How to Make a Honeycomb RF Transformer

What Makes a Coil Low-Loss?

Answers to Questions on Radio World's 1925 Model Superdyne

A Sensitive Loop Set

Official Radio Report on Eclipse Effects

Complete List of Coming Radio Events

Advance Programs

Great Q. and A. Dept.
Why It's Better

Oversize locking nuts, slotted for screw driver, eliminating use of pliers to tighten
Large laminated silicon steel shell type core.

In general the larger the core the better the transformer - Federal No 65 weighs exactly 1\12 pounds - guaranteeing a tonal quality and modulation pre-eminent among transformers.

Primary and secondary fed thru hollow screws and dip-soldered making complete protection against breakage or shorts.
Only highest grade genuine varnished cambric tubing used.
Black enameled shield, completely surrounding windings.
Heavy nickel plated brass mounting feet—2 screw slots and 2 screw holes for mounting.

"MASTER of Every Note in the Orchestral Range" is the proven claim of the Federal No. 65 Audio Frequency Transformer! Volume without distortion is the basis for the beauty of Federal Tone. From its oversize locking nuts to its heavy brass mounting feet the Federal No. 65 Transformer incorporates the same engineering skill that has made Federal the recognized leader in electrical communication apparatus since 1890.
Insist upon Federal parts for your "pet" hook-up. There are over 130 standard parts bearing the Federal iron-clad performance guarantee.

FEDERAL TELEPHONE & TELEGRAPH CO.
Buffalo, N. Y.

FEDERAL Standard RADIO Products
EFFICIENT!
Will do anything that any five-tube receiver has ever done under the same circumstances.

RECENTLY REGISTERED THE EUROPEAN STATIONS FIVE EVENINGS IN SUCCESSION

FIVE TUBE RADIO FREQUENCY TYPE 5-A

Specifications
LOW LOSS PRINCIPLE
ADHERED TO THROUGHOUT:
TUBE SOCKETS: An original Low Loss design.
COILS: Of the Low Loss type mounted so as to be out of the electrical field of the condensers.
CONDENSERS: Strictly Low Loss. Designed for straight line reading. No piling up of stations on the lower wave lengths.
AUDI-O-TRANSFORMERS: This item and the variable condensers are manufactured by AIR SERVICE. We know they must be right.
DIAls: (Four inches in diameter.) The size of the dials permit a vernier control.
SUB-BASE: Mahoganite in color and of a high quality of insulating material.
FRONT PANEL: Of the new frieze design. Adds to the beauty and general appearance of the receiver.
CABINET: Size 7 x 18 solid mahogany, of a high piano finish. Made of selected stock, 5/8 of an inch in thickness. (Not the same type of so-called mahogany used in many cabinets of other makes.)
CIRCUIT DESIGN: The most advanced type of radio frequency circuit. Unnecessary to fuss with neutralization. Oscillations are controlled by a special knob termed the CLARITROL. This gives complete manipulation for clarity and volume.
TUNING: All tuning may be logged and the same station, when on the air, may be brought in at the same dial settings. Even a child can operate it.
WORKMANSHIP: It will be a revelation to anyone who would care to remove the set from the cabinet and compare the careful workmanship with that of other receivers selling for more than $100.00.

BEAUTIFUL!
The outward appearance is of an original, artistic design, usually classed as "handsome."

The interior workmanship and design will prove a pleasant surprise!

This receiver has brought in the broadcasting from coast to coast. The most efficient type of receiver ever designed. 7x18 genuine mahogany cabinet included. (Not an imitation.) (Without tubes.)

MAKE US PROVE OUR CLAIMS
SEND NO MONEY. PAY THE POSTMAN
It, after THREE DAYS, you decide that the receiver is not everything we claim, ship it right back to us.
WE WILL REFUND YOUR MONEY BY RETURN MAIL.

ALL SHIPMENTS MADE WITHIN 24 HOURS

DEALERS AND REPRESENTATIVES SEND US YOUR NAMES AND ADDRESSES

AMERICAN INTERSTATE RADIO SERVICE
183-185 GREENWICH STREET
Tim Turkey's 3-Tube Reflex

By Tim Turkey

The preservation of the virtues of the 3-circuit tuner, with the elimination of the radiating nuisance, is accomplished in the 3-tube reflex (Fig. 1) that comprises one stage of radio-frequency amplification, regenerative detector, one reflected audio stage and one free audio stage. Neutralization is accomplished by the employment of a small variable condenser of the Chelten or Midget type. This is connected from the filament of the grid condenser to the grid of the RF tube. The rotor plates go to the grid condenser lead.

The set is selective and powerful. It has DX possibilities. To get it working right may take a little experimenting as reflexes are notoriously troublesome in that respect. But the set is very efficient and the solution of all problems that arise is possible and often not at all difficult. In fact, the novice may build this set with little trouble and only the exposure of L1 L2, an extra socket and an extra tube, any existing 3-circuit tuner with two transformer-coupled audio stages may be converted into this non-radiating reflex. The C batteries may be two 4½-volt batteries. The 3-circuit tuning coil may be a commercial product. Mechanically it is difficult to make one of these at home, due to the requirements of the rotor or tickler, L5, which must turn smoothly yet be secure. This coil may be a Wallace, Globe, Eastern pickle-bottle, ARC, Bruno, Uncle Sam, Ambassador or other commercial type, in which case C2 is .0005 mfd., normally 23 plates. If the Bremer-Tully coil is used C2 should be .00035, normally 17 plates, but L1 L2 and C1 remain as previously described.

Where Vernier Helps

Vernier is not vital, but it is preferable in one instance—on the dial actuating C2. Then tuning in the low waves and the distant stations is made easier. Note the resistances. R1 and R2 are rheostats to watch the tubes. For 201A use 6 ohms. R3 is an Amperite to match the second audio tube.

R4 is a gridleak, preferably variable, such as the Durham, Twin or Bradley leak. It is connected from the grid post of the detector socket to the F+ post. The neutralizing condenser may be mounted on the baseboard or preferably on the panel. If it is on the panel it can be varied, if necessary. On the very low and sometimes very high waves a slight readjustment is helpful. Neutrodons, with two Neutrodons because of the two RF stages, are usually neutralized.

List of Parts

- One 75-turn honeycomb coil.
- One 3-circuit tuning coil.
- Two low-loss .0005 mfd. variable condensers.
- Three UV201A or C301A tubes.
- Three standard sockets.
- Two audio-frequency transformers.
- One single-circuit jack.
- Three 4" dials, one with vernier.
- One variable gridleak.
- One terminal block.
- One fixed grid condenser (.00025 mfd.).
- One .001 mfd. fixed condenser.
- One neutralizing condenser.
- Two 6-ohm rheostats.
- One Amperite No. 1-A.
- One 7 x 21" panel.
- One 6½ x 20" baseboard.
- Two C batteries.
- One storage battery.
- Two 4½-volt B batteries.
- One cabinet.
- One loudspeaker.
- 100 feet aerial wire, 50 feet No. 14 insulated leadin wire, lighting arrester, solder, lugs, hardware, internal connecting wire (No. 18 DCC or round twined busbar).

FIG. 1—The schematic diagram of the Tim Turkey 3-tube Reflex. Wiring will not be found difficult. The RF tube is neutralized so that while whistles may be heard they will not get into the antenna and annoy neighbors.
FIG. 2, the asymmetrical or picture diagram of the wiring. The parts are designated to correspond to the identification on the schematic diagram (Fig. 1). Any 3-circuit tuner, with two audio stages, may be converted into this reflex. The actual construction is simple, but it may require a little experimenting to obtain best results, which is true of almost every reflex. The neutralizing condenser N should be connected preferably with the stator to the grid of the first tube, the rotor to the grid condenser, although the opposite is shown above.
How to Neutralize the Circuit

for a given wavelength, usually a low one, and efficiency perhaps impaired on other wavelengths. In the present set there is only one RF stage, hence one neutralizer, and it is not a bad idea to have that one accessible. Place it where most convenient.

To neutralize tune in a local station on a low-wave. Put a piece of paper on one of the filament springs of the RF socket. Insert the tube. It will not light. Turn N until the signal is faintest or even disappears entirely. If it may not completely disappear, but if it does, so much the better.

Tuning

To tune the set place the tickler at about half-way, then rotate Cl and C2 dials simultaneously in the same direction, approximately in step. If no station is heard rotate these together a few degrees apart, first with C1 reading higher, then, if no station is heard, with C1 reading lower than C2. If still no signal is heard, with Cl reading higher, then, if no station is heard, with C1 reading lower, then, if no station is heard, with C1 reading higher, then, if still no signal is picked up, turn the tickler to another position and repeat the processes with C1 and C2 dials. Once the dial settings of C1 and C2 are obtained for a given station they will always bring in the same station if it is on the air. If the dials do not read in step, the one having lower readings may be brought up to the other by reducing turns from the coil whose condenser has the lower readings. For slight disparity simply readjust one of the dials to a reading corresponding with the other.

Wiring Directions

Wire the set like this: The aerial goes to the beginning of L1, the ground to the other end. The beginning of L2 goes to (a) to the stator plates of Cl, (b) the grid of the first tube (No. 1) and (c) to the stator plates of the neutralizing condenser N. The end of L2 goes to (a) to the rotor plates of C1 and (b) to the minus post of one of the C batteries.

The positive of this C battery goes directly to the G or SI post of the first AF transformer (AF 1). P of the first AFT goes (a) to the negative A battery, and (b) to one side of the rheostat. The other side of the rheostat goes to the F—post of the second tube socket. P or P1 on the first AFT goes to the beginning of L5, the rotor of the 3-circuit coupler, the end of L5 to the plate of the second tube. B or P2 on the first AFT goes to the plus 22½-volt B battery.

The other filament post of the first socket goes (a) to one side of C3, a .001 fixed condenser, (b) to the F post of the second and third vacuum tube sockets and (c) to the plus A battery. The plus A goes to the minus B battery. The plate of the first tube goes to the beginning of L3, the aperiodic primary of the vario-coupler. The end of L3 goes to (a) the other side of C3 and (b) to the P or P1 post on the second AFT. The other side of the neutralizing condenser N goes (a) to the beginning of L4, (b) to the stator plates of the variable condenser C2 and (c) to the grid condenser C4, which is of a .00025 mfd. capacity. The other side of C4 goes to the grid of the second tube and to one side of the gridleak R4. The other side of the gridleak goes to the F+ post of the second tube socket. The end of L4 goes (a) to the rotor plates of C2, and (b) to the positive A battery. The other filament terminal on the second tube socket goes to one side of the second rheostat R3, the other side of that rheostat to the A battery minus. B on the second AFT goes to the negative of the second C battery, the positive of that battery to the minus A battery. The remaining filament terminal on the third tube socket goes to one side of the Amperite, the other side of the Amperite to the A battery minus. The plate of the last tube to one prong of the jack, the other prong of the jack to the plus 90 B battery.

