyhedron would turn over four or five times, while the little red sphere would turn over and over and over. Good showmanship. It made it easy and interesting for anyone to get the point.

A GOOD salesman of radio sets must be a good showman. He must know how to build his act. You can't imagine a salesman demonstrating a radio set, while it still rests in its case, any more than you can imagine a show going on with the curtain down. Every window is a stage. Every store is a stage. The skilled display man is a master producer. When you glance from the bright, colorful spot to the appealing piece of merchandise, in a good show window, you are falling victim to a well-planned piece of showmanship.

The Super Selling Fools are agile, willing and brilliant devices which catch attention and which join enthusiastically in the spirit of the show. They represent Radiotrons, the ideal HEADLINER in selling.



As Wortman Sees It—



"By gum, ain't that great comin' all that way without wires? And agin' the wind, too!"

Ideas are Money—

*RCA Radiotron Dealers Here, There and Every
with New Methods of*

Radiotrons Weigh Ahead



AN IDEA is being put to use by the Henry G. Trent Furniture Company of Knoxville, Tennessee, which is certainly original and easy to put in practice. In front of the store stands a regulation scale, on which from 200 to 300 persons weigh themselves daily. On the scale, the Trent Company has placed a sign warning radio listeners of the bad-effects of worn-out tubes, and urging them to replace their present tubes with new RCA Radiotrons.

Co-operating

LEO'S Lancaster Shop of Philadelphia, has discovered the gigantic possibilities in the radio tube market and is making an honest and arduous effort to cash in on these possibilities. This outstandingly active dealer is using a large electric sign crying "RCA Radiotrons" to passersby, Super Selling Fools, a decalcomania, constantly changing window displays, Set Name Plates and RCA Radiotron Broadcast Station Directories. This material is increasing his profits daily.

Going Up!

FORT WORTH, Texas, boasts a real "live wire" dealer in Bob Abey. His effort on tube sales had been resulting in the sale of approximately 300 tubes each month. During January, Bob decided to concentrate on RCA Radiotrons. Just as a starter, he set himself a quota of 1,000 tubes each month. To prove that quotas are things to be exceeded, may we point out that Bob sold approximately 2,500 tubes during January and February.

Thorough

THE Haverty Furniture Company is one of these more aggressive dealers who, despite this so-called depression, rips out after sales and gets them! This organization, which is located in Little Rock, Arkansas, displays tubes in its windows and in its store interior, advertises in the newspapers and over the radio that tubes will be tested free, and calls customers on the phone offering a free testing service.

In all of the Haverty Furniture Company's advertising and Sales Promotion work RCA Radiotrons are recommended.

A Jolly Idea

R. B. JOLLEY in Morristown, N. J., has recently concluded a contest. He piled a number of RCA



Radiotron cartons in his window. The person coming closest to guessing the value of the tubes in the window received a new console model radio free of charge. More than 200 persons submitted guesses and, as a result, Mr. Jolley was supplied with an excellent mailing list of prospective customers, who indicated by entering the contest that they were interested in securing a new radio set. The RCA Radiotron carton display, too, increased Radiotron sales.

On the Trail to Greater Profits

THE White & Parker Hardware Company in Murdo, South Dakota, have found the newspaper an excellent medium for RCA Radiotron advertising. They follow the copy of suggestions in the RCA Radiotron

broadcasts and other sales promotion material. Here's the copy from one of their advertisements:

"To All Radio Users:

"RADIOTRONS

"It isn't what the radio stations send that counts, it's what you get!

"The finest music the world has ever known, the highest paid entertainers, the voices and thoughts of the greatest men of all nations—in fact everything that can be interpreted in sound—is available in twelve million American homes at the click of a switch and the turn of a dial.

"That is what the radio broadcasters are offering. It is also what you, the radio listener, should receive. If you don't get your share of this abundance of entertainment, culture and instruction, the fault rests not with the broadcasters, but with the receiving set in your home.

"How old are the tubes in your set? Old tubes seriously mar the tone and clarity of your radio. Why not replace the ones now in use with new RCA Radiotrons? The improvement will be noticeable and better reception assured."

He Analyzed His Customers

MOORE'S Radio Shop in Champaign, Illinois, is located in the same town as the University of Illinois. Many of this dealer's customers are professors from the university. Realizing that



this type of customer would appreciate Good News covers, Mr. Moore framed a number of them and hung them about his store. Many of the instructors commented enthusiastically on this decorative addition.

Put Them to Work!

*where Prove the Value of Constantly Experimenting
Pushing Radiotron Sales*

A Paying Investment

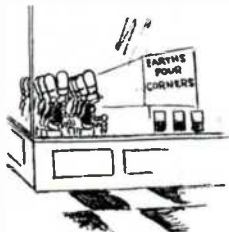
THE Laughlin Company of Concordia, Kansas, is increasing its RCA Radiotron sales by means of a house-to-house canvass. Its representatives travel in pairs—one salesman and one service man. They make all their calls between 9 a.m. and 12 noon. While the service man checks the set, the salesman attempts to sell the customer a set of new RCA Radiotrons, or, if the radio is antiquated or in need of repair, a new radio. From last September to February, 1931, these canvassers brought the Laughlin Company \$25 each morning. Even now, with a great many of the prospects already contacted, these men are averaging \$15 each morning. In addition to the actual sales made, they have a larger list of customers.

Goes to Work

THE G. H. Walters Company in New Castle, Pennsylvania, is another aggressive dealer who has been going after the tube renewal market. The Walters Company handles RCA Radiotrons exclusively and is using the RCA Radiotron post card campaign and Set Name Plates. In addition, a banner is being used on each side of the delivery truck.

Novel and Effective

LYON and Healy in Cleveland, are using a very novel and effective window display. Since they handle both photographic supplies and radio, the idea is particularly adaptable. They have a movie projector in the window showing "Man-Made Miracles" to an audience of Super Selling Fools.



Making it Easy for 'em to Buy

MR. SWITZER, peppy and enthusiastic Merchandising Manager of Maas Brothers department store in Tampa, Florida, is going out after RCA Radiotron business as it should be gone after.

Mr. Switzer is devoting an entire counter to RCA Radiotrons. He is studying customer traits to guide him in the correct placing of a tube tester, planning to tie-in with all RCA Radiotron newspaper ads and providing window space for RCA Radiotron displays. In short, he is doing a real selling job. He is really "making it easier for them to buy."

Something New in House-to-House

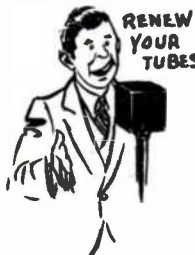
SMERDA'S Music House in Cleveland, Ohio, has found a house-to-house canvass to be an excellent plan for building sales. Smerda's scheme is a novel one. This organization put five men working on the house-to-house canvass and equipped each of them with tube checkers and an assortment of RCA Radiotrons. Not only do these representatives sell tubes on the spot and line up radio set prospects, but where a customer fails to buy tubes when he is in need of them, the tubes in his set are labeled with the salesman's name, condition of the tubes, and date of inspection. If at any time the labeled tubes are brought into the store for renewal, the salesman whose label they carry gets credit for the sale. This method is used in order to encourage salesmen to make as many calls as possible. According to reports, the plan has been working excellently.



Airing the Message

ANOTHER company has recognized the importance of the tube renewal market, and has gone to work to develop it.

Musicove, Inc., of Augusta, Georgia, owner of broadcasting station WRDW, spent a week last month hammering home the necessity of tube renewals for good reception. Radio announcements told the public to bring in their tubes for testing and to secure an RCA Radiotron Broadcast Station Directory free. Needless to say, the listeners came.



Many Are Doing This

COOPER Brothers, New Kensington, Pa., are selling RCA Radiotrons in their phonograph record department. This was thought logical since both records and RCA Radiotrons are renewal items. Cooper Brothers are using various forms of direct mail, window displays, interior displays, Selling Fools and free tube testing—and results prove the correctness of their theory. RCA Radiotron sales are successfully supplementing the record business.

Psychology

APPLYING an aged but practical psychology, the Manhattan Auto & Radio Supply Company of Brooklyn, N. Y., printed and distributed a card which read as follows:

THROW THIS CARD AWAY
and you lose a radio service call worth \$1.50. Good 30 days from date.

During the first two days after this card was mailed, results indicated that more than \$26 worth of business had been secured.

A Headliner's Merchandising Program

Profitable Buying Makes Possible Profitable Selling

By T. F. Joyce

Sales Promotion Department, RCA Radiotron Company, Inc.

