Sylvania News

Vol. 5 · PUBLISHED BY · No. 3

HYGRADE SYLVANIA CORPORATION makers of HYGRADE LAMPS, SYLVANIA TUBES and ELECTRONIC DEVICES

FACTORIES AT . . . SALEM, MASS. — EMPORIUM, PA. — ST. MARYS, PA. — CLIFTON, N.J.

Emporium, Pa., August 1934

The President's Message to Radio

Now that all of us in the radio industry are plunging headlong into the activities of the fall season, a review of President Roosevelt's opinion of radio might make us even more enthusiastic and optimistic. His message, addressed to retiring RMA president Fred D. Williams, and read at the tenth annual banquet of the RMA, follows:

THE WHITE HOUSE
Washington

"My dear Mr. Williams:

I take pleasure in extending greetings and best wishes to the radio industry as represented at your banquet given in celebration of the tenth anniversary of the founding of the Radio Manufacturers Association.

Your manufacturing ingenuity and your agencies of distribution have been so exercised that, I am glad to say, radio today is enjoyed in the humble as well as the palatial home and contributes greatly to the enrichment of life.

Radio is a new and potent American industry. Reports of the United States Department of Labor show that employment in your factories has doubled since April, 1933. Unemployed have found work in your factories, and I am advised that as business has improved within your industry your workers have received increased wage rates.

You have had many evidences of my interest in radio. In cooperation with the Government, radio has been conducted as a public agency. It has met the requirements of the letter and spirit of the law that it function for "public convenience and necessity."

To permit radio to become a medium for selfish propaganda of any character would be to shamefully and wrongfully abuse a great agent of public service. Radio broadcasting should be maintained on an equality of freedom similar to that freedom which has been and is the keystone of the American press.

Very sincerely yours.
(Signed) Franklin D. Roosevelt

First Boston to New York Five Meter Relay

By D. A. SMITH, Electronics Department

Within the last year, five meter activity has increased to such an extent that amateurs the country over are equipping their cars with portable five meter transmitters and receivers. Some amateurs have erected powerful five meter transmitters in their stations permanently.

The main requisite for five meter transmission is to get the antenna system as high above sea level as possible and also higher than surrounding hills where the terrain is of a hilly nature.

Mt. Wilbraham, just outside of Springfield, Mass., is an ideal location for five meter work. The summit of this hill is 900 feet above sea level, and the tower pictured on page four is probably from 75 to 100 feet high. The top of this tower would naturally be an ideal location for a five meter antenna, being almost 1000 feet in the air.

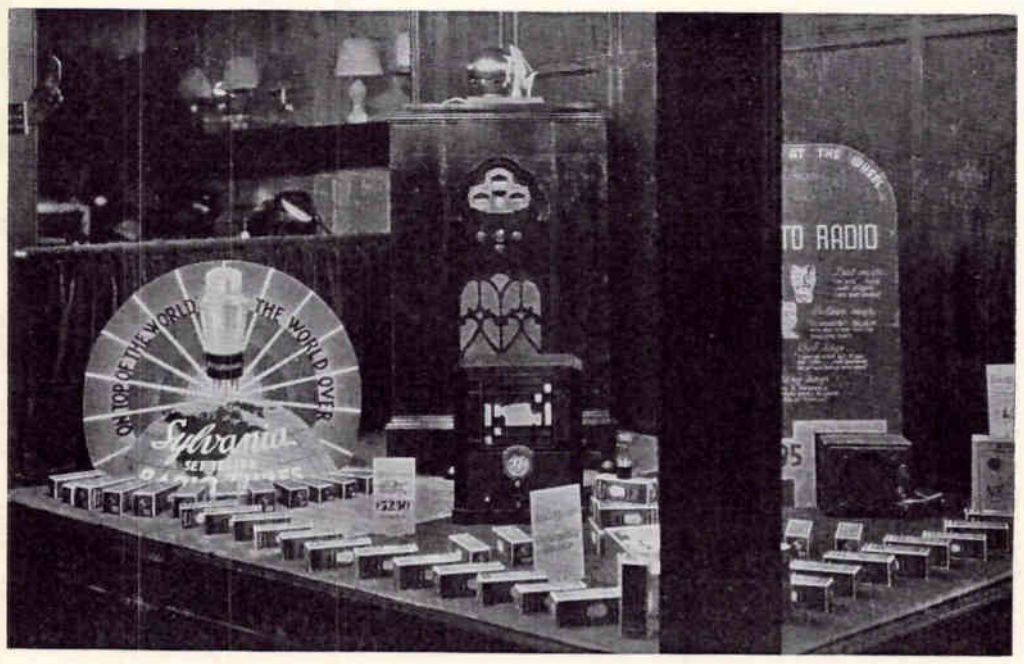
A group of experimenters in Springfield, one of whom is Mr. T. F. Cushing who does a mighty fine job selling Sylvania transmitting tubes, started an experimental ultra-high frequency station, using the observation tower on Mt. Wilbraham for their Headquarters. Each member of the group shares in the expense, and they have formed a Radio Experimenter's Club. Extraordinary results have been obtained from this location, as the following story will tell.

Of course, Sylvania **Graphite Anode** transmitting tubes, the type 825 ultra-high frequency tubes in particular, are used in this station. Receiving type tubes throughout are also Sylvania.

On Sunday, May 13, 1934, due to the good organization work of D. B. Whittemore, W2CUZ, the long talked of Five Meter Relay between Boston and New York City was all set to go. Such a relay had been the dream of five-meter men for the past two years, and two previous attempts had been made which failed.

(Continued on Page Four)

TELLS ITS OWNER'S STORY



This window display of the John B. Varick Company, of Manchester, N. H., helps to explain why this is one of the largest and busiest radio stores in the state. It isn't merely a "trimmed" window. It presents, so that the most hurried passer-by can grasp it, a complete story of the relation between the sets, tubes and equipment sold inside. We have seen fancier windows, but never one that did a better selling job.