Radiator Ground Lead Usually is Poor

F your ground wire is connected to the radiator connect it instead to the cold water pipe. The heating system introduces a high resistance into the circuit and will have considerable effect on any receiving set. If you happen to be located so that you have access to the water meter at the basement, then your ground wire which is fastened to the water pipe where it first comes into the house. In other words, before it goes through the meter. Sometimes water meter connections form a high resistance path and it is advisable to shorten circuit them with a length of number 14 copper wire.

ANSWER TO LAST WEEK'S RADIO CROSS-WORD PUZZLE

K S D D I N O H M
A N T I T L O O P
A A C L O S E P S
P R O A E A R S
A A N T E N N A A
F A N E D I N F
T G A R D E N S E T
V E R A R E E L
T O E L I S A E A
E L B A O R E A L
A T T A N T S K I

Shenandoah Holds Nightly Cross-Continent Talk

WASHINGTON.

DURING the recent flight of the Shenandoah to the Pacific Coast, radio communication with the Bellevue, D. C., laboratory was maintained every night on prearranged schedules, according to a report to the Navy Department. Communication was also held with 290 amateur stations, working on wave lengths below 100 meters, located in 39 different states. An average of 7,500 words per day were handled, half of which were press written by a newspaper correspondent who made the entire trip. During the flight made from San Francisco to Camp Lewis, Wash., the ship encountered strong winds and heavy fogs. A great number of radio compass bearings and world time were received from practically every station on the west coast, which were found to be very accurate even in the uncalibrated sectors. It is understood that nearly 800 letters have already been received at Lakehurst from broadcast listeners throughout the country who heard the radio telephone talks sent out by the Shenandoah during the flight.
A Honeycomb RFT for DX

By Herbert E. Hayden
Illustrations by the Author

A HONEYCOMB or duolateral coil lends itself admirably to the making of a low-loss radio-frequency transformer. The drawbacks at- tendant upon stray magnetic coupling condensers omitted. Even on the low waves, with neutralizing properly constructing the condenser effect. Plates as far out of mesh as possible, re- just like the plates of a condenser, the turns are, in respect to one another, the lessened electro-static coupling. The capacity of the finished product as com- pared with the honeycomb coil, due to the lessered electro-static coupling. As the turns are, in respect to one another, just like the plates of a condenser, the lateral method theoretically places the plates as far out of mesh as possible, re- ducing the condenser effect.

The Field is Restricted

An important virtue of the honeycomb or lateral coil is in the restriction of its electro-magnetic field. Often one may construct a tuned radio-frequency set using these coils and low-loss conden- sers, and, with the rest of the losses properly safeguarded, get along well, even on the low waves, with neutralizing condensers omitted. The drawbacks at- tendant upon stray magnetic coupling are rather fearsome, therefore fans may well make one of these honeycomb or lateral radio-frequency transformers and com- pare results. The commercial coils of other varieties, such as basket-weave, share this restricted field virtue with the lateral coil.

Takes Up Little Room

Especially in reflex circuits is economy of space an important factor. No coil takes up less room than the honeycomb. The coils, as used for radio-frequency work, may be baseboard-mounted, suit- able brackets being easily obtainable. If possible use insulated brackets, such as hard rubber, bakelite, glass, etc. This is a fine point, perhaps, but it has to do with the minimization of losses due to metal in the magnetic field of the coil. These are known as eddy current losses, because the metal sets up a truant transformer action in the field. The magnetic field is the flux or flow of radio-frequency currents set up by the coil on the introduc- tion of a wave and often is very decided for six or eight inches around. In fact, with enough interference the field may be very noticeable for a few feet. Thus in any set where this is a fact the interplay of currents is obvious, and the effect of such mischief is oscillation fre- quently blamed exclusively on the tube itself. While the tube does its share in producing oscillations the coils have too long escaped deserved censure. Therefore let us make a radio-frequency trans- former that will minimize the possibilities of disastrous effects from stray coupling.

Coil Suits Only a .0005

Let us assume that .0005 mfd. variable condensers are to be used to tune the secondaries of the coils we are about to make. It is not safe to use .00025 mfd. variable condensers, even with a properly matched coil, because of the danger of not covering the broadcast belt of wave- lengths. In fact, I do not believe any coil, untapped, can cover the band in conjunction with the .00025 mfd. conden- sers. 15 plates. With the .0005 variable condenser, however, if the low- loss type is used, a coil, if properly de- signed, will cover from 200 to about 555 meters, which is all-sufficient, since no broadcast station is on a wavelength of less than 200 meters, and the highest wave in the broadcast belt is 540.1 meters.

However, I suppose a variety of variable condensers will be used by experimenters, so I have chosen the .0005 mfd. type, normally 23 plates, which will safely tune in the whole band but (let us trust) not at the same dial setting! The coil is de- signed only for the .0005 type.

How to Make the RFT

Fig. 1 shows the honeycomb coil clasped tightly in the right hand while turns are removed with the left hand. A 75-turn coil is purchased. Sometimes it will be found that the end of the coil is bound with sealing wax, hence this is simply picked off and twelve turns are removed. As shown in Fig. 2, the wire is then cut and the new terminal is bound with sealing wax. A lighted match is held about 1" from the top of the coil and the sealing wax stick introduced between the flame and the coil exterior.

Bottle Just the Right Size

A small vaseline bottle must be around the house somewhere. Get hold of it, clean the exterior carefully, rubbing it hard with a rag. Then get a spool of thread and some adhesive tape. These things are in your medicine chest or you are missing a bet. Cut two pieces of...
The Most Compact Inductance

How to Mount the Coils

If multiple coils are used it is advisable to mount them at right angles to their neighboring coils. It may not be necessary to adhere to the Neutrodyne angle even in Neutrodyne or other tuned radio-frequency circuits. Keep the coils at least 2° away from the nearest part of any variable or other condenser or any other metallic part. By following directions one may obtain great DX with these coils in a proper set.

Dealer Seized as Seller of Bootleg Tubes in Box Like R. C. A.'s.

On complaint of John S. Harley, chief special agent of the Radio Corporation of America, Julius Modell, proprietor of a radio store at Church and Vesey streets, New York City, was arrested charged by Harley with offering for sale others' radio tubes in wrappers similar to those used by the R. C. A.

Harley told the police that the R. C. A. has been trying to suppress imitators who have been selling "bootleg" tubes for $2.39 retail. His company's retail price was $4 up to February 2, when the price was made $3. It allows the retailer a 40 per cent discount, he added.

According to Harley a concern in New-ark has been turning out the imitation tubes at the rate of 1,000 a day. Harley said he bought twenty-four tubes from Modell's store and tested them in the Radio Corporation's laboratories and only two of them passed the signal test.

Modell, who lives at 1038 Ocean avenue, Brooklyn, N. Y., refused to tell where he bought the tubes, the police said. He insisted he thought they were good.

Harley said Modell was the sixth man arrested in New York and New Jersey as the result of the efforts of the R. C. A. staff. He said the situation constitutes a menace to legitimate radio dealers.

It's the brother of the defendant who operates chain stores in New York.

Spring Is Coming!

Plant Your Bulbs EARLY!
A Super-Sensitive Receiver

By Charles H. M. White
Consulting Engineer

Until the advent of the Neutrodyne radio-frequency amplification of the tuned type received little public attention and regeneration in the triple circuit form was generally rhonked upon as the ultimate in selectivity and sensitivity. So immense was the public radio reception accorded the Neutrodyne and receivers of that type that regeneration was given a rather serious setback. But 1924 has culminated in the successful combination of the two. The first attempt was the use of one stage of radio-frequency amplification and a regenerative detector. The next step was the same style with one stage of reflexed audio-frequency. The latest development (Fig. 1) enables the use of a loop with a two-stage RF regenerator. In such a circuit it is of the utmost importance to use good low-loss parts, especially condensers.

The loop can be any small size standard broadcast wavelength loop. If greater distance is desired a wire can be run around the edge of the loop and connected to ground, which loosely couples the loop with an aerial collecting system. The condensers C1, C2 and C3 are 0.005 mfd. variable condensers of the low-loss type (normally 23 plates). The two neutralizing condensers C4 are multiple-plateidget condensers (Marco or Chelico). The automatic filament control units R1 and R2 are amperite automatic rheostats. R3 is a gridleak.

L1 L2 may be any low-loss coupling coil or a Neutroformer. L3 L4 L5 is a 3-circuit tuner coil, L4 being the smaller stator coil, L3 the larger stator coil, and L5 the tickler or rotor coil. The position of L5 will determine the sensitivity of the detector tube No. 3 just the same as in any regenerative detector circuit. It is the last tuning adjustment to be made. The tubes No. 1 and No. 2 are UV201A, while the detector No. is a Sodion type D21. If the Sodion is used the gridleak R4 may be omitted and R3 may be an amperite rheostat. The Sodion is capable of closer regenerative control than the UV201A, and is not as sensitive on filament adjustment as the UV200. Both the Sodion and the UV200 take a negative grid return. The UV200 requires a gridleak, usually.

It will be found advantageous to mount the controls to the neutralizing condensers C4 on the panel. Be sure that the rotor plates of these condensers are connected to the filament sides of their respective circuits, to prevent serious body capacity. It will be found that in some cases C4 will have to be varied to obtain maximum sensitivity on both the extremely high and low ends of the broadcasting wavelengths. Sometimes it is advantageous to ground the negative filament side of the circuit, although no external aerial is used. Like most super-sensitive circuits this set requires a little experience in tuning before the best results can be had. Of course the main tuning is accomplished by the direction of the loop, C1, C2 and C3, while the tickler position controls the volume and regeneration in the triple circuits. The diagram shows no audio-frequency amplification, but any type of good audio amplifier may be added.

Fans Ask Senators to Remove Local Interference

Washington.

Senators and Representatives have learned the advent of radio means a big increase in their work. Rare is the day now when the national legislators do not get requests from their constituents for their influence in removing radio interference from the local community.

There is pending a recommendation by the Budget Bureau for a substantial increase in the appropriation of the radio bureau. This recommendation, if enacted, will enable the radio bureau to double its field force. Such action, it is believed, will enable inspectors to give more time to the elimination of interference caused by power lines, street railways, etc.

Price of Tubes Cut to $3 by R. C. A.