TALK to any merchant, and there are thousands of them, who is finding it difficult to keep the county from hanging a "Sheriff's Sale" sign on his door. Ask him what's wrong with his business. Invariably, his answer will be: "People are not buying."

But people are *buying*—maybe not in the volume that they were, but most certainly they are *buying* in the true meaning of the word. They are making certain that they get *value* for their money, which makes selling difficult for the merchant who does not offer value.

If you were to examine, as I have, the merchandise in the stores of retailers who are finding it difficult to keep their heads above water, you would find their trouble due largely to not having the right merchandise. You will find in their stores, merchandise of unknown quality, bought at long discounts; you will find radio sets of the vintage of 1929 still being carried with the hope of selling them at 1929 list prices; you will find the shop-worn merchandise; you will find radio cabinet designs that are atrocities. But, you will not find merchandise that is appealing to the eye as well as to the pocketbook.

How do these dealers let their stocks get into such a condition? The blame can be laid almost entirely to poor buying. Most of these merchants pay little or no attention to buying, and others make buying a speculation.

Successful buying means knowing what merchandise to buy; when to buy it; in what quantities, and at what price. And then keeping a sound ratio between stocks and sales. All business involves a degree of risk. Without

consistently good buying, no store can hope to make consistently good profits. The handicap of poor buying is difficult, if not almost impossible, to overcome.

Retailing Involves a Risk

In retail operation, merchandise is purchased with the expectation of selling it for a profit. In radio retailing, the "risk" involved in making a purchase is probably as great as in any branch of retailing. However, the degree of that risk can be greatly lessened if purchases are made with a view toward making a legitimate merchandising profit, and not with the hope of buying something at an extremely long profit with a view toward getting some "sucker" to purchase it. When money is tight and business conditions poor, the number of suckers are greatly decreased—thus making it more difficult for the long profit boys to operate at a profit.

The actual amount of time spent in buying is negligible. Of more importance than the time spent in buying, is the time spent preparing to buy. Actual purchases should be made only after these three points have been given careful attention:

1. The quantity of merchandise on hand at the time the purchase is considered.
2. Length of time it took to move the last purchase.
3. Estimated sales during the period for which the purchase is contemplated.

Purchases should be guided by records and not by memory. Even the simplest of record forms is a thousand per cent better than the best memory. By keeping a close check on your

merchandise investment and sales, your purchases can be accurately guided.

Every established merchant should study his sales records for the past two or three years—five years preferably. From these records, it is possible to check the movement of merchandise; rate of stock turn, etc. Then, the weak spots in past buying can be readily seen and the mistakes of the past can be side-stepped.

Once you have determined what your stock investment and stock limits should be, buying should be within those limits. This will prevent you from over-buying.

A Buyer's Guide

The average buyer's yardstick is quality versus price. While these are the main elements of comparison, they are not the only ones. The buyer who makes his comparisons on this basis alone has lost sight of the selling operation. The wise buyer will consider the following:

1. *Manufacturer*—What is the Company's standing in the industry? Is it a leader? Is it known for its progressiveness? Is it reliable? Will it be in business five years from now?
2. *Quality*—Does the product possess good quality? Is the quality uniform?
3. *Service*—What kind of service is given in handling orders; special requests for sales assistance; credit facilities; making good on defective merchandise, etc.?
4. *Advertising*—What does the manufacturer do to make his wares known to your customers? Are you expected to do the entire

BUYING GUIDE		BUYING GUIDE	
Manufacturer	<i>Fair</i>	Manufacturer	<i>Excellent</i>
Quality	<i>Uncertain</i>	Quality	<i>First</i>
Service	<i>Poor</i>	Service	<i>Good</i>
Advertising	<i>None</i>	Advertising	<i>Consistent</i>
Sales Policies	<i>Unstable</i>	Sales Policies	<i>Sound</i>
Value	<i>Poor at any price</i>	Value	<i>Good</i>
Consumer Demand	<i>None</i>	Consumer Demand	<i>Excellent</i>
Turnover	<i>Very Slow</i>	Turnover	<i>Fast</i>
Discount	<i>High</i>	Discount	<i>Fair</i>
Profit	<i>Uncertain</i>	Profit	<i>Certain</i>



- selling job or does he assume part of it by consistently advertising the merits and use of his merchandise?
5. *Consumer Demand*—Do people ask for the merchandise? How much sales effort is required to move it?
 6. *Sales Policies*—Has the manufacturer sound sales policies which assure the dealer a profit?
 7. *Value*—Does the product offer the public good value for the price asked? Does it represent the best in materials and workmanship and is the price right?
 8. *Turnover*—How long will it take to sell the product? Will it move fast or slow? What are the possibilities of obsolescence, depreciation and losses due to price reductions?
 9. *Discount*—Is the discount, in view of probable rate of turnover, sufficiently high to insure a good net profit? (Discount and rate of turnover must be considered together.)
 10. *Net Profit*—Will the product leave a net profit after all handling, selling, servicing expenses, etc., are paid?

Speculative Purchases

Many manufacturers and distributors have a special price for quantity purchases. The temptation to take advantage of the lower price, which goes with the quantity purchase, is one which the average dealer finds difficult to resist. When the quantity purchase is made, at the expense of turnover, the retailer is making a speculative purchase. He is not buying to meet demand. In a market with declining commodity prices, such as we now have, such a merchant is apt to have a large quantity of merchandise on hand only to find the prices dropped. His speculative profit then becomes an actual loss.

Previous to the crisis of 1921, many chain store organizations and other large retail operators were making speculative purchases on a rising market. Those who speculated in merchandise found themselves in financial difficulties. The wise managements then set as one of their basic buying policies to purchase for demand only. Those organizations which have followed this policy find themselves, in the present depression, stronger than ever.

Ask Advice of Sales Clerks'

Your decision as to what you should buy should be based on the merits of the product. But, don't depend entirely on your own judgment. Ask the advice of your clerks and salesmen. If they recommend that you buy a certain product, they have a keen interest in seeing to it that the purchase is sold—at a profit. They realize that their advice has influenced you to buy the product and, consequently, they assume the responsibility for moving it.

Buy quality merchandise—merchandise which you know will give service to your customers. Buy merchandise in a price range which your customers can afford to pay. Then you will have no difficult selling job on your hands.

Make use of the convenient stocks of your distributor. Instead of buying in large quantities and turning your store into a stock room, let the distributor act as your warehouse.

Be a large purchaser from some one house. Then you will be an important customer. You can then expect favors, extra service, special credit arrangements, extra sales assistance, and so on, when they are needed.



From Sauk Center and Brownsville, as well as Metropolis, Flock Hopeful Aspirants for Broadcast Fame

By J. J. Wilson

Sales Promotion Department, RCA Radiotron Company, Inc.

NEW YORK is to radio what Hollywood is to the motion pictures. Into the nation's largest city comes a constant and aspiring parade of young, old, and middle-aged actors, actresses, vocalists, ventriloquists, humorists, lecturers, announcers, and musicians. From Sauk Center, Terre Haute, Brownsville, they come, an optimistic parade of idealists, lured by the vision of success, the dream of nation-wide fame via the radio.

To most of the applicants, their visions are merely mirages; they never materialize. Of the hundreds of persons who are granted auditions each week at the National Broadcasting Company studios, only three per cent are ever rated favorably, and of this small per-

centage, only one-third ever broadcast.

Daily, incidents occur at the NBC and Columbia Broadcasting Company studios in New York City at which one cannot successfully suppress a laugh. And yet, to the hopeful applicant for a position, these incidents, considered trifling in the studio, are mountainous and insurmountable obstacles in their paths to success, shocks from which it takes some of them years to recover. In that long parade that marches into the studios and marches out again, humor predominates, but pathos marks many a disappointed aspirant.

A Young Lady Applies

There is an interesting tale told of a young lady, tall and fair and with

soulful eyes, who entered the National Broadcasting Company studios recently with a roll of music under her arm and "her chin set in the conventional determination pose."

This handsome young woman, so the story goes, approached a thirteenth floor hostess of the National Broadcasting Company and calmly announced, "I have come to sing."

"What program?" queried the hostess.

"Oh, it doesn't matter," responded the sweet young thing, "so long as it is within the next half hour. I have a luncheon engagement, and I can't wait very long." Her smile, it is reported, "was complete confidence."

Accustomed to situations which seem ludicrous, yet which to the

The Microphone Trail . . .

individual applicant are deadly serious, the hostess tactfully enlightened the lady as to the necessary audition routine. Such small matters as rehearsals, timing, etc., were explained.

"Well, I'll take my audition now," chirped the luscious lady. "I really haven't much time to spend."