Your Service Code

We have met quite a few service men, we've corresponded with hundreds of them, and from the things they have told us and things we have observed we have formed in our own minds a sort of composite picture of the ideal service man. Perhaps by putting this into words we'll be able to help all service men correct minor faults, and perhaps some of you will be able to supply details that we have missed.

1. He respects his profession. He didn't just go into servicing because he couldn't find anything else to do, but because he found it interesting and worth the time and energy he devotes to it.
2. He doesn't "know it all", and he never stops trying to learn. When he finds a problem that stumps him, he doesn't bluff, but gets the information he needs. He reads trade magazines, studies, goes to technical lectures and trade meetings, asks questions, experiments, keeps up with the times and the new developments in radio entertainment as well as in technical matters.
3. He isn't a "lone wolf". He realizes that in union there is strength, and is friendly and cooperative with other members of his profession. He doesn't "chisel", cut prices, or speak slightingly about other service men to customers, thus decreasing confidence in the whole profession.
4. He uses high grade materials and parts, and gives his best in the way of workmanship to each job. He never considers a job done until he is satisfied that it can't be improved.
5. He knows his costs, charges a price that will give him a fair profit, and his prices don't slide with every rumor that somebody else is charging less.
6. In his relations with his customers he maintains a professional attitude, neither too familiar nor apologetic. He is neat in his appearance and is careful of his customers' belongings. He is self-confident, without being "cocky" about his superior technical knowledge, and he is ready to explain if the customer wishes, or to keep quiet. If he chats he will not become personal, but will try to talk about something in which the customer shows an interest, preferably radio programs and entertainment. He is tactful. He does not belittle the set on which he is working, no matter how junky it may be. He is business-like in presenting his charges, and he itemizes so that the customer understands exactly what he is paying for.

What Do You Like?

Peter Dixon, who may or may not like our calling him the Walter Winchell of radio columnists, has picked eight programs that he missed the most during a recent two weeks spent out of touch with radio.

Fred Waring's invisible musical review.

Rudy Vallee's Thursday night variety show.

Wayne King's peaceful music.

Lanny Ross (though some of show boat bores him.)

Paul Whiteman, and Ramona.

Andre Kostelanetz.

Lyman's Accordiana.

Jessica Dragonette and her entire program.

With a couple of exceptions, which we're not naming, we agree. We also never miss, if we can help it, the Palmolive Beauty Box musical comedies on Tuesday nights. We like Bernie, Lombardo and Rubinoff, and would run a mile from Durante or Ed Wynne, though we know plenty of people who like 'em. Have you hams been listening in on the "QST" programs Tuesday nights, NBC, Red Network—thrilling.

Now, if you wouldn't mind doing us a favor, what are your favorite programs? And while you are thinking about it, ask two or three of your customers, and tell us what they say, too. This isn't a contest—we'd just like to know what you like, and we'll appreciate it if you'll let us in on your preferences, and your pet hates too, if you have any.

THE ALTER COMPANY GOES SYLVANIA

The sales force of the Harry Alter Company. Front row, left to right: Litt, Hurwitz, Unger, Ben "Chick" Mostow, vice president and sales manager, Irving Alter, secretary and treasurer; Arthur Alter, vice president; Schneider, Misroch, Locke. Back row: Gordon, Port, Thiesen, Swartz, Bear, W. C. Mahoney, Sylvania Representative; Schubert, Schuldt. Below is a partial view of the Harry Alter Company Parts Department. Left, Harry Alter, President.

The Harry Alter Company, one of the largest and best known wholesalers of radio and electrical equipment in Chicago, has recently taken on the distribution of Sylvania tubes. Mr. Alter is very active in radio affairs, and is head of the RWA Code Committee in the Chicago

Receiver Definitions Modified

The term "dual wave" has been eliminated by the RMA as an alternative definition for the "standard and short wave" receiving set having a frequency range between 4,000 and 20,000 kilocycles. To this extent the original definition for this type of receiver has been modified, by action of the RMA Board of Directors during the annual convention at Chicago.

The three classes of receivers which the RMA Engineering Division will define in detail are:

1. The "standard broadcast" receiver having a frequency range from 540 to 1570 kilocycles to include recent extension of the broadcast band.
2. The "all wave" receiver, having a

THE SERVICE EXCHANGE

Amrad Model 81.—If set hums: check four anode 52 mfd. Mershon. Disconnect each wire separately from each anode of Mershon, inserting in series 0 to 10 milliammeter. If meter registers over 4 mils. leakage per 8 mfd. anode replace with 2 mfd. 400v condenser. If it registers over 10 mils. for 18 mfd. anode, replace with 4 mfd. 400v condenser. The two anodes that are nearer the copper container, are the 8 mfd. anodes.—C. E. Peterson 1249 Capuchino Avenue, Burlingame, California.

* * *

Brunswick 15-22-32.— A rushing sound, like steam, particularly noticeable on the lower end of the dial, may be eliminated by removing the shunt condenser from the local-distance (push pull type) switch.—L. Goldbaum, Portland Radio Repairs, 1921 Alberta at 20th, Portland, Oregon.

* * *

Noisy Volume Control.—In the case of wire-wound volume controls that become noisy, it seems to be common practice to use some sort of oil or vaseline to quiet them. This grease soon collects dust, and the trouble reappears. A small amount of finely powdered graphite will provide lubrication without collecting dust. In an emergency the point of a soft lead pencil may be lightly scraped with a pocketknife to provide graphite for this purpose.—D. V. Simpson, 137 S. State Street, Marion, Ohio.

* * *

Temple Model 80 A. C.—Intermittent reception, occurring very irregularly, and accompanied by a drop in voltage on all plates (from 250V. to 180 V.). Replacing the 47 tube cured the symptoms but not the cause. Trouble finally traced to a bad coupling condenser in grid circuit of 47. In this model Temple the coupling condenser, and resistor for plate of preceeding condenser are built into a small can on back of chassis; if the resistor checks O K it can be left in, so all that has to be done is to clip the wire from can going to the 47 grid and wire in an .01-400V. condenser from the 47 grid to the plate of preceeding tube.—J. W. Cullen, 249 Chadron Avenue, Chadron, Nebraska.