The list price of tubes was reduced $1 by the Radio Corporation of America and Cunningham, effective February 2. This makes the price $3. The tubes are WD11, 12, 199, 200 and 201A of the R. C. A. and C11, 12, 299, 300 and 301A of the Cunningham product. The reduction was rumored for several weeks previous.
The Superdyne University

Questions Regarding Radio World's 1925 Model 4-Tube DX Superdyne
Answered Personally by Herman Bernard, the Designer and Creator of This Wonder Circuit

PLEASE answer the following regarding the 1925 Model Superdyne. (1) I must use headphones and dry-cells, which would be preferable, 199 or 11 tubes or a combination? (2) Would the two tubes give as much volume on stations 600 to 4000 meters as the Hail 11 tube set with one stage of audio? (3) Could the grid returns in the 1925 Superdyne be changed from minus to plus? -Olive Medora, N. Y.

(1) The 1925 Model Superdyne will give excellent earphone service on the two tubes. The audio stages are parallel-connected, with the jack at the B plus and detector plate output. The WDII or the CII may be used in both sockets, if you have these tubes now, without change of wiring, and so may the 199 tubes. The efficiency drops about 12 per cent. Both the 11 and 199 types work well as RF amplifiers and detectors. The 11 tube is often a better detector than the 199 but the 199 is better for amplifier stages. The 119 is not inherently an inferior detector, but sometimes you will run across one that doesn't detect so well, while the 11 and 12 types run more consistently as good detectors. Be sure to include a rheostat for the RF tube as well as the one for the detector tube. This advice holds good in every case, so don't compromise the four tube series-connection, which included as the detector a 22% tube, for the grid-biasing method of the Superdyne, rather than the tube. The 22% tube characteristics, hence the same selectivity, sensitivity, distance, and volume-the Anderson Superdyne have the same operating characteristics, distance possibilities and volume, the 1925 Superdyne being superior in selectivity, sensitivity, and volume.

FIG. 1, showing posts No. 1, aerial; No. 2, B plus; No. 3, A plus; No. 4, A minus; No. 5, amplifier B plus; No. 6, plate lead of the RF tube. The tickler is connected to L5 through a 90-degree two-turn coil wound on the tickler iron. The 199 and 299 tubes work fairly well with a negative grid return, but if you are going to the expense of building such a fine set probably you would not care to sacrifice even 12 per cent. in overall efficiency. Therefore, I advise that in your case the UV199 tubes be used as amplifier tubes (one radio and two audio) and that a 4-volt Sodion tube be used as detector, this to be operated from four series-connected 1½volt No. 6 dry cells. This detector will not operate as a grid leak. Also it is not critical of filament voltage and instead of a detector rheostat an Amperite may be used. This Superdyne University circuit will be found in all cases for the prescribed UV200 or C300.

Could I use UV199 tubes in building Radio World's 1925 Model 4-Tube DX Superdyne, as described by Herman Bernard in the issues of January 10, 17, 24 and February 7? Would it be necessary to include a rheostat about 10 ohms, to control all three amplifier tubes. This rheostat, like the other, should be in the negative leg. The set will not work efficiently with a negative grid return.

(2) Would it be better to use two separate 199, or if not, what changes do you advise? -Wm. E. Barron, Zelienople, Pa.

(2) Not quite as much volume, but the Superdyne will get DX better and cleaner, and will be heard better. Volume of earphone service will be obtained. If you are interested in DX it is preferable to use RF, as in the Superdyne, rather than AF, since any station heard on the Superdyne should come in with sufficient audio for reception.

(3) I am planning on the use of a rheostat for each tube and a jack after each detector tube. Using 199 tubes, how many ohms are best on the detector plate (which would be preferable, 199 or 11 tubes)? -W. B. C., Detroit, Mich.

(3) The RF tube would not function efficiently if the grid return were made to the positive filament, as both grids have the same return in the original 119 tubes. However, the converter is due to the common rotor of the variable condenser. One possible way of overcoming this might be in biasing the grid of the detector circuit in this manner: 31 turns on the primary, 31 turns on the secondary (coupler and RFT) being wound with more wire. But you would not cover the wavelength belt of the broadcast stations, as a .00025 variable condenser, far as my experience shows, can not do this with any untapped coil. At least 1000 ohms (not really needed) is necessary. Mr. Flower's set is fundamentally the same as the others, but the Anderson and 1925 Models incorporate advanced features and do not necessarily couple the plate of the RF tube to the detector tube.


(4) I advise that in your case the UV199 tubes be used as amplifier tubes (one radio and two audio) and that a 4-volt Sodion tube be used as detector, this to be operated from four series-connected 1½-volt No. 6 dry cells. The Sodion tube may be used as detector, this to be operated from four series-connected 1½-volt No. 6 dry cells. This detector will not operate as a grid leak. Also it is not critical of filament voltage and instead of a detector rheostat an Amperite may be used. This Superdyne University circuit will be found in all cases for the prescribed UV200 or C300.

(5) I prefer to use four UV199 tubes, but would I have to use a Sodion or WD11 as a detector? -Frank K. E., Pittsburgh, Pa.

(5) This Sodion tube may be used as detector, this to be operated from four series-connected 1½-volt No. 6 dry cells. This detector will not operate as a grid leak. Also it is not critical of filament voltage and instead of a detector rheostat an Amperite may be used. This Superdyne University circuit will be found in all cases for the prescribed UV200 or C300.

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The Factors That Put a Coil in the Low-loss Aristocracy

By Abner J. Gelula

Inductances are too often far underestimated as to their relative importance in the receiving set. Inductance handles the original energy. The original energy must be conserved if DX and volume are to be obtained. Therefore, if we keep our losses consistently at a minimum, efficiency will obviously be maximum.

Loose turns on coils often can be traced to bad insulation, too much distributed capacity, too high resistance, or construction that makes inductive value too low.

Excessive resistance in a coil is usually caused by improper size of wire. Small wire has a high resistance in radio work, because of the skin effect. High-frequency currents travel around the wire, not through its center. It is therefore advisable that No. 20 or 22 be used for coils in the plate circuit, however, small wire may be used.

Of all insulating materials, for coil-wire, double-cotton-covered is probably the best. Not only does the cotton provide a larger space between windings, but the distributed capacity is much lower.

If a cylindrical form is used, be sure that the form is of a good insulating material. Cardboard, when dry, is as good as any, but it must be kept out of dampness, for the cardboard readily will absorb moisture, thus undermining the insulation of the coils. Phenolic substances create a greater loss than the dry cardboard. It also is not advisable to treat the cardboard with varnish, shellac or collodion, for each of these substances is bound to withhold the moisture within itself.

The radioists of several years ago may recall the old-fashioned type of loose-coupler. Upon examination, I found that the resistance of one of the best of the day (1918) was 24 ohms. A modern-day coil, of the low-loss type, gives a resistance of but 4 ohms. In the loose-coupler, the brass shafts extended throughout the diameter of the coil. The secondary was equipped with taps, also a point of leakage. The wire was small and only fairly well insulated, which increased resistance. The forms were usually cardboard (sometimes bakelite). The cardboard tubings were always well varnished, and the entire coil then shellaced! It's really the good workmanship, not the electrical qualities, that kept the resistance as low as 24-ohms!

Referring to Fig. 1, an ideal way is shown for mounting honeycomb coils. Of course this system would be rather crude for the parlor set, yet we must all agree that the losses through mounting are certainly reduced to a minimum. The dry cord, preferably linen, is strung through the core of the coils. Although the photograph shows honeycomb coils, the same system will work with almost any coil. The inductive relationship may be varied by merely moving the coils closer or further apart along the string. The leads are connected to the parts of the set. Non-inductive relationship may be accomplished by right-angle mounting.

Fig. 2, directly beneath Fig. 1, shows a system of mounting two fixed coils so that the induction between the coils will be at minimum. It is far better to use hard rubber bakelite or fiber supporting brackets (right angles and U-angles). Fig. 3, the lower photograph indicates how an air-wound coil may be firmly mounted inductively to another coil. The bakelite peg that is supported by the brass angle is run through one of the apertures of the air-wound coil. This will hold it fairly secure. Fig. 4 shows a low-loss coil. Yes, its low-loss because resistance and leakage is at a minimum, and inductance at a maximum. Between each turn is a turn of light cord so that the capacity between turns is at a minimum. The tubing is dry cardboard. It's always far better to keep losses at a minimum and attain the desired results than to worry about the looks of the coil and find that, after the air-wound coil is beautifully mounted with all kinds of brass angles, and well varnished and shellaced, results aren't anywhere near the desired.

New Station Causes Boom in Crystal Set Sales

Editor, Radio World:

You are putting out the best radio magazine I have found. I would like to see more about the development of crystal hookups. It seems to me more could be accomplished at the present time, with so many broadcasting stations. Station WREO has caused a great interest in Lansing. One dealer has sold 1,000 crystal sets, and many of these purchasers buy tube sets later.

Clyde M. Bennett.

122 Brass Court, Lansing, Mich.
A QUESTION and Answer Department conducted by RADIO WORLD for its Readers by its Staff of Experts. Address Letters to The Radio University, RADIO WORLD, 1493 Broadway, New York City.

FIG. 85-The circuit for a stage of push-pull amplification. The condensers are both of a .001 mfd. capacity, the pair of push-pull transformers will have to be bought. The plate of the last audio tube of an existing AF amplifier connects to the IN post, the plus B amplifier battery to the other IN post. The speaker connects to the OUT posts. Two 20A transformer tubes should be used.

PLEASE print a circuit showing how to hook up one stage of push-pull amplification. It will be added to a straight transformer audio amplifier. —Mary Copeland, 75th St., at Columbus New York City. Fig. 85 is the circuit you request.

I BUILT the Gueli 1-tube DX set as described in the issue of Jan. 17. After listening in to stations, with good volume, I noticed that the rotor of the split variometer was not functioning. After cutting it out and connecting the plate with the jack the reception was the same. Can you possibly tell me of anything that will make this work? —R. L. Wilson, 15 Euston St., Brookline, Mass. The rotor of the variometer hasn’t enough turns on it. Wind approximately 15 more turns so that it will regenerate at any point of the broadcast waveband.

I HAVE a 3-tube Westinghouse RC, but can’t get it to operate on a loudspeaker. With phones I can get almost any station in the U. S. Can you tell me what I can do to make this set operate a loudspeaker? —Marvin Williams, Box 195, Union, S. C. Indicate where point to a burnt out AF transformer. Test the transformer by placing a battery in series with a voltmeter, the whole across the primary, then the secondary of each transformer. The trouble may lie in the jack or even the plug on the loudspeaker. Test the tubes in the AF stages in another set.