The hostess carefully directed her to the department whose sole duty is the hearing of aspirants. When told that she could have her audition in approximately six weeks, the vivid visitor gasped slightly, turned, and disappeared into the mysterious jaws of an NBC elevator. The hostess to whom she had expressed her original intentions smiled slightly, shook her head, and turned to another visitor. The stately one was seen no more.

Audition Committee Necessarily Hard-Hearted

This instance is merely one of hundreds. Many artists await their turn at auditions, are heard, and then never appear again. Still others come again and again, displaying unusual courage, but insufficient ability. And, after all, program arrangers must be severe. It is their job to be critical, impartial, cold. It is not courage that the radio audience hears and applauds; it is performance and ability.



Two who symbolize the Olympian heights toward which aspirants look longingly. Welcome Lewis and Lew Conrad of the RCA Radiotron program

Approximately 200 musicians, vocalists, and dramatists of both sexes open the doors of NBC's Audition Department weekly. A number nearly as great come to Columbia. In NBC, more than 1000 applicants are on file who have not yet been heard. The list is constantly increasing.

To procure a hearing before an audition committee, it is generally necessary for the applicant to register first and state what instruments he plays or the type of entertainment he proposes to offer. A definite time is then arranged. Production men are supplied for the rehearsals, an announcer is provided, and, if necessary, an engineer who will accompany the audition with the necessary sound effects is supplied.

The entire act must be prepared in writing and copies distributed to everyone concerned. During rehearsals, the program will have to be timed and, when the audition is finally granted, be kept within the scheduled limit. Only fifteen seconds leeway is allowed between each program, so it is essential that applicants understand the value of time even before they are heard.

When the golden opportunity does arrive and the time for the audition is at hand, the average applicant is quite disturbed to find that no committee is anywhere in evidence to witness his performance. When he is informed that it is time to "start his act" and no one is about to see him do his stuff, he becomes even more bewildered.

There is method in this apparent madness. Those who judge the programs cannot be swayed by the appearance of the stars, or their ac-

tions. In order to hear the prospective program just as it would be heard by the average radio listener, the audition committee is located in an anteroom, usually above the studio, where they



Miss Alice Nichols, National Broadcasting Company, whose duty it is to listen to all musicians and vocalists and pass judgment on their ability

hear the program through a loudspeaker and judge it accordingly.

In addition to the host of regular entertainers heard weekly in NBC and Columbia auditions, many announcers appear before the "microphone." In the National Broadcasting Company as many as 20 announcers each week are given a trial. The number passing the severe test given the announcers is low—very low. NBC figures show that only about one-tenth of one per cent are successful.

Rigid Qualifications Govern Announcers

In the announcerial field many things must be taken into careful consideration. The ambitious ones who nurse visions of following in the footsteps of John S. Young, Graham McNamee, Milton Cross, Alwyn Bach, Ted Husing, and other great announcers, must possess strict qualifications, not the least of which is a musical education. Correct pronunciation, distinct enunciation, and personality also figure importantly.

Radio and the Press*

A Presentation of the Case for Radio Broadcasting in its Relation to the Public Prints - - -

By M. H. Aylesworth

President, National Broadcasting Company

BROADCASTING makes no attempt to deny its great debt to the press. Its struggling infancy, rapid development and present position in our national life have been fostered by the invaluable support of the public prints.

Only since the broadcasting art definitely stepped from an uncertain experimental existence into the brighter domain of a firmly established public service have some newspaper men changed their sentiments towards radio progress. As the broadcasting institution has steadily grown, fuel has been added to the smoldering fires of opposition. Certain newspaper men would now apply a bellows in bringing the matter to an issue. And so the press at large might be led to turn against a complementary service which newspaper men themselves have done so much to foster as a further expression of their interest in their community's welfare. Obvious misunderstanding of the aims and objects of the modern broadcasting institution underlies the entire issue.

Three Fundamental Complaints

A study of the many statements already issued by the spokesmen of the newspaper opposed to further coöperation with broadcasting, reveals three fundamental complaints:

1. Radio news bulletins compete with the primary function of newspapers and take away from newspaper circulation.
2. Radio programs now published as editorial matter should be treated as

advertising copy and paid for by broadcasters or program sponsors.
3. Radio advertising takes away from the advertising income of newspapers,



Merlin H. Aylesworth

thereby creating a definite threat to the financial welfare of the press.

Let us consider the first of the three fundamental complaints registered against broadcasting—that radio news bulletins compete with the primary function of newspapers and take away from newspaper circulation.

It is necessary first to remind ourselves that the primary function of both newspaper and broadcaster is to serve the public. That public demands news. It insists on "hot" news or news as soon after the event as possible and even while the event is in the making. If radio broadcasting can serve the public with certain kinds of news sooner than the newspapers, thereby solving the "extra" edition problem, are we to ignore the public's best interests for private gain or, more likely, fanciful gain?

If radio be a news competitor of the newspaper, why do we find many newspapers broadcasting news over radio stations? Newspapers throughout the country are collaborating with local broadcasting stations, even to the extent of having editors and feature writers appear regularly on programs. The answer is obvious: certain progressive newspapers, through actual experience and investigation have found that broadcasting helps them. The broadcasting of news flashes serves to whet the appetite of the listener who is the more anxious to obtain a newspaper in order that he may read the details. At best, the radio news bulletin is exceedingly brief. Even the broadcasting of a given event by a radio reporter cannot destroy the news value of the newspapers. Just as the men who witness a given news event will invariably look for the newspaper account to verify and amplify his own observations, so will the broadcast listener seek the newspaper for the story of the same event he has heard described.

Four News Vehicles Complementary

Magazines, news reels, newspapers and broadcasting are all vehicles for the carrying of news to the public. Each class has its advantages and its drawbacks. Newspapers are and must always remain the backbone of the news distributing structure, combining speed with thoroughness. Broadcasting is the fastest of the news vehicles, but lacks in the matters of detail and of reference value. The four vehicles are complementary to one another. Their functions perhaps overlap to some extent. Nevertheless, they cannot be considered competitors, since the loss of

* Condensed from an address delivered before the School of Public and International Affairs at Princeton, N. J., April 24, 1931.

any one class would be a decided blow to the remaining three in public service. They are definitely interwoven in the present scheme of bringing the world's news to the average man.

The Issue of Free Publicity

We come to the second complaint—that radio programs now published as editorial matter should be paid for by broadcasters and sponsors as straight advertising matter. The critics argue that the publication of radio programs benefits the sponsors and should be paid for as advertising. This brings to the fore the entire issue of free publicity which still remains to be settled by the press.

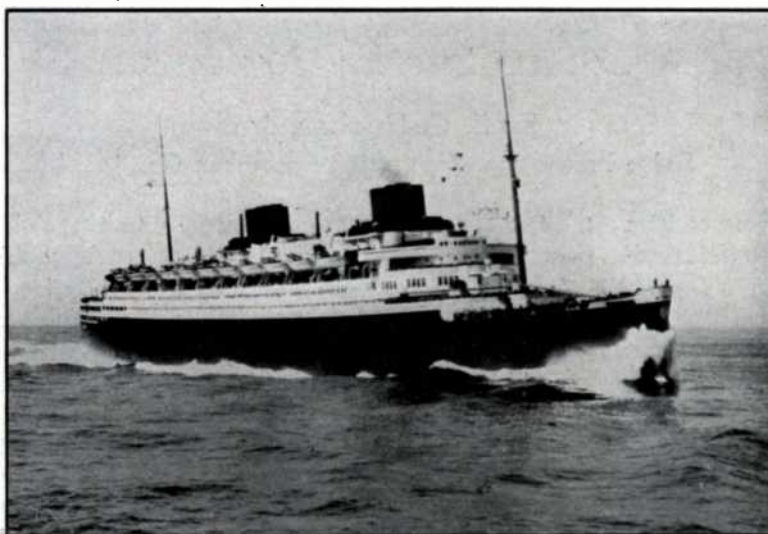
When the *Europa* on its maiden voyage broke the transatlantic record did any paper refrain from printing the story simply because in so doing it was publicizing the North German Lloyd Line? Do newspapers refrain from publishing several pages a day devoted to professional sports because the Madison Square Garden Corporation, the major league ball clubs or our colleges are publicized by so doing? These institutions are very small advertisers.

A few newspapers from time to time have eliminated radio programs from their columns. Immediately they began losing circulation to other newspapers featuring radio programs. Obviously, radio programs are demanded by readers. Aside from the front page and the sports page, the radio page draws most readers. Hence the newspapers out of their own good judgment may be expected to serve their readers rather than to force radio sponsors into paying for radio program notices.