* * *

Filter Choke Repair.—Almost any secondary winding of an a-f transformer or either winding of a magnetic speaker output transformer makes a good repair for a defective choke which carries 40 milliamperes or less.—Royce Clanin, Ipava, Ill.

* * *

Philco 80 A. C.—Four-tube Super. Two common noise troubles. Plate lead from i. f. transformer to 1st 36, rubs coil base and insulation is punctured. Flashing over occurs.

Grid Resistor (No. 26) for 42 tube lies close to 42 socket prong, and whenever anyone walks or a heavy truck passes, it shorts to the tube.

Whenever servicing these sets, check these points.

* * *

Victor RE 32. –Noisy yet everything checks OK. Resolder all '26 filament connections at sockets. I have cleared two complaints of this nature in this set in the last month. Trouble is of course resin joints. Also clean the socket contacts.—Chas. E. Harrison, % Warring Furniture Co., Maplewood, Mo.

* * *

Freshman—Freshman sets using 22 as an r. f. tube can be modernized by replacing with a 24 tube. All the material needed is a 24 tube and UY socket. Connect 1500 ohm resistor to cathode and bypass condenser across this. Then connect plate and screen grid and filament voltage leads to proper terminals. The filament voltage drops to approximately 2.1 volts under load. Results—no hum or resonance; increased volume.—S. Soloway, 28 Park Avenue, Saranac Lake, N. Y.

* * *

Fada Model KW 48.—In a Fada Model KW 48 that gave us trouble due to oscillator drifting, especially on the higher frequencies, we completely cured this by substituting the 27 oscillator for a 24A using the electron coupled circuit. This idea can be adapted to all superhets.

traced to a shorted bypass condenser contained in both of the i.f. transformer cans. To repair this unit without removing the part from the chassis cut a half inch slit in the defective transformer can running horizontally along the bottom of the can on the lower right hand side looking at the chassis endwise from the side on which the two i.f. transformers are mounted. This slit should start from the end which the service man is facing. Now cut another half inch slit at an angle of ninety degrees from the first slit and running vertically. Now bend the V shaped tab thus formed back and locate the red wire from the other leads. Tear this red wire out of the pitch covered condenser making sure that the wire is not broken in doing so. The lead must be free of the defective bypass. A new .1 mfd. condenser may be cut in the circuit underneath the chassis although the receiver seems to work as well with the condenser out of the circuit. This fault is exceedingly common and the above operation will save the service man a great deal of time and energy and the customer a lot of money.—John F. Bivins, 518 N. Main, High Point, N. C.

* * *

Zenith 52-62-72 Model AC Receivers.—Many times after replacing the electrolytic condenser on these models a hum will be heard, and forming the plates of the electrolytic condenser will remove the hum only for a short time.

A sure fire remedy is to disconnect the leads from the electrolytic condenser one at a time. When the correct wire is removed, the hum will be lower in volume. This is the section shunting its resistance across the filter choke, allowing the hum content of the power supply to be passed through the resistance and not through the filter choke. To this wire which has been removed connect an 8 mfd. electrolytic condenser thence to ground (chassis).—D. A. Brown Radio Service, Marion, Ohio

* * *

S-M Transformer Repair. With regard to S-M transformers 225 and 226, article published in last issue of Sylvania News.

We have a letter from Mr. R. M. Gray, Assistant Mgr. Parts Division, dated January 23, 1931 states, the value of resistor used in the 225 is 60,000 ohms and the resistor used in the 226 is 25,000 ohms. The condenser used in 225's and 226'S is ¼ Mfd.

We have found a number of these condensers with high resistance leaks. They are easily tested with ohmmeter from plate to grid terminals. For good quality reproduction they should show 2 Megs. or more.—Thos. Llewellyn, 218 South Taft, Okmulgee, Okla.

* * *

Atwater Kent—55 and 55-C, etc.—Look at the leads to voice coil and check very carefully as these have a tendency to get high resistance joints. They are soldered at about the middle of the distance from rim to apex of the cone.—W. L. Armstrong, 381 Main Street, Laurel, Maryland.

* * *

Crosley Show Box No. 706—Here the problem we have had this season. Crosley Show Box No. 706 intermittent lights switched on and off at various periods. After changing condensers it would play perhaps several days without cutting out. When we got it all voltages were near correct. Parts all checked OK. When it cut out, the moment a meter touched any part, it began playing. Found the power choke had settled down in its tar covering near enough to the can container so it had an intermittent ground. This choke was melted out, can insulated, choke returned and has never caused trouble since for over six months.—G. H. Gifford, Fayette, Ohio.

A CHAT WITH ROGER WISE

Chief Tube Engineer, Hygrade Sylvania Corporation

The announcement from our Export Department that Sylvania tubes are now being sold in 80 foreign countries is news that is of more interest to Hygrade Sylvania engineers than would appear on the surface. Considering the fact that not only are these tubes being sold in competition with other U. S. made brands but also with English, Dutch, French, Italian and many others, world-wide acceptance not only becomes a test of tube quality but also of the soundness of the engineering program sponsored by our company.

In the markets within the United States and Canada competition is on the basis of quality and cost of tubes which are interchangeable, while abroad we are competing with tubes which are not interchangeable. The manufacturer of receivers has a serious choice to make in selecting the style of tube to be used, since he must decide which group of tubes, as a whole, covers most efficiently the entire range of requirements involving R.F., I.F., and A.F. amplification, also detector and power output stages. The filament voltage considerations are important, since receivers must be designed for all classes of service including A.C. household sets, D.C. sets, the combined AC-DC type, automobile, aircraft and dry battery receivers.

Sponsorship of such tubes as types 14, 15, 17, 18, 19, 36, 37, 41, 42, 43, 75, 76, 77, 78, 79, 84 and 1C6 by Hygrade Sylvania Corporation has been a most important factor in placing American radio tube types in a satisfactory competitive position. At the same time all other important tubes have been developed promptly including 56, 57, 58, 59, 2A6, 2A7, 6A7, 6B7 and many others.