HOW many turns are necessary for the primary and secondary coils to cover the waveband with a 15-plate cathode-ray condenser? (2) How is the detector jack connected? —Eugene H. Schoner, 70 Morningridge Dr., New York City. Primary 8-turn, secondary 60-turn No. 22 DCC wire on a 3/8” diameter, will come as near as may be expected of a .0025. (2) Open end of tickler coil to one outside prong of the jack, plus II 72% to the other outside prong. The primary of the first AF transformer connects to the inside prong, be sure that the primary post matched F goes to the correct prong, i.e., to the prong making connection with the plate side of the jack.

My Neutrodyne will not “neut.” I neutralize it one evening and next evening it is no longer neutralized. (2) What can I add to my Neutrodyne to make it tune more selectively between 20 and 400 meters? (3) Is it possible to Super Hete my Neutrodyne without disturbing the cabinet in which it is placed? —M. H. C., 106 Madison Ave., Scranton, Pa.

Test the tubes and batteries. Neutralize the set at the lowest wavelength possible. If it doesn’t oscillate at low waves it probably will not oscillate at all. (2) What do you think of the solder tube as detector? —Silvan Campana, 100 Hamilton Ave., Coram, N. Y. Yes. See issue of December &. (2) Very well.

I BUILT a 3-circuit set. I get all kinds of whistles but can’t get rid of the carrier waves so as to bring in the desired distant station. Philadelphia comes in very loud, although I am only 27 miles away. Can you help me in any way?—F. E. Make off about 5 to 8 turns from the plate coil. Make the coil fixed, and tune it with a variable condenser. Place a 200 fixed resistor across the phones. Be sure you have a good ground connection.

THE SUPERDYNE circuit, according to an advertisement in a recent issue of RADIO WORLD, suggested the use of two 41-plate condensers, a 3-turn coil for the plate. How many turns more would you suggest if I use a 33-plate condenser? —Walter Probert, 4117 W. Carter St., St. Louis, Mo.

Take turns off the secondary coil.

CAN the Superdyne be reflexed? (2) What do you think of the Sodion tube as detector? —S. H. Neumann, 53 Franklin Terrace, Irvington, N. J. Placement of parts and kind of parts used have a lot to do with this. See panel and assembly plan, January 10 issue.

I BUILT the set described by Herman Bernard in the issue of Nov. 8. I receive fair distance but I can never get a station without fading out within three minutes after I receive it. (2) On the sockets that I use there is no F plus or F minus. Does it make any difference? (3) I use the same ratio AF transformers. Is this O.K.? —E. W. Shub, Box 151, El Dorado, Ark. (1) It may be your location, aerial or the A. Battery. It is not the set. See that the battery is fully charged, or, if you are using dry-cells, that the amperage be always above 15. (2) On standard sockets F— is in line with G. (3) Yes.

I HAVE two 15-plate condensers. Please inform me as to how I can use this in place of the 23-plate in the Superdyne circuit as described in the issue of Dec. 27?—Thos. MacDonald, 12 Stone St., Plainfield, N. J. Forty turns for the primary coil, 60 turns on the secondary coil.

CAN you tell me what issue of RADIO WORLD contains an article on adding radio-frequency to a 3-circuit heterodyne tuner? —J. M. Corey, Saratoga Springs, N. Y. January 10.

WHICH do you think is better, regeneration in the detector or in the RF stage? —N. F. Pierce, 140 E. Fulton St., Columbus, O. There seems to be little or no difference. Radiation may be blocked by placing regenerative detectors in the detector, some say, but experience does not confirm that fully. The tone is sometimes better when the RF is regenerated and the detector left free.

WHY is it, if oscillation is necessary for a tube to function, that the rheostat, potentiometer or tickler coil must be adjusted to prevent oscillation? (2) In the case for low-loss equipment, the bakelite end-plates are removed from variable condensers and replaced by metal ones, when the magnetic field of the condenser is attached to a bakelite end-plate there is a surfeit of one to three square feet, with a possibility of a spark over the turn. But all these tricks are merely “bunk”! (3) What size duolocator.

FIG. 86-A simple 1-tube set. L1 is a 15-turn coil on a 3/16” diameter tubing; L2, in inductive relation-plates. C1 is .001 mfd. C2 is .00025 mfd. grid condenser. L1, in inductive relation-plates. C1 is .001 mfd. C2 is .00025 mfd. grid condenser. (1) I receive fair dis-

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size wire and number of turns should be used to replace a form wound coil of a 3-inch diameter wood coil. Use No. 2 DSC wire and 43-turns? (4) When two stages of AF are added to the detector, and volume remains the same, where is there a possibility of trouble?—Bert Ware, Salineville, O.

(1) The tube must be controlled so oscillations will not develop. The height and width of the box should have no relation to the height of the box. There is no place in some receiving sets for the control of oscillation, and other places that require the suppression of oscillation. For instance, the oscillator of the Super-Condenser must be oscillating freely, but the set will not function. If the AF stages of a Neutrodyne receiver oscillate it is not a Neutrodyne oscillator, and control will be difficult. The tickler coil is to control regeneration. It is in getting to a point in the characteristic of a tube just before the set breaks into oscillation. The rheostat, to a certain extent, fulfills the same requirements. The potentialometer is used to control the B+ voltage, not necessarily to suppress it. (2) Diabetic losses occur when the insulation is below the field. Condensers of better manufacture provide extended bushings to keep this low loss to a minimum. Low loss apparatus in a single regenerative receiver is not so necessary, but for AF circuits that have no regeneration losses it is highly important. (3) There is no commercially wound honeycomb that will exactly equal the 43-turns. It may be possible to use the AF transformers that you have for two primaries or two secondaries instead of a primary and a secondary. The trouble must be in the AF stage.

I WOULD LIKE to build a 2-tube set. I have one stage of RF, regenerative detector, using as many transformers as I can keep concerning minimum. —Samuel Shearman, Mountain Avenue, Summit, N. J.

FIG. 17 is the circuit you request.

WILL larger wire increase selectivity? Are low-loss condensers necessary in a set? What is the basketweave type? Can Amperites be used on the radio and audio tubes of the type 12? Will a plate variometer help in increasing sensitivity and selectivity? —Ralph Gans, 360 W. 86th Ave., Brooklyn, N. Y.

(1) Not necessary. Use No. 20 double cotton core for primary, but advisable. (2) Yes. (3) Yes. (4) Yes. (5) Yes. The setting concerning which you wish to receive should be built, as it is purely experimental.

In LT. O'ROURKE's description of his set in the issue of Dec. 6, he states that the capacity C2 should be 450 pf and that the capacity of RADIO WORLD the circuit cut seems to be defective for there is an excess of the inductance. A 35-turn coil and take off 12 to 15 turns. (4) Yes. (5) Yes. The set concerning which you wish to receive should be built, as it is purely experimental.

AT what turn is the Neutodene connected on a 153 N. D. (not C.W.) Transformer? —Herbert Bradley, 1570 E. 125th St., Cleveland, Ohio.

The two perforated covers, etc., are covered on the inside with gold gauze, China silk, etc. —Samuel Shearman, Mountain Avenue, Summit, N. J.

I DESIRE to use a honeycomb coil in place of the regular 4-turn wound coil. What size wire and how many turns will be purchased? —Harry D. Gallow, 101 Maine St., Bel Air, Md.

For a 20-turn honeycomb, 5-turns removed, will cover the waveband.

IN MAKING the loudspeaker described in the February 7 issue of RADIO WORLD, will you suggest a chart or diagram concerning the use of what, the silk, etc., for the B+105 Condenser, No. 35, 2.4, and 2.5, used in the reception of B+20 DCC wire.

The diaphragm of the loudspeaker consists of parchment or braid paper. The silk, which may be obtained in China, is simply a covering and serves mostly the purposes of neat appearance. Gold leaf is not really desired of silk. If there was any confusion as to what the diaphragm consists of, you are in the right, although it must be understood that the silk covering has a slight diaphragmatic effect. Nevertheless, it is not the very fine type of silk that is used. Two perforated cards made of heavy cardboard, are covered on the inside with a silk, as Chinese silk, etc., the operation of making one of the perforated covers may be divided, back and back and the same, silk, etc., in each case used to cover these on the inside with a silk. The design is not desired for the back, but only for the front, then omit the perforations in that one instance.

In the 1-tube Superdene, can 23 plate condensers be used? —Chas. Bruno, 56 Nelson St., Paterson, N. J.

Would it be possible to use a 75-turn coil and take off 12 to 15 turns. (4) Yes. (5) Yes. The set concerning which you wish to receive should be built, as it is purely experimental.

ON the Ambassador regenerative set, what ratio AF transformers shall I use? (2) Do plate grid leaks? (3) Does this hookup give good results? (4) Would a C battery help? How is it inserted? —Douglas Wilson, Tuskegee, N. Y.

Ratios are not vital. Different ratios are used in the highest stage in the first 20 tubes. Can I use a honeycomb coil in place of a 43-turn coil? —Harry D. Gallow, 101 Maine Street, Bel Air, Md.

FOR plate connections, the basketweave type? —Harry D. Gallow, 101 Maine St., Bel Air, Md.

In my copy of RADIO WORLD the issue of Dec. 6, he fails to state what capacity L1 and L4 should be used in place of 43-turns? If so, what changes would I need for type 12 tubes? (4) 199 turns call for 3 volts, but the storage battery comes only in units of 10, therefore the battery would have to be wound with a 33-turn rheostat.

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Official Report on the Eclipse as It Affected Radio

By DR. ALFRED N. GOLDSMITH
Chief Broadcast Engineer of the Radio Corporation of America

The following is a report of the effect of the eclipse on radio reception and transmission:

1. Experimental Arrangements—Signals were sent on wavelengths of 393 meters and 75 meters respectively from the General Electric Company's station WJZ at Schenectady, N. Y. These signals are called respectively the long and short wave signals. They were received at the technical building of the Radio Corporation of America at Van Cortlandt Park, New York City, on Super-Heterodyne receivers connected to automatic recorders to make sure that even slight changes or irregularities in strength would be noted reliably.

The observations were carried on from approximately 7 o'clock in the morning every day from January 22 through January 26, that is, for two days before and two days after, the eclipse. In this way the average daily reception conditions during this time of the year were obtainable.

This work was carried on under the direction of Dr. Alfred N. Goldsmith, chief broadcast engineer of the Radio Corporation of America, assisted by Messrs. A. F. Van Dyck, division engineer; Dr. W. V. B. Roberts, research engineer, and L. D. Engel and C. L. Beach, assistant engineers.

The results of the work will be handed over to G. W. Pickard, of Boston, who is the general organizer of the radio eclipse observations.

2. Explanation of Terms Used—It is well known in radio that at night particular distances of the order of 100 miles or more the received signals are not steady. They will be loud for one moment and then gradually diminish, returning after a while to their original strength. This is called “swinging” or “fading” of the signal and, of course, produces unpleasant reception effects. The usual wavelengths used in broadcasting, from 220 to 550 meters, do not show much daylight fading effect, although in the early morning hours there is some fading even on these wavelengths.