Certainly the newspapers have a powerful weapon at their command. Through their columns their critics can voice sincere complaints regarding programs and practices, placing the matters squarely before the public, which

remains both judge and jury in settling such questions.

In Great Britain, the British Broadcasting Corporation publishes radio program magazines which have gained a wide circulation among British people. While we have never considered such a procedure in this country and while we have no desire to engage in the



Newspapers devoted much space to the breaking of the transatlantic speed record by the North German Lloyd liner, "Europa," even though the steamship company benefited by the publicity

publishing business, we might be forced to enter that business if the public prints were to discontinue their present program and radio news service to the people. Certain it is that the public will get its information, if not through the logical medium of the newspapers, then through a new medium created for the purpose.

The final complaint is to the effect that radio advertising reduces the advertising revenue of newspapers, thereby constituting a serious threat to the financial welfare of publishers. On the whole I should say that such statements may be founded on figures, but not on facts. As many of us know, figures lie horribly. They mean little of themselves. Much depends on their interpretation.

Referring to that bible of newspaperdom, *Editor and Publisher*, we note in one of its recent editorials that newspaper advertising dropped 10 to 15 per cent during 1930 as contrasted with the previous year, while radio advertising increased 40 to 50 per cent in the same period. The editor then

goes on to explain the implied transfer of advertising appropriations by estimating the amount diverted from newspaper to radio during 1930 as \$11,000,000. This, mind you, is not my estimate. It is that of a publication dead-set against radio.

On the other side of the ledger is, still according to this editorial, \$31,000,000 spent to advertise radio products in the newspapers. In other words, the radio industry as represented by set, tube and accessory manufacturers has used the newspapers to advertise its wares so extensively that newspapers are the gainers by \$20,000,000.

A survey of radio advertisers by industries will show, I believe, that the largest users of radio are likewise the largest users of space; that an increase in radio appropriations has been accompanied by an increase in space appropriations in most instances; and that when radio is employed for the first time, its appropriation is not taken from space but rather from an additional appropriation.

Broadcast and Printed Advertising

Radio broadcasting is complementing, not supplanting, the printed word in advertising. It is creating greater acceptance and effectiveness for the printed word. Radio broadcasting, as we practice it, is insisting that sponsors engage in printed advertising, in order that the molding of public opinion, begun by the sponsored program, may be brought to a successful consummation by the mention of quality and price in tie-in advertising copy.

Gutenberg's conception of printing coupled with Marconi's perfection of the radio has armed society with its greatest weapon against darkness. Radio extends the hand of fellowship to its brothers of the press and seeks the combining of two of humanity's mightiest forces.

Fitting the Antenna to the Location

Careful Study of Antenna Systems Will Help Solve Many Service Problems

By E. C. Hughes, Jr.,

Sales Promotion Dept., RCA Radiotron Co., Inc.

IN THESE days of super-sensitive A-C. receivers and powerful broadcasting stations, the service man is

the face of a competitor's demonstration.

While much has been written on the subject of antennae and their installation, it is repeatedly brought to the attention of radio set manufacturers and service managers that the service man is not doing this work properly. Installations are often carelessly and sometimes dangerously made. It seems desirable, therefore, to describe the proper method of installing antennae, before discussing means of reducing interference and noise by using certain types of installation.

The Board of Fire Underwriters rules that all antennae must be insulated by approved-type insulators, both at the supports and along the lead-in to the set. Wire smaller than No. 14 must not be used, except in the case of bronze or copper-clad steel, where No. 17 may be used.

Each antenna must be equipped with an approved protective device which is suitably grounded. Water pipes are the recommended ground, but pipes or large copper sheets buried in moist ground may be used. The ground wire must be attached to the pipe by means of an approved ground clamp.

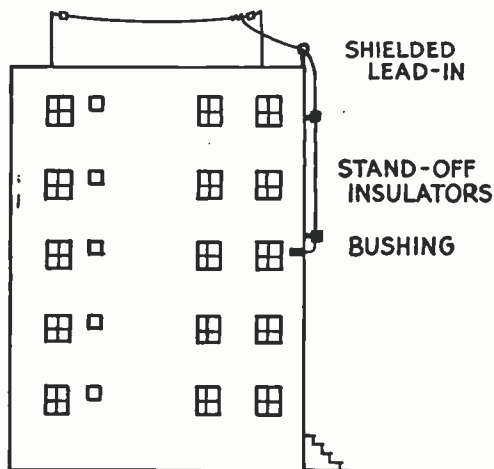
The lead-in insulator should be of an approved type. Non-absorptive porcelain bushings are satisfactory, and approved window strips may be used. In any case, the lead-in should be kept away from combustible ma-

terials. All connections should be carefully soldered.

In making antenna installations the service man should remember that his employer's reputation is at stake. An increase in a customer's fire insurance rates is a possible result of a poor antenna installation. This sort of thing has happened before and it will happen again, unless the job is done in a manner approved by the Board of Fire Underwriters.

Regular Inspection Advisable

It is a good idea to inspect antenna installations from time to time, to see that the insulation has not rubbed off the lead-in, or that the insulators have not cracked or corroded. A faulty lightning arrester, besides giving no protection, will cause a loss of signal strength. It should be replaced immediately with a new one. Branches of a tree that have grown out after the installation, may rub against the wire and ground it.

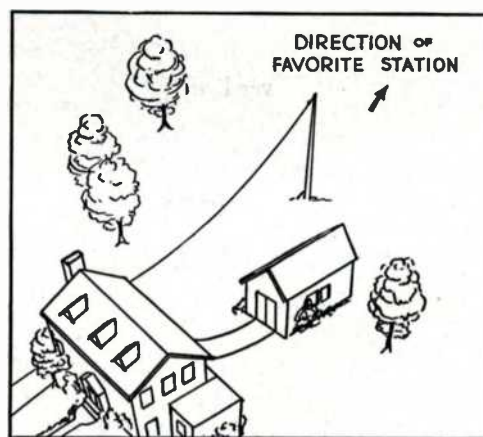


A shielded lead-in along the side of an apartment house will help to eliminate objectionable noises

prone to overlook the importance of a proper antenna installation in obtaining the desired reception. While it is true that reception of a sort is often possible with a length of wire hung from a pole, much better results can be obtained by giving a little thought to the installation of an antenna system which fits the needs of the set and the locality.

Helps Sell Sets

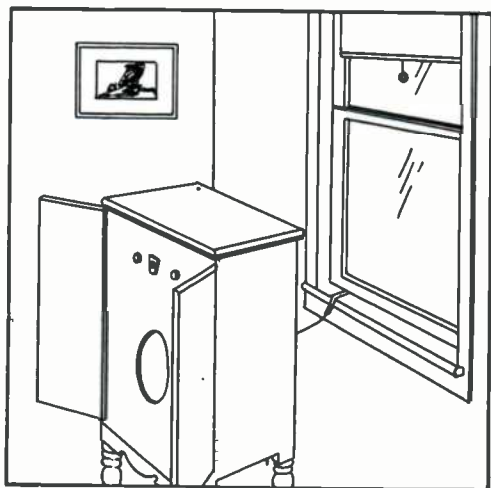
Then too, the customer has come to expect the same results from a midget set as from a large console model. Careful planning of the antenna will often help to get the most out of a set. It will be found that a superior antenna will often give a set the added "punch" necessary to clinch a sale in



In remote localities, running a long antenna in the direction of the favorite station will often improve results

Determining the type of antenna which will give the best results in a certain locality requires a close study of surrounding conditions. Proximity of powerful broadcasting stations, whether fading is a characteristic of the locality, and so on, must be taken into consideration. Perhaps the greatest problem nowadays is noise

In metropolitan neighborhoods where there is a great deal of interference from local stations, the antenna should be as short as possible consistent with satisfactory pick-up. Increasing the height and length of the antenna will increase the volume from distant stations, but frequently may add unduly to the interference from the local stations.



Place the set near point where lead-in enters the room—not on opposite side

Pros and Cons of Long Antenna

In the neighborhoods where extreme fading is encountered, a very long antenna will often prove helpful. It has been shown that an antenna over a quarter of a wavelength long, will be less susceptible to fading than a short one. But here again, the problem of interference is encountered. If the set is near a powerful broadcasting station, a long antenna cannot be used without undue interference. In remote localities, it is a good idea to run the antenna in the direction of the favorite station to insure maximum pick-up from it.