In the power tube field early recognition of the possibilities of the graphite plate material and thorough development work in the application of this material to the many types of air cooled tubes which were greatly improved by this step placed the Electronics Division of the company in an enviable competitive position, resulting in a world-wide demand for tubes of this construction.

Early study of the filament or heater voltage problem led to the conclusion that 6.3 volts afforded possibilities for simplification and standardization of great future importance. Subsequent sponsorship of sufficient types to constitute a complete 6.3 volt line for all classes of receivers except dry battery types met with a steady growth in the demand for such tubes and later to full recognition of the merits of this trend.

Study of results obtained in the United States has led many foreign manufacturers to conclude that 6.3 volt tubes afford the best possibility for ultimate standardization and for holding the number of new types at a minimum without sacrifice of technical advantages and has been an important factor in establishing the widespread acceptance of our products as indicated by the export record previously mentioned.

QUESTIONS AND ANSWERS

Question 1.—What is the principle under which a rectifier works? That is, how is the current rectified in a Half-wave rectifier Type 81 and a full-wave rectifier Type 80?

Answer—In a half-wave rectifier tube, such as Type 81 which contains one plate and one filament, the alternating voltage to be rectified is applied to the plate. Electron flow is from negative to positive, therefore, a flow of current in the same direction is provided since the plate is made positive, with respect to the heated filament, during one-half of the alternating cycle of the a. c. current. Since this means of rectification uses only one-half of the alternating cycle, it is termed "Half Wave Rectification". A proper and efficient filter must be used to completely smooth the voltage so that it is made available with a minimum amount of hum.

The Type 80 full-wave rectifier tube operates on the same principle as Type 81 but contains two plates, making it possible to rectify each half cycle of the a. c. current; thus delivering a current flow in the same direction alternately to the filter system. Rectification on both halves of the alternating cycle is termed "Full Wave Rectification". As in the case of Type 81 an efficient filter is necessary for smoothing purposes, but may be much simpler since the frequency of the rectified voltage is twice the line frequency.

Question 2.—Is it possible to make a Class A Prime amplifier with the use of resistance coupling to cut down interstage transformer costs, and can I use 2A5 tubes in this type of circuit?

Answer—It is impossible to employ Class A Prime audio amplification without the use of transformers unless there is a power supply of several thousand volts available. It is necessary to employ transformers that have been especially designed for this purpose. If you use properly designed transformers with three Type 2A5 or 42 tubes, operating as triodes it will be possible to obtain approximately 15 watts of power output. One tube is used as a "driver" and the other two as power output amplifiers.

Question 3.—How does the Voltage Doubler Rectifying System work?

Answer—The Voltage Doubler Rectifier System utilizes two separate and like diodes for rectification. These two diodes may be in a single bulb such as in tube Type 25Z5, or they may be in separate bulbs. The diodes are arranged

across the other diode system is discharging through the load. Thus, the voltage obtained across the load is approximately twice that available from only one diode circuit. As in full-wave rectification, the hum frequency is twice that of the power line.

Question 4.—Can the Type 76 tube be used in place of Type 37? Will there be any increase in performance with this substitution?

Answer—Type 76 is a tube somewhat similar to Type 37 except that it has considerably improved characteristics. The mutual conductance and the amplification factor are both improved over that of its predecessor, Type 37. Type 76 may be used to replace the 37 tubes in most receivers, and improved performance should be noticed if the receiver is re-aligned to compensate for the new tube. In most cases, the substitution can be made without any changes in the receiver, but in some receivers it will be necessary to determine whether or not the substitution of the newer type is beneficial.

Question 5.—What is the difference between a Type 5Z3 tube and the Type 83 tube?

Answer—The Type 5Z3 tube is a vacuum type rectifier tube capable of supplying considerable load current, and has a somewhat higher internal tube drop than Type 83 which is a mercury vapor rectifier. Otherwise, the ratings of the two tubes are the same but interchanging is not recommended.

Correspondence Club

James H. Sledd, whom we nominated (unofficially) as chairman of the Sylvania News Correspondence Club, writes that he has heard from service men in all parts of the U. S. A., and from several abroad. He has promised to keep us supplied with news, and hopes to make the club a real success.

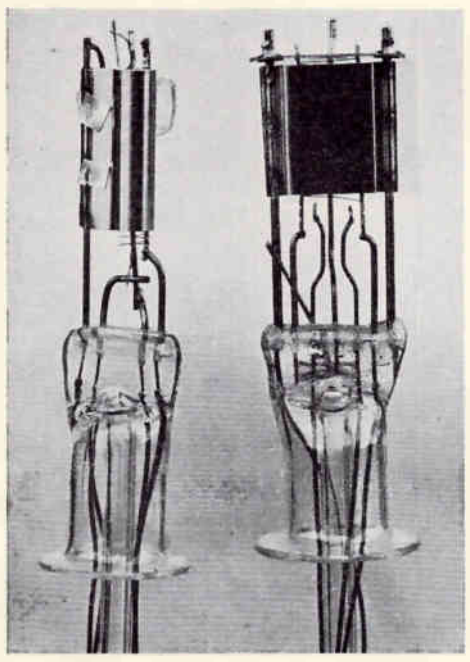
New Correspondents

Paul Stefan, 4632 St. Aubin Street, Detroit, Mich.

Oliver F. Klein, 2235 N. 39th Street, Milwaukee, Wis.

Harry L. Tucker, 15 Green Street, East-

NON-MICROPHONIC SYLVANIA TYPE 99



OLD NEW

Showing old and new construction of Sylvania type 99. The improved sturdiness of the new mount is easily seen.

The familiar thoriated tungsten type 99 has been redesigned in the Hygrade Sylvania laboratories at Emporium and extensive changes made in all of the parts including the filament material.

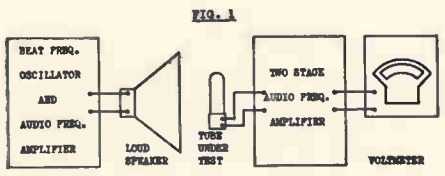
In the new construction the straight-through thoriated tungsten filament has been replaced by a "V" type oxide coated nickel ribbon. This filament can be more firmly supported at the top (at the bend of the "V") than is possible with the shorter tungsten filament. The adjustment of tension on the latter was a very critical factor—so critical that only a few tubes of this type are even comparatively free from vibration of the filament, which in turn causes the difficulty, known as "microphonism", to be present when the tube is used in ordinary receivers.