The shorter waves (below 100 meters) do show considerable fading effect over certain distances of transmission by daylight. It is also well known to radio listeners that there is a marked difference between day-time and night-time strength of signals. But average signal strength at night on the normal broadcasting waves is much greater than the day signals over any considerable distance. On some of the shorter wavelengths the reverse is the case.

3. Results of the Eclipse Tests—The following results are preliminary and tentative. They are all subject to later modification after careful checking of the transmitter and receiving equipment to make sure that the operation of these devices was constant and correct throughout the tests. Since the effects on the long waves (that is, the normal broadcasting waves) were quite different from those on the short waves, each will be given separately.

(a) Effect on 380-Meter Normal Broadcasting Wave—It was fortunate that five of the days of the observations that the 380-meter wave was swinging rather badly at sunrise and that the swinging gradually diminishes, the signal becoming steady as the sun rises higher. As a general rule the signal has become practically steady between half hour and two and one-half hours after sunrise. The more severe the fading at sunrise the longer the fading lasts into the daylight hours. Furthermore the more severe the fading at sunrise the more rapid the swinging of the signal from loud signals to weak signals and back again.

The eclipse had the following effects on the 380-meter signal:

During totality the eclipse appeared to cause a reduction of swinging of the signals. However, the reduction of swinging apparently caused by the eclipse was not complete as there was a marked difference between night-time conditions and full day-time conditions. That is, the eclipse did not change swinging nearly as much as does full sunlight.

While the above effects were noted, the eclipse did not affect the average signal strength any greater than the average signal strength during the eclipse as about the same as it would be in full daylight.

(b) Effect of Eclipse on 75-Meter Short Wave—Observations on this wave during the five days of the observations showed that over the distance of miles between Schenectady and New York this wave had very marked swinging every day and became weaker toward the middle of the day, although it never disappeared for more than a second or two except during the eclipse periods.

During the entire period of partial and total eclipse this wave disappeared altogether.

In other words, this short wave is very sensitive to the sunlight conditions on the path of the eclipse.

4. Conclusions—So far as any general conclusions can be drawn from this time before all the records have been carefully studied, it may be said that for 160-meter transmission:

1. The normal broadcasting waves are not affected in their average strength by the eclipse, but the swinging is somewhat reduced by the eclipse, thus “steadying” the wave.

2. The short wave of 75 meters is greatly reduced in intensity during the eclipse.

3. Static, particularly on the short waves, is reduced during the eclipse period and changed in character to occasional sharp clicks.

4. The short waves are much more sensitive to changes in illumination on the path than are the longer normal broadcasting waves.

5. The choice of wavelengths between 220 and 550 meters for broadcasting appears to be a fortunate one, for these waves seem on the whole, to be the most acceptable for broadcasting purposes. Reception listeners need not, therefore, be concerned about any marked change in the range of wavelengths being found for broadcasting than those which their receivers now can tune for, at least so far as the eclipse experiment just shown.

Man-Made Static Keeps Town at Radio Standstill

READERS of Radio World, not only fans but also dealers, jobbers and manufacturers are sending in their views on Man-Made Static. With radio (32d on the list of industries, yet the world’s greatest invention). Every reader of Radio World, should send in his views. Letters published will be paid for at usual rates.

Static Called Radio’s Greatest Drawback

SURVEY EDITOR:

I BELIEVE that the one big thing that is holding back the Radio Industry is static. I mean not only natural electrical disturbances in the atmosphere, but man-made static as well.

I have in mind a city of 9,000 population in which it is almost impossible to hear a program at night on account of the noise caused by the lighting system. Sales of radio sets have been at a standstill in this city since the noise began.

Natural static may be here to stay, but a lot of this artificially-produced static can and should be gotten rid of. It is something that cannot be eliminated by the receiver no matter how good it is. It may be excepted through the use of a loop aerial and this reduces the volume to such an extent that it is not very popular with the average listener.

I see only one solution for the problem; the use of super short-wave broadcasting stations, enabling the fan to shorten his antenna or cut down the power of his receiver and still hear the program with plenty of volume. This is at present being tried out by several stations and what the result will be is yet to be seen.

PAUL M. RUSSELL
123 Franklin St.
New Holland, Pa.
Litigants Split $165,000 Royalties in Suit Lost by Freed-Eisemann Corp.

The long litigation involving the Hazeltine Research Corporation and the Independent Radio Manufacturer's, Inc. on one side and the Freed-Eisemann Corporation on the other ended in midwinter. The money represented royalties under a contract between Hazeltine and Independent concerning concern's patents which are held that royalties were payable on special parts of radio sets. The Freed-Eisemann Corporation contended they should be paid a royalty on special parts of radio sets, but the Federal District Court in New York City ruled that they were payable only on the complete sets.

Second Radio Fair Opens September 14

The definite dates for the Second Radio World's Fair, which is to take place in New York City next fall, were announced by Directors James E. Kerr and U. J. Herrmann. The exposition will open on Monday, September 14, and continue until Saturday night, September 19. It will be held in the 250,000 foot Field Armory Building, on Jerome Avenue.

The fair will occupy 100,000 square feet of floor space. Radio World will elaborate displays by 325 radio manufacturers, including 60 of the best known wireless concerns from Europe, South America and the Orient, a total of 300 visitors than those who participated in the 1924 fair. Fourteen foreign countries will have exhibits of an official variety.

Business Opportunities Radio and Electrical

RATES: 50c a line; Minimum, $1.00

RADIO DEPARTMENT
Thoroughly experienced radio man wanted to establish department in best store in Elizabeth, New Jersey; rental or commission basis; wonderful opportunity. Levy Bros., 76-54 Broad St., Elizabeth, N. J.

MANUFACTURER'S AGENT CALLING ON radio-electrical jobbers; Chicago and vicinity, has opportunity; three additional lines carrying volume business; as we cater to large jobbers. Edelstein, 1,520 McCormick Building, Chicago.

MANUFACTURING MAN OF VISION with $5,000 to invest; exploitation, the newest development, most practical radio receiving apparatus (patent pending), fully equipped for production; highest references given and required. Box 5, Radio World.

ELECTRICAL ENGINEER, EXPERIENCED contractor, would invest $5,000 with services in going electrical concern; can obtain and manage contracts. Box 9, Radio World.

Rome buys more U. S. goods

WASHINGTON

A steadily expanding demand for copper and automobile parts for American radio apparatus is reported in Rome by Commercial Attaché Henry C. MacLean.

New Corporations


Bankruptcy Proceedings

Burney Radio Corp., New York City, by J. H. Furman, Parnell, a claim of $5,000.

Capital Reductions

Burney Radio Corp., New York City, $25,000 to $5,000.
Wedding Broadcast

HUNDREDS OF CHURCHES would have been crowded had all the people who heard this wedding attended. WHN broadcast the complete wedding services which joined William J. Stuart and Miss Saura Portway. Those who personally attended were Rev. William Darlington, A. J. Brooks, best man; Alphus Greer, who gave the bride away and the Microphone, who "kept" the "secret" very nicely. (Underwood & Underwood).

FATHER FINN and part of the famous Paulist Choir, from the church of St. Paul the Apostle, in New York City, rehearse before the microphone for the sacred concerts they will broadcast from WPL, the new Catholic broadcasting station now being erected. (Underwood & Underwood).

"I WONDER What Became of F-i-i-do." However, regardless of what became of Fido, "Cameo," the almost human dog, now performing in the movies, keeps his act below the point of oscillation for fear of disturbing neighboring dog houses by radiation. His three pals each seems to have a different conception of good music. (International Newsreel).

Scientists Write Secrets from WASHINGTON.

SIGNALS from Europe were less intense in 1924 than in 1923. Waves from long-wave stations shift at sunset. These are two of the findings in committee reports made to the International Union of Scientific Radio Telepathy, which met here recently. The reports included the following:

By DR. L. W. AUSTIN
Chairman, Committee on Radio Wave Transmission Phenomena

Measurements show that the average intensity of signals from European and California stations have been found somewhat less during 1924 than in 1923. The variations of the intensity of received signals from the high-power station at Bordeaux, France, have been found to be the same in France and the United States, whereas no such correspondence in the received signals is found for measurements in the two countries on the transmitted wave from the high-power station at Rocky Point, L. I. In measurements on the strength of signals from European stations there is found a drop in signal strength just after the time of sunset in Europe. Observations of signals from high-power stations over greater distances than that have been hitherto attempted, as for example, from Java to California, showed that the low-frequency stations transmitted to greater distances than calculations hitherto made had indicated. Measurements at frequencies above 3,000 kilocycles indicate that the fading of such signals is greater, and the reliability of transmission less, at distances under 500 miles than at greater distances. Furthermore, in the winter frequencies above 5,000 kilocycles are objectionable, the signal being too weak.

Committee Reports

It has been discovered that apparent wave refraction, reflection, and rays from a source parallel to the horizon, are all different from a source at an elevation. The reports included the following:

By DR. C. L. H., President of the University of Chicago

Measurements, with a galvanometer circuit, of the accuracy of the oscillating cloud, of the special properties of the earth's stratosphere, and of the applicability of the spherical reference to radio waves, have been made...
Dr. J. H. Taylor

Variations of Radio Wave Direction

It has been found that a shift of the direction of the waves from long variations occurs at sunset. The shifts toward the east before returns to normal at sunset, and shifts toward the west. The of this has not yet been fully, but further experimental indicate that there is a combinations along the earth with waves the receiving direction finder number of directions overhead, the act being brought about by the ionization of the atmosphere sets. Some variations of broadcast stations transmission been found at night. At very frequencies the changes of direction rapid and very great so that measurements are quite impos-

Dr. J. H. Taylor also presented the report of the committee on Atmospheric Disturbances:

Killing Two Birds with one stone. Here is a combined aero field and radio station which has just been completed near Berlin, and will be known as Tempelherfer Field. A powerful beacon atop the radio house guides the planes to the field. (Galliams).

"DX Trail"

"NO TROUBLE at all," say these Hawaiian Siamese twins, "to tune in stations and enjoy DX." They have absolutely no difficulty with interference for they get along famously with their 4-control sets. (Henry Miller).

"Don't Worry, Ben Franklin"--The San Francisco end of the American Newspaper Publishers' Association Banquet in New York enjoyed music with their meals a la radio. From left to right are: Thos. F. Dawson, Secretary of the U. S. Senate; Louis Honig, Pacific Coast advertising agencies; W. Russell Cole, Director, Press Club of San Francisco; Marshall Hale, San Francisco merchant; Thos. Boyle, San Francisco City auditor; James Ralph, Jr., Mayor of San Francisco; Wulfran de Bille, Chairman of San Francisco Press Club; Chas. K. Field, editor Sunset Magazine; H. H. Sherwood, San Francisco Convention League; Clyde C. Westover, Secretary San Francisco Press Club. (Underwood & Underwood).
BROADCAST PROGRAMS

Thursday, February 12


WLW, Cincinnati, O., 42 (C. S. T.)—8:30 A. M., “The Big Brother Club”; 9:00, “First Night at Home” program.