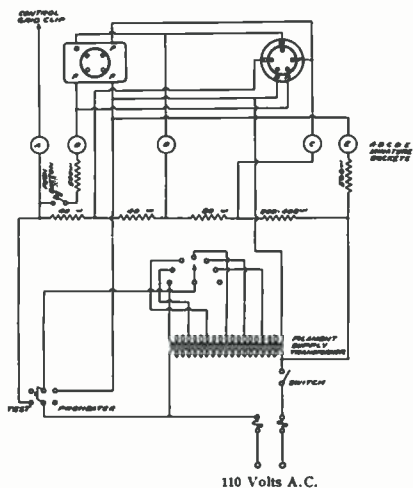
In general, use as short an antenna as possible, consistent with satisfactory pick-up in neighborhoods of great interference, and as long a one as possible without causing objectionable interference, in neighborhoods where fading and weak signals are prevalent. Avoid power lines as much as possible.

elimination, so that will be discussed first.

Disturbing electrical noises can be divided into three classes. The first class includes natural atmospheric disturbances which are practically impossible to eliminate. The second class is composed of those noises which are man-made, but which originate outside of the room or house in which the receiver is located. These noises also are generally beyond the control of the service man, but coöperation with the local utility or traction company will sometimes result in their elimination. However, by running the antenna at right angles to a power line the interference can be greatly reduced.

Noises of the third class are due to electrical disturbances originating in the room or house itself and can be eliminated to a great extent by connecting filters in the supply lines of the offending apparatus. They can further be reduced by the use of a shielded lead-in which will prevent the disturbances being picked up inside the house by the lead-in wire. The lead-in should always be as far from house wiring circuits as possible.

Short Circuit Tester



Correct resistances for the short circuit tester employing a preheater, described in April GOOD NEWS, are shown above

A New Pentode for Battery Operated Receivers

THE RCA Radiotron Company has just announced to radio set manufacturers a power amplifier pentode, designated as RCA-233, for use in the power output stage of battery operated receivers designed especially for it.

The filament employed in this new RCA Radiotron is of the coated type and consumes as little power as possible, consistent with satisfactory operating performance. The low filament current drain makes this tube particularly applicable for use in combina-

Characteristics of RCA-233

The preliminary ratings and characteristics of the new RCA-233 are as follows:

Filament Voltage	2.0 Volts
Filament Current	0.260 Ampere
Plate Voltage	135 Volts
Screen Voltage	135 Volts
Grid Voltage	-13.5 Volts
Plate Current	14 Milliampere
Screen Current	3 Milliampere
Plate Resistance	45000 Ohms
Mutual Conductance	1400 Micromhos
Amplification Factor	63
Load Resistance	7500 Ohms
Undistorted Power Output	650 Milliwatts
Maximum Overall Dimensions	
Length	4 11/16 in.
Diameter	1 13/16 in.
Base	UY
Socket	UY

tion with the RCA-230 and/or the RCA-232 in sets where economy of current is an important factor.

The RCA-233 is a screen-grid tube designed primarily for giving large audio output, with relatively small input signal voltages on the grid. This is made possible by the addition of a "suppressor" grid between the screen and the plate. The suppressor is connected inside the tube to one end of the filament, and is effective in practically eliminating the secondary emission effects which limit the power output from four-electrode screen-grid types.

The new RCA-233 is not interchangeable with any other existing type of RCA Radiotron. List price is \$2.75. Deliveries to distributors will be started immediately.

RADIO TONICS

By G. Gerard Clark and T. A. Jolloff

Sales Promotion Department, RCA Radiotron Company, Inc.

THE approach of the summer season turns one's mind to thoughts of vacations, of camps, of living out of doors as much as possible. Even though your potential customer does not leave the confines of his own house and lot, he spends a large portion of his off hours in the yard or on the porch rather than indoors.

Radio has come to represent such an integral part of the average family's life that the thought of dispensing with it, even for a few months or weeks, is no longer acceptable. Static has completely lost caste as the Black Destroyer of summer reception. Rendered impotent by improved receivers and high power broadcasting stations, his once menacing aspect is now blithely ignored by radio fans—and who of us is not numbered among them?

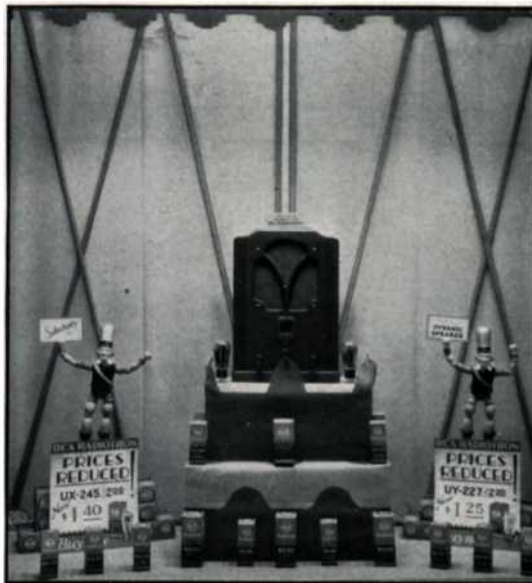
Midget Removes Portability Problem

One impediment to summer radio reception, however, has always been the absence of good receivers of sufficient portability. The standard console, admitting that it is unsurpassed as to performance, does not lend itself to being carted out beside the deck chair on the lawn, or even on to the front porch. The present tendency to midgets is a solution in itself of this difficulty. Small, light, self-contained, the midget may be moved about with ease and safety. You are making no unreasonable demand when you ask the midget to "follow the family"—and you are saving wear and tear on the larger set by leaving it in its appointed place by the fireside.

Good tubes deserve perhaps even greater emphasis in the case of miniature models than in the case of standard size receivers. Greatly limited as to

space, the designers of midgets are necessarily forced to make some sacrifices as to the niceties of modern reception.

The inevitable tendency is to rely more on the high calibre of the equip-



Two shades of green crepe paper are used to provide this midget with an attractive setting

ment used. Certainly "The Heart of Your Radio" should be the first concern of every midget owner. But, having taken care that his set was initially equipped with RCA Radiotrons, and having made it a point to renew those Radiotrons regularly once a year, he can look forward to the splendid results the modern midget is capable of delivering.

The tremendous acceptance for RCA Radiotrons is a fact well known to all who deal in radio. Cashing in on this acceptance in the sale of Radiotrons for midgets is merely a matter of emphasizing the obvious need for the highest quality tubes in the miniature receivers. And don't forget, the new low prices provide every dealer with a marvelous vehicle for driving home his point. Prices that mean a saving speak louder than words.

Construction of Windows

The three suggested window displays presented herewith couple the midget set with the new low prices of RCA Radiotrons, the renewal idea and the Radiotron broadcast message:

"Make certain your new set is equipped with RCA Radiotrons."

Construction of the windows is self-evident. They depend for their effectiveness on tasteful arrangement plus price reduction material and striking side cards. Window No. 1 dramatizes the renewal of tubes through the use of Super Selling Fools and a simply constructed miniature wooden ladder. The drapes here and in Window No. 2 are black velvet. A good touch of showmanship in No. 2 is the pair of Fools reversing the normal human posture. The small window in the center of the page employs a background of apple green crepe. The darker crepe—paper tubes and decorations for set pedestal—are emerald.

Lowered Prices Have Lasting News Value

The extensive kit of price reduction material which went out to every Headliner and Headliner Star Dealer should continue to be used in all windows for some time to come. New prices—prices that make an appreciable difference in the outlay of the consumer—have a lasting news value. Even though the reduction has been widely publicized, there are bound to be some who will remain oblivious to it until it is brought forcibly to their attention.

Properly used, your price reduction material will unquestionably serve to stimulate complete renewals. It will also enable many who formerly were influenced by lower cost of inferior tubes, to purchase Radiotrons.