In order to secure high efficiency with the short tungsten filament, it was necessary to use a very small control grid and plate so that the inter-electrode spacing would be small, thus compensating to some extent for the lack of filament length. On the other hand, the grid could not be made too small, as the filament had a tendency to bow, with resultant danger of a short occurring between grid and filament.

When the tungsten filament is stretched tightly, it has a tendency to vibrate like a violin string and on the other hand when left loose will whip around under any slight mechanical shock. Either of these effects causes variation in the characteristics of the tube, resulting in pulsations in the plate current. These pulsations amplified by succeeding stages and fed back by the loud speaker give rise to the annoying singing noise termed by engineers, "microphonism".

The improved 99 is quite free from the above mentioned difficulty. The nickel base wire has much less elasticity at the operating temperature than is the case with thoriated tungsten filament. Also since the apex of the "V" is supported by a hook, proper choice of hook size permits the correct tension to be secured without encountering any of the difficulties inherent in the use of the straight-through filament. The fact that the filament can be greatly increased in length due to the low operating temperature which is suitable with oxide coated filaments (a temperature at which the thoriated tungsten filament would be inoperative) means that the spacing of grid and plate must be greatly increased to avoid having a tube so much more efficient than the old 99 that it would upset the receiver performance in the case of sets designed for the older tube. The increased spacing, of course, reduces still further the effect of any remaining vibration of the filament.

FIG. 1



The amazing improvement secured in the new type of tube can only be illustrated clearly by referring to charts

A standard beat frequency oscillator and a fairly high gain audio frequency amplifier supply the necessary energy for the loud speaker. The tube to be tested is placed in position directly in front of the loud speaker, and is mounted on sponge rubber to minimize the transmission of waves from the speaker through the mounting stand. The sound waves transmitted directly by the loud speaker are impressed on the tube under test, which acts as a microphone. A high gain audio frequency amplifier further amplifies the pulsations generated in the tube as a result of the mechanical motion caused by the speaker. The output voltmeter indicates microphonic output in volts. Figure 2 shows the comparative microphonic response of an average tube of the thoriated tungsten filament structure, while Figure 3 illustrates the negligible response of the new oxide coated nickel ribbon construction. The oxide coated filament type shows definite advantages over the older construction, as can be seen from the curve, which shows a maximum microphonic voltage response of 50 volts for the thoriated tungsten filament tube, while the new coated filament tube shows a maximum of only 3 volts microphonic response.

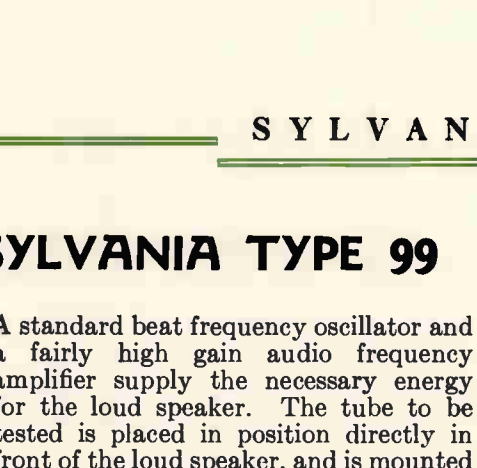


FIG. 2

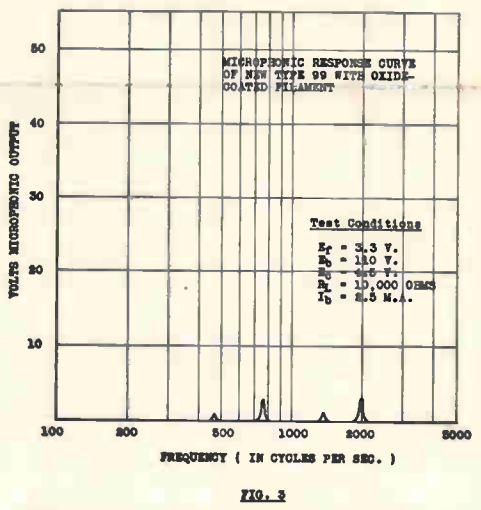


FIG. 3

When tests are made on the new tube under average conditions existing in radio receivers, it has been found that the tube is entirely unaffected by a thump or tap of the finger on the bulb. Under the same condition, the older construction causes a very loud "ping" in the loud speaker, which is often sustained into the familiar microphonic "howl", one of the serious difficulties that impaired the popularity of this once widely used type.

The new Type 99 has been compared with Type 864 using the equipment described above. The 864 was specially designed for minimum microphonic action, yet a large proportion of the 99's now being produced show even smaller microphonic response than does the 864. This is in spite of the fact that the 99 filament is much smaller in physical size than the 864, this being necessary because of the low filament current rating of .063 amperes as compared with .25 amperes for the 864.

In a few cases the improved characteristics of the new 99 may cause slight instability of the receiver in which it is used, particularly if the receiver is not in good adjustment due to long usage. In such cases, the filament current may be reduced by use of a rheostat or fixed resistor. When so operated the battery life will be prolonged and the maximum performance which the receiver is capable of giving can be obtained by setting the rheostat at such a point that the gain given by the tubes is just below the value which causes the receiver to become unstable. It also further prolongs the life of dry batteries by per-

SYLVANIA AT HOME AND ABROAD

Above is an informal snap in front of the Sylvania tube factory at Emporium, showing, left to right: B. J. Erskine, B. G. Erskine, president of Hygrade Sylvania Corporation, Sassoon Sopher, of Paris, France, W. A. Coogan, our foreign sales manager, and H. N. Nystrom, of the Emporium office. B. J. Erskine, son of the president, and Mr. Coogan recently visited Sylvania distributors in Europe.