Friday, February 13


WBC, Chicago, Ill., 503 (E. S. T.)—7:30 A. M., weather; 11:30, weather; 1:30, weather; 3:30, weather; 5:30, weather; 7:30, weather; 9:40, weather; 11:40, weather; 2:00, weather; 6:00, weather; 8:00, weather; 10:00, weather.

Sunday, February 14

WJW, Detroit, Mich., 352 (E. S. T.)—4 A. M., setting up exercises; 5:50, “To-night’s Dinner” by the American Choral Artists; 7:15, weather; 8:25, weather; 9:45, weather; 11:05, weather; 12:25, weather; 2:45, weather; 4:05, weather; 5:25, weather; 7:45, weather; 9:05, weather; 10:25, weather.


Sunday, February 15

**KTHS, Hot Springs, Ark., 375 (C. S. T.)—8:30 M., special Spanish-American concert.**

KOA, Denver, Colo., 323 (M. S. T.)—11 A. M., special weather reports.

WGN, Chicago, 378 (C. S. T.)—11 A. M., Uncle Sam at Will Co., choral recital.


WHAS, Louisville, Ky., 400 (C. S. T.)—11:30 A. M., featuring Mr. Bennington Holcomb, tenor; Waldo J. Flinn, tenor.

WMZ, Chicago, 346 (C. S. T.)—7 A. M., featuring the Cafe Society Band. **(Concluded On Monday.)**

KGU, Kemper, Ind., 700 (E. S. T.)—9 A. M., featuring the Community Band. **(Concluded On Monday.)**

KERN, Bakersfield, Calif., 680 (P. S. T.)—9 A. M., featuring Mrs. Zoeller's Melodists. **(Concluded On Monday.)**

**Tuesday, February 17**

**KTHS, Hot Springs, Ark., 375 (C. S. T.)—8:30 P. M., Versatility Concert, by Charles L. Frasier.**

KOA, Denver, Colo., 323 (M. S. T.)—11 A. M., special weather report.


WMAA, Buffalo, N. Y., 319 (E. S. T.)—11 A. M., featuring Dr. Frank W. Scott, director of the WMAA orchestra.

WGR, Buffalo, N. Y., 319 (E. S. T.)—10 A. M., featuring Mr. and Mrs. John J. Scardino, violinists.

WMAQ, Chicago, 448 (C. S. T.)—1:30 P. M., featuring Miss Mabel Putnam and the Chicago Symphony Orchestra.

WMAQ, Chicago, 448 (C. S. T.)—4:30 P. M., featuring Mr. and Mrs. James J. Swetlik, violinists.

KABC, Los Angeles, Calif., 700 (P. S. T.)—7 P. M., featuring the Los Angeles Symphony Orchestra.

**Wednesday, February 18**

**KTHS, Hot Springs, Ark., 375 (C. S. T.)—8:30 P. M., dance orch.**

KOA, Denver, Colo., 323 (M. S. T.)—11 A. M., program by RKO. **(Concluded On Thursday.)**

WHAS, Louisville, Ky., 400 (C. S. T.)—11 A. M., featuring Mr. and Mrs. Jack Renard, violinists.

WMAA, Buffalo, N. Y., 319 (E. S. T.)—11 A. M., featuring Mr. and Mrs. John J. Scardino, violinists.

WMAQ, Chicago, 448 (C. S. T.)—1:30 P. M., featuring Miss Mabel Putnam and the Chicago Symphony Orchestra.

WGR, Buffalo, N. Y., 319 (E. S. T.)—10 A. M., featuring Mr. and Mrs. James J. Swetlik, violinists.

**Friday, February 19**

**KTHS, Hot Springs, Ark., 375 (C. S. T.)—8:30 P. M., dance orch.**

KOA, Denver, Colo., 323 (M. S. T.)—11 A. M., special weather report.

WHAS, Louisville, Ky., 400 (C. S. T.)—11 A. M., featuring Mr. and Mrs. Jack Renard, violinists.

WMAA, Buffalo, N. Y., 319 (E. S. T.)—11 A. M., featuring Mr. and Mrs. John J. Scardino, violinists.

WMAQ, Chicago, 448 (C. S. T.)—1:30 P. M., featuring Miss Mabel Putnam and the Chicago Symphony Orchestra.

WGR, Buffalo, N. Y., 319 (E. S. T.)—10 A. M., featuring Mr. and Mrs. James J. Swetlik, violinists.

**Monday, February 16**

**KTHS, Hot Springs, Ark., 375 (C. S. T.)—8:30 P. M., Natalie Brightman, violinist; Artur Piatz, pianist; Charles L. Frazier, master of ceremonies.**

KOA, Denver, Colo., 323 (M. S. T.)—11 A. M., special weather report.

WGR, Buffalo, N. Y., 319 (E. S. T.)—10 A. M., featuring Mr. and Mrs. James J. Swetlik, violinists.

WMAQ, Chicago, 448 (C. S. T.)—1:30 P. M., featuring Miss Mabel Putnam and the Chicago Symphony Orchestra.

WGR, Buffalo, N. Y., 319 (E. S. T.)—4:30 P. M., featuring Mr. and Mrs. James J. Swetlik, violinists.

**Tuesday, February 17**

**KTHS, Hot Springs, Ark., 375 (C. S. T.)—8:30 P. M., Versatility Concert, by Charles L. Frasier.**

KOA, Denver, Colo., 323 (M. S. T.)—11 A. M., special weather report.

WHAS, Louisville, Ky., 400 (C. S. T.)—11 A. M., featuring Messrs. Waldo J. Flinn, tenor; William Hughes, tenor; and Paul E. Cleaves, tenor.

WMAA, Buffalo, N. Y., 319 (E. S. T.)—11 A. M., featuring Mr. and Mrs. John J. Scardino, violinists.

WMAQ, Chicago, 448 (C. S. T.)—1:30 P. M., featuring Miss Mabel Putnam and the Chicago Symphony Orchestra.

WGR, Buffalo, N. Y., 319 (E. S. T.)—10 A. M., featuring Mr. and Mrs. James J. Swetlik, violinists.

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WMAQ, Chicago, 448 (C. S. T.)—1:30 P. M., featuring Miss Mabel Putnam and the Chicago Symphony Orchestra.
AFTER warning S. L. Rothafel (Roxy) that "be a little more dignified" at his Sunday night sessions before the microphone of WEAF, feeling that he wasn't complying, gave him to understand that he would have to eliminate the "small talk" if he was to use their station any longer. Roxy announced that he had no intention of giving up broadcasting but would make every effort to comply with WEAF's request.

The station is owned and operated by the American Telephone & Telegraph Co., at 195 Broadway, New York City. Roxy and a number of his friends at the Capitol Theatre music program for an hour every Sunday night, for which he pays WEAF. The program is transmitted out by WEEI, Boston, interconnected.

The program is "indirect advertising," hence WEAF's action took on the aspect of censorship, leading advertising bo to "fly over the air as to bore the audience and kill this source of income.

Roxy's weekly program is one of the most popular radio features in America. WEAF objected, however, to the little intimacies that Roxy indulged himself in acknowledging receipt of telegrams, flowers, etc.

"We're asked Roxy time after time to be a little more dignified. We're in touch with thousands of fans and we feel that many of them are not at all interested in Roxy reads telegrams or announces that he'll have to hear how the folks are out in Joplin. And we don't think those who haven't any particular interest in Roxy asks 'How's Aunt Matilda?' He has a splendid air personality which we feel would be even greater if he were more dignified.

Roxy said: "I never did want to read those telegrams, anyway. I'm glad they're out. I know what WEAF wants, but it will be hard for me at first. I have every intention to co-operate with the station's officials and I'll try my best to satisfy them.

The subsequent austerity of Roxy's announced was noticed.
Join the A. B. C. NOW

A B. C. stands for the American Broadcast Club. Join it today. It involves no dues or payment of any kind, and no obligations. It was founded by Radio World simply to unite the broadcast listeners and radio fans in general in a common bond to promote their welfare as occasion requires. Send your name and address to A. B. C. Editor, Radio World, 1493 Broadway, New York City.

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J. W. Southwick, Mt. McGregor, N. Y.
J. J. Don F. Buechner, 1810 May St., Worcester, Mass.
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Montgomery Ward & Co.
Superdyne Questions

(Continued from page 10)

its drain of one amphere per hour, you may substitute the 5-volt Sodion tube, which draws 25 amphere per hour, the same as the UV20A and CG4A. The design of the circuit is such that the grid return of both the radio-frequency and the detector tube must be the same connected to the common rotor of a split variable condenser. Hence, if a tube functions better as detector with a positive grid return it would have to be so for the RF amplifier tube and no tube that I know of works better with a positive grid return in amplifier circuits.

(2) No. Of course, three controls may be used, by employing two .005 mfd.

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radio world

February 14, 1925

Radio World

The Superdyne Cycle

"Radio World's" 1925 Model DX Superdyne

Only two controls: 4 tubes. One RF detector, 2AF. Wonderful DX quality, great simplicity, fine DX powers work wins first place in issue of January 10, 17 and 24. Trouble-shooting done in the December 27 issue. Get your copies today. Pay $1.00. Send with order.

"The 1-Tube DX Superdyne," by Herman Bernard. One stage of tuned regulator, AF, crystal detector and one AF stage, great quality of signals, good for about 150 miles on earphones. Issue of December 6.


"The 1-Tube DX Superdyne," by Herman Bernard, explaining how to add two radio stages, transformer-coupled, to the 1-Tube DX Superdyne. Get December 27 issue. too, for full particulars on details of the new improved DX Superdyne.


Any of the above copies at 15 cents each, or start your subscription with any number, RADIO WORLD, 1603 Broadway, New York City.
SUPERDyne Parts

One certificated Superdyne coupler (L1/L2).  
One certificated matched radio-frequency transformer (L4/L5).  
One Bruno Ultra Vario Condenser.  
Two Federal radio-sets (Nos. 65 and 65A) or two No. 3-A Stromberg-Carlson audio-frequency transformers.  
Three UV201A tubes.  
One UV201B tube.  
Four Federal sockets.  
One .00055 mf. Dubilier grid condenser (C2).  
One variable Bradleyleak (R2).  
One Bradleystat (R1).  
One Bradley pull-pull battery switch (S).  
One Tri-Jack or single-circuit jack (J).  
One 120-ampere-hour Exide storage battery.  
Two 45-volt Eveready B batteries (No. 1 and No. 2 in Fig. 1).  
One 45-volt Eveready C battery.  
One 7x24" black Radion panel.  
One mahogany cabinet, size to match.  
Two silver Eureka dial pointers.  
Four .044 diameter hard rubber bushings.  
Ten feet of vari-colored Columbia battery cable.  
One Eby terminal block.