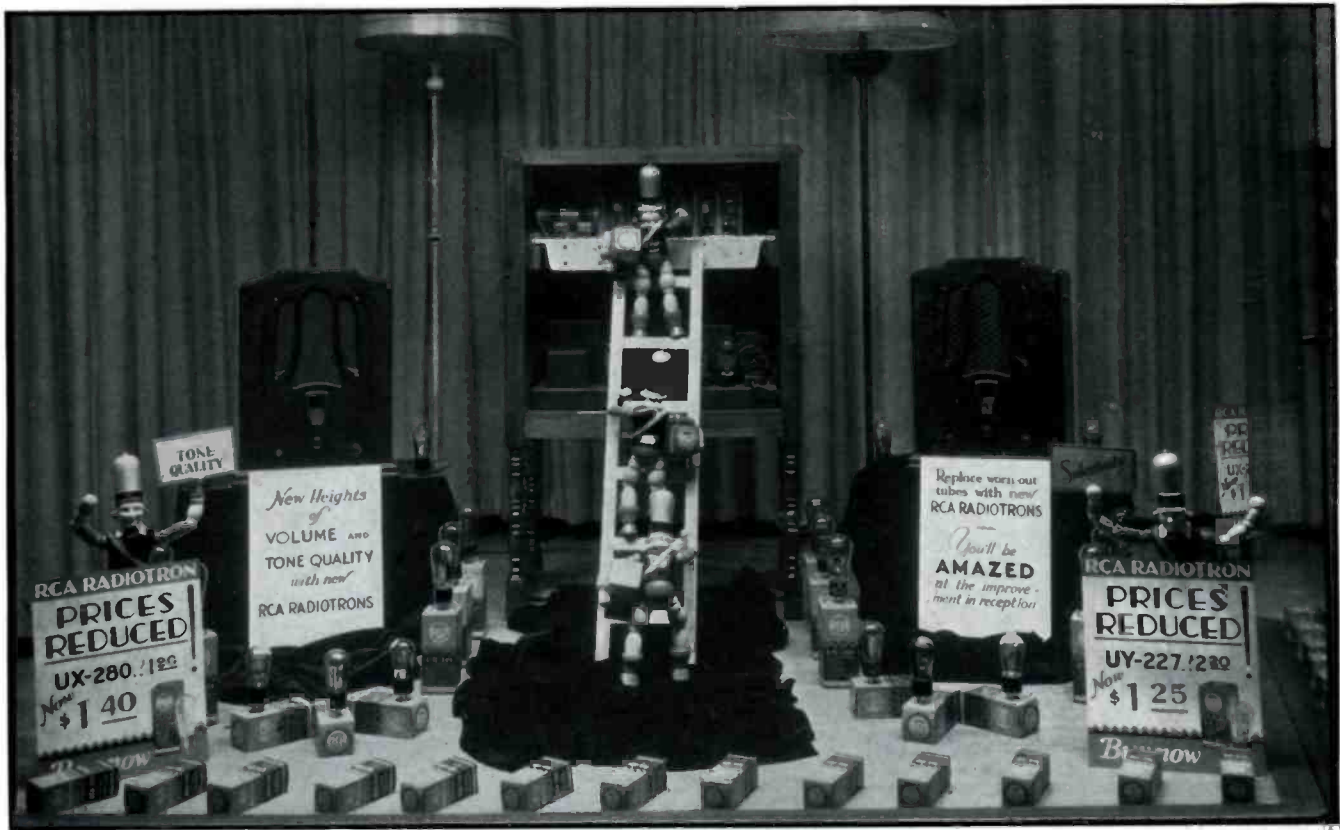


PHOTO BY GAYNOR

1. Dramatizing the renewal idea with Super Selling Fools and a ladder. A window anyone can put in in a short time

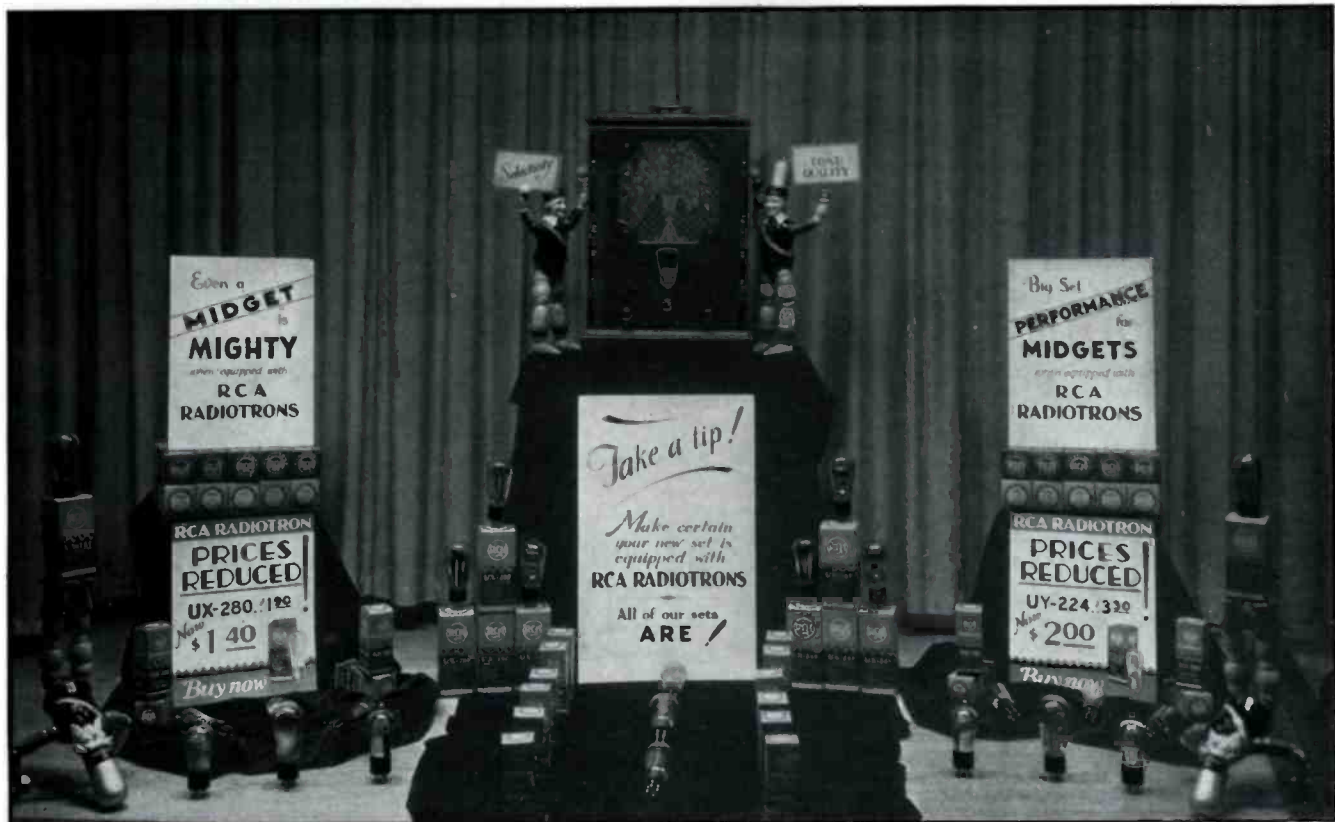


PHOTO BY GATNOR

2. Another attractive window, depending for its effect on tasteful arrangement, price reduction material and forceful side-card messages

Teaching Aladdin a

Skill and Patience Required in Making Machine Age's Counterpart of Magic Lamp

By L. G. Lessig

Commercial Engineering Dept., RCA Radiotron Company, Inc.

LAST month preparatory operations were discussed in Part I on the manufacture of RCA Radiotrons.

Next in the procedure is the mounting of the internal parts, such as the plate, screen, grid and cathode on the stem supports, Fig. 10.

All metal joints are electrically welded to insure permanent construction. First, the plate is mounted and welded to its respective supports.

The grid and screen are the next to be mounted and welded to their supports. The outer section of the screen consists of a



Fig. 10. Here the parts are skillfully assembled on the stems

nickel mesh cylinder while the inner section is a helical coil of fine wire. The sections are connected and held

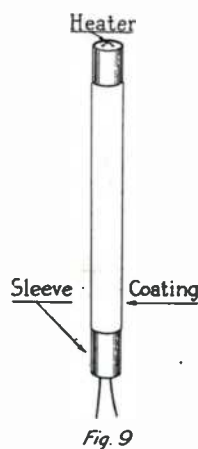


Fig. 9. Cathodes are veritable electron reservoirs — designed to supply an almost infinite number of electrons over relatively great periods of time

together at the top by a metal disc which adds to the effect of the screen. The cathode is then inserted inside the plate and welded to the proper terminals. The cathode comprises a heater wire enclosed in a coated metal sleeve from which it is electrically insulated, Fig. 9. Cathode sleeves are coated by spray-guns in specially designed racks. Great care is exerted to maintain the high standard of coated area and thickness, Fig. 12. After the sleeves have been sprayed, they are baked and carefully inspected. The grid is fitted on the stem between the cathode and the inner section of the screen. It, too, is made of wire wound in cylindrical form. Grids are precisely turned out by a high-speed machine which not only winds and welds the turns, but also counts and gauges their spacing.

Following the grid-assembly operation, the connecting wire, which later will pass through the top of the glass bulb to the metal cap, is welded to the control grid support. The "getter" cup is then welded to the grid support. The cup contains a piece of magnesium wire known as the "getter," which vaporizes when heated. The feature is invaluable in the exhausting of the tube.