South Africa Speaking

Your editor has made a sight-seeing trip through the Sylvania factory. That may sound queer, and we can see eyebrows go up all over the United States. Of course we've gone through the factory before—every day, in fact—but this was one of these specially conducted trips, with a guide, and it's been a long time since we've done that. We got a thrill of pride out of starting at the beginning and watching a tube go all the way through to the final test, just before it is branded with the Sylvania name and put into its carton.

To make it more interesting, we were accompanied by Mr. and Mrs. D. W. McKay, of Johannesburg, South Africa, Robert Lemare of Iquirue, Chile, G. Zambrano of Monterrey, Mexico, and Franklin Johnston, Editor of "American Exporter", New York City. We've seen tubes made before, but we've never watched somebody else seeing the process for the first time, and it was exciting to to see their faces change from passive interest to astonishment as they advanced step by step and began to realize what careful, complicated, "finicky" work is required to turn out an accepted Sylvania tube. And when, at the final test, they were shown a tube that had been rejected because of a tiny roughness on the base, and we heard their incredulous exclamations when told that this tube would never be permitted to go into service, we felt that we had good reason to be proud.

Said Mr. McKay, "Now I know why we've been getting such good results since we took on Sylvania tubes. Just before I left Johannesburg, we tested Sylvania tubes for 300 eight-tube sets, and not a single one showed a defect of any kind. When you consider that these tubes had travelled more than 7,000 miles, by train, steamer, truck, lighter and wagon, before they reached us, that seems almost unbelievable, especially since we always expected at least 7 per cent of defects with the brand we had been using."

Count Your Blessings

We quote from a letter just received from an Australian service man requesting Sylvania News and the Sylvania Auto Radio and Service Hints Booklets:

"I greatly admire the manner in which firms like yours extend a helping hand to service men, by publishing bulletins such as those I am enclosing coupon for. Service men in the U. S. A. are to be envied that they have such an excellent service as yours on tap."

V. FITTON, Newcastle, Australia

W. A. Coogan and Dr. Ing. Guggenheim of Telion A. G., Sylvania distributor, enjoying a chat in Dr. Guggenheim's office in Zurich, Switzerland.

A Square Deal

"I want to thank you for the copy of Service Hints, as well as for Sylvania News, which I appreciate very much.

"When I repair a radio and install Sylvania tubes I feel that I have given my customer a square deal. That feeling is worth something to me. I believe that the only real test for a tube is the way it behaves in a radio. I believe that service men ought to appreciate the things that you are doing for them."

Very truly yours,
E. H. Sleeth,
Dawson Springs, Ky.

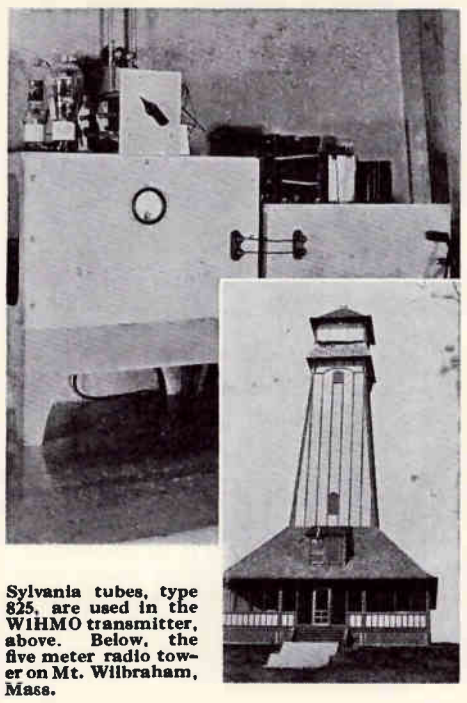
Just What We've Always Said

This Sylvania tube advertisement, recently received from our Sylvania distributor, A/S Foto-Radio-Centrale, Riga, Latvia, says: When constructing radio receivers do not forget that with SYLVANIA radio tubes you will obtain the very best results! Sylvania tubes for every circuit!

Sylvania tubes will be on display at the NATIONAL ELECTRICAL EXPOSITION to be held in Madison Square Garden, New York City, on September 19th to 29th. We extend a cordial invitation to all our radio friends to visit the Sylvania display. We hope that all of you who are within traveling distance of New York will drop in at the Exposition. It will certainly be worth while in a business way, and will give you a thrilling picture of what's new in radio and electrical appliances.

BOSTON TO NEW YORK FIVE METER RELAY

(Continued from Page One)



Sylvania tubes, type 825, are used in the WIHMO transmitter, above. Below, the five meter radio tower on Mt. Wilbraham, Mass.

W2GEC was on the New York City end, with W2AG located up the River at Yonkers for the first hop. It fell to the lot of W2CTF to make a long trek of 125 miles up State to the Catskill Mountains for a portable location from which they hoped to make the contact direct to Wilbraham Mountain, about ten miles East of Springfield where W1HMO (Formerly W1AWW) has had a permanent location and doing five-meter work exclusively for the past two and one half years.

Shortly after 10:00 A.M. W1HMO called W2CTF in the Catskills. What a thrill! W2CTF came back and the First and Second districts were QSO over one of the longest hops of the route. After the usual greetings, W2CTF put the signals of W1HMO through to W2AG at Yonkers, who in turn put them through to W2GEC at New York City. This double re-broadcast of W1HMO to W2GEC with a total distance of around 200 miles is an indication of what may become every day occurrences, and incidentally hangs up a record for the present time as far as W1HMO is concerned. The next hop was from Mount Wilbraham (W1HMO) to Mount Wachusetts where W1AHX was located with his portable outfit, and able to contact the Boston stations with ease. Messages were sent each way over the route and made excellent time. A queer condition prevailed between Mount Wilbraham and Mount Wachusetts. W1AHX at Mount Wachusetts could hear W1HMO at Mount Wilbraham very nicely, but W1HMO at Mount Wilbraham could not hear W1AHX, while W1DE located on High Ridge, some 20 miles Northwest of W1HMO, with an elevation slightly better was able to receive W1AHX but could not contact him. Consequently, messages going West were obliged to travel farther than those going East, and W1DE saved the day and the relay by being on the job and acting as receiving station for W1HMO.

