The Tribune Radio—Comment and Advice—*By Jack Binns*

Weird Noises In Receiver Unnecessary

Catcalls, Squealing, Frying and Other Noises Can Be Removed if Small Details Are Carefully Observed

Due to Simple Causes

One Is Trying to Make Horn on Phone a Loud Speaker When Volume Isn't There

When some radio fans try to operate a loud speaker with their receiving set, the result sounds like a ton of coal being dropped down a chute into the cellar. This is varied in many instances by a series of noises that in many respects correspond to the nightly concerts of the feline tribe. Both of these conditions are due to perfectly well-defined causes and can be eliminated, or at least so completely modified as to make them negligible.

In the first place they are chiefly due to the fact that some fans really believe a tin horn attached to a telephone receiver makes a loud speaker and that it amplifies sound. This is just the same as pilots of aircraft who imagine they can hold the machine up in the air with their hands after the engine has died out. You cannot get loud-speaking results with a tin horn alone, any more than you can hold an airplane up in the air with your hands.

It is quite possible, of course, to utilize a tin horn attached to a telephone receiver for the purpose of getting loud-speaking results, but the volume must be there in the telephone receiver before this can be done. The horn merely directs the volume of sound forward in the same manner that a megaphone attached to the mouth directs the speech in one direction and enables the sound waves to travel further in one particular direction.

Caused by Too Much Current

I have given this explanation in order to prepare the way and show what is the cause of the "frying" and "cat calls" in the so-called "loud-speaker." It is caused by the fact that the operator, in order to get results out of his make-shift apparatus, puts too much current on the vacuum tubes in his sets, and the result is that they get real angry and growl and howl. That is one of the primary causes, as I have gathered from a great deal of the correspondence received from radio fans. Another cause is in the design of the apparatus itself, and this applies particularly to sets that have been assembled or constructed by novices themselves.

When using the vacuum tube detector alone these noises will not be nearly so apparent, particularly if the vacuum tube is not in a regenerative circuit. It is when we come to the question of amplification that this comes into place. It must be understood that with audio-frequency amplification we are increasing the volume of frequencies that correspond with those audible to the human ear. That is, frequencies which do not range higher than 5,000 vibrations a second. Now the transformers that are used between each of the amplifying vacuum tubes are designed especially to increase or amplify frequency bands that correspond to the rapidity of vibrations which are audible. Therefore, if there is any noise from the detector from the first amplifying bulb which comes within this range, it will be amplified and reproduced in the telephone receivers.

In this connection it is imperative that all wires which connect the various pieces of apparatus together should be as short as possible. This is particularly true of the leads to the grids of the amplifying tubes.

Connections Must Be Tight

Another very important thing is the connections themselves. They must be absolutely tight and should be soldered together wherever possible. If there is a loose connection anywhere in the amplifying set, it means that the loose wire will vibrate. This vibration can be caused by any jarring, such as street traffic or any one of the hundred and one things about the house, and every time a loose wire vibrates it temporarily disconnects the set and connects it up again, interrupting the steady function of the circuit and causing a noise to be reproduced in the telephone receivers, and since this has passed through the amplifiers it will be increased in volume with every stage of amplification.

You have undoubtedly heard the phrase "tube noises." This can be caused by a poor tube or by a tube that does not sit tightly in its socket or makes an imperfect connection on the base of the socket. This should be watched very carefully. In fact, it may very often occur that an improvement in the reception can be obtained by switching the amplifier tubes around.

For detector purposes a soft tube is invariably recommended. In this case a great deal of attention must be paid to the amount of current in the plate circuit, as a soft tube is what is known as a "critical tube." This means that just tube will vary, and consequently require a different amount of voltage in the plate circuit, so that it is very necessary to have a "B" battery for the detector tube that is variable and will permit you to take off any amount of voltage. In no case should this voltage be more than a standard 22½ volts.

Difference Between Tubes

While a soft tube cannot be used as an amplifier, a hard tube can be used as a detector with very steady results. The difference between the "hard" and the "soft" tube is the quality of the vacuum inside of the glass bulb.

In order to get volume sufficiently large enough to operate an improvised loud-speaker, such as a tin horn attached to one end of the telephone receivers, it will be better to use 5-watt power tubes as amplifiers, instead of the standard amplifying tubes. In this case, as much as 150 volts can be placed on the plate circuits of the 5-watt tubes, but before using such tubes, it is very necessary to determine whether the audio-frequency transformer will stand the voltage that will be applied to them. With such tubes, in the majority of cases, it will be quite possible to obtain sufficient volume to operate a loud-speaker such as you describe above.

Some of the "frying" noises caused in the loud speaker originated from the "B" batteries. These should be watched very carefully, and if they give any trouble should be replaced. Some of this trouble can be eliminated by placing a fixed condenser across the "B" battery. Such a condenser can be purchased in a flat, metal container, and its capacity should be either 1 or 2 mfds.

First Aid for Radio Enthusiasts

Constructing a Bank-Wound Coil for Long Waves: Continuous Wave Transmitter Better Than Spark: Using Regeneration With Radio Amplification

Making a Bank-Wound Coil

Question—1. Is it desirable to have the aerial, lead-in and ground wire equal in wave length to that of the sending station, and if so, why? 2. What is the particular formula for obtaining the natural wave length of an aerial? 3. To hear WVP (who is sending on 1,450 meters with a regenerative receiver is it necessary to use a loading coil in series with the tickler coil as well as a loading coil in the primary winding? 4. Can you supply me with information as to making a bank-wound tuner up to 2,500 meters?—T. J. L.

Answer—1. It is not necessary to have an aerial equal in length to one complete wave length. Such an aerial is known as the Beverage antenna, and is used for the purpose of eliminating static that originates in all directions other than that of the station it is desired to listen to. This type of aerial is limited in its application because of the great length of the wire necessitated. It was described in these columns solely as a matter of interest and as information to those radio fans who had the space at their disposal to experiment with. 2. A practical method of determining the natural wave length of the aerial is to measure the complete length of the aerial lead-in and ground wire in feet, multiply it by four and divide by three, and the answer will be the approximate wave length of the aerial in meters. For instance: an aerial 100 feet long complete would have a natural wave length of 133 meters. 3. In order to listen to WVP it will not only be necessary to load up the tickler, as well as the primary coil, but you will also have to place the two loading coils in an inductive relationship to each other. 4. It is a very difficult matter to wind bank-wound coils. For such a coil, having a wave length range up to 2,600 meters, it will be necessary to take a tube 3½ inches in diameter and 4½ inches long and wind it with No. 24 S. S. C. wire in three banks. You will have to take at least eight taps from this coil. It will be necessary to have a special winding device, consisting of two end pieces for your tube, with a shaft and a handle. Practice alone can make perfect this type of winding. First of all wind three complete turns around the tube, keeping the wire as tight as possible. At the end of the third turn bring the wire up between the second and third turns and wind once around. Then another turn between the first and second. At the end of the fifth turn jump up between the fourth and fifth and wind one turn. The result should be a pyramid of three turns, then two turns and then one. When the sixth turn has been completed bring the wire down onto the tube and put on the seventh turn, the eighth on the seventh, and the ninth on the eighth. Jump to the tube again and repeat the process. To take off taps when the tapping point is reached bend the wire sharply to one side and wind a single turn around the part of the coil already wound. Bring the end of that turn back to where it was started and continue the winding. After the coil has been completed and varnished cut the tapping turns and take off the taps. This method keeps the winding tight and the taps out of the way. The object of winding a coil in this way is to eliminate or reduce to a minimum the capacity effect between the windings of the coil itself.

What Is a C Battery?

Question—There has been some talk of introducing a flash light cell into the grid circuit. How is this done and what is the result?—A. C.

Answer—The flash light cell in the grid circuit is not at all necessary. Such a battery is known technically as the "C" battery, and it is used in some cases to give a negative bias to the detector. It takes the place of the more elaborate circuit used in the extremely sensitive sets. It will not be necessary with your set.

What Distance Will Set Receive?

Question—Please tell me the type and probable cost of a radio telephone set that would satisfactorily receive six or seven hundred miles, to be installed in the country.—A. P.

Answer—The distance at which you can receive from a station depends, not upon the receiving apparatus primarily, but upon the power of the transmitting station. Of course, there are receivers that are more sensitive than others, but they, too, depend upon the transmitting station. The best type of receiving equipment that you can use at the present time is a regenerative receiver with a vacuum tube detector and two stages of audio-frequency amplification, which will cost you, complete, in the neighborhood of $250. No one, of course, can guarantee the distance any set will receive from.

Interference From A. C. Lines

Question—1. I have an indoor aerial, consisting of one wire 25 feet long across the hall, through the doorway and then across the hall. I hear WJZ well, but the speeches are not distinctive. Will the addition of several 15-foot wires make reception clearer? 2. I cannot use the outdoor aerial. 3. The aerial I have is about 200 feet from the railroad power line carrying a 25-cycle A. C. of 40 amperes at pressures of 11,000 and 22,000 volts. I am often bothered by a loud hum and also a howl during the reception of signals. Do you think the railway wires cause it, and if not, what would cause this? 4. I see no variable condenser on my set. Are there any fixed ones used on the Aerola Senior, and, if so, where are they placed in the circuit? 5. Would a variable condenser in my antenna lead increase the volume of messages in the phones or sharpen my tuning? 6. A 1½-volt dry battery is used for heating the filament in the Aerotron W. D. 11 vacuum tube. About how long will the "A" battery last, using it for two hours each night? 7. How long will my 22½-volt "B" battery last with the same service? 8. What kind of tuning inductance is used on this set, a variometer or variocoupler? 9. I note no variable grid leak with this set. Is a fixed one used?—A. E. S. Jr.

Answer—Your results might be improved by increasing the length of your present aerial by means of stretching it still further about the house. The addition of several 35-foot parallel wires will not help you any. I would suggest increasing the length of your present one-wire aerial to about 100 feet, or 150 feet, if you can do so. The loud hum that you hear is induction from the power lines. The howl is probably caused by too much tickler coupling in your set, giving too much regeneration. I would suggest that you reduce the amount of inductance in the tickler circuit by adjusting the tickler handle. 3. I do not know the exact wiring diagram of this particular set, but I am under the impression that it consists of a variable condenser in series with the variometer. 4. A variable condenser in the aerial would not increase the volume of your signals, but might aid in tuning. If, however, there is a variable condenser inside your set, the addition of another variable condenser would reduce the amount of capacity in the aerial circuit by one-half, since the two condensers would be in series with each other. The better way probably would be to place a variable condenser across the instrument between the aerial and ground connections. 5. The "A" battery on this tube should last about as long as the ordinary average six-volt storage battery does with the regular standard vacuum tubes. 6. Your "B" battery will last between 700 and 1,000 hours. 7. I am under the impression that a variometer is used. 8. Practically all modern sets use a fixed grid leak and grid condenser, and this one is no exception to them.

On Transmitting Apparatus

Question—With which would I be able to cover the most distance—a 1½ K. W. spark or a 10-watt C. W. transmitter with 500 volts A. C.? How far could I get using 50 watts? Would a lead-in of 25 feet along the side of the house be too long for either of such transmitters? Aerial, 75 feet long with 25 feet lead to ground switch. What kind of wire should I use for it and how should it be insulated?—T. Van L.

Answer—It is impossible to predict what distances you could obtain through any particular transmitter, but continuous wave transmission is so far superior to spark transmission that I have absolutely no hesitation in suggesting that you use C. W. In fact, I think you could do just as well with a 10-watt C. W. transmitter as you could with a ½ K. W. spark. Of course, a 20-watt set would be much better than a 10. I do not think that a 25-foot lead-in would be too long with a 75-foot aerial, but the best way to determine this will be to calibrate the wave length of your entire radiating circuit with a wave meter and make sure that you do not exceed the legal 200 meters. For your aerial I would suggest your using No. 14 copper clad. The lead-in can be of the same gauge, as can also the ground, provided it is copper clad. Any of the standard transmitting insulators designed to carry the amount of power that you are putting into the aerial will do for insulation purposes.

How to Use Radio Frequency

Question—1. In using radio frequency amplification does the tickler plate variometer come after the plate of the last stage of amplification or after the detector? 2. How could I make my loop to receive 360 meters? What capacity variable condenser should I use? With two-stage radio frequency amplifier detector and two-stage audio frequency amplifier should I be able to get WJZ or WGY loud enough to operate a loud speaker? I am located near Danbury, Conn. 3. Can the same A and B batteries be used for both radio and audio-frequency amplification? Can 110 volts D. C. be used on the plate circuit of the amplifier tubes if supplied by a generator? 4. I would like to tell you also, as a matter of interest, that on arriving at my home in Danbury I hook with the phones in series, but with the two pairs in parallel we hear better than with either pair alone.—B. C.

Answer—(1) The tickler or plate variometer, whichever is used, will, in this case, come after the detector tube, as in the regular regenerative set. It only can be operated, however, by using a separate potentiometer across the "A" battery. (2) A loop aerial for this purpose should be constructed with a four foot square loop containing six turns of No. 18 wire, spaced one-half inch apart and so arranged that taps can be taken off almost anywhere on the loop. Use a .005 mfd. condenser across the terminals of this loop. (3) Radio frequency amplification on short waves is such a problematical proposition that I should not like to predict what results could be obtained with it. However, I do not see any reason why you should not be able to obtain results at your distance from Newark with such a set as you have described. (4) The same batteries can be used for all the tubes, with the exception, of course, that you must not use more than 22½ volts on the detector tube. If you use the 110 D. C. line for the plate circuit of your amplifying tube, you will have to watch out for a blue glow in your bulbs. I would not advise you to use this current, unless its installation were supervised by a thoroughly competent radio experimenter. (5) In connection with your experience with the telephone receivers, you have undoubtedly got two sets of receivers that are exactly equal in their resistance, which is a very unusual situation. In this case, of course, placing the phones in parallel will be much better. The chances of getting two sets of phones with equal resistance are about one in a million, and it is for that reason that every one advises placing them in series with each other. Otherwise, the receivers with the least resistances would get all of the current and the high resistance phones would not operate satisfactorily.

Lightning Arrester Regulations

Question—1. Does New Jersey require a lightning switch or an arrester, and if so, how far should it be insulated from the house? 2. What sized wire should be used for the outside ground?—C. S.

Answer—The proposed new regulations formulated by the National Board of Fire Underwriters covering receiving sets will best suit your purpose. In this case it will not be necessary to use the switch, but the lightning arrester is compulsory. With receiving equipment this arrester can be placed inside or outside of the house. Under the circumstances, therefore, an outside ground is not absolutely necessary, but you can use it as an additional protection if you so desire. In this case you should use either No. 14 copper wire or No. 17 copper clad wire, according to the proposed regulations.

Variocoupler Taps Explained

Question—I am having trouble with "fading" of distant stations. I think I could improve my technique if I knew the exact uses of the 5 taps on the variocoupler and 5 taps on the variometer. I have a new "A" and "P" tube. I find it is no good as a detector. Can I use it as an amplifier?—W. C. H.

Answer—There is no way that you can overcome "fading" of distant signals. That is a condition that has always been with us. No remedy has been found for it, and I do not see how one can be when it is taken into consideration that the stations which "fade" are being received far greater than their normal operating distance at the time they do their "fading." I do not quite understand what you mean by "five taps on variocoupler" and "five taps on variometer." What I imagine is that the first five taps are on the primary of your variocoupler and the other five taps are on the tickler coil. If this is the case the five taps on the variocoupler are for tuning the aerial circuit into resonance with the incoming wave from the station you desire to listen to, and the other five taps on the tickler, if I am right in my assumption, are for the purpose of regulating the amount of feed-back from the vacuum tube detector, which governs the regeneration. It will be all right to use the A and P tube as an amplifier.

Disconnection in Set

Question—Yesterday evening when I went to listen in my set seemed absolutely "dead." There was even a sound of the tubes oscillating, although they all light up O. K. and the batteries are not at all run down. The night before this the set was working well. I am at a loss as to where to look for trouble. What would be the best thing for me to do?—A. E. S.

Answer—Unquestionably there is disconnection somewhere in your set. It is probably in the plate side of your tubes. What I would suggest your doing is to try first with the detector to see whether you get any results, and if not that will indicate that the trouble lies with that particular tube. I would suggest that you go over your connections very carefully to see that they are all tight and that there is no break anywhere. That is the only thing that I can think of that is causing your trouble.

Mysterious C. W. Signals

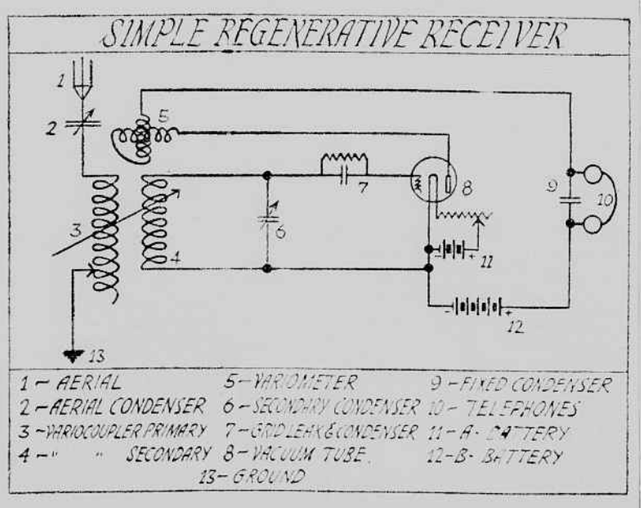
Question—On the Bell system telephone circuit in this locality I hear very distinctly signals on continuous waves when certain lines are in use. My radio set is located about ten feet from the telephone line entering the house, and I have only honeycomb secondary coil out of the circuit and my aerial wire disconnected with a two-step amplifier I can hear continuous wave stations very plainly. Are these high power transmitting stations? I could not seem to copy anything but code messages, but received often LN and NY. Then I would hear a station sending very fast, which I could not attempt to read. Would you kindly advise me what stations these might be and what wavelength they transmit on, so I may obtain the proper sized coils?—J. H. L.

Answer—Apparently, from your description and the manner in which you received the signals, these must be ordinary telegraph stations using the wired wireless system over some existing land line wires. In other words, they are working multiplex telegraph by means of placing carrier waves of different frequencies upon the land line wires. I do not know of any wireless stations with call letters of LN and NY, and for that reason feel sure that they must be regular telegraph stations. Under the circumstances, it will be impossible for me to tell you just which stations they are or what wavelength they are using.

Let The Tribune Help You Solve Your Radio Problems

IF YOU are experiencing difficulty with your receiving set write to Jack Binns, the Tribune Radio, 154 Nassau Street, New York City. In your letter state what your trouble is, what kind of apparatus you are using and any other facts you think necessary. If you desire to install a receiving set and need advice write to the Tribune Radio, stating whether you live in an apartment or a private house, and if outside the city your distance from New York. Questions of general interest will be answered in this department every Sunday. Requests for personal answers should be accompanied by a stamped and self-addressed envelope.

The Radio Primer



The above diagram shows a short-wave regenerative receiver in one of its simplest forms. It is very similar to the type of receiver used by Paul Godley in the trans-Atlantic amateur radio tests wherein he received twenty-seven American amateurs at his temporary station in Scotland. Of course in his case the detector circuit was augmented by several stages of radio frequency, super-heterodyned, and two stages of audio-frequency amplification.

This particular circuit employs a vario-coupler and a variometer in the plate circuit. The variometer is placed in an inductive relationship to the vario-coupler.

Close tuning is obtained by the condensers in the aerial and secondary circuits, otherwise the circuit is conventional. One or two stages of audio-frequency amplification can be added to the point where the telephone receivers are connected.

Daily Radio Program

WJZ Newark (360 meters)

3 p. m.—Radio chapel services, sermon by Rev. Paul Scherer; sacred music by the church quartet from the Lutheran Church of the Holy Trinity, New York.

4 p. m.—"What the People Want to Read," by Mrs. Honore Willsie, author of "The Heart of the Desert."

4:30 p. m.—Recital by Mabelle Blume, dramatic soprano; May Helen Blume, pianiste. "When Love is Kind" (Old English), "Minnetonka," "The Danza," "Musica Proibita" (Old Italian), "Habanira From Carmen," "Chantez, riez, dormez," "Jewel Song From Faust," "The Thrill o' You," "When You're Away," "My Saddie," "Aomansa From Daughter of the Regiment" and "Mighty Lak' a Rose."

5:30 p. m.—Literary vespers, "The Spirit of Service," by Edgar White Burrill; the message is woven around the following poems, prose and plays: "On the Necessity for Labor and Love," John Ruskin; "Sonnet on His Blindness," John Milton; "Ode to the West Wind," Percy Bysshe Shelly; "Chanteclerc," Edmond Rostrand, and "The Blades of Grass," Stephen Crane.

6:30 p. m.—"The Bubble Books That Sing," by Ralph Mayhew.

6:45 p. m.—"Sandman Stories," told by Kasper Seidel.

7 p. m.—"Japan," by Julian Street.

7:30 p. m.—"Check Forgers," by William Flynn.

8 p.m. "A Trip Through Brazil with Theodore Roosevelt," by Anthony Fiala, explorer.

8:30 p. m.—Carlos Valderanna, composer, pianist and lecturer, will give a demonstration of Inca music.

9:30 p. m.—Recital by Alfred Herbermann, violinst; Mrs. Earl Feininger, accompanist. Program: "Cavatina," waltz in A major, Hockstein-Brahms; "Souvenir," "Hindoo Chant," "Berceuse." Miss Lucille Banner, coloratura soprano. Program: "Ah Jors'e liu," "Sempre libra deggio," "April," "Down in the Forest," "Lo, hear the Lark," Mrs. Karl Deininger, accompanist.

WAAT, Jersey City, 200 Meters

6:57 p. m.—Tuning test.

7 p. m.—Radio chapel Vesper Service, conducted by the Rev. Leon Jermain Brace, B. D., pastor Summit Avenue Baptist Church, Jersey City, assisted by Miss Edna Fletcher, organist; Miss Shelford, soprano, and William aof Zwald, barytone.

7:30 p. m.—Announcements.

7:35 p. m.—Recital by Peter Schoojans, Belgian tenor, and George Ponzoni, sixteen-year-old pianist. Tenor solos (a) aria from "Pescatori di Perle"; (b) "Elegy." Piano solos, "Cachoucha Caprice," "Minute Waltz," and other tenor and piano numbers to be announced.

3:00 p. m.—Radio chapel, conducted by the Rev. George E. Mayer, industrial secretary of the Y. M. C. A.

8:00 p. m.—Church services by Dr. I. F. Hoskins, president of the Associated Bible Students' Class.

WGI Medford Hillside, Mass. (360 meters)

3:30 p. m.—Concert by courtesy of St. Mary's Church, Waltham. John E. Dyer, cornet: "Palms," "The Lost Chord," "Honeysuckle Polka"; Philip DeCoster, xylophone: "The Rosary," "The Baccarole," "Medley of Favorite Airs"; Dorothy McCarthy, piano: "Alice," "Prelude in C Sharp Minor"; Dorothy Greeley, soprano: "Rose in the Bud," "Carry Me Back to Ole Virginny."

8 p. m.—Radio church service—Rev. Maurice L. Bullock, pastor Trinity M. E. Church, West Medford. "A Nation's Memorial Day." Assisted by the Church Quartet, accompanied by Grace Bassett.

8:30 p. m.—Robert F. Fitz, tenor: "There Is No Death," "Mother, My Dear," "To the Sun"; Norman S. Dillingham, accompanist.

8:45 p. m.—J. Arthur Whitcomb, Boston, cornet soloist, assisted by Marguerite L. Barnes: "Largo," "Inflamatus" from "Stabat Matre."

KDKA, Pittsburgh (369 meters)

9:45 a. m.—Services of the Point Breeze Presbyterian Church, Fifth and Penn avenues, Pittsburgh, Pa., P. H. Barker, minister.

1:45 p. m.—Children's Bible story, wards."

2 p. m.—Radio Chapel at Station KDKA, conducted by the Rev. L. S. Wilkinson, pastor Homewood Avenue Methodist Episcopal Church.

6:30 p. m.—Services of the Calvary Episcopal Church, Pittsburgh, Pa., Rev. E. J. Van Etten, rector; Harvey B. Gaul, organist and director.

KWY, Chicago (360 meters)

3:30 p. m.—Radio Chapel service conducted by William E. Barton, D. L., L.L. D., minister of the First Congregational Church of Oak Park. Music under the direction of Edwin Stanton Seder. Dr. Barton will preach on the subject, "The Divinity of Service."

President Will Talk to Whole Land by Radio

His Speech at Arlington on Tuesday Afternoon Will Be Sent by Navy

President Harding will speak on Memorial Day through the naval broadcasting system when he delivers his address at Arlington Cemetery. Incidental to the ceremony, this speech will officially open the navy's dual broadcasting system, using two different wave lengths simultaneously.

Ordinary telephone wires have been strung from the Arlington Amphitheater, where a microphone will be placed for the President's use and the connections made to the Arlington radio station, near at hand, and to the Anacostia station, just across the Potomac. Arlington, NAA, will transmit the speech on 2,650 meters and Anacostia, NOF, on a wave length of 412, will supply the local stations on the popular lengths.

Stations all over the country that are equipped to retransmit time signals from Arlington will step the President's speech down to the regular 360 meters so that all may hear. This is done by receiving the Arlington station on a separate receiving aerial and instrument and placing the amplifying horn of this set in front of a microphone which is connected to the 360-meter transmitter and sending out the original speech with all its characteristic tone.

The dual broadcasting arrangement which has just been perfected by the Naval Communication Service will carry the messages to the two stations near Washington. NOF, the small station, will supply the service for the local precincts and Arlington will be heard on the Pacific Coast and far out on the Atlantic.

Steam Radiator as Aerial

The latest scheme for receiving radio messages involves the use of a good steam radiator, or a hot water radiator for that matter from a report reach in gthe radio section of the army. This systemfi said to have been evolved and tested out satisfactorily by a former electrical engineer of the Signal Corps, has evidently a market value, as the inventor has sold out his circuits and patents to a big corporation for a large sum of money.

British Isles Surrender to Radio "Flu"

Government, Through the Postoffice Department, Will Supervise Broadcasting of Entertainment

Isles Split Into 8 Areas

Each Will Have Broadcast Station Operating on Separate Wave Length

By Warre B. Wells

From The Tribune's European Bureau

LONDON, May 12.—Within two or three weeks from now England should be a land of radio. Even though broadcasting has not yet begun, orders for receiving sets already are pouring into the manufacturers by the thousand. This country has been late in starting, but now that it has taken the plunge it looks as though it would pass without any transitional period into a nation-wide use of radio.

It is conceded here that England is fortunate in having the experience of the United States on which to base its radio policy. From the outset wise regulation will enable this country to avoid the "jamming" due to indiscriminate broadcasting, which is only now being taken in hand across the Atlantic. Aside from this, in the opinion of Godfrey Isaacs, managing director of the Marconi Company, which, with its experience and equipment, naturally will play a big part in developing the new possibilities opened up by the Postmaster General's scheme, this country will start with the advantage of a better machine than that commonly used in the United States.

Country Divided Into Eight Areas

Under the government's scheme, this country is to be divided into areas centering upon London, Cardiff, Plymouth, Birmingham, Manchester and Newcastle, with two more in Scotland—eight areas in all. In each of these areas one or more broadcasting stations will be allowed. The broadcasting stations are to be under the control of the manufacturers of wireless sets, of whom there are less than half a dozen in the country. They are to meet in a conference at the postoffice shortly to work out the details.

The general idea underlying the government's scheme is that, if the system is to work properly, there must be a scientific disposition of the transmitters, each with its due wavelength for its appropriate radius, so that there is no interference. The position is, of course, simplified here by the very small number of companies in the radio business. The postoffice will have them all co-operate, so that there shall be no monopoly and yet no such mutual interference as would destroy efficient working.

London Station to be First

From the various broadcasting centers, of which the London one will probably be the first to begin operating within two or three weeks, daily programs of music, speeches and news of various kinds will be sent out between 5 and 11 every evening, and without time limit on Sundays. The radio services will not at present carry market quotations, as the prescribed hours practically lie outside the scope of Stock Exchange activities; these hours, however, have been chosen as the most suitable for broadcasting.

Due to the fact that there is not to be found here the same dispersed rural population as exists in the United States or Canada, it is doubtful whether radio here will ever enjoy quite the same popularity. But its use here certainly will be encouraged by its cheapness. In the first place the area arrangement will tend to keep down its cost. Had the country not been mapped out into eight areas, each of them with at least one powerful broadcasting station, radio might have been cheap in London and dear in Edinburgh. As it is, in this country of short distances no receiver will be too far away. On the other hand, it will be to the interest of each company operating a station to do so efficiently and to use powerful apparatus; otherwise the government may withdraw its license.

Leasing Plan Abandoned

There is another reason why radio will be cheap in this country. It is the fact that the people who own transmitting stations will also be selling receiving sets. Consequently the better programs they can promise, the more people will want to buy their equipment. The Marconi Company—and the others probably will follow its example—has now abandoned its original idea of leasing receiving sets instead of selling them outright. It will now consider the question of renting only in the event of some much more expensive and delicate instrument being developed.

There will be three kinds of receiving sets, of which the cheapest type will be sold for about $27. This will have a radius of about twenty-five to thirty miles—quite adequate for most purposes in this country. For this inclusive price a purchaser will obtain the machine with the entire equipment complete, and will also have the full benefit of the broadcasting station activities. The next will be a medium quality machine with a radius of about fifty miles, and there will be a superior machine with a radius of about 100 miles. Prices for these will vary according to style and equipment. The loud-voice fitment will be sold at a comparatively nominal price, and can be attached to any of the three types of set.

World's Distance Wedding

"There is the case of Wakeman versus Ebert, which probably broke the world's record for long distance marriages—long distance in the sense that when the event took place, they were separated by a few odd thousand miles and their "yes I do's" were carried to each other across this vast stretch by means of the etheric waves of radio.

"This first long range marriage by radio took place in May, 1920, the girl, Miss Maybelle Ebert, being in Detroit, and the boy, John R. Wakeman, somewhere on the Pacific Ocean on one of Uncle Sam's battle wagons, the cruiser Birmingham."—Radio Broadcast.

Atlantic and Pacific Covered By Big U. S. Radio Stations

In 1899, the year following the Spanish-American War, Marconi brought to this country from Italy sets of his wonderful new wireless apparatus, the immediate purpose being to use them in reporting the international yacht races that year. The Navy Department appointed a commission to observe and report on the working of the system. Following the report of this body, the navy placed the battleship Massachusetts, the armored cruiser New York and the torpedo boat Porter at the disposal of Marconi for further experiments. A shore station was established near New York, the first in America. The three vessels were the first of Uncle Sam's navy to equipped and thus the beginning of the navy radio service.

The growth and development of radio has been remarkable. No part of the Atlantic or Pacific ocean is too far away to be out of reach of a radiogram from an American naval shore station. In fact, during the World War it was possible for Washington to keep in constant communication with its forces abroad through radio from the powerful New Brunswick station, equipped with the new Alexanderson high frequency alternator. America's terms for the armistice were sent to General Pershing through this station, and President Wilson, while at the Peace Conference, was able to keep in constant communication with Washington by the same means.

Loop Aerial for Autos Made Upon a Parasol

Engineer Constructs Compact, Collapsible Aerial on Ribs of Parasol

Many types of portable wireless receiving sets have been devised but in all cases it is necessary to provide a ground to complete the circuit and in most cases it is necessary to stretch an aerial when signals are desired. Neither is necessary in a new parasol receiver just recently perfected by John B. Taylor, consulting engineer of Schenectady.

This parasol outfit is very simple in construction and easy to operate. It is very compact and light. A loop aerial of braided copper wire, which is very flexible, is sewed to the covering of the parasol in parallel lines, resembling braid, near the edge. Either end of this wire leads through eyelets along the main rod to the handle, where a small condenser and crystal detector are attached. By varying the condenser, the set may be tuned for the different sending stations' wave lengths. On this small apparatus on the handle are attached the headphones and all that is necessary to hear the signals or concerts from any station within the range of a crystal receiver is to point the parasol in the direction of the station. It operates much the same as a loop aerial in this respect.

The parasol can be lowered just as easily as any parasol. There is nothing freakish about its appearance and when closed looks just the same as any parasol.

Mr. Taylor has made frequent tests of the device in the vicinity of Schenectady and has been able to hear signals and music broadcasted from WGY, when ten miles away. Evenings while motoring in his car, he raises the parasol in the back seat and can plainly hear the concerts from WGY while riding about the suburban sections of Schenectady.

Ambulance Drivers Listen to Radio While Waiting Calls

To relieve the monotony attendant with ambulance driving, three of the nineteen drivers engaged at Bellevue and Allied Hospitals constructed a radio receiving station. Driver Henry Muller, who has conveyed more than ten thousand patients to the hospital in his twenty years' service; John McGann, of 527 First Avenue, employed at Bellevue for fourteen years, and George Fuchs, who lives at the hospital, pooled their savings to purchase the outfit.

Recently visitors to the hospital observed McGann at the top of a 125-foot smokestack putting the antennae in place. The receiving radius of the Bellevue station includes Boston, Washington, Newark and other points in the East.

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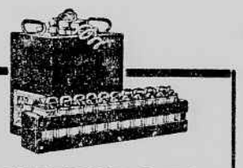

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