This assembly, called the mount, is inspected, tested for short circuits and transferred to the sealing-in and exhausting machine, which seals the glass bulb and mount together in a unit and exhausts it, Fig. 13. The mount is placed on the upper rotating support, known as the sealing head, and a glass bulb is lowered over it. Heat is applied both to the junction of the flare and bulb and to the top of the bulb at a point where the control grid connection wire passes through it. The

sealing head, constantly rotating, moves the tube into increasing heat zones where the glass softens under hot torches. The glass around the control grid lead is sealed at the same time the

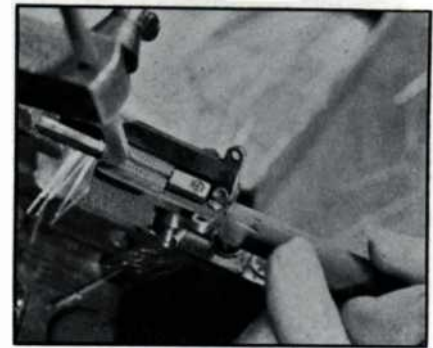


Fig. 11. All internal metal parts of the tube are electrically welded to insure rigid construction and permanent electrical connection

flare junction is formed. While the top of the bulb is being annealed the excess glass, dangling below the flare junction, is melted off by the action of powerful flames.

The tube is then transferred to the lower head of the machine where the

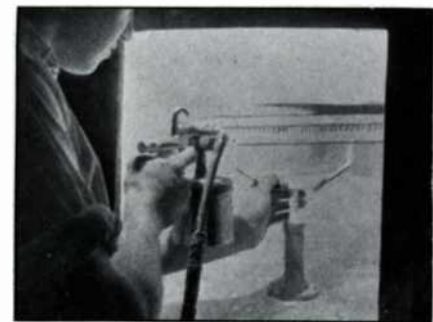


Fig. 12. Spraying the cathodes

protruding glass pipe in the stem is connected to the exhaust pumps. The atmosphere is drawn from the bulb in successive steps of increasing vacuum. To insure a more complete exhaust the principal parts of the tube are heated

Lesson • • • Manufacture of RCA Radiotrons Part II

by powerful high-frequency current induced by an external coil that automatically drops down around the bulb. The intense heat, created in the metal by induction, frees the glass and metallic tube parts of occluded gases which are immediately removed from the bulb.

Another self-acting coil is then automatically lowered around the tube at the level of the "getter" cup. Its inductive action causes the enclosed magnesium to flash and to form the familiar gas-absorbing, silvery coating on the inside of the tube. When the exhaust process has been completed, the tube is automatically sealed, disconnected from the vacuum pump, and transferred by belt to the basing machine.

Here the lead wires of the tube are straightened with tweezers and a base, lined with cement, is fitted on in such a way that a wire protrudes through each hollow pin, care being taken of course that each wire is inserted in the proper pin. The tube is placed in a rotary furnace which, in one cycle of rotation, hardens the basing cement and fastens the tube firmly to the base.

Following the basing operation, the wires are cut off flush with the ends of the pins and soldered.

A small metal cap, having a hole in

of the bulb by means of cement. The top part of the glass bulb is again baked in an oven to harden the cap cement after which the control grid wire is cut off flush with the top of the cap and soldered.

The tube is once more examined for short-circuits and continuity and then placed on a specially-designed "seasoning" rack where voltages are applied to the electrodes. The tube is allowed to season for a length of time sufficient for its characteristics to become stabilized, Fig. 16.

When it is fully seasoned it is tested for various items such as short-circuits,

mutual conductance, cathode activity (emission), a-c. output, gas and leakage, Fig. 15. On some types of tubes additional tests may be made. Extremely accurate instruments are used for all these tests. The completed and inspected product is finally wrapped in a corrugated holder and packed in a shipping container, Fig. 17.

The story of Radiotron manufacture is an unbroken tale of engineering superiority. Quality, uniformity and efficiency go hand in hand to make RCA Radiotrons the criterion among radio tubes.



Fig. 13. The Sealex Machine seals and exhausts the tube—hence the name Sealex

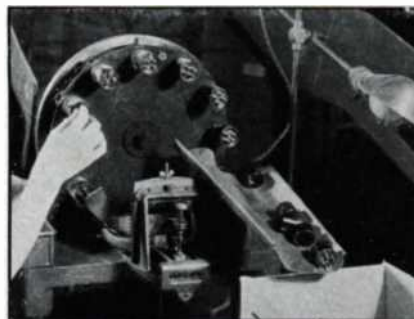


Fig. 14. Base-marking Machine. This machine brands the type and number on the bases

the center, is slipped over the control grid lead wire and secured to the top



Fig. 15. Final factory check on tubes before packing. Any tube which does not qualify is rejected—there are no "seconds"!



Fig. 16. Seasoning racks where tubes are "tempered" for stabilization of characteristics

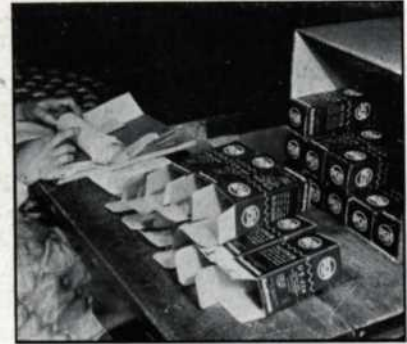


Fig. 17. The completed and inspected product is wrapped in a corrugated holder and packed in a shipping container

Headliner Material + + +

NOTE—Our supply of FOOT-LIGHT SIGNS has been exhausted. Please do not order.

* Indicates material available to Headliner Star Dealers only.

Displays

DECALCOMANIA—Silver tube, green lightning, red slogan. Size, 10 in. by 12½ in. No charge.

WINDOW DISPLAY No. WD-1—“For Better Radio Reception.” Features boy putting up aerial. Lithographed in full color. Size, 24 in. by 31½ in., for center panel. Two side cards 11 in. by 14 in., “Bring in your tubes and have them tested free” and “RCA Radiotrons plus our service insure satisfaction.” Sixty dummy cartons included. No charge.

WINDOW DISPLAY No. WD-2—“Life-like Reproduction.” Boy masquerading as Selling Fool. Lithographed in full color. Size, 24 in. by 31½ in. for center panel. Two side cards 14 in. by 9¾ in. with folding flanges. Flange at top folds back and holds three tubes. No charge.

PRICE REDUCTION UNIT—Special package of display material to help you merchandise the new low Radiotron prices. Eight display cards, six streamers and other material. Guaranteed to increase your sales when put to work. No charge.

No. 4 DISPLAY—RCA Radiotron man cutout is used as carton holder. Lithographed in six colors. 15 in. by 8¾ in. No charge.

MODERNISTIC DISPLAY—Hand made, imported display, four colors, 12½ in. wide, 19¾ in. high, 3¼ in. deep. Silver tube. Red and green cut-out lettering. Red lightning. Glossy, washable finish. Price \$1.50.

SUPER SELLING FOOL—Red feet, yellow legs, red and yellow arms, black body, natural tinted features, hat in shape of silver tube, black base. Made from molded wood turnings. Flexible. Held together by elastics and

springs. Slotted feet and hands to hold cards. Ring in hat for suspension. 15 in. high. \$5 for four, including 14 two-color display cards to help merchandise radio sets, radio tubes and your store. Unusual display value.

TRANSFER SLIP—Lithographed red and black, easily applied. Slogan: “RCA Radiotrons—The Heart of Your Radio.” Carton and tube reproduction. 10¾ in. by 1⅞ in. No charge.



The Giant Radiotron, 24" high, is an effective and ever-handy display piece

GIANT TUBE—Tri-dimensional papier maché model of RCA Radiotron UY-224. Black base, silver tube. 24 in. high. Price, \$4.

Utility Material

***ADDRESS LABELS**—3½ in. by 5¾ in., lithographed in red and black. Supplied un gummed, with your imprint. No charge.

SET PRICE SIGNS—Made of polished celluloid and lithographed in two colors. Size, 3 in. by 4 in. Slot in back for the insertion of price card. Price, 10 for \$1.

SET SIGN—Polished celluloid. Red and black. Copy—“This set is equipped with RCA Radiotrons.” Size, 5 in. by 1¾ in. Price, 12 for \$1.

TAPE MACHINE—Made of cast iron and steel. 10 in. by 2½ in. by 4½ in. \$4.25 each, including 10 rolls of tape.

TAPE ROLL—Two colors with the slogan: “RCA Radiotrons—The Heart of Your Radio.” Five hundred feet, one inch wide. Price, 10 for \$2, unimprinted.