An interesting report was turned in by W1HDQ who was located for the day on Mount Ascutney, near Windsor, Vermont. He was able to hear and understand fully both W2CTF and W1HMO and the airline distance was well over 125 miles.

Just Like Mary's Lamb

"About four months ago I received your trouble shooting book "Service Hints" and I have used it so much that now it needs a new cover. This book follows me wherever I go, and I've never had anything more helpful. Now I want your new Auto Radio Service book, and if I have to pay for it, let me know because I want it just the same."

Very truly yours,
J. Girardi.

A TOUGH TEST

Out in the little agricultural town of Decorah, Iowa, is located the rapidly growing L. Tatro Products Corporation, manufacturers of L. Tatro 32-volt D.C. Receivers and the new 6-volt battery receivers, in which Sylvania tubes are used exclusively as original equipment.

In celebration of the birth of the new 6-volt radio, early this spring, the L. Tatro Company recently staged a two-day celebration in which both tubes and receivers proved their mettle. With bands, parades, prizes and a real old-fashioned good time L. Tatro entertained more than thirteen thousand people from the surrounding farming territory. Scattered through the business district of Decorah were sixty-eight 6-volt and two 32-volt L. Tatro receivers, all equipped with Sylvania tubes. Ten of the sets were placed out on the sidewalks, exposed to the weather and the mercy of the crowds. Most of the sets were in operation from Thursday night until late Saturday night. Anyone who wished to do so was permitted to tune and experiment with them, and apparantly most of the thirteen thousand took advantage of the opportunity. Aerials were of all types, from regulation to metal store fronts.

It was a tough test, for both sets and tubes, and the more so because the weather to which ten of the sets were exposed varied from hot sunshine to dust storms to showers, with many temperature changes. We quote from the Decorah Public Opinion as to results:

"Of the 350 (Sylvania) radio tubes that were in service, not one faltered, quivered or showed any intention of breakdown, in spite of the abuse they were getting. Not a single radio gave a particle of trouble or required a moment of the service man's time." This statement has been verified by Mr. H. B. Montgomery, President of L. Tatro Corporation. Mr. Montgomery writes: "Here is another story for you. The week of April 20th we began shipping 6-volt radios to distributors all over the country. We have sold a large number since that time, and we have had only one Sylvania tube that gave us the slightest trouble. This was in a set which was used at a distributors meeting in the Stevens Hotel in Chicago. This was banged around considerable, and if you know anything about conventions you will understand that it was waltzed around the floor a few times more than was necessary. After the meeting, when the set was shipped to our Indianapolis distributor, one tube was out of service. That is the only tube that has ever given us any trouble, and that, I believe is the most marvelous demonstration of tube performance that any manufacturer could ask for. As for our sets, we have yet to have a single radio give a particle of trouble through workmanship, units assembled, tubes or vibrator. It's a nice partnership, and we're proud that Sylvania tubes are doing their part in building up this growing business."

DO YOU HAVE YOUR TECHNICAL MANUAL?

The new Sylvania Technical Manual is going like hot cakes and syrup.

There are still enough copies to accommodate those who have neglected to send in their orders, and if we run out, we'll have more printed. But that will mean waiting a few weeks, and in the meantime you'll be missing this valuable information on tube characteristics, properties of vacuum tubes, amplifier classifications, definitions, tube and base diagrams and symbols, and general tube and circuit information. You can't afford to do without it, so use the coupon below, and get your copy without delay.

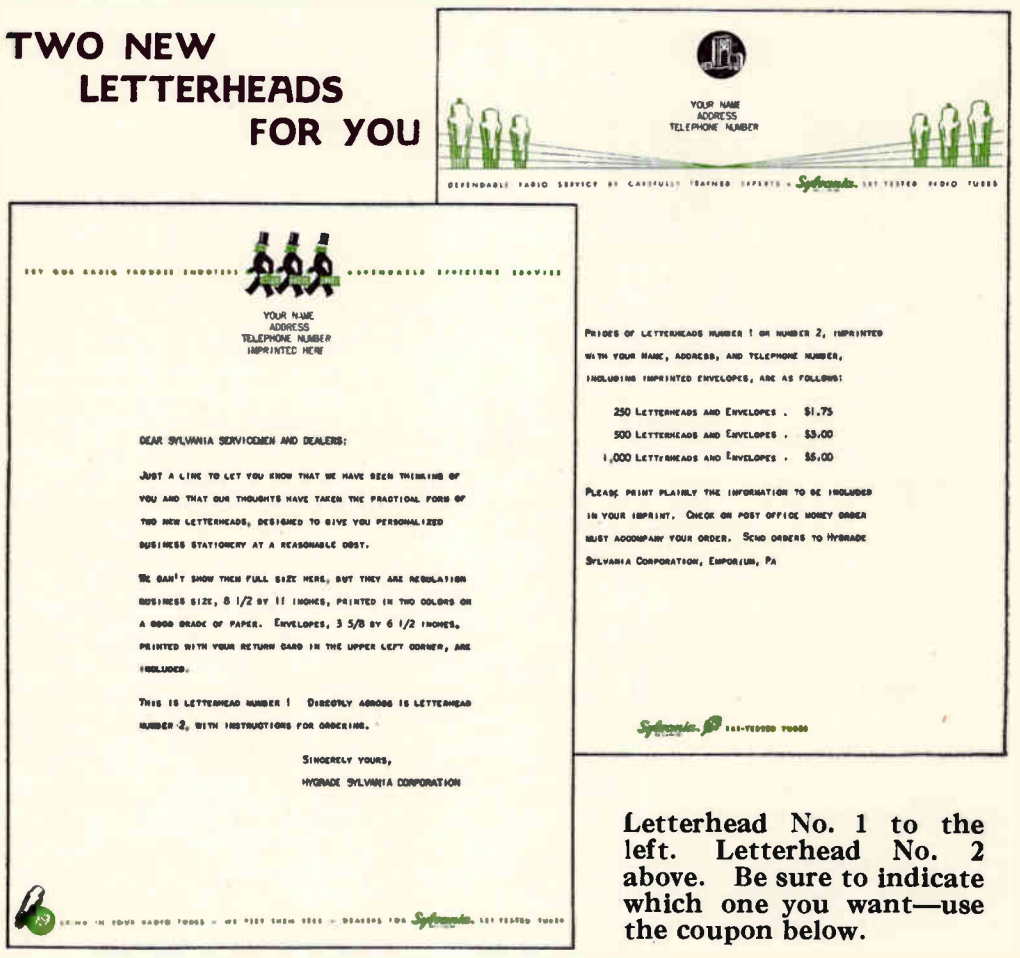
Hygrade Sylvania Corporation,
Emporium, Pa.
Gentlemen:

Enclosed is ten cents (coin or stamps). Please send me a copy of the Sylvania Technical Manual.