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Your dealers or direct, $8.00
NOLTE MFG. COMPANY
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JERSEY CITY, N. J.

SUPERDyne PROBLEMS (Continued from preceding page)

Of audio and the second.  
(2) Yes, the UV190 tubes may be used for the DV3. But for the detector it is advisable to use the Sodion in combination with dry-cell operation of the amplifier tubes. Although the Sodion requires three volts at the filament (fed by 6 volts, one of which is lost in the rheostat or ammeter), four series-connected No. 6 dry cells of 1 1/2 volts each will last quite a while, the drain being only 25 amperes. The use of dry cells to operate a Sodion is recommended only as an alternative, where the constructor has no storage battery.

PLEASE show photographically how the connections are made to a vari-o coupler to obtain reverse feedback as discussed by Herman Bernard in his articles on the 1925 model Superdyne.—Al Oberender.

If a 180-degree coupler is used, that is, one whose rotor turns completely around the 360 degrees, hence it has no end-stop, it makes no difference which if the two ways the connections are made. The 180-degree coupler, so-called because it permits only 180 degrees of electrical variation, though it travels a 360 degree angle, permits the use of regeneration either by the "aiding" (positive) fashion or the "opposing" (negative) feedback. In Fig. 1, binding post No. 1 is connected to aural, No. 2 to ground, No. 3 to the grid of the RF tube and No. 4 to negative battery. Post No. 5 is the post connecting to the beginning of the tickler. If the plate is connected here the starting point for reversely feedback back current would be when the rotor is turned so that the windings of the stator and those of the rotor are in opposite directions. Post No. 6 would be connected to B plate amplifier. If a 90-degree coupler is used, therefore, no reversal of the direction of the windings is possible by changing the rotor, hence the plate of the RF tube would go to Post No. 6, the END of the winding tickler winding, while the BEGINNING of the tickler goes to the B plus high voltage. In most couplers constructed for slanting panel mounting and provided with binding posts, the beginning of the tickler coil is connected to that post which is higher up from the backboard when the coil is properly mounted.

SUPERDyne Editor:

I HAVE built the 1925 Model 4-tube DX Superdyne and find it the best set I ever had, which is saying something, as I have built close to 500 sets.  

SUPERDyne Editor:

Please send me 25 name plates as I want to give them to 25 boys that are building your 1925 Model Superdyne.  
Edward E. Smith, 1 Marchant St., Green, S. C.

SUPERDyne Editor:

Your carefully designed Superdyne certainly looks rotten. Is anything mounted straight? The baseboard is warped. What's the matter with the battery strip? Where did you get that.

(Coineded on next page)

$2.00 EACH

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The U. S. Army

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One Superdyne Coupler

One matched Radio-Frequency Transformer

One Bruno Varleto Condenser

The U. S. Army

COMPLETE SET OF OUR AM AND RF FREQUENCY TRANSFORMERS

$22.50

One Bruno Ultra Variable Condenser

One Matched Radio-Frequency Transformer

One Federal No. 6A Audio-Transformer

One Federal No. 6A Audio-Transformer

Four Federal Sockets

One 00022 Mid. Dubilier Grid Condenser

One 65A 156 Black Acme Transformer

One Variable Bradleyleak

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RESULTS GUARANTEED — MAIL ORDERS SOLICITED
THE SUPERDYNE

(Concluded from preceding page)

outfit? Surely you should be ashamed! This is 1925. Don't spoil your paper with bunks.

FRED C. KRAFT.

Superdyne Editor:

I AM a constant reader of RADIO WORLD

and now the 1925 model. This set is the best I ever built. I have built

almost every kind of set. Please send me your nameplate for the Superdyne, as it deserves a name.

JOSEPH RITS.

Petersburg, Nebr.

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4 TUBE DX

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Trans-B-Former

1066 WEST ADAMS STREET

CHICAGO, ILLINOIS

February 14, 1925

RADIO WORLD

24
RESULTS

WHAT RESULTS Did You Obtain from Constructing Sets or Parts Following Data Published on RADIO WORLD Write to Results Editor, RADIO WORLD, 1493 Broadway, New York City.

like a Minnesota telephone system after a blizzard. You have lauded the tonal quality of the Superdyne but have never said one-half enough. Its tone is exquisite. There are too many persons playing with radio who know or care nothing for quality, nor who can appreciate the rare tone quality of this circuit. There is something about the Superdyne which prevents the volume breaking through on the frequencies around middle C, with the result that the frequencies are spread evenly over the scale, and I am bringing in bass notes with all their heavy vibrations and overtones until I wonder how so small an apparatus can produce such deep tones.

There is nothing in its output like a phonautograph or horn quality.

I am 50 miles from KFI (on 1,500 watts) and she snaps by like a box on the ear, so you see it is selective. Would certainly recommend this circuit to music lovers. It will be a rare reward, musically speaking, for those sufferers who have never been able to endure the quality heretofore obtainable.

A blizzard. Like a Minnesota telephone system after a blizzard.

I am 50 miles from KFI (on 1,500 watts) and she snaps by like a box on the ear, so you see it is selective. Would certainly recommend this circuit to music lovers. It will be a rare reward, musically speaking, for those sufferers who have never been able to endure the quality heretofore obtainable.

Now I have to "dress" this set up for company, as my dials are not in step and the panel looks like a navy target after a good score, but to tell you the truth, I don't see how I can spare it long enough to "fix" her up.

I certainly thank you and Mr. Bernard for bringing this circuit to my attention.

CHESTER B. KNOX,
Santa Paula, Cal.

P. S.—Have listened to all the locals and have scouted around in the woods between here and Chicago with this "bunch of junk" and have yet to hear any distortion.

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Friday, February 19


Friday, February 20

WGBS, New York City, 315 (E. S. T.)-6:30 P. M., Herman Bernstein, managing editor of RADIO WORLD, "Radio Hookups, Questions and Answers." KOA, Denver, Colo., 323 (M. S. T.)-1 P. M., N. Y. stock reports, livestock, fruit and vegetables; 3, half hour matinee. 6, stock reports, livestock, vegetables and late news. 6:40, Book of Knowledge program. 6, the oratorio "St. Paul," by the cathedral choir and orchestra of Methodist Episcopal church.

WEEL, Boston, 303 (E. S. T.)-1 P. M., assembly luncheon. 1:15, Cleen Cass, "Personal and Management of Summer Camps." 2:15, dance orch. 3:45, Big Brother club. 7:15, ladies trio. 7:35, Pathé News program. 9:30, Jimmy Joyce's orch.

WWJ, Detroit, 353 (E. S. T.)-8 A. M., setting. 9:35, "Tonight's Dinner" and a special talk. 9:45, Public Health Service bulletin. 10:25, weather. 11:55, time. 12:05 P. M., Junior matinee. 3, News orch. 3:00, weather, market reports. 4, concert orch. 5, News orch. 6, dinner concert. 7, News orch. 8, New York program.

WHAS, Louisville, Ky., 400 (C. S. T.)-4 to 5 P. M., Louisville Conservatory of Music; police bulletins; weather; Alamo organ; readings; news. 11:35, live music. 1:30, organ recital. 5, time, 7:30, concert by the Hopper Holy Homeritze; four-minute digest; four-minute welfare talk; news.

KGO, Oakland, Cal., 390 (P. S. T.)-10 A. M., classroom instruction (E. S. T.)-11:30, luncheon concert. 1:30 P. M., N. Y., and S. F. stock reports and weather. 4, concert orch. 6:45, final reading, stock reports, weather, S. F. produce news, and news. 8, address, Paul Shoep; Chas. F. Bulotti, tenor; Austin Sperry, baritone; Uda Waldrop, pianist. 10, Henry Halstead's orch.

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Class B Waves

List of Class B stations showing Wavelengths in Meters, Frequencies in Kilocycles, Call Letters and Locations of Pacific Coast Stations.

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<thead>
<tr>
<th>Wavelength (Meters)</th>
<th>Frequency (Kilocycles)</th>
<th>Call Letters</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>820</td>
<td>370.2</td>
<td>WHB</td>
<td>Waco, Tex.</td>
</tr>
<tr>
<td>830</td>
<td>370.2</td>
<td>WHN</td>
<td>Kansas City, Mo.</td>
</tr>
<tr>
<td>850</td>
<td>365.6</td>
<td>WHF</td>
<td>Chicago, Ill.</td>
</tr>
<tr>
<td>860</td>
<td>361.2</td>
<td>WCH</td>
<td>Columbus, O.</td>
</tr>
<tr>
<td>870</td>
<td>356.9</td>
<td>WDD</td>
<td>Hartford, Conn.</td>
</tr>
<tr>
<td>880</td>
<td>352.7</td>
<td>WGR</td>
<td>Utica, N. Y.</td>
</tr>
<tr>
<td>890</td>
<td>348.6</td>
<td>WMA</td>
<td>Scranton, Pa.</td>
</tr>
<tr>
<td>900</td>
<td>344.6</td>
<td>WCH</td>
<td>Chicago, Ill.</td>
</tr>
<tr>
<td>910</td>
<td>340.7</td>
<td>WGN</td>
<td>New York City.</td>
</tr>
<tr>
<td>920</td>
<td>336.8</td>
<td>WAB</td>
<td>Bakersfield, Calif.</td>
</tr>
<tr>
<td>930</td>
<td>332.9</td>
<td>WBG</td>
<td>Portland, Ore.</td>
</tr>
<tr>
<td>940</td>
<td>329.0</td>
<td>WBP</td>
<td>Seattle, Wash.</td>
</tr>
<tr>
<td>950</td>
<td>325.1</td>
<td>WBG</td>
<td>Portland, Ore.</td>
</tr>
<tr>
<td>960</td>
<td>321.2</td>
<td>WBC</td>
<td>Birmingham, Ala.</td>
</tr>
<tr>
<td>970</td>
<td>317.3</td>
<td>WBG</td>
<td>Portland, Ore.</td>
</tr>
<tr>
<td>980</td>
<td>313.4</td>
<td>WBN</td>
<td>Boston, Mass.</td>
</tr>
<tr>
<td>990</td>
<td>309.5</td>
<td>WBG</td>
<td>Portland, Ore.</td>
</tr>
<tr>
<td>1000</td>
<td>305.6</td>
<td>WBM</td>
<td>Buffalo, N. Y.</td>
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<tr>
<td>1010</td>
<td>301.7</td>
<td>WBG</td>
<td>Portland, Ore.</td>
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<tr>
<td>1020</td>
<td>297.8</td>
<td>WBN</td>
<td>Boston, Mass.</td>
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<tr>
<td>1030</td>
<td>294.0</td>
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<td>282.3</td>
<td>WBN</td>
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<td>278.5</td>
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<td>Portland, Ore.</td>
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<td>1080</td>
<td>274.6</td>
<td>WBN</td>
<td>Boston, Mass.</td>
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<td>1090</td>
<td>270.7</td>
<td>WBG</td>
<td>Portland, Ore.</td>
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<tr>
<td>1100</td>
<td>266.8</td>
<td>WBN</td>
<td>Boston, Mass.</td>
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<tr>
<td>1110</td>
<td>263.0</td>
<td>WBG</td>
<td>Portland, Ore.</td>
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<td>1120</td>
<td>259.1</td>
<td>WBN</td>
<td>Boston, Mass.</td>
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<tr>
<td>1130</td>
<td>255.2</td>
<td>WBG</td>
<td>Portland, Ore.</td>
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<tr>
<td>1140</td>
<td>251.3</td>
<td>WBN</td>
<td>Boston, Mass.</td>
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<tr>
<td>1150</td>
<td>247.4</td>
<td>WBG</td>
<td>Portland, Ore.</td>
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<tr>
<td>1160</td>
<td>243.5</td>
<td>WBN</td>
<td>Boston, Mass.</td>
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<tr>
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<td>239.6</td>
<td>WBG</td>
<td>Portland, Ore.</td>
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<tr>
<td>1180</td>
<td>235.7</td>
<td>WBN</td>
<td>Boston, Mass.</td>
</tr>
<tr>
<td>1190</td>
<td>231.8</td>
<td>WBG</td>
<td>Portland, Ore.</td>
</tr>
<tr>
<td>1200</td>
<td>227.9</td>
<td>WBN</td>
<td>Boston, Mass.</td>
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<tr>
<td>1210</td>
<td>224.0</td>
<td>WBG</td>
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</tr>
<tr>
<td>1220</td>
<td>220.1</td>
<td>WBN</td>
<td>Boston, Mass.</td>
</tr>
</tbody>
</table>

Imposter and veteran veterans. His detection and arrest is also requested.


Radio World’s 1925 Model Superdyne KOL KIT COMPLETE $7.00 1-3 Circuit-Superdyne Coupler 1—Superdyne R.F. Transformer Both Units are All-Litz Wound on Bakelite Base ARC RAD PRODUCTS 48 So. 7th Street Newark, N. J.
January 3
Making Your Set Efficient, by Neal Fitzalan. How to Care for Batteries. What grid bias voltage to use for all tubes shown in table form, for inclusion of C batteries, with given plate voltages.

Bulletin on the Superdyne, by Brewater Lee. Circuit diagram of a 2-tube Superdyne (no audio) and plans for efficient panel layout and assembly plan.

Curves for the Anderson Superdyne, by J. E. Anderson, Consulting Engineer. Wavelength plotted against dial settings.

How to Add a Stage of Tuned RF to a Regenerative Set by Lieut. P. V. O'Rourke. No variable condenser is used; only three blocks away is broadcasting.

New list of names and addresses of those desiring radio literature from manufacturers and dealers; new members of the American Broadcasters Association.

RADIO WORLD'S survey to determine why radio, the world's greatest invention, ranks only third in the home constructors in Radio University desire.

How to Synchronize Your Crystal Detector for the Novice, by Abner J. Gelula. (The Radio Primer).

Hookups Worth Loss of Sleep. (1) The 3-Circuit Tuner You Can Log, 3 tubes, including 2 audio; the circuit described by Herman Bernard in the Nov. 8 issue; (2) The 1-Tube Reflected Supercycle, crystal detector, the circuit described by Herman Bernard in the Dec. 6 issue; (3) Wiring diagram of two stages of AF with C battery and grid leak wiring. (Part II of a 3-part article.)

Why the Rheostat Should Go in the Negative Lead, by Lieut. Peter V. O'Rourke. Correct placement of audio transformers of bus, etc., discussed for the novice (The Radio Primer).

A Low-Cost Circuit of Great Mechanical Strength, by Herbert E. Hayden. Illustrated with ten photographs by the author. Cardboard is used as tubing and 85 per cent of the form cut away.

Vintars Worth Loss of Sleep, (4) The 2-Tube Reflex, two radio, two audio, crystal detector, as described in the Nov. 15 issue; (5), the 3-Circuit tuner, with Ticker Feedback, 1 tube.


New list of names and addresses of readers desiring radio literature from manufacturers and dealers.

Index to RADIO WORLD, issues of Oct. 4 to Dec. 27, inclusive.

January 17
A $1.5-Tube DX Set, by Abner J. Gelula. The Coils for RADIO WORLD'S 1925 Model 4-tube DX Superdyne, by Herman Bernard. Graph showing wavelength plotted against dial settings of the only variable condenser used in the set; shows tuning from 180 meters to 555 meters, or 26 meters in excess of the wavelength band. Picture diagram of the circuit shows all wiring; also complete diagrams of filament, C battery and grid leak wiring.

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Dealers and Squatters Blamed for Radio Retardation, Letter says "What's the Matter With Radio?" as part of RADIO WORLD's readers discussing.

Index to RADIO WORLD, issues of Oct. 4 to Dec. 27, inclusive.

January 24
New list of names and addresses of dealers desiring radio literature from manufacturers and dealers; other names and addresses in Radio University Department, in list of solvers of the weekly puzzles. (Conclusion of 3-part article.)

A 3-Circuit Tuner You Can Log, by Lieut. Peter V. O'Rourke. No variable condenser is used; only three blocks away is broadcasting.

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The Completion of RADIO WORLD'S 1925 Model 4-tube DX Superdyne, by Herman Bernard. Super cycle theory discussed. Index to illustration published with the two previous installments. (Conclusion.)

A Variometer-Tuned Reflex, by Abner J. Gelula. Three tubes. One RF, tube detector, two AF, one reflex.

New list of names and addresses of those desiring radio literature from manufacturers and dealers; other names and addresses in Radio University Department, in list of solvers of the Rebus and new members of A. B. C.

January 31
A Regenerative Neutrodyne, by Abner J. Gelula. Tuned detector plate. Only three controls, as one condenser, uses both RF stages. Five tubes. Two RF, detector and two AF. Wiring diagrams.

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P. V. F RAN T ZIUS

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A Transcontinental 2-Tube Reflex. One RF, tube
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earhearing only. Special coils, home-made, with
static winding.
Supercoupler Trouble-Shooting, by Herman Ber-
nard. Two RF, tube detector and two re-
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to solve in this difficult circuit.
A Low-Loss DX Inductance, by Herbert E.
Hayden. How to make a basket-weave coil fully
described. Template for drilling; also nine pho-
tographs by the author.
A Low-Loss Cutout Coil
Superdyne Trouble-Shooting, by Herman Ber-
ard. Two RF, tube detector and two re-
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Dept. and elsewhere.
NEUTRODYNE
A Regenerative Neutrodyne, by Abner J. Gelula.
Tuned detector plate. Only three controls, as one
condenser tunes both RF stages. Five tubes.
A Low-Loss Cutout Coil
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Two RF, detector and two AF. Wiring shown
in diagram, also in picture diagram.
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and panel and assembly layout. Part I, Jan. 10.
The Coils for Radio World’s 1925 Model 4-Tube
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ing wavelength plotted against dial settings of the
only variable condenser used in the set; shows
tuning from 180 meters to 535 meters, or 36 meters
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Valuable pointers regarding the 1925 Model
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Two RF, detector and two AF. Wiring shown
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Two RF, detector and two AF. Wiring shown
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SUPERDYNE
RADIO WORLD’S 1925 Model 4-Tube DX Su-
perdyne, by Herman Bernard. Circuit diagram
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Part II, Jan. 17.
The Completion of RADIO WORLD’S 1925 Model
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Valuable pointers regarding the 1925 Model
Superdynes, Jan. 24.
NEUTRODYNE
A Regenerative Neutrodyne, by Abner J. Gelula.
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WASHINGTON.

THE Department of Commerce has finally decided on a scheme for the allocation of wavelengths to class B broadcasting stations which, it is hoped, will provide the maximum of channels with minimum interference. Under the new allocation no general rule has been followed. The allocation of wavelength to each station is based almost entirely on tests which tend to show that satisfactory service will result. Under the plan the wavelengths of many of the class B stations are changed. The new plan does not provide new channels. There are 45 channels under the new plan. With each station dividing time two ways, 94 stations can be accommodated. More than 105 stations are in sight.

"The class B band extends from 280 to 945," said Chief Radio Supervisor Terrell. "We cannot go above 545 because of interference from code. We can place only so many stations between 280 and 288. Therefore we must go down." The difficulty about going down is that many receivers will not tune in wavelengths below 250 meters. About 400 class A stations must be crowded in between 280 and 288 degrees. If the class B stations could be placed as low as 235 and the class A below that, the solution of the problem would be easy.

"We have no idea what we are going to do," says Mr. Terrell. "The only course now is to do the best we can with what channels we have and hope for less stations or more channels in the future."

[See page 27 for list of Class B stations, with new wavelengths, where changes have been made.]

REPLACES AERIAL OR LOOP

The Antennaphone has registered a hit in the favor of fans who know what to say. Many say it is a boon in wintry weather, saving them the trouble and cost for new aerials. Others report improved reception and greater freedom from static and interference from squelching sets. The Antennaphone is placed under the telephone and not in any way attached to it. It acts as a receiver and is often more efficient than the telephone itself.

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HAYE YOU TRIED that Variometer tuned receiver described in Jan. 24 issue of RADIO WORLD? To introduce the Super Mahogany long-lead justifiable bearing variometer, we are offering them for a limited period to the public at distributers' prices, namely, $1.90 each postpaid, or three or four times.

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NEWARK, N. J.
Radio Doll Makes Debut; Even Broadcasts

The Radio Doll has finally arrived! The brainchild of Miss Beatrice Louise Henry of New York City (the "Lady Edison"), this toy is indeed 99 per cent a utilitarian product. According to Ohm's law, this means a total resistance of 1 billionth of a micro-ohm to the destructive noise so dear to childhood. The doll has a loud-speaking unit in her head, like many a human being; a bell horn in her chest and a real set in back. A program picked up by the Radio Doll from another station was rebroadcast by WGBS, Gimbel Bros. Department Store, New York City. This was considered the perfect link-up.

Radio World well liked by noted inventor

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