***CLOTH BANNER**—Weatherproof, durable drill cloth; size 48 in. by 29 in.; lithographed in five colors; metal grommet in each corner for attaching purposes. Packed and shipped individually. Used on your truck, inside your store, and on the window. No charge.

SPARE TUBE CLIPS—To be screwed inside sets sold or serviced. Polished nickel steel. Hold tubes with either four or five prongs. 1½ in. clearance for tubes. Length over all, single tube clip, 3 in.; 2-tube clip, 5 in. Price, including necessary wood screws, single tube clip, \$1.50 per 100; 2-tube clip, \$2 per 100.

GOOD NEWS BINDER—Stiff, black imitation leather; size 12¾ in. by 9¾ in. “Good News” imprinted on cover in gold. \$1.00 each—additional imprinted lines 10c. each.

Sales Promotion Material

REMEMBRANCE ADVERTISING—ERASERS—Designed in the form of a carton. Best rubber. Size 1 in. by 2 in. Price \$2.50 per 100 with your imprint. Order from Harrison.

KEY CASES—Sheepskin cover. Six ring, swivel type, spring steel key clips. Price, \$10 a hundred, with your imprint. Order from Harrison.

MATCH BOOKS—\$3.50 per 1000 with imprint. Order from Harrison.

NOTEBOOKS—With red leatherette covers, refillable. Price, \$10 a hundred with imprint. Order from Harrison.

PENCILS—Best grade of lead and rubber. Round, wooden pencils. Price,

\$3.85 a gross with your imprint. Order from Harrison.

SHOPPING MEMOS—Twenty-four pages—perforated. Handy size, 2 in. by 3 in. Price \$5.50 per 1000 with your imprint. Order from Harrison.

TAPE MEASURES—Fifty-inch, linen tape with red celluloid cover. Price \$10 per 100 with your imprint. Order from Harrison.

CATALOG AND PRICE LIST—Description of each RCA Radiotron, list and net prices, standard package quantities and RCA Radiotron characteristics chart. No charge.

BUSINESS BUILDING SALES LETTERS—Twelve suggested letters to build tube renewal business and three reply cards. No charge.

BLOTTERS—Featuring popular "Good News" covers. Four designs in four colors. Size, 3¼ in. by 6 in. Price, 40 cents per 100 with your imprint; minimum order, 300.

BROADCAST DIRECTORIES—American, Canadian, Mexican, U.S. possession stations; and principal short wave stations of the world.

Pictures and biographies of leading radio stars. Studio slang, messages to customers, and catalog of RCA Radiotrons. Price, \$2.50 per 100; in lots of 1000, \$2.25 per 100; in lots of 2500 or more, \$2 per 100. Prices are with or without imprint. Ready June first.

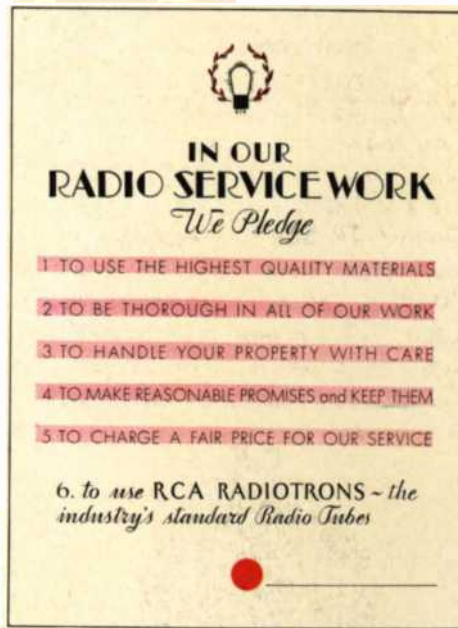
BROADCAST DIRECTORY POST CARD—Invites customers to call for copy of Directory, explaining its advantages. Printed black and red on manila stock. Unimprinted, no charge. Imprinted, 40 cents per 100; minimum order, 100. Stamped, 1 cent per card extra. Order by number, P-15.

***POST CARDS**—Set of four cards, each containing a different "Renew Your Tubes" message. Red and black on manila post card stock. Unimprinted, no charge; maximum order, 500 sets. Imprinted, 40 cents per 100; minimum order, 300, not less than 100 of any design. Stamped, 1 cent per card extra.

NEW PRICE LIST—Attractive four-page folder, containing complete list of new prices on RCA Radiotrons and two interesting messages to consumers. Used as envelope enclosures,

package inserts, etc. Size, 9 $\frac{3}{8}$ in. by 6 $\frac{3}{8}$ in. Unimprinted, no charge. Imprinted, 40 cents per 100; minimum order, 300.

PRICE REFERENCE CARD—4¼ in. by 8½ in. No charge.



This impressive, beautifully colored store placard, measuring 15" by 20", is an important feature of the plan for merchandising your service department which is available free to Headliner Star Dealers

PRICE TAGS—Shape of RCA Radiotron carton. 1½ in. by 3 in. Red and black on white stock. No charge.

LANTERN SLIDES—Six hand-colored, with three-line imprint. No charge. For local theatre advertising.

SET NAMEPLATE—Brass. Gold lettering on black background. Size, 4 in.

Where and How to Order

Print—do not write—imprint instructions. Check or money order must accompany all orders for those sales aids for which there is a charge, unless ordered through your distributor. Order from nearest RCA Radiotron warehouse listed below.

WAREHOUSES

Chicago, Ill. 589 E. Illinois St.
Newark, N. J. . . . 266 Hillside Ave.
Cleveland, Ohio . . 1133 E. 152nd St.
San Francisco, Cal. . . 325 Ninth St.
Atlanta, Ga. . . . 498 Spring St., N. W.
Dallas, Texas 2200 Griffin St.

by 2 in. Fastened by gummed back or small brads. Space to write date tubes should be renewed. Your imprint at bottom, black on gold; 3 lines or less, no more than 28 letters to a line. Imprinted, \$3 per 100.

TECHNICAL BULLETINS

Technical information on all RCA Radiotrons. No charge. Address requests to Commercial Engineering Dept., Harrison, N. J.

RCA RADIOTRON REFERENCE BOOK—Red leather cover, name in gold letters. Size, 2¼ in. by 5¼ in. Sixty pages radio definitions, symbols, engineering data, merchandising tables, tube characteristics lists, service rules, etc. One already sent to each Headliner Dealer and two to each Headliner Star Dealer. Additional copies available for service men.

SOCKET LAYOUT GUIDE—For all standard sets. Show what tubes each model uses. Engineering data, etc. One already sent to each Headliner and Headliner Star Dealer. Additional copies 50 cents each.

NEWSPAPER MATS—For insertion in local newspapers. Tie in with national RCA Radiotron advertising. No charge.

***SERVICE DEPARTMENT PLAN**—Complete, for merchandising your Service Department. Includes placard for window, post card and folder, all featuring service. Maximum order 500 sets. No charge.

***"RENEW YOUR TUBES" BOOKLETS**—Series of six booklets, two colors. Used as envelope or package enclosures. Unimprinted, free; maximum order, 500 sets. Imprinted, 40 cents per 100, any quantity.

MOTION PICTURE FILMS—For exhibition locally. "The Earth's Four Corners," showing how the many materials used in the manufacture of RCA Radiotrons are obtained. "Man-Made Miracles," the complete story of the manufacture of RCA Radiotrons. Both films one reel in length, with or without sound track, available in two sizes—16 mm., and 35 mm. No charge; loaned, not sold. Order from Harrison, specifying film size, whether sound or silent and where and how long film is to be used.

Did You Receive This Material?



ON APRIL 15, public announcement was made of the great price reduction on 12 popular types of RCA Radiotrons. Simultaneously, a complete set of the striking display material pictured above went out to each Headliner and each Headliner Star Dealer.

Makes Renewal Selling Easier

Fifteen thousand Headliner and Headliner Star Dealers received it put it to work cashed in on the sales stimulating announcement increased their profits. The efficient and thorough manner in which the RCA Radiotron Company assisted deal-

ers in taking advantage of the price reduction is but another indication of the benefits in store for Headliner Dealers.

Makes Set Selling Easier

The tremendous values which RCA Radiotrons now offer will encourage still more people, when buying a radio set, to insist and make sure that it is equipped with Radiotrons. Be prepared. Don't make set selling harder.

Join the growing army of radio retailers who are seeing the wisdom of concentrating their sales efforts on Radiotrons—the industry's fastest selling radio tubes.

RCA RADIOTRON CO., INC. ~ HARRISON, N. J.

A Radio Corporation of America Subsidiary

RCA Radiotrons

THE HEART OF YOUR RADIO

Printed by
THE MAQUA COMPANY
Schenectady, N. Y.