Name A. A. Johnson
Address R.2 Box 1072
[illegible]

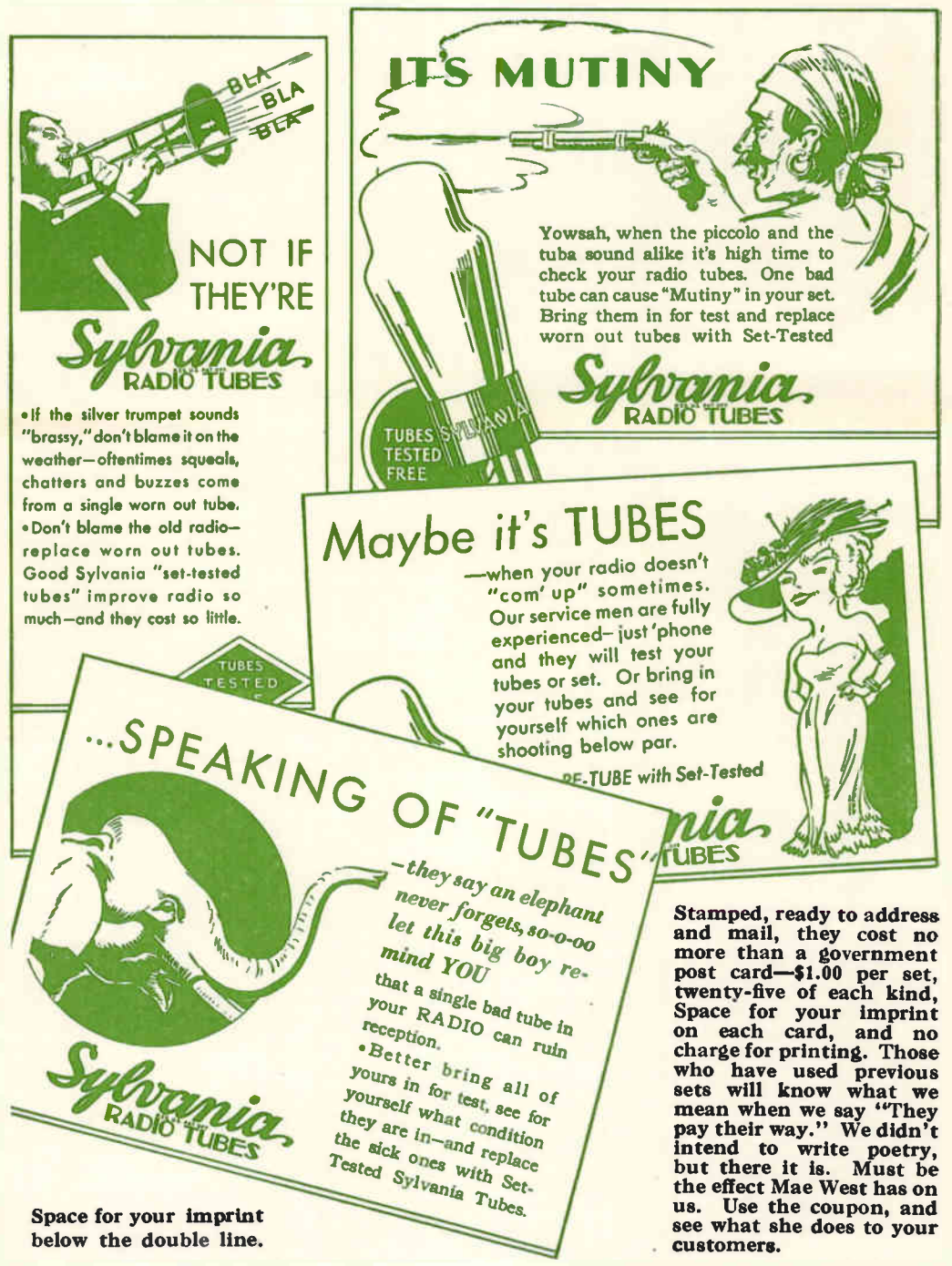
NEW SYLVANIA SALES HELPS

TWO NEW LETTERHEADS FOR YOU



Letterhead No. 1 to the left. Letterhead No. 2 above. Be sure to indicate which one you want—use the coupon below.

And Here's a Set of Witty Mailing Cards



Space for your imprint below the double line.

Stamped, ready to address and mail, they cost no more than a government post card—$1.00 per set, twenty-five of each kind, Space for your imprint on each card, and no charge for printing. Those who have used previous sets will know what we mean when we say "They pay their way." We didn't intend to write poetry, but there it is. Must be the effect Mae West has on us. Use the coupon, and see what she does to your customers.

AND AN AUTO WINDOW STICKER

If you have seen the Sylvania Dealer window transparencies you know exactly what these auto stickers look like, except that they are just the size of a Sylvania tube, and do not have the words "Authorized Dealer" across the top. Black and silver, like a real tube, and gummed on both sides so that you can put them on a window or a car door, or anywhere you wish, they will attract attention and give you a chance to get in a sell-

Hygrade Sylvania Corporation
Emporium, Pa.
Attached is (cash, money order, check)

$_____
Please send me the items marked.

_____sets mailing cards, at $1.00 per set of 100.

_____letterheads, number_____ at $1.75 per 250, $3.00 per 500 and $5.00 per 1000.

Name*_____

Address_____

City_____